DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
3000 MARINE CORPS PENTAGON
WASHINGTON, DC 20350-3000

NAVMC 3500.12B
C 465
22 Jan 2014

NAVMC 3500.12B W/CH 1-2

From: Commandant of the Marine Corps
To: Distribution List

Subj: ENGINEER AND UTILITIES TRAINING AND READINESS MANUAL

Ref: (a) MCO P3500.72A
(b) MCO 1553.3A
(c) MCO 3400.3F
(d) MCO 3500.27B W/Erratum
(e) MCRP 3-0A
(f) MCRP 3-0B
(g) MCO 1553.2B

Encl: (1) Eng & Util T&R Manual

1. Purpose. Per reference (a), this Training and Readiness (T&R) Manual, contained in enclosure (1), establishes training standards, regulations, and policies regarding the training of Marines in the Engineer and Utilities occupational field.

2. Cancellation. NAVMC 3500.12A

3. Scope

a. The Core Capability Mission Essential Task List in this manual is used in Defense Readiness Reporting System (DRRS) for assessment and reporting of unit readiness. Units achieve training readiness for reporting in DRRS by gaining and sustaining proficiency in the training events in this manual at both collective (unit) and individual levels.

b. Per reference (b), commanders will conduct an internal assessment of the unit's ability to execute its mission and develop long-, mid-, and short-range training plans to sustain proficiency and correct deficiencies. Training plans will incorporate these events to standardize training and provide objective assessment of progress toward attaining combat readiness. Commanders will keep records at the unit and individual levels to record training achievements, identify training gaps and document objective assessments of readiness associated with training Marines. Commanders will use reference (c) to incorporate Nuclear, Biological, and Chemical Defense training into training plans and reference (d) to integrate Operational Risk Management. References (e) and (f) provide amplifying information for effective planning and management of training within the unit.

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c. Formal school and training detachment commanders will use references (a) and (g) to ensure programs of instruction meet skill-training requirements established in this manual and provide career-progression training in the events designated for initial training in the formal school environment.

4. Information. Commanding General (CG), Training and Education Command (TECOM) will update this T&R Manual as necessary to provide current and relevant training standards to commanders. All questions pertaining to Marine Corps Ground T&R Program and Unit Training Management should be directed to: CG, TECOM, Marine Air Ground Task Force Training and Education Standards Division (C 465), 1019 Elliot Road, Quantico, Virginia 22134.

5. Command. This manual is applicable to the Marine Corps Total Force.

6. Certification. Reviewed and approved this date.

T. M. MURRAY
By direction

Distribution: 10033194800

DEPARTMENT OF THE NAVY
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1. Purpose. To direct one pen change of one event in chapter 18 of the basic manual.

2. Scope. On page 18-14, strike through initial training setting "FORMAL" and replace with "MOJT".

3. Information. This change reflects the hydraulic excavator operator and maintainer training that is to be taught using on the job training designation vice formal school designation at the Engineer Equipment Instruction Company, Fort Leonard Wood, MO.

4. Filing Instructions. This change transmittal will be filed immediately following the signature page of the basic manual.

T. M. MURRAY
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Subj: ENGINEER AND UTILITIES TRAINING AND READINESS MANUAL

Encl: (1) New page insert to NAVMC 3500.12B

1. Purpose. To direct pen changes, and the modification of one event in chapter 21 of the basic manual.

2. Scope

a. On page 21-3, strike through event "1371-MOBL-1007, Operate a robot".

b. On page 21-5, insert event "1371-MOBL-2035, Operate a robot" at the bottom of the matrix.

c. On page 21-23, strike through event and content of "1371-MOBL-1007".

d. Remove page 21-90 and replace with the enclosed pages.

3. Information. This change is an administrative modification due to incorrect numbering during the staffing process.

4. Filing Instructions. This change transmittal will be filed immediately following the signature page of the basic manual.

T. M. MURRAY
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LOCATOR SHEET

Subj: ENGINEER AND UTILITIES TRAINING AND READINESS MANUAL

Location: _____
(Indicate location(s) of copy(ies) of this manual.)

RECORD OF CHANGES

Log completed change action as indicated.

Change Number	Date of Change	Date Entered	Signature of Person Incorporated Change
1	26JUN14	19NOV14	HQMC ARDE

ENG & UTIL T&R MANUAL

TABLE OF CONTENTS

CHAPTER

1 . . . . . OVERVIEW

2 . . . . . MISSION ESSENTIAL TASKS MATRIX

3 . . . . . CAB COLLECTIVE EVENTS

4 . . . . . CEB COLLECTIVE EVENTS

5 . . . . . CLB COLLECTIVE EVENTS

6 . . . . . ESB COLLECTIVE EVENTS

7 . . . . . MOS 1120 INDIVIDUAL EVENTS

8 . . . . . MOS 1141 INDIVIDUAL EVENTS

9 . . . . . MOS 1142 INDIVIDUAL EVENTS

10. . . . . MOS 1161 INDIVIDUAL EVENTS

11. . . . . MOS 1169 INDIVIDUAL EVENTS

12. . . . . MOS 1171 INDIVIDUAL EVENTS

13. . . . . MOS 1302 INDIVIDUAL EVENTS

14. . . . . MOS 1310 INDIVIDUAL EVENTS

15. . . . . MOS 1316 INDIVIDUAL EVENTS

16. . . . . MOS 1341 INDIVIDUAL EVENTS

17. . . . . MOS 1342 INDIVIDUAL EVENTS

18. . . . . MOS 1345 INDIVIDUAL EVENTS

19. . . . . MOS 1349 INDIVIDUAL EVENTS

20. . . . . MOS 1361 INDIVIDUAL EVENTS

21. . . . . MOS 1371 INDIVIDUAL EVENTS

22. . . . . MOS 1372 INDIVIDUAL EVENTS

23. . . . . MOS 1390 INDIVIDUAL EVENTS

24. . . . . MOS 1391 INDIVIDUAL EVENTS

APPENDICES

A . . . . . ACRONYMS AND ABBREVIATIONS

B . . . . . TERMS AND DEFINITIONS

C . . . . . CLASS V(W) REQUIREMENTS

ENG & UTIL T&R MANUAL

CHAPTER 1

OVERVIEW

	PARAGRAPH	PAGE
INTRODUCTION.	1000	1-2
UNIT TRAINING	1001	1-2
UNIT TRAINING MANAGEMENT.	1002	1-3
SUSTAINMENT AND EVALUATION OF TRAINING.	1003	1-3
ORGANIZATION.	1004	1-4
T&R EVENT CODING.	1005	1-4
COMBAT READINESS PERCENTAGE (CRP)	1006	1-6
CRP CALCULATION	1007	1-7
T&R EVENT COMPOSITION	1008	1-7
CHEMICAL BIOLOGICAL RADIOLOGICAL NUCLEAR (CBRN) TRAINING. . .	1009	1-12
NIGHT TRAINING.	1010	1-12
OPERATIONAL RISK MANAGEMENT (ORM)	1011	1-13
MARINE CORPS GROUND T&R PROGRAM	1012	1-13

ENG & UTIL T&R MANUAL

CHAPTER 1

OVERVIEW

1000. INTRODUCTION

1. The T&R Program is the Corps' primary tool for planning, conducting and evaluating training and assessing training readiness. Subject matter experts (SMEs) from the operating forces developed core capability Mission Essential Task List(s) (METLs) for ground communities derived from the Marine Corps Task List (MCTL). This T&R Manual is built around these METLs and other related Marine Corps Tasks (MCT). All events contained in the manual relate directly to these METLs and MCTs. This comprehensive T&R Program will help to ensure the Marine Corps continues to improve its combat readiness by training more efficiently and effectively. Ultimately, this will enhance the Marine Corps' ability to accomplish real-world missions.

2. The T&R Manual contains the individual and collective training requirements to prepare units to accomplish their combat mission. The T&R Manual is not intended to be an encyclopedia that contains every minute detail of how to accomplish training. Instead, it identifies the minimum standards that Marines must be able to perform in combat. The T&R Manual is a fundamental tool for commanders to build and maintain unit combat readiness. Using this tool, leaders can construct and execute an effective training plan that supports the unit's METL. More detailed information on the Marine Corps Ground T&R Program is found in reference (a).

3. The T&R Manual is designed for use by unit commanders to determine pre-deployment training requirements in preparation for training and for Formal Learning Centers (FLCs) and Training Detachments to create courses of instruction. This directive focuses on individual and collective tasks performed by operating forces (OPFOR) units and supervised by personnel in the performance of unit Mission Essential Tasks (METs).

1001. UNIT TRAINING

1. The training of Marines to perform as an integrated unit in combat lies at the heart of the T&R program. Unit and individual readiness are directly related. Individual training and the mastery of individual core skills serve as the building blocks for unit combat readiness. A Marine's ability to perform critical skills required in combat is essential. However, it is not necessary to have all individuals within a unit fully trained in order for that organization to accomplish its assigned tasks. Manpower shortfalls, temporary assignments, leave, or other factors outside the commander's control, often affect the ability to conduct individual training. During these periods, unit readiness is enhanced if emphasis is placed on the individual training of Marines on-hand. Subsequently, these Marines will be mission ready and capable of executing as part of a team when the full complement of personnel is available.

2. Commanders will ensure that all tactical training is focused on their combat mission. The T&R Manual is a tool to help develop the unit's training plan. In most cases, unit training should focus on achieving unit proficiency in the core METL. However, commanders will adjust their training focus to support METLs associated with a major Operational Plan (OPLAN)/Contingency Plan (CONPLAN) or named operation as designated by their higher commander and reported accordingly in the DRRS. Tactical training will support the METL in use by the commander and be tailored to meet T&R standards. Commanders at all levels are responsible for effective combat training. The conduct of training in a professional manner consistent with Marine Corps standards cannot be over emphasized.

3. Commanders will provide personnel the opportunity to attend formal and operational level courses of instruction as required by this Manual. Attendance at all formal courses must enhance the warfighting capabilities of the unit as determined by the unit commander.

1002. UNIT TRAINING MANAGEMENT

1. Unit Training Management (UTM) is the application of the Systems Approach to Training (SAT) and the Marine Corps Training Principles. This is accomplished in a manner that maximizes training results and focuses the training priorities of the unit in preparation for the conduct of its wartime mission.

2. UTM techniques, described in references (b) and (e), provide commanders with the requisite tools and techniques to analyze, design, develop, implement, and evaluate the training of their unit. The Marine Corps Training Principles, explained in reference (b), provide sound and proven direction and are flexible enough to accommodate the demands of local conditions. These principles are not inclusive, nor do they guarantee success. They are guides that commanders can use to manage unit-training programs. The Marine Corps training principles are:

- Train as you fight
- Make commanders responsible for training
- Use standards-based training
- Use performance-oriented training
- Use mission-oriented training
- Train the MAGTF to fight as a combined arms team
- Train to sustain proficiency
- Train to challenge

3. To maintain an efficient and effective training program, leaders at every level must understand and implement UTM. Guidance for UTM and the process for establishing effective programs are contained in references (b), (e) and (f).

1003. SUSTAINMENT AND EVALUATION OF TRAINING

1. The evaluation of training is necessary to properly prepare Marines for combat. Evaluations are either formal or informal, and performed by members

of the unit (internal evaluation) or from an external command (external evaluation).

2. Marines are expected to maintain proficiency in the training events for their MOS at the appropriate grade or billet to which assigned. Leaders are responsible for recording the training achievements of their Marines. Whether it involves individual or collective training events, they must ensure proficiency is sustained by requiring retraining of each event at or before expiration of the designated sustainment interval. Performance of the training event, however, is not sufficient to ensure combat readiness. Leaders at all levels must evaluate the performance of their Marines and the unit as they complete training events, and only record successful accomplishment of training based upon the evaluation. The goal of evaluation is to ensure that correct methods are employed to achieve the desired standard, or the Marines understand how they need to improve in order to attain the standard. Leaders must determine whether credit for completing a training event is recorded if the standard was not achieved. While successful accomplishment is desired, debriefing of errors can result in successful learning that will allow ethical recording of training event completion. Evaluation is a continuous process that is integral to training management and is conducted by leaders at every level and during all phases of planning and the conduct of training. To ensure training is efficient and effective, evaluation is an integral part of the training plan. Ultimately, leaders remain responsible for determining if the training was effective.

3. The purpose of formal and informal evaluation is to provide commanders with a process to determine a unit's/Marine's proficiency in the tasks that must be performed in combat. Informal evaluations are conducted during every training evolution. Formal evaluations are often scenario-based, focused on the unit's METs, based on collective training standards, and usually conducted during higher-level collective events. References (a) and (f) provide further guidance on the conduct of informal and formal evaluations using the Marine Corps Ground T&R Program.

1004. ORGANIZATION. The Engineer & Utilities T&R Manual is comprised of 24 chapters and XX appendices. Chapter 1 is an overview of the Ground T&R Program. Chapter 2 lists the Core Capability METLs and their related Battalion, Company, Platoon, Squad/Section and Team level events. Chapters 3-6 contains collective events from the Team (3000-level), Section (4000-level), Platoon (5000-level), Company (6000-level) and Battalion (7000-level). The collective events are separated by battalions. Chapter 3 = CAB, 4 = CEB, 5 = CLB and 6 = ESB. Chapters 7 through 24 contain individual events.

1005. T&R EVENT CODING. An event contained within a T&R Manual is an individual or collective training standard. This section explains each of the components of a T&R event. These items will be included in all of the events in each T&R Manual. Community-based T&R Manuals may have several additional components not found in unit-based T&R Manuals. The event condition, event title (behavior) and event standard should be read together as a grammatical sentence.

1. Event Code. The event code is an up to 4-4-4 alphanumeric character set:

a. First up to 4 characters indicate MOS or Community (e.g., 0321, 1812 or INTL)

b. Second up to 4 characters indicate functional or duty area (e.g. DEF, FSPT, MVMT, etc.)

c. Third 4 characters indicate the unit size and supported unit, if applicable (1000 through 9000), and sequence. Figure 1-1 shows the relationship of unit size to event code. NOTE: The titles for the various echelons are for example only, and are not exclusive. For example: 4000-level events are appropriate for Section-level events as noted, but also for Squad-level events.

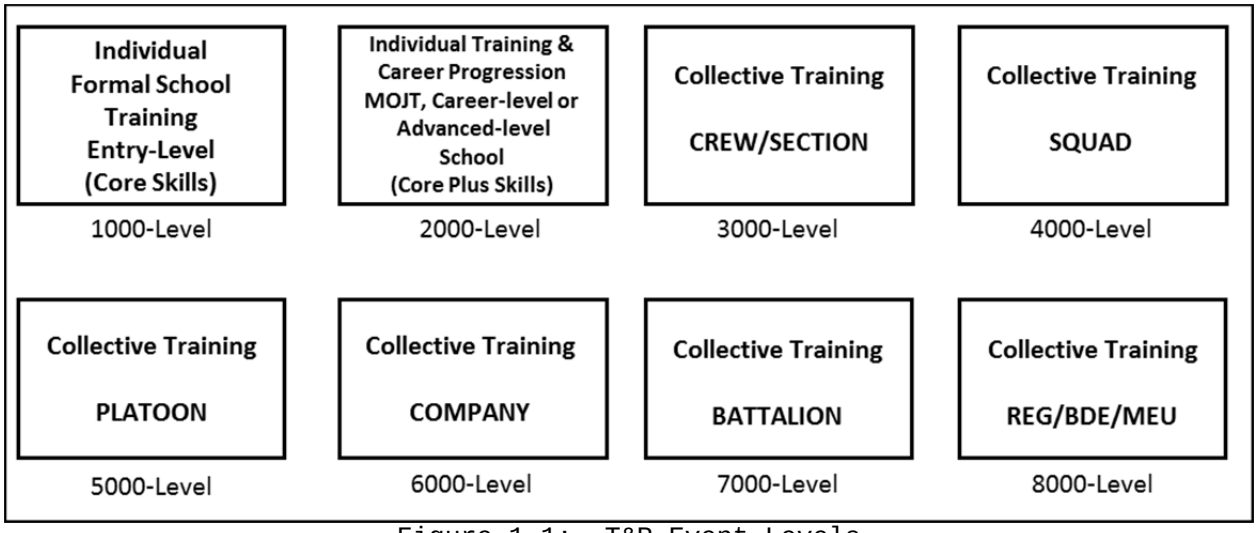

Figure 1-1: T&R Event Levels

(1) Grouping. Categorizing events with the use of a recognizable code makes the type of skill or capability being referenced fairly obvious. Examples include: PAT for patrolling events, DEF for events in the defense, FSPT for events related to fire support, etc. There is no special significance to the functional areas, but they should be intuitive to make it as easy as possible for the T&R user to find events. When organizing the T&R manual, functional areas are alphabetized then the associated events are numbered. The events will be numbered based upon the introduction of each new functional area, allowing up to "999" events. For example: if there are seven Administrative events 4431 occupational field, then the events should start 4431-ADMN-1001 and run through 1007. Next, the Bulk Fuel events, FUEL should start at 4431-FUEL-1001.

(2) Sequencing. A numerical code is assigned to each individual (1000-2000-level) or collective (3000-9000-level) training event. The first number identifies the size of the unit performing the event, as depicted in figure 1-1. The second number is available for T&R Manuals with collective events that support those in other manuals to identify the echelon of unit being supported by a particular collective event. If a collective event is *supported* by other events or is *performed in general support without regard*

to echelon, then a zero "0" will be utilized as the second number. For example: 0231-TGT-3801 would refer to an event conducted by a four Marine Targeting Cell supporting a Regiment or Group, 0231-TGT-3001 would represent an event the Targeting Cell does in support of any sized unit. The event would not be labeled 0231-TGT-8001 because that would imply that a regiment sized targeting unit was performing some task. This is not possible, since no intelligence unit organizes in a unit larger than a Battalion. EXCEPTION: Events that relate to staff planning, to the conduct of a command operations center or to staff level decision making processes will be numbered according to the level of the unit to which the staff belongs. For example: an infantry battalion staff conducting planning for an offensive attack would be labeled as INF-PLAN-7001 even though the entire battalion is not actively involved in the planning of the operation. T&R event sequence numbers that begin with "9" are reserved for Marine Air Ground Task Forces (MAGTF) Command Element (CE) events. Marine Expeditionary Units (MEU) CE events will be numbered 90XX – 93XX. Marine Expeditionary Brigade (MEB) CE events will be numbered 94XX – 96XX. Marine Expeditionary Force (MEF) CE events will be numbered 97XX – 99XX.

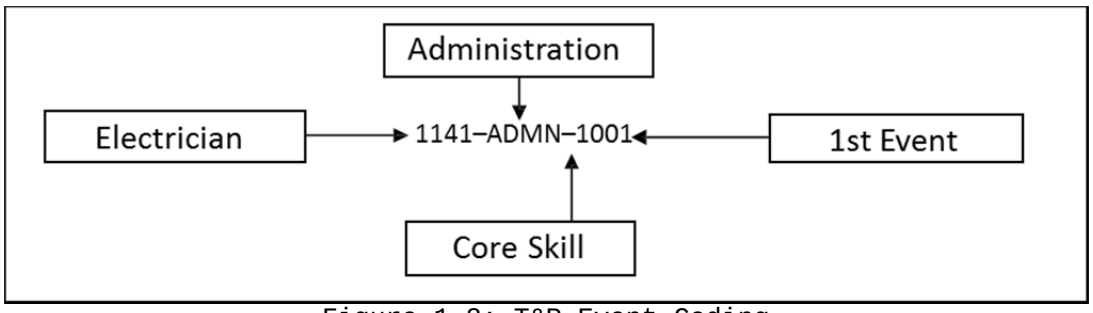

Figure 1-2: T&R Event Coding

1006. COMBAT READINESS PERCENTAGE

1. The Marine Corps Ground T&R Program includes processes to assess readiness of units and individual Marines. Every unit in the Marine Corps maintains a basic level of readiness based on the training and experience of the Marines in the unit. Even units that never trained together are capable of accomplishing some portion of their missions. Combat readiness assessment does not associate a quantitative value for this baseline of readiness, but uses a "Combat Readiness Percentage", as a method to provide a concise descriptor of the recent training accomplishments of units and Marines.

2. Combat Readiness Percentage (CRP) is the percentage of required training events that a unit or Marine accomplishes within specified sustainment intervals.

3. Unit combat readiness is assessed as a percentage of the successfully completed and current (within sustainment interval) key training events called "Evaluation-Coded" (E-Coded) Events. E-Coded Events and unit CRP calculation are described in follow-on paragraphs. CRP achieved through the completion of E-Coded Events is directly relevant to readiness assessment in DRRS.

4. Individual combat readiness is assessed as the percentage of required individual events in which a Marine is current. This translates as the percentage of training events for his/her MOS and grade that the Marine successfully completes within the directed sustainment interval. Individual skills are developed through a combination of 1000-level training (entry-level formal school courses), individual on-the-job training in 2000-level events, and follow-on formal school training. Skill proficiency is maintained by retraining in each event per the specified sustainment interval.

1007. CRP CALCULATION

1. Collective training begins at the 3000-level (team, crew or equivalent). Unit training plans are designed to accomplish the events that support the unit METL while simultaneously sustaining proficiency in individual core skills. E-Coded collective events are the only events that contribute to unit CRP. This is done to assist commanders in prioritizing the training toward the METL, taking into account resource, time, and personnel constraints.

2. Unit CRP increases after the completion of E-Coded events. The number of E-Coded events for the MET determines the value of each E-Coded event. For example, if there are 4 E-Coded events for a MET, each is worth 25% of MET CRP. MET CRP is calculated by adding the percentage of each completed and current (within sustainment interval) E-Coded training event. The percentage for each MET is calculated the same way and all are added together and divided by the number of METS to determine unit CRP. For ease of calculation, we will say that each MET has four E-Coded events, each contributing 25% towards the completion of the MET. If the unit has completed and is current on three of the four E-Coded events for a given MET, then they have completed 75% of the MET. The CRP for each MET is added together and divided by the number of METS to get unit CRP; unit CRP is the average of MET CRP.

For Example:

MET 1: 75% complete (3 of 4 E-Coded events trained)
MET 2: 100% complete (6 of 6 E-Coded events trained)
MET 3: 25% complete (1 of 4 E-Coded events trained)
MET 4: 50% complete (2 of 4 E-Coded events trained)
MET 5: 75% complete (3 of 4 E-Coded events trained)

To get unit CRP, simply add the CRP for each MET and divide by the number of METS:

MET CRP: 75 + 100 + 25 + 50 + 75 = 325

Unit CRP: 325 (total MET CRP)/5 (total number of METS) = 65%

1008. T&R EVENT COMPOSITION

1. Event Code. The event code is explained in paragraph 1005.

2. Title. The name of the event. The event title contains one action verb and ideally, one object.

3. Evaluation-Coded. Collective events categorize the capabilities that a given unit may be expected to perform. There are some collective events that the Marine Corps has determined that a unit MUST be able to perform, if that unit is to be considered fully ready for operations. These E-Coded events represent the irreducible minimum or the floor of readiness for a unit. E-Coded events are derived from the training measures of effectiveness for the METs for units that must report readiness in the DRRS. It would seem intuitive that most E-Coded events would be for Battalion sized units and higher since those are the units that report in DRRS. However, if the Marine Corps has determined that the readiness of a subordinate, supporting unit to accomplish a particular collective event is vital to the accomplishment of the supported unit's MET, then that lower echelon collective event is E-Coded.

4. Supported MET(s). List all METs that are supported by the training event in the judgment of the occupation field drafting the T&R Manual, even if those events are not listed as Measure of Effectiveness (MOEs) in a MET.

5. Sustainment Interval. This is the period, expressed in number of months, between evaluation or retraining requirements. Competencies and capabilities acquired through the accomplishment of training events are to be refreshed at pre-determined intervals. It is essential that these intervals be adhered to in order to ensure Marines maintain proficiency.

6. Billet/MOS. Each individual training event will contain a billet code and/or MOS that designates who is responsible for performing that event and any corresponding formal course required for that billet. Each commander has the flexibility to shift responsibilities based on the organization of his command. These codes are based on recommendations from the collective subject matter expertise that developed this manual and are listed for each event.

7. Grade. The Grade field indicates the rank at which Marines are required to complete the event.

8. Description. This field allows T&R developers to include an explanation of event purpose, objectives, goals, and requirements. It is a general description of an action requiring learned skills and knowledge, i.e., engage fixed target with crew-served weapons. This is an optional field for individual events but it use is strongly encouraged for collective events. This field can be of great value guiding a FLC or OPFOR unit trying to discern the intent behind an event that might not be readily apparent.

9. Condition. Condition refers to the constraints that may affect event performance in a real-world environment. It indicates what is provided (equipment, tools, materials, manuals, aids, etc.), environmental constraints or conditions under which the task is to be performed, and any specific cues or indicators to which the performer must respond. Commanders can modify the conditions of the event to best prepare their Marines to accomplish the assigned mission (e.g. in a desert environment; in a mountain environment; etc.). When resources or safety requirements limit the conditions, this

should be stated. The content of the condition should be included in the event on a "by exception" basis. If there exists an assumption regarding the conditions under which all or most of the events in the Manual will be performed, then only those additional or exceptional items required should be listed in the condition. The common conditions under which all the events in a chapter will be executed will be listed as a separate paragraph at the beginning of the chapter.

10. Standard. The performance standard indicates the basis for judging the effectiveness of the performance. It consists of a carefully worded statement that identifies the proficiency level expected when the task is performed. The standard provides the minimum acceptable performance parameters and must be strictly adhered to. The standard for collective events will likely be general, describing the desired end-state or purpose of the event. The standard for individual events will be objective, quantifiable, and readily observable. Standards will more specifically describe to what proficiency level, specified in terms of accuracy, completeness, time required, and sequencing the event is to be accomplished. These guidelines can be summarized in the acronym "ACTS" (Accuracy Completeness Time Sequence.) In no cases will "per the reference" or "per/in accordance with commander's intent" be used as a stand-alone standard.

11. Event Components/Performance Steps. Description of the actions that the event is composed of, or a list of subordinate, included T&R event codes and event descriptions. The event components help the user determine what must be accomplished and to properly plan for the event. Event components are used for collective events; performance steps are used for individual events.

a. The event components and performance steps will be consciously written so that they may be employed as performance evaluation check lists by the operating forces.

b. Event components may be events one individual in the unit performs, events that small groups in the unit perform, or events involving the entire unit. After the publication of this order, all component events will identify the behaviors required in plain English but also by citing the precise event number the component event refers to, unless that component event only occurs as part of the collective event where it is listed. This provision will allow for specific events to be chained together in order to provide greater granularity for units and Marines executing the events, and clarity for those charged with evaluating unit performance.

12. Prerequisite Events. Prerequisites are academic training or other T&R events that must be completed prior to attempting the task. They are lower-level events or tasks that give the individual/unit the skills required to accomplish the event. They can also be planning steps, administrative requirements, or specific parameters that build toward mission accomplishment.

13. Chained Events. Collective T&R events are supported by lower-level collective and individual T&R events. This enables unit leaders to effectively identify subordinate T&R events that ultimately support specific mission essential tasks. When the accomplishment of any upper-level events, by their nature, result in the performance of certain subordinate and related

events, the events are “chained.” The completion of chained events will update sustainment interval credit (and CRP for E-Coded events) for the related subordinate level events.

14. Related ITEs. A list of all of the Individual Training Events (1000-2000-level events) that support the event.

15. Initial Training Setting. All individual events will designate the setting at which the skill is first taught, either at the FLC, in the OPFOR as MOJT, or via a distance learning product (DL).

16. References. The training references shall be utilized to determine task performance steps. They assist the trainee in satisfying the performance standards, or the trainer in evaluating the effectiveness of task completion. T&R Manuals are designed to be a training outline, not to replicate or replace doctrinal publications, reference publications or technical manuals. References are key to developing detailed lesson plans, determining grading criteria, and ensuring standardization of training.

17. Distance Learning Products. Distance learning products include: Individual Multimedia Instruction (IMI), Computer-Based Training (CBT), Marine Corps Institute (MCI), etc. This notation is included when, in the opinion of the TRMG in consultation with the MTSD representative, the event can be taught via one of these media vice attending a formal course of instruction or receiving MOJT.

18. Support Requirements. This is a list of the external and internal support the unit and Marines will need to complete the event. This is a key section in the overall T&R effort, as resources will eventually be tied directly to the training towards METS. Future efforts to attain and allocate resources will be based on the requirements outlined in the T&R Manual. The list includes, but is not limited to:

- Range(s)/Training Area
- Ordnance
- Equipment
- Materials
- Other Units/Personnel

The ordnance requirements for one year of training for the events in the T&R will be aggregated into a table contained in an appendix to the T&R. The task analyst and the occupational field representatives will be careful not to “double count” ammunition that might be employed in the performance of individual and collective events that are chained.

19. Suitability of Simulation/Simulators/DL products. If the TRMG determines that an event can be trained to standard by use of simulation, simulator or a DL product, this will be noted in the event title in a parenthetical remark. Figure 1-3 contains all acceptable codes. The specific simulation, simulator or DL product that is acceptable for training will be noted in the description block and in Supporting Requirements block.

Code	Requirement
L	Event able to be performed to standard only live environment
S	Event performed with simulation and/or simulator, particularly when it is unsafe to conduct the training in a live environment and when supporting live training used as a capstone event to a training continuum that includes academics, simulation-based, and live training
S/L	Event performed with simulation and/or simulator preferred/live optional. If the resources available do not allow for live training to occur, simulation-based training can assist in maintaining proficiency and provide a means to temporarily fill those identified training gaps.
DL	Event shall be performed by self-paced, technology-enabled training (i.e. MarineNet)
DL/L	Event may be performed by self-paced, technology enabled training or in a live environment

Figure 1-3: Acceptable Codes

20. Miscellaneous

a. This field provides space for any additional information that will assist in the planning and execution of the event. Units and FLCS are cautioned not to disregard this information or to consider the information of lesser importance than what is contained in other parts of the T&R event. Miscellaneous fields provide an opportunity for the drafters of the T&R event to communicate vital information that might not fit neatly into any other available field. The list may include, but is not limited to:

- Admin Instructions
- Special Personnel Certifications
- Equipment Operating Hours
- Road Miles

b. An example of a T&R event is provided in figure 1-4.

0321-PAT-4101 Conduct Team Planning

EVALUATION CODED: YES SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9

DESCRIPTION: The unit is conducting tactical operations. The unit has been issued a warning order to conduct reconnaissance patrols to collect information and to conduct normal security patrols. The patrol will be conducted on a 24-hour basis. This event may be trained to standard using the XYZ simulation program available at all MISTC locations.

CONDITION: When given a Warning Order, Patrol Order or Frag Order.

STANDARD: Prior to commencement of exercise or operation, so that subordinates have 2/3 of the total time before step-off for planning, to include all elements of the plan.

EVENT COMPONENTS:
1. Receive Warning Order or Patrol Order.
2. Analyze for Mission using commander's guidance, METT-TSL, KOCOA.
3. Analyze the mission and available information to identify specific tasks with respect to commander's guidance, METT-TSL and KOCOA.
4. Create the plan.

RELATED ITES:

0321-PAT –1102	0321-PAT –1101	0321-COMM-1207	0321-FSPT-2301
0321-FSPT-2302	0321-FSPT-2303	0321-SURV-1403	

REFERENCES:
1. FMFM 6-4 Marine Rifle Company
2. MCWP 3-11.3 Scouting and Patrolling
3. MCRP 2-15.1 DRAFT Ground Reconnaissance Handbook

Figure 1-4: Example of a T&R Event

1009. CHEMICAL BIOLOGICAL RADIOLOGICAL NUCLEAR (CBRN) TRAINING

1. All personnel assigned to the operating force must be trained in CBRN defense, in order to survive and continue their mission in this environment. Individual proficiency standards are defined as survival and basic operating standards. Survival standards are those that the individual must master in order to survive CBRN attacks. Basic operating standards are those that the individual, and collectively the unit, must perform to continue operations in a CBRN environment.

2. In order to develop and maintain the ability to operate in a CBRN environment, CBRN training is an integral part of the training plan and events in this T&R Manual. Units should train under CBRN conditions whenever possible. Per reference (c), all units must be capable of accomplishing their assigned mission in a contaminated environment.

1010. NIGHT TRAINING

1. While it is understood that all personnel and units of the operating force are capable of performing their assigned mission in “every climate and place,” current doctrine emphasizes the requirement to perform assigned

missions at night and during periods of limited visibility. Basic skills are significantly more difficult when visibility is limited.

2. To ensure units are capable of accomplishing their mission they must train under the conditions of limited visibility. Units should strive to conduct all events in this T&R Manual during both day and night/limited visibility conditions. When there is limited training time available, night training should take precedence over daylight training, contingent on the availability of equipment and personnel.

1011. OPERATIONAL RISK MANAGEMENT (ORM)

1. ORM is a process that enables commanders to plan for and minimize risk while still accomplishing the mission. It is a decision making tool used by Marines at all levels to increase operational effectiveness by anticipating hazards and reducing the potential for loss, thereby increasing the probability of a successful mission. ORM minimizes risks to acceptable levels, commensurate with mission accomplishment.

2. Commanders, leaders, maintainers, planners, and schedulers will integrate risk assessment in the decision-making process and implement hazard controls to reduce risk to acceptable levels. Applying the ORM process will reduce mishaps, lower costs, and provide for more efficient use of resources. ORM assists the commander in conserving lives and resources and avoiding unnecessary risk, making an informed decision to implement a Course Of Action (COA), identifying feasible and effective control measures where specific measures do not exist, and providing reasonable alternatives for mission accomplishment. Most importantly, ORM assists the commander in determining the balance between training realism and unnecessary risks in training, the impact of training operations on the environment, and the adjustment of training plans to fit the level of proficiency and experience of Sailors/Marines and leaders. Further guidance for ORM is found in references (b) and (d).

1012. MARINE CORPS GROUND T&R PROGRAM

1. The Marine Corps Ground T&R Program continues to evolve. The vision for Ground T&R Program is to publish a T&R Manual for every readiness-reporting unit so that core capability METs are clearly defined with supporting collective training standards, and to publish community-based T&R Manuals for all occupational fields whose personnel augment other units to increase their combat and/or logistic capabilities. The vision for this program includes plans to provide a Marine Corps training management information system that enables tracking of unit and individual training accomplishments by unit commanders and small unit leaders, automatically computing CRP for both units and individual Marines based upon MOS and rank (or billet). Linkage of T&R Events to the MCTL, through the core capability METs, has enabled objective assessment of training readiness in the DRRS.

2. DRRS measures and reports on the readiness of military forces and the supporting infrastructure to meet missions and goals assigned by the Secretary of Defense. With unit CRP based on the unit’s training toward its

METs, the CRP will provide a more accurate picture of a unit’s readiness. This will give fidelity to future funding requests and factor into the allocation of resources. Additionally, the Ground T&R Program will help to ensure training remains focused on mission accomplishment and that training readiness reporting is tied to units’ METLs.

CHAPTER 2

MISSION-ESSENTIAL TASKS MATRIX

	PARAGRAPH	PAGE
MISSION ESSENTIAL TASK LIST (METL) FOR ALL ENGINEER UNITS. .	2000	2-2
COMBAT ASSAULT BATTALION CORE MISSION ESSENTIAL TASK LIST. .	2001	2-2
COMBAT ENGINEER BATTALION (CEB) CORE MISSION ESSENTIAL . . . TASK LIST	2002	2-7
DIRECT SUPPORT (DS) COMBAT LOGISTICS BATTALION (CLB) CORE. . MISSION ESSENTIAL TASK LIST	2003	2-11
ENGINEER SUPPORT BATTALION (ESB CORE) MISSION ESSENTIAL. . . TASK LIST	2004	2-13

CHAPTER 2

MISSION-ESSENTIAL TASKS MATRIX

2000. MISSION ESSENTIAL TASK LIST (METL) FOR ALL ENGINEER UNITS. The METL Table for all engineer units lists the Standardized Core Mission-Essential Tasks (MET), derived from the Marine Corps Task List (MCTL), for the CAB, CEB, CLB and ESB. This METL is used for readiness reporting in the Defense Readiness Reporting System (DRRS).

ENGINEER CORE MISSION ESSENTIAL TASKS

MARINE CORPS TASK LIST	ENGINEER UNITS CORE METL
MCT 1.1.2	Provide Task-Organized Forces
MCT 1.12.1	Conduct Amphibious Operations
MCT 1.4.1	Conduct Mobility Operations
MCT 1.4.2	Conduct Counter-Mobility Operations
MCT 2.2.2	Provide and Maintain Engineering Reconnaissance Operations
MCT 4.2.2.4	Conduct Repair
MCT 4.3.6	Conduct Material Handling Operations
MCT 4.4.1	Conduct Horizontal Construction
MCT 4.4.1.1	Conduct Limited Horizontal Construction
MCT 4.4.2	Conduct Vertical Construction
MCT 4.4.2.1	Conduct Limited Vertical Construction
MCT 4.4.3	Conduct Bulk Liquids Operations
MCT 4.4.3.1	Conduct Limited Bulk Liquids Operations
MCT 4.4.4	Conduct Tactical Electrical Supply
MCT 4.4.4.1	Conduct Limited Tactical Electrical Supply
MCT 6.1.4	Conduct Survivability Operations

2001. COMBAT ASSAULT BATTALION CORE MISSION-ESSENTIAL TASK LIST. The CAB METL Table lists the Standardized Core Mission-Essential Tasks (MET), derived from the Marine Corps Task List (MCTL), for the CAB. This METL is used for readiness reporting in the DRRS. The following event codes are the linked evaluation coded (E-Coded) events that support the MET.

CAB CORE MISSION-ESSENTIAL TASKS

MARINE CORPS TASK LIST	CAB CORE METL
MCT 1.1.2	Provide Task-Organized Forces
MCT 1.12.1	Conduct Amphibious Operations
MCT 1.4.1	Conduct Mobility Operations
MCT 1.4.2	Conduct Counter-Mobility Operations
MCT 2.2.2	Provide and Maintain Engineering Reconnaissance Operations
MCT 4.4.4	Conduct Tactical Electric Supply
MCT 6.1.4	Conduct Survivability Operations

CAB MET#/MISSION-ESSENTIAL TASK

MCT 1.1.2 PROVIDE TASK-ORGANIZED FORCES	
CAB-ADMN-7001	Command and control engineer forces
CAB-EOPS-7001	Train engineer forces
CAB-PLAN-7001	Plan engineer operations
CAB-ADMN-6001	Command and control engineer forces
CAB-CMOB-6001	Conduct countermobility operations
CAB-EOPS-6001	Train engineer forces
CAB-MOBL-6001	Conduct mobility operations
CAB-PINF-6001	Provide provisional infantry
CAB-SURV-6001	Conduct survivability operations
CAB-HEOP-5001	Provide limited engineer equipment support
CAB-UTIL-5001	Provide limited utilities support
CAB-PINF-5001	Fight as provisional infantry
CAB-MANT-4001	Maintain engineer equipment
CAB-PINF-4001	Fight as provisional infantry
CAB-UTIL-4002	Provide potable water
CAB-UTIL-4003	Provide tactical hygiene support
CAB-HEOP-3002	Provide limited earth moving equipment support
CAB-MANT-3003	Maintain water purification equipment
CAB-MANT-3004	Maintain hygiene equipment
CAB-UTIL-3005	Produce potable water
CAB-UTIL-3006	Store potable water
CAB-UTIL-3007	Establish water distribution site
MCT 1.12.1 CONDUCT AMPHIBIOUS OPERATIONS	
CAB-ADMN-7001	Command and control engineer forces
CAB-EOPS-7001	Train engineer forces
CAB-PLAN-7001	Plan engineer operations
CAB-ADMN-6001	Command and control engineer forces
CAB-EOPS-6001	Train engineer forces
CAB-EOPS-6002	Conduct limited general engineering operations
CAB-MOBL-6001	Conduct mobility operations
CAB-PLAN-6001	Plan engineer operations
CAB-HEOP-5001	Provide limited engineer equipment support
CAB-PINF-5001	Fight as provisional infantry
CAB-HEOP-4001	Conduct Material handling Equipment (MHE) operations
CAB-HEOP-3001	Provide limited Material Handling Equipment (MHE) support
CAB-HEOP-3002	Provide limited earth moving equipment support
MCT 1.4.1 CONDUCT MOBILITY OPERATIONS	
CAB-ADMN-7001	Command and control engineer forces
CAB-EOPS-7001	Train engineer forces
CAB-PLAN-7001	Plan engineer operations
CAB-ADMN-6001	Command and control engineer forces
CAB-EOPS-6001	Train engineer forces
CAB-EOPS-6002	Conduct limited general engineering operations
CAB-MOBL-6001	Conduct mobility operations
CAB-PLAN-6001	Plan engineer operations
CAB-DEMO-5001	Conduct demolition operations
CAB-HEOP-5001	Provide limited engineer equipment support
CAB-HORZ-5001	Conduct limited horizontal construction
CAB-HORZ-5002	Prepare site for construction

CAB-MOBL-5001	Conduct obstacle breaching operations
CAB-MOBL-5002	Conduct route clearance operations
CAB-MOBL-5003	Construct expedient Helicopter Landing Zone (HLZ)
CAB-MOBL-5004	Construct combat roads
CAB-PINF-5001	Fight as provisional infantry
CAB-VERT-5001	Construct limited vertical construction
CAB-HEOP-4001	Conduct Material Handling Equipment (MHE) operations
CAB-MOBL-4001	Conduct deliberate breach
CAB-MOBL-4002	Conduct hasty/in-stride breach
CAB-MOBL-4003	Conduct assault breach
CAB-MOBL-4004	Conduct covert breach
CAB-MOBL-4005	Conduct dismounted route sweep operations
CAB-MOBL-4006	Conduct security for clearance operations
CAB-MOBL-4007	Detect obstacles during clearance operations
CAB-MOBL-4008	Breach obstacles for clearance operations
CAB-MOBL-4009	Conduct limited route improvement
CAB-MOBL-4010	Install a rope bridge
CAB-MOBL-4011	Employ demolitions in support of mobility operations
CAB-PINF-4001	Fight as provisional infantry
CAB-VERT-4001	Construct limited vertical construction
CAB-VERT-4002	Construct wood frame structure
CAB-VERT-4003	Construct timber structure
CAB-VERT-4004	Provide limited repair of existing structures
CAB-VERT-4005	Rig expedient lifting devices
CAB-DEMO-3001	Destroy captured arms and ammunition with demolitions
CAB-DEMO-3002	Destroy bridge with demolitions
CAB-DEMO-3003	Destroy tunnel with demolitions
CAB-DEMO-3004	Destroy building with demolitions
CAB-HEOP-3001	Provide limited Material Handling Equipment (MHE) support
CAB-HEOP-3002	Provide limited earth moving equipment support
CAB-MOBL-3001	Engage targets with MK153 SMAW
CAB-MOBL-3002	Conduct an urban breach
CAB-MOBL-3003	Create a lane through an obstacle
CAB-MOBL-3004	Proof a lane through an obstacle
CAB-MOBL-3005	Mark a lane through an obstacle
CAB-MOBL-3006	Remotely detect explosive hazards ive hazards
CAB-MOBL-3007	Remotely reduce explosive hazards
CAB-MOBL-3008	Employ a medium machinegun team
CAB-MOBL-3009	Employ a heavy machinegun team
CAB-MOBL-3010	Fell standing timber
CAB-MOBL-3011	Operate small craft
CAB-MOBL-3012	Conduct limited route clearance operations
CAB-MOBL-3013	Conduct area clearance operations
CAB-UTIL-3001	Establish tactical power distribution system
MCT 1.4.2 CONDUCT COUNTER-MOBILITY OPERATIONS	
CAB-ADMN-7001	Command and control engineer forces
CAB-EOPS-7001	Train engineer forces
CAB-PLAN-7001	Plan engineer operations
CAB-ADMN-6001	Command and control engineer forces
CAB-CMOB-6001	Conduct countermobility operations
CAB-EOPS-6001	Train engineer forces
CAB-EOPS-6002	Conduct limited general engineering operations

CAB-PLAN-6001	Plan engineer operations
CAB-CMOB-5001	Create obstacle groups
CAB-DEMO-5001	Conduct demolition operations
CAB-HEOP-5001	Provide limited engineer equipment support
CAB-HORZ-5001	Conduct limited horizontal construction
CAB-HORZ-5002	Prepare site for construction
CAB-PINF-5001	Fight as provisional infantry
CAB-CMOB-4001	Create an explosive obstacle
CAB-CMOB-4002	Create non-explosive obstacles/barriers
CAB-CMOB-4003	Employ demolitions in support of countermobility operations
CAB-HEOP-4001	Conduct Material Handling Equipment (MHE) operations
CAB-PINF-4001	Fight as provisional infantry
CAB-CMOB-3001	Construct field expedient obstacles
CAB-CMOB-3002	Build non-explosive obstacles
CAB-CMOB-3003	Employ explosive obstacles
CAB-DEMO-3002	Destroy bridge with demolitions
CAB-DEMO-3003	Destroy tunnel with demolitions
CAB-DEMO-3004	Destroy building with demolitions
CAB-HEOP-3001	Provide limited Material Handling Equipment (MHE) support
CAB-HEOP-3002	Provide limited earth moving equipment support
MCT 2.2.2 PROVIDE AND MAINTAIN ENGINEERING RECONNAISSANCE OPERATIONS	
CAB-ADMN-7001	Command and control engineer forces
CAB-EOPS-7001	Train engineer forces
CAB-PLAN-7001	Plan engineer operations
CAB-ADMN-6001	Command and control engineer forces
CAB-EOPS-6001	Train engineer forces
CAB-EOPS-6002	Conduct limited general engineering operations
CAB-PLAN-6001	Plan engineer operations
CAB-RECN-5001	Conduct engineer reconnaissance
CAB-RECN-5002	Conduct cache sweep operations
CAB-RECN-4001	Conduct engineer reconnaissance
CAB-RECN-4002	Conduct cache sweep
CAB-RECN-4003	Conduct zone reconnaissance
CAB-RECN-4004	Conduct route reconnaissance
CAB-RECN-4005	Conduct area reconnaissance
CAB-RECN-4006	Conduct site survey
CAB-RECN-3001	Conduct gap reconnaissance
CAB-RECN-3002	Conduct ferry reconnaissance
CAB-RECN-3003	Conduct cache sweep
CAB-RECN-3004	Conduct tunnel/cave reconnaissance
CAB-RECN-3005	Survey site for construction
CAB-RECN-3006	Conduct obstacle reconnaissance
CAB-RECN-3007	Conduct bridge reconnaissance
CAB-RECN-3008	Conduct road reconnaissance
MCT 4.4.4 CONDUCT TACTICAL ELECTRIC SUPPLY	
CAB-ADMN-7001	Command and control engineer forces
CAB-EOPS-7001	Train engineer forces
CAB-PLAN-7001	Plan engineer operations
CAB-ADMN-6001	Command and control engineer forces
CAB-EOPS-6001	Train engineer forces
CAB-EOPS-6002	Conduct limited general engineering operations
CAB-PLAN-6001	Plan engineer operations

CAB-MANT-5001	Maintain engineer equipment
CAB-UTIL-5001	Provide limited utilities support
CAB-MANT-4001	Maintain engineer equipment
CAB-UTIL-4001	Provide tactical electrical power
CAB-MANT-3001	Maintain engineer equipment
CAB-MANT-3002	Maintain tactical power distribution system
CAB-UTIL-3001	Establish tactical power distribution system
CAB-UTIL-3002	Provide floodlight support
CAB-UTIL-3003	Establish power generation site(s)
CAB-UTIL-3004	Wire a structure for electricity
CAB-UTIL-3008	Provide laundry services
MCT 6.1.4 CONDUCT SURVIVABILITY OPERATIONS	
CAB-ADMN-7001	Command and control engineer forces
CAB-EOPS-7001	Train engineer forces
CAB-PLAN-7001	Plan engineer operations
CAB-ADMN-6001	Command and control engineer forces
CAB-EOPS-6001	Train engineer forces
CAB-EOPS-6002	Conduct limited general engineering operations
CAB-PLAN-6001	Plan engineer operations
CAB-SURV-6001	Conduct survivability operations
CAB-DEMO-5001	Conduct demolition operations
CAB-HEOP-5001	Provide limited engineer equipment support
CAB-HORZ-5001	Conduct limited horizontal construction
CAB-HORZ-5002	Prepare site for construction
CAB-PINF-5001	Fight as provisional infantry
CAB-SURV-5001	Construct survivability positions
CAB-UTIL-5001	Provide limited utilities support
CAB-VERT-5001	Conduct limited vertical construction
CAB-HEOP-4001	Conduct Material Handling Equipment (MHE) operations
CAB-PINF-4001	Fight as provisional infantry
CAB-SURV-4001	Harden existing structure
CAB-SURV-4002	Construct field fortifications
CAB-SURV-4003	Construct Vehicle Control Point (VCP)
CAB-SURV-4004	Construct Entry Access Point (EAP)
CAB-SURV-4005	Construct earth filled barrier/structure
CAB-SURV-4006	Employ demolitions in support of survivability operations
CAB-VERT-4001	Conduct limited vertical construction
CAB-VERT-4002	Construct wood frame structure
CAB-VERT-4003	Construct timber structure
CAB-VERT-4004	Provide limited repair of existing structures
CAB-HEOP-3001	Provide limited Material Handling Equipment (MHE) support
CAB-HEOP-3002	Provide limited earth moving equipment support
CAB-SURV-3001	Construct trenches
CAB-SURV-3002	Construct shelters/bunkers
CAB-SURV-3003	Construct vehicle survivability position/revetment
CAB-SURV-3004	Construct crew served weapons positions
CAB-SURV-3005	Construct overhead cover
CAB-SURV-3006	Construct individual fighting position
CAB-SURV-3007	Construct triggering screen
CAB-SURV-3008	Construct vehicle fighting position

2002. COMBAT ENGINEER BATTALION (CEB) CORE MISSION-ESSENTIAL TASK LIST. The CEB METL Table lists the Standardized Core MET, derived from the MCTL for the CEB. This METL is used for readiness reporting in DRRS. The following event codes are the linked evaluation coded (E-Coded) events that support the MET.

CEB CORE MISSION-ESSENTIAL TASKS

MARINE CORPS TASK LIST	CEB CORE METL
MCT 1.1.2	Provide Task-Organized Forces
MCT 1.12.1	Conduct Amphibious Operations
MCT 1.4.1	Conduct Mobility Operations
MCT 1.4.2	Conduct Counter-Mobility Operations
MCT 2.2.2	Provide and Maintain Engineering Reconnaissance Operations
MCT 4.4.4	Conduct Tactical Electric Supply
MCT 6.1.4	Conduct Survivability Operations

CEB MET#/MISSION-ESSENTIAL TASK

MCT 1.1.2 PROVIDE FORCES	
CEB-ADMN-7001	Command and control engineer forces
CEB-EOPS-7001	Train engineer forces
CEB-PLAN-7001	Plan engineer operations
CEB-ADMN-6001	Command and control engineer forces
CEB-CMOB-6001	Conduct countermobility operations
CEB-EOPS-6001	Train engineer forces
CEB-EOPS-6002	Conduct limited general engineering operations
CEB-MOBL-6001	Conduct mobility operations
CEB-PINF-6001	Provide provisional infantry
CEB-PLAN-6001	Plan engineer operations
CEB-SURV-6001	Conduct survivability operations
CEB-PINF-5001	Fight as provisional infantry
CEB-UTIL-5001	Provide utilities support
CEB-PINF-4001	Fight as provisional infantry
CEB-HEOP-3002	Provide earth moving equipment support
MCT 1.12.1 CONDUCT AMPHIBIOUS OPERATIONS	
CEB-ADMN-7001	Command and control engineer forces
CEB-EOPS-7001	Train engineer forces
CEB-PLAN-7001	Plan engineer operations
CEB-ADMN-6001	Command and control engineer forces
CEB-EOPS-6001	Train engineer forces
CEB-EOPS-6002	Conduct limited general engineering operations
CEB-MOBL-6001	Conduct mobility operations
CEB-PINF-6001	Provide provisional infantry
CEB-PLAN-6001	Plan engineer operations
CEB-PINF-5001	Fight as provisional infantry
CEB-PINF-4001	Fight as provisional infantry
CEB-HEOP-3001	Provide Material Handling Equipment (MHE) support
MCT 1.4.1 CONDUCT MOBILITY OPERATIONS	
CEB-ADMN-7001	Command and control engineer forces
CEB-EOPS-7001	Train engineer forces
CEB-PLAN-7001	Plan engineer operations

CEB-ADMN-6001	Command and control engineer forces
CEB-EOPS-6001	Train engineer forces
CEB-EOPS-6002	Conduct limited general engineering operations
CEB-MOBL-6001	Conduct mobility operations
CEB-PINF-6001	Provide provisional infantry
CEB-PLAN-6001	Plan engineer operations
CEB-DEMO-5001	Conduct demolition operations
CEB-HEOP-5001	Provide engineer equipment support
CEB-HORZ-5001	Conduct horizontal construction
CEB-HORZ-5002	Prepare site for construction
CEB-MANT-5001	Maintain engineer equipment
CEB-MOBL-5001	Conduct obstacle breaching operations
CEB-MOBL-5002	Conduct route clearance operations
CEB-MOBL-5003	Construct expedient Helicopter Landing Zone (HLZ)
CEB-MOBL-5004	Construct combat roads
CEB-PINF-5001	Provide provisional infantry
CEB-HEOP-4001	Conduct (MHE) operations
CEB-MOBL-4001	Conduct deliberate breach
CEB-MOBL-4002	Conduct hasty/in-stride breach
CEB-MOBL-4003	Conduct assault breach
CEB-MOBL-4004	Conduct covert breach
CEB-MOBL-4005	Conduct dismounted route sweep operations
CEB-MOBL-4006	Conduct security for clearance operations
CEB-MOBL-4007	Detect obstacles during clearance operations
CEB-MOBL-4008	Breach obstacles for clearance operations
CEB-MOBL-4009	Conduct route improvement
CEB-MOBL-4010	Install Rope Bridge
CEB-MOBL-4011	Employ demolitions in support of mobility
CEB-PINF-4001	Provide provisional infantry
CEB-DEMO-3001	Destroy captured arms and ammunition with demolitions
CEB-DEMO-3002	Destroy bridge with demolitions
CEB-DEMO-3003	Destroy tunnel with demolitions
CEB-DEMO-3004	Destroy building with demolitions
CEB-HEOP-3001	Provide Limited Material Handling Equipment (MHE) support
CEB-HEOP-3002	Provide limited earth moving equipment support
CEB-MANT-3001	Maintain engineer equipment
CEB-MANT-3002	Perform operator/crew level maintenance on ABV
CEB-MANT-3003	Perform operator/crew level maintenance on AVLB
CEB-MOBL-3001	Engage targets with MK153 SMAW
CEB-MOBL-3002	Breach obstacles with the Assault Breacher Vehicle (ABV)
CEB-MOBL-3003	Conduct an urban breach
CEB-MOBL-3004	Create a lane through an obstacle
CEB-MOBL-3005	Proof a lane through an obstacle
CEB-MOBL-3006	Mark a lane through an obstacle
CEB-MOBL-3007	Remotely detect explosive hazards
CEB-MOBL-3008	Remotely reduce explosive hazards
CEB-MOBL-3009	Employ a medium machinegun
CEB-MOBL-3010	Employ a heavy machinegun
CEB-MOBL-3011	Fell standing timber
CEB-MOBL-3012	Employ the Armored Vehicle Launched Bridge (AVLB)
CEB-MOBL-3013	Operate small craft
CEB-MOBL-3014	Conduct route clearance operations

CEB-MOBL-3015	Conduct area clearance operations
MCT 1.4.2 CONDUCT COUNTER-MOBILITY OPERATIONS	
CEB-ADMN-7001	Command and control engineer forces
CEB-EOPS-7001	Train engineer forces
CEB-PLAN-7001	Plan engineer operations
CEB-ADMN-6001	Command and control engineer forces
CEB-CMOB-6001	Conduct countermobility operations
CEB-EOPS-6001	Train engineer forces
CEB-EOPS-6002	Conduct limited general engineering operations
CEB-PLAN-6001	Plan engineer operations
CEB-CMOB-5001	Create an obstacle group
CEB-DEMO-5001	Conduct demolition operations
CEB-HEOP-5001	Provide engineer equipment support
CEB-PINF-5001	Fight as provisional infantry
CEB-CMOB-4001	Create an explosive obstacle
CEB-CMOB-4002	Create a non-explosive obstacle/barriers
CEB-CMOB-4003	Employ demolitions in support of countermobility operations
CEB-HEOP-4001	Conduct MHE operations
CEB-PINF-4001	Fight as provisional infantry
CEB-CMOB-3001	Construct field expedient obstacles
CEB-CMOB-3002	Build non-explosive obstacles
CEB-CMOB-3003	Employ explosive obstacles
CEB-DEMO-3001	Destroy captured arms and ammunition with demolitions
CEB-DEMO-3002	Destroy bridge with demolitions
CEB-DEMO-3003	Destroy tunnel with demolitions
CEB-DEMO-3004	Destroy building with demolitions
CEB-HEOP-3001	Provide Material Handling Equipment (MHE) support
CEB-HEOP-3002	Provide earth moving equipment support
MCT 2.2.2 PROVIDE AND MAINTAIN ENGINEERING RECONNAISSANCE OPERATIONS	
CEB-ADMN-7001	Command and control engineer forces
CEB-EOPS-7001	Train engineer forces
CEB-PLAN-7001	Plan engineer operations
CEB-ADMN-6001	Command and control engineer forces
CEB-EOPS-6001	Train engineer forces
CEB-EOPS-6002	Conduct limited general engineering operations
CEB-PLAN-6001	Plan engineer operations
CEB-RECN-5001	Conduct engineer reconnaissance
CEB-RECN-5002	Conduct cache sweep operations
CEB-RECN-4001	Conduct zone reconnaissance
CEB-RECN-4002	Conduct route reconnaissance
CEB-RECN-4003	Conduct area reconnaissance
CEB-RECN-4004	Conduct cache sweep
CEB-RECN-4005	Conduct engineer reconnaissance
CEB-RECN-4006	Conduct site survey
CEB-MOBL-3002	Breach obstacle with the Assault Breacher Vehicle (ABV)
CEB-RECN-3001	Conduct gap reconnaissance
CEB-RECN-3002	Conduct ferry reconnaissance
CEB-RECN-3003	Conduct cache sweep
CEB-RECN-3004	Conduct tunnel/cave reconnaissance
CEB-RECN-3005	Survey site for construction
CEB-RECN-3006	Conduct obstacle reconnaissance
CEB-RECN-3007	Conduct bridge reconnaissance

CEB-RECN-3008	Conduct road reconnaissance
MCT 4.4.4 CONDUCT TACTICAL ELECTRICAL SUPPLY	
CEB-ADMN-7001	Command and control engineer forces
CEB-EOPS-7001	Train engineer forces
CEB-PLAN-7001	Plan engineer operations
CEB-ADMN-6001	Command and control engineer forces
CEB-EOPS-6001	Train engineer forces
CEB-EOPS-6002	Conduct limited general engineering operations
CEB-PLAN-6001	Plan engineer operations
CEB-UTIL-5001	Provide utilities support
CEB-HEOP-4001	Conduct MHE operations
CEB-MANT-4001	Maintain engineer equipment
CEB-UTIL-4001	Provide tactical electrical power
CEB-MANT-3004	Maintain tactical power distribution system
CEB-MANT-3005	Maintain Environmental Control Unit(s) (ECU)
CEB-MANT-3006	Maintain refrigeration system(s)
CEB-UTIL-3001	Establish tactical power distribution system
CEB-UTIL-3002	Provide floodlight support
CEB-UTIL-3003	Establish power generation site(s)
CEB-UTIL-3004	Wire a structure for electricity
CEB-UTIL-3005	Provide Environmental Control Unit (ECU) Support
CEB-UTIL-3006	Provide refrigeration support
MCT 6.1.4 CONDUCT SURVIVABILITY OPERATIONS	
CEB-ADMN-7001	Command and control engineer forces
CEB-EOPS-7001	Train engineer forces
CEB-PLAN-7001	Plan engineer operations
CEB-ADMN-6001	Command and control engineer forces
CEB-EOPS-6001	Train engineer forces
CEB-EOPS-6002	Conduct limited general engineering operations
CEB-PLAN-6001	Plan engineer operations
CEB-SURV-6001	Conduct survivability operations
CEB-HEOP-5001	Provide engineer equipment support
CEB-SURV-5001	Construct survivability positions
CEB-HEOP-4001	Conduct MHE operations
CEB-SURV-4001	Harden existing structure
CEB-SURV-4002	Construct field fortifications
CEB-SURV-4003	Construct Vehicle Control Point (VCP)
CEB-SURV-4004	Construct Entry Access Point (EAP)
CEB-SURV-4005	Construct earth filled barrier/structure
CEB-SURV-4006	Employ demolitions in support of survivability operations
CEB-VERT-4005	Rig expedient lifting devices
CEB-HEOP-3001	Provide Material Handling Equipment (MHE) Support
CEB-HEOP-3002	Provide limited earth moving equipment support
CEB-SURV-3001	Construct trenches
CEB-SURV-3002	Construct shelters/bunkers
CEB-SURV-3003	Construct vehicle survivability position/revetment
CEB-SURV-3004	Construct crew served weapons position
CEB-SURV-3005	Construct overhead cover
CEB-SURV-3006	Construct individual fighting position
CEB-SURV-3007	Construct triggering screen
CEB-SURV-3008	Construct vehicle fighting position

2003. DIRECT SUPPORT (DS) COMBAT LOGISTICS BATTALION (CLB) CORE MISSION-ESSENTIAL TASK LIST. The DS CLB METL Table lists the Standardized Core MET, derived from the MCTL, for the DS CLB. This METL is used for readiness reporting in DRRS. The following event codes are the linked evaluation coded (E-Coded) events that support the MET.

DS CLB CORE MISSION-ESSENTIAL TASKS

MARINE CORPS TASK LIST	DS CLB CORE METL
MCT 4.2.2.4	Conduct Repair
MCT 4.3.6	Conduct Material Handling Operations
MCT 4.4.1.1	Conduct Limited Horizontal Construction
MCT 4.4.2.1	Conduct Limited Vertical Construction
MCT 4.4.3.1	Conduct Limited Bulk Liquids Operations
MCT 4.4.4.1	Conduct Limited Tactical Electrical Supply

DS CLB MCT#/MISSION-ESSENTIAL TASK

MCT 4.2.2.4 CONDUCT REPAIR	
CLB-ADMN-6001	Command and control engineer forces
CLB-EOPS-6001	Train engineer forces
CLB-MANT-5001	Maintain engineer equipment
CLB-UTIL-5001	Provide limited utilities support
CLB-MANT-4001	Maintain engineer equipment
CLB-MANT-3001	Maintain engineer equipment
CLB-MANT-3002	Maintain tactical power distribution system(s)
CLB-MANT-3003	Maintain water purification equipment
CLB-MANT-3004	Maintain hygiene equipment
CLB-MANT-3005	Maintain refrigeration system(s)
CLB-MANT-3006	Maintain Environmental Control Units
MCT 4.3.6 CONDUCT MATERIAL HANDLING OPERATIONS	
CLB-ADMN-6001	Command and control engineer forces
CLB-EOPS-6001	Train engineer forces
CLB-EOPS-6002	Conduct construction operations
CLB-PLAN-6001	Plan engineer operations
CLB-HEOP-5001	Provide engineer equipment support
CLB-MANT-5001	Maintain engineer equipment
CLB-MOBL-5001	Conduct obstacle breaching operations
CLB-MOBL-5002	Conduct breach lane improvement operations
CLB-MOBL-5003	Construct expedient Helicopter Landing Zone (HLZ)
CLB-MOBL-5004	Construct combat roads
CLB-MOBL-5006	Construct tactical landing zones
CLB-HEOP-4001	Conduct MHE operations
CLB-MOBL-4006	Conduct route improvement
CLB-MOBL-4007	Repair runway crater
CLB-MOBL-4008	Repair spall(s)
CLB-MOBL-4009	Repair road crater
CLB-MOBL-4010	Construct expedient Helicopter Landing Zone (HLZ)
CLB-HEOP-3001	Provide crane support
CLB-HEOP-3002	Provide Material Handling Equipment (MHE) support
CLB-HEOP-3003	Provide earth moving equipment support

CLB-MOBL-3001	Fell standing timber
MCT 4.4.1.1 CONDUCT LIMITED HORIZONTAL CONSTRUCTION	
CLB-ADMN-6001	Command and control engineer forces
CLB-EOPS-6001	Train engineer forces
CLB-EOPS-6002	Conduct construction operations
CLB-PLAN-6001	Plan engineer operations
CLB-HEOP-5001	Provide engineer equipment support
CLB-HORZ-5001	Conduct limited horizontal construction
CLB-HORZ-5002	Prepare site for construction
CLB-MOBL-5003	Construct expedient Helicopter Landing Zone (HLZ)
CLB-MOBL-5004	Construct combat roads
CLB-MOBL-5006	Construct tactical landing zones
CLB-RECN-5001	Conduct engineer reconnaissance
CLB-HORZ-4001	Conduct horizontal construction
CLB-HORZ-4002	Conduct expedient drainage structure
CLB-MOBL-4006	Conduct route improvement
CLB-MOBL-4009	Repair road crater
CLB-MOBL-4010	Construct expedient Helicopter Landing Zone (HLZ)
CLB-RECN-4001	Conduct Site Survey
CLB-HEOP-3002	Provide Material Handling Equipment (MHE) support
CLB-HEOP-3003	Provide earth moving equipment support
CLB-HORZ-3001	Conduct dust abatement
CLB-RECN-3001	Survey site for construction
MCT 4.4.2.1 CONDUCT LIMITED VERTICAL CONSTRUCTION	
CLB-ADMN-6001	Command and control engineer forces
CLB-EOPS-6001	Train engineer forces
CLB-EOPS-6002	Conduct construction operations
CLB-PLAN-6001	Plan engineer operations
CLB-HEOP-5001	Provide engineer equipment support
CLB-RECN-5001	Conduct engineer reconnaissance
CLB-VERT-5001	Conduct limited vertical construction
CLB-HEOP-4001	Conduct MHE operations
CLB-RECN-4001	Conduct Site Survey
CLB-VERT-4001	Conduct limited vertical construction
CLB-VERT-4002	Construct wood frame structure
CLB-VERT-4003	Construct concrete block structure
CLB-VERT-4004	Construct timber structure
CLB-VERT-4005	Repair existing structures
CLB-VERT-4006	Construct concrete structure
CLB-VERT-4007	Construct manufactured steel structure
CLB-HEOP-3002	Provide Material Handling Equipment (MHE) support
CLB-HEOP-3003	Provide earth moving equipment support
CLB-HORZ-3001	Conduct dust abatement
CLB-RECN-3001	Survey site for construction
MCT 4.4.3.1 CONDUCT LIMITED BULK LIQUIDS OPERATIONS	
CLB-ADMN-6001	Command and control engineer forces
CLB-EOPS-6001	Train engineer forces
CLB-EOPS-6002	Conduct construction operations
CLB-PLAN-6001	Plan engineer operations
CLB-HEOP-5001	Provide engineer equipment support
CLB-MANT-5001	Maintain engineer equipment
CLB-UTIL-5001	Provide limited utilities support

CLB-MANT-4001	Maintain engineer equipment
CLB-RECN-4001	Conduct Site Survey
CLB-UTIL-4002	Provide limited potable water
CLB-UTIL-4003	Provide tactical hygiene support
CLB-FUEL-3001	Operate bulk fuel distribution site
CLB-FUEL-3002	Provide tactical bulk fuel storage
CLB-HEOP-3002	Provide Material Handling Equipment (MHE) support
CLB-HEOP-3003	Provide earth moving equipment support
CLB-HORZ-3001	Conduct dust abatement
CLB-RECN-3001	Survey site for construction
CLB-UTIL-3007	Produce potable water
CLB-UTIL-3008	Store potable water
CLB-UTIL-3009	Establish water distribution site
CLB-UTIL-3010	Provide laundry services
CLB-UTIL-3011	Provide shower services
CLB-UTIL-3012	Install plumbing in a structure
MCT 4.4.4.1 CONDUCT LIMITED TACTICAL ELECTRICAL SUPPLY	
CLB-ADMN-6001	Command and control engineer forces
CLB-EOPS-6001	Train engineer forces
CLB-EOPS-6002	Conduct construction operations
CLB-PLAN-6001	Plan engineer operations
CLB-MANT-5001	Maintain engineer equipment
CLB-UTIL-5001	Provide limited utilities support
CLB-VERT-5001	Conduct limited vertical construction
CLB-MANT-4001	Maintain engineer equipment
CLB-UTIL-4001	Provide limited tactical electrical power
CLB-VERT-4001	Conduct limited vertical construction
CLB-VERT-4002	Construct wood frame structure
CLB-VERT-4005	Repair existing structure
CLB-VERT-4007	Construct manufactured steel structure
CLB-UTIL-3001	Establish tactical power distribution system
CLB-UTIL-3002	Provide floodlight support
CLB-UTIL-3003	Establish power generation sites
CLB-UTIL-3004	Wire a structure for electricity
CLB-UTIL-3005	Provide Environmental Control Unit (ECU) support
CLB-UTIL-3006	Provide refrigeration support
CLB-UTIL-3010	Provide laundry services
CLB-UTIL-3011	Provide shower services

2004. ENGINEER SUPPORT BATTALION (ESB CORE) MISSION-ESSENTIAL TASK LIST. The ESB METL Table lists the Standardized Core MET, derived from the MCTL, for the ESB. This METL is used for readiness reporting in DRRS. The following event codes are the linked evaluation coded (E-Coded) events that support the MET.

ESB CORE MISSION-ESSENTIAL TASK

MARINE CORPS TASK LIST	ESB CORE METL
MCT 1.1.2	Provide Task-Organized Forces
MCT 1.4.1	Conduct Mobility Operations

MCT 1.4.2	Conduct Counter-Mobility Operations
MCT 2.2.2	Provide and Maintain Engineering Reconnaissance Operations
MCT 4.4.1	Conduct Horizontal Construction
MCT 4.4.2	Conduct Vertical Construction
MCT 4.4.3	Conduct Bulk Liquids Operations
MCT 4.4.4	Conduct Tactical Electrical Supply
MCT 6.1.4	Conduct Survivability Operations

MCT#/MISSION-ESSENTIAL TASK

MCT 1.1.2 PROVIDE TASK-ORGANIZED FORCES	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-CMOB-6001	Conduct countermobility operations
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-FUEL-6001	Conduct tactical bulk fuel operations
ESB-MOBL-6001	Conduct mobility operations
ESB-PINF-6001	Provide provisional infantry
ESB-PLAN-6001	Plan engineer operations
ESB-SURV-6001	Conduct survivability operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-MANT-5001	Maintain engineer equipment
ESB-PINF-5001	Provide provisional infantry
ESB-UTIL-5001	Provide utilities support
ESB-PINF-4001	Fight as provisional infantry
ESB-MANT-3002	Employ maintenance team
MCT 1.4.1 CONDUCT MOBILITY OPERATIONS	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-MOBL-6001	Conduct mobility operations
ESB-MOBL-6002	Employ non-standard bridging
ESB-PINF-6001	Provide provisional infantry
ESB-PLAN-6001	Plan engineer operations
ESB-DEMO-5001	Conduct demolition operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-HORZ-5001	Conduct horizontal construction
ESB-HORZ-5002	Prepare site for construction
ESB-MANT-5001	Maintain engineer equipment
ESB-MOBL-5001	Conduct obstacle breaching operations
ESB-MOBL-5002	Conduct breach lane improvement operations
ESB-MOBL-5003	Construct expedient Helicopter Landing Zone (HLZ)
ESB-MOBL-5004	Construct combat roads
ESB-MOBL-5005	Install medium girder bridge
ESB-MOBL-5006	Install ribbon bridge
ESB-MOBL-5007	Construct non-standard bridge

ESB-MOBL-5008	Repair non-standard bridge
ESB-MOBL-5009	Conduct rafting operations
ESB-MOBL-5010	Conduct area clearance operations
ESB-MOBL-5011	Construct tactical landing zones
ESB-MOBL-5012	Conduct airfield damage repair
ESB-PINF-5001	Provide provisional infantry
ESB-VERT-5001	Conduct vertical construction
ESB-UTIL-5001	Provide utilities support
ESB-HEOP-4001	Conduct MHE operations
ESB-HORZ-4001	Conduct horizontal construction
ESB-HORZ-4002	Construct expedient drainage structure
ESB-MANT-4001	Maintain engineer equipment
ESB-MOBL-4001	Conduct security for clearance operations
ESB-MOBL-4002	Detect obstacles during clearance operations
ESB-MOBL-4003	Breach obstacles for clearance operations
ESB-MOBL-4004	Conduct dismounted route sweep operations
ESB-MOBL-4005	Conduct deliberate breach
ESB-MOBL-4006	Conduct route improvement
ESB-MOBL-4007	Repair runway crater
ESB-MOBL-4008	Repair spall(s)
ESB-MOBL-4009	Repair road crater
ESB-MOBL-4010	Employ demolitions in support of mobility
ESB-MOBL-4011	Assemble medium girder bridge
ESB-MOBL-4012	Assemble ribbon bridge
ESB-MOBL-4013	Assemble ribbon raft
ESB-MOBL-4014	Maneuver a standard military ribbon raft
ESB-PINF-4001	Fight as provisional infantry
ESB-DEMO-3001	Destroy captured arms and ammunitions with demolitions
ESB-DEMO-3002	Destroy Bridge with demolitions
ESB-DEMO-3003	Destroy tunnel with demolitions
ESB-DEMO-3004	Destroy building with demolitions
ESB-HEOP-3001	Provide crane support
ESB-HEOP-3002	Provide Material Handling Equipment (MHE) support
ESB-HEOP-3003	Provide earth moving equipment support
ESB-HORZ-3001	Conduct dust abatement
ESB-MANT-3001	Maintain engineer equipment
ESB-MANT-3002	Employ maintenance team
ESB-MOBL-3001	Operate small craft
ESB-MOBL-3002	Employ a medium machinegun team
ESB-MOBL-3003	Employ a heavy machinegun team
ESB-MOBL-3004	Fell standing timber
ESB-MOBL-3005	Create a lane through an obstacle
ESB-MOBL-3006	Proof a lane through an obstacle
ESB-MOBL-3007	Mark a lane through an obstacle
MCT 1.4.2 CONDUCT COUNTER-MOBILITY OPERATIONS	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-CMOB-6001	Conduct countermobility operations
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations

ESB-PLAN-6001	Plan engineer operations
ESB-CMOB-5001	Create an obstacle group
ESB-DEMO-5001	Conduct demolition operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-HORZ-5001	Conduct horizontal construction
ESB-HORZ-5002	Prepare site for construction
ESB-MANT-5001	Maintain engineer equipment
ESB-PINF-5001	Provide provisional infantry
ESB-UTIL-5001	Provide utilities support
ESB-CMOB-4001	Create an explosive obstacle
ESB-CMOB-4002	Create a non-explosive obstacle/barriers
ESB-CMOB-4003	Employ demolitions in support of countermobility operations
ESB-HEOP-4001	Conduct MHE operations
ESB-HORZ-4001	Conduct horizontal construction
ESB-HORZ-4002	Construct expedient drainage structure
ESB-PINF-4001	Fight as provisional infantry
ESB-CMOB-3001	Employ explosive obstacles
ESB-CMOB-3002	Build non-explosive obstacles
ESB-CMOB-3003	Construct demolition obstacles
ESB-DEMO-3001	Destroy captured arms and ammunitions with demolitions
ESB-DEMO-3002	Destroy Bridge with demolitions
ESB-DEMO-3003	Destroy tunnel with demolitions
ESB-DEMO-3004	Destroy building with demolitions
ESB-HEOP-3001	Provide crane support
ESB-HEOP-3002	Provide Material Handling Equipment (MHE) support
ESB-HEOP-3003	Provide earth moving equipment support
ESB-HORZ-3001	Conduct dust abatement
ESB-MANT-3002	Employ maintenance team
ESB-MOBL-3004	Fell standing timber
MCT 2.2.2 PROVIDE AND MAINTAIN ENGINEERING RECONNAISSANCE OPERATIONS	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-PLAN-6001	Plan engineer operations
ESB-RECN-5001	Conduct engineer reconnaissance
ESB-RECN-5002	Conduct cache sweep operations
ESB-RECN-4001	Conduct site survey
ESB-RECN-4002	Conduct cache sweep operations
ESB-RECN-4003	Conduct zone reconnaissance
ESB-RECN-4004	Conduct route reconnaissance
ESB-RECN-4005	Conduct area reconnaissance
ESB-MOBL-3001	Operate small craft
ESB-RECN-3001	Survey site for construction
ESB-RECN-3002	Conduct cache sweep
ESB-RECN-3003	Conduct obstacle reconnaissance
ESB-RECN-3004	Conduct bridge reconnaissance
ESB-RECN-3005	Conduct road reconnaissance
ESB-RECN-3006	Assess damage to airfield surface

ESB-RECN-3007	Assess damage to airfield facilities and structures
ESB-RECN-3008	Conduct gap reconnaissance
MCT 4.4.1 CONDUCT HORIZONTAL CONSTRUCTION	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-PLAN-6001	Plan engineer operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-HORZ-5001	Conduct horizontal construction
ESB-HORZ-5002	Prepare site for construction
ESB-MANT-5001	Maintain engineer equipment
ESB-MOBL-5003	Construct expedient Helicopter Landing Zone
ESB-MOBL-5004	Construct combat roads
ESB-MOBL-5011	Construct tactical landing zone
ESB-HEOP-4001	Conduct MHE operations
ESB-HORZ-4001	Conduct horizontal construction
ESB-HORZ-4002	Construct expedient drainage structure
ESB-MOBL-4006	Conduct route improvement
ESB-MOBL-4007	Repair runway crater
ESB-HEOP-3001	Provide crane support
ESB-HEOP-3002	Provide Material Handling Equipment (MHE) support
ESB-HEOP-3003	Provide earth moving equipment support
ESB-HORZ-3001	Conduct dust abatement
MCT 4.4.2 CONDUCT VERTICAL CONSTRUCTION	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-PLAN-6001	Plan engineer operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-VERT-5001	Conduct vertical construction
ESB-HEOP-4001	Conduct MHE operations
ESB-VERT-4001	Conduct vertical construction
ESB-VERT-4002	Construct wood frame structure
ESB-VERT-4003	Construct concrete block structure
ESB-VERT-4004	Construct timber structure
ESB-VERT-4005	Repair existing structures
ESB-VERT-4006	Construct concrete structure
ESB-VERT-4007	Construct manufactured steel structure
ESB-HEOP-3001	Provide crane support
ESB-HEOP-3002	Provide Material Handling Equipment (MHE) support
ESB-HEOP-3003	Provide earth moving equipment support
MCT 4.4.3 CONDUCT BULK LIQUIDS OPERATIONS	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces

ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-FUEL-6001	Conduct tactical bulk fuel operations
ESB-PLAN-6001	Plan engineer operations
ESB-FUEL-5001	Construct bulk fuel site
ESB-FUEL-5002	Conduct tactical bulk fuel operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-HORZ-5001	Conduct horizontal construction
ESB-HORZ-5002	Prepare site for construction
ESB-MANT-5001	Maintain engineer equipment
ESB-UTIL-5001	Provide utilities support
ESB-FUEL-4001	Construct bulk fuel site
ESB-FUEL-4002	Conduct tactical bulk fuel operations
ESB-HEOP-4001	Conduct MHE operations
ESB-HORZ-4001	Conduct horizontal construction
ESB-HORZ-4002	Construct expedient drainage structure
ESB-HEOP-3003	Provide earth moving equipment support
ESB-UTIL-4002	Provide potable water
ESB-FUEL-3001	Operate bulk fuel distribution site
ESB-FUEL-3002	Provide tactical bulk fuel storage
ESB-HEOP-3001	Provide crane support
ESB-HEOP-3002	Provide Material Handling Equipment (MHE) support
ESB-HEOP-3003	Provide earth moving equipment support
ESB-HORZ-3001	Conduct dust abatement
ESB-MANT-3004	Maintain water purification equipment
ESB-MANT-3005	Maintain hygiene equipment
ESB-UTIL-3007	Produce potable water
ESB-UTIL-3008	Store potable water
ESB-UTIL-3009	Establish water distribution site
ESB-UTIL-3010	Provide laundry services
ESB-UTIL-3011	Provide shower services
ESB-UTIL-3012	Install plumbing in a structure
MCT 4.4.4 CONDUCT TACTICAL ELECTRICAL SUPPLY	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-PLAN-6001	Plan engineer operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-UTIL-5001	Provide utilities support
ESB-HEOP-4001	Conduct MHE operations
ESB-UTIL-4001	Provide tactical electrical power
ESB-HEOP-3001	Provide crane support
ESB-HEOP-3002	Provide Material Handling Equipment (MHE) support
ESB-HEOP-3003	Provide earth moving equipment support
ESB-MANT-3003	Maintain tactical power distribution system(s)
ESB-MANT-3006	Maintain refrigeration system(s)
ESB-MANT-3007	Maintain Environmental Control Units
ESB-UTIL-3001	Establish tactical power distribution system
ESB-UTIL-3002	Provide floodlight support

ESB-UTIL-3003	Establish power generation sites
ESB-UTIL-3004	Wire a structure for electricity
ESB-UTIL-3005	Provide Environmental Control Unit (ECU) support
ESB-UTIL-3006	Provide refrigeration support
MCT 6.1.4 CONDUCT SURVIVABILITY OPERATIONS	
ESB-ADMN-7001	Command and control engineer forces
ESB-EOPS-7001	Train engineer forces
ESB-PLAN-7001	Plan engineer operations
ESB-ADMN-6001	Command and control engineer forces
ESB-EOPS-6001	Train engineer forces
ESB-EOPS-6002	Conduct engineer operations
ESB-PLAN-6001	Plan engineer operations
ESB-SURV-6001	Conduct survivability operations
ESB-DEMO-5001	Conduct demolition operations
ESB-HEOP-5001	Provide engineer equipment support
ESB-HORZ-5001	Conduct horizontal construction
ESB-HORZ-5002	Prepare site for construction
ESB-MANT-5001	Maintain engineer equipment
ESB-SURV-5001	Construct survivability positions
ESB-SURV-5002	Harden existing structure
ESB-SURV-5003	Construct field fortifications
ESB-VERT-5001	Conduct vertical construction
ESB-HEOP-4001	Conduct MHE operations
ESB-MANT-4001	Maintain engineer equipment
ESB-HORZ-4001	Conduct horizontal construction
ESB-HORZ-4002	Construct expedient drainage structure
ESB-SURV-4001	Harden existing structure
ESB-SURV-4002	Construct field fortifications
ESB-SURV-4003	Construct Vehicle Control Point (VCP)
ESB-SURV-4004	Construct Entry Access Point (EAP)
ESB-SURV-4005	Construct earth filled barrier/structure
ESB-SURV-4006	Employ demolitions in support of survivability operations
ESB-HEOP-3002	Provide Material Handling Equipment (MHE) support
ESB-HEOP-3003	Provide earth moving equipment support
ESB-MANT-3001	Maintain engineer equipment
ESB-MANT-3002	Employ maintenance team
ESB-SURV-3001	Construct trenches
ESB-SURV-3002	Construct shelter/bunkers
ESB-SURV-3003	Construct vehicle survivability position/revetment
ESB-SURV-3004	Construct crew served weapons position
ESB-SURV-3005	Construct overhead cover
ESB-SURV-3006	Construct individual fighting position
ESB-SURV-3007	Construct triggering screen
ESV-SURB-3008	Construct vehicle fighting position

ENG & UTIL T&R MANUAL

CHAPTER 3

CAB COLLECTIVE EVENTS

	PARAGRAPH	PAGE
PURPOSE.	3000	3-2
EVENT CODING	3001	3-2
INDEX OF COLLECTIVE EVENTS	3002	3-3
7000-LEVEL EVENTS.	3003	3-5
6000-LEVEL EVENTS.	3004	3-8
5000-LEVEL EVENTS.	3005	3-16
4000-LEVEL EVENTS.	3006	3-36
3000-LEVEL EVENTS.	3007	3-83

CHAPTER 3

CAB COLLECTIVE EVENTS

3000. PURPOSE. Chapter 3 contains collective training events for the Combat Assault Battalion (CAB).

3001. **EVENT CODING.** Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
CAB	Combat Assault Battalion

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
CMOB	Counter-mobility
DEMO	Demolitions
EOPS	Engineer Operations
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction
MANT	Maintenance
MOBL	Mobility
PINF	Provisional Infantry
PLAN	Planning
RECN	Engineer Reconnaissance
SURV	Survivability
UTIL	Utilities
VERT	Vertical Construction

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
7000	Battalion Level
6000	Company Level
5000	Platoon Level
4000	Squad Level
3000	Team Level

3002. INDEX OF COLLECTIVE EVENTS

EVENT	E-CODED	DESCRIPTION	PAGE
7000–LEVEL EVENTS			
CAB-ADMN-7001	YES	Command and control engineer forces	3-5
CAB-EOPS-7001	YES	Train engineer forces	3-6
CAB-PLAN-7001	YES	Plan engineer operations	3-7
6000–LEVEL EVENTS			
CAB-ADMN-6001	YES	Command and control engineer forces	3-8
CAB-CMOB-6001	YES	Conduct countermobility operations	3-9
CAB-EOPS-6001	YES	Train engineer forces	3-10
CAB-EOPS-6002	NO	Conduct limited general engineering operations	3-11
CAB-MOBL-6001	YES	Conduct mobility operations	3-12
CAB-PINF-6001	YES	Provide provisional infantry	3-13
CAB-PLAN-6001	YES	Plan engineer operations	3-14
CAB–SURV-6001	YES	Conduct survivability operations	3-15
5000–LEVEL EVENTS			
CAB-CMOB-5001	YES	Create obstacle groups	3-16
CAB-DEMO-5001	YES	Conduct demolition operations	3-17
CAB-HEOP-5001	YES	Provide limited engineer equipment support	3-18
CAB-HORZ-5001	NO	Conduct limited horizontal construction	3-20
CAB-HORZ-5002	NO	Prepare site for construction	3-21
CAB-MANT-5001	YES	Maintain engineer equipment	3-22
CAB-MOBL-5001	YES	Conduct obstacle breaching operations	3-23
CAB-MOBL-5002	YES	Conduct route clearance operations	3-25
CAB-MOBL-5003	YES	Construct expedient Helicopter Landing Zone (HLZ)	3-26
CAB-MOBL-5004	YES	Construct combat roads	3-27
CAB-PINF-5001	YES	Fight as provisional infantry	3-28
CAB-RECN-5001	YES	Conduct engineer reconnaissance	3-30
CAB-RECN-5002	YES	Conduct cache sweep operations	3-30
CAB-SURV-5001	YES	Construct survivability positions	3-32
CAB-UTIL-5001	YES	Provide limited utilities support	3-33
CAB-VERT-5001	NO	Conduct limited vertical construction	3-35
4000-LEVEL EVENTS			
CAB-CMOB-4001	YES	Create an explosive obstacle	3-36
CAB-CMOB-4002	YES	Create non-explosive obstacles/barriers	3-38
CAB-CMOB-4003	YES	Employ demolitions in support of countermobility operations	3-40
CAB-HEOP-4001	YES	Conduct Material Handling Equipment (MHE) operations	3-42
CAB-MANT-4001	NO	Maintain engineer equipment	3-43
CAB-MOBL-4001	YES	Conduct deliberate breach	3-44
CAB-MOBL-4002	YES	Conduct hasty/in-stride breach	3-45
CAB-MOBL-4003	YES	Conduct assault breach	3-47
CAB-MOBL-4004	YES	Conduct covert breach	3-49
CAB-MOBL-4005	YES	Conduct dismounted route sweep operations	3-50
CAB-MOBL-4006	YES	Conduct security for clearance operations	3-52
CAB-MOBL-4007	YES	Detect obstacles during clearance operations	3-53

CAB-MOBL-4008	YES	Breach obstacles for clearance operations	3-54
CAB-MOBL-4009	YES	Conduct limited route improvement	3-56
CAB-MOBL-4010	YES	Install a rope bridge	3-57
CAB-MOBL-4011	YES	Employ demolitions in support of mobility operations	3-58
CAB-PINF-4001	YES	Fight as provisional infantry	3-59
CAB-RECN-4001	YES	Conduct zone reconnaissance	3-61
CAB-RECN-4002	YES	Conduct route reconnaissance	3-62
CAB-RECN-4003	YES	Conduct area reconnaissance	3-62
CAB-RECN-4004	YES	Conduct cache sweep	3-64
CAB-RECN-4005	YES	Conduct engineer reconnaissance	3-65
CAB-RECN-4006	YES	Conduct site survey	3-66
CAB-SURV-4001	YES	Harden existing structure	3-67
CAB-SURV-4002	YES	Construct field fortifications	3-69
CAB-SURV-4003	YES	Construct Vehicle Control Point (VCP)	3-70
CAB-SURV-4004	YES	Construct Entry Access Point (EAP)	3-72
CAB-SURV-4005	YES	Construct earth filled barrier/structure	3-73
CAB-SURV-4006	YES	Employ demolitions in support of survivability operations	3-74
CAB-UTIL-4001	YES	Provide tactical electrical power	3-75
CAB-UTIL-4002	NO	Provide potable water	3-76
CAB-UTIL-4003	NO	Provide tactical hygiene support	3-77
CAB-VERT-4001	NO	Conduct limited vertical construction	3-78
CAB-VERT-4002	NO	Construct wood frame structure	3-79
CAB-VERT-4003	NO	Construct timber structure	3-80
CAB-VERT-4004	NO	Provide limited repair of existing structures	3-81
CAB-VERT-4005	NO	Rig expedient lifting devices	3-82
3000- LEVEL EVENTS			
CAB-CMOB-3001	YES	Construct field expedient obstacles	3-83
CAB-CMOB-3002	YES	Build non-explosive obstacles	3-85
CAB-CMOB-3003	YES	Employ explosive obstacles	3-86
CAB-DEMO-3001	YES	Destroy captured arms and ammunition with demolitions	3-87
CAB-DEMO-3002	YES	Destroy bridge with demolitions	3-89
CAB-DEMO-3003	YES	Destroy tunnel with demolitions	3-90
CAB-DEMO-3004	YES	Destroy building with demolitions	3-92
CAB-HEOP-3001	YES	Provide limited Material Handling Equipment (MHE) support	3-93
CAB-HEOP-3002	YES	Provide limited earth moving equipment support	3-94
CAB-MANT-3001	YES	Maintain engineer equipment	3-95
CAB-MANT-3002	YES	Maintain tactical power distribution system	3-96
CAB-MANT-3003	NO	Maintain water purification equipment	3-97
CAB-MANT-3004	NO	Maintain hygiene equipment	3-98
CAB-MOBL-3001	YES	Engage targets with MK153 SMAW	3-99
CAB-MOBL-3002	YES	Conduct an urban breach	3-100
CAB-MOBL-3003	YES	Create a lane through an obstacle	3-102
CAB-MOBL-3004	YES	Proof a lane through an obstacle	3-103
CAB-MOBL-3005	YES	Mark a lane through an obstacle	3-105
CAB-MOBL-3006	YES	Remotely detect explosive hazards	3-106

CAB-MOBL-3007	YES	Remotely reduce explosive hazards	3-107
CAB-MOBL-3008	YES	Employ a medium machinegun team	3-108
CAB-MOBL-3009	YES	Employ a heavy machinegun team	3-109
CAB-MOBL-3010	YES	Fell standing timber	3-110
CAB-MOBL-3011	NO	Operate small craft	3-111
CAB-MOBL-3012	YES	Conduct limited route clearance operations	3-112
CAB-MOBL-3013	YES	Conduct area clearance operations	3-113
CAB-RECN-3001	YES	Conduct gap reconnaissance	3-115
CAB-RECN-3002	YES	Conduct ferry reconnaissance	3-116
CAB-RECN-3003	YES	Conduct cache sweep	3-117
CAB-RECN-3004	YES	Conduct tunnel/cave reconnaissance	3-118
CAB-RECN-3005	YES	Survey site for construction	3-119
CAB-RECN-3006	YES	Conduct obstacle reconnaissance	3-120
CAB-RECN-3007	YES	Conduct bridge reconnaissance	3-121
CAB-RECN-3008	YES	Conduct road reconnaissance	3-122
CAB-SURV-3001	YES	Construct trenches	3-123
CAB-SURV-3002	YES	Construct shelters/bunkers	3-124
CAB-SURV-3003	YES	Construct vehicle survivability position/revetment	3-125
CAB-SURV-3004	YES	Construct crew served weapons position	3-126
CAB-SURV-3005	YES	Construct overhead cover	3-128
CAB-SURV-3006	YES	Construct individual fighting position	3-129
CAB-SURV-3007	YES	Construct triggering screen	3-130
CAB-SURV-3008	YES	Construct vehicle fighting position	3-131
CAB-UTIL-3001	YES	Establish tactical power distribution system	3-132
CAB-UTIL-3002	NO	Provide floodlight support	3-133
CAB-UTIL-3003	YES	Establish power generation site(s)	3-134
CAB-UTIL-3004	NO	Wire a structure for electricity	3-134
CAB-UTIL-3005	NO	Produce potable water	3-136
CAB-UTIL-3006	NO	Store potable water	3-137
CAB-UTIL-3007	NO	Establish water distribution site	3-137
CAB-UTIL-3008	NO	Provide laundry services	3-138
CAB-UTIL-3009	NO	Provide shower services	3-139
CAB-UTIL-3010	NO	Install plumbing in a structure	3-140

3003. 7000 LEVEL EVENTS

CAB-ADMN-7001: Command and control engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Command and control engineer forces to exercise authority and direction over assigned forces, advise the Battalion Commander on the use of engineer forces, and coordinate operations with adjacent engineers.

CONDITION: Given an order, commander's intent and references.

STANDARD: To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces and coordinate operations with adjacent engineers in the accomplishment of the mission in accordance with MCWP 3-17 Engineer Operations.

EVENT COMPONENTS:
1. Establish COC.
2. Establish communications with higher, adjacent, supported and subordinate units.
3. Command assigned units.
4. Maintain the engineer COP.
5. Direct/coordinate current engineer operations.
6. Initiate appropriate actions.
7. Track CCIRs.
8. Maintain status of available engineer resources.
9. Integrate engineer reconnaissance products into intelligence efforts.
10. Make recommendations to the commander.

CHAINED EVENTS:

CAB-ADMN-6001	CAB-CMOB-6001	CAB-EOPS-6001
CAB-EOPS-6002	CAB-MOBL-6001	CAB-PINF-6001
CAB-PLAN-6001	CAB-SURV-6001	ESB-PINF-6001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-43 Command and Control
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: C4I assets.

CAB-EOPS-7001: Train engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 6 months

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, countermobility, survivability, tactical electrical power, engineering reconnaissance operations and amphibious operations.

CONDITION: Given an engineer unit, approved Mission Essential Task List

(METL), commander's training guidance, training plans, training schedules, resources and trainers.

STANDARD: To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.
8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA).
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

CHAINED EVENTS:

CAB-ADMN-6001	CAB-CMOB-6001	CAB-EOPS-6001
CAB-EOPS-6002	CAB-MOBL-6001	CAB-PINF-6001
CAB-PLAN-6001	CAB-SURV-6001	ESB-PINF-6001

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCRP 3-0A Unit Training Management Guide
3. MCRP 3-0B How to Conduct Training
4. MCWP 3-17 Engineering Operations
5. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CAB-PLAN-7001: Plan engineer operations

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 6 months

DESCRIPTION: Plan engineer operations to optimize the use of engineer personnel and equipment in accordance with mission analysis, commander's

intent and concept of operations.

CONDITION: Given higher commander's initial guidance, battle space area evaluation, and a warning or operations order.

STANDARD: To identify the best use of engineer personnel and equipment in accordance with problem framing, commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Develop courses of action.
3. War game courses of action.
4. Compare courses of action.
5. Brief commanders.
6. Develop orders.
7. Transition to produce operations plan or order.
8. Develop branches and sequels, if applicable.

CHAINED EVENTS: CAB-PLAN-6001

RELATED EVENTS:

1302-ADMN-1002	1302-CMOB-1001	1302-CMOB-1002
1302-CMOB-1003	1302-DEMO-1001	1302-DEMO-1004
1302-EOPS-1005	1302-FUEL-1001	1302-HORZ-1001
1302-HORZ-1002	1302-MOBL-1001	1302-MOBL-1002
1302-MOBL-1003	1302-MOBL-1005	1302-MOBL-1007

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-17.8 Combined Arms Mobility Operations
8. MCWP 5-1 Marine Corps Planning Process (MCPP)

3004. 6000 LEVEL EVENTS

CAB-ADMN-6001: Command and control engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Command and control engineer forces to exercise authority and direction over assigned forces, advise the Battalion Commander on the use of engineer forces, and coordinate operations with adjacent engineers.

CONDITION: Given an order and commander's intent.

STANDARD: To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces and coordinate operations with adjacent engineers in accordance with concept of operations.

EVENT COMPONENTS:
1. Establish COC.
2. Establish communications with higher, adjacent, supported and subordinate units.
3. Command assigned units.
4. Maintain the engineer COP.
5. Direct/coordinate current engineer operations.
6. Initiate appropriate actions.
7. Track CCIRs.
8. Maintain status of available engineer resources.
9. Integrate engineer reconnaissance products into intelligence efforts.
10. Make recommendations to the commander.

CHAINED EVENTS:

CAB-CMOB-5001	CAB-DEMO-5001	CAB-HEOP-5001
CAB-HORZ-5001	CAB-HORZ-5002	CAB-MOBL-5001
CAB-MOBL-5002	CAB-MOBL-5003	CAB-MOBL-5004
CAB-PINF-5001	CAB-RECN-5001	CAB-RECN-5002

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-43 Command and Control
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

MATERIAL: C4ISR assets.

CAB-CMOB-6001: Conduct countermobility operations

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct countermobility operations to augment natural terrain with obstacle systems that disrupt the enemy's ability to maneuver its forces. With its movement disrupted, turned, fixed or blocked, the enemy is vulnerable.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent

activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan and references.

STANDARD: To turn, block, fix, or disrupt enemy forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct countermobility planning.
2. Integrate countermobility plan into concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete engineering portion to orders.
6. Issue orders.
7. Construct obstacles and barriers.
8. Maintain obstacles and barriers.
9. Submit reports, as required.

CHAINED EVENTS:
CAB-CMOB-5001 CAB-HEOP-5001

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCWP 3-17 Engineering Operations

CAB-EOPS-6001: Train engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, countermobility, survivability, tactical electrical power, engineering reconnaissance operations and amphibious operations.

CONDITION: Given an engineer unit, approved Mission Essential Task List (METL), commander's training guidance, training plans, training schedules, resources and trainers.

STANDARD: To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.

8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA).
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

CHAINED EVENTS:

CAB-HORZ-5001	CAB-HORZ-5002	CAB-MOBL-5001
CAB-MOBL-5002	CAB-MOBL-5003	CAB-MOBL-5004
CAB-PINF-5001	CAB-RECN-5001	CAB-RECN-5002
CAB-SURV-5001	CAB-UTIL-5001	CAB-VERT-5001
CAB-VERT-5001	CLB-SURV-5001	ESB-SURV-5001

REFERENCES:
1. MCRP 3-0A Unit Training Management Guide
2. MCRP 3-0B How to Conduct Training
3. MCWP 3-17 Engineering Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)
5. NAVMC 3500.12_ Engineer and Utilities T&R Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CAB-EOPS-6002: Conduct limited general engineering operations

SUPPORTED MCT(S):

MCT 1.12.1	MCT 1.4.1	MCT 1.4.2
MCT 2.2.2	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct limited general engineering operations to include but are not limited to expeditionary facilities and helicopter landing zones.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan and security element.

STANDARD: To provide general engineering within capabilities in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Provide engineer reconnaissance.
2. Conduct site survey.

3. Construct and maintain essential base camp requirements.
4. Provide limited tactical mobile electric power.
5. Provide limited vertical and horizontal construction.
6. Construct expedient helicopter landing zones (HLZ).
7. Provide limited material handling equipment support.

CHAINED EVENTS:

CAB-HEOP-5001	CAB-HORZ-5001	CAB-HORZ-5002
CAB-MANT-5001	CAB-MOBL-5003	CAB-RECN-5001
CAB-UTIL-5001	CAB-VERT-5001	

REFERENCES:

1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17.7K Theater of Operations Electrical Systems
7. MCRP 3-17.7M Construction Estimating
8. MCRP 3-17.7N Base Camps
9. MCRP 3-17A Engineering Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 3-17 Engineering Operations
12. MCWP 3-17.4 Engineer Reconnaissance
13. MCWP 3-17.7 General Engineering

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer Earthmoving equipment, Engineer Material Handling equipment, Utilities equipment, Refrigeration equipment, Combat Engineer tools & kits

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CAB-MOBL-6001: Conduct mobility operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct mobility operations to enable the force commander to maneuver units into advantageous positions. It includes but is not limited to breaching, mounted route clearance, combat roads and trails, and assault bridging.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes,

rules of engagement (ROE), supporting arms plan and references.

STANDARD: To provide mobility for maneuver forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct mobility planning.
2. Conduct engineer reconnaissance.
3. Integrate mobility plan into the concept of operations.
4. Participate in supported unit planning.
5. Task organize.
6. Complete the engineering portion of the orders.
7. Issue orders.
8. Clear mobility obstructions.
9. Construct and maintain mobility corridors for maneuver forces.
10. Submit reports, as required.

CHAINED EVENTS:

CAB-DEMO-5001	CAB-HEOP-5001	CAB-MOBL-5001
CAB-MOBL-5002	CAB-MOBL-5003	CAB-MOBL-5004
CAB-RECN-5001		

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations
8. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
9. Unit SOP Unit's Standing Operating Procedures

CAB-PINF-6001: Provide provisional infantry

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide provisional infantry to participate in offensive operations such as attacks, raids, and movement to contact. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To ensure a deployable detachment is capable of providing task organized forces to a supported unit in accordance with the concept of operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Employ appropriate formations and tactics.
6. Conduct final preparations.
7. Utilize, coordinate and deconflict fires.
8. Employ supporting arms.
9. Establish redundant communications.
10. Treat and evacuate casualties.
11. Process detainees.
12. Send and receive required reports.

CHAINED EVENTS: CAB-PINF-5001

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. MCDP 1 Warfighting
3. MCWP 3-1 Ground Combat Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17730 Fire and Movement Range

CAB-PLAN-6001: Plan engineer operations

SUPPORTED MCT(S):

MCT 1.12.1	MCT 1.4.1	MCT 1.4.2
MCT 2.2.2	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan engineer operations to optimize the use of engineer personnel and equipment in accordance with problem framing, commander's intent and concept of operations.

CONDITION: Given higher commander's initial guidance, battle-space area evaluation, and a warning order or operations order.

STANDARD: To identify the best use of engineer personnel and equipment in accordance with problem framing, commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Develop courses of action.

3. War game courses of action.
4. Compare courses of action.
5. Conduct decision brief.
6. Develop orders.
7. Transition to produce operations plan or order.
8. Develop branches and sequels, if applicable.

RELATED EVENTS:

1302-ADMN-1002	1302-CMOB-1001	1302-CMOB-1002
1302-CMOB-1003	1302-DEMO-1001	1302-DEMO-1004
1302-EOPS-1005	1302-FUEL-1001	1302-HORZ-1001
1302-HORZ-1002	1302-MOBL-1001	1302-MOBL-1002
1302-MOBL-1003	1302-MOBL-1005	1302-MOBL-1007

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. JP 3-34 Joint Engineer Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-17.8 Combined Arms Mobility Operations
8. MCWP 5-1 Marine Corps Planning Process (MCPP)

CAB-SURV-6001: Conduct survivability operations

SUPPORTED MCT(S): None

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct survivability operations to provide survivability planning and positions for supported units. (Such as construction of field fortifications, hardening of command, communication and combat train locations, weapon system firing positions, and infantry fighting combat positions).

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan and references.

STANDARD: To provide survivability planning and positions for supported units in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Perform vulnerability assessment.
2. Integrate survivability plan into the concept of operations.
3. Conduct survivability planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct survivability positions.
8. Provide SME input to AF/FP plan, as required.

9. Maintain survivability positions, as required.
10. Maintain oversight of survivability construction efforts.
11. Receive and submit reports, as required.

CHAINED EVENTS:

CAB-CMOB-5001	CAB-HEOP-5001	CAB-HORZ-5001
CAB-HORZ-5002	CAB-SURV-5001	CAB-VERT-5001
CLB-SURV-5001	ESB-SURV-5001	

REFERENCES:
1. JP 3-34 Joint Engineer Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 5-1 Marine Corps Planning Process (MCPP)

3005. 5000-LEVEL EVENTS

CAB-CMOB-5001: Create obstacle groups

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create obstacle groups of two or more obstacles grouped to provide a specific obstacle effect turn, block, fix, or disrupt the enemy.

CONDITION: Given a mission, commander's intent, location of adjacent friendly forces, estimated locations and most recent activities of enemy, weather conditions, defined area of operations, route, rules of engagement (ROE), supporting arms, an equipment density list and available personnel.

STANDARD: To turn, block, fix, or disrupt the enemy in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Develop/review obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine possible obstacle locations and types.
4. Identify the commander's obstacle priorities.
5. Determine resources.
6. Determine actual work sequence.
7. Determine task organization required.
8. Determine coordination required.
9. Coordinate with supported unit for specific obstacle placement and observation.
10. Coordinate observation and reporting for decision/triggering point(s).
11. Reserve situational obstacles, as required.
12. Emplace explosive obstacle(s).
13. Create non-explosive obstacle(s).
14. Close lanes, as required.
15. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-4001	CAB-CMOB-4002	CAB-CMOB-4003
CAB-HEOP-4001	CAB-VERT-4001	CAB-VERT-4005

REFERENCES:

1. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
2. JP 3-34 Joint Engineer Operations
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.5 Combined Arms Countermobility Operations
7. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer Material Handling Equipment, Combat engineer equipment and kits.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CAB-DEMO-5001: Conduct demolition operations

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct demolition operations to produce the desired effect. These tasks may include placing explosives near heavy weapons, enemy munitions, destroying cave systems, facilities, equipment, and improving mobility in urban terrain and designated or reserve targets.

CONDITION: Given a tactical situation, an order, task organized equipment and personnel, specifications, and appropriate references.

STANDARD: To achieve desired effects in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive demolition concept of operations.

2. Conduct engineer reconnaissance.
3. Destroy captured arms and ammunition, as required.
4. Employ demolitions in support of mobility operations, as required.
5. Employ demolitions in support of survivability position construction, as required.
6. Employ demolitions in support of counter-mobility operations, as required.
7. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-4001	CAB-CMOB-4002	CAB-CMOB-4003
CAB-DEMO-3001	CAB-MOBL-4001	CAB-MOBL-4002
CAB-MOBL-4003	CAB-MOBL-4004	CAB-MOBL-4008
CAB-PINF-4001	CAB-RECN-4004	CAB-RECN-4005
CAB-SURV-4006		

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-DEMO-1004	1371-DEMO-2001	1371-DEMO-2002

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. JP 3-34 Joint Engineer Operations
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.6 Survivability
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer demolitions kit.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000- and 3000-Level Events Chained to this event.

CAB-HEOP-5001: Provide limited engineer equipment support

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 6.1.4	

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited engineer equipment support to the mission using

the required type(s) of engineer equipment and personnel.

CONDITION: Given a mission, a support plan, equipment availability, commander's intent, personnel and equipment, an area of operations or support, and references.

STANDARD: To provide required engineer support in accordance with unit SOPs, concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review equipment support plan.
2. Analyze support requirements and location(s).
3. Determine resources.
4. Determine schedule of work.
5. Determine task organization.
6. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
7. Coordinate logistics.
8. Manage engineer equipment operations.
9. Conduct earthmoving operations, as required.
10. Conduct material handling operations, as required.
11. Conduct horizontal construction, as required
12. Conduct maintenance, as required.
13. Recover engineer equipment, as required.
14. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-4001	CAB-MANT-4001	CAB-UTIL-4001

RELATED EVENTS:

1310-ADMN-2001	1310-ADMN-2002	1310-ADMN-2003
1310-ADMN-2004	1310-ADMN-2005	1310-ADMN-2006
1310-ADMN-2008	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1310-MANT-2001	1310-MANT-2002
1341-ADMN-2001	1341-ADMN-2002	1341-ADMN-2003
1341-ADMN-2004	1341-ADMN-2005	1341-ADMN-2006
1341-ADMN-2007	1341-ADMN-2008	1349-ADMN-2001
1349-ADMN-2002	1349-ADMN-2003	1349-ADMN-2004
1349-ADMN-2005	1349-ADMN-2006	1349-ADMN-2008
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-HORZ-2001	1349-HORZ-2002	1349-HORZ-2003
1349-MANT-2001	1349-MANT-2002	

REFERENCES:
1. JP 3-34 Joint Engineer Operations
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports

8. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer equipment, Motor Transport equipment, Utilities equipment.

UNITS/PERSONNEL: Engineer equipment maintainers, Utilities equipment maintainers.

CAB-HORZ-5001: Conduct limited horizontal construction

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct limited horizontal construction in order to shape the terrain to meet the operational requirements of the GCE and includes expedient road construction and/or maintenance; expeditionary HLZs; site preparation for bed down facilities; and ordnance storage facilities.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To build the assigned project to meet or exceed the requirements listed in the design specifications and the commander's intent.

EVENT COMPONENTS:
1. Plan horizontal construction.
2. Conduct engineer reconnaissance.
3. Conduct survey, as required.
4. Coordinate horizontal construction.
5. Conduct site preparation.
6. Conduct soil stabilization/dust abatement, as required.
7. Construct non-explosive obstacles, as required.
8. Employ heavy equipment assets, as required.
9. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-4002	CAB-HEOP-4001	CAB-RECN-4005
CAB-RECN-4006	CAB-UTIL-4001	

RELATED EVENTS:

1302-HORZ-1001	1302-HORZ-1002	1302-HORZ-1003
1302-RECN-1001	1302-RECN-2001	

REFERENCES:
1. FM 5-101-5-1 Operational Terrain and Symbols
2. JP 3-34 Joint Engineer Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design

4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7D Concrete and Masonry
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7I Earthmoving Operations
8. MCRP 3-17A Engineering Field Data
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.6 Survivability
12. MCWP 3-17.7 General Engineering
13. MCWP 3-17.8 Combined Arms Mobility Operations
14. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Engineer kits, Utilities equipment.

CAB-HORZ-5002: Prepare site for construction

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Prepare site for construction to reduce construction time and meet design specifications. This includes all types of limited vertical and horizontal construction.

CONDITION: Given a mission, a support plan, a site for construction or engineer operations, commander's intent, task organized personnel, equipment and references.

STANDARD: To reduce construction time and meet design specifications in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review construction site plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc.).
5. Move to site.
6. Conduct area clearance.
7. Conduct earthmoving operations, as required.
8. Conduct demolition operations, as required.
9. Conduct material handling operations, as required.
10. Employ utilities support, as required.

11. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-4003	CAB-HEOP-4001	CAB-MOBL-3013
CAB-MOBL-4011	CAB-SURV-4006	CAB-UTIL-4001
CAB-VERT-4001		

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-HORZ-1001
1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1003
1302-RECN-1001	1371-DEMO-1001	1371-DEMO-2002
1371-RECN-1001		

REFERENCES:
1. FM 2-01.3 Intelligence Preparation of the Battlefield/Battlespace
2. FM 5-33 Terrain Analysis
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7I Earthmoving Operations
5. MCRP 3-17.7M Construction Estimating
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Motor Transportation equipment, Utilities equipment.

CAB-MANT-5001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Maintain engineer equipment by conducting preventive and corrective maintenance on engineer equipment using unit assigned maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

CHAINED EVENTS: CAB-MANT-4001

RELATED EVENTS:

1120-ADMN-2006	1120-ADMN-2007	1120-ADMN-2012
1120-ADMN-2021	1120-ADMN-2022	1120-ADMN-2041
1120-ADMN-2051	1120-ADMN-2052	1120-ADMN-2061
1120-ADMN-2065	1120-ADMN-2071	1120-ADMN-2072
1120-ADMN-2073	1120-ADMN-2074	1120-ADMN-2075
1310-ADMN-2004	1310-HEOP-2001	1310-MANT-2001
1310-MANT-2002	1316-ADMN-1001	1316-ADMN-1002
1316-ADMN-1003	1316-MANT-1002	1316-MANT-1004
1316-XENG-1001	1316-XENG-1002	1316-XENG-1004
1316-XENG-1005	1316-XENG-1006	

REFERENCES:

1. Applicable Technical Manuals Publications
2. SOP Unit/Local Standard Operating Procedures
3. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
6. MCO 5100.29_ Marine Corps Safety Program
7. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
8. MCWP 4-11 Tactical-Level Logistics
9. MCWP 4-11.4 Maintenance Operations
10. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
11. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17931 Medium/Heavy Equipment Training Area

MATERIAL: Tools sets chests and kits

UNITS/PERSONNEL: Engineer equipment mechanics, utilities maintenance personnel, welders, equipment operators.

OTHER SUPPORT REQUIREMENTS: POL and HAZ-MAT

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-MOBL-5001: Conduct obstacle breaching operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct obstacle breaching operations to breach lanes through enemy obstacles, to advance an attacking force to the far side of an obstacle

that is covered by fire.

CONDITION: Given a mission, commander's intent, a map, designated area, tasked organized personnel, equipment, and references.

STANDARD: To breach lanes through enemy obstacles to support the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Gather obstacle intelligence, as required.
2. Analyze obstacle intelligence.
3. Determine breach requirement.
4. Task organize obstacle clearing detachment(s) (OCD).
5. Coordinate suppression of enemy over-watching obstacle.
6. Coordinate obscuration of enemy over-watching obstacle.
7. Coordinate security for breach lanes.
8. Coordinate breach with assault force, support force, and support breach team(s).
9. Verify suppression/obscuration effects.
10. Destroy fortifications, as required.
11. Breach lanes through obstacle(s).
12. Turnover lane(s) to designated forces.
13. Reconstitute the breach force.
14. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-4001	CAB-MOBL-4001	CAB-MOBL-4002
CAB-MOBL-4003	CAB-MOBL-4004	

RELATED EVENTS:

1302-MOBL-1005	1371-MOBL-1005	1371-MOBL-2012
1371-MOBL-2017		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.3 MAGTF Breaching Operations
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer breaching equipment/weapons, Engineer earthmoving equipment, Engineer Material Handling Equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CAB-MOBL-5002: Conduct route clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct route clearance operations to detect and if found, identify, mark, and reduce explosive hazards and other obstacles along a defined route. Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that severely limits mobility. The route will only be cleared while it remains under the control/observation of friendly forces.

CONDITION: Provided a mission, designated route with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, Class V supplies and references.

STANDARD: To ensure friendly force mobility on the route in accordance with the commander's intent, while the route remains in friendly forces control.

EVENT COMPONENTS:
1. Analyze route intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect obstacles on route.
6. Identify obstacle(s).
7. Mark obstacle(s), as required.
8. Reduce obstacle(s), as required.
9. Verify obstacle reduction.
10. Identify bypasses, as required.
11. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-4001	CAB-MOBL-4005	CAB-MOBL-4006
CAB-MOBL-4007	CAB-MOBL-4008	

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports

8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer demolition equipment, engineer equipment.

UNITS/PERSONNEL: Corpsman, Range Safety Officer, EOD.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000-Level Events Chained to this event.

CAB-MOBL-5003: Construct expedient Helicopter Landing Zone (HLZ)

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct construction of expedient HLZ, includes but is not limited to clearing and grubbing geographical locations for takeoff and landing of rotary wing in support of troop transport, resupply, MEDEVAC operations, etc.

CONDITION: Given a mission, commander's intent, available resources, and references.

STANDARD: To create a landing site that will support rotary wing aircraft for the loading and unloading of personnel, resupply, and equipment in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Coordinate resource requirements.
5. Issue order.
6. Clear landing site.
7. Maintain/improve landing site, as required.
8. Submit required reports.

CHAINED EVENTS:
CAB-HEOP-4001 CAB-RECN-4005 CAB-RECN-4006

RELATED EVENTS:
1302-MOBL-1016 1302-RECN-1001 1371-MOBL-2001

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Pioneer kit (w/chainsaws).

CAB-MOBL-5004: Construct combat roads

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct and maintain limited combat roads and trails in support of division operations (construction and maintenance requirements are limited to those that can be performed with organic equipment and personnel, typically limited to class D roads). The construction and maintenance of trails and roads are normally considered general engineering tasks and are therefore performed by engineering support units. However, areas at or near the Forward Line Of Troops (FLOT) or time constrictions may require the forward combat engineer units to perform these functions in an expedient manner or for short duration of time until support engineers are available. Engineers should always strive to take full advantage of existing infrastructure and natural terrain features when constructing combat trails and roads.

CONDITION: Provided a mission order, commander's intent, a tactical situation, task organization of engineer equipment and personnel.

STANDARD: That meets the minimum traffic support requirements in accordance with the commander's intent and the mobility plan.

EVENT COMPONENTS:
1. Review mission.
2. Conduct engineer reconnaissance.

3. Conduct survey.
4. Task organize.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations, as required.
8. Clear the road.
9. Construct expedient drainage structures, as required.
10. Conduct expedient soil stabilization, as required.
11. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-4001	CAB-MOBL-4009	CAB-RECN-4005
CAB-RECN-4006		

RELATED EVENTS:

1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1001
1302-RECN-1001	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1345-HEOP-1003
1345-HEOP-1006	1345-HEOP-1007	1345-HORZ-2001
1345-MANT-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-EOPS-2002	1371-EOPS-2003	1371-EOPS-2007
1371-EOPS-2011	1371-HORZ-2001	1371-HORZ-2002
1371-HORZ-2003	1371-RECN-1001	1371-RECN-2001

REFERENCES:

1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17.7L Explosives and Demolitions
7. MCRP 3-17A Engineering Field Data
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Material Handling Equipment, Combat engineer equipment, Utilities equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

CAB-PINF-5001: Fight as provisional infantry

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 6.1.4	

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide provisional infantry to participate in offensive operations such as attacks, raids, and movement to contact. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment supported unit or conduct offensive and defensive operations in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms, as required.
9. Establish redundant communications.
10. Treat and evacuate casualties, as required.
11. Process detainees, as required.
12. Send and receive required reports.

CHAINED EVENTS:

CAB-MOBL-3001	CAB-MOBL-3008	CAB-MOBL-3009
CAB-PINF-4001		

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17730 Fire and Movement Range

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 3000 Level Events Chained to this event.

CAB-RECN-5001: Conduct engineer reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct engineer reconnaissance to collect data and obtain detailed information, within/along designated routes, zones, and/or areas that provides the MAGTF information on terrain and infrastructure (e.g., built-up areas, transportation networks, utilities and existing natural or manmade obstacles/resources) necessary to support ongoing or future operations.

CONDITION: Given a mission, commander's intent, task organization of personnel and equipment, and references.

STANDARD: To gather all relevant engineer data and produce an engineer estimate in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review reconnaissance plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc.).
5. Conduct zone reconnaissance, as required.
6. Conduct area reconnaissance, as required.
7. Conduct route reconnaissance, as required.
8. Conduct host-nation infrastructure assessment, as required.
9. Submit required reports.

CHAINED EVENTS:

CAB-RECN-4001	CAB-RECN-4002	CAB-RECN-4003
CAB-RECN-4005	CAB-RECN-4006	

RELATED EVENTS:

1302-RECN-1001	1371-RECN-2001

REFERENCES:
1. JP 3-34 ENGINEER DOCTRINE FOR JOINT OPERATIONS
2. MCRP 3-17.1B Military Non-Standard Fixed Bridging
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations

CAB-RECN-5002: Conduct cache sweep operations

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify and secure materials discovered during the course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze search area intelligence.
2. Tasks organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s), as required.
8. Destroy captured enemy ammunition, as required.
9. Verify cache destruction.
10. Coordinate explosive ordnance disposal activities, as required.
11. Coordinate weapons intelligence team activities, as required.
12. Coordinate with other specialist personnel, as required.
13. Document/preserve evidence, as required.
14. Submit required reports.

CHAINED EVENTS:

CAB-DEMO-5001	CAB-RECN-4004

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits.

UNITS/PERSONNEL: Explosive ordnance disposal personnel, Weapons

Intelligence Team, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000-Level Events Chained to this event.

CAB-SURV-5001: Construct survivability positions

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct positions designed to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection. Positions may include fighting and protective positions.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, survivability plan, a task organization of personnel and equipment, and references.

STANDARD: That meets the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supported unit for specific position placement and requirements.
5. Coordinate resources for project.
6. Conduct site preparation.
7. Harden existing structure(s), as required.
8. Emplace pre-fabricated barriers, as required.
9. Provide SME input to AT/FP plan, as required.
10. Construct field fortification, as required.
11. Construct Vehicle Control Point (VCP), as required.
12. Construct Entry Access Point (EAP), as required.
13. Construct earth filled barrier/structure, as required.
14. Construct individual fighting positions, as required.
15. Construct vehicle fighting positions, as required.
16. Construct vehicle survivability positions/revetments, as required.
17. Construct crew-served weapon positions, as required.
18. Construct overhead cover, as required.
19. Construct shelter/bunker, as required.
20. Construct berms, as required.
21. Conduct earth moving operations, as required.
22. Construct triggering screen, as required.
23. Construct trench, as required.
24. Provide electrical power, as required.
25. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-4001	CAB-RECN-4005	CAB-SURV-3001
CAB-SURV-3002	CAB-SURV-3003	CAB-SURV-3004
CAB-SURV-3005	CAB-SURV-3006	CAB-SURV-3007
CAB-SURV-3008	CAB-SURV-4001	CAB-SURV-4002
CAB-SURV-4003	CAB-SURV-4004	CAB-SURV-4005
CAB-SURV-4006	CAB-UTIL-4001	CAB-VERT-4001
CAB-VERT-4001	CAB-VERT-4002	CAB-VERT-4003

REFERENCES:

1. JP 3-34 ENGINEER DOCTRINE FOR JOINT OPERATIONS
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.6 Survivability
10. MCWP 3-33 Military Operations Other Than War (MOOTW)
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
12. MCWP 3-35.5 Jungle Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment, Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-UTIL-5001: Provide limited utilities support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide tactical electrical supply and distribution; heating, ventilation, air conditioning and refrigeration service; and maintenance capabilities for specified utilities equipment in accordance with the unit's mission statement.

CONDITION: Given a mission, support plan, equipment availability, personnel, equipment, and references.

STANDARD: To provide support IAW with the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:

1. Coordinate supported unit requirements.
2. Establish utilities plan.
3. Establish utilities site(s).
4. Provide tactical electrical support, as required.
5. Provide non-tactical utilities support, as required.
6. Provide water production/storage/distribution equipment.
7. Maintain utilities equipment.
8. Recover utilities equipment, as required.
9. Submit required reports.

CHAINED EVENTS:

CAB-MANT-4001	CAB-UTIL-4001

RELATED EVENTS:

1120-ADMN-2001	1120-ADMN-2002	1120-ADMN-2003
1120-ADMN-2004	1120-ADMN-2005	1120-ADMN-2006
1120-ADMN-2007	1120-ADMN-2012	1120-ADMN-2021
1120-ADMN-2022	1120-ADMN-2031	1120-ADMN-2051
1120-ADMN-2052	1120-ADMN-2061	1120-ADMN-2065
1120-ADMN-2071	1120-ADMN-2072	1120-ADMN-2073
1120-ADMN-2074	1120-ADMN-2075	1120-ADMN-2081
1120-ADMN-2091	1120-ADMN-2092	1120-XENG-2501
1120-XENG-2502	1120-XENG-2521	1120-XENG-2522
1120-XENG-2553	1120-XENG-2555	1120-XENG-2558
1120-XENG-2561	1120-XENG-2581	1120-XENG-2621
1120-XENG-2622	1120-XENG-2653	1120-XENG-2655
1120-XENG-2658	1120-XENG-2721	1120-XENG-2752
1120-XENG-2753	1120-XENG-2755	1120-XENG-2758
1120-XENG-2821	1120-XENG-2853	1120-XENG-2855
1120-XENG-2858	1120-XENG-2965	1120-XENG-2966
1120-XENG-2988	1120-XENG-2989	

REFERENCES:

1. Appropriate Technical Manuals
2. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
3. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
4. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
5. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
6. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
7. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
8. FM 10-52 Water Supply in Theaters of Operation
9. FM 10-52-1 Water Supply Point Equipment and Operations
10. FM 5-424 Theater of Operations Electrical Systems
11. JP 4-03 Joint Bulk Petroleum and Water Doctrine

12. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
13. MCRP 3-17B Engineer Forms and Reports
14. MCRP 4-11.1D Field Hygiene and Sanitation
15. MCRP 4-11B Environmental Considerations
16. MCWP 3-17 Engineering Operations
17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 4-11 Tactical-Level Logistics
19. MCWP 4-11.4 Maintenance Operations
20. MCWP 4-11.6 Petroleum and Water Logistics Operations
21. MCWP 5-1 Marine Corps Planning Process (MCPP)
22. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
23. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
24. TB MED 593 Guidelines for Field Waste Management
25. TC 3-34.489 The Soldier and the Environment
26. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
27. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, Motor Transport equipment, HAZMAT handling equipment.

CAB-VERT-5001: Conduct limited vertical construction

SUPPORTED MCT(S):
MCT 1.4.1 MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct vertical construction to build or improve existing structures, or construct base camps, command posts, and maintenance facilities for the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey, as required.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility, as required.
7. Erect prefabricated structure, as required.

8. Construct wood frame structure, as required
9. Construct timber structure, as required.
10. Construct expedient drainage structure, as required.
11. Wire structure for electricity, as required.
12. Submit required reports.

CHAINED EVENTS:

CAB-RECN-4005	CAB-RECN-4006	CAB-SURV-4001
CAB-SURV-4002	CAB-UTIL-4001	CAB-VERT-4001
CAB-VERT-4002	CAB-VERT-4003	CAB-VERT-4004
CAB-VERT-4005		

RELATED EVENTS:

1302-HORZ-1001	1302-RECN-1001	1302-VERT-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-HORZ-2002
1371-HORZ-2003	1371-HORZ-2004	1371-HORZ-2005
1371-RECN-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	1371-VERT-1005
1371-VERT-2001	1371-VERT-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-07; 29 September 2011 Stability Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7C Carpentry
6. MCRP 3-17.7D Concrete and Masonry
7. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
8. MCRP 3-17.7F Project Management
9. MCRP 3-17.7I Earthmoving Operations
10. MCRP 3-17.7K Theater of Operations Electrical Systems
11. MCRP 3-17.7M Construction Estimating
12. MCRP 3-17.7N Base Camps
13. MCRP 3-17A Engineering Field Data
14. MCWP 3-17 Engineering Operations
15. MCWP 4-11 Tactical-Level Logistics
16. TM 5-811-1 Electric Power Supply and Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools and equipment; kits, Material Handling Equipment.

3006. 4000-LEVEL EVENTS

CAB-CMOB-4001: Create an explosive obstacle

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create an explosive obstacle to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV and V supplies, etc.).

STANDARD: That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Emplace expedient anti-personnel devices, as required.
8. Account for all personnel and equipment prior to returning to friendly lines.
9. Coordinate lane closure plan with supported unit, as required.
10. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-3002	CAB-CMOB-3003	CAB-HEOP-3001
CAB-HEOP-3002		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1345-HEOP-2009	1345-MANT-1001	1349-ADMN-2002
1349-ADMN-2006	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	1371-CMOB-1003
1371-CMOB-2001	1371-CMOB-2003	1371-DEMO-1002

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. UNIT SOP Unit's Standing Operating Procedures
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
K143 Mine, Antipersonnel M18A1 with M57 F	1 mines per squad
L495 Flare, Surface Trip M49 Series	4 flares per squad
L598 Simulator, Explosive Booby Trap Flas	4 Simulator per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	1 charges per squad
M421 Charge, Demolition Shaped M3 Series	1 charges per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Material Handling Equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-CMOB-4002: Create non-explosive obstacles/barriers

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create non-explosive obstacles/barriers to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV supplies, natural terrain, battlefield materials, etc.).

STANDARD: That is part of an obstacle group that will turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:

1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/ security for obstacle construction.
6. Move to obstacle site.
7. Tie obstacles into natural/existing obstacles, as required.
8. Emplace obstacles (barriers, hedgehogs, etc.), as required.
9. Emplace wire obstacles, as required.
10. Emplace field expedient obstacles (logs, abatis, rubble, etc.), as required.
11. Create craters, as required.
12. Emplace deception obstacles, as required.
13. Create tank ditches, as required.
14. Account for all personnel and equipment prior to returning to friendly lines.
15. Coordinate lane closure plan with supported unit, as required.
16. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-3001	CAB-CMOB-3002	CAB-CMOB-3003
CAB-HEOP-3001	CAB-HEOP-3002	CAB-MOBL-3010

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-HEOP-2001
1310-HORZ-2001	1310-HORZ-2002	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1006	1345-HEOP-2007	1345-HEOP-2009
1345-HORZ-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-2001	1371-CMOB-2003	

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. UNIT SOP Unit's Standing Operating Procedures
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
L495 Flare, Surface Trip M49 Series	6 flares per squad
M032 Charge, Demolition Block TNT 1-Pound	12 charges per squad
M039 Charge, Demolition Cratering 40-Poun	12 charges per squad
M130 Cap, Blasting Electric M6	12 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	12 blasting caps per squad

M327 Coupling Base, Firing Device with Pr	12 primers per squad
M421 Charge, Demolition Shaped M3 Series	8 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	6 cases per squad
ML03 Firing Device, Demolition Multi-Purp	12 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	12 igniters per squad
MN14 Firing Device, Dual Mode MK54	12 detonators per squad
MN52 MK154 Mod 0	8 detonators per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer equipment, Material Handling Equipment, Engineer earthmoving equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-CMOB-4003: Employ demolitions in support of countermobility operations

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ Class V munitions to create mobility obstacles (explosively) such as craters, ditches or to destroy structures (bridges, tunnels, etc.). This could include field expedient explosive obstacles (improvised anti-vehicular/anti-personnel explosive devices) to destroy enemy personnel and equipment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To construct countermobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commander's intent, concept of operations, and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.), as required.
4. Prepare equipment and materials for operation.

5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Create obstacle(s), as required.
10. Inspect obstacle(s), as required.
11. Improve obstacle site with support equipment, as required.
12. Reconstitute the force.
13. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-3001	CAB-CMOB-3002	CAB-CMOB-3003
CAB-DEMO-3001	CAB-DEMO-3002	CAB-DEMO-3003
CAB-DEMO-3004		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2003	1371-DEMO-1002	

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	20 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	10 charges per squad
M130 Cap, Blasting Electric M6	6 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	6 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	5 charges per squad
M421 Charge, Demolition Shaped M3 Series	10 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
ML03 Firing Device, Demolition Multi-Purp	6 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	6 igniters per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer

Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-HEOP-4001: Conduct Material Handling Equipment (MHE) operations

SUPPORTED MCT(S):
MCT 1.12.1 MCT 1.4.1 MCT 1.4.2
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide Material Handling Equipment (MHE) support to enable handling of loads (equipment, supplies, materials, etc.) exceeding carrying capacity of personnel.

CONDITION: Given a mission, commander's intent, personnel and equipment, and references.

STANDARD: To provide support an IAW unit SOPs or guidance to support the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:
1. Review tasking.
2. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
3. Operate MHE, as required.
4. Load and unload materiel(s), as required.
5. Employ safety measures, as required.
6. Submit required reports.

CHAINED EVENTS:
CAB-HEOP-3001 CAB-HEOP-3002 CAB-MANT-3001

RELATED EVENTS:
1310-HEOP-2001 1310-HORZ-2001 1310-HORZ-2002
1310-HORZ-2003 1345-HEOP-2012 1345-HORZ-2001
1345-MANT-2001 1349-HEOP-2001 1349-HORZ-2001
1349-HORZ-2002 1349-HORZ-2003

REFERENCES:
1. MCRP 3-17B Engineer Forms and Reports
2. MCWP 3-41.1 Rear Area Operations
3. MCWP 4-11 Tactical-Level Logistics
4. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Engineer support equipment.

CAB-MANT-4001: Maintain engineer equipment

SUPPORTED MCT(S):
MCT 1.1.2 MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: As a CAB unit (platoon) in support of the GCE, manage and conduct preventive and corrective maintenance on engineer equipment.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

CHAINED EVENTS:

CAB-MANT-3001	CAB-MANT-3002	CAB-MANT-3003
CAB-MANT-3004		

RELATED EVENTS:

1169-ADMN-2006	1169-ADMN-2007	1169-ADMN-2012
1169-ADMN-2021	1169-ADMN-2022	1169-ADMN-2041
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2061
1169-ADMN-2064	1169-ADMN-2071	1169-ADMN-2072
1169-ADMN-2073	1169-ADMN-2074	1169-ADMN-2075
1310-ADMN-2004	1310-ADMN-2009	1310-MANT-2001
1310-MANT-2002	1341-ADMN-1001	1341-ADMN-1002
1341-ADMN-2002	1341-ADMN-2003	1341-ADMN-2004
1341-MANT-1001	1341-MANT-1002	1341-MANT-2010
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-MANT-2001	1349-MANT-2002

REFERENCES:
1. Applicable Technical Manuals Publications
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. Local Standard Operating Procedures (SOP)
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program

6. MCO 4731.1_ Oil Analysis Program for Ground Equipment
7. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
8. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
9. MCO 5100.29_ Marine Corps Safety Program
10. MCO P4790.2_ MIMMS Field Procedures Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Tools, sets, chests, and kits.

CAB-MOBL-4001: Conduct deliberate breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct a deliberate breach (mounted and dismounted) to cross a well-defended obstacle in order to continue the mission.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable explosive/non-explosive obstacle), a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark lane through a minefield/obstacle in accordance with the mission and commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence, as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with assault force, support force, and support breach team(s).
6. Verify suppression/obscuration effects.
7. Employ deception plan, as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing, as required.
11. Conduct earthmoving operations, as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

CHAINED EVENTS:
CAB-HEOP-3001 CAB-HEOP-3002 CAB-MOBL-3001

CAB-MOBL-3002 CAB-MOBL-3003 CAB-MOBL-3004
CAB-MOBL-3005 CAB-RECN-3001

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX11 Cartridge, 9mm Spotting Rifle MK212	24 rounds per squad
HX05 Rocket, 83mm Assault MK3 Mod 0 (SMAW	4 rockets per squad
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
M913 Charge, Demolition High Explosive Li	1 charges per squad
M914 Charge, Demolition Inert Linear M68A	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer earthmoving equipment, Combat engineer breaching equipment, Demolition kit, Minefield Marking kit, Communications assets, PPE.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CAB-MOBL-4002: Conduct hasty/in-stride breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct a hasty/in-stride breach (mounted and dismounted) to quickly overcome unexpected or lightly defended tactical obstacles in order to maintain the momentum of the attack by denying the enemy time to mass forces at the breach sites.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in the assault position.

STANDARD: To reduce, proof, and mark lane through a minefield/obstacle in accordance with the mission, and the commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence, as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with element acting as assault force and support force.
6. Verify suppression/obscuration effects.
7. Employ deception plan, as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing, as required.
11. Conduct earthmoving operations, as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

CHAINED EVENTS:

CAB-HEOP-3001	CAB-HEOP-3002	CAB-MOBL-3001
CAB-MOBL-3002	CAB-MOBL-3003	CAB-MOBL-3004
CAB-MOBL-3005	CAB-RECN-3001	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX11 Cartridge, 9mm Spotting Rifle MK212	24 rounds per squad
HX05 Rocket, 83mm Assault MK3 Mod 0 (SMAW	4 rockets per squad
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad

M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
M913 Charge, Demolition High Explosive Li	1 charges per squad
M914 Charge, Demolition Inert Linear M68A	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer earthmoving equipment, Combat engineer breaching equipment, Demolition kit, Minefield Marking kit, Communications assets, PPE.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CAB-MOBL-4003: Conduct assault breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct an assault breach (mounted and dismounted) to penetrate enemy protective obstacles and continue the assault through an objective.

CONDITION: Provided a tactical scenario, mission, a wire obstacle, minefield or other suitable obstacle, and an element designated as a breach force within the assault forces and references.

STANDARD: To reduce, proof, and mark a lane through protective obstacle in accordance with the mission, commander's intent and unit SOP.

EVENT COMPONENTS:
1. Coordinate with supporting elements, as required.
2. Verify suppression/obscuration effects.
3. Move to breach site.

4. Reduce lane through obstacle.
5. Proof lane through obstacle.
6. Mark lane through obstacle.
7. Coordinate passage of assault force through breached lane.
8. Widen breach lane, as required.
9. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-3001	CAB-HEOP-3002	CAB-MOBL-3001
CAB-MOBL-3002	CAB-MOBL-3003	CAB-MOBL-3004
CAB-MOBL-3005		

REFERENCES:

1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
AX11	Cartridge, 9mm Spotting Rifle MK212	24 rounds per squad
HX05	Rocket, 83mm Assault MK3 Mod 0 (SMAW	4 rockets per squad
J143	Rocket Motor, 5-inch MK22 Mod 4	4 rockets per squad
M028	Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032	Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130	Cap, Blasting Electric M6	10 blasting caps per squad
M131	Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456	Cord, Detonating PETN Type I Class E	1500 FT per squad
M670	Fuse, Blasting Time M700	500 FT per squad
M757	Charge, Assembly Demolition M183 Com	2 charges per squad
M913	Charge, Demolition High Explosive Li	1 charges per squad
M914	Charge, Demolition Inert Linear M68A	2 charges per squad
ML03	Firing Device, Demolition Multi-Purp	2 primers per squad
MN08	Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN79	Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J), Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection, Motor Transport equipment, mine detectors, Command and Control equipment.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves, POLs requirement, Hand Emplaced Mine Marking System (HEMMS) kit, HazMat containment kit.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CAB-MOBL-4004: Conduct covert breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct a covert (non-explosive) (mounted and dismounted) breach under the cover of darkness/periods of limited visibility that does not alert enemy forces.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark a lane through a minefield/obstacle, without alerting enemy forces in accordance with the mission and commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence, as required.
2. Coordinate suppressive fires and obscuration of enemy over-watching obstacle if breach is discovered.
3. Coordinate security for breach lane.
4. Coordinate breach with element acting as assault force and support force.
5. Employ deception plan, as required.
6. Covertly move to breach site.
7. Covertly reduce lane through obstacle.
8. Covertly proof lane through obstacle.
9. Covertly mark lane through obstacle.
10. Conduct hasty breach, as required.
11. Conduct deliberate breach, as required.
12. Coordinate passage of assault force through breached lane.
13. Submit required reports.
14. Reconstitute the breach force.

CHAINED EVENTS:

CAB-HEOP-3002	CAB-MOBL-3002	CAB-MOBL-3003
CAB-MOBL-3004	CAB-MOBL-3005	CAB-MOBL-4001
CAB-MOBL-4002		

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCWP 3-1 Ground Combat Operations

3. MCWP 3-17.3 MAGTF Breaching Operations
4. MCWP 3-17.8 Combined Arms Mobility Operations
5. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J), Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CAB-MOBL-4005: Conduct dismounted route sweep operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct dismounted route sweep operations to detect, investigate, mark, report, and reduce Explosive Hazards (EH) and other obstacles along a defined route to enable assured mobility.

CONDITION: Given a mission, commander's intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel and

equipment, and references.

STANDARD: To ensure all explosive/non-explosive hazards are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commander's intent integrating all available resources.

EVENT COMPONENTS:
1. Analyze search route intelligence.
2. Coordinate with supported unit for security, as required.
3. Coordinate with supporting units.
4. Move to search area.
5. Detect obstacles along route.
6. Alternate detector operators as required to prevent fatigue.
7. Identify explosive components of obstacle(s).
8. Mark obstacle(s), as required.
9. Reduce obstacle, as required.
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities, as required.
12. Coordinate with other SME personnel, as required.
13. Submit required reports.

CHAINED EVENTS:

CAB-MOBL-3004	CAB-MOBL-3005	CAB-MOBL-3008
CAB-MOBL-3009	CAB-MOBL-4011	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	30 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M670 Fuse, Blasting Time M700	250 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
MN08 Igniter, Time Blasting Fuse with Sho	25 igniters per squad
MN88 Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per squad
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, AN/PRC 119, mine detectors, probe, compass, protractor, Hand Emplaced Mine Marking System (HEMMS) kit, sickle stick, DA FORM 1355-1-R.

MATERIAL: Engineer tape, concertina wire, barbed wire, engineer stakes, tie wire, mine signs, sandbags.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-4006: Conduct security for clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct security for clearance operations to provide sweep team freedom of action.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To allow the sweep team freedom of maneuver while conducting sweeping operations in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit, as required.
3. Coordinate with supporting units, as required.
4. Move to area to be cleared.
5. Coordinate w/clearance unit on site, as required.
6. Establish area clearance security measures, as required.
7. Visually identify other potential hazards within area.
8. Visually identify potential suspects/civilians in area.
9. Control/cordon all movement going into area, as required.
10. Maintain communications w/clearance/sweep unit.
11. Submit required reports.

CHAINED EVENTS:

CAB-MOBL-3001	CAB-MOBL-3008	CAB-MOBL-3009
CAB-MOBL-3013		

RELATED EVENTS:

1302-MOBL-1003	1302-MOBL-1004	1302-MOBL-1005
1302-MOBL-1009	1371-MOBL-1006	

REFERENCES:
1. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range

EQUIPMENT: Combat engineer equipment, organic weapons, command and control assets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-MOBL-4007: Detect obstacles during clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Detect obstacles during clearance operations in order to provide the MAGTF assured mobility.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To ensure all obstacles and explosive hazards are detected, identified, and marked for reduction or bypass in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit, as required.
3. Coordinate with supporting units, as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect explosive hazards within area if possible.
8. Operate dismounted handheld detectors, as required.
9. Operate mounted detectors, as required.
10. Operate other detection equipment, as required.
11. Alternate detector operators to prevent fatigue, as required.
12. Mark obstacles for reduction, as required.
13. Submit required reports.

CHAINED EVENTS:

CAB-MOBL-3006	CAB-MOBL-3007	CAB-MOBL-3012

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1345-MANT-2001	1371-MOBL-2018
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027

REFERENCES:

1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Motor Transportation, Engineer equipment, Route clearance assets, Command and Control assets.

CAB-MOBL-4008: Breach obstacles for clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Breach obstacles during clearance operations to ensure the safe passage of combat, CS, and CSS organizations.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolition tools, explosives, and references.

STANDARD: To ensure all explosives and non-explosive hazards, are removed or destroyed in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:

1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required
3. Coordinate with supporting units as required.
4. Move to area to be cleared.

5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, boobytraps, and unexploded ordnance within area if possible.
8. Operate mounted mine detectors, as required.
9. Operated other detection equipment, as required.
10. Conduct earthmoving operations to detect obstacles, as required.
11. Alternate detector operators as required to prevent fatigue.
12. Mark obstacles for reduction, as required.
13. Destroy obstacle, as required.
14. Verify obstacle destruction.
15. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-3002	CAB-MOBL-3006	CAB-MOBL-3007
CAB-MOBL-3010		

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1345-HEOP-1006
1345-HEOP-2009	1345-MANT-1001	1345-MANT-2001
1371-MOBL-1001	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2019	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2023
1371-MOBL-2024	1371-MOBL-2025	1371-MOBL-2026
1371-MOBL-2027		

REFERENCES:

1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	3 rockets per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	10 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
M913 Charge, Demolition High Explosive Li	2 charges per squad
M914 Charge, Demolition Inert Linear M68A	1 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 detonators per squad

MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer detection equipment, Engineer Material Handling Equipment, Combat engineer breaching equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CAB-MOBL-4009: Conduct limited route improvement

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct limited route improvement to maintain the route and to prevent/limit explosive hazard concealment opportunities for the enemy.

CONDITION: Given a tactical situation, an operations order, commander's intent, a route to be improved, task organized personnel and equipment, engineer reconnaissance reports, and references.

STANDARD: To maintain the route in support of maneuver operations in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance report(s).
2. Coordinate with route clearance mission commander (for repair materials, logistics, security, etc.).
3. Confirm improvement requirements.
4. Move to improvement area.
5. Operate as part of route clearance team.
6. Visually detect explosive and other hazards, as required.
7. Identify surface repairs, as required.
8. Operate engineer equipment, as required.
9. Remove obstructions (i.e., rubble/debris, vegetation, trash), as required.
10. Remove upheaval to required specifications.
11. Remove berms, as required.
12. Place additional fill/ stabilization/ reinforcement materials, as required.
13. Identify drainage structure repairs, as required.
14. Conduct culvert denial activities, as required.
15. Submit required reports.

PREREQUISITE EVENTS: CAB-RECN-4005

CHAINED EVENTS:

CAB-HEOP-3001	CAB-HEOP-3002	CAB-MOBL-3006
CAB-MOBL-3007	CAB-MOBL-3008	CAB-MOBL-3009
CAB-MOBL-3012		

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2023
1371-MOBL-2024	1371-MOBL-2025	1371-MOBL-2026
1371-MOBL-2027		

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Combat engineer equipment.

CAB-MOBL-4010: Install a rope bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Install a rope bridge to allow mobility of forces over gaps (wet or dry).

CONDITION: Provided a mission, commander's intent, wet or dry gap crossing site, rigging components, tools, task organized personnel, and references.

STANDARD: To meet design specifications, concept of operations and commander's intent, while observing safety precautions during assembly and installation.

EVENT COMPONENTS:
1. Review references/directives/specifications.
2. Review gap specific engineer reconnaissance information.

3. Verify gap physical characteristics.
4. Brief/instruct the squad on the mission/assignment.
5. Construct/ emplace near shore anchor.
6. Construct initial rope bridge on near shore.
7. Construct far shore anchor.
8. Position initial bridge.
9. Upgrade bridge to desired characteristics.
10. Submit required reports.

CHAINED EVENTS: CAB-RECN-3001

RELATED EVENTS:
1371-EOPS-1005 1371-EOPS-2009 1371-RECN-1001

REFERENCES:
1. MCRP 3-17.7J Rigging Techniques, Procedures, and Applications
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment.

CAB-MOBL-4011: Employ demolitions in support of mobility operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ demolitions in support of mobility operations to reduce/destroy obstacles (explosive and non-explosive) that present mobility impediments to Operating forces on routes.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To reduce mobility obstacles on designated routes and ensure mobility in accordance in the commander's intent, concept of operations and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.), as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.

9. Reduce obstacle(s).
10. Proof obstacle(s).
11. Clear site with support equipment, as required.
12. Reconstitute obstacle clearing force.
13. Submit required reports.

CHAINED EVENTS:
CAB-HEOP-3001 CAB-HEOP-3002 CAB-MOBL-3010

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	30 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	30 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M591 Dynamite, Military M1	20 charges per squad
M670 Fuse, Blasting Time M700	1000 FT per squad
ML03 Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	30 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

OTHER SUPPORT REQUIREMENTS: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CAB-PINF-4001: Fight as provisional infantry

SUPPORTED MCT(S):
MCT 1.1.2 MCT 1.4.1 MCT 1.4.2
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide provisional infantry to participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment supported unit or conduct offensive and defensive operations in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms, as required.
9. Establish redundant communications.
10. Treat and evacuate casualties, as required.
11. Process detainees, as required.
12. Send and receive required reports.

CHAINED EVENTS:
CAB-MOBL-3001 CAB-MOBL-3008 CAB-MOBL-3009

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 3000-Level Events Chained to this

event.

CAB-RECN-4001: Conduct zone reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To reconnoiter a delineated area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, zone infrastructure.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.).
4. Conduct final coordination with supporting units (logistics, etc.).
5. Conduct final rehearsals and immediate action drills, as required.
6. Reconnoiter for enemy threat, as required.
7. Reconnoiter routes, as required.
8. Reconnoiter infrastructures, as required.
9. Reconnoiter for obstacles, as required.
10. Submit required reports.

CHAINED EVENTS:

CAB-RECN-3001	CAB-RECN-3002	CAB-RECN-3004
CAB-RECN-3005	CAB-RECN-3006	CAB-RECN-3007
CAB-RECN-3008		

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. GTA 5-2-5 Engineer Reconnaissance
3. GTA 5-7-13 Bridge Classification Booklet
4. JP 3-34 Joint Engineer Operations
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces

Facility Code 17730 Fire and Movement Range

EQUIPMENT: Combat engineer equipment.

CAB-RECN-4002: Conduct route reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To reconnoiter specific routes to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, infrastructure

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements and security).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes, as required.
8. Reconnoiter tunnels, as required.
9. Reconnoiter bridges, as required.
10. Reconnoiter for fords/ferries, as required.
11. Reconnoiter for landing zones, as required.
12. Submit required reports.

CHAINED EVENTS:

CAB-RECN-3001	CAB-RECN-3002	CAB-RECN-3004
CAB-RECN-3006	CAB-RECN-3007	CAB-RECN-3008

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. JP 3-34 Joint Engineer Operations
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.5 Combined Arms Countermobility Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment

CAB-RECN-4003: Conduct area reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To reconnoiter an area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, area infrastructure in established lateral boundaries.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements, security, etc.).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes to specified area, as required.
8. Reconnoiter infrastructure/facilities in specified area, as required.
9. Reconnoiter obstacles in specified area, as required.
10. Reconnoiter structures in specified area, as required.
11. Submit required reports.

CHAINED EVENTS:

CAB-RECN-3001	CAB-RECN-3002	CAB-RECN-3004
CAB-RECN-3005	CAB-RECN-3006	CAB-RECN-3007
CAB-RECN-3008		

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. GTA 5-2-5 Engineer Reconnaissance
3. GTA 5-7-13 Bridge Classification Booklet
4. JP 3-34 Joint Engineer Operations
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Combat engineer equipment

CAB-RECN-4004: Conduct cache sweep

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify, and secure materials discovered during the course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze search area intelligence.
2. Tasks organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s), as required.
8. Destroy captured enemy ammunition, as required.
9. Verify cache destruction.
10. Coordinate explosive ordnance disposal activities, as required.
11. Coordinate with other specialist personnel, as required.
12. Document/preserve evidence, as required.
13. Submit required reports.

CHAINED EVENTS:

CAB-DEMO-3001	CAB-RECN-3003

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-1 Ground Combat Operations
6. MCWP 3-17 Engineering Operations

7. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
K143 Mine, Antipersonnel M18A1 with M57 F	1 mines per squad
L495 Flare, Surface Trip M49 Series	4 flares per squad
L598 Simulator, Explosive Booby Trap Flas	4 Simulator per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	1 charges per squad
M421 Charge, Demolition Shaped M3 Series	1 charges per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17730 Fire and Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits, Combat Engineer detection equipment.

UNITS/PERSONNEL: Explosive Ordnance Personnel, Weapons Intelligence team, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-RECN-4005: Conduct engineer reconnaissance

SUPPORTED MCT(S):
MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct engineer reconnaissance to compile pertinent engineer information on all aspects pertaining to mobility, counter mobility, survivability, and general engineering while conducting a zone, area, or route reconnaissance that has any engineer implications.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.).
4. Conduct final coordination with supporting units (logistics, etc.).
5. Conduct final rehearsals and immediate action drills, as required.
6. Reconnoiter for engineer equipment, as required.
7. Reconnoiter for facilities, as required.
8. Reconnoiter structures, as required.
9. Reconnoiter for trafficability on routes, as required.
10. Reconnoiter for obstacles, as required.
11. Reconnoiter for water points, as required.
12. Reconnoiter landing zones, as required.
13. Reconnoiter for bivouac sites, as required.
14. Submit required reports.

CHAINED EVENTS:

CAB-RECN-3001	CAB-RECN-3002	CAB-RECN-3005
CAB-RECN-3006	CAB-RECN-3007	CAB-RECN-3008

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 05-07-013 Bridge Classification Card (2006)
4. GTA 5-2-5 Engineer Reconnaissance
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range

EQUIPMENT: Combat Engineer equipment.

CAB-RECN-4006: Conduct site survey

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Reconnoitering a site or area as part of survey, liaison and reconnaissance party to allow critical planning of specific construction and or operations in support of the MAGTF.

CONDITION: Provided a mission order, task organized personnel and equipment, and references.

STANDARD: To allow for critical planning of facilities and projects in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit, as required.
3. Conduct final coordination with supported unit (location, requirements, security, etc.), as required.
4. Move to site or area.
5. Gather critical information, as required.
6. Make liaisons, as required.
7. Develop draft plans and schematics, as required.
8. Plan resources, as required.
9. Submit required reports.

CHAINED EVENTS: CAB-RECN-3005

RELATED EVENTS:

1302-HORZ-1001	1302-PLAN-1002	1302-PLAN-2004
1302-VERT-1001	1361-SRVY-1001	1361-SRVY-1002
1361-SRVY-1003	1361-SRVY-1004	1361-SRVY-1005
1361-SRVY-1006	1361-SRVY-1007	1361-SRVY-1008
1361-SRVY-1009	1361-SRVY-1010	1361-SRVY-1011
1361-SRVY-1012	1361-SRVY-2002	1361-XENG-2001
1361-XENG-2002	1371-PLAN-2002	

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7F Project Management
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer survey equipment

UNITS/PERSONNEL: Engineer surveyor 1361

CAB-SURV-4001: Harden existing structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Harden existing structure in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

CONDITION: Provided a mission, in an urban environment, commander's intent, reconnaissance reports, and survivability plan, a task organization of personnel and equipment, and references.

STANDARD: To meet the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Construct perimeter security, as required.
7. Shore walls/ floors/ roofs, as required.
8. Remove/ reinforce windows, as required.
9. Compartmentalize interior of structure, as required.
10. Emplace prefabricated barrier(s), as required.
11. Construct earth filled barrier/structure(s), as required.
12. Conduct earthmoving operations, as required.
13. Construct overhead cover, as required.
14. Construct shelter/bunker, as required.
15. Construct triggering screen, as required.
16. Provide tactical power, as required.
17. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-3001	CAB-CMOB-3002	CAB-CMOB-3003
CAB-HEOP-3001	CAB-HEOP-3002	CAB-SURV-3001
CAB-SURV-3002	CAB-SURV-3003	CAB-SURV-3004
CAB-SURV-3005	CAB-SURV-3006	CAB-SURV-3007
CAB-SURV-3008	CAB-UTIL-3001	CAB-UTIL-3002
CAB-UTIL-3003	CAB-UTIL-3004	

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1009	1302-RECN-1001	1302-SURV-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-2004	1371-HORZ-2005	1371-RECN-1001
1371-RECN-2001	1371-RECN-2001	1371-SURV-1001
1371-SURV-2001	1371-SURV-2002	1371-VERT-1001
1371-VERT-1002	1371-VERT-1003	1371-VERT-1004
1371-VERT-1005	1371-VERT-2001	1371-VERT-2002

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration

3. FM 5-553 General Drafting
4. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
5. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
6. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
7. MCRP 3-17.7C Carpentry
8. MCRP 3-17.7D Concrete and Masonry
9. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
10. MCRP 3-17.7F Project Management
11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7L Explosives and Demolitions
13. MCRP 3-17A Engineering Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
16. MCWP 3-13.2 MINE WARFARE
17. MCWP 3-17 Engineering Operations
18. MCWP 3-17.4 Engineer Reconnaissance
19. MCWP 3-17.6 Survivability
20. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling Equipment, Engineer earthmoving equipment, Combat engineer tools & kits, Utilities equipment.

CAB-SURV-4002: Construct field fortifications

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct field fortifications that reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: To meet mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific position placement and requirements.
4. Construct survivability positions, as required.
5. Construct wire obstacles, as required.
6. Construct field expedient obstacles, as required.
7. Construct/emplace barrier(s), as required.
8. Construct/emplace explosive obstacle(s), as required.

9. Conduct vertical construction, as required.
10. Harden existing structures, as required.
11. Conduct earthmoving operations, as required.
12. Provide tactical power, as required.
13. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-3001	CAB-CMOB-3002	CAB-CMOB-3003
CAB-HEOP-3001	CAB-HEOP-3002	CAB-SURV-3002
CAB-SURV-3003	CAB-SURV-3004	CAB-SURV-3005
CAB-SURV-3008		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-EOPS-1001
1302-EOPS-1002	1302-EOPS-1003	1302-EOPS-1009
1302-RECN-1001	1302-SURV-1001	1302-SURV-1002
1302-SURV-1003	1302-SURV-1005	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-CMOB-2003	1371-DEMO-1001
1371-EOPS-1001	1371-EOPS-2005	1371-EOPS-2006
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-1001	1371-HORZ-1002	1371-HORZ-1003
1371-HORZ-2004	1371-HORZ-2005	1371-SURV-1001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Combat engineer tools and equipment, Utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports.

CAB-SURV-4003: Construct Vehicle Control Point (VCP)

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct Vehicle Control Point (VCP) to control, restrict and monitor movement of personnel and equipment and to gain information/data on suspected vehicles during military operations.

CONDITION: Provided a mission, commander's intent, intelligence reports, task organization of personnel and equipment, class IV supplies, and references.

STANDARD: To gain information and maintain control of vehicles, pedestrians, and materials in accordance with mission requirements and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review intelligence reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Coordinate security, as required.
6. Conduct site preparation and layout.
7. Construct survivability positions, as required.
8. Emplace prefabricated barrier(s), as required.
9. Construct wire obstacles, as required.
10. Construct expedient obstacles, as required.
11. Construct earth filled barrier/structure(s), as required.
12. Conduct earthmoving operations, as required.
13. Establish vehicle waiting area, as required.
14. Construct search lanes, as required.
15. Construct personnel search area(s), as required.
16. Construct/emplace signs, as required.
17. Provide tactical power, as required.
18. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-3001	CAB-CMOB-3002	CAB-HEOP-3001
CAB-HEOP-3002	CAB-SURV-3001	CAB-SURV-3002
CAB-SURV-3003	CAB-SURV-3004	CAB-SURV-3005
CAB-SURV-3006	CAB-SURV-3007	CAB-SURV-3008
CAB-UTIL-3001	CAB-UTIL-3002	CAB-UTIL-3003
CAB-UTIL-3004		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-DEMO-1001	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-SURV-1001	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration

3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling Equipment, engineer earthmoving equipment, combat engineer tools, kits and utilities equipment.

MATERIAL: Class IV supplies.

CAB-SURV-4004: Construct Entry Access Point (EAP)

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct Entry Access Point to prevent unauthorized personnel into military facilities.

CONDITION: Provided a mission, commander's intent, intelligence reports, task organization of personnel and equipment, Class IV supplies, and references.

STANDARD: To control and monitor access of vehicles, pedestrians, and materials onto military facilities in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review force protection requirements.
3. Coordinate resources for project.
4. Coordinate security, as required.
5. Conduct site preparation and layout.
6. Construct survivability positions, as required.
7. Emplace prefabricated barrier(s), as required.
8. Construct wire obstacles, as required.
9. Construct expedient obstacles, as required.
10. Construct earth filled barrier/structure(s), as required.
11. Conduct earthmoving operations, as required.
12. Establish vehicle turn-around area, as required.
13. Establish pedestrian lanes, as required.
14. Construct personnel search area(s), as required.
15. Construct/emplace signs, as required.
16. Provide tactical power, as required
17. Submit required reports.

CHAINED EVENTS:

CAB-CMOB-3001	CAB-CMOB-3002	CAB-HEOP-3001
CAB-HEOP-3002	CAB-SURV-3001	CAB-SURV-3002
CAB-SURV-3003	CAB-SURV-3004	CAB-SURV-3005
CAB-SURV-3006	CAB-SURV-3007	CAB-SURV-3008
CAB-UTIL-3001	CAB-UTIL-3002	CAB-UTIL-3003
CAB-UTIL-3004		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2003	1371-DEMO-1001	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-SURV-1001	1371-SURV-2001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1004

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling Equipment, Engineer Earthmoving equipment, Combat Engineer tools & kits.

MATERIAL: Class IV supplies.

CAB-SURV-4005: Construct earth filled barrier/structure

SUPPORTED MCT(S):
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct earth filled barrier/structure in support of survivability of the force.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: That supports the mission requirements and concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific placement and requirements.
4. Construct/emplace barrier(s), as required.
5. Conduct earthmoving operations, as required.
6. Submit required reports.

CHAINED EVENTS:
CAB-HEOP-3001 CAB-HEOP-3002

RELATED EVENTS:
1302-RECN-1001 1302-SURV-1001 1302-SURV-1002
1302-SURV-1003 1302-SURV-1004 1302-SURV-1005
1371-RECN-1001 1371-RECN-2001 1371-SURV-2001
1371-SURV-2002

REFERENCES:
1. MCRP 3-17.7I Earthmoving Operations
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment.

CAB-SURV-4006: Employ demolitions in support of survivability operations

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ demolitions in support of survivability operations to support the defense of friendly positions or clearance of natural/man-made obstacles for fields of fire to eliminate enemy cover and concealment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To enhance friendly survivability positions and fields of fire to defeat the enemy per the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.), as required.
4. Prepare personnel for mission requirements, as required.
5. Construct booby traps, as required.

6. Clear fields of fire, as required.
7. Place expedient explosive devices to support positions, as required.
8. Mark fortifications/explosive devices, as required.
9. Reconstitute force, as required.
10. Submit required reports.

CHAINED EVENTS: CAB-CMOB-3003

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-SURV-1001
1302-SURV-1003	1302-SURV-1005	1371-CMOB-2003
1371-DEMO-1001	1371-DEMO-2002	1371-EOPS-1002
1371-EOPS-1003	1371-EOPS-1004	1371-SURV-1001
1371-SURV-2001	1371-SURV-2002	

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	20 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	20 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M591 Dynamite, Military M1	30 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
ML03 Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-UTIL-4001: Provide tactical electrical power

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan and coordinate power generation/electrical distribution in accordance with the unit's mission statement.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: In accordance with the operational order and commander's intent.

EVENT COMPONENTS:
1. Plan tactical power requirements.
2. Coordinate logistical support/requirements.
3. Establish generator site(s).
4. Establish power distribution.
5. Maintain utilities equipment, as required.
6. Submit required reports.

CHAINED EVENTS:

CAB-MANT-3002	CAB-UTIL-3001	CAB-UTIL-3003

RELATED EVENTS:

1169-ADMN-2002	1169-ADMN-2003	1169-ADMN-2021
1169-ADMN-2022	1169-XENG-2521	1169-XENG-2522
1169-XENG-2561	1169-XENG-2621	1169-XENG-2622
1169-XENG-2721	1169-XENG-2821	1169-XENG-2965
1169-XENG-2966		

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems
2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
3. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment, engineer Material Handling Equipment (MHE), Motor Transport equipment.

MATERIAL: POLs, HazMat Kits, spill containment kits, Fuel.

CAB-UTIL-4002: Provide potable water

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Produce, store, and distribute potable water in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To meet planning requirements.

EVENT COMPONENTS:
1. Perform Water Recon
2. Establish Water Point
3. Produce Potable Water
4. Store Potable Water
5. Establish Water Distribution Points

CHAINED EVENTS:

CAB-UTIL-3005	CAB-UTIL-3006	CAB-UTIL-3007

RELATED EVENTS:

1169-ADMN-2007	1169-ADMN-2021	1169-ADMN-2022
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2075
1169-ADMN-2091	1169-XENG-2501	1169-XENG-2502
1169-XENG-2553	1169-XENG-2653	1169-XENG-2752
1169-XENG-2753	1169-XENG-2853	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment with supplemental kits (cartridges, NBC filters etc.), (MHE), water testing kit, tool kits, PPE.

MATERIAL: Chemicals to purify raw water source.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

CAB-UTIL-4003: Provide tactical hygiene support

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

DESCRIPTION: Provide tactical hygiene support in order to provide sanitary shower, laundry, and field sanitation support to meet the commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To meet planning requirements and IAW commander's intent.

EVENT COMPONENTS:
1. Establish shower facilities.
2. Establish laundry facilities.
3. Supervise field sanitation.

CHAINED EVENTS:

CAB-UTIL-3007	CAB-UTIL-3008	CAB-UTIL-3009
CAB-UTIL-3010		

RELATED EVENTS:

1169-ADMN-2007	1169-ADMN-2021	1169-ADMN-2022
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2091
1169-XENG-2501	1169-XENG-2502	1169-XENG-2555
1169-XENG-2655	1169-XENG-2755	1169-XENG-2855

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, Material Handling equipment, PPE.

MATERIAL: Building materials (gravel, lime, pest insecticide, lumber etc.)

CAB-VERT-4001: Conduct limited vertical construction

SUPPORTED MCT(S):

MCT 1.4.1	MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct limited vertical construction to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey.

4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility, as required.
7. Erect prefabricated structure, as required.
8. Construct wood frame structure, as required.
9. Construct timber structure, as required.
10. Construct expedient drainage structure, as required.
11. Wire structure for electricity, as required.
12. Submit required reports.

CHAINED EVENTS:

CAB-HEOP-3001	CAB-HEOP-3002	CAB-MOBL-3010
CAB-RECN-3005	CAB-RECN-4005	CAB-UTIL-3004
CAB-VERT-4002	CAB-VERT-4003	CAB-VERT-4004

RELATED EVENTS:

1302-RECN-1001	1302-VERT-1001	1316-XENG-1001
1316-XENG-1006	1361-DRAF-1002	1361-DRAF-1003
1361-SRVY-1004	1361-SRVY-1008	1361-SRVY-2003
1361-SRVY-2004	1361-SRVY-2005	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2008	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-2002
1371-HORZ-2003	1371-RECN-2001	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	1371-VERT-1005
1371-VERT-2001	1371-VERT-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17.7C Carpentry
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7I Earthmoving Operations
5. MCRP 3-17.7K Theater of Operations Electrical Systems
6. MCRP 3-17.7M Construction Estimating
7. MCRP 3-17.7N Base Camps
8. MCRP 3-17A Engineering Field Data
9. MCWP 3-17 Engineering Operations
10. MCWP 3-33 Military Operations Other Than War (MOOTW)
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
12. MCWP 4-11 Tactical-Level Logistics
13. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools and equipment; kits, Material Handling Equipment.

CAB-VERT-4002: Construct wood frame structure

SUPPORTED MCT(S):

MCT 1.4.1	MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct wood frame structures for use in all operations conducted to include but not limited to; strong backs, sheds, facilities, sea huts, etc. or may be specified in mission directives in support of the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, construction plans, design specifications, construction materials and references.

STANDARD: To meet the requirements listed in the design specifications in accordance with commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install footers, as required.
7. Construct/install flooring structure, as required
8. Construct/install wall structure(s), as required.
9. Construct/install roof structure, as required.
10. Construct/install doors, as required.
11. Construct/install windows, as required.
12. Finish interior, as required.
13. Finish exterior, as required.
14. Submit required reports.

PREREQUISITE EVENTS:
CAB-RECN-3005 CAB-RECN-4005

CHAINED EVENTS:
CAB-HEOP-3001 CAB-HEOP-3002

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

CAB-VERT-4003: Construct timber structure

SUPPORTED MCT(S):
MCT 1.4.1 MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct timber structures for survivability of personnel and equipment. Structures consist of but not limited to bunkers, shelters, overhead cover, guard posts, crew-serve weapons positions, and individual fighting positions.

CONDITION: Given a mission, commander's intent, tactical situations, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To meet the survivability requirements and in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct/prefabricate structures, as required.
7. Emplace structures, as required.
8. Construct/install wall structure(s), as required.
9. Construct/install roof structure/components, as required.
10. Construct/install doors, as required.
11. Construct/install portholes, as required.
12. Sandbag structure, as required.
13. Camouflage, as required.
14. Install grenade sumps, as required.
15. Submit required reports.

PREREQUISITE EVENTS:

CAB-RECN-4005	CAB-RECN-4006

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-SURV-1001	1302-SURV-1002	1302-VERT-1001
1371-EOPS-1002	1371-EOPS-1003	1371-EOPS-1004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2008
1371-EOPS-2010	1371-EOPS-2011	1371-MANT-1001
1371-RECN-2001	1371-SURV-1001	1371-SURV-2001
1371-SURV-2002	1371-VERT-1001	1371-VERT-1002
1371-VERT-1004	1371-VERT-1005	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and Kits

CAB-VERT-4004: Provide limited repair of existing structures

SUPPORTED MCT(S):
MCT 1.4.1 MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide limited repair of facilities that have been damaged/flawed or incorrect per design specifications in support of the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, structure/facility in need of repair, construction materials and references.

STANDARD: To meet the original design requirements/specifications to restore structure or facilities and in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics, as required.
2. Review engineer reconnaissance and survey, as required.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Repair/replace structural components, as required.
7. Repair/replace electrical, as required.
8. Repair bridge abutments, as required.
9. Submit required reports.

CHAINED EVENTS:
CAB-HEOP-3002 CAB-UTIL-3004

RELATED EVENTS:

1302-EOPS-1009	1302-RECN-1001	1302-VERT-1001
1316-XENG-1001	1316-XENG-1006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-RECN-1001
1371-RECN-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1003	1371-VERT-1004
1371-VERT-1005		

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and kits

CAB-VERT-4005: Rig expedient lifting devices

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Rig expedient lifting devices for field expedient lifting of heavy objects and equipment with the use of organic equipment assets and fabricated supports (gin poles, tripods, shear poles, etc.). Rigging devices support the conduct of using pulleys for mechanical advantage to allow loads to be lifted, moved, and/or displaced to desired area.

CONDITION: Given a tactical situation, requirement to use rigging equipment, personnel, tools, and references.

STANDARD: To lift tools, equipment, or components of structures for accomplishment of tactical missions in accordance with the concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate for logistical requirements.
3. Acquire necessary materials, as required.
4. Compute safe working load, as required.
5. Rig lifting system, as required.
6. Erect lifting system, as required.
7. Crib, as required.
8. Install block(s), as required.
9. Install anchor systems, as required.
10. Operate lifting system.

RELATED EVENTS:
1371-EOPS-1005 1371-EOPS-2009

REFERENCES:
1. MCRP 3-17.7J Rigging Techniques, Procedures, and Applications
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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3007. 3000-LEVEL EVENTS

CAB-CMOB-3001: Construct field expedient obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct field expedient obstacles to tie into existing

natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted.

CONDITION: Given a tactical situation, type of obstacle required, obstacle intent, engineer tools and equipment, Class IV and V supplies, expedient obstacle material, personal protective equipment (PPE), and an area to construct the obstacle.

STANDARD: To tie into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted in accordance with the concept of operations.

EVENT COMPONENTS:
1. Prepare to construct field expedient obstacle(s).
2. Construct log obstacles if applicable.
3. Construct an abatis if applicable.
4. Construct improvised obstacles if applicable.
5. Improve, as necessary.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1310-ADMN-2002
1310-ADMN-2004	1310-ADMN-2010	1310-HEOP-2001
1310-MANT-2002	1316-ADMN-2001	1316-ADMN-2002
1316-XENG-1001	1316-XENG-1006	1316-XENG-2002
1345-ADMN-1002	1345-ADMN-2002	1345-HEOP-1004
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-CMOB-1002	1371-DEMO-1001	1371-EOPS-1002
1371-EOPS-1003		

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.5 Combined Arms Countermobility Operations
9. MCWP 3-17.6 Survivability
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
11. MCWP 3-35.5 Jungle Operations
12. MCWP 3-35.6 Desert Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	20 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team

M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	10 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat Engineer equipment, tools and kits, Earthmoving equipment, Demo kit.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-CMOB-3002: Build non-explosive obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Build non-explosive obstacles to, block, fix, or disrupt the enemy. Typical examples are: Wire, Tank ditches, Log cribs, Steel H beam post obstacles, falling or tumble blocks, Dragon's teeth, hedgehogs, tetrahedrons and non-explosive abatis.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV and V supplies, natural terrain, battlefield materials, etc.).

STANDARD: To, block, fix, or disrupt the enemy in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission and schematics
2. Determine actual work sequence.
3. Coordinate logistical requirements.
4. Coordinate overwatch/ security for obstacle construction.
5. Move to obstacle site.
6. Tie obstacles into natural/existing obstacles, as required.
7. Construct/place mobility obstacles (barriers, hedgehogs, etc.), as required.
8. Construct wire obstacles, as required.
9. Construct/place field expedient obstacles (logs, abatis, rubble, etc.), as required.
10. Construct/create deceptive obstacles, as required.
11. Construct tank ditches, as required.

12. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1002
1302-CMOB-1003	1310-ADMN-2010	1310-HEOP-2001
1310-MANT-2002	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-ADMN-1002	1345-ADMN-2002
1345-HEOP-1004	1345-HEOP-1007	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1345-MANT-2003	1345-MANT-2004	1349-ADMN-2002
1349-ADMN-2004	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1001	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-2001	1371-CMOB-2001
1371-CMOB-2002	1371-CMOB-2003	

REFERENCES:

1. Appropriate Technical Manuals
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
6. MCWP 3-1 Ground Combat Operations
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.5 Combined Arms Countermobility Operations
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment, tools and kits, MHE, Earthmoving equipment.

CAB-CMOB-3003: Employ explosive obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create an explosive obstacle to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given an operations order, personnel, demolitions material, engineer equipment, and personal protective equipment.

STANDARD: To turn, block, fix, or disrupt the enemy in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare site.
3. Build the explosive obstacle.
4. Emplace explosive obstacle.
5. Recover, as required.
6. Submit required reports.

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-13.2 MINE WARFARE
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	10 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-DEMO-3001: Destroy captured arms and ammunition with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy captured arms and ammunition with demolitions to ensure

destruction. Examples include: confined gaseous, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot-control agents; smokes and incendiaries (including bulk explosives); chemical warfare agents; chemical munitions; rockets; guided and ballistic missiles; bombs; warheads; mortar rounds; artillery ammunition; small arms ammunition; grenades; mines; torpedoes; depth charges; cluster munitions and dispensers; demolition charges; and devices and components of the above.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD), as required.
3. Prepare equipment, as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of arms and ammunition.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1004
1302-DEMO-1004	1302-DEMO-2001	1371-DEMO-1001
1371-DEMO-2002	1371-DEMO-2004	1371-DEMO-2005
1371-MOBL-2023		

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team

M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event

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CAB-DEMO-3002: Destroy bridge with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy bridge with demolitions which results in either a gap that exceeds the enemy's assault bridging capability by 5 meters, or that leaves demolished components which are unable to provide sufficient bearing capacity for enemy assault breaching assets.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD), as required.
3. Prepare equipment, as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of bridge.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1007
1371-CMOB-2004	1371-DEMO-1001	1371-DEMO-2001
1371-DEMO-2002	1371-DEMO-2004	1371-DEMO-2005
1371-DEMO-2006	1371-DEMO-2015	

REFERENCES:

1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-DEMO-3003: Destroy tunnel with demolitions

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy tunnel with demolitions to restrict the mobility of the enemy.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD), as required.
3. Prepare equipment, as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of tunnel.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-MOBL-1007	1371-DEMO-1001	1371-DEMO-2001
1371-DEMO-2001	1371-DEMO-2002	1371-DEMO-2004
1371-DEMO-2005		

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team

MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event

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CAB-DEMO-3004: Destroy building with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy building with demolitions to ensure destruction of the building.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD), as required.
3. Prepare equipment, as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of building.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1007
1371-DEMO-1001	1371-DEMO-2001	1371-DEMO-2002
1371-DEMO-2004	1371-DEMO-2005	1371-DEMO-2006

REFERENCES:
1. GTA 5-10-33 Demolition Card

2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: 260 CFM, PPE.

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event

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CAB-HEOP-3001: Provide limited Material Handling Equipment (MHE) support

SUPPORTED MCT(S):
MCT 1.12.1 MCT 1.4.1 MCT 1.4.2
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited Material Handling Equipment (MHE) support to the GCE utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct lift of material.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-1002	1345-HEOP-1001	1345-HEOP-1002
1345-HEOP-1003	1345-HEOP-2009	1345-MANT-1001
1349-ADMN-2002	1349-ADMN-2006	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CAB-HEOP-3002: Provide limited earth moving equipment support

SUPPORTED MCT(S):

MCT 1.12.1	MCT 1.4.1	MCT 1.4.2
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited earth moving equipment support to support the mission utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct combined earthmoving operations.
7. Displace equipment, as required.

8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2010	1310-HEOP-2001
1310-HORZ-2001	1310-HORZ-2002	1310-HORZ-2003
1310-MANT-2002	1345-ADMN-1002	1345-ADMN-2002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1007	1345-HEOP-2006
1345-HEOP-2007	1345-MANT-1001	1345-MANT-2001
1349-ADMN-2002	1349-ADMN-2010	1349-HEOP-2001
1349-HORZ-2001	1349-HORZ-2002	1349-HORZ-2003
1349-MANT-2002		

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CAB-MANT-3001: Maintain engineer equipment

SUPPORTED MCT(S):

MCT 1.1.2	MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Maintain engineer equipment by conducting preventive and corrective maintenance on engineer equipment using unit assigned maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

RELATED EVENTS:

1302-MANT-1003	1310-ADMN-2002	1310-ADMN-2003
1310-ADMN-2004	1310-ADMN-2005	1310-ADMN-2008
1310-MANT-2001	1316-ADMN-1001	1316-ADMN-1002
1316-ADMN-1003	1316-ADMN-2001	1316-ADMN-2002

1316-MANT-1002	1316-MANT-1004	1316-XENG-1001
1316-XENG-1002	1316-XENG-1004	1316-XENG-1005
1316-XENG-1006	1341-ADMN-1001	1341-ADMN-1002
1341-ADMN-2001	1341-ADMN-2002	1341-ADMN-2003
1341-ADMN-2004	1341-MANT-1001	1341-MANT-1002
1341-MANT-1003	1341-MANT-1004	1341-MANT-1005
1341-MANT-1006	1341-MANT-1007	1341-MANT-1008
1341-MANT-1009	1341-MANT-1010	1341-MANT-2009
1341-MANT-2010	1345-ADMN-1002	1345-MANT-1001
1345-MANT-2001	1345-MANT-2002	1349-ADMN-2001
1349-ADMN-2002	1349-ADMN-2003	1349-ADMN-2004
1349-ADMN-2008	1349-MANT-2001	1349-MANT-2002
1371-MANT-1001	1371-MANT-2002	

REFERENCES:
1. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
5. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
6. MCO 5100.29_ Marine Corps Safety Program
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. SOP Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer tools, sets, kits.

CAB-MANT-3002: Maintain Tactical Power Distribution System

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Maintain equipment to ensure the safe distribution of electrical power to meet mission requirements and commander's intent.

CONDITION: With a Preventive Maintenance Checks and Service (PMCS) Schedule, testing equipment, tools, and personnel.

STANDARD: To ensure the equipment is safe and operational.

EVENT COMPONENTS:
1. Review PMCS schedule, as required.
2. Induct equipment into maintenance cycle.
3. Conduct preventive maintenance, as required.
4. Conduct corrective maintenance, as required.
5. Complete Modifications, as required.
6. Ground system, as required.
7. Electrically energize system, as required.
8. Diagnose malfunction, as required.

9. Requisition repair parts, as required.
10. Install repair parts, as required.
11. Test system.
12. Complete quality control requirements.
13. Complete administrative maintenance requirements.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT: Multi-meter, tools, power generation equipment, PPE.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task includes conducting maintenance on generators, MEPDIS and MEPDIS-R.

CAB-MANT-3003: Maintain water purification equipment

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on water purification equipment to meet mission requirements and commanders intent.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications, as required.
7. Perform Operational Checks.
8. Complete quality control requirements.
9. Complete maintenance administrative requirements.

RELATED EVENTS:
1142-ADMN-2061 1142-ADMN-2073 1142-MANT-1101

1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-1382	1142-MANT-1493	1142-MANT-2191
1142-MANT-2383	1171-ADMN-1006	1171-ADMN-1007
1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-ADMN-2071	1171-ADMN-2072	1171-ADMN-2073
1171-MANT-1233	1171-MANT-1248	1171-MANT-1271
1171-MANT-1272	1171-MANT-1274	1171-MANT-1277
1171-MANT-1278	1171-MANT-1279	1171-MANT-1280
1171-MANT-1282	1171-MANT-1284	1171-MANT-1285
1171-MANT-1333	1171-MANT-1348	1171-MANT-1371
1171-MANT-1372	1171-MANT-1374	1171-MANT-1379
1171-MANT-1382	1171-MANT-1433	1171-MANT-1441
1171-MANT-1448	1171-MANT-1471	1171-MANT-1472
1171-MANT-1474	1171-MANT-1478	1171-MANT-1482
1171-MANT-1484	1171-MANT-1485	1171-MANT-2101
1171-MANT-2191	1171-MANT-2396	1171-MANT-2397

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
4. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, appropriate tools and kits.

MATERIAL: POLs, as required

CAB-MANT-3004: Maintain Hygiene Equipment

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on water support equipment to meet mission requirements and commanders intent.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications, as required.
7. Perform Operational Checks.
8. Complete quality control requirements.
9. Complete maintenance administrative requirements.

RELATED EVENTS:

1142-MANT-1101	1142-MANT-1106	1142-MANT-1108
1142-MANT-1109	1142-MANT-1331	1142-MANT-1392
1142-MANT-1493	1142-MANT-2332	1142-MANT-2338
1142-MANT-2438	1171-ADMN-1006	1171-ADMN-1007
1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-ADMN-2071	1171-ADMN-2072	1171-ADMN-2073
1171-MANT-1231	1171-MANT-1232	1171-MANT-1241
1171-MANT-1277	1171-MANT-1278	1171-MANT-1331
1171-MANT-1332	1171-MANT-1431	1171-MANT-1432
1171-MANT-1477	1171-MANT-1478	1171-MANT-2101
1171-MANT-2191	1171-MANT-2338	1171-MANT-2395
1171-MANT-2396	1171-MANT-2438	

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.4 Maintenance Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, appropriate tools and kits.

MATERIAL: Appropriate POLs, as required.

CAB-MOBL-3001: Engage targets with MK153 SMAW

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Engage targets with MK153 SMAW to destroy bunkers and other fortifications during assault operations as well as other designated targets

CONDITION: Given a tactical scenario which presents a series of realistic threats, at ranges 150 to 250 meters, wearing a fighting load, operating as

an assault team (gunner and assistant gunner) in support of a maneuvering unit , firing from all positions, during day or night operations.

STANDARD: Attain hits on designated/ appropriate targets from suitable tactical positions using spotting rounds and appropriate rockets, maximizing the use of cover to load and engage targets, or suppressing fire/concealment, when cover is not available, in accordance with commander's intent and the target attack guidance matrix.

EVENT COMPONENTS:
1. Load the SMAW.
2. Select a firing position.
3. Acquire the target in the sight.
4. Determine range to target.
5. Set the estimated range on the sight range selector drum (telescopic sight).
6. Place the SMAW in Condition 1.
7. Fire a spotting round and observe impact.
8. Make necessary adjustments until spotting rounds impact target or until the six (6) spotting rounds are expended.
9. Fire the SMAW.
10. Take immediate action if misfire occurs with either spotting rifle or launcher.
11. Move to alternate/supplemental position.

PREREQUISITE EVENTS: 1371-MOBL-1006

RELATED EVENTS:

1302-MOBL-1005	1371-MOBL-1003	1371-MOBL-1005
1371-MOBL-2012	1371-MOBL-2017	

REFERENCES:
1. TM 08673A-10/1 Launcher, Assault Rocket 83MM (SMAW) MK 153 MOD 0

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX11- Cartridge, 9mm Spotting Rifle MK217	30 round per Team
HX05 Rocket, 83mm Assault MK3 Mod 0 (SMAW	2 rocket per Team
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	4 rocket per Team

RANGE/TRAINING AREA: Facility Code 17710 Multipurpose Training Range (MPTR)

EQUIPMENT: MK 153 SMAW, SMAW Cartridge Pack, SMAW Simulator Cartridge.

UNITS/PERSONNEL: Range OIC, Range Safety Officer (RSO), Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT

before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of munitions, explosives and pyrotechnics are sufficient to conduct one training evolution per Company of (30 SMAW teams. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3002: Conduct an urban breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct an urban breach to physically, ballistically, or explosively breach structures in support of GCE mobility requirements.

CONDITION: Given a mission, commander's intent, task organized personnel that are trained and equipped for urban breaching, and references.

STANDARD: To gain entry into a structure or compound to provide sufficient mobility to support the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Reconnoiter target, situation permitting.
3. Issue Breacher's brief.
4. Construct the charge(s), as required.
5. Verify obscuration, concealment, as required.
6. Move to breach site.
7. Place charge(s), as required.
8. Detonate charge(s), as required.
9. Conduct ballistic breach, as required.
10. Conduct mechanical breach, as required.
11. Conduct manual (follow-on) breach, as required.
12. Reconstitute for successive breaches, as required.

RELATED EVENTS:

1302-DEMO-1002	1302-DEMO-1003	1302-MOBL-1006
1302-MOBL-1007	1371-DEMO-2001	1371-DEMO-2002
1371-DEMO-2003	1371-DEMO-2004	1371-DEMO-2005
1371-DEMO-2006	1371-DEMO-2007	1371-DEMO-2008
1371-DEMO-2009	1371-DEMO-2010	1371-DEMO-2011
1371-DEMO-2012	1371-DEMO-2013	1371-DEMO-2014
1371-MOBL-2013	1371-MOBL-2014	1371-MOBL-2016
1371-MOBL-2019		

REFERENCES:
1. Guidebook for Assault Entry Techniques
2. Urban Mobility Engineer Guidebook
3. 590 MILS M590 Shotgun Owner's Manual
4. MCRP 3-17.7L Explosives and Demolitions
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
7. SWO 60-AA-MMA-010 Demolition Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A011 Cartridge, 12 Gauge #00 Buckshot M16	10 cartridges per Team
A023 Cartridge, 12 Gauge 1 Ounce Slug Com	10 cartridges per Team
A024 Cartridge, 12 Gauge Door Breaching M	10 cartridges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
M982 Charge, Demolition Sheet 0.161 Inch	1 Roll per Team
MM47 Charge, Demolition Flexible Linear S	5 FT per Team
MM56 Detonator, Non-Electric MK123 Mod 0	10 detonators per Team
MN08 Igniter, Time Blasting Fuse with Sho	40 igniters per Team
MN14 Firing Device, Dual Mode MK54	2 primers per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer urban breaching equipment, PPE.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this Event.

CAB-MOBL-3003: Create a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Create a lane through an obstacle that provides safe passage of a passing force. The route may be reduced and proofed as part of a breaching operation, be constructed as part of the obstacle, or be marked as a bypass.

CONDITION: Given a tactical situation, an order, breaching assets, location of lane to be created, current obstacle intelligence, and references.

STANDARD: To assure mobility in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Acquire explosive/non-explosive breaching assets.
3. Conduct battle drills (team) to rehearse the breach of an obstacle.
4. Move to breach site.
5. Execute the breach.
6. Proof lane.

7. Mark lane.
8. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-DEMO-1001
1302-DEMO-1002	1302-MOBL-1004	1302-MOBL-1005
1302-MOBL-1005	1302-MOBL-1008	1302-MOBL-1009
1302-MOBL-1010	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-HEOP-1004
1345-HEOP-1006	1345-MANT-1001	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-CMOB-1003	1371-CMOB-2001	1371-DEMO-1001
1371-DEMO-2002	1371-DEMO-2003	1371-DEMO-2004
1371-DEMO-2005	1371-MOBL-1001	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2012	1371-MOBL-2017
1371-MOBL-2019	1371-MOBL-2020	1371-MOBL-2022
1371-MOBL-2023	1371-MOBL-2035	

REFERENCES:

1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per Team
M028 Demolition Kit, Bangalore Torpedo M1	1 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M130 Cap, Blasting Electric M6	60 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1500 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
M913 Charge, Demolition High Explosive Li	1 charges per Team
M914 Charge, Demolition Inert Linear M68A	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	100 igniters per Team
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	10 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer breaching assets, Demo kit, PPE.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3004: Proof a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Proof a lane through an obstacle to verify that a lane is free of explosive hazards and that the width and trafficability of the point of breach are suitable for the assault force. Proofing can be conducted visually (against surface-laid minefields), electronically (mine detectors), or mechanically (mine clearing rollers [MCRs]). Proofing is conducted when the risk of live mines remaining in the lane exceeds the risk of loss (lives and equipment) to enemy fires while waiting to complete proofing.

CONDITION: Given a breached lane, task organized equipment and personnel, and references.

STANDARD: To verify that a lane is free of all remnants of explosive and non-explosive obstacles and to allow for rapid passage of assault force in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Conduct mechanical proof of breached lane, as required.
3. Conduct manual proof of breached lane, as required.
4. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1004
1302-MOBL-1005	1302-MOBL-1009	1302-MOBL-1010
1371-DEMO-1001	1371-DEMO-2002	1371-DEMO-2003
1371-DEMO-2004	1371-DEMO-2005	1371-MOBL-1001
1371-MOBL-1002	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017	1371-MOBL-2019	1371-MOBL-2020
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2035

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M130 Cap, Blasting Electric M6	60 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	100 igniters per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	10 igniters per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat Engineer breaching assets, mine detectors, Demo kit.

UNITS/PERSONNEL: Range Safety officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3005: Mark a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Mark a lane through an obstacle to identify a breached lane for rapid passage of the force.

CONDITION: Given a proofed lane, task organized equipment and personnel, and references.

STANDARD: To identify a breached lane for rapid passage of assault force in accordance with the commander's intent and the concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Mark the breached lane.
3. Submit required reports.

RELATED EVENTS:
1302-MOBL-1005 1371-MOBL-1003 1371-MOBL-2012
1371-MOBL-2017

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: HEMMS kit and mine field marking kit.

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3006: Remotely detect explosive hazards

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Remotely detect explosive hazards using engineer robotics systems to detect explosive hazards, positively identify and mark explosive hazards within engineer scope/capabilities.

CONDITION: Given a tactical situation, robot, an order, combat engineer equipment, field protective equipment, a suspected explosive hazard, commander's decision and references.

STANDARD: To positively identify and mark the explosive hazard in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Re-deploy to safe standoff distance.
2. Set security.
3. Evaluate micro-terrain.
4. Robot team prepare robot for operation.
5. Operate the robot.
6. Conduct robotic reconnaissance.
7. Mark explosive hazard, as required.
8. Submit report, as required.

RELATED EVENTS:
1302-MOBL-1008 1302-MOBL-1009 1371-MOBL-2035

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer robot.

CAB-MOBL-3007: Remotely reduce explosive hazards

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Remotely reduce explosive hazards using engineer robotics systems to reduce/destroy explosive hazards after positive identification of explosive hazard has been established and with engineer scope/capabilities.

CONDITION: Given a tactical situation, robot, a positively identified explosive hazard, an order, combat engineer equipment, Class V supplies, field protective equipment, commander's decision and references.

STANDARD: By calculating, placing and detonating an explosive charge that will result in the reduction of the explosive hazard and allow for assured mobility.

EVENT COMPONENTS:
1. Evaluate go/no go criteria per the explosive hazard decision matrix.
2. Employ protective measures.
3. Build a charge.
4. Prepare robot for operation.
5. Remotely place the charge.
6. Detonate the charge.
7. Remotely verify destruction of explosive hazard.
8. Submit report, as required.

RELATED EVENTS:
1302-DEMO-1002 1302-DEMO-1004 1302-MOBL-1004
1302-MOBL-1008 1302-MOBL-1009 1371-MOBL-2020
1371-MOBL-2023

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions

4. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M670 Fuse, Blasting Time M700	1500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	40 igniters per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	2 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	15 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer robot.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3008: Employ a medium machinegun team

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ a medium machinegun team in a mounted or dismounted position.

CONDITION: Given an operations order, a medium machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

STANDARD: To support the scheme of maneuver in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A064 Cartridge, 5.56mm 4 Ball M855/1 Trac	456 rounds per Team
A131 Cartridge, 7.62mm 4 Ball M80/1 Trace	882 rounds per Team
A135 Cartridge, 7.62mm Dummy M63	12 rounds per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17581 Machine Gun Field Fire Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3009: Employ a heavy machinegun team

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ a heavy machinegun team in a mounted/dismounted position.

CONDITION: Given an operations order, a heavy machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

STANDARD: To support the scheme of maneuver.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A560 Cartridge, Caliber .50 Dummy M2	20 rounds per Team
A576 Cartridge, Caliber .50 4 API M8/1 AP	604 rounds per Team
B472 Cartridge, 40mm Dummy M922	20 rounds per Team
B542 Cartridge, 40mm HEDP M430/M430A1 Lin	254 rounds per Team
BA21 Cartridge, 40mm Practice (Day/Night)	32 rounds per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3010: Fell standing timber

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Clear a forested area in support of operations.

CONDITION: Given an operations order, standing timber, appropriate hand tools, an SL-3 complete chainsaw, mixed fuel, personnel, and all personal protective equipment (PPE).

STANDARD: To clear a forested area in support of operations in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine equipment required.
3. Calculate time required.
4. Prepare equipment for operation.
5. Move to site.
6. Establish safety zone.
7. Cut timber.
8. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-SURV-1001	1310-ADMN-2002
1310-ADMN-2004	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-HEOP-1004
1345-HEOP-1005	1345-MANT-1001	1345-MANT-2001
1349-ADMN-2004	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	1371-CMOB-2001
1371-EOPS-1002	1371-EOPS-1003	1371-EOPS-2008

REFERENCES:
1. Appropriate TM/Manufacture's Manual for Chainsaw
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	6 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	6 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	20 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
MN08 Igniter, Time Blasting Fuse with Sho	10 igniters per Team
MN52 MK154 Mod 0	10 detonators per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits, HazMat containment kit, PPE.

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3011: Operate small craft

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Operate small craft to reconnoiter littoral areas in support of mobility requirements.

CONDITION: Given a mission, commander's intent, a map, task organization of

personnel and equipment, waterway to reconnaissance/scout, and the references.

STANDARD: To conduct an engineer reconnaissance of specified waterway, gather all relevant engineer data, produce a report in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review the order.
2. Coordinate with supported unit.
3. Prepare equipment for operation.
4. Move to launch point.
5. Launch reconnaissance team.
6. Conduct reconnaissance mission.
7. Recover reconnaissance team.
8. Submit required reports.

PREREQUISITE EVENTS:

1342-MANT-1001	1342-MANT-1002	1342-MANT-1004

RELATED EVENTS:

1302-MOBL-1015	1310-ADMN-2002	1310-ADMN-2004
1310-ADMN-2009	1310-MANT-2001	1310-MANT-2002
1342-MANT-1001	1342-MANT-1002	1342-MANT-1004
1342-MANT-1010	1349-ADMN-2002	1349-ADMN-2004
1349-ADMN-2009	1349-MANT-2001	1349-MANT-2002
1371-MOBL-1005	1371-MOBL-2003	1371-MOBL-2005
1371-MOBL-2005	1371-MOBL-2008	1371-MOBL-2008
1371-MOBL-2028		

REFERENCES:
1. MCWP 3-17.8 Combined Arms Mobility Operations
2. TM 09665 B-10/1 Combat Rubber Reconnaissance Craft Field Service Manual
3. TM 09665A-13&P/1-1 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
4. TM 09665A-13&P/1-2 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
5. TM 09665B The 55 HP Engine
6. TM 09665B/10717A Small Craft Propulsion System, CRRC

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

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CAB-MOBL-3012: Conduct limited route clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: Conduct route clearance operations to clear all obstacles along a route. Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that

severely limits mobility. The route will only be "cleared" while it remains under the control/observation of friendly forces.

CONDITION: Provided a mission, a designated route with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolition tools, explosives, and references.

STANDARD: To ensure friendly force mobility on the cleared route [friendly forces are not fixed, turned, blocked, nor disrupted] in accordance with the commanders intent, while the route remains in friendly forces control.

EVENT COMPONENTS:
1. Analyze route intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect obstacles on route.
6. Identify obstacle(s).
7. Mark obstacle(s), as required.
8. Reduce obstacle(s), as required.
9. Verify obstacle reduction.
10. Identify bypasses, as required.
11. Submit required reports.

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1008	1302-MOBL-1009	1302-MOBL-1010
1302-PLAN-2006	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2012	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027
1371-MOBL-2035		

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17.3 MAGTF Breaching Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations
9. MCWP 3-35.5 Jungle Operations
10. MCWP 3-35.6 Desert Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	30 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	2000 FT per Team
M670 Fuse, Blasting Time M700	250 FT per Team

M757 Charge, Assembly Demolition M183 Com	2 cases per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Engineer equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-MOBL-3013: Conduct area clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct area clearance operations to eliminate obstacle(s) [explosive or non-explosive] in a limited area to provide a secure environment.

CONDITION: Provided a mission, a designated area with known/potential/suspected obstacle(s), engineer tools and equipment, demolition tools, explosives, and references.

STANDARD: To eliminate obstacle(s) [explosive or non-explosive] in a limited area to provide a secure environment for operations in accordance with the commander's intent and mobility plan.

EVENT COMPONENTS:
1. Visually assess the terrain.
2. Sweep area.
3. Identify and confirm hazards.
4. Reduce explosive or non-explosive hazards.
5. Verify reduction of hazard.
6. Submit required reports.

RELATED EVENTS:

1302-MOBL-1003	1302-MOBL-1004	1302-MOBL-1005
1302-MOBL-1009	1302-MOBL-1010	1371-MOBL-2021

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions

5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17.3 MAGTF Breaching Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations
10. MCWP 3-33 Military Operations Other Than War (MOOTW)
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
J143	Rocket Motor, 5-inch MK22 Mod 4	9 rocket per Platoon
M028	Demolition Kit, Bangalore Torpedo M1	3 cases per Platoon
M032	Charge, Demolition Block TNT 1-Pound	20 charges per Platoon
M130	Cap, Blasting Electric M6	30 blasting caps per Platoon
M131	Cap, Blasting Non-Electric M7	30 blasting caps per Platoon
M456	Cord, Detonating PETN Type I Class E	4000 FT per Platoon
M670	Fuse, Blasting Time M700	1500 FT per Platoon
M757	Charge, Assembly Demolition M183 Com	6 cases per Platoon
M913	Charge, Demolition High Explosive Li	6 charges per squad
M914	Charge, Demolition Inert Linear M68A	3 charges per squad
ML03	Firing Device, Demolition Multi-Purp	6 detonators per Platoon
MN08	Igniter, Time Blasting Fuse with Sho	50 igniters per Platoon
MN52	MK154 Mod 0	30 detonators per Platoon
MN79	Mine, Antipersonnel Obstacle Breachi	3 mines per Platoon

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Engineer equipment.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-RECN-3001: Conduct gap reconnaissance

SUPPORTED MCT(S):
MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct gap reconnaissance to evaluate gaps and fording sites, identify obstacles, suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms, personnel, equipment, and reference.

STANDARD: To ensure the crossing is supportable and accounts for all tactical control measures in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter gap, as required.
5. Determine wet gap fording/bridging sites, as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:

1302-MOBL-1010	1302-MOBL-1011	1302-MOBL-1012
1302-MOBL-1013	1302-MOBL-1014	1302-MOBL-1015
1302-RECN-1001	1371-MOBL-2006	1371-MOBL-2007
1371-MOBL-2009	1371-MOBL-2017	1371-RECN-1001
1371-RECN-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-1 Ground Combat Operations
10. MCWP 3-17.3 MAGTF Breaching Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

CAB-RECN-3002: Conduct ferry reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct ferry reconnaissance to identify areas to be used to cross, evaluate ferry sites, identify obstacles, suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To ensure the crossing is supportable and accounts for all tactical control measures in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Identify pre-existing ferrying sites/boat ramps.
4. Proceed to assigned objective.
5. Reconnoiter ferrying site, as required.
6. Determine ferrying sites, as required.
7. Identify suitable bypasses.
8. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.1 River-Crossing Operations
10. MCWP 3-17.3 MAGTF Breaching Operations
11. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

CAB-RECN-3003: Conduct cache sweep

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission order, a mine detector, personnel, equipment, personal protective equipment, and references.

STANDARD: To locate, mark, and reduce all discovered IEDs, ordnance, mines, ammunition, weapons, and explosives per commander's intent and mission requirement.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine detector to be used.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Conduct area sweep.
7. Locate and mark the object.
8. Identify the object.
9. Submit 9-line report.
10. Reduce or exploit, as required.
11. Submit required reports.

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1302-PLAN-2006	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2018	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, tools and kits.

UNITS/PERSONNEL: Range Safety Officer, Corpsman, EOD personnel, Weapons Intelligence Team.

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and

pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CAB-RECN-3004: Conduct tunnel/cave reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct tunnel/cave reconnaissance to determine essential information such as the serial number, location, type, length, width (including sidewalks), bypasses, alignment, gradient, and cross section.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To evaluate tunnels/caves; identify obstacles, restrictions, and suitable bypasses; record any relevant engineer information on the appropriate reconnaissance forms and transfer to a map overlay using correct engineer/tactical symbols in accordance with the concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter tunnel/cave, as required.
5. Evaluate tunnel/cave, as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.3 MAGTF Breaching Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass,

Protractor, Camera, Maps.

CAB-RECN-3005: Survey site for construction

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Survey site for construction to allow critical planning for construction and or operations in support of the GCE.

CONDITION: Provided a construction mission, a map, a scientific calculator, task organized personnel, equipment, and references.

STANDARD: To support commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Move to survey site.
3. Reconnoiter project site, as required.
4. Submit required reports.

RELATED EVENTS:

1302-HORZ-1001	1302-PLAN-1002	1302-PLAN-2004
1302-VERT-1001	1361-SRVY-1001	1361-SRVY-1002
1361-SRVY-1003	1361-SRVY-1004	1361-SRVY-1005
1361-SRVY-1006	1361-SRVY-1007	1361-SRVY-1008
1361-SRVY-1009	1361-SRVY-1010	1361-SRVY-1011
1361-SRVY-1012	1361-SRVY-2002	1361-XENG-2001
1361-XENG-2002	1371-PLAN-2002	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17.4 Engineer Reconnaissance
5. NAVEDTRA 10696 Engineer Aid 3
6. TM 5-581B Construction Drafting
7. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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CAB-RECN-3006: Conduct obstacle reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct obstacle reconnaissance to focus on answering obstacle

intelligence IR-obstacle location, width, and depth; obstacle composition (wire, mines by type, and so forth.); soil conditions; locations of lanes and bypasses; and the location of enemy direct-fire systems.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To identify obstacles; identify suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Determine obstacle type and location.
5. Reconnoiter obstacle, as required.
6. Locate and mark the object.
7. Identify the object.
8. Identify suitable bypasses.
9. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 05-07-013 Bridge Classification Card (2006)
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps.

CAB-RECN-3007: Conduct bridge reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct bridge reconnaissance to collect detailed technical

information on selected bridges. This assessment provides the basic Military Load Classification (MLC) information necessary for the commander to plan for the use of the bridge.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R and DA Form 1249), personnel, equipment, and references.

STANDARD: To classify bridges; identify obstacles, restrictions and suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter bridge.
5. Classify bridge(s), as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 5-2-5 Engineer Reconnaissance
3. GTA 5-7-13 Bridge Classification Booklet
4. MCRP 3-17.1B Military Non-Standard Fixed Bridging
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-1 Ground Combat Operations
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.3 MAGTF Breaching Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps.

CAB-RECN-3008: Conduct road reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct road reconnaissance to collect detailed technical information on the engineering characteristics and trafficability of a road section within a route.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To classify road or road section within a route; identify obstacles, restrictions, and suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter road and road section within a route, as required.
5. Classify road(s), as required.
6. Classify route(s), as required.
7. Identify suitable bypasses.
8. Submit required reports.

PREREQUISITE EVENTS: 1371-MOBL-1006

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps.

CAB-SURV-3001: Construct trenches

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ organic hand tools and/or earth moving assets, tools and equipment.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows multiple combatants' protection from direct fire weapons, affords a force the capability to engage targets from front and oblique's, meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Calculate time required for construction.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement, as required.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-2005	1349-HEOP-2001
1349-MANT-2002	1371-SURV-1001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.5 Combined Arms Countermobility Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-SURV-3002: Construct shelters/bunkers

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: Construct shelters/bunkers to provide combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That provides combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons, and meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct shelter/bunker, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-SURV-1001
1302-SURV-1003	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-2001	1316-ADMN-2002
1316-XENG-1001	1316-XENG-1006	1316-XENG-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-SURV-1001	1371-SURV-2001
1371-SURV-2002		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-41.1 Rear Area Operations
8. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools and kits.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-SURV-3003: Construct vehicle survivability position/revetment

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct vehicle survivability position/revetment to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: To build vehicle survivability positions/revetments that meets or exceeds the mission requirement and support the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct Revetment, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 05-08-001 Survivability Positions
4. MCRP 3-17.7C Carpentry
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-17 Engineering Operations

7. MCWP 3-17.5 Combined Arms Countermobility Operations
8. MCWP 3-17.6 Survivability
9. MCWP 3-33 Military Operations Other Than War (MOOTW)
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
11. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment assets.

MATERIAL: Class IV supplies.

CAB-SURV-3004: Construct crew served weapons position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct crew served weapons position to enable weapons to engage targets from front and oblique's.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows a weapons team the capability to engage targets from front and oblique's, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.
7. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration

3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV supplies as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM.

CAB-SURV-3005: Construct overhead cover

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct overhead cover that meets or exceeds the maximum threat capability of enemy weapons systems.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To design specifications that meets or exceeds the maximum threat capability of enemy weapons systems in accordance with the concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct overhead cover, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001

1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-2007	1345-HEOP-2012	1345-MANT-1001
1345-MANT-2001	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-SURV-1001	1371-SURV-1001	1371-SURV-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports, Class IV supplies as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-SURV-3006: Construct individual fighting position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct individual fighting positions and/or trenches to protect one or more dismounted Marines armed with individual weapons, while supporting their ability to engage the enemy. Fighting positions typically consist of a hole in the ground, supplemented with frontal, overhead, and flank or rear cover as the time and situation permits. Trenches typically connect fighting positions, C2 nodes and logistical hubs while providing cover from enemy observation and direct/indirect fire.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: Positions are planned and designed so that they are concealed, mutually supporting, and have interlocking fields of fire in all directions and protect occupants against enemy direct-fire weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.
7. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-2012	1345-MANT-1001	1371-SURV-1001
1371-SURV-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-SURV-3007: Construct triggering screen

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Triggering screens are built separately or added on to existing structures and used to activate the fuze of an incoming shell or projectile at a designated standoff distance from the structure.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: So that it provides an effective screen against enemy weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct blast screen, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:
1302-SURV-1001 1302-SURV-1002 1371-SURV-1001
1371-SURV-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials, as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CAB-SURV-3008: Construct vehicle fighting position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct vehicle fighting position to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: That meets or exceeds the mission requirement for the specified vehicle/weapons system in accordance with the concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supported unit.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement as required per vehicle type and weapon employment.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1007
1345-HEOP-2006	1345-HEOP-2007	1345-HEOP-2012
1345-MANT-1001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-SURV-2001		

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.6 Survivability
4. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment assets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM.

CAB-UTIL-3001: Establish tactical power distribution system

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 6 months

DESCRIPTION: Provide the appropriate power distribution equipment to establish a tactical electric grid in order to distribute electric power that meets operational requirement and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To accomplish operational requirements and commanders intent.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Determine load requirements.
3. Plan power distribution system(s).
4. Set up distribution system(s).
5. Inspect grounding and connections.
6. Energize system(s).
7. Test system(s).

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-MANT-1101
1141-MANT-1224	1141-MANT-2244	1141-XENG-1601
1141-XENG-1624	1141-XENG-1703	1141-XENG-2501
1141-XENG-2521	1141-XENG-2621	1141-XENG-2622
1141-XENG-2623	1141-XENG-2721	1141-XENG-2821

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Distribution Systems, Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit

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CAB-UTIL-3002: Provide floodlight support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide illumination during low light conditions in order to meet mission requirements and commander's intent.

CONDITION: With an operational order, required equipment and personnel

STANDARD: To properly illuminate required area.

EVENT COMPONENTS:
1. Coordinate with Supported unit(s).
2. Establish illumination plan.
3. Set up floodlight set(s).
4. Operate a floodlight.
5. Recover floodlight set(s).

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1247	1141-XENG-1703
1141-XENG-1747	1141-XENG-2622	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems
2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, tools and kits.

CAB-UTIL-3003: Establish power generation site(s)

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide the appropriate power generation equipment to establish a/or generator site(s) that meets the operational requirement and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Set up generator site(s).
3. Inspect grounding and connections.
4. Energize system(s).
5. Perform operational check(s).
6. Test system.

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1101	1141-XENG-1601
1141-XENG-1618	1141-XENG-1751	1141-XENG-1752
1141-XENG-1753	1141-XENG-1754	1141-XENG-1757
1141-XENG-1763	1141-XENG-1765	1141-XENG-1795
1141-XENG-2622	1141-XENG-2718	1141-XENG-2737
1141-XENG-2750	1141-XENG-2755	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit.

CAB-UTIL-3004: Wire a structure for electricity

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Install interior electrical wiring in order to distribute electricity to meet electrical power requirements.

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish operational power per commander's intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Estimate and requisition materials, as required.
3. Calculate time required to wire structure.
4. Gather tools and materials.
5. Set safety zone, lockout and tagout any preexisting electrical circuits that will be worked on, as required.
6. Verify the location of preexisting underground utility lines.
7. Install electrical boxes, interior/exterior wiring, service feeder, service entrance cables and main and sub panel boxes, as required.
8. Install equipment and system grounding, as required.
9. Request qualified inspector to complete uncovered/rough-in electrical inspection.
10. Install devices, circuit breakers, fixtures and electrical equipment, as required.
11. Request qualified inspector to complete final electrical inspection.
12. Request qualified personnel to connect service feeder to appropriate transformer or power generation, as required.
13. Energize and test electrical system.
14. Submit required reports.

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-2031	1141-MANT-1101
1141-XENG-1601	1141-XENG-1703	1141-XENG-1961
1141-XENG-1962	1141-XENG-2561	1141-XENG-2622
1141-XENG-2623	1141-XENG-2694	1141-XENG-2696
1141-XENG-2963	1141-XENG-2964	1141-XENG-2965
1141-XENG-2966		

REFERENCES:
1. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. FM 5-424 Theater of Operations Electrical Systems
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Electrical materials (as required), PPE, tools and kits.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Final inspection must be performed by a qualified inspector who is a graduate of one or more listed courses: Advanced Electrician (AE), Utilities Chief (UC), or Utilities Officer (UO) Course.

CAB-UTIL-3005: Produce potable water

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Produce and store, potable water in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Perform water recon.
2. Establish water point.
3. Produce potable water.
4. Test water for potability.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1282	1171-XENG-1782
1171-XENG-2501	1171-XENG-2502	1171-XENG-2553
1171-XENG-2651	1171-XENG-2653	1171-XENG-2752
1171-XENG-2753	1171-XENG-2754	1171-XENG-2853

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment with supplemental kits (cartridges, NBC filters etc.), MHE, water testing kit, tool kits, PPE

MATERIAL: Chemicals to purify raw water source.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

CAB-UTIL-3006: Store potable water

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Store potable water in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Determine storage requirements.
2. Establish storage site(s).
3. Test water for potability.
4. Store water for distribution.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-MANT-1241	1171-MANT-1248	1171-MANT-1277
1171-MANT-1278	1171-MANT-1284	1171-MANT-1285
1171-XENG-1677	1171-XENG-1678	1171-XENG-1684
1171-XENG-1685	1171-XENG-1702	1171-XENG-2553
1171-XENG-2752	1171-XENG-2753	1171-XENG-2853

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities potable storage equipment, MHE, water testing kit, tool kits, PPE

MATERIAL: Chemicals to sustain potable water.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

CAB-UTIL-3007: Establish water distribution site

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Establish an accessible potable water distribution site for the supported unit in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Determine water requirements.
2. Set up distribution system(s).
3. Inspect system(s).
4. Test water for potability.
5. Distribute potable water.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1241	1171-MANT-1248
1171-MANT-1271	1171-MANT-1272	1171-MANT-1274
1171-MANT-1277	1171-MANT-1278	1171-MANT-1279
1171-MANT-1280	1171-MANT-1284	1171-MANT-1285
1171-XENG-1648	1171-XENG-1677	1171-XENG-1678
1171-XENG-1680	1171-XENG-1684	1171-XENG-1685
1171-XENG-1702	1171-XENG-1748	1171-XENG-1771
1171-XENG-1772	1171-XENG-1774	1171-XENG-1779
1171-XENG-2752	1171-XENG-2753	1171-XENG-2754
1171-XENG-2853		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, water testing kit, PPE, MHE, motor transport, tool kits, appropriate POLs

MATERIAL: Chemicals to sustain potable water.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

CAB-UTIL-3008: Provide laundry services

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide laundry services to meet mission requirements and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with Supported unit(s).
2. Establish laundry facilities.
3. Implement laundry schedule.
4. Operate laundry unit(s).

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1232	1171-MANT-1278
1171-MANT-1284	1171-MANT-1285	1171-XENG-1632
1171-XENG-1678	1171-XENG-1684	1171-XENG-1685
1171-XENG-1732	1171-XENG-2555	1171-XENG-2655
1171-XENG-2755		

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, PPE, MHE, motor transport, tool kits

MATERIAL: Laundry detergent, gravel, lime, insecticide

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Note: Water does not have to be completely potable-untreated Class III fresh water can be utilized.

CAB-UTIL-3009: Provide shower services

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide shower services to meet mission requirements and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Establish shower facilities.
3. Implement shower schedule.
4. Operate shower unit(s).

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1231	1171-MANT-1278
1171-XENG-1631	1171-XENG-1678	1171-XENG-1731
1171-XENG-2555	1171-XENG-2655	1171-XENG-2755
1171-XENG-2855		

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, PPE, MHE, motor transport, tool kits, POLs.

MATERIAL: Building material, cleaning supplies, lime, insecticide, gravel

UNITS/PERSONNEL: Note: Water must be potable (class I) for showers.

CAB UTIL 3010: Install plumbing in a structure

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: As a CAB unit (fire team) in support of the MAGTF, install piping system in order to meet plumbing requirements and commander's intent.

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish water and sewer services per commanders intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Estimate and requisition materials, as required.
3. Calculate time required to plumb structure.
4. Gather tools and materials.
5. Set safety zone.
6. Verify the location of preexisting underground utility lines.
7. Install interior/exterior drainage plumbing system with appropriately sized vent(s), trap(s) and cleanout(s).
8. Pressurize drainage system to identify possible leaks.
9. Install hot and cold water supply lines with shut-off and relief valve(s), as required.
10. Request qualified inspector to complete uncovered/rough-in plumbing inspection.
11. Install plumbing fixtures.
12. Request qualified personnel to install water meter and shut-off valve, as required.
13. Connect structure main water supply line to water meter, as required.
14. Request qualified personnel to install sewer/septic system, as required.
15. Connect structure main sanitation pipe(s) to sewer/septic system, as required.
16. Request qualified inspector to complete final plumbing inspection.
17. Submit required reports.

RELATED EVENTS:

1171-ADMN-1006	1171-XENG-1981	1171-XENG-1982
1171-XENG-1984	1171-XENG-1985	1171-XENG-1986
1171-XENG-2581	1171-XENG-2983	1171-XENG-2987
1171-XENG-2988	1171-XENG-2989	

REFERENCES:
1. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT: PPE, tools and kits

MATERIAL: Building materials

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Final inspection must be performed by a qualified inspector who is a graduate of one or more listed courses: Advanced Water Support Technician (AWST), Utilities Chief (UC), or Utilities Officer (UO) Course.

ENG & UTIL T&R MANUAL

CHAPTER 4

CEB COLLECTIVE EVENTS

	PARAGRAPH	PAGE
PURPOSE.	4000	4-2
EVENT CODING	4001	4-2
INDEX OF COLLECTIVE EVENTS	4002	4-2
7000-LEVEL EVENTS.	4003	4-5
6000-LEVEL EVENTS.	4004	4-8
5000-LEVEL EVENTS.	4005	4-17
4000-LEVEL EVENTS.	4006	4-38
3000-LEVEL EVENTS.	4007	4-85

CHAPTER 4

CEB COLLECTIVE EVENTS

4000. PURPOSE. Chapter 4 contains collective training events for the Combat Engineer Battalion (CEB).

4001. **EVENT CODING**. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
CEB	Combat Engineer Battalion

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

ADMN - Administration
CMOB – Countermobility
DEMO – Demolitions
EOPS – Engineer Operations
HEOP – Heavy Equipment Operations
HORZ – Horizontal Construction
MANT – Maintenance
MOBL – Mobility
PINF – Provisional Infantry
PLAN - Planning
RECN – Engineer Reconnaissance
SURV – Survivability
UTIL - Utilities
VERT – Vertical Construction

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
7000	Battalion Level
6000	Company Level
5000	Platoon Level
4000	Squad Level
3000	Team Level

4002. INDEX OF COLLECTIVE EVENTS

EVENT	E-CODED	DESCRIPTION	PAGE
7000-LEVEL EVENTS			
CEB-ADMN-7001	YES	Command and control engineer forces	4-5
CEB-EOPS-7001	YES	Train engineer forces	4-6
CEB-PLAN-7001	YES	Plan engineer operations	4-7
6000-LEVEL EVENTS			
CEB-ADMN-6001	YES	Command and control engineer forces	4-8
CEB-CMOB-6001	YES	Conduct countermobility operations	4-9
CEB-EOPS-6001	YES	Train engineer forces	4-10
CEB-EOPS-6002	NO	Conduct limited general engineering operations	4-11
CEB-MOBL-6001	YES	Conduct mobility operations	4-13
CEB-PINF-6001	YES	Provide provisional infantry	4-14
CEB-PLAN-6001	NO	Plan engineer operations	4-15
CEB-SURV-6001	YES	Conduct survivability operations	4-16
5000-LEVEL EVENTS			
CEB-CMOB-5001	YES	Create an obstacle group	4-17
CEB-DEMO-5001	YES	Conduct demolition operations	4-18
CEB-HEOP-5001	YES	Provide engineer equipment support	4-19
CEB-HORZ-5001	NO	Conduct horizontal construction	4-20
CEB-HORZ-5002	NO	Prepare site for construction	4-22
CEB-MANT-5001	YES	Maintain engineer equipment	4-23
CEB-MOBL-5001	YES	Conduct obstacle breaching operations	4-25
CEB-MOBL-5002	YES	Conduct route clearance operations	4-26
CEB-MOBL-5003	NO	Construct expedient Helicopter Landing Zone (HLZ)	4-27
CEB-MOBL-5004	NO	Construct combat roads	4-28
CEB-PINF-5001	YES	Fight as provisional infantry	4-30
CEB-RECN-5001	YES	Conduct engineer reconnaissance	4-31
CEB-RECN-5002	YES	Conduct cache sweep operations	4-32
CEB-SURV-5001	YES	Construct survivability positions	4-33
CEB-UTIL-5001	YES	Provide utilities support	4-35
CEB-VERT-5001	NO	Conduct vertical construction	4-37
4000-LEVEL EVENTS			
CEB-CMOB-4001	YES	Create an explosive obstacle	4-38
CEB-CMOB-4002	YES	Create non-explosive obstacles/barriers	4-40
CEB-CMOB-4003	YES	Employ demolitions in support of countermobility operations	4-42
CEB-HEOP-4001	YES	Conduct MHE operations	4-43
CEB-MANT-4001	YES	Maintain engineer equipment	4-44
CEB-MOBL-4001	YES	Conduct deliberate breach	4-45
CEB-MOBL-4002	YES	Conduct hasty/in-stride breach	4-47
CEB-MOBL-4003	YES	Conduct assault breach	4-49
CEB-MOBL-4004	YES	Conduct covert breach	4-51
CEB-MOBL-4005	YES	Conduct dismounted route sweep operations	4-52
CEB-MOBL-4006	YES	Conduct security for clearance operations	4-54
CEB-MOBL-4007	YES	Detect obstacles during clearance operations	4-55
CEB-MOBL-4008	YES	Breach obstacles for clearance operations	4-56
CEB-MOBL-4009	YES	Conduct route improvement	4-58
CEB-MOBL-4010	NO	Install rope bridge	4-59

CEB-MOBL-4011	YES	Employ demolitions in support of mobility operations	4-60
CEB-PINF-4001	YES	Fight as provisional infantry	4-62
CEB-RECN-4001	YES	Conduct zone reconnaissance	4-63
CEB-RECN-4002	YES	Conduct route reconnaissance	4-64
CEB-RECN-4003	YES	Conduct area reconnaissance	4-65
CEB-RECN-4004	YES	Conduct cache sweep	4-66
CEB-RECN-4005	YES	Conduct engineer reconnaissance	4-68
CEB-RECN-4006	YES	Conduct site survey	4-69
CEB-SURV-4001	YES	Harden existing structure	4-70
CEB-SURV-4002	YES	Construct field fortifications	4-72
CEB-SURV-4003	YES	Construct Vehicle Control Point (VCP)	4-73
CEB-SURV-4004	YES	Construct Entry Access Point (EAP)	4-75
CEB-SURV-4005	YES	Construct earth filled barrier/structure	4-76
CEB-SURV-4006	YES	Employ demolitions in support of survivability operations	4-77
CEB-UTIL-4001	YES	Provide tactical electrical power	4-78
CEB-VERT-4001	NO	Conduct limited vertical construction	4-79
CEB-VERT-4002	NO	Construct wood frame structure	4-81
CEB-VERT-4003	NO	Construct timber structure	4-82
CEB-VERT-4004	NO	Provide limited repair of existing structures	4-83
CEB-VERT-4005	NO	Rig expedient lifting devices	4-84
3000 LEVEL EVENTS			
CEB-CMOB-3001	YES	Construct field expedient obstacles	4-85
CEB-CMOB-3002	YES	Build non-explosive obstacles	4-87
CEB-CMOB-3003	YES	Employ explosive obstacles	4-88
CEB-DEMO-3001	YES	Destroy captured arms and ammunition with demolitions	4-89
CEB-DEMO-3002	YES	Destroy Bridge with demolitions	4-91
CEB-DEMO-3003	YES	Destroy tunnel with demolitions	4-92
CEB-DEMO-3004	YES	Destroy building with demolitions	4-94
CEB-HEOP-3001	YES	Provide Limited Material Handling Equipment (MHE) Support	4-95
CEB-HEOP-3002	YES	Provide limited earth moving equipment support	4-96
CEB-MANT-3001	YES	Maintain engineer equipment	4-97
CEB-MANT-3002	YES	Perform operator/crew level maintenance on ABV	4-98
CEB-MANT-3003	YES	Perform operator/crew level maintenance on AVLB	4-99
CEB-MANT-3004	NO	Maintain tactical power distribution system	4-99
CEB-MANT-3005	NO	Maintain Environmental Control Unit(s)(ECU)	4-101
CEB-MANT-3006	NO	Maintain refrigeration system(s)	4-102
CEB-MOBL-3001	YES	Engage targets with MK153 SMAW	4-103
CEB-MOBL-3002	YES	Breach obstacle with the Assault Breacher Vehicle (ABV)	4-104
CEB-MOBL-3003	YES	Conduct an urban breach	4-106
CEB-MOBL-3004	YES	Create a lane through an obstacle	4-107
CEB-MOBL-3005	YES	Proof a lane through an obstacle	4-109
CEB-MOBL-3006	YES	Mark a lane through an obstacle	4-110
CEB-MOBL-3007	YES	Remotely detect explosive hazards	4-111

CEB-MOBL-3008	YES	Remotely reduce explosive hazards	4-112
CEB-MOBL-3009	YES	Employ a medium machinegun team	4-113
CEB-MOBL-3010	YES	Employ a heavy machinegun team	4-114
CEB-MOBL-3011	NO	Fell standing timber	4-115
CEB-MOBL-3012	YES	Employ the Armored Vehicle Launched Bridge (AVLB)	4-116
CEB-MOBL-3013	NO	Operate small craft	4-118
CEB-MOBL-3014	YES	Conduct route clearance operations	4-119
CEB-MOBL-3015	YES	Conduct area clearance operations	4-120
CEB-RECN-3001	YES	Conduct gap reconnaissance	4-122
CEB-RECN-3002	YES	Conduct ferry reconnaissance	4-123
CEB-RECN-3003	YES	Conduct cache sweep	4-123
CEB-RECN-3004	YES	Conduct tunnel/cave reconnaissance	4-125
CEB-RECN-3005	YES	Survey site for construction	4-126
CEB-RECN-3006	YES	Conduct obstacle reconnaissance	4-127
CEB-RECN-3007	YES	Conduct bridge reconnaissance	4-128
CEB-RECN-3008	YES	Conduct road reconnaissance	4-129
CEB-SURV-3001	YES	Construct trenches	4-130
CEB-SURV-3002	YES	Construct shelter/bunkers	4-131
CEB-SURV-3003	YES	Construct vehicle survivability position position/revetment	4-132
CEB-SURV-3004	YES	Construct crew served weapons position	4-133
CEB-SURV-3005	YES	Construct overhead cover	4-134
CEB-SURV-3006	YES	Construct individual fighting position	4-135
CEB-SURV-3007	YES	Construct triggering screen	4-137
CEB-SURV-3008	YES	Construct vehicle fighting position	4-138
CEB-UTIL-3001	YES	Establish tactical power distribution system	4-139
CEB-UTIL-3002	YES	Provide floodlight support	4-140
CEB-UTIL-3003	YES	Establish power generation site(s)	4-140
CEB-UTIL-3004	NO	Wire a structure for electricity	4-141
CEB-UTIL-3005	NO	Provide Environmental Control Unit (ECU) Support	4-142
CEB-UTIL-3006	NO	Provide refrigeration support	4-143

4003. 7000-LEVEL EVENTS

CEB-ADMN-7001: Command and control engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Command and control engineer forces to enable command and control of the battalion and any engineer reinforcing elements (e.g., support from engineer support battalion). Collection efforts of higher and subordinates units, external agencies, and the battalion's S-2 are integrated to meet all intelligence requirements. The CEB intelligence officer actively participates in the engineer portion of the division intelligence collection

effort. The battalion is capable of self-administration.

CONDITION: Given an order, commander's intent and references.

STANDARD: To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces and coordinate operations with adjacent engineers in the accomplishment of the mission in accordance with MCWP 3-17 Engineer Operations.

EVENT COMPONENTS:
1. Establish COC and communications with higher, adjacent, supported and subordinate units.
2. Command assigned units.
3. Maintain the engineer Common Operational Picture (COP).
4. Direct and coordinate current engineer operations and initiate appropriate actions.
5. Track Commander's Critical Information Requirements (CCIR).
6. Maintain status of available engineer resources.
7. Integrate engineer reconnaissance products into intelligence effort.
8. Make recommendations to the commander on the employment of engineer forces.

CHAINED EVENTS:

CEB-ADMN-6001	CEB-CMOB-6001	CEB-EOPS-6001
CEB-EOPS-6002	CEB-MOBL-6001	CEB-PINF-6001
CEB-PLAN-6001	CEB-SURV-6001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-43 Command and Control
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: C4I assets.

CEB-EOPS-7001: Train engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, countermobility, survivability, engineer reconnaissance, Amphibious

Operations and tactical electrical power.

CONDITION: Given an engineer unit, approved Mission Essential Task List (METL), commanders training guidance, training plans, training schedules, resources and trainers.

STANDARD: To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.
8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA).
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

CHAINED EVENTS:

CEB-ADMN-6001	CEB-CMOB-6001	CEB-MOBL-6001
CEB-PINF-6001	CEB-PLAN-6001	CEB-SURV-6001

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCRP 3-0A Unit Training Management Guide
3. MCRP 3-0B How to Conduct Training
4. MCWP 3-17 Engineering Operations
5. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CEB-PLAN-7001: Plan engineer operations

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan engineer operations to identify all potential engineer requirements (e.g., mobility, countermobility, survivability, limited vertical and horizontal construction, topographic support and civil-military operations support) during the planning process. The CEB conducts its internal planning with focus on mobility, countermobility, survivability and utilities in accordance with the Marine Corps Planning Process (MCPP).

CONDITION: Given higher commanders initial guidance, battle space area evaluation, and a warning or operations order.

STANDARD: To identify the best use of engineer personnel and equipment in accordance with problem framing, commander's intent and concept of operations.

EVENT COMPONENTS:
1. Perform problem framing.
2. Develop courses of action.
3. War game courses of action.
4. Compare courses of action.
5. Brief commanders.
6. Develop orders.
7. Transition to produce operations plan or order.
8. Develop branches and sequels, if applicable.

CHAINED EVENTS: CEB-PLAN-6001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 5-1 Marine Corps Planning Process (MCPP)

4004. 6000-LEVEL EVENTS

CEB-ADMN-6001: Command and control engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Command and control engineer forces to exercise authority and direction over assigned forces, advise the Battalion Commander on the use of engineer forces, and coordinate operations with adjacent engineers.

CONDITION: Given an order and commander's intent.

STANDARD: To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces and coordinate operations with adjacent engineers in accordance with the concept of operations.

EVENT COMPONENTS:

1. Establish COC.
2. Establish communications with higher, adjacent, supported and subordinate units.
3. Command assigned units.
4. Maintain the engineer Common Operational Picture (COP).
5. Direct/coordinate current engineer operations.
6. Initiate appropriate actions.
7. Track CCIRs.
8. Maintain status of available engineer resources.
9. Integrate engineer reconnaissance products into intelligence efforts.
10. Make recommendations to the commander.

CHAINED EVENTS:

CEB-CMOB-5001	CEB-DEMO-5001	CEB-HEOP-5001
CEB-HORZ-5001	CEB-HORZ-5002	CEB-MANT-5001
CEB-MOBL-5001	CEB-MOBL-5002	CEB-MOBL-5003
CEB-MOBL-5004	CEB-PINF-5001	CEB-RECN-5001
CEB-RECN-5002	CEB-SURV-5001	CEB-UTIL-5001
CEB-VERT-5001		

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-43 Command and Control
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

MATERIAL: C4ISR assets.

CEB-CMOB-6001: Conduct countermobility operations

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct countermobility operations to augment natural terrain with obstacle systems that disrupt the enemy's ability to maneuver its forces. With its movement disrupted, turned, fixed or blocked, the enemy is vulnerable.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes,

rules of engagement (ROE), supporting arms plan and references.

STANDARD: To turn, block, fix, or disrupt enemy forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct countermobility planning.
2. Integrate countermobility plan into concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete engineering portion to orders.
6. Issue orders.
7. Construct obstacles and barriers.
8. Maintain obstacles and barriers.
9. Submit reports as required.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-CMOB-1001	1302-CMOB-1002
1302-CMOB-1003	1371-ADMN-2002	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-CMOB-2003	1371-CMOB-2004

CHAINED EVENTS:

CEB-CMOB-5001	CEB-HEOP-5001

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCWP 3-13.2 MINE WARFARE
3. MCWP 3-17 Engineering Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

CEB-EOPS-6001: Train engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, countermobility, survivability, tactical electrical power, engineering reconnaissance operations and amphibious operations.

CONDITION: Given an engineer unit, approved Mission Essential Task List (METL), commanders training guidance, training plans, training schedules, resources and trainers.

STANDARD: To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results.

EVENT COMPONENTS:

1. Conduct problem framing.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.
8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA).
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

PREREQUISITE EVENTS:

1120-ADMN-2001	1120-ADMN-2023	1169-ADMN-2001
1169-ADMN-2023	1302-ADMN-1001	1310-ADMN-2009
1310-ADMN-2010	1349-ADMN-2009	1349-ADMN-2010
1371-ADMN-2001		

CHAINED EVENTS:

CEB-CMOB-5001	CEB-DEMO-5001	CEB-HEOP-5001
CEB-HORZ-5001	CEB-HORZ-5002	CEB-MANT-5001
CEB-MOBL-5001	CEB-MOBL-5002	CEB-MOBL-5003
CEB-MOBL-5004	CEB-PINF-5001	CEB-RECN-5001
CEB-RECN-5002	CEB-SURV-5001	CEB-UTIL-5001
CEB-VERT-5001		

REFERENCES:

1. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
2. MCO 1553.3_ Unit Training Management (UTM) Program
3. MCRP 3-0A Unit Training Management Guide
4. MCRP 3-0B How to Conduct Training
5. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CEB-EOPS-6002: Conduct engineer operations

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct limited general engineering operations to include but are not limited to expeditionary facilities and helicopter landing zones.
CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan and security element.

STANDARD: To provide general engineering in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Provide engineer reconnaissance.
2. Provide survey capability.
3. Construct and maintain essential base camp requirements.
4. Provide limited tactical mobile electric power.
5. Provide limited vertical and horizontal construction.
6. Construct expedient helicopter landing zones (HLZ).
7. Provide limited material handling equipment support.

PREREQUISITE EVENTS:

1120-ADMN-2092	1120-XENG-2501	1120-XENG-2502
1120-XENG-2521	1120-XENG-2522	1120-XENG-2541
1120-XENG-2561	1302-EOPS-1001	1302-EOPS-1002
1302-EOPS-1003	1302-EOPS-1005	1302-EOPS-1007
1302-EOPS-1009	1302-HORZ-1001	1302-HORZ-1002
1302-HORZ-1003	1302-MOBL-1001	1302-MOBL-1016
1302-PLAN-1001	1302-PLAN-1002	1302-RECN-1001
1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1310-MANT-2002	

CHAINED EVENTS:

CEB-CMOB-5001	CEB-DEMO-5001	CEB-HEOP-5001
CEB-HORZ-5001	CEB-HORZ-5002	CEB-MANT-5001
CEB-MOBL-5001	CEB-MOBL-5002	CEB-MOBL-5003
CEB-MOBL-5004	CEB-PINF-5001	CEB-RECN-5001
CEB-RECN-5002	CEB-SURV-5001	CEB-UTIL-5001
CEB-VERT-5001		

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7F Project Management
6. MCRP 3-17.7I Earthmoving Operations
7. MCRP 3-17.7K Theater of Operations Electrical Systems
8. MCRP 3-17.7M Construction Estimating
9. MCRP 3-17.7N Base Camps
10. MCRP 3-17A Engineering Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineering Operations

13. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer Earthmoving equipment, Engineer Material Handling equipment, Utilities equipment, Refrigeration equipment, Combat Engineer tools & kits

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CEB-MOBL-6001: Conduct mobility operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct mobility operations to enable the force commander to maneuver units into advantageous positions. It includes but is not limited to breaching, mounted route clearance, combat roads and trails, and assault bridging.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan and references.

STANDARD: To provide mobility for maneuver forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct mobility planning.
2. Conduct engineer reconnaissance.
3. Integrate mobility plan into the concept of operations.
4. Participate in supported unit planning.
5. Task organize.
6. Complete the engineering portion of the orders.
7. Issue orders.
8. Clear mobility obstructions.
9. Construct and maintain mobility corridors for maneuver forces.
10. Submit reports as required.

PREREQUISITE EVENTS:

1302-MOBL-1001	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1005	1302-MOBL-1007	1302-MOBL-1015
1302-MOBL-1016	1302-PLAN-1001	1302-RECN-1001

CHAINED EVENTS:

CEB-HEOP-5001	CEB-MOBL-5001	CEB-MOBL-5002
CEB-MOBL-5003	CEB-MOBL-5004	CEB-RECN-5001

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations
8. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
9. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CEB-PINF-6001: Provide provisional infantry

SUPPORTED MCT(S):
MCT 1.1.2 MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide provisional infantry participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To ensure a deployable detachment is capable of providing task organized forces to a supported unit in accordance with the concept of operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Employ appropriate formations and tactics.
6. Conduct final preparations.
7. Utilize, coordinate and deconflict fires.
8. Employ supporting arms.
9. Establish redundant communications.
10. Treat and evacuate casualties.
11. Process detainees.
12. Send and receive required reports.

PREREQUISITE EVENTS:
1302-PLAN-1001 1371-PLAN-2001
CHAINED EVENTS: CEB-PINF-5001

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. MCDP 1 Warfighting
3. MCWP 3-1 Ground Combat Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17730 Fire And Movement Range

CEB-PLAN-6001: Plan engineer operations

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.12.1	MCT 1.4.1
MCT 1.4.2	MCT 2.2.2	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan engineer operations to optimize the use of engineer personnel and equipment in accordance with problem framing, commander's intent and concept of operations.

CONDITION: Given higher commander's initial guidance, battle-space area evaluation, and a warning order or operations order.

STANDARD: To identify the best use of engineer personnel and equipment in accordance with problem framing, commander's intent and concept of operations.

EVENT COMPONENTS:
1. Perform problem framing.
2. Develop courses of action.
3. War game courses of action.
4. Compare courses of action.
5. Conduct decision brief.
6. Develop orders.
7. Transition to produce operations plan or order.
8. Develop branches and sequels, if applicable.

PREREQUISITE EVENTS:
1302-PLAN-1001 1371-PLAN-2001

RELATED EVENTS:

1302-ADMN-1002	1302-CMOB-1001	1302-CMOB-1002
1302-CMOB-1003	1302-DEMO-1001	1302-DEMO-1004
1302-EOPS-1005	1302-HORZ-1001	1302-HORZ-1002
1302-MOBL-1001	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1005	1302-MOBL-1007	1302-MOBL-1015
1302-MOBL-1016	1302-SURV-1002	1302-SURV-1003
1371-ADMN-2002	1371-CMOB-2002	1371-MOBL-2008
1371-MOBL-2017	1371-PLAN-2002	1371-VERT-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 5-1 Marine Corps Planning Process (MCPP)

CEB-SURV-6001: Conduct survivability operations

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct survivability operations to provide survivability planning and positions for supported units. (Such as construction of field fortifications, hardening of command, communication and combat train locations, weapon system firing positions, and infantry fighting combat positions).

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan and references.

STANDARD: To provide survivability planning and positions for supported units in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Perform vulnerability assessment.
2. Integrate survivability plan into the concept of operations.
3. Conduct survivability planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct survivability positions.
8. Provide SME input to AF/FP plan as required.
9. Maintain survivability positions as required.
10. Maintain oversight of survivability construction efforts.
11. Receive and submit reports as required.

PREREQUISITE EVENTS:

1302-PLAN-1001 1371-PLAN-2001

CHAINED EVENTS: CEB-SURV-5001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 5-1 Marine Corps Planning Process (MCPP)

4005. 5000-LEVEL EVENTS

CEB-CMOB-5001: Create an obstacle group

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create obstacle groups of two or more obstacles grouped to provide a specific obstacle effect turn, block, fix, or disrupt the enemy.

CONDITION: Given a mission, commander's intent, location of adjacent friendly forces, estimated locations and most recent activities of enemy, weather conditions, defined area of operations, route, rules of engagement (ROE), supporting arms, an equipment density list and available personnel.

STANDARD: To turn, block, fix, or disrupt the enemy in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Develop/review obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine possible obstacle locations and types.
4. Identify the commander's obstacle priorities.
5. Determine resources.
6. Determine actual work sequence.
7. Determine task organization required.
8. Determine coordination required.
9. Coordinate with supported unit for specific obstacle placement and observation.
10. Coordinate observation and reporting for decision/triggering point(s).
11. Reserve situational obstacles, as required.
12. Emplace explosive obstacle(s).
13. Create non-explosive obstacle(s).
14. Close lanes, as required.
15. Submit required reports.

CHAINED EVENTS:
CEB-CMOB-4001 CEB-CMOB-4002 CEB-HEOP-4001

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1371-CMOB-1001	1371-CMOB-1002	1371-CMOB-1003
1371-CMOB-2001	1371-CMOB-2002	1371-CMOB-2003

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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CEB-DEMO-5001: Conduct demolition operations

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct demolition operations to produce the desired effect. These tasks may include placing explosives near heavy weapons, enemy munitions, destroying cave systems, facilities, equipment, and improving mobility in urban terrain and designated or reserve targets.

CONDITION: Given a tactical situation, an order, task organized equipment and personnel, specifications, and appropriate references.

STANDARD: To achieve desired effects in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive demolition concept of operations.
2. Conduct engineer reconnaissance.
3. Destroy captured arms and ammunition as required.
4. Employ demolitions in support of mobility operations, as required.
5. Employ demolitions in support of survivability position construction as required.
6. Employ demolitions in support of counter-mobility operations as required.
7. Submit required reports.

CHAINED EVENTS:

CEB-DEMO-3001	CEB-DEMO-3002	CEB-DEMO-3003
CEB-DEMO-3004	CEB-CMOB-4003	CEB-MOBL-4011
CEB-RECN-4004	CEB-RECN-4005	CEB-SURV-4006

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-DEMO-1004	1371-DEMO-2001	1371-DEMO-2002

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.6 Survivability
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer demolitions kit, pioneer kit, PPE.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented in concert with the 4000 level events chained to this event.

CEB-HEOP-5001: Provide engineer equipment support

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Provide engineer equipment support to support the mission utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given a mission, a support plan, equipment availability, commander's intent, personnel and equipment, an area of operations or support, and references.

STANDARD: To provide required engineer support in accordance with unit SOPs, concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review equipment support plan.
2. Analyze support requirements and location(s).
3. Determine resources.
4. Determine schedule of work.
5. Determine task organization.
6. Coordinate with supported unit (location, requirements, security, ground guides, etc.).

7. Coordinate logistics.
8. Manage engineer equipment operations.
9. Conduct earthmoving operations as required.
10. Conduct material handling operations as required.
11. Conduct horizontal construction as required.
12. Conduct maintenance as required.
13. Recover engineer equipment as required.
14. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3001	CEB-HEOP-3002	CEB-HEOP-4001
CEB-MANT-4001		

RELATED EVENTS:

1310-ADMN-2001	1310-ADMN-2002	1310-ADMN-2003
1310-ADMN-2004	1310-ADMN-2005	1310-ADMN-2006
1310-ADMN-2008	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1310-MANT-2001	1310-MANT-2002
1341-ADMN-2001	1341-ADMN-2002	1341-ADMN-2003
1341-ADMN-2004	1341-ADMN-2005	1341-ADMN-2006
1341-ADMN-2007	1341-ADMN-2008	1345-HEOP-1003
1345-HEOP-1004	1345-HEOP-1006	1345-HEOP-1007
1345-HEOP-2007	1345-HORZ-2001	1345-MANT-1001
1345-MANT-2001	1345-MANT-2003	1345-MANT-2004
1349-ADMN-2001	1349-ADMN-2002	1349-ADMN-2003
1349-ADMN-2004	1349-ADMN-2005	1349-ADMN-2006
1349-ADMN-2008	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2001	1349-MANT-2002

REFERENCES:

1. JP 3-34 Joint Engineer Operations
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer equipment, Motor Transport equipment, Utilities equipment.

UNITS/PERSONNEL: Engineer equipment maintainers, Utilities equipment maintainers.

CEB-HORZ-5001: Conduct horizontal construction

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months
DESCRIPTION: Conduct horizontal construction in order to shape the terrain to meet the operational requirements of the GCE and includes expedient road construction and/or maintenance; expeditionary HLZs; site preparation for bed down facilities; and ordnance storage facilities.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To build the assigned project to meet or exceed the requirements listed in the design specifications and the commander's intent.

EVENT COMPONENTS:
1. Plan horizontal construction.
2. Conduct engineer reconnaissance.
3. Conduct survey, as required.
4. Coordinate horizontal construction.
5. Conduct site preparation.
6. Conduct soil stabilization/dust abatement, as required.
7. Construct non-explosive obstacles, as required.
8. Employ heavy equipment assets, as required.
9. Submit required reports.

PREREQUISITE EVENTS:

CEB-MOBL-3015	CEB-MOBL-4005	CEB-MOBL-4006
CEB-MOBL-4007		

CHAINED EVENTS:

CEB-HEOP-3002	CEB-CMOB-4002	CEB-HEOP-4001
CEB-MOBL-4009	CEB-MOBL-4011	CEB-RECN-4005
CEB-RECN-4006		

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-HORZ-1001
1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1001
1302-MOBL-1003	1302-MOBL-1016	1302-PLAN-1001
1302-RECN-1001	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-2001
1371-HORZ-2002	1371-MOBL-2001	1371-PLAN-2001
1371-RECN-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. FM 5-101-5-1 Operational Terrain and Symbols
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7D Concrete and Masonry
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7I Earthmoving Operations

8. MCRP 3-17A Engineering Field Data
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.6 Survivability
12. MCWP 3-17.7 General Engineering
13. MCWP 3-17.8 Combined Arms Mobility Operations
14. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Utilities equipment.

CEB-HORZ-5002: Prepare site for construction

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Prepare site for construction to reduce construction time and meet design specifications. This includes all types of limited vertical and horizontal construction.

CONDITION: Given a mission, a support plan, a site for construction or engineer operations, commander's intent, task organized personnel, equipment and references.

STANDARD: To reduce construction time and meet design specifications in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review construction site plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Move to site.
6. Conduct area clearance.
7. Conduct earthmoving operations as required.
8. Conduct demolition operations as required.
9. Conduct material handling operations as required.
10. Employ utilities support as required.
11. Submit required reports.

PREREQUISITE EVENTS:
CEB-RECN-4005 CEB-RECN-4006

CHAINED EVENTS:
CEB-HEOP-3002 CEB-MOBL-3015 CEB-HEOP-4001

CEB-MOBL-4005	CEB-MOBL-4006	CEB-MOBL-4007
CEB-MOBL-4009	CEB-MOBL-4011	CEB-UTIL-4001

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-EOPS-1007
1302-EOPS-1009	1302-HORZ-1001	1302-HORZ-1002
1302-HORZ-1003	1302-MOBL-1001	1302-MOBL-1002
1302-MOBL-1003	1302-MOBL-1016	1302-PLAN-1001
1302-RECN-1001	1371-DEMO-1001	1371-DEMO-2002
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-2001	1371-HORZ-2002	1371-HORZ-2004
1371-PLAN-2001	1371-RECN-1001	1371-RECN-2001

REFERENCES:

1. FM 5-33 Terrain Analysis
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7I Earthmoving Operations
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Motor Transportation equipment, Utilities equipment.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented in concert with the 3000 level events chained to this event.

CEB-MANT-5001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Maintain engineer equipment by conducting preventive and corrective maintenance on engineer equipment using unit assigned maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Manage maintenance programs.
2. Monitor equipment readiness.
3. Conduct reconciliation.
4. Assign tasks.
5. Maintain utilities equipment as required.
6. Maintain MHE as required.
7. Maintain earthmoving equipment as required.
8. Maintain other organic tactical engineer equipment as required.
9. Submit required reports.

CHAINED EVENTS: CEB-MANT-4001

RELATED EVENTS:

1120-ADMN-2006	1120-ADMN-2007	1120-ADMN-2012
1120-ADMN-2021	1120-ADMN-2022	1120-ADMN-2041
1120-ADMN-2051	1120-ADMN-2052	1120-ADMN-2061
1120-ADMN-2065	1120-ADMN-2071	1120-ADMN-2072
1120-ADMN-2073	1120-ADMN-2074	1120-ADMN-2075
1310-ADMN-2004	1310-HEOP-2001	1310-MANT-2001
1310-MANT-2002	1316-ADMN-1001	1316-ADMN-1002
1316-ADMN-1003	1316-MANT-1002	1316-MANT-1004
1316-XENG-1001	1316-XENG-1002	1316-XENG-1004
1316-XENG-1005	1316-XENG-1006	

REFERENCES:
1. Applicable Technical Manuals Publications
2. SOP Unit/Local Standard Operating Procedures
3. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
6. MCO 5100.29_ Marine Corps Safety Program
7. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
8. MCWP 4-11 Tactical-Level Logistics
9. MCWP 4-11.4 Maintenance Operations
10. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
11. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17931 Medium/Heavy Equipment Training Area

MATERIAL: Tools sets chests and kits

UNITS/PERSONNEL: Engineer equipment mechanics, utilities maintenance personnel, welders, equipment operators.

OTHER SUPPORT REQUIREMENTS: POL and HAZ-MAT

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: A unit may perform any field maintenance tasks for which it is manned, trained and equipped IAW current Maintenance Management policy, Automated Information Systems (AIS) and assigned user roles and responsibilities.

CEB-MOBL-5001: Conduct obstacle breaching operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct obstacle breaching operations to breach lanes through enemy obstacles, to advance an attacking force to the far side of an obstacle that is covered by fire.

CONDITION: Given a mission, commander's intent, a map, designated area, tasked organized personnel, equipment, and references.

STANDARD: To breach lanes through enemy obstacles to support the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Gather obstacle intelligence as required.
2. Analyze obstacle intelligence.
3. Determine breach requirement.
4. Task organize obstacle clearing detachment(s) (OCD).
5. Coordinate suppression of enemy over-watching obstacle.
6. Coordinate obscuration of enemy over-watching obstacle.
7. Coordinate security for breach lanes.
8. Coordinate breach with assault force, support force, and support breach team(s).
9. Verify suppression/obscuration effects.
10. Breach lanes through obstacle(s).
11. Turnover lane(s) to designated forces.
12. Reconstitute the breach force.
13. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3002	CEB-HEOP-4001	CEB-MOBL-4001
CEB-MOBL-4002	CEB-MOBL-4003	CEB-MOBL-4004
CEB-MOBL-4008	CEB-MOBL-4011	

RELATED EVENTS:

1302-MOBL-1005	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports

6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.3 MAGTF Breaching Operations
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer breaching equipment, Engineer earthmoving equipment, Engineer Material Handling Equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000-Level Events Chained to this event.

CEB-MOBL-5002: Conduct route clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct route clearance operations to detect and if found, identify, mark, and reduce explosive hazards and other obstacles along a defined route. Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that severely limits mobility. The route will only be cleared while it remains under the control/observation of friendly forces.

CONDITION: Provided a mission, designated route with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, Class V, Class IV and reference.

STANDARD: To ensure friendly force mobility on the cleared route in accordance with the commander's intent, while the route remains in friendly forces control.

EVENT COMPONENTS:
1. Analyze route intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect obstacles on route.
6. Identify obstacle(s).
7. Mark obstacle(s) as required.
8. Reduce obstacle(s) as required.
9. Verify obstacle reduction.
10. Identify bypasses as required.

11. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-4002
CHAINED EVENTS:

CEB-MOBL-3014	CEB-MOBL-4005	CEB-MOBL-4006
CEB-MOBL-4007	CEB-MOBL-4009	

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1008	1302-MOBL-1009	1302-MOBL-1010
1371-MOBL-2018	1371-MOBL-2021	1371-MOBL-2022
1371-MOBL-2023	1371-MOBL-2024	1371-MOBL-2025
1371-MOBL-2026	1371-MOBL-2027	1371-MOBL-2035

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer demolition equipment, Route clearance equipment.

UNITS/PERSONNEL: Corpsman and Range Safety Officer.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CEB-MOBL-5003: Construct expedient Helicopter Landing Zone (HLZ)

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct construction of expedient HLZ, includes but is not

limited to clearing and grubbing geographical locations for takeoff and landing of rotary wing in support of troop transport, resupply, MEDEVAC operations, etc.
CONDITION: Given a mission, commander's intent, available resources, and references.

STANDARD: To create a landing site that will support rotary wing aircraft for the loading and unloading of personnel, resupply, and equipment in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Coordinate resource requirements.
5. Issue order.
6. Clear landing site.
7. Maintain/improve landing site as required.
8. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3002	CEB-HEOP-4001	CEB-MOBL-3011
CEB-MOBL-4011	CEB-RECN-4005	CEB-RECN-4006

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment.

CEB-MOBL-5004: Construct combat roads

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct and maintain limited combat roads and trails in support of division operations (construction and maintenance are requirements are limited to those that can be performed with organic equipment and

personnel, typically limited to class d roads.) The construction and maintenance of trails and roads are normally considered horizontal construction tasks and are therefore performed by an engineering support unit. However areas at or near the Forward Line Of Troops (FLOT) or time constrictions may require the forward combat engineer units to perform these functions in an expedient manner or for short durations of time until support engineers are available. Engineers should always strive to take full advantage of existing infrastructure and natural terrain features when constructing combat trails and roads.

CONDITION: Provided a mission order, commander's intent, a tactical situation, task organized engineer equipment and personnel.

STANDARD: That meets the minimum traffic support requirements in accordance with the commander's intent and the mobility plan.

EVENT COMPONENTS:
1. Review mission.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Task organize.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations as required.
8. Clear the road.
9. Construct expedient drainage structures as required.
10. Conduct expedient soil stabilization as required.
11. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3002	CEB-HEOP-4001	CEB-MOBL-3011
CEB-MOBL-4009	CEB-MOBL-4011	CEB-RECN-4005
CEB-RECN-4006		

RELATED EVENTS:

1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1001
1302-RECN-1001	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1345-HEOP-1003
1345-HEOP-1006	1345-HEOP-1007	1345-HORZ-2001
1345-MANT-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-EOPS-2002	1371-EOPS-2003	1371-EOPS-2007
1371-EOPS-2011	1371-HORZ-2001	1371-HORZ-2002
1371-HORZ-2003	1371-RECN-1001	1371-RECN-2001

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17.7L Explosives and Demolitions

7. MCRP 3-17A Engineering Field Data
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Material Handling Equipment, Combat engineer equipment, Utilities equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

CEB-PINF-5001: Fight as provisional infantry

SUPPORTED MCT(S):
MCT 1.1.2 MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide provisional infantry participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment supported unit or conduct offensive and defensive operations in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms as required.
9. Establish redundant communications.
10. Treat and evacuate casualties as required.
11. Process detainees as required.
12. Send and receive required reports.

CHAINED EVENTS: CEB-PINF-4001

RELATED EVENTS:
1302-ADMN-1002 1302-PLAN-1001 1371-ADMN-2002
1371-PLAN-2001

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17730 Fire And Movement Range

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CEB-RECN-5001: Conduct engineer reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct engineer reconnaissance to collect data and obtain detailed information, within/along designated routes, zones, and/or areas that provides the MAGTF information on terrain and infrastructure (e.g., built-up areas, transportation networks, utilities and existing natural or manmade obstacles/resources) necessary to support ongoing or future operations.

CONDITION: Given a mission, commander's intent, task organization of personnel and equipment, and references.

STANDARD: To gather all relevant engineer data and produce an engineer estimate in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review reconnaissance plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct zone reconnaissance as required.
6. Conduct area reconnaissance as required.
7. Conduct route reconnaissance as required.
8. Conduct host-nation infrastructure assessment as required.
9. Submit required reports.

PREREQUISITE EVENTS: 1302-PLAN-1001

CHAINED EVENTS:

CEB-RECN-4001	CEB-RECN-4002	CEB-RECN-4003
CEB-RECN-4004	CEB-RECN-4005	CEB-RECN-4006

RELATED EVENTS:

1302-RECN-1001	1371-EOPS-2002	1371-EOPS-2003
1371-RECN-2001		

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17.1B Military Non-Standard Fixed Bridging
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations

CEB-RECN-5002: Conduct cache sweep operations

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/ building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify, and secure materials discovered during the course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:

1. Analyze search area intelligence.
2. Tasks organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s) as required.
8. Destroy captured enemy ammunition as required.
9. Verify cache destruction.
10. Coordinate explosive ordnance disposal activities as required.
11. Coordinate weapons intelligence team activities as required.
12. Coordinate with other specialist personnel as required.
13. Document/preserve evidence as required.
14. Submit required reports.

CHAINED EVENTS: CEB-RECN-4004

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:

1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits.

UNITS/PERSONNEL: Explosive ordnance disposal personnel, Weapons Intelligence Team, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000-Level Events Chained to this event.

CEB-SURV-5001: Construct survivability positions

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct positions designed to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection. Positions may include fighting and protective positions.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, survivability plan, a task organization of personnel and equipment, and references.

STANDARD: that meets the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:

1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.

4. Coordinate with supported unit for specific position placement and requirements.
5. Coordinate resources for project.
6. Conduct site preparation.
7. Harden existing structure(s) as required.
8. Emplace pre-fabricated barriers as required
9. Provide SME input to AT/FP plan as required.
10. Construct field fortification as required.
11. Construct Vehicle Control Point (VCP) as required.
12. Construct Entry Access Point (EAP) as required
13. Construct earth filled barrier/structure as required.
14. Construct individual fighting positions as required.
15. Construct vehicle fighting positions as required.
16. Construct vehicle survivability/revetment positions as required.
17. Construct crew-served weapon positions as required.
18. Construct overhead cover as required.
19. Construct shelter/bunker as required.
20. Construct berms as required.
21. Conduct earth moving operations as required.
22. Construct triggering screen as required.
23. Construct trench as required.
24. Provide electrical power as required.
25. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3002	CEB-HEOP-4001	CEB-RECN-4005
CEB-RECN-4006	CEB-SURV-3001	CEB-SURV-3002
CEB-SURV-3003	CEB-SURV-3004	CEB-SURV-3005
CEB-SURV-3006	CEB-SURV-3007	CEB-SURV-3008
CEB-SURV-4001	CEB-SURV-4002	CEB-SURV-4003
CEB-SURV-4004	CEB-SURV-4005	CEB-SURV-4006
CEB-UTIL-4001		

RELATED EVENTS:

1302-EOPS-1009	1302-RECN-1001	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1302-SURV-1004
1302-SURV-1005	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-1006	1345-HEOP-1007
1345-HEOP-2006	1345-HEOP-2007	1345-HEOP-2009
1345-HORZ-2001	1345-MANT-2001	1345-MANT-2003
1345-MANT-2004	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1371-RECN-2001
1371-SURV-2001	1371-SURV-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance

9. MCWP 3-17.6 Survivability
10. MCWP 3-33 Military Operations Other Than War (MOOTW)
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
12. MCWP 3-35.5 Jungle Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment, Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-UTIL-5001: Provide utilities support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide tactical electrical supply and distribution; heating, ventilation, air conditioning and refrigeration service; and maintenance capabilities for specified utilities equipment in accordance with the unit's mission statement.

CONDITION: Given a mission, support plan, equipment availability, personnel, equipment, and references.

STANDARD: To provide support IAW with the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:
1. Coordinate supported unit requirements.
2. Establish utilities plan.
3. Establish utilities site(s).
4. Provide tactical electrical support, as required.
5. Provide non-tactical utilities support, as required.
6. Provide water production/storage/distribution equipment.
7. Maintain utilities equipment.
8. Recover utilities equipment, as required.
9. Submit required reports.

CHAINED EVENTS:

CEB-MANT-4001	CEB-UTIL-4001

RELATED EVENTS:

1120-ADMN-2001	1120-ADMN-2002	1120-ADMN-2003
1120-ADMN-2004	1120-ADMN-2005	1120-ADMN-2006

1120-ADMN-2007	1120-ADMN-2012	1120-ADMN-2021
1120-ADMN-2022	1120-ADMN-2031	1120-ADMN-2051
1120-ADMN-2052	1120-ADMN-2061	1120-ADMN-2065
1120-ADMN-2071	1120-ADMN-2072	1120-ADMN-2073
1120-ADMN-2074	1120-ADMN-2075	1120-ADMN-2081
1120-ADMN-2091	1120-ADMN-2092	1120-XENG-2501
1120-XENG-2502	1120-XENG-2521	1120-XENG-2522
1120-XENG-2553	1120-XENG-2555	1120-XENG-2558
1120-XENG-2561	1120-XENG-2581	1120-XENG-2621
1120-XENG-2622	1120-XENG-2653	1120-XENG-2655
1120-XENG-2658	1120-XENG-2721	1120-XENG-2752
1120-XENG-2753	1120-XENG-2755	1120-XENG-2758
1120-XENG-2821	1120-XENG-2853	1120-XENG-2855
1120-XENG-2858	1120-XENG-2965	1120-XENG-2966
1120-XENG-2988	1120-XENG-2989	

REFERENCES:

1. Appropriate Technical Manuals
2. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
3. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
4. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
5. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
6. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
7. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
8. FM 5-424 Theater of Operations Electrical Systems
9. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
10. MCRP 3-17B Engineer Forms and Reports
11. MCRP 4-11.1D Field Hygiene and Sanitation
12. MCRP 4-11B Environmental Considerations
13. MCWP 3-17 Engineering Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 4-11 Tactical-Level Logistics
16. MCWP 4-11.4 Maintenance Operations
17. MCWP 5-1 Marine Corps Planning Process (MCPP)
18. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
19. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
20. TB MED 593 Guidelines for Field Waste Management
21. TC 3-34.489 The Soldier and the Environment
22. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
23. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, Motor Transport equipment, HAZMAT handling equipment.

CEB-VERT-5001: Conduct vertical construction

SUPPORTED MCT(S): None

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct vertical construction to build or improve existing structures, or construct base camps, command posts, and maintenance facilities for the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey as required.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility as required.
7. Erect prefabricated structure, as required.
8. Construct wood frame structure, as required.
9. Construct timber structure, as required.
10. Construct expedient drainage structure, as required.
11. Wire structure for electricity as required.
12. Submit required reports.

PREREQUISITE EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-VERT-1001
1371-EOPS-2002	1371-EOPS-2003	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-VERT-2001		

CHAINED EVENTS:

CEB-HEOP-3002	CEB-UTIL-3004	CEB-HEOP-4001
CEB-VERT-4001	CEB-VERT-4002	CEB-VERT-4003
CEB-VERT-4004	CEB-VERT-4005	

RELATED EVENTS:

1302-HORZ-1001	1302-RECN-1001	1302-VERT-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-HORZ-2002
1371-HORZ-2003	1371-HORZ-2004	1371-HORZ-2005

1371-RECN-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	1371-VERT-1005
1371-VERT-2001	1371-VERT-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7C Carpentry
6. MCRP 3-17.7D Concrete and Masonry
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7I Earthmoving Operations
9. MCRP 3-17.7K Theater of Operations Electrical Systems
10. MCRP 3-17.7M Construction Estimating
11. MCRP 3-17.7N Base Camps
12. MCRP 3-17A Engineering Field Data
13. MCWP 3-17 Engineering Operations
14. MCWP 3-33 Military Operations Other Than War (MOOTW)
15. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
16. MCWP 4-11 Tactical-Level Logistics
17. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools & kits, Material Handling Equipment.

4006. 4000-LEVEL EVENTS

CEB-CMOB-4001: Create an explosive obstacle

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create an explosive obstacle to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, etc.).

STANDARD: That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:

1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement

and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Emplace expedient anti-personnel devices as required.
8. Account for all personnel and equipment prior to returning to friendly lines.
9. Coordinate lane closure plan with supported unit as required.
10. Submit required reports.

PREREQUISITE EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1371-CMOB-2001	1371-CMOB-2002	

CHAINED EVENTS:

CEB-CMOB-3001	CEB-CMOB-3003

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-1002	1345-ADMN-2002	1345-HEOP-1003
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1006
1345-HEOP-2009	1345-MANT-1001	1349-ADMN-2002
1349-ADMN-2006	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2003
1371-DEMO-1002		

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. UNIT SOP Unit's Standing Operating Procedures
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J007 Mine, Antipersonnel M18A 1 with Non-	1 mines per squad
L495 Flare, Surface Trip M49 Series	4 flares per squad
L598 Simulator, Explosive Booby Trap Flas	4 Simulator per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	1 charges per squad
M421 Charge, Demolition Shaped M3 Series	1 charges per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M591 Dynamite, Military M1	10 charges per squad

M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire And Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Material Handling Equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-CMOB-4002: Create non-explosive obstacles/barriers

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create non-explosive obstacles/barriers to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, natural terrain, battlefield materials, etc.).

STANDARD: That is part of an obstacle group that will turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Tie obstacles into natural/existing obstacles as required
8. Emplace obstacles (barriers, hedgehogs, ect.) as required.
9. Emplace wire obstacles as required.
10. Emplace field expedient obstacles (logs, abatis, rubble, ect.) as required.
11. Create craters as required.
12. Emplace deception obstacles as required.

13. Create tank ditches as required.
14. Account for all personnel and equipment prior to returning to friendly lines.
15. Coordinate lane closure plan with supported unit as required.
16. Submit required reports.

PREREQUISITE EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1371-CMOB-2001	1371-CMOB-2002	

CHAINED EVENTS:

CEB-CMOB-3001	CEB-CMOB-3002	CEB-HEOP-3001
CEB-HEOP-3002		

RELATED EVENTS:

1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-MANT-2002	1316-ADMN-1001	1316-ADMN-1002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-1001
1316-XENG-1006	1316-XENG-2002	1345-HEOP-1003
1345-HEOP-1004	1345-HEOP-1006	1345-HEOP-2007
1345-HEOP-2009	1345-HORZ-2001	1349-HEOP-2001
1349-HORZ-2001	1349-HORZ-2002	1349-MANT-2002
1371-CMOB-1001	1371-CMOB-1002	1371-CMOB-2003
1371-DEMO-1002		

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
7. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
L495 Flare, Surface Trip M49 Series	6 flares per squad
M032 Charge, Demolition Block TNT 1-Pound	12 charges per squad
M039 Charge, Demolition Cratering 40-Poun	12 charges per squad
M130 Cap, Blasting Electric M6	12 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	12 blasting caps per squad
M327 Coupling Base, Firing Device with Pr	12 primers per squad
M421 Charge, Demolition Shaped M3 Series	8 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	6 cases per squad
ML03 Firing Device, Demolition Multi-Purp	12 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	12 igniters per squad
MN14 Firing Device, Dual Mode MK54	12 detonators per squad
MN52 MK154 Mod 0	8 detonators per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire And Movement Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer equipment, Material Handling Equipment, Engineer earthmoving equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-CMOB-4003: Employ demolitions in support of countermobility operations

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ demolitions in support of countermobility operations to create mobility obstacles (explosively) such as craters, ditches or to destroy structures (bridges, tunnels, etc.). This could include field expedient explosive obstacles (improvised anti-vehicular/anti-personnel explosive devices) to destroy enemy personnel and equipment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To construct countermobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commander's intent, concept of operations, and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Create obstacle(s) as required.
10. Inspect obstacle(s) as required.
11. Improve obstacle site with support equipment as required.
12. Reconstitute the force.
13. Submit required reports.

CHAINED EVENTS:

CEB-CMOB-3001 CEB-DEMO-3002 CEB-DEMO-3003
CEB-HEOP-3001 CEB-HEOP-3002

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	20 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	10 charges per squad
M130 Cap, Blasting Electric M6	6 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	6 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	5 charges per squad
M421 Charge, Demolition Shaped M3 Series	10 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
ML03 Firing Device, Demolition Multi-Purp	6 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	6 igniters per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-HEOP-4001: Conduct MHE operations

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 4.4.4
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide Material Handling Equipment (MHE) support to enable handling of loads (equipment, supplies, materials, etc.) exceeding carrying capacity of personnel.

CONDITION: Given a mission, commander's intent, personnel and equipment, and references.
STANDARD: To provide support an IAW unit SOPs or guidance to support the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:
1. Review tasking.
2. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
3. Operate MHE as required.
4. Load and unload materiel(s) as required.
5. Employ safety measures as required.
6. Submit required reports.

PREREQUISITE EVENTS:

1310-MANT-2002	1345-ADMN-1002	1345-ADMN-2002
1345-MANT-2001	1349-ADMN-2002	1349-MANT-2002

CHAINED EVENTS: CEB-HEOP-3001

RELATED EVENTS:

1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1345-HEOP-1003	1345-HEOP-2009
1345-HEOP-2012	1345-HORZ-2001	1349-HEOP-2001
1349-HORZ-2001	1349-HORZ-2002	1349-HORZ-2003

REFERENCES:
1. MCRP 3-17B Engineer Forms and Reports
2. MCWP 3-41.1 Rear Area Operations
3. MCWP 4-11 Tactical-Level Logistics
4. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Engineer support equipment

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CEB-MANT-4001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on engineer equipment.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

CHAINED EVENTS:

CEB-MANT-3001	CEB-MANT-3002	CEB-MANT-3003
CEB-MANT-3004	CEB-MANT-3005	CEB-MANT-3006

RELATED EVENTS:

1169-ADMN-2006	1169-ADMN-2007	1169-ADMN-2012
1169-ADMN-2021	1169-ADMN-2022	1169-ADMN-2041
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2061
1169-ADMN-2064	1169-ADMN-2071	1169-ADMN-2072
1169-ADMN-2073	1169-ADMN-2074	1169-ADMN-2075
1310-ADMN-2004	1310-ADMN-2009	1310-MANT-2001
1310-MANT-2002	1341-ADMN-1001	1341-ADMN-1002
1341-ADMN-2002	1341-ADMN-2003	1341-ADMN-2004
1341-MANT-1001	1341-MANT-1002	1341-MANT-2010
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-MANT-2001	1349-MANT-2002

REFERENCES:
1. Applicable Technical Manuals Publications
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. Local Standard Operating Procedures (SOP)
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
6. MCO 4731.1_ Oil Analysis Program for Ground Equipment
7. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
8. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
9. MCO 5100.29_ Marine Corps Safety Program
10. MCO P4790.2_ MIMMS Field Procedures Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Tools, sets, chests, and kits.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: A unit may perform any field maintenance tasks for which it is manned, trained and equipped IAW current Maintenance Management policy, Automated Information Systems (AIS) and assigned user roles and responsibilities.

CEB-MOBL-4001: Conduct deliberate breach

SUPPORTED MCT(S): MCT 1.4.1
EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct a deliberate breach (mounted and dismounted) to cross a strong and/or well defended obstacle in order to continue the mission.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable obstacle), a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark lane through a minefield/obstacle in accordance with the mission and commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with assault force, support force, and support breach team(s).
6. Verify suppression/obscuration effects.
7. Employ deception plan as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing with AVLB as required.
11. Conduct earthmoving operations as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

PREREQUISITE EVENTS: CEB-RECN-3006

CHAINED EVENTS:

CEB-HEOP-3002	CEB-MOBL-3001	CEB-MOBL-3003
CEB-MOBL-3005	CEB-MOBL-3006	CEB-MOBL-3012
CEB-RECN-3001		

RELATED EVENTS:

1302-MOBL-1004	1302-MOBL-1005	1302-MOBL-1009
1302-MOBL-1010	1302-MOBL-1015	1345-HEOP-1006
1345-HEOP-2007	1371-MOBL-1001	1371-MOBL-1003
1371-MOBL-2008	1371-MOBL-2012	1371-MOBL-2020
1371-MOBL-2022	1371-MOBL-2023	

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions

5. MCWP 3-17.8 Combined Arms Mobility Operations
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rocket per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
M913 Charge, Demolition High Explosive Li	1 charges per squad
M914 Charge, Demolition Inert Linear M68A	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer earthmoving equipment, Combat engineer breaching equipment, Demolition kit, Firing device (M34, MK152 Remote firing device, CD450-4J), Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CEB-MOBL-4002: Conduct hasty/ in-stride breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct a hasty/in-stride breach (mounted and dismounted) to quickly overcome unexpected or lightly defended tactical obstacles in order to maintain the momentum of the attack by denying the enemy time to mass

forces at the breach sites.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark lane through a minefield/obstacle in accordance with the mission, and commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with element acting as assault force and support force.
6. Verify suppression/obscuration effects.
7. Employ deception plan as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing with AVLB as required.
11. Conduct earthmoving operations as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

PREREQUISITE EVENTS: CEB-RECN-3006

CHAINED EVENTS:

CEB-HEOP-3002	CEB-MOBL-3001	CEB-MOBL-3003
CEB-MOBL-3004	CEB-MOBL-3005	CEB-MOBL-3006
CEB-MOBL-3012		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.8 Combined Arms Mobility Operations
5. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad

M913 Charge, Demolition High Explosive Li	1 charges per squad
M914 Charge, Demolition Inert Linear M68A	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer earthmoving equipment, Combat engineer breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J), Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CEB-MOBL-4003: Conduct assault breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct an assault breach (mounted and dismounted) to penetrate enemy protective obstacles and continue the assault through an objective.

CONDITION: Provided a tactical scenario, mission, a wire obstacle, minefield or other suitable obstacle, and an element designated as a breach force within the assault forces and references.

STANDARD: To reduce, proof, and mark a lane through protective obstacle in accordance with the mission, commander's intent and unit SOP.

EVENT COMPONENTS:
1. Coordinate with supporting elements as required.
2. Verify suppression/obscuration effects.
3. Move to breach site.
4. Reduce lane through obstacle.
5. Proof lane through obstacle.
6. Mark lane through obstacle.
7. Coordinate passage of assault force through breached lane.

8. Widen breach lane as required.
9. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-3006

CHAINED EVENTS:

CEB-HEOP-3002	CEB-MOBL-3001	CEB-MOBL-3002
CEB-MOBL-3003	CEB-MOBL-3004	CEB-MOBL-3005
CEB-MOBL-3006		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.8 Combined Arms Mobility Operations
5. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
M913 Charge, Demolition High Explosive Li	1 charges per squad
M914 Charge, Demolition Inert Linear M68A	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J), Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection, Motor Transport equipment, mine detectors, Command and Control equipment.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves, POLs requirement, Hand Emplaced Mine Marking System (HEMMS) kit, HazMat containment kit.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CEB-MOBL-4004: Conduct covert breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct a covert (non-explosive) (mounted and dismounted) breach under the cover of darkness/periods of limited visibility that does not alert enemy forces.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark a lane through a minefield/obstacle, without alerting enemy forces in accordance with the mission and commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence as required.
2. Coordinate suppressive fires and obscuration of enemy over-watching obstacle if breach is discovered.
3. Coordinate security for breach lane.
4. Coordinate breach with element acting as assault force and support force.
5. Employ deception plan as required.
6. Covertly move to breach site.
7. Covertly reduce lane through obstacle.
8. Covertly proof lane through obstacle.
9. Covertly mark lane through obstacle.
10. Conduct hasty breach as required.
11. Conduct deliberate breach as required.
12. Coordinate passage of assault force through breached lane.
13. Submit required reports.
14. Reconstitute the breach force.

PREREQUISITE EVENTS:

1302-ADMN-1002	1371-ADMN-2002	CEB-RECN-3006

CHAINED EVENTS:

CEB-HEOP-3002	CEB-MOBL-3001	CEB-MOBL-3002
CEB-MOBL-3004	CEB-MOBL-3005	CEB-MOBL-3006

RELATED EVENTS:

1302-MOBL-1005	1302-MOBL-1010	1302-RECN-1001
1345-HEOP-1006	1345-HEOP-2007	1345-MANT-1001
1345-MANT-2001	1345-MANT-2003	1345-MANT-2004

1371-MOBL-1001 1371-MOBL-1002 1371-MOBL-2012
1371-MOBL-2022 1371-MOBL-2023 1371-RECN-1001
1371-RECN-2001

REFERENCES:

1. MCRP 3-17.2D Explosive Hazard Operations
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17.3 MAGTF Breaching Operations
4. MCWP 3-17.8 Combined Arms Mobility Operations
5. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J), Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CEB-MOBL-4005: Conduct dismounted route sweep operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct dismounted route sweep operations to detect, investigate, mark, report, and reduce Explosive Hazards (EH) and other obstacles along a defined route to enable assured mobility.
CONDITION: Given a mission, commander's intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel and equipment, and references.

STANDARD: To ensure all explosive/non-explosive hazards are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commander's intent integrating all available resources.

EVENT COMPONENTS:
1. Analyze search route intelligence.
2. Coordinate with supported unit for security as required.
3. Coordinate with supporting units.
4. Move to search area.
5. Detect obstacles along route.
6. Alternate detector operators as required to prevent fatigue.
7. Identify explosive components of obstacle(s).
8. Mark obstacle(s) as required.
9. Reduce obstacle as required.
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities as required.
12. Coordinate with other SME personnel as required.
13. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-4002

CHAINED EVENTS:

CEB-MOBL-3007	CEB-MOBL-3008	CEB-MOBL-3014

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1004	1302-MOBL-1009
1302-MOBL-1010	1371-MOBL-2018	1371-MOBL-2019
1371-MOBL-2020	1371-MOBL-2022	1371-MOBL-2023

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity

M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	30 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M670 Fuse, Blasting Time M700	250 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
MN08 Igniter, Time Blasting Fuse with Sho	25 igniters per squad
MN88 Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per squad
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, AN/PRC 119, mine detectors, probe, compass, protractor, Hand Emplaced Mine Marking System (HEMMS) kit, sickle stick, DA FORM 1355-1-R.

MATERIAL: Engineer tape, concertina wire, barbed wire, engineer stakes, tie wire, mine signs, sandbags.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-4006: Conduct security for clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct security for clearance operations to provide sweep team freedom of action.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To allow the sweep team freedom of maneuver while conducting sweeping operations in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Coordinate w/clearance unit on site (as required)
6. Establish area clearance security measures (as required).
7. Visually identify other potential hazards within area.
8. Visually identify potential suspects/civilians in area.
9. Control/cordon all movement going into area (as required).

10. Maintain communications w/clearance/sweep unit.
11. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-4003

CHAINED EVENTS:
CEB-MOBL-3001 CEB-MOBL-3009 CEB-MOBL-3010

REFERENCES:
1. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire And Movement Range

EQUIPMENT: Combat engineer equipment, Squad & Fire team weapons, Command and Control assets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-MOBL-4007: Detect obstacles during clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Detect obstacles during clearance operations in order to provide the MAGTF assured mobility.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To ensure all obstacles/explosive hazards are detected, identified, and marked for reduction or bypass in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.

6. Visually identify all non-explosive obstacles within area.
7. Visually detect explosive hazards within area if possible.
8. Operate dismounted handheld detectors as required.
9. Operate mounted detectors as required.
10. Operate other detection equipment as required.
11. Alternate detector operators to prevent fatigue as required.
12. Mark obstacles for reduction as required.
13. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-4003

CHAINED EVENTS:

CEB-MOBL-3006	CEB-MOBL-3007	CEB-MOBL-3008
CEB-MOBL-3014	CEB-MOBL-3015	

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1345-MANT-2001	1371-MOBL-2018
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Motor Transportation, Engineer equipment, Route clearance assets, Command and Control assets.

CEB-MOBL-4008: Breach obstacles for clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Breach obstacles during clearance operations to ensure the safe passage of combat, CS, and CSS organizations.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and

equipment, intelligence support, demolition tools, explosives, and references.

STANDARD: To ensure all explosives and non-explosive hazards, are removed or destroyed in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, boobytraps, and unexploded ordnance within area if possible.
8. Operate mounted mine detectors as required.
9. Operated other detection equipment as required.
10. Conduct earthmoving operations to detect obstacles as required.
11. Alternate detector operators as required to prevent fatigue.
12. Mark obstacles for reduction as required.
13. Destroy obstacle as required.
14. Verify obstacle destruction.
15. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-3006

CHAINED EVENTS:

CEB-MOBL-3006	CEB-MOBL-3007	CEB-MOBL-3008
CEB-MOBL-3009	CEB-MOBL-3010	

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1345-HEOP-1006
1345-HEOP-1006	1345-HEOP-2007	1345-HEOP-2009
1345-MANT-1001	1345-MANT-2001	1371-MOBL-1001
1371-MOBL-1002	1371-MOBL-1003	1371-MOBL-2018
1371-MOBL-2019	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	3 rockets per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
M913 Charge, Demolition High Explosive Li	2 charges per squad
M914 Charge, Demolition Inert Linear M68A	1 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer detection equipment, Engineer Material Handling Equipment, Combat engineer breaching equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CEB-MOBL-4009: Conduct route improvement

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct route improvement to maintain the route and to prevent/limit explosive hazard concealment opportunities for the enemy.

CONDITION: Given a tactical situation, an operations order, commander's intent, a route to be improved, task organized personnel and equipment, engineer reconnaissance reports, and references.

STANDARD: To maintain the route in support of maneuver operations in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance report(s).
2. Coordinate with route clearance mission commander (for repair materials, logistics, security, etc.).
3. Confirm improvement requirements.
4. Move to improvement area.
5. Operate as part of route clearance team.
6. Visually detect explosive and other hazards as required.
7. Identify surface repairs as required.
8. Operate engineer equipment as required.
9. Remove obstructions (i.e., rubble/debris, vegetation, trash) as required.
10. Remove upheaval to required specifications.
11. Remove berms as required.
12. Place additional fill/ stabilization/ reinforcement materials as required.
13. Identify drainage structure repairs as required.
14. Conduct culvert denial activities as required.
15. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-5001

CHAINED EVENTS:

CEB-HEOP-3002	CEB-MOBL-3014

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1302-RECN-1001
1371-HORZ-2003	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027
1371-RECN-1001	1371-RECN-2001	

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.5 Combined Arms Countermobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Combat engineer equipment, Engineer equipment

CEB-MOBL-4010: Install Rope Bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months
DESCRIPTION: Install a rope bridge to allow mobility of forces over gaps (wet or dry).

CONDITION: Provided a mission, commanders intent, wet or dry gap crossing site, rigging components, tools, task organized personnel, and references.

STANDARD: To meet design specifications, concept of operations and commander's intent, while observing safety precautions during assembly and installation in accordance with the concept of operations.

EVENT COMPONENTS:
1. Review references/directives/specifications.
2. Review gap specific engineer reconnaissance information.
3. Verify gap physical characteristics.
4. Brief/instruct the squad on the mission/assignment.
5. Construct/ emplace near shore anchor.
6. Construct initial rope bridge on near shore.
7. Construct far shore anchor.
8. Position initial bridge.
9. Upgrade bridge to desired characteristics.
10. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-5001

CHAINED EVENTS:
CEB-HEOP-3002 CEB-MOBL-3014

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1302-RECN-1001
1371-HORZ-2003	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027
1371-RECN-1001	1371-RECN-2001	

REFERENCES:
1. MCRP 3-17.7J Rigging Techniques, Procedures, and Applications
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment.

CEB-MOBL-4011: Employ demolitions in support of mobility operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ demolitions in support of mobility operations to reduce/destroy obstacles (explosive and non-explosive) that present mobility impediments to Operating forces on routes.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To reduce mobility obstacles on designated routes and ensure mobility in accordance in the commander's intent, concept of operations and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Reduce obstacle(s).
10. Proof obstacle(s).
11. Clear site with support equipment as required.
12. Reconstitute obstacle clearing force.
13. Submit required reports.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-PLAN-1001	1371-ADMN-2002
1371-PLAN-2001		

CHAINED EVENTS:

CEB-HEOP-3001	CEB-HEOP-3002	CEB-MOBL-3002
CEB-MOBL-3002	CEB-MOBL-3003	CEB-MOBL-3004
CEB-MOBL-3005	CEB-MOBL-3006	CEB-MOBL-3007
CEB-MOBL-3008		

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	30 charges per squad

M032 Charge, Demolition Block TNT 1-Pound	30 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M591 Dynamite, Military M1	20 charges per squad
M670 Fuse, Blasting Time M700	1000 FT per squad
ML03 Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	30 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

OTHER SUPPORT REQUIREMENTS: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CEB-PINF-4001: Fight as provisional infantry

SUPPORTED MCT(S):
MCT 1.1.2 MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Fight as provisional infantry participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment supported unit or conduct offensive and defensive operations in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms as required.

9. Establish redundant communications.
10. Treat and evacuate casualties as required.
11. Process detainees as required.
12. Send and receive required reports.

CHAINED EVENTS:
CEB-MOBL-3009 CEB-MOBL-3010

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17730 Fire And Movement Range

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 3000-Level Events Chained to this event.

CEB-RECN-4001: Conduct zone reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct zone reconnaissance to reconnoiter a delineated area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, and zone infrastructure.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct final rehearsals and immediate action drills, as required.
6. Reconnoiter for enemy threat, as required.
7. Reconnoiter routes, as required.

8. Reconnoiter infrastructures as, required.
9. Reconnoiter for obstacles as, required.
10. Submit required reports.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-PLAN-1001	1371-ADMN-2002
1371-PLAN-2001		

CHAINED EVENTS:

CEB-RECN-3001	CEB-RECN-3002	CEB-RECN-3003
CEB-RECN-3004	CEB-RECN-3006	CEB-RECN-3007
CEB-RECN-3008		

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire And Movement Range

EQUIPMENT: Combat engineer equipment.

CEB-RECN-4002: Conduct route reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct route reconnaissance to reconnoiter specific routes to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, infrastructure.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:

1. Review mission.
2. Issue the order.
3. Coordinate support requirements.

4. Conduct final coordination with supported unit (location, requirements and security).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes, as required.
8. Reconnoiter tunnels, as required.
9. Reconnoiter bridges, as required.
10. Reconnoiter for fords/ferries, as required.
11. Reconnoiter for landing zones, as required.
12. Submit required reports.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-PLAN-1001	1371-ADMN-2002
1371-PLAN-2001		

CHAINED EVENTS:

CEB-RECN-3001	CEB-RECN-3002	CEB-RECN-3004
CEB-RECN-3006	CEB-RECN-3007	CEB-RECN-3008
CEB-RECN-4002		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment

CEB-RECN-4003: Conduct area reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct area reconnaissance to reconnoiter an area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, area infrastructure in established lateral boundaries.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:

1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements, security, etc.).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes to specified area, as required.
8. Reconnoiter infrastructure/facilities in specified area, as required.
9. Reconnoiter obstacles in specified area, as required.
10. Reconnoiter structures in specified area, as required.
11. Submit required reports.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-PLAN-1001	1371-ADMN-2002
1371-PLAN-2001		

CHAINED EVENTS:

CEB-RECN-3001	CEB-RECN-3002	CEB-RECN-3003
CEB-RECN-3004	CEB-RECN-3005	CEB-RECN-3006
CEB-RECN-3007	CEB-RECN-3008	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Combat engineer equipment

CEB-RECN-4004: Conduct cache sweep

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/building to search for known, potential or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify and secure materials discovered during the course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze search area intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s) as required.
8. Destroy captured enemy ammunition as required.
9. Verify cache destruction
10. Coordinate explosive ordnance disposal activities as required.
11. Coordinate with other specialist personnel as required.
12. Document/preserve evidence as required.
13. Submit required reports.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-PLAN-2001	1371-ADMN-2002
1371-PLAN-2001		

CHAINED EVENTS: CEB-RECN-3003

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-1 Ground Combat Operations
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
K143 Mine, Antipersonnel M18A1 with M57 F	1 mines per squad
L495 Flare, Surface Trip M49 Series	4 flares per squad
L598 Simulator, Explosive Booby Trap Flas	4 Simulator per squad

M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	1 charges per squad
M421 Charge, Demolition Shaped M3 Series	1 charges per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17730 Fire And Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat Engineer detection equipment

UNITS/PERSONNEL: Explosive Ordinance Personnel, Weapons Intelligence team, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-RECN-4005: Conduct engineer reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct engineer reconnaissance to compile pertinent engineer information on all aspects pertaining to mobility, countermobility, survivability, and general engineering while conducting a zone, area, or route reconnaissance that has any engineer implications.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: to gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements,

security, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct final rehearsals and immediate action drills as required.
6. Reconnoiter for engineer equipment as required.
7. Reconnoiter for facilities as required.
8. Reconnoiter structures as required.
9. Reconnoiter for trafficability on routes as required.
10. Reconnoiter for obstacles as required.
11. Reconnoiter for water points as required.
12. Reconnoiter airfields\landing zones as required.
13. Reconnoiter for bivouac sites as required.
14. Conduct humanitarian assistance analysis as required.
15. Conduct disaster relief analysis as required.
16. Submit required reports.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-PLAN-1001	1371-ADMN-2002
1371-PLAN-2001		

CHAINED EVENTS:

CEB-RECN-3001	CEB-RECN-3002	CEB-RECN-3003
CEB-RECN-3004	CEB-RECN-3005	CEB-RECN-3006
CEB-RECN-3007	CEB-RECN-3008	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire And Movement Range

EQUIPMENT: Combat Engineer equipment

CEB-RECN-4006: Conduct site survey

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct site survey to reconnoiter a site or area as part of survey, liaison and reconnaissance party to allow critical planning of

specific construction and or operations in support of the MAGTF.

CONDITION: Provided a mission order, task organized personnel and equipment, and references.

STANDARD: To allow for critical planning of facilities and projects in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit as required.
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Move to site or area.
5. Gather critical information as required.
6. Make liaisons as required.
7. Develop draft plans and schematics as required.
8. Plan resources as required.
9. Submit required reports.

PREREQUISITE EVENTS:
1302-ADMN-1002 1302-PLAN-1001 1371-ADMN-2002
1371-PLAN-2001

CHAINED EVENTS: CEB-RECN-3005

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7F Project Management
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer survey equipment

UNITS/PERSONNEL: Engineer surveyor 1361

CEB-SURV-4001: Harden existing structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Harden existing structure in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

CONDITION: Provided a mission, in an urban environment, commander's intent, reconnaissance reports, and survivability plan, a task organization of personnel and equipment, and references.

STANDARD: To meet the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:

1. Review mission.
2. Review engineer reconnaissance and survey reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Construct perimeter security, as required.
7. Shore walls/ floors/ roofs, as required.
8. Remove/ reinforce windows, as required.
9. Compartmentalize interior of structure, as required.
10. Emplace prefabricated barrier(s), as required.
11. Construct earth filled barrier/structure(s), as required.
12. Conduct earthmoving operations, as required.
13. Construct overhead cover, as required.
14. Construct shelter/bunker, as required.
15. Construct triggering screen, as required.
16. Provide tactical power, as required.
17. Submit required reports.

PREREQUISITE EVENTS:

CEB-RECN-3005	CEB-RECN-4005	CEB-RECN-4006

CHAINED EVENTS:

CEB-HEOP-3001	CEB-HEOP-3002	CEB-SURV-3005
CEB-SURV-3007	CEB-UTIL-3001	CEB-UTIL-3003
CEB-UTIL-3004		

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1009	1302-RECN-1001	1302-SURV-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-2004	1371-HORZ-2005	1371-RECN-2001
1371-SURV-1001	1371-SURV-2001	1371-SURV-2002
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	1371-VERT-2001
1371-VERT-2002		

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. FM 5-553 General Drafting
4. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
7. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
8. MCRP 3-17.7C Carpentry
9. MCRP 3-17.7D Concrete and Masonry
10. MCRP 3-17.7F Project Management

11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7L Explosives and Demolitions
13. MCRP 3-17A Engineering Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
16. MCWP 3-13.2 MINE WARFARE
17. MCWP 3-17 Engineering Operations
18. MCWP 3-17.4 Engineer Reconnaissance
19. MCWP 3-17.6 Survivability
20. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat Engineer tools &kits, Utilities equipment

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CEB-SURV-4002: Construct field fortifications

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct field fortifications that reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: To meet mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific position placement and requirements.
4. Construct survivability positions, as required.
5. Construct wire obstacles, as required.
6. Construct field expedient obstacles, as required.
7. Construct/emplace barrier(s), as required.
8. Construct/emplace explosive obstacle(s), as required.
9. Conduct vertical construction, as required.
10. Harden existing structures, as required.
11. Conduct earthmoving operations, as required.
12. Provide tactical power, as required.
13. Submit required reports.

PREREQUISITE EVENTS:

CEB-RECN-3005 CEB-RECN-4005

CHAINED EVENTS:

CEB-HEOP-3001	CEB-HEOP-3002	CEB-SURV-3001
CEB-SURV-3002	CEB-SURV-3003	CEB-SURV-3004
CEB-SURV-3005	CEB-SURV-3006	CEB-SURV-3007
CEB-SURV-3008	CEB-UTIL-3001	CEB-UTIL-3003
CEB-UTIL-3004		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-EOPS-1001
1302-EOPS-1002	1302-EOPS-1003	1302-EOPS-1009
1302-RECN-1001	1302-SURV-1001	1302-SURV-1002
1302-SURV-1003	1302-SURV-1005	1371-CMOB-1001
1371-CMOB-1001	1371-CMOB-1002	1371-CMOB-1003
1371-CMOB-2001	1371-CMOB-2002	1371-CMOB-2003
1371-DEMO-1001	1371-EOPS-1001	1371-EOPS-2005
1371-EOPS-2006	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-1001	1371-HORZ-1002
1371-HORZ-1003	1371-HORZ-2004	1371-HORZ-2005
1371-SURV-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	1371-VERT-1005

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer tools and equipment

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-SURV-4003: Construct Vehicle Control Point (VCP)

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months
DESCRIPTION: Construct Vehicle Control Point (VCP) to control, restrict and monitor movement of personnel and equipment and to gain information/data on suspected vehicles during military operations.

CONDITION: Provided a mission, commander's intent, intelligence reports, task organization of personnel and equipment, class IV, and references.

STANDARD: To gain information and maintain control of vehicles, pedestrians, and materials in accordance with mission requirements and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review intelligence reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Coordinate security as required.
6. Conduct site preparation and layout.
7. Construct survivability positions as required.
8. Emplace prefabricated barrier(s) as required.
9. Construct wire obstacles as required.
10. Construct expedient obstacles as required.
11. Construct earth filled barrier/structure(s) as required.
12. Conduct earthmoving operations as required.
13. Establish vehicle waiting area as required.
14. Construct search lanes as required.
15. Construct personnel search area(s) as required.
16. Construct/emplace signs as required.
17. Provide tactical power, as required.
18. Submit required reports.

PREREQUISITE EVENTS: CEB-RECN-4003

CHAINED EVENTS:

CEB-HEOP-3001	CEB-HEOP-3002	CEB-SURV-3002
CEB-SURV-3003	CEB-SURV-3004	CEB-SURV-3005
CEB-SURV-3007	CEB-SURV-3008	CEB-UTIL-3001
CEB-UTIL-3002	CEB-UTIL-3003	

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-DEMO-1001	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-SURV-1001	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration

3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling Equipment, Engineer Earthmoving equipment, Combat Engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-SURV-4004: Construct Entry Access Point (EAP)

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct Entry Access Point to prevent unauthorized personnel into military facilities.

CONDITION: Provided a mission, commanders intent, intelligence reports, task organization of personnel and equipment, Class IV, and references.

STANDARD: To control and monitor access of vehicles, pedestrians, and materials onto military facilities in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review force protection requirements.
3. Coordinate resources for project.
4. Coordinate security as required.
5. Conduct site preparation and layout.
6. Construct survivability positions, as required.
7. Emplace prefabricated barrier(s), as required.
8. Construct wire obstacles, as required.
9. Construct expedient obstacles, as required.
10. Construct earth filled barrier/structure(s), as required.
11. Conduct earthmoving operations, as required.
12. Establish vehicle turn-around area, as required.
13. Establish pedestrian lanes, as required.
14. Construct personnel search area(s), as required.
15. Construct/emplace signs, as required.

16. Provide tactical power, as required.
17. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3001	CEB-HEOP-3002	CEB-SURV-3002
CEB-SURV-3003	CEB-SURV-3004	CEB-SURV-3005
CEB-SURV-3006	CEB-SURV-3007	CEB-SURV-3008
CEB-UTIL-3001	CEB-UTIL-3002	CEB-UTIL-3003

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-DEMO-1001	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-SURV-1001	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer tools & kits

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-SURV-4005: Construct earth filled barrier/structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct earth filled barrier/structure in support of survivability of the force.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: That supports the mission requirements and concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific placement and requirements.
4. Construct/emplace barrier(s), as required.
5. Conduct earthmoving operations, as required.
6. Submit required reports.

PREREQUISITE EVENTS:

1302-ADMN-1002	1302-PLAN-1001	1302-RECN-1001
1371-ADMN-2002	1371-PLAN-2001	1371-RECN-2001
CEB-RECN-3005		

CHAINED EVENTS:

CEB-HEOP-3002	CEB-RECN-3005	CEB-RECN-4005

REFERENCES:
1. MCRP 3-17.7I Earthmoving Operations
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment

CEB-SURV-4006: Employ demolitions in support of survivability operations

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ demolitions in support of survivability operations to support the defense of friendly positions or clearance of natural/man-made obstacles for fields of fire to eliminate enemy cover and concealment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To enhance friendly survivability positions and fields of fire to defeat the enemy per the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.

4. Prepare personnel for mission requirements as required.
5. Construct booby traps as required.
6. Clear fields of fire as required.
7. Place expedient explosive devices to support positions as required.
8. Mark fortifications/explosive devices as required.
9. Reconstitute force as required.
10. Submit required reports.

CHAINED EVENTS:
CEB-CMOB-3001 CEB-HEOP-3002

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M023	Charge, Demolition Block M112 1-1/4	20 charges per squad
M032	Charge, Demolition Block TNT 1-Pound	20 charges per squad
M130	Cap, Blasting Electric M6	10 blasting caps per squad
M131	Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456	Cord, Detonating PETN Type I Class E	2000 FT per squad
M591	Dynamite, Military M1	30 charges per squad
M670	Fuse, Blasting Time M700	500 FT per squad
ML03	Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08	Igniter, Time Blasting Fuse with Sho	20 igniters per squad
MN52	MK154 Mod 0	10 detonators per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-UTIL-4001: Provide tactical electrical power

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan and coordinate power generation/electrical distribution in accordance with the units mission statement.
CONDITION: With a Utilities plan, required equipment and personnel.

STANDARD: In accordance with the operational order and commanders intent.

EVENT COMPONENTS:
1. Plan tactical power requirements.
2. Coordinate logistical support/requirements.
3. Establish generator site(s).
4. Establish power distribution.
5. Maintain utilities equipment, as required.
6. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3001	CEB-MANT-3004	CEB-MANT-3005
CEB-MANT-3006	CEB-UTIL-3001	CEB-UTIL-3002
CEB-UTIL-3003	CEB-UTIL-3004	CEB-UTIL-3005

RELATED EVENTS:

1169-ADMN-2002	1169-ADMN-2003	1169-ADMN-2021
1169-ADMN-2022	1169-XENG-2501	1169-XENG-2502
1169-XENG-2521	1169-XENG-2522	1169-XENG-2561
1169-XENG-2621	1169-XENG-2622	1169-XENG-2721
1169-XENG-2821	1169-XENG-2965	1169-XENG-2966

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems
2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
3. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment (MHE), Motor Transport equipment.

MATERIAL: POLs, HazMat Kits, spill containment kits, Fuel.

CEB-VERT-4001: Conduct vertical construction

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct limited vertical construction to build or provide improvements to existing structures or construction of base camps, command posts and maintenance facilities for use by the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction

materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey as required.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility as required.
7. Erect prefabricated structure, as required.
8. Construct wood frame structure, as required.
9. Construct timber structure, as required.
10. Construct expedient drainage structure, as required.
11. Wire structure for electricity as required.
12. Submit required reports.

CHAINED EVENTS:

CEB-HEOP-3001	CEB-HEOP-3002	CEB-HEOP-3002
CEB-RECN-3005	CEB-RECN-4005	CEB-UTIL-3003
CEB-UTIL-3004	CEB-VERT-4002	CEB-VERT-4003
CEB-VERT-4004		

RELATED EVENTS:

1302-EOPS-1009	1302-HORZ-1002	1302-HORZ-1003
1302-RECN-1001	1302-VERT-1001	1361-DRAF-1001
1361-DRAF-1002	1361-DRAF-1003	1361-SRVY-1004
1361-SRVY-1008	1361-SRVY-2003	1361-SRVY-2004
1361-SRVY-2005	1371-EOPS-1004	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-HORZ-2001	1371-HORZ-2002	1371-HORZ-2003
1371-RECN-1001	1371-RECN-2001	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	1371-VERT-1005
1371-VERT-2001	1371-VERT-2002	

REFERENCES:
1. GTA 5-7-13 Bridge Classification Booklet
2. GTA 5-7-6 Bridge Design Card
3. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
4. JP 3-34 Joint Engineer Operations
5. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
6. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
7. MCRP 3-17.7C Carpentry
8. MCRP 3-17.7D Concrete and Masonry
9. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
10. MCRP 3-17.7F Project Management
11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17.7M Construction Estimating

14. MCRP 3-17.7N Base Camps
15. MCRP 3-17A Engineering Field Data
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCWP 3-17 Engineering Operations
18. MCWP 3-33 Military Operations Other Than War (MOOTW)
19. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
20. MCWP 4-11 Tactical-Level Logistics
21. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools & kits, Material Handling Equipment.

CEB-VERT-4002: Construct wood frame structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct wood frame structures for use in all operations conducted to include but not limited to; strong backs, sheds, facilities, sea huts, etc. or may be specified in mission directives in support of the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, construction plans, design specifications, construction materials and references.

STANDARD: To meet the requirements listed in the design specifications in accordance with commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install footers as required.
7. Construct/install flooring structure as required
8. Construct/install wall structure(s) as required.
9. Construct/install roof structure as required.
10. Construct/install doors as required.
11. Construct/install windows as required.
12. Finish interior as required.
13. Finish exterior as required.
14. Submit required reports.

PREREQUISITE EVENTS:
CEB-RECN-3005 CEB-RECN-4006

CHAINED EVENTS:
CEB-HEOP-3001 CEB-HEOP-3002

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and kits.

CEB-VERT-4003: Construct timber structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct timber structures for survivability of personnel and equipment. Structures consist of but not limited to bunkers, shelters, overhead cover, guard posts, crew-serve weapons positions, and individual fighting positions.

CONDITION: Given a mission, commander's intent, tactical situations, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To meet the survivability requirements and in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/prefabricate structures as required.
7. Emplace structures as required.
8. Construct/install wall structure(s) as required.
9. Construct/install roof structure/components as required.
10. Construct/install doors as required.
11. Construct/install portholes as required.
12. Sandbag structure as required.
13. Camouflage as required.
14. Install grenade sumps as required.

15. Submit required reports.

PREREQUISITE EVENTS:
CEB-RECN-3005 CEB-RECN-4005

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-SURV-1001	1302-SURV-1002	1302-VERT-1001
1371-EOPS-1002	1371-EOPS-1003	1371-EOPS-1004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2008
1371-EOPS-2010	1371-EOPS-2011	1371-MANT-1001
1371-RECN-2001	1371-SURV-1001	1371-SURV-2001
1371-SURV-2002	1371-VERT-1001	1371-VERT-1002
1371-VERT-1004	1371-VERT-1005	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and Kits

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CEB-VERT-4004: Provide limited repair of existing structures

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide limited repair of facilities that have been damaged/flawed or incorrect per design specifications in support of the GCE.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, structure/facility in need of repair, construction materials and references.

STANDARD: To meet the original design requirements/specifications to restore structure or facilities and in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics as required.
2. Review engineer reconnaissance and survey as required.
3. Acquire resources needed for project.

4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Repair/replace structural components as required.
7. Repair/replace electrical as required.
8. Repair bridge abutments as required.
9. Submit required reports.

PREREQUISITE EVENTS:

CEB-RECN-3005	CEB-RECN-4005

CHAINED EVENTS:

CEB-HEOP-3001	CEB-UTIL-3004

RELATED EVENTS:

1302-EOPS-1009	1302-RECN-1001	1302-VERT-1001
1316-XENG-1001	1316-XENG-1006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-RECN-1001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	

REFERENCES:

1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.6 Survivability
5. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and kits

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CEB-VERT-4005: Rig expedient lifting devices

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Rig expedient lifting devices for field expedient lifting of heavy objects and equipment with the use of organic equipment assets and fabricated supports (gin poles, tripods, shear poles, etc.). Rigging devices support the conduct of using pulleys for mechanical advantage to allow loads to be lifted, moved, and/or displaced to desired area.

CONDITION: Given a tactical situation, requirement to use rigging equipment, personnel, tools, and references.

STANDARD: To lift tools, equipment, or components of structures for accomplishment of tactical missions in accordance with the concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate for logistical requirements.
3. Acquire necessary materials as required.
4. Compute safe working load as required.
5. Rig lifting system as required.
6. Erect lifting system as required.
7. Crib as required.
8. Install block(s) as required.
9. Install anchor systems as required.
10. Operate lifting system.

REFERENCES:
1. MCRP 3-17.7J Rigging Techniques, Procedures, and Applications
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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4007. 3000-LEVEL EVENTS

CEB-CMOB-3001: Construct field expedient obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct field expedient obstacles tie into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted.

CONDITION: Given a tactical situation, type of obstacle required, obstacle intent, engineer tools and equipment, Class IV and V supplies, expedient obstacle material, personal protective equipment (PPE), and an area to construct the obstacle.

STANDARD: To tie into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted in accordance with the concept of operations.

EVENT COMPONENTS:
1. Prepare to construct field expedient obstacle(s).
2. Construct log obstacles if applicable.
3. Construct an abatis if applicable.
4. Construct improvised obstacles if applicable.
5. Improve, as necessary.

RELATED EVENTS:
1302-CMOB-1001 1302-CMOB-1003 1310-ADMN-2002

1310-ADMN-2004	1310-ADMN-2010	1310-HEOP-2001
1310-MANT-2002	1316-ADMN-2001	1316-ADMN-2002
1316-XENG-1001	1316-XENG-1006	1316-XENG-2002
1345-ADMN-1002	1345-ADMN-2002	1345-HEOP-1004
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-CMOB-1002	1371-DEMO-1001	1371-EOPS-1002
1371-EOPS-1003		

REFERENCES:

1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.5 Combined Arms Countermobility Operations
9. MCWP 3-17.6 Survivability
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
11. MCWP 3-35.5 Jungle Operations
12. MCWP 3-35.6 Desert Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	20 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	10 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat Engineer equipment, tools and kits, Earthmoving equipment, Demo kit.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-CMOB-3002: Build non-explosive obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Build non-explosive obstacles to, block, fix, or disrupt the enemy. Typical examples are: Wire, Tank ditches, Log cribs, Steel H beam post obstacles, falling or tumble blocks, Dragon's teeth, hedgehogs, tetrahedrons and non-explosive abatis.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV and V supplies, natural terrain, battlefield materials, etc.).

STANDARD: To, block, fix, or disrupt the enemy in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission and schematics
2. Determine actual work sequence.
3. Coordinate logistical requirements.
4. Coordinate overwatch/ security for obstacle construction.
5. Move to obstacle site.
6. Tie obstacles into natural/existing obstacles as required.
7. Construct/place mobility obstacles (barriers, hedgehogs, ect.) as required.
8. Construct wire obstacles as required.
9. Construct/place field expedient obstacles (logs, abatis, rubble, ect.) as required.
10. Construct/create deceptive obstacles as required.
11. Construct tank ditches as required.
12. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1316-ADMN-1002	1316-ADMN-2001	1316-ADMN-2002
1316-XENG-1001	1316-XENG-1006	1316-XENG-2002
1345-ADMN-1002	1345-ADMN-2002	1345-HEOP-1004
1345-HEOP-1007	1345-HEOP-2007	1345-HEOP-2012
1345-MANT-1001	1345-MANT-2001	1345-MANT-2003
1345-MANT-2004	1349-ADMN-2002	1349-ADMN-2004
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-CMOB-1001	1371-CMOB-1002	1371-CMOB-2001
1371-CMOB-2001	1371-CMOB-2002	
1371-CMOB-2003		

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7L Explosives and Demolitions

3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
6. MCWP 3-1 Ground Combat Operations
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.5 Combined Arms Countermobility Operations
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment, tools and kits, MHE, Earthmoving equipment.

CEB-CMOB-3003: Employ explosive obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create an explosive obstacle to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given an operations order, personnel, demolitions material, engineer equipment, and personal protective equipment.

STANDARD: To turn, block, fix, or disrupt the enemy in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare site.
3. Build the explosive obstacle.
4. Emplace explosive obstacle.
5. Recover as required.
6. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1349-ADMN-2002	1349-ADMN-2006	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-CMOB-1003	1371-CMOB-2001	1371-CMOB-2003
1371-DEMO-1002		

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-13.2 MINE WARFARE
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	10 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-DEMO-3001: Destroy captured arms and ammunition with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy captured arms and ammunition with demolitions to ensure destruction. Examples include: confined gaseous, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot-control agents; smokes and incendiaries (including bulk explosives); chemical warfare agents; chemical munitions; rockets; guided and ballistic missiles; bombs; warheads; mortar rounds; artillery ammunition; small arms ammunition; grenades; mines; torpedoes; depth charges; cluster munitions and dispensers; demolition charges; and devices and components of the above.

CONDITION: Given a tactical situation, demolition target, demolitions, task

organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of arms and ammunition.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-MOBL-1007	1371-DEMO-1001	1371-DEMO-2002
1371-DEMO-2002	1371-DEMO-2004	1371-DEMO-2005

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event

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CEB-DEMO-3002: Destroy bridge with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy bridge with demolitions which results in either a gap that exceeds the enemy's assault bridging capability by 5 meters, or that leaves demolished components which are unable to provide sufficient bearing capacity for enemy assault breaching assets.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of bridge.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1007
1371-CMOB-2004	1371-DEMO-1001	1371-DEMO-2001
1371-DEMO-2002	1371-DEMO-2004	1371-DEMO-2005
1371-DEMO-2006	1371-DEMO-2015	

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-DEMO-3003: Destroy tunnel with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy tunnel with demolitions to restrict the mobility of the enemy.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of tunnel.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-MOBL-1007	1371-DEMO-1001	1371-DEMO-2002
1371-DEMO-2002	1371-DEMO-2004	1371-DEMO-2005

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event

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CEB-DEMO-3004: Destroy building with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy building with demolitions to ensure destruction of the building.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of building.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-MOBL-1007	1371-DEMO-1001	1371-DEMO-2001
1371-DEMO-2002	1371-DEMO-2004	1371-DEMO-2005
1371-DEMO-2006	1371-DEMO-2015	1371-RECN-2002

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity

M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: 260 CFM, PPE.

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event

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CEB-HEOP-3001: Provide Material Handling Equipment (MHE) support

SUPPORTED MCT(S):
MCT 1.12.1 MCT 1.4.1 MCT 1.4.2
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited Material Handling Equipment (MHE) support to the GCE utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct lift of material.

7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS:

1120-ADMN-2002	1120-ADMN-2006	1310-ADMN-2009
1310-HEOP-2001	1310-HORZ-2002	1310-HORZ-2003
1310-MANT-2002	1316-MANT-1004	1345-ADMN-2002
1345-HEOP-1001	1345-HEOP-1002	1345-HEOP-1003
1345-HORZ-2001	1345-MANT-1001	1349-HEOP-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CEB-HEOP-3002: Provide earth moving equipment support

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited earth moving equipment support to support the mission utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct combined earthmoving operations.
7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2002
1310-HORZ-2003	1310-MANT-2002	1310-XENG-2001
1310-XENG-2002	1310-XENG-2003	1310-XENG-2004
1345-ADMN-1002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1006	1345-HEOP-1007	1345-HEOP-2006
1345-HEOP-2007	1345-HEOP-2009	1345-HORZ-2001

1345-HORZ-2001	1345-MANT-1001	1345-MANT-2001
1345-MANT-2003	1345-MANT-2004	1349-HEOP-2001
1349-HORZ-2002	1349-HORZ-2003	

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CEB-MANT-3001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Maintain engineer equipment by conducting preventive and corrective maintenance on engineer equipment using unit assigned maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

RELATED EVENTS:

1310-ADMN-2003	1310-ADMN-2004	1310-ADMN-2005
1310-ADMN-2008	1310-MANT-2001	1316-ADMN-1001
1316-ADMN-1002	1316-ADMN-1003	1316-ADMN-2001
1316-ADMN-2002	1316-MANT-1002	1316-MANT-1004
1316-XENG-1005	1316-XENG-1006	1341-ADMN-1001
1341-ADMN-1002	1341-ADMN-2001	1341-ADMN-2002
1341-ADMN-2003	1341-ADMN-2004	1341-ADMN-2005
1341-ADMN-2006	1341-ADMN-2007	1341-ADMN-2008
1341-MANT-1001	1341-MANT-1002	1341-MANT-2001
1341-MANT-2002	1341-MANT-2003	1341-MANT-2004
1341-MANT-2005	1341-MANT-2006	1341-MANT-2007
1341-MANT-2008	1341-MANT-2009	1341-MANT-2010
1341-MANT-2011	1341-MANT-2012	1341-MANT-2013
1345-ADMN-1002	1345-MANT-1001	1345-MANT-2001
1345-MANT-2002	1349-ADMN-2001	1349-ADMN-2002

1349-ADMN-2003 1349-ADMN-2004 1349-ADMN-2008
1349-MANT-2001 1349-MANT-2002 1371-MANT-1001
1371-MANT-2002

REFERENCES:

1. SOP Unit/Local Standard Operating Procedures
2. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
3. EMC Electric Motor Controls by American Technical Publishers, Inc.
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
6. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
7. MCO 5100.29_ Marine Corps Safety Program
8. MCO P4790.2_ MIMMS Field Procedures Manual

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer tools, sets, kits.

CEB-MANT-3002: Perform operator/crew level maintenance on ABV

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Clean, lubricate and paint ABV in accordance with the cleaning guidelines and procedures within the TM 10984A-OR/1-1. Both 1372's and 2146's perform this task.

CONDITION: Given an ABV, SL-3 equipment, tools, and technical manuals.

STANDARD: Ensuring equipment is checked and serviced per the maintenance schedule, and deficiencies are identified/corrected.

EVENT COMPONENTS:

1. Conduct lamp replacement.
2. Conduct periscopes and lens maintenance.
3. Conduct preparation for maintenance on covers and doors.
4. Conduct precleaner maintenance and fueling.
5. Conduct hydraulic maintenance.
6. Conduct battery maintenance.
7. Conduct track maintenance.
8. Conduct drain valve maintenance.
9. Conduct powerpack and electronics maintenance.
10. Conduct NBC, and auxiliary equipment maintenance.
11. Conduct LDCS maintenance.
12. Conduct LMS maintenance.

RELATED EVENTS:

1372-MANT-1001 1372-MANT-1002 1372-MANT-1003
1372-MANT-1004 1372-MANT-1005 1372-MANT-1006
1372-MANT-1007

REFERENCES:
1. TM 10984A-OI/3-1 Field Maintenance Manual (ABV), Volume 1
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
4. TM 5-5420-203-14 Operator's Manual for AVLB

SUPPORT REQUIREMENTS:

EQUIPMENT: Wash rack with the necessary tools and equipment, PPE

CEB-MANT-3003: Perform operator/crew level maintenance on AVLB

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Clean, lubricate and paint AVLB in accordance with the cleaning guidelines and procedures within the TM 5-5420-202-10. Both 1372's and 2146's perform this task

CONDITION: Given an ALVB, SL-3 equipment, tools, and technical manuals.

STANDARD: Ensuring equipment is checked and serviced per the maintenance schedule, and deficiencies are identified/corrected.

EVENT COMPONENTS:
1. Conduct track maintenance.
2. Conduct rear fender removal and installation.
3. Conduct refueling from pressurized source.
4. Conduct fuel filler cap maintenance.
5. Conduct battery maintenance.
6. Conduct escape hatch removal and installation.
7. Conduct lamp replacement.
8. Conduct engine air cleaner indicator maintenance.
9. Conduct smoke grenade launcher maintenance.
10. Conduct maintenance under adverse conditions.
11. Conduct lubrication on AVLB per lubrication instructions.

RELATED EVENTS:

1372-MANT-1001	1372-MANT-1002	1372-MANT-1003
1372-MANT-1004	1372-MANT-1005	1372-MANT-1006
1372-MANT-1007		

REFERENCES:
1. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

SUPPORT REQUIREMENTS:

EQUIPMENT: Wash rack with the necessary tools and equipment, PPE

CEB-MANT-3004: Maintain tactical power distribution system

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months
DESCRIPTION: Maintain equipment to ensure the safe distribution of electrical power to meet mission requirements and commanders intent.

CONDITION: With a Preventive Maintenance Checks and Service (PMCS) Schedule, testing equipment, tools, and personnel.

STANDARD: To ensure the equipment is safe and operational.

EVENT COMPONENTS:
1. Review PMCS schedule, as required.
2. Induct equipment into maintenance cycle.
3. Conduct preventive maintenance, as required.
4. Conduct corrective maintenance, as required.
5. Complete modifications, as required.
6. Ground system, as required.
7. Electrically energize system, as required.
8. Diagnose malfunction, as required.
9. Requisition repair parts, as required.
10. Install repair parts, as required.
11. Test system.
12. Complete quality control requirements.
13. Complete administrative maintenance requirements.

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-ADMN-1008
1141-ADMN-1010	1141-ADMN-1011	1141-ADMN-2073
1141-MANT-1101	1141-MANT-1224	1141-MANT-1324
1141-MANT-1424	1141-MANT-2191	1141-MANT-2244
1141-MANT-2344	1141-MANT-2444	1141-XENG-1601
1141-XENG-1703	1142-ADMN-1006	1142-ADMN-1008
1142-ADMN-1010	1142-ADMN-1011	1142-ADMN-2073
1142-MANT-1101	1142-MANT-1106	1142-MANT-1108
1142-MANT-1109	1142-MANT-1142	1142-MANT-1351
1142-MANT-1451	1142-MANT-1466	1142-MANT-1467
1142-MANT-1468	1142-MANT-1469	1142-MANT-1493
1142-MANT-2191	1142-MANT-2308	1142-MANT-2309
1142-MANT-2318	1142-MANT-2354	1142-MANT-2365
1142-MANT-2408	1142-MANT-2409	

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light

Forces

EQUIPMENT: Multi-meter, tools, power generation equipment, PPE.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task includes conducting maintenance on generators, MEPDIS and MEPDIS-R.

CEB-MANT-3005: Maintain Environmental Control Units (ECU)

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: As a CEB unit (fire team) in support of the GCE, conduct maintenance in order to sustain the ECU(s) in operable status.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete quality control requirements.
9. Return administrative maintenance requirements.

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-2191	1142-MANT-2311	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1010	1161-ADMN-1011
1161-ADMN-2015	1161-ADMN-2016	1161-ADMN-2073
1161-MANT-1101	1161-MANT-1102	1161-MANT-1103
1161-MANT-1104	1161-MANT-1106	1161-MANT-1107
1161-MANT-1108	1161-MANT-1109	1161-MANT-1211
1161-MANT-1218	1161-MANT-1311	1161-MANT-1318
1161-MANT-1401	1161-MANT-1403	1161-MANT-2191

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons

4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Utilities equipment, tools and kits

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CEB-MANT-3006: Maintain refrigeration system(s)

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: As a CEB unit (fire team) in support of the GCE, conduct maintenance in order to sustain the refrigeration system(s) in operable status.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete quality control requirements.
9. Complete maintenance administrative requirements.

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-1392	1142-MANT-1493	1142-MANT-2191
1142-MANT-2327	1161-ADMN-1006	1161-ADMN-1008
1161-ADMN-1010	1161-ADMN-1011	1161-ADMN-2073
1161-MANT-1101	1161-MANT-1102	1161-MANT-1103
1161-MANT-1104	1161-MANT-1106	1161-MANT-1107
1161-MANT-1108	1161-MANT-1109	1161-MANT-1235
1161-MANT-1335	1161-MANT-1402	1161-MANT-1404
1161-MANT-2191		

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82

(Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling Equipment, power generation equipment, tools and kits.

CEB-MOBL-3001: Engage targets with MK153 SMAW

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Engage targets with MK153 SMAW to destroy bunkers and other fortifications during assault operations as well as other designated targets.

CONDITION: Given a tactical scenario which presents a series of realistic threats, at ranges 150 to 250 meters, wearing a fighting load, operating as an assault team (gunner and assistant gunner) in support of a maneuvering unit , firing from all positions, during day or night operations.

STANDARD: Attain hits on designated/ appropriate targets from suitable tactical positions using spotting rounds and appropriate rockets, maximizing the use of cover to load and engage targets, or suppressing fire/ concealment, when cover is not available, in accordance with commander's intent and the target attack guidance matrix.

EVENT COMPONENTS:
1. Load the SMAW.
2. Select a firing position.
3. Acquire the target in the sight.
4. Determine range to target.
5. Set the estimated range on the sight range selector drum (telescopic sight).
6. Place the SMAW in Condition 1.
7. Fire a spotting round and observe impact.
8. Make necessary adjustments until spotting rounds impact target or until the six (6) spotting rounds are expended.
9. Fire the SMAW.
10. Take immediate action if misfire occurs with either spotting rifle or launcher.
11. Move to alternate/supplemental position.

PREREQUISITE EVENTS: 1371-MOBL-1006

RELATED EVENTS:

1302-MOBL-1005	1371-MOBL-1003	1371-MOBL-1005
1371-MOBL-2012	1371-MOBL-2017	

REFERENCES:
1. TM 08673A-10/1 Launcher, Assault Rocket 83MM (SMAW) MK 153 MOD 0

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX11- Cartridge, 9mm Spotting Rifle MK217	30 round per Team
HX05 Rocket, 83mm Assault MK3 Mod 0 (SMAW	2 rocket per Team
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	4 rocket per Team

RANGE/TRAINING AREA: Facility Code 17710 Multipurpose Training Range (MPTR)

EQUIPMENT: MK 153 SMAW, SMAW Cartridge Pack, SMAW Simulator Cartridge.

UNITS/PERSONNEL: Range OIC, Range Safety Officer (RSO), Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of munition, explosives and pyrotechnics are sufficient to conduct one training evolution per (9) weapons in one Company. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3002: Breach obstacle with the Assault Breacher Vehicle (ABV)

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Breach obstacle with the Assault Breacher Vehicle (ABV) to mechanically/explosively breach, proof, and mark lanes in support of GCE mobility requirements.

CONDITION: As part of an obstacle clearance detachment or breach force, given a tactical situation, an order, breaching assets, commander's decision and references.

STANDARD: To create a breached lane in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive the mission.

2. Review obstacle intelligence reports.
3. Configure ABV(s) for obstacle breach as required
4. Conduct battle drills (team) to rehearse the breach of an obstacle.
5. Move to breach point.
6. Employ front-end equipment to breach lane as required.
7. Employ front-end equipment to proof lane as required
8. Employ line charge(s) to reduce obstacle as required.
9. Employ lane marking system as required.
10. Coordinate with OCD for additional lane reduction as required.
11. Recover as required.
12. Submit required reports.

RELATED EVENTS:

1302-MOBL-1005	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017	1372-ADMN-1003	1372-DEMO-1001
1372-DEMO-1002	1372-MOBL-1001	1372-MOBL-1002
1372-MOBL-1005	1372-MOBL-1006	1372-MOBL-1007
1372-MOBL-1009	1372-MOBL-1010	1372-MOBL-1011
1372-MOBL-1012		

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCRP 3-17B Engineer Forms and Reports
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.8 Combined Arms Mobility Operations
6. TM 10984A-OI/3-1 Field Maintenance Manual (ABV), Volume 1
7. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
8. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A555 Cartridge, Caliber .50 Ball M33 Link	20 cartridges per Team
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rocket per Team
M913 Charge, Demolition High Explosive Li	2 charges per Team
M914 Charge, Demolition Inert Linear M68A	2 charges per Team

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer breaching equipment

UNITS/PERSONNEL: Range safety officer, corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3003: Conduct an urban breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct an urban breach to physically, ballistically, or explosively breach structures in support of GCE mobility requirements.

CONDITION: Given a mission, commander's intent, task organized personnel that are trained and equipped for urban breaching, and references.

STANDARD: To gain entry into a structure or compound to provide sufficient mobility to support the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Reconnoiter target, situation permitting.
3. Issue Breacher's brief.
4. Construct the charge(s) as required.
5. Verify obscuration, concealment as required.
6. Move to breach site.
7. Place charge(s) as required.
8. Detonate charge(s) as required.
9. Conduct ballistic breach as required.
10. Conduct mechanical breach as required.
11. Conduct manual (follow-on) breach as required.
12. Reconstitute for successive breaches as required.

RELATED EVENTS:

1302-DEMO-1002	1302-DEMO-1003	1302-MOBL-1006
1302-MOBL-1007	1371-DEMO-2001	1371-DEMO-2002
1371-DEMO-2003	1371-DEMO-2004	1371-DEMO-2005
1371-DEMO-2006	1371-DEMO-2007	1371-DEMO-2008
1371-DEMO-2009	1371-DEMO-2010	1371-DEMO-2011
1371-DEMO-2012	1371-DEMO-2013	1371-DEMO-2014
1371-MOBL-2013	1371-MOBL-2014	1371-MOBL-2016
1371-MOBL-2019		

REFERENCES:
1. Guidebook for Assault Entry Techniques
2. Urban Mobility Engineer Guidebook
3. 590 MILS M590 Shotgun Owner's Manual
4. MCRP 3-17.7L Explosives and Demolitions
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.3 MAGTF Breaching Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. SWO 60-AA-MMA-010 Demolition Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A011 Cartridge, 12 Gauge #00 Buckshot M16	10 cartridges per Team
A023 Cartridge, 12 Gauge 1 Ounce Slug Com	10 cartridges per Team
A024 Cartridge, 12 Gauge Door Breaching M	10 cartridges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
M982 Charge, Demolition Sheet 0.161 Inch	1 Roll per Team
MM47 Charge, Demolition Flexible Linear S	5 FT per Team
MM56 Detonator, Non-Electric MK123 Mod 0	10 detonators per Team
MN08 Igniter, Time Blasting Fuse with Sho	40 igniters per Team
MN14 Firing Device, Dual Mode MK54	2 primers per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer urban breaching equipment, PPE.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this Event.

CEB-MOBL-3004: Create a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Create a lane through an obstacle that provides safe passage of a passing force. The route may be reduced and proofed as part of a breaching operation, be constructed as part of the obstacle, or be marked as a bypass.

CONDITION: Given a tactical situation, an order, breaching assets, location of lane to be created, current obstacle intelligence, and references.

STANDARD: To assure mobility in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Acquire explosive/non-explosive breaching assets.
3. Conduct battle drills (team) to rehearse the breach of an obstacle.

4. Move to breach site.
5. Execute the breach.
6. Proof lane.
7. Mark lane.
8. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-CMOB-1003	1302-DEMO-1001	1302-DEMO-1002
1302-MOBL-1004	1302-MOBL-1005	1302-MOBL-1008
1302-MOBL-1009	1302-MOBL-1010	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-1006	1345-MANT-1001
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1003	1371-CMOB-2001
1371-DEMO-1001	1371-DEMO-2002	1371-DEMO-2003
1371-DEMO-2004	1371-DEMO-2005	1371-MOBL-1001
1371-MOBL-1002	1371-MOBL-1003	1371-MOBL-1003
1371-MOBL-2012	1371-MOBL-2017	1371-MOBL-2019
1371-MOBL-2020	1371-MOBL-2022	1371-MOBL-2023
1371-MOBL-2035		

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
J143	Rocket Motor, 5-inch MK22 Mod 4	3 rockets per Team
M028	Demolition Kit, Bangalore Torpedo M1	1 charges per Team
M032	Charge, Demolition Block TNT 1-Pound	20 charges per Team
M130	Cap, Blasting Electric M6	60 blasting caps per Team
M456	Cord, Detonating PETN Type I Class E	1500 FT per Team
M670	Fuse, Blasting Time M700	500 FT per Team
M757	Charge, Assembly Demolition M183 Com	2 charges per Team
M913	Charge, Demolition High Explosive Li	1 charges per Team
M914	Charge, Demolition Inert Linear M68A	2 charges per Team
MN08	Igniter, Time Blasting Fuse with Sho	100 igniters per Team
MN79	Mine, Antipersonnel Obstacle Breachi	1 mines per Team
MN88	Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per Team
MN90	Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer breaching assets, Demo kit, PPE.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3005: Proof a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Proof a lane through an obstacle to verify that a lane is free of explosive hazards and that the width and trafficability of the point of breach are suitable for the assault force. Proofing can be conducted visually (against surface-laid minefields), electronically (mine detectors), or mechanically (mine clearing rollers [MCRs]). Proofing is conducted when the risk of live mines remaining in the lane exceeds the risk of loss (lives and equipment) to enemy fires while waiting to complete proofing.

CONDITION: Given a breached lane, task organized equipment and personnel, and references.

STANDARD: To verify that a lane is free of all remnants of explosive and non-explosive obstacles and to allow for rapid passage of assault force in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Conduct mechanical proof of breached lane as required.
3. Conduct manual proof of breached lane as required.
4. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1004
1302-MOBL-1005	1302-MOBL-1009	1302-MOBL-1010
1371-DEMO-1001	1371-DEMO-2002	1371-DEMO-2003
1371-DEMO-2004	1371-DEMO-2005	1371-MOBL-1001
1371-MOBL-1002	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017	1371-MOBL-2019	1371-MOBL-2020
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2035

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M130 Cap, Blasting Electric M6	60 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	100 igniters per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	10 igniters per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat Engineer breaching assets, mine detectors, Demo kit.

UNITS/PERSONNEL: Range Safety officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3006: Mark a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Mark a lane through an obstacle to identify a breached lane for rapid passage of the force.

CONDITION: Given a proofed lane, task organized equipment and personnel, and references.

STANDARD: To identify a breached lane for rapid passage of assault force in accordance with the commander's intent and the concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Mark the breached lane.
3. Submit required reports.

RELATED EVENTS:
1302-MOBL-1005 1371-MOBL-1003 1371-MOBL-2012

1371-MOBL-2017

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: HEMMS kit and mine field marking kit.

UNITS/PERSONNEL: Range Safety Officer, Corpsman

CEB-MOBL-3007: Remotely detect explosive hazards

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Remotely detect explosive hazards using engineer robotics systems to detect explosive hazards, positively identify and mark explosive hazards within engineer scope/capabilities.

CONDITION: Given a tactical situation, robot, an order, combat engineer equipment, field protective equipment, a suspected explosive hazard, commander's decision and references.

STANDARD: To positively identify and mark the explosive hazard in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Re-deploy to safe standoff distance.
2. Set security.
3. Evaluate micro-terrain.
4. Robot team prepare robot for operation.
5. Operate the robot.
6. Conduct robotic reconnaissance.
7. Mark explosive hazard as required.
8. Submit report as required.

RELATED EVENTS:
1302-MOBL-1008 1302-MOBL-1009 1371-MOBL-2035

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations

2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer robot.

CEB-MOBL-3008: Remotely reduce explosive hazards

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Remotely reduce explosive hazards using engineer robotics systems to reduce/destroy explosive hazards after positive identification of explosive hazard has been established and with engineer scope/capabilities.

CONDITION: Given a tactical situation, robot, a positively identified explosive hazard, an order, combat engineer equipment, Class V, field protective equipment, commander's decision and references.

STANDARD: By calculating, placing and detonating an explosive charge that will result in the reduction of the explosive hazard and allow for assured mobility.

EVENT COMPONENTS:
1. Evaluate go/no go criteria per the explosive hazard decision matrix.
2. Employ protective measures.
3. Build a charge.
4. Prepare robot for operation.
5. Remotely place the charge.
6. Detonate the charge.
7. Remotely verify destruction of explosive hazard.
8. Submit report as required.

RELATED EVENTS:

1302-DEMO-1002	1302-DEMO-1004	1302-MOBL-1004
1302-MOBL-1008	1302-MOBL-1009	1371-MOBL-2020
1371-MOBL-2023	1371-MOBL-2035	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M670 Fuse, Blasting Time M700	250 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	5 igniters per Team
MN52 MK154 Mod 0	6 detonators per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer robot.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3009: Employ a medium machinegun team

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ a medium machinegun team in a mounted or dismounted position.

CONDITION: Given an operations order, a medium machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

STANDARD: To support the scheme of maneuver in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery
2. TM 08673A-10/1B Launcher, Assault Rocket 83mm (SMAW) MK153 MOD 0

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A064 Cartridge, 5.56mm 4 Ball M855/1 Trac	456 rounds per Team
A131 Cartridge, 7.62mm 4 Ball M80/1 Trace	882 rounds per Team
A135 Cartridge, 7.62mm Dummy M63	12 rounds per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17581 Machine Gun Field Fire Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3010: Employ a heavy machinegun team

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ a heavy machinegun team in a mounted/dismounted position.

CONDITION: Given an operations order, a heavy machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

STANDARD: To support the scheme of maneuver.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-1 Ground Combat Operations
2. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A560 Cartridge, Caliber .50 Dummy M2	20 rounds per Team

A576 Cartridge, Caliber .50 4 API M8/1 AP	604 rounds per Team
B472 Cartridge, 40mm Dummy M922	20 rounds per Team
B542 Cartridge, 40mm HEDP M430/M430A1 Lin	254 rounds per Team
BA21 Cartridge, 40mm Practice (Day/Night)	32 rounds per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3011: Fell standing timber

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Fell standing timber to clear a forested area in support of operations.

CONDITION: Given an operations order, standing timber, appropriate hand tools, an SL-3 complete chainsaw, mixed fuel, personnel, and all personal protective equipment (PPE).

STANDARD: To clear a forested area in support of operations in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine equipment required.
3. Calculate time required for construction.
4. Prepare equipment for operation.
5. Move to site.
6. Establish safety zone.
7. Cut timber.
8. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-SURV-1001
1310-ADMN-2002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1006

1345-HEOP-2007	1345-MANT-1001	1345-MANT-2001
1349-ADMN-2004	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	1371-CMOB-2001
1371-EOPS-1002	1371-EOPS-1003	1371-EOPS-2008

REFERENCES:
1. Appropriate TM/Manufacture's Manual for Chainsaw
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	6 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	6 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	20 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
MN08 Igniter, Time Blasting Fuse with Sho	10 igniters per Team
MN52 MK154 Mod 0	10 detonators per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits, PPE

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3012: Employ the Armored Vehicle Launched Bridge (AVLB)

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ AVLB to bridge wet/dry gaps in support of GCE mobility requirements.

CONDITION: Given a tactical situation, an order, bridging assets, location of a gap to be spanned, current intelligence, and references.

STANDARD: To provide sufficient mobility to support the concept of operations and commanders intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review obstacle intelligence reports.
3. Conduct battle drills (team) to rehearse crossing a gap.
4. Move to obstacle.
5. Deploy AVLB to span gap, as required.
6. Inspect placement of bridge component.
7. Submit required reports.
8. Recover, as required.

CHAINED EVENTS:
CEB-RECN-3001

RELATED EVENTS:

1302-MOBL-1005	1302-MOBL-1015	1371-MOBL-1001
1371-MOBL-2007	1371-MOBL-2008	1371-MOBL-2012
1372-MOBL-1012	1372-MOBL-1014	1372-MOBL-1015
1372-MOBL-1016	1372-MOBL-1017	1372-MOBL-1018

REFERENCES:
1. GTA 5-7-13 Bridge Classification Booklet
2. GTA 5-7-6 Bridge Design Card
3. MCRP 3-17.1B Military Non-Standard Fixed Bridging
4. MCRP 3-17.7I Earthmoving Operations
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.1 Combined Arms Gap-Crossing Operations
9. MCWP 3-17.3 MAGTF Breaching Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations
12. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
G826 Grenade, Launcher Smoke Infrared Scr	12 grenades per squad

RANGE/TRAINING AREA: Facility Code 17921 Armored Vehicle Launch Bridge, Raft, And Ford Area

EQUIPMENT: Combat engineer equipment, tools, kits used for gap crossing, PPE

UNITS/PERSONNEL: Range safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3013: Operate small craft

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Operate small craft to reconnoiter littoral areas in support of mobility requirements.

CONDITION: Given a mission, commander's intent, a map, task organization of personnel and equipment, waterway to reconnaissance/scout, and the references.

STANDARD: To conduct an engineer reconnaissance of specified waterway, gather all relevant engineer data, produce a report in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review the order.
2. Coordinate with supported unit.
3. Prepare equipment for operation.
4. Move to launch point.
5. Launch reconnaissance team.
6. Conduct reconnaissance mission.
7. Recover reconnaissance team.
8. Submit required reports.

PREREQUISITE EVENTS:

1342-MANT-1001	1342-MANT-1002	1342-MANT-1004

RELATED EVENTS:

1302-MOBL-1015	1310-ADMN-2002	1310-ADMN-2004
1310-ADMN-2009	1310-MANT-2001	1310-MANT-2002
1342-MANT-1001	1342-MANT-1002	1342-MANT-1004
1342-MANT-1010	1349-ADMN-2002	1349-ADMN-2004
1349-ADMN-2009	1349-MANT-2001	1349-MANT-2002
1371-MOBL-1005	1371-MOBL-2005	1371-MOBL-2008
1371-MOBL-2028		

REFERENCES:
1. MCWP 3-17.8 Combined Arms Mobility Operations
2. TM 09665 B-10/1 Combat Rubber Reconnaissance Craft Field Service Manual
3. TM 09665A-13&P/1-1 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
4. TM 09665A-13&P/1-2 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
5. TM 09665B The 55 HP Engine
6. TM 09665B/10717A Small Craft Propulsion System, CRRC

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

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CEB-MOBL-3014: Conduct route clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct route clearance operations to clear all obstacles along a route. Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that severely limits mobility. The route will only be "cleared" while it remains under the control/observation of friendly forces.

CONDITION: Provided a mission, a designated route with known/ potential/ suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolition tools, explosives, and references.

STANDARD: To ensure friendly force mobility on the cleared route [friendly forces are not fixed, turned, blocked, nor disrupted] in accordance with the commanders intent, while the route remains in friendly forces control.

EVENT COMPONENTS:
1. Analyze route intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect obstacles on route.
6. Identify obstacle(s).
7. Mark obstacle(s), as required.
8. Reduce obstacle(s), as required.
9. Verify obstacle reduction.
10. Identify bypasses, as required.
11. Submit required reports.

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1008	1302-MOBL-1009	1302-MOBL-1010
1302-PLAN-2006	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2012	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027
1371-MOBL-2035		

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17.3 MAGTF Breaching Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations

9. MCWP 3-35.5 Jungle Operations
10. MCWP 3-35.6 Desert Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	30 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	2000 FT per Team
M670 Fuse, Blasting Time M700	250 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 cases per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Engineer equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-MOBL-3015: Conduct area clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct area clearance operations to eliminate obstacle(s) [explosive or non-explosive] in a limited area to provide a secure environment.

CONDITION: Provided a mission, a designated area with known/potential/ suspected obstacle(s), engineer tools and equipment, demolition tools, explosives, and references.

STANDARD: To eliminate obstacle(s) [explosive or non-explosive] in a limited area to provide a secure environment for operations in accordance with the commander's intent and mobility plan.

EVENT COMPONENTS:
1. Visually assess the terrain.
2. Sweep area.
3. Identify and confirm hazards.
4. Reduce explosive or non-explosive hazards.
5. Verify reduction of hazard.

6. Submit required reports.

RELATED EVENTS:

1302-DEMO-2001	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1004	1302-MOBL-1005	1302-MOBL-1005
1302-MOBL-1009	1302-MOBL-1010	1345-HEOP-2007
1371-MOBL-2021		

REFERENCES:

1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17.3 MAGTF Breaching Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations
10. MCWP 3-33 Military Operations Other Than War (MOOTW)
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	9 rocket per Platoon
M028 Demolition Kit, Bangalore Torpedo M1	3 cases per Platoon
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Platoon
M130 Cap, Blasting Electric M6	30 blasting caps per Platoon
M131 Cap, Blasting Non-Electric M7	30 blasting caps per Platoon
M456 Cord, Detonating PETN Type I Class E	4000 FT per Platoon
M670 Fuse, Blasting Time M700	1500 FT per Platoon
M757 Charge, Assembly Demolition M183 Com	6 cases per Platoon
M913 Charge, Demolition High Explosive Li	6 charges per squad
M914 Charge, Demolition Inert Linear M68A	3 charges per squad
ML03 Firing Device, Demolition Multi-Purp	6 detonators per Platoon
MN08 Igniter, Time Blasting Fuse with Sho	50 igniters per Platoon
MN52 MK154 Mod 0	30 detonators per Platoon
MN79 Mine, Antipersonnel Obstacle Breachi	3 mines per Platoon

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Engineer equipment.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-RECN-3001: Conduct gap reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct gap reconnaissance to evaluate gaps and fording sites, identify obstacles, suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and reference.

STANDARD: To ensure the crossing is supportable and consistent with the commander's intent, while accounting for all tactical control measures per the references.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter gap as required.
5. Determine wet gap fording/bridging sites as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:

1302-MOBL-1010	1302-MOBL-1011	1302-MOBL-1012
1302-MOBL-1013	1302-MOBL-1014	1302-MOBL-1015
1302-RECN-1001	1371-MOBL-2006	1371-MOBL-2007
1371-MOBL-2009	1371-MOBL-2017	1371-RECN-1001
1371-RECN-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-1 Ground Combat Operations
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.3 MAGTF Breaching Operations
12. MCWP 3-17.4 Engineer Reconnaissance
13. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

CEB-RECN-3002: Conduct ferry reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct ferry reconnaissance to identify areas to be used to cross, evaluate ferry sites, identify obstacles, suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To ensure the crossing is supportable and consistent with the commander's intent, while accounting for all tactical control measures per the references.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Identify pre-existing ferrying sites/boat ramps.
4. Proceed to assigned objective.
5. Reconnoiter ferrying site as required.
6. Determine ferrying sites as required.
7. Identify suitable bypasses.
8. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.1 River-Crossing Operations
10. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

CEB-RECN-3003: Conduct cache sweep

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct cache sweep to detect suspected caches of weapons/ordnance, to include: IEDs, mines, ammunition, weapons, and explosives.

CONDITION: Provided a mission order, a mine detector, personnel, equipment, personal protective equipment, and references.

STANDARD: To locate, mark, and neutralize all undiscovered ordnance, munitions, mines, ammunition, weapons, and explosives per commanders intent and mission requirement.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine detector to be used.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Conduct area sweep.
7. Locate and mark the object.
8. Identify the object.
9. Destroy object(s) as required.
10. Proof area.
11. Submit required reports.

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1302-PLAN-2006	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2018	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team

M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	10 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, tools and kits.

UNITS/PERSONNEL: Range Safety Officer, Corpsman, EOD personnel, Weapons Intelligence Team.

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CEB-RECN-3004: Conduct tunnel/cave reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct tunnel/cave reconnaissance to determine essential information such as the serial number, location, type, length, width (including sidewalks), bypasses, alignment, gradient, and cross section.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To evaluate tunnels; identify obstacles; identify suitable bypasses; record any relevant engineer information on the appropriate reconnaissance forms and transfer to a map overlay using correct engineer/tactical symbols per the references.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter tunnel as required.
5. Evaluate tunnel as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:

1302-RECN-1001	1371-RECN-1001	1371-RECN-2001

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.3 MAGTF Breaching Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps.

CEB-RECN-3005: Survey site for construction

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Survey site for construction to allow critical planning for construction and or operations in support of the GCE.

CONDITION: Provided a construction mission, a map, a scientific calculator, task organized personnel, equipment, and references.

STANDARD: To support commander's intent and mission requirements.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Move to survey site.
3. Reconnoiter project site as required.
4. Submit required reports.

RELATED EVENTS:

1302-HORZ-1001	1302-PLAN-1002	1302-PLAN-2004
1302-VERT-1001	1361-SRVY-1001	1361-SRVY-1002
1361-SRVY-1003	1361-SRVY-1004	1361-SRVY-1005
1361-SRVY-1006	1361-SRVY-1007	1361-SRVY-1008
1361-SRVY-1008	1361-SRVY-1009	1361-SRVY-1010
1361-SRVY-1011	1361-SRVY-1012	1361-SRVY-2002
1361-XENG-2001	1361-XENG-2002	1371-PLAN-2002

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17.4 Engineer Reconnaissance
5. NAVEDTRA 10696 Engineer Aid 3
6. TM 5-581B Construction Drafting
7. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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CEB-RECN-3006: Conduct obstacle reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct obstacle reconnaissance to focus on answering obstacle intelligence IR-obstacle location, width, and depth; obstacle composition (wire, mines by type, and so forth.); soil conditions; locations of lanes and bypasses; and the location of enemy direct-fire systems.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To identify obstacles; identify suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Determine obstacle type and location.
5. Reconnoiter obstacle as required.
6. Locate and mark the object.
7. Identify the object.
8. Identify suitable bypasses.
9. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 05-07-013 Bridge Classification Card (2006)
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports

6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps.

CEB-RECN-3007: Conduct bridge reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct bridge reconnaissance to collect detailed technical information on selected bridges. This assessment provides the basic Military Load Classification (MLC) information necessary for the commander to plan for the use of the bridge.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references

STANDARD: To classify bridges, identify obstacles, identify suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter bridge.
5. Classify bridge(s) as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. JP 3-34 Joint Engineer Operations
4. MCRP 3-17.1B Military Non-Standard Fixed Bridging
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)

8. MCWP 3-1 Ground Combat Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.5 Combined Arms Countermobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

CEB-RECN-3008: Conduct road reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct road reconnaissance to collect detailed technical information on the engineering characteristics and trafficability of a road section within a route.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To classify roads, routes; identify obstacles; identify suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter road and road section within a route, as required.
5. Classify road(s) as required.
6. Classify route(s) as required.
7. Identify suitable bypasses.
8. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps.

CEB-SURV-3001: Construct trenches

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ organic hand tools and/or earth moving assets, tools and equipment.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows multiple combatant's protection from direct fire weapons, affords a force the capability to engage targets from front and oblique's, meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Calculate time required for construction.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement as required.
7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-2005	1349-HEOP-2001
1349-MANT-2002	1371-SURV-1001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.5 Combined Arms Countermobility Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-SURV-3002: Construct shelters/bunkers

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct shelters/bunkers to provide combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That provides combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons, and meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct shelter/bunker, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-SURV-1001
1302-SURV-1003	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-2001	1316-ADMN-2002
1316-XENG-1001	1316-XENG-1006	1316-XENG-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-SURV-1001	1371-SURV-2001
1371-SURV-2002		

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-41.1 Rear Area Operations
8. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools and kits.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-SURV-3003: Construct vehicle survivability position/revetment

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct vehicle survivability position/revetment to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: To build vehicle survivability positions/revetments that meets or exceeds the mission requirement and support the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct Revetment, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:
1302-SURV-1002 1310-ADMN-2004 1310-ADMN-2009

1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 05-08-001 Survivability Positions
4. MCRP 3-17.7C Carpentry
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.5 Combined Arms Countermobility Operations
8. MCWP 3-17.6 Survivability
9. MCWP 3-33 Military Operations Other Than War (MOOTW)
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
11. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment assets.

MATERIAL: Class IV supplies.

CEB-SURV-3004: Construct crew served weapons position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct crew served weapons position to enable weapons to engage targets from front and oblique's.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows a weapons team the capability to engage targets from front and oblique's, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.

7. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV supplies as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM.

CEB-SURV-3005: Construct overhead cover

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct overhead cover that meets or exceeds the maximum threat capability of enemy weapons systems.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: with design specifications that meet or exceeds the maximum threat capability of enemy weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct overhead cover, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-2007	1345-HEOP-2012	1345-MANT-1001
1345-MANT-2001	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-SURV-1001	1371-SURV-2001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports, Class IV supplies as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-SURV-3006: Construct individual fighting position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct individual fighting positions and/or trenches to protect one or more dismounted Marines armed with individual weapons, while supporting their ability to engage the enemy. Fighting positions typically consist of a hole in the ground, supplemented with frontal, overhead, and flank or rear cover as the time and situation permits. Trenches typically connect fighting positions, C2 nodes and logistical hubs while providing cover from enemy observation and direct /indirect fire.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: Positions are planned and designed so that they are concealed, mutually supporting, and have interlocking fields of fire in all directions and protect occupants against enemy direct-fire weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.
7. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-2012	1345-MANT-1001	1371-SURV-1001
1371-SURV-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM
CEB-SURV-3007: Construct triggering screen

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct triggering screens are built separately or added on to existing structures and used to activate the fuze of an incoming shell or projectile at a designated standoff distance from the structure.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: So that it provides an effective screen against enemy weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct blast screen, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:
1302-SURV-1001 1302-SURV-1002 1371-SURV-1001
1371-SURV-2001

REFERENCES:
1. JP 3-34 ENGINEER DOCTRINE FOR JOINT OPERATIONS
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance

reports, Class IV materials, as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CEB-SURV-3008: Construct vehicle fighting position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct vehicle fighting position to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: That meets or exceeds the mission requirement for the specified vehicle/weapons system in accordance with the concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supported unit.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement as required per vehicle type and weapon employment.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1007
1345-HEOP-2006	1345-HEOP-2007	1345-HEOP-2012
1345-MANT-1001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-SURV-2001		

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.6 Survivability
4. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment assets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM.

CEB-UTIL-3001: Establish tactical power distribution system

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide the appropriate power distribution equipment to establish a tactical electric grid in order to distribute electric power that meets operational requirement and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To accomplish operational requirements and commanders intent.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Determine load requirements.
3. Plan power distribution system(s).
4. Set up distribution system(s).
5. Inspect grounding and connections.
6. Energize system(s).
7. Test system(s).

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-MANT-1101
1141-MANT-1224	1141-MANT-2244	1141-XENG-1601
1141-XENG-1624	1141-XENG-1703	1141-XENG-2501
1141-XENG-2521	1141-XENG-2621	1141-XENG-2622
1141-XENG-2623	1141-XENG-2721	1141-XENG-2821

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Distribution Systems, Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit.

CEB-UTIL-3002: Provide floodlight support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide illumination during low light conditions in order to meet mission requirements and commanders intent.

CONDITION: With an operational order, required equipment and personnel

STANDARD: To properly illuminate required area.

EVENT COMPONENTS:
1. Coordinate with Supported unit(s).
2. Establish illumination plan.
3. Set up floodlight set(s).
4. Operate a floodlight.
5. Recover floodlight set(s).

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1101	1141-MANT-1247
1141-XENG-1703	1141-XENG-1747	1141-XENG-2622

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems
2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, tools and kits.

CEB-UTIL-3003: Establish power generation site(s)

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide the appropriate power generation equipment to establish a/or generator site(s) that meet the operational requirement and commanders intent.

CONDITION: With a utilities plan, required equipment and personnel

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Set up generator site(s).
3. Inspect grounding and connections.
4. Energize system(s).
5. Perform operational check(s).
6. Test system.

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1101	1141-XENG-1601
1141-XENG-1618	1141-XENG-1751	1141-XENG-1752
1141-XENG-1753	1141-XENG-1754	1141-XENG-1757
1141-XENG-1763	1141-XENG-1765	1141-XENG-1795
1141-XENG-2622	1141-XENG-2718	1141-XENG-2737
1141-XENG-2750	1141-XENG-2755	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit.

CEB-UTIL-3004: Wire a structure for electricity

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Install interior electrical wiring in order to distribute electricity to meet electrical power requirements.

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish operational power per commander’s intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Estimate and requisition materials (as required).
3. Calculate time required to wire structure.
4. Gather tools and materials.

5. Set safety zone, lockout and tagout any preexisting electrical circuits that will be worked on, as required.
6. Verify the location of preexisting underground utility lines.
7. Install electrical boxes, interior/exterior wiring, service feeder, service entrance cables and main and sub panel boxes, as required.
8. Install equipment and system grounding, as required.
9. Request qualified inspector to complete uncovered/rough-in electrical inspection.
10. Install devices, circuit breakers, fixtures and electrical equipment, as required.
11. Request qualified inspector to complete final electrical inspection.
12. Request qualified personnel to connect service feeder to appropriate transformer or power generation, as required.
13. Energize and test electrical system.
14. Submit required reports.

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-2031	1141-MANT-1101
1141-XENG-1601	1141-XENG-1703	1141-XENG-1961
1141-XENG-1962	1141-XENG-2561	1141-XENG-2622
1141-XENG-2623	1141-XENG-2694	1141-XENG-2696
1141-XENG-2963	1141-XENG-2964	1141-XENG-2965
1141-XENG-2966		

REFERENCES:

1. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. FM 5-424 Theater of Operations Electrical Systems
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Electrical materials (as required), PPE, tools and kits.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Final inspection must be performed by a qualified inspector who is a graduate of one or more listed courses: Advanced Electrician (AE), Utilities Chief (UC), or Utilities Officer (UO) Course.

CEB-UTIL-3005: Provide Environmental Control Unit (ECU) support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Utilize ECU equipment in order to provide adequate climate control for critical equipment that is sensitive to extreme temperatures.

CONDITION: With an operational order, required equipment and personnel

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Establish ECU support plan.
3. Install ECU(s).
4. Maintain ECU(s).

RELATED EVENTS:

1161-ADMN-1006	1161-MANT-1211	1161-MANT-1218
1161-XENG-1611	1161-XENG-1614	1161-XENG-1634
1161-XENG-2541	1161-XENG-2618	1161-XENG-2641
1161-XENG-2741		

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, power generation, distribution, ECU equipment, maintenance equipment as required

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CEB-UTIL-3006: Provide refrigeration support

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited refrigeration for cooling and freezing as required.

CONDITION: With an operational order, required equipment and personnel

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Setup refrigeration unit(s).
3. Maintain refrigeration unit(s).
4. Recover refrigeration unit(s).

RELATED EVENTS:

1161-ADMN-1006	1161-MANT-1235	1161-XENG-1635
1161-XENG-2541	1161-XENG-2642	1161-XENG-2741

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, power generation equipment, ECUs, distribution, maintenance equipment as required.

UNITS/PERSONNEL: Navy Medical tech support

ENG & UTIL T&R MANUAL

CHAPTER 5

CLB COLLECTIVE EVENTS

	PARAGRAPH	PAGE
PURPOSE.	5000	5-2
EVENT CODING	5001	5-2
INDEX OF COLLECTIVE EVENTS	5002	5-2
6000-LEVEL EVENTS.	5003	5-5
5000-LEVEL EVENTS.	5004	5-14
4000-LEVEL EVENTS.	5005	5-39
3000-LEVEL EVENTS.	5006	5-90

CHAPTER 5

CLB COLLECTIVE EVENTS

5000. PURPOSE. Chapter 5 contains collective training events for the Combat Logistics Battalion (CLB).

5001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
CLB	Combat Logistics Battalion

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
CMOB	Countermobility
DEMO	Demolitions
EOPS	Engineer Operations
FUEL	Bulk Fuel
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction
MANT	Maintenance
MOBL	Mobility
PINF	Provisional Infantry
PLAN	Planning
RECN	Engineer Reconnaissance
SURV	Survivability
UTIL	Utilities
VERT	Vertical Construction

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
6000	Company Level
5000	Platoon Level
4000	Squad Level
3000	Team Level

5002. INDEX OF COLLECTIVE EVENTS

EVENT	E-CODED	DESCRIPTION	PAGE
6000-LEVEL EVENTS			
CLB-ADMN-6001	YES	Command and control engineer forces	5-5
CLB-CMOB-6001	NO	Conduct countermobility operations	5-6
CLB-EOPS-6001	YES	Train engineer forces	5-7
CLB-EOPS-6002	YES	Conduct construction operations	5-8
CLB-MOBL-6001	NO	Conduct mobility operations	5-10
CLB-PINF-6001	NO	Provide provisional infantry	5-11
CLB-PLAN-6001	YES	Plan engineer operations	5-12
CLB-SURV-6001	NO	Conduct survivability operations	5-13
5000-LEVEL EVENTS			
CLB-CMOB-5001	NO	Create an obstacle group	5-14
CLB-DEMO-5001	NO	Conduct demolition operations	5-15
CLB-HEOP-5001	YES	Provide engineer equipment support	5-16
CLB-HORZ-5001	YES	Conduct limited horizontal construction	5-18
CLB-HORZ-5002	YES	Prepare site for construction	5-19
CLB-MANT-5001	YES	Maintain engineer equipment	5-20
CLB-MOBL-5001	NO	Conduct obstacle breaching operations	5-21
CLB-MOBL-5002	NO	Conduct breach lane improvement operations	5-23
CLB-MOBL-5003	YES	Construct expedient Helicopter Landing Zone (HLZ)	5-24
CLB-MOBL-5004	NO	Construct combat roads	5-25
CLB-MOBL-5005	NO	Conduct area clearance operations	5-26
CLB-MOBL-5006	YES	Construct tactical landing zones	5-28
CLB-PINF-5001	NO	Fight as provisional infantry	5-29
CLB-RECN-5001	NO	Conduct engineer reconnaissance	5-30
CLB-RECN-5002	NO	Conduct cache sweep operations	5-31
CLB-SURV-5001	NO	Construct survivability positions	5-32
CLB-SURV-5002	NO	Harden existing structure	5-34
CLB-SURV-5003	NO	Construct field fortifications	5-35
CLB-UTIL-5001	YES	Provide limited utilities support	5-36
CLB-VERT-5001	YES	Conduct limited vertical construction	5-38
4000-LEVEL EVENTS			
CLB-CMOB-4001	NO	Create an explosive obstacle	5-39
CLB-CMOB-4002	NO	Create non-explosive obstacles/barriers	5-41
CLB-CMOB-4003	NO	Employ demolitions in support of countermobility operations	5-43
CLB-HEOP-4001	YES	Conduct MHE operations	5-45
CLB-HORZ-4001	YES	Conduct horizontal construction	5-46
CLB-HORZ-4002	YES	Construct expedient drainage structure	5-47
CLB-MANT-4001	NO	Maintain engineer equipment	5-49
CLB-MOBL-4001	NO	Conduct security for clearance operations	5-50
CLB-MOBL-4002	NO	Detect obstacles during clearance operations	5-51
CLB-MOBL-4003	NO	Breach obstacles for clearance operations	5-52
CLB-MOBL-4004	NO	Conduct dismounted route sweep operations	5-54
CLB-MOBL-4005	NO	Conduct deliberate breach	5-55
CLB-MOBL-4006	YES	Conduct route improvement	5-57
CLB-MOBL-4007	NO	Repair runway crater	5-58

CLB-MOBL-4008	NO	Repair spall(s)	5-59
CLB-MOBL-4009	YES	Repair road crater	5-60
CLB-MOBL-4010	YES	Construct expedient Helicopter Landing Zone (HLZ)	5-62
CLB-MOBL-4011	NO	Employ demolitions in support of mobility operations	5-63
CLB-PINF-4001	NO	Fight as provisional infantry	5-64
CLB-RECN-4001	NO	Conduct Site Survey	5-65
CLB-RECN-4002	NO	Conduct cache sweep operations	5-66
CLB-RECN-4003	NO	Conduct zone reconnaissance	5-68
CLB-RECN-4004	NO	Conduct route reconnaissance	5-69
CLB-RECN-4005	NO	Conduct area reconnaissance	5-70
CLB-SURV-4001	NO	Harden existing structure	5-71
CLB-SURV-4002	NO	Construct field fortifications	5-73
CLB-SURV-4003	NO	Construct Vehicle Control Point (VCP0	5-74
CLB-SURV-4004	NO	Construct entry access point	5-76
CLB-SURV-4005	NO	Construct earth filled barrier/structure	5-77
CLB-SURV-4006	NO	Employ demolitions in support of survivability operations	5-78
CLB-UTIL-4001	YES	Provide limited tactical electrical power	5-79
CLB-UTIL-4002	YES	Provide limited potable water	5-80
CLB-UTIL-4003	NO	Provide tactical hygiene support	5-81
CLB-VERT-4001	YES	Conduct limited vertical construction	5-82
CLB-VERT-4002	YES	Construct wood frame structure	5-83
CLB-VERT-4003	YES	Construct concrete block structure	5-84
CLB-VERT-4004	YES	Construct timber structure	5-86
CLB-VERT-4005	NO	Repair existing structures	5-87
CLB-VERT-4006	YES	Construct concrete structure	5-88
CLB-VERT-4007	NO	Construct manufactured steel structure	5-89
3000-LEVEL EVENTS			
CLB-CMOB-3001	NO	Emplace explosive obstacles	5-90
CLB-CMOB-3002	NO	Build non-explosive obstacles	5-92
CLB-CMOB-3003	NO	Construct demolition obstacles	5-93
CLB-DEMO-3001	NO	Destroy captured arms and ammunition with demolitions	5-95
CLB-DEMO-3002	NO	Destroy Bridge with demolitions	5-96
CLB-DEMO-3003	NO	Destroy tunnel with demolitions	5-97
CLB-DEMO-3004	NO	Destroy building with demolitions	5-99
CLB-FUEL-3001	YES	Operate bulk fuel distribution site	5-100
CLB-FUEL-3002	YES	Provide tactical bulk fuel storage	5-101
CLB-HEOP-3001	YES	Provide crane support	5-102
CLB-HEOP-3002	YES	Provide Material Handling Equipment (MHE) support	5-103
CLB-HEOP-3003	YES	Provide earth moving equipment support	5-104
CLB-HORZ-3001	YES	Conduct dust abatement	5-104
CLB-MANT-3001	YES	Maintain engineer equipment	5-106
CLB-MANT-3002	NO	Maintain tactical power distribution system(s)	5-107
CLB-MANT-3003	YES	Maintain water purification equipment	5-108
CLB-MANT-3004	YES	Maintain hygiene equipment	5-109
CLB-MANT-3005	NO	Maintain refrigeration system(s)	5-110
CLB-MANT-3006	NO	Maintain Environmental Control Units	5-111

CLB-MOBL-3001	NO	Fell standing timber	5-112
CLB-MOBL-3002	NO	Employ a medium machinegun team	5-114
CLB-MOBL-3003	NO	Employ a heavy machinegun team	5-115
CLB-RECN-3001	YES	Survey site for construction	5-116
CLB-RECN-3002	NO	Conduct cache sweep	5-116
CLB-RECN-3003	NO	Conduct obstacle reconnaissance	5-118
CLB-RECN-3004	NO	Conduct bridge reconnaissance	5-119
CLB-RECN-3005	NO	Conduct road reconnaissance	5-120
CLB-RECN-3006	NO	Assess damage to airfield surfaces	5-121
CLB-RECN-3007	NO	Assess damage to airfield facilities and structures	5-122
CLB-SURV-3001	NO	Construct trenches	5-123
CLB-SURV-3002	NO	Construct shelter/bunkers	5-124
CLB-SURV-3003	NO	Construct vehicle survivability position position/revetment	5-125
CLB-SURV-3004	NO	Construct crew served weapons position	5-126
CLB-SURV-3005	NO	Construct overhead cover	5-128
CLB-SURV-3006	NO	Construct individual fighting position	5-129
CLB-SURV-3007	NO	Construct triggering screen	5-130
CLB-SURV-3008	NO	Construct vehicle fighting position	5-131
CLB-UTIL-3001	YES	Establish tactical power distribution system	5-132
CLB-UTIL-3002	NO	Provide floodlight support	5-133
CLB-UTIL-3003	YES	Establish power generation sites	5-133
CLB-UTIL-3004	NO	Wire a structure for electricity	5-134
CLB-UTIL-3005	NO	Provide Environmental Control Unit (ECU) support	5-136
CLB-UTIL-3006	YES	Provide refrigeration support	5-136
CLB-UTIL-3007	YES	Produce potable water	5-137
CLB-UTIL-3008	NO	Store potable water	5-138
CLB-UTIL-3009	NO	Establish water distribution site	5-139
CLB-UTIL-3010	NO	Provide laundry services	5-140
CLB-UTIL-3011	NO	Provide shower services	5-141
CLB-UTIL-3012	NO	Install plumbing in a structure	5-142

5003. 6000-LEVEL EVENTS

CLB-ADMN-6001: Command and control engineer forces

SUPPORTED MCT(S):
MCT 4.2.2.4 MCT 4.3.6 MCT 4.4.1.1
MCT 4.4.2.1 MCT 4.4.3.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Command and control engineer forces to exercise authority and direction over assigned forces, advise the Battalion Commander on the use of engineer forces, and coordinate operations with adjacent engineers.

CONDITION: Given an order and commander's intent.

STANDARD: To exercise authority and direction over assigned forces, advise

the commander on the use of engineer forces, and coordinate operations with adjacent engineers in accordance with the concept of operations.

EVENT COMPONENTS:
1. Establish COC.
2. Establish communications with higher, adjacent, supported and subordinate units.
3. Command assigned units.
4. Maintain the engineer Common Operational Picture (COP).
5. Direct/coordinate current engineer operations.
6. Initiate appropriate actions.
7. Track CCIRs.
8. Maintain status of available engineer resources.
9. Integrate engineer reconnaissance products into the intelligence effort.
10. Make recommendations to the commander.

CHAINED EVENTS:

CLB-CMOB-5001	CLB-DEMO-5001	CLB-HEOP-5001
CLB-HORZ-5001	CLB-HORZ-5002	CLB-MANT-5001
CLB-MOBL-5001	CLB-MOBL-5002	CLB-MOBL-5003
CLB-MOBL-5004	CLB-MOBL-5005	CLB-MOBL-5006
CLB-PINF-5001	CLB-RECN-5001	CLB-RECN-5002
CLB-SURV-5001	CLB-SURV-5002	CLB-SURV-5003
CLB-UTIL-5001	CLB-VERT-5001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-43 Command and Control
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: C4ISR assets

CLB-CMOB-6001: Conduct countermobility operations

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: The Engineer Service Company provides a countermobility capability to meet operational requirements based on the TO/E. Conduct countermobility operations to augment natural terrain with obstacle systems that disrupt the enemy's ability to maneuver its forces. With its movement disrupted, turned, fixed or blocked, the enemy is vulnerable.

CONDITION: Given a mission, commander's intent, available resources,

location of adjacent and friendly forces, estimated locations and most recent enemy activities, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

STANDARD: To turn, block, fix, or disrupt enemy forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct countermobility planning.
2. Integrate countermobility plan into concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete engineering portion to orders.
6. Issue orders.
7. Construct obstacles and barriers.
8. Maintain obstacles and barriers.
9. Submit reports, as required.

CHAINED EVENTS:
CLB-CMOB-5001 CLB-HEOP-5001

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCWP 3-13.2 MINE WARFARE
3. MCWP 3-17 Engineering Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: MHE, MT assets, UT assets, Engineer carpentry kits

MATERIAL: C-Wire, engineer stakes, angle iron, concrete, lumber/timber

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CLB-EOPS-6001: Train engineer forces

SUPPORTED MCT(S):
MCT 4.2.2.4 MCT 4.3.6 MCT 4.4.1.1
MCT 4.4.2.1 MCT 4.4.3.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, countermobility, survivability, vertical and horizontal construction, bulk liquid operations, tactical electrical supply, engineer reconnaissance, as required.

CONDITION: Given an engineer unit, an approved Mission Essential Task List (METL), commander's training guidance, training plans, training schedules, resources and trainers.

STANDARD: To ensure that all requirements identified in the individual performance steps or collective task event components are addressed in sequence so all training evolutions achieve desired results.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Identify collective training standards.
3. Conduct training assessments.
4. Determine a training strategy.
5. Develop a training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.
8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA).
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

CHAINED EVENTS:

CLB-DEMO-5001	CLB-HEOP-5001	CLB-HORZ-5001
CLB-HORZ-5002	CLB-MANT-5001	CLB-MOBL-5001
CLB-MOBL-5002	CLB-MOBL-5003	CLB-MOBL-5004
CLB-MOBL-5005	CLB-MOBL-5006	CLB-PINF-5001
CLB-RECN-5001	CLB-RECN-5002	CLB-SURV-5001
CLB-SURV-5002	CLB-SURV-5003	CLB-UTIL-5001
CLB-VERT-5001		

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCRP 3-0A Unit Training Management Guide
3. MCRP 3-0B How to Conduct Training
4. MCWP 3-17 Engineering Operations
5. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CLB-EOPS-6002: Conduct construction operations

SUPPORTED MCT(S):

MCT 4.3.6	MCT 4.4.1.1	MCT 4.4.2.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: The Engineer Services Company conducts limited vertical/horizontal construction and engineer equipment support. Limited

planning and execution capability within the CLB constrains the unit from undertaking multiple projects concurrently due to equipment and manpower restrictions. Limited construction includes: combat roads and trails, simple slab construction, fixed-point maintenance on selected LOCs, ECP/VCP, and wood frame structures.

CONDITION: Given a mission, commander's intent, warning and operation orders, available resources, and references.

STANDARD: To provide construction support in accordance with the commander's intent, concept of operations, and supported unit requirements.

EVENT COMPONENTS:
1. Provide engineer reconnaissance.
2. Repair and improve non-standard bridging.
3. Construct, maintain, or improve combat roads and trails.
4. Construct, maintain, or improve vertical or short takeoff and landing sites.
5. Construct and maintain mission essential base camp requirements (temporary structures).
6. Provide technical and equipment assistance for erection of pre-engineered structures.
7. Provide limited tactical utilities support.
8. Provide limited bulk petroleum handling, storing, and dispensing services.
9. Develop, improve, and maintain drainage systems.
10. Provide technical assistance to support camouflage requirements.
11. Provide limited vertical and horizontal construction.
12. Provide limited material handling equipment support.

CHAINED EVENTS:

CLB-FUEL-3001	CLB-FUEL-3002	CLB-HEOP-5001
CLB-HORZ-5001	CLB-HORZ-5002	CLB-MANT-5001
CLB-MOBL-5003	CLB-MOBL-5004	CLB-MOBL-5005
CLB-MOBL-5006	CLB-RECN-5001	CLB-SURV-5001
CLB-SURV-5002	CLB-SURV-5003	CLB-UTIL-5001
CLB-VERT-4007	CLB-VERT-5001	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7I Earthmoving Operations
5. MCRP 3-17.7M Construction Estimating
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.6 Survivability
9. MCWP 3-17.7 General Engineering
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer earthmoving equipment, MHE, UT assets, MT assets, BF assets, refrigeration equipment

MATERIAL: Class IV

CLB-MOBL-6001: Conduct mobility operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Mobility enables the force commander to maneuver units into advantageous positions. The commander relies on mobility to achieve surprise, mass at the critical time, and maintain momentum. It includes, but is not limited to, breaching, route reconnaissance, improving/maintaining lines of communication and MSRs.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent enemy activities, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

STANDARD: To provide mobility for maneuver forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct mobility planning.
2. Conduct engineer reconnaissance.
3. Integrate mobility plan with the concept of operations.
4. Participate in supported unit planning.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Clear mobility obstructions, within capability.
8. Construct and maintain combat roads and trails. (Class D only)
9. Submit reports, as required.

CHAINED EVENTS:

CLB-HEOP-5001	CLB-MOBL-5001	CLB-MOBL-5002
CLB-MOBL-5003	CLB-MOBL-5004	CLB-MOBL-5005
CLB-MOBL-5006		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. UNIT SOP Unit's Standing Operating Procedures
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations
9. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps

Engineer Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: MHE, MT assets, UT assets, bridging assets, engineer carpentry kits

MATERIAL: Concrete, fill material, lumber/timber, construction material

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CLB-PINF-6001: Provide provisional infantry

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide provisional infantry to participate in offensive operations such as attacks, raids, and movement to contact. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To ensure a deployable detachment is capable of providing task organized forces to a supported unit.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and deconflict fires.
8. Employ supporting arms.
9. Establish redundant communications.
10. Treat and evacuate casualties.
11. Process detainees.
12. Send and receive required reports.

CHAINED EVENTS: CLB-PINF-5001

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. MCDP 1 Warfighting
3. MCWP 3-1 Ground Combat Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17730 Fire and Movement Range

CLB-PLAN-6001: Plan engineer operations

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Engineers will advise CLB commander on the employment of engineer assets and resources. Engineers work with the planners to maintain knowledge of future plans and their implications for engineer support. Engineer planners will identify all potential engineer requirements (e.g., mobility, countermobility, survivability, vertical and horizontal construction, bulk liquid operations, tactical electrical supply, engineer reconnaissance) during the planning process, frequently in coordination with ESB staff.

CONDITION: Given higher commander's initial guidance, battlespace area evaluation, and a warning order or operations order.

STANDARD: To identify the best use of engineer personnel and equipment in accordance with the problem framing, commander's intent, and concept of operations.

EVENT COMPONENTS:
1. Perform problem framing.
2. Develop courses of action.
3. War game courses of action.
4. Compare courses of action.
5. Conduct decision brief.
6. Develop orders.
7. Transition to produce operations plan or order.
8. Develop branches and sequels, if applicable.

RELATED EVENTS:

1302-ADMN-1002	1302-ADMN-2001	1302-CMOB-1001
1302-CMOB-1002	1302-CMOB-1003	1302-DEMO-1001
1302-DEMO-1004	1302-DEMO-2001	1302-EOPS-1005
1302-FUEL-1001	1302-HORZ-1001	1302-HORZ-1002
1302-MOBL-1001	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1005	1302-MOBL-1007	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.4 Engineer Reconnaissance

4. MCWP 3-17.5 Combined Arms Countermobility Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 5-1 Marine Corps Planning Process (MCPP

CLB-SURV-6001: Conduct survivability operations

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: The Engineer Services Company provides a survivability capability to meet operational requirements based on the TO/E. Conduct survivability operations to provide survivability planning and positions for supported units. (Such as construction of field fortifications, hardening of command, communication and combat train locations, weapon system firing positions, and infantry fighting combat positions).

CONDITION: Given a mission, commander's intent, warning and operations orders and available resources and references.

STANDARD: To provide positions for supported units in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Perform vulnerability assessment.
2. Conduct survivability planning.
3. Integrate survivability plan with the concept of operations.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct survivability positions.
8. Provide SME input to AF/FP plan, as required.
9. Maintain survivability positions as required.
10. Maintain oversight of survivability construction efforts.
11. Receive and submit reports as required.

CHAINED EVENTS:
CLB-SURV-5001 CLB-SURV-5002 CLB-SURV-5003
CLB-VERT-5001

RELATED EVENTS:
1302-SURV-1001 1302-SURV-1002 1302-SURV-1003
1371-SURV-1001 1371-SURV-2001 1371-SURV-2002

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

EQUIPMENT: MHE, MT assets, UT assets, Engineer carpentry kits

MATERIAL: Concrete mix, barriers, HESCO, sand bags, fill material, lumber

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5004. 5000-LEVEL EVENTS

CLB-CMOB-5001: Create an obstacle group

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Position obstacle groups of two or more obstacles grouped to provide a specific obstacle effect turn, block, fix, or disrupt the enemy. Obstacles can be explosive or non-explosive in nature.

CONDITION: Given a mission, commander's intent, a map, designated area, task organized personnel and equipment and references.

STANDARD: To turn, block, fix, or disrupt the enemy and supports the commanders intent and concept of operations.

EVENT COMPONENTS:
1. Develop/review obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine possible obstacle locations and types.
4. Identify the commander's obstacle priorities.
5. Determine resources.
6. Determine actual work sequence.
7. Determine task organization required.
8. Determine coordination required.
9. Coordinate with supported unit for specific obstacle placement and observation.
10. Coordinate observation and reporting for decision/triggering point(s) for reserve/situational obstacles, as required.
11. Emplace explosive obstacle(s).
12. Create non-explosive obstacle(s).
13. Close lanes as required.
14. Submit required reports.

CHAINED EVENTS:

CLB-CMOB-4001	CLB-CMOB-4002	CLB-CMOB-4003
CLB-HEOP-3003	CLB-HEOP-4001	

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1371-CMOB-2001	1371-CMOB-2002	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations

3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.5 Combined Arms Countermobility Operations
7. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17430 Impact Area Dudded
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat Engineer equipment, Engineer Material Handling equipment

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CLB-DEMO-5001: Conduct demolition operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct demolition operations to produce the desired effect. These tasks may include placing explosives near heavy weapons, enemy munitions, destroying cave systems, facilities, equipment, and improving mobility in urban terrain and designated or reserve targets.

CONDITION: Given a tactical situation, an order, task organized equipment and personnel, specifications, and appropriate references.

STANDARD: To achieve desired effects in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive demolition concept of operations.
2. Conduct engineer reconnaissance.
3. Destroy captured arms and ammunition as required.
4. Employ demolitions in support of mobility operations, as required.
5. Employ demolitions in support of survivability position construction, as required.
6. Employ demolitions in support of counter-mobility operations, as required.
7. Submit required reports.

CHAINED EVENTS:

CLB-CMOB-4003	CLB-MOBL-4011	CLB-SURV-4006

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-DEMO-1004	1302-RECN-1001	1371-DEMO-2001
1371-DEMO-2002	1371-RECN-1001	1371-RECN-2001

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer demolitions kit.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CLB-HEOP-5001: Provide engineer equipment support

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: To support the mission utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given a mission, a support plan, equipment availability, commander's intent, personnel and equipment, an area of operations or support, and references.

STANDARD: To provide required engineer support in accordance with unit SOPs, concept of operations and commander's intent.

EVENT COMPONENTS:

1. Review equipment support plan.
2. Analyze support requirements and location(s).

3. Determine resources.
4. Determine schedule of work.
5. Determine task organization.
6. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
7. Coordinate logistics.
8. Manage engineer equipment operations.
9. Conduct earthmoving operations, as required.
10. Conduct material handling operations, as required.
11. Conduct horizontal construction, as required.
12. Conduct maintenance, as required.
13. Recover engineer equipment, as required.
14. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-4001	CLB-HORZ-4001	CLB-HORZ-4002
CLB-MANT-4001	CLB-MOBL-4006	CLB-MOBL-4007
CLB-MOBL-4008	CLB-MOBL-4009	CLB-MOBL-4010

RELATED EVENTS:

1310-ADMN-2001	1310-ADMN-2002	1310-ADMN-2003
1310-ADMN-2004	1310-ADMN-2005	1310-ADMN-2006
1310-ADMN-2008	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1310-MANT-2001	1310-MANT-2002
1341-ADMN-2001	1341-ADMN-2002	1341-ADMN-2003
1341-ADMN-2004	1341-ADMN-2005	1341-ADMN-2006
1341-ADMN-2007	1341-ADMN-2008	1349-ADMN-2001
1349-ADMN-2002	1349-ADMN-2003	1349-ADMN-2004
1349-ADMN-2005	1349-ADMN-2006	1349-ADMN-2008
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-HORZ-2001	1349-HORZ-2002	1349-HORZ-2003
1349-MANT-2001	1349-MANT-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer equipment, Motor Transport equipment, Utilities equipment.

UNITS/PERSONNEL: Engineer equipment maintainers, Utilities equipment maintainers.

CLB-HORZ-5001: Conduct limited horizontal construction

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: To conduct horizontal construction in order to shape the terrain to meet the operational requirements of the MAGTF and includes expedient road construction and/or maintenance; expeditionary HLZs; site preparation for bed down facilities; and ordnance storage facilities.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To build the assigned project to meet or exceed the requirements listed in the design specifications, meets commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan horizontal construction.
2. Conduct engineer reconnaissance.
3. Conduct survey, as required.
4. Coordinate horizontal construction.
5. Conduct site preparation.
6. Conduct soil stabilization/dust abatement, as required.
7. Construct non-explosive obstacles, as required.
8. Employ heavy equipment assets, as required.
9. Submit required reports.

CHAINED EVENTS:

CLB-CMOB-4002	CLB-HEOP-4001	CLB-HORZ-3001
CLB-HORZ-4001	CLB-HORZ-4002	CLB-RECN-4001

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1009	1302-HORZ-1001	1302-HORZ-1002
1302-HORZ-1003	1302-MOBL-1016	1302-RECN-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-HORZ-1001	1371-HORZ-1002	1371-HORZ-1003
1371-HORZ-2001	1371-HORZ-2002	1371-HORZ-2003
1371-HORZ-2004	1371-HORZ-2005	1371-RECN-1001
1371-RECN-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. FM 5-101-5-1 Operational Terrain and Symbols
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7D Concrete and Masonry
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage

7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7I Earthmoving Operations
9. MCRP 3-17A Engineering Field Data
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 3-17.6 Survivability
13. MCWP 3-17.7 General Engineering
14. MCWP 3-17.8 Combined Arms Mobility Operations
15. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Utilities equipment.

CLB-HORZ-5002: Prepare site for construction

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: This task includes all types of vertical and horizontal construction - the mission will guide actual event components during execution.

CONDITION: Given a mission, a support plan, a site for construction or engineer operations, commander's intent, task organized personnel, equipment and references.

STANDARD: To reduce construction time and meet design specifications in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review construction site plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Move to site.
6. Conduct area clearance.
7. Conduct earthmoving operations, as required.
8. Conduct demolition operations, as required.
9. Conduct material handling operations, as required.
10. Employ utilities support, as required.
11. Submit required reports.

CHAINED EVENTS:
CLB-HEOP-4001 CLB-HORZ-4001 CLB-HORZ-4002

CLB-UTIL-4001

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-HORZ-1001
1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1003
1302-RECN-1001	1371-DEMO-1001	1371-DEMO-2002
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-HORZ-1001	1371-HORZ-1002	1371-HORZ-1003
1371-HORZ-2002	1371-HORZ-2003	1371-HORZ-2004
1371-HORZ-2005	1371-RECN-1001	1371-RECN-2001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-2001	1371-VERT-2002

REFERENCES:
1. FM 5-33 Terrain Analysis
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment.

CLB-MANT-5001: Maintain engineer equipment

SUPPORTED MCT(S):

MCT 4.2.2.4	MCT 4.4.3.1	MCT 4.4.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on engineer equipment.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Monitor Equipment Readiness.
2. Conduct Reconciliation.
3. Assign Tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

CHAINED EVENTS: CLB-MANT-4001

RELATED EVENTS:

1120-ADMN-2006	1120-ADMN-2007	1120-ADMN-2012
1120-ADMN-2021	1120-ADMN-2022	1120-ADMN-2041
1120-ADMN-2051	1120-ADMN-2052	1120-ADMN-2061
1120-ADMN-2065	1120-ADMN-2071	1120-ADMN-2072
1120-ADMN-2073	1120-ADMN-2074	1120-ADMN-2075
1310-ADMN-2004	1310-HEOP-2001	1310-MANT-2001
1310-MANT-2002	1316-ADMN-1001	1316-ADMN-1002
1316-ADMN-1003	1316-MANT-1002	1316-MANT-1004
1316-XENG-1001	1316-XENG-1002	1316-XENG-1004
1316-XENG-1005	1316-XENG-1006	

REFERENCES:

1. EMC Electric Motor Controls by American Technical Publishers, Inc.
2. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 4731.1_ Oil Analysis Program for Ground Equipment
5. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
6. MCO 4790.2_ MIMMS Field Procedures Manual
7. MCO 5100.29_ Marine Corps Safety Program
8. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
9. MCWP 4-11.4 Maintenance Operations
10. SOP Standard Operating Procedures (SOP)
11. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Maintenance Contact vehicle

MATERIAL: Engineer tools, sets and kits

UNITS/PERSONNEL: Engineer equipment mechanics, utilities maintenance personnel, welders, equipment operators and bulk fuel personnel

OTHER SUPPORT REQUIREMENTS: POL and HAZ-MAT

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-MOBL-5001: Conduct obstacle breaching operations

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct obstacle breaching operations to breach lanes through enemy obstacles, to advance an attacking force to the far side of an obstacle that is covered by fire.

CONDITION: Given a mission, commander's intent, a map, designated area, tasked organized personnel, equipment, and references.

STANDARD: To breach lanes through enemy obstacles to support the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Gather obstacle intelligence as required.
2. Analyze obstacle intelligence.
3. Determine breach requirement.
4. Task organize obstacle clearing detachment(s) (OCD).
5. Coordinate suppression of enemy over-watching obstacle.
6. Coordinate obscuration of enemy over-watching obstacle.
7. Coordinate security for breach lanes.
8. Coordinate breach with assault force, support force, and support breach team(s).
9. Verify suppression/obscuration effects.
10. Breach lanes through obstacle(s).
11. Turnover lane(s) to designated forces.
12. Reconstitute the breach force.
13. Submit required reports.

CHAINED EVENTS:

CLB-MOBL-4001	CLB-MOBL-4002	CLB-MOBL-4003
CLB-MOBL-4004	CLB-MOBL-4005	CLB-MOBL-4006
CLB-MOBL-4011		

RELATED EVENTS:

1302-MOBL-1005	1302-RECN-1001	1371-MOBL-1003
1371-MOBL-2012	1371-MOBL-2017	1371-RECN-1001
1371-RECN-2001		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.3 MAGTF Breaching Operations
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat Engineer Breaching equipment, Engineer Earthmoving equipment, Engineer Material Handling equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CLB-MOBL-5002: Conduct breach lane improvement operations

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: As the breach force progresses, it creates two lanes in the tactical obstacles. The breach force marks lanes with the initial lane-marking pattern and passes the assault force through the lanes. At this stage of the breaching operation, the TF maintains lanes in the tactical obstacles and controls all movement of forces within the breach area.

CONDITION: Given a mission, commander's intent, a map, a breached lane marked to initial standard, tasked organized personnel, equipment, and references.

STANDARD: To improve breach lanes through enemy obstacles to support two-way traffic, the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze breach lane reporting.
2. Determine breach lane improvement requirements.
3. Task organize support breach teams.
4. Coordinate receipt of breached lanes.
5. Coordinate security for breach lanes. as required.
6. Improve breach lanes for trafficability, as required.
7. Widen lanes, as required.
8. Mark lanes, as required.
9. Submit required reports.
10. Turnover lane(s) to designated forces.
11. Reconstitute the support breach team.

CHAINED EVENTS:

CLB-HEOP-4001	CLB-MOBL-4001	CLB-MOBL-4003
CLB-MOBL-4006	CLB-MOBL-4011	

RELATED EVENTS:

1302-MOBL-1004	1302-MOBL-1005	1302-MOBL-1009
1371-MOBL-1001	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017	1371-MOBL-2022	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance

6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment

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CLB-MOBL-5003: Construct expedient Helicopter Landing Zone (HLZ)

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct construction of expedient HLZ; includes but is not limited to clearing and grubbing geographical locations for takeoff and landing of rotary wing in support of troop transport, resupply, MEDEVAC operations, etc.

CONDITION: Given a mission, commander's intent, available resources, and references.

STANDARD: To create a landing site that will support rotary wing aircraft for the loading and unloading of personnel, resupply, and equipment in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Coordinate resource requirements.
5. Issue the order.
6. Clear landing site.
7. Maintain/improve landing site, as required.
8. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-4001	CLB-HORZ-4001	CLB-MOBL-3001
CLB-MOBL-4011	CLB-RECN-4001	

RELATED EVENTS:

1302-MOBL-1016	1302-RECN-1001	1371-EOPS-1003
1371-EOPS-2008	1371-MOBL-2001	1371-RECN-1001

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the

Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Engineer Material Handling equipment

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CLB-MOBL-5004: Construct combat roads

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Combat roads and trails may be hastily cut pathways designed to initial standards in order to enhance mobility for only a short time (less than six months). More permanent road networks, such as MSRs and primary LOCs, are designed to temporary standards to sustain mobility for a longer period of time (up to two years). During contingency operations, nearly all roads are constructed to temporary standards. Engineers should always strive to take full advantage of existing infrastructure and natural terrain features when constructing combat trails and roads.

CONDITION: Provided a mission order, commander's intent, a tactical situation, task organized engineer equipment and personnel.

STANDARD: That meets the minimum traffic support requirements in accordance with the commanders' intent and the mobility plan.

EVENT COMPONENTS:
1. Review mission.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Task organize.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations, as required.
8. Clear the road.
9. Construct expedient drainage structures, as required.
10. Conduct expedient soil stabilization, as required.
11. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-4001	CLB-HORZ-4001	CLB-HORZ-4002
CLB-MOBL-4006	CLB-MOBL-4009	CLB-MOBL-4010
CLB-RECN-3001	CLB-RECN-4001	

RELATED EVENTS:

1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1001
1302-RECN-1001	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1345-HEOP-1003
1345-HEOP-1006	1345-HEOP-1007	1345-HORZ-2001
1345-MANT-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-EOPS-2002	1371-EOPS-2003	1371-EOPS-2007
1371-EOPS-2011	1371-HORZ-2001	1371-HORZ-2002
1371-HORZ-2003	1371-RECN-1001	1371-RECN-2001

REFERENCES:

1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17.7L Explosives and Demolitions
7. MCRP 3-17A Engineering Field Data
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Material Handling Equipment, Combat engineer equipment, Utilities equipment

UNITS/PERSONNEL: Range Safety Officer, Corpsman

CLB-MOBL-5005: Conduct area clearance operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To eliminate all obstacle(s) [explosive or non-explosive] in an area to provide a secure environment for military operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance and survey.
3. Estimate engineer equipment requirements.
4. Coordinate necessary support.
5. Finalize clearing plan.
6. Issue the order.
7. Locate all obstacle(s).
8. Identify all obstacle(s).
9. Reduce obstacle(s).
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities, as required.
12. Coordinate weapons intelligence team activities, as required.
13. Coordinate with other specialist personnel, as required.
14. Mark cleared area, as required.
15. Submit required reports.

CHAINED EVENTS:

CLB-MOBL-4001	CLB-MOBL-4002	CLB-MOBL-4003
ESB-MOBL-4003		

RELATED EVENTS:

1302-MOBL-1003	1302-MOBL-1004	1302-MOBL-1005
1302-MOBL-1009	1302-MOBL-1010	1302-RECN-1001
1371-DEMO-1001	1371-MOBL-1001	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2012	1371-MOBL-2017
1371-MOBL-2018	1371-MOBL-2019	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2023
1371-RECN-1001	1371-RECN-2001	

REFERENCES:
1. FM 5-101-5-1 Operational Terrain and Symbols
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-13.2 MINE WARFARE
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.3 MAGTF Breaching Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 3-17.8 Combined Arms Mobility Operations
13. MCWP 3-33 Military Operations Other Than War (MOOTW)
14. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CLB-MOBL-5006: Construct tactical landing zones

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct construction of tactical landing zones; includes but is not limited to site selection, construction, repair, and maintenance of existing or expeditionary airfields, landing zones, and other facilities for takeoff and landing of fixed and rotary wing aircraft in support of MAGTF operations

CONDITION: Given a mission, commander's intent, available resources, and references.

STANDARD: To create, repair, and maintain tactical landing zones that meet or exceed landing zone requirements listed in the design specifications in accordance with the size, type, number of aircraft and concept of operations.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Estimate engineer equipment requirements.
5. Coordinate necessary support.
6. Finalize construction plan.
7. Issue the order.
8. Construct/repair airfield, landing zone, or other facilities, as required.
9. Maintain and improve airfield, landing zone, or other facilities, as required.
10. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-4001	CLB-HORZ-4001	CLB-HORZ-4002
CLB-MOBL-4006	CLB-MOBL-4007	CLB-MOBL-4008
CLB-MOBL-4009	CLB-MOBL-4010	CLB-RECN-4001

RELATED EVENTS:

1302-EOPS-1009	1302-HORZ-1001	1302-MOBL-1016
1302-RECN-1001	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1345-HORZ-2001	1349-HEOP-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-EOPS-2007
1371-EOPS-2011	1371-MOBL-2001	1371-RECN-1001
1371-RECN-2001		

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCRP 4-11.3E Multi-service Helicopter Sling Load: Vols I,II and III
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Utilities equipment

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CLB-PINF-5001: Fight as provisional infantry

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide provisional infantry to participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment supported unit or conduct offensive and defensive operations to support mission requirements.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms, as required.
9. Establish redundant communications.
10. Treat and evacuate casualties, as required.
11. Process detainees, as required.

12. Send and receive required reports.

CHAINED EVENTS: CLB-PINF-4001

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17730 Fire and Movement Range

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CLB-RECN-5001: Conduct engineer reconnaissance

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct engineer reconnaissance to collect data and obtain detailed information, within/along designated routes, zones, and/or areas that provides the MAGTF information on terrain and infrastructure (e.g., built-up areas, transportation networks, utilities and existing natural or manmade obstacles/resources) necessary to support ongoing or future operations.

CONDITION: Given a mission, commander's intent, task organization of personnel and equipment, and references.

STANDARD: To gather all relevant engineer data and produce an engineer estimate in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review reconnaissance plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct zone reconnaissance as required.
6. Conduct area reconnaissance as required.
7. Conduct route reconnaissance as required.
8. Conduct host-nation infrastructure assessment as required.
9. Submit required reports.

CHAINED EVENTS:

CLB-RECN-4001	CLB-RECN-4002	CLB-RECN-4003
CLB-RECN-4004	CLB-RECN-4005	

RELATED EVENTS:

1302-RECN-1001	1371-RECN-1001	1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17.1B Military Non-Standard Fixed Bridging
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations

CLB-RECN-5002: Conduct cache sweep operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify, and secure materials discovered during the course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze search area intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s), as required.
8. Destroy captured enemy ammunition, as required.
9. Verify cache destruction.
10. Coordinate explosive ordnance disposal activities, as required.
11. Coordinate weapons intelligence team activities, as required.
12. Coordinate with other specialist personnel, as required.
13. Document/preserve evidence, as required.
14. Submit required reports.

CHAINED EVENTS: CLB-RECN-4002

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits.

UNITS/PERSONNEL: Explosive ordnance disposal personnel, Weapons Intelligence Team, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

CLB-SURV-5001: Construct survivability positions

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To construct positions designed to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection. Positions may include fighting and protective positions.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, survivability plan, a task organization of personnel and equipment, and references.

STANDARD: That meets the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supported unit for specific position placement and requirements.
5. Coordinate resources for project.
6. Conduct site preparation.
7. Harden existing structure(s), as required.

8. Emplace pre-fabricated barriers, as required.
9. Construct field fortification, as required.
10. Construct Vehicle Control Point (VCP) as required.
11. Construct Entry Control Point (ECP), as required.
12. Construct earth filled barrier/structure, as required.
13. Construct individual fighting positions, as required.
14. Construct vehicle fighting positions, as required.
15. Construct vehicle survivability positions, as required.
16. Construct revetment, as required.
17. Construct crew-served weapon positions, as required.
18. Construct overhead cover, as required.
19. Construct shelter/bunker, as required.
20. Construct berms, as required.
21. Conduct earth moving operations, as required.
22. Construct triggering screen, as required.
23. Construct trench, as required.
24. Wire position for electricity, as required.
25. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-4001	CLB-SURV-3001	CLB-SURV-3002
CLB-SURV-3003	CLB-SURV-3004	CLB-SURV-3005
CLB-SURV-3006	CLB-SURV-3007	CLB-SURV-3008
CLB-SURV-4001	CLB-SURV-4002	CLB-SURV-4003
CLB-SURV-4004	CLB-SURV-4005	CLB-SURV-4006

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.6 Survivability
10. MCWP 3-33 Military Operations Other Than War (MOOTW)
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
12. MCWP 3-35.5 Jungle Operations
13. MCWP 3-35.6 Desert Operations
14. MCWP 3-41.1 Rear Area Operations
15. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment, Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-5002: Harden existing structure

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: To harden positions in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

CONDITION: Provided a mission, in an urban environment, commander's intent, reconnaissance reports, and survivability plan, a task organization of personnel and equipment, and references.

STANDARD: To harden an existing structure that meets the mission requirements and supports the concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Plan structure hardening.
2. Conduct engineer reconnaissance and survey.
3. Analyze reconnaissance reports.
4. Coordinate with supported unit for specific position requirements.
5. Coordinate resources for project.
6. Conduct site preparation.
7. Construct perimeter security, as required.
8. Shore walls/ floors/ roofs, as required.
9. Remove/ reinforce windows, as required.
10. Compartmentalize interior of structure, as required.
11. Emplace prefabricated barriers, as required.
12. Construct earth filled barrier/structure, as required.
13. Conduct earthmoving operations, as required.
14. Construct overhead cover, as required.
15. Construct shelter/bunker, as required.
16. Construct triggering screen, as required.
17. Wire position for electricity, as required.
18. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-3003	CLB-HEOP-4001	CLB-RECN-4001
CLB-RECN-5001	CLB-SURV-3002	CLB-SURV-3005
CLB-SURV-3007	CLB-SURV-4001	CLB-SURV-4002
CLB-SURV-4005	CLB-SURV-4006	CLB-UTIL-4001
CLB-VERT-4001	CLB-VERT-4002	CLB-VERT-4003
CLB-VERT-4004	CLB-VERT-4005	CLB-VERT-4006
CLB-VERT-4007		

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.5 Combined Arms Countermobility Operations

6. MCWP 3-17.6 Survivability
7. MCWP 3-17.7 General Engineering
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools & kits, Utilities equipment

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CLB-SURV-5003: Construct field fortifications

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: To build field fortifications that reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, task organized personnel and equipment, and references.

STANDARD: That meets the mission requirements and supports the concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supported unit for specific position placement and requirements.
5. Construct survivability positions, as required.
6. Construct obstacles, as required.
7. Conduct vertical construction, as required.
8. Conduct earthmoving operations, as required.
9. Submit required reports.

CHAINED EVENTS:

CLB-CMOB-4001	CLB-CMOB-4002	CLB-HEOP-3003
CLB-HEOP-4001	CLB-RECN-4001	CLB-RECN-5001
CLB-SURV-4002	CLB-SURV-4003	CLB-SURV-4004
CLB-SURV-4005	CLB-VERT-4001	CLB-VERT-4002
CLB-VERT-4003	CLB-VERT-4004	CLB-VERT-4005
CLB-VERT-4006	CLB-VERT-4007	

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys

2. MCRP 3-17.7C Carpentry
3. MCRP 3-17.7D Concrete and Masonry
4. MCRP 3-17.7I Earthmoving Operations
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.5 Combined Arms Countermobility Operations
8. MCWP 3-17.6 Survivability
9. MCWP 3-17.7 General Engineering
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 3-33 Military Operations Other Than War (MOOTW)
12. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment, Combat engineer tools & kits

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CLB-UTIL-5001: Provide limited utilities support

SUPPORTED MCT(S):
MCT 4.2.2.4 MCT 4.4.3.1 MCT 4.4.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited tactical electrical supply and distribution; heating, ventilation, air conditioning and refrigeration service; water production/storage/distribution; and maintenance capabilities for specified utilities equipment in accordance with the unit's mission statement.

CONDITION: Given a mission, support plan, equipment availability, personnel, equipment, and references.

STANDARD: To provide support IAW with the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:
1. Coordinate supported unit requirements.
2. Establish utilities plan.
3. Establish utilities site(s).
4. Provide tactical electrical support, as required.
5. Provide non-tactical utilities support, as required.
6. Provide environmental control equipment.
7. Provide refrigeration equipment.
8. Provide water production/storage/distribution equipment.
9. Maintain utilities equipment.
10. Recover utilities equipment, as required.
11. Submit required reports.

CHAINED EVENTS:
CLB-MANT-4001 CLB-UTIL-4001 CLB-UTIL-4002
CLB-UTIL-4003

RELATED EVENTS:

1120-ADMN-2001	1120-ADMN-2002	1120-ADMN-2003
1120-ADMN-2004	1120-ADMN-2005	1120-ADMN-2006
1120-ADMN-2007	1120-ADMN-2012	1120-ADMN-2021
1120-ADMN-2022	1120-ADMN-2031	1120-ADMN-2051
1120-ADMN-2052	1120-ADMN-2061	1120-ADMN-2065
1120-ADMN-2071	1120-ADMN-2072	1120-ADMN-2073
1120-ADMN-2074	1120-ADMN-2075	1120-ADMN-2081
1120-ADMN-2091	1120-ADMN-2092	1120-XENG-2501
1120-XENG-2502	1120-XENG-2521	1120-XENG-2522
1120-XENG-2541	1120-XENG-2553	1120-XENG-2555
1120-XENG-2558	1120-XENG-2561	1120-XENG-2581
1120-XENG-2621	1120-XENG-2622	1120-XENG-2641
1120-XENG-2653	1120-XENG-2655	1120-XENG-2658
1120-XENG-2721	1120-XENG-2741	1120-XENG-2752
1120-XENG-2753	1120-XENG-2755	1120-XENG-2758
1120-XENG-2821	1120-XENG-2841	1120-XENG-2853
1120-XENG-2855	1120-XENG-2858	1120-XENG-2965
1120-XENG-2966	1120-XENG-2988	1120-XENG-2989

REFERENCES:

1. Appropriate Technical Manuals
2. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
3. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
4. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
5. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
6. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
7. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
8. FM 10-52 Water Supply in Theaters of Operation
9. FM 10-52-1 Water Supply Point Equipment and Operations
10. FM 5-424 Theater of Operations Electrical Systems
11. JP 4-03 Joint Bulk Petroleum and Water Doctrine
12. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
13. MCRP 3-17B Engineer Forms and Reports
14. MCRP 4-11.1D Field Hygiene and Sanitation
15. MCRP 4-11B Environmental Considerations
16. MCWP 3-17 Engineering Operations
17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 4-11 Tactical-Level Logistics
19. MCWP 4-11.4 Maintenance Operations
20. MCWP 4-11.6 Petroleum and Water Logistics Operations
21. MCWP 5-1 Marine Corps Planning Process (MCPP)
22. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
23. TB MED 577 Occupational and Environmental Health Sanitary Control and

Surveillance of Field Water Supplies
24. TB MED 593 Guidelines for Field Waste Management
25. TC 3-34.489 The Soldier and the Environment
26. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
27. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, Motor Transport equipment, HAZMAT handling equipment.

CLB-VERT-5001: Conduct limited vertical construction

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct limited vertical construction to build or improve existing structures, or construct base camps, command posts, and maintenance facilities for the GCE and CLB.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey as required.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility, as required.
7. Erect prefabricated structure, as required.
8. Construct wood frame structure, as required
9. Construct timber structure, as required.
10. Construct concrete structure as required.
11. Construct expedient drainage structure, as required.
12. Wire structure for electricity, as required.
13. Plumb structure, as required.
14. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-4001	CLB-HORZ-4002	CLB-RECN-4001
CLB-UTIL-4001	CLB-UTIL-4002	CLB-UTIL-4003

CLB-VERT-4001	CLB-VERT-4002	CLB-VERT-4003
CLB-VERT-4004	CLB-VERT-4005	CLB-VERT-4006
CLB-VERT-4007		

RELATED EVENTS:

1302-HORZ-1001	1302-RECN-1001	1302-VERT-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-HORZ-2002
1371-HORZ-2003	1371-HORZ-2004	1371-HORZ-2005
1371-RECN-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	1371-VERT-1005
1371-VERT-2001	1371-VERT-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 5-7-13 Bridge Classification Booklet
3. GTA 5-7-6 Bridge Design Card
4. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
5. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
6. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
7. MCRP 3-17.7C Carpentry
8. MCRP 3-17.7D Concrete and Masonry
9. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
10. MCRP 3-17.7F Project Management
11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17.7M Construction Estimating
14. MCRP 3-17.7N Base Camps
15. MCRP 3-17A Engineering Field Data
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCWP 3-17 Engineering Operations
18. MCWP 3-33 Military Operations Other Than War (MOOTW)
19. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
20. MCWP 4-11 Tactical-Level Logistics
21. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Motor Transportation equipment, UT equipment, surveying assets, engineer carpentry kits

MATERIAL: Class III/IV

UNITS/PERSONNEL: MT, UT, & HE operators, Engineers, Surveyors

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5005. 4000-LEVEL EVENTS

CLB-CMOB-4001: Create an explosive obstacle

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create an explosive obstacle to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, etc.).

STANDARD: That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/ security for obstacle construction.
6. Move to obstacle site.
7. Emplace expedient anti-personnel devices as required.
8. Account for all personnel and equipment prior to returning to friendly lines.
9. Coordinate lane closure plan with supported unit, as required.
10. Submit required reports.

CHAINED EVENTS:

CLB-CMOB-3001	CLB-CMOB-3003

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2003	1371-DEMO-1002	

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. UNIT SOP Unit's Standing Operating Procedures
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
K143 Mine, Antipersonnel M18A1 with M57 F	1 mines per squad
L495 Flare, Surface Trip M49 Series	4 flares per squad
L598 Simulator, Explosive Booby Trap Flas	4 Simulator per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	1 charges per squad
M421 Charge, Demolition Shaped M3 Series	1 charges per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 primers per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Material Handling Equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-CMOB-4002: Create non-explosive obstacles/barriers

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create non-explosive obstacles/barriers to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, natural terrain, battlefield materials, etc.).

STANDARD: That is part of an obstacle group that will turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:

1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/ security for obstacle construction.
6. Move to obstacle site.
7. Tie obstacles into natural/existing obstacles, as required
8. Emplace obstacles (barriers, hedgehogs, etc.), as required.
9. Emplace wire obstacles, as required.
10. Emplace field expedient obstacles (logs, abatis, rubble, etc.), as required.
11. Create craters, as required.
12. Emplace deception obstacles, as required.
13. Create tank ditches, as required.
14. Account for all personnel and equipment prior to returning to friendly lines.
15. Coordinate lane closure plan with supported unit, as required.
16. Submit required reports.

CHAINED EVENTS:

CLB-CMOB-3001	CLB-CMOB-3002	CLB-CMOB-3003
CLB-HEOP-3003		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-HEOP-2001
1310-HORZ-2001	1310-HORZ-2002	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1006	1345-HEOP-2007	1345-HEOP-2009
1345-HORZ-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-2001	1371-CMOB-2003	

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
7. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
L495 Flare, Surface Trip M49 Series	6 flares per squad
M032 Charge, Demolition Block TNT 1-Pound	12 charges per squad
M039 Charge, Demolition Cratering 40-Poun	12 charges per squad
M130 Cap, Blasting Electric M6	12 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	12 blasting caps per squad

M327 Coupling Base, Firing Device with Pr	12 primers per squad
M421 Charge, Demolition Shaped M3 Series	8 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	6 cases per squad
ML03 Firing Device, Demolition Multi-Purp	12 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	12 igniters per squad
MN14 Firing Device, Dual Mode MK54	12 detonators per squad
MN52 MK154 Mod 0	8 detonators per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer equipment, Material Handling Equipment, Engineer earthmoving equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-CMOB-4003: Employ demolitions in support of countermobility operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ demolitions in support of countermobility operations to create mobility obstacles (explosively) such as craters, ditches or to destroy structures (bridges, tunnels, etc.). This could include field expedient explosive obstacles (improvised anti-vehicular/anti-personnel explosive devices) to destroy enemy personnel and equipment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To construct countermobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commander's intent, concept of operations, and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.

5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Create obstacle(s) as required.
10. Inspect obstacle(s) as required.
11. Improve obstacle site with support equipment as required.
12. Reconstitute the force.
13. Submit required reports.

CHAINED EVENTS:

CLB-CMOB-3003	CLB-MOBL-3001

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2003	1371-DEMO-1002	

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	20 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	10 charges per squad
M130 Cap, Blasting Electric M6	6 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	6 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	5 charges per squad
M421 Charge, Demolition Shaped M3 Series	10 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
ML03 Firing Device, Demolition Multi-Purp	6 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	6 igniters per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-HEOP-4001: Conduct MHE operations

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: MHE refers to material handling equipment (forklifts, etc.) to enable handling of loads (equipment, supplies, materials, etc.) exceeding carrying capacity of personnel.

CONDITION: Given a mission, commander's intent, personnel and equipment, and references.

STANDARD: To provide support an IAW unit SOPs or guidance to support the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:
1. Review tasking.
2. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
3. Operate MHE as required.
4. Load and unload materiel(s) as required.
5. Employ safety measures as required.
6. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-3001	CLB-HEOP-3002	CLB-HEOP-3003
CLB-HORZ-3001	CLB-MANT-3001	

RELATED EVENTS:

1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1345-HEOP-2012	1345-HORZ-2001
1345-MANT-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	

REFERENCES:
1. MCRP 3-17B Engineer Forms and Reports
2. MCWP 3-41.1 Rear Area Operations
3. MCWP 4-11 Tactical-Level Logistics
4. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Engineer support

equipment

CLB-HORZ-4001: Conduct horizontal construction

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: To conduct horizontal construction as required to shape the terrain to meet the operational requirements of the MAGTF and includes MSR construction and/or maintenance; expeditionary airfields; site preparation for bed down facilities; and ordnance storage facilities.

CONDITION: Given a mission, commander's intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and references

STANDARD: To construct the assigned project to meet or exceed the requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review horizontal construction plans.
2. Review engineer reconnaissance and survey.
3. Coordinate support for horizontal construction.
4. Operate/employ engineer equipment and kits.
5. Clear site for construction.
6. Conduct beachhead lane improvement, as required.
7. Construct base course for road(s), as required.
8. Emplace soil stabilization, as required.
9. Conduct ditching for roads, as required.
10. Emplace road surface, as required
11. Construct expedient HLZ, as required.
12. Emplace dust abatement material, as required.
13. Construct expedient HLZ, as required.
14. Construct drainage structures, as required.
15. Construct expeditionary airfield, as required.
16. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-3002	CLB-HEOP-3003

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1003	1302-EOPS-1007
1302-EOPS-1009	1302-HORZ-1001	1302-HORZ-1002
1302-HORZ-1003	1302-MOBL-1016	1345-ADMN-2001
1345-ADMN-2002	1345-HEOP-2004	1345-HEOP-2009
1345-HEOP-2012	1345-HORZ-2001	1345-MANT-2001
1345-MANT-2003	1345-MANT-2004	1361-DRAF-1001
1361-DRAF-1002	1361-SRVY-1001	1361-SRVY-1002
1361-SRVY-1003	1361-SRVY-1004	1361-SRVY-1005
1361-SRVY-1006	1361-SRVY-1008	1361-SRVY-1009
1361-SRVY-1010	1361-SRVY-1011	1361-SRVY-1012

1361-SRVY-2001	1361-SRVY-2002	1361-SRVY-2005
1361-XENG-2001	1371-EOPS-1001	1371-EOPS-1002
1371-EOPS-1003	1371-EOPS-1004	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2008	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-1001
1371-HORZ-1002	1371-HORZ-1003	1371-HORZ-2001
1371-HORZ-2002	1371-HORZ-2003	1371-HORZ-2004
1371-HORZ-2005	1371-MANT-1001	1371-MOBL-2001

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
5. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7G Military Soils Engineering
9. MCRP 3-17.7I Earthmoving Operations
10. MCRP 3-17.7L Explosives and Demolitions
11. MCRP 3-17.7M Construction Estimating
12. MCRP 3-17.7N Base Camps
13. MCRP 3-17A Engineering Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 4-11.1D Field Hygiene and Sanitation
16. MCWP 3-17 Engineering Operations
17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 3-33 Military Operations Other Than War (MOOTW)
19. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
20. MCWP 3-41.1 Rear Area Operations
21. MCWP 4-11 Tactical-Level Logistics
22. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Combat engineer equipment, Utilities equipment.

CLB-HORZ-4002: Construct expedient drainage structure

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construction of expedient drainage structures (ditching, culverts, etc.) are designed for temporary conduit for water runoff from existing or proposed base camps, roads, airfields and watersheds until a permanent structure(s) can be installed.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To meet the requirements listed in the design specifications in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct expedient ditch relief culverts.
7. Construct expedient log culverts.
8. Construct oil drum culvert.
9. Construct sandbag culvert.
10. Cover expedient culverts as required.
11. Construct expedient head/wing walls as required.
12. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-3002	CLB-HEOP-3003	CLB-HORZ-3001

RELATED EVENTS:

1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-1007
1345-HEOP-2009	1345-MANT-1001	1361-DRAF-1001
1361-DRAF-1002	1361-SRVY-1011	1361-SRVY-2001
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2008
1371-EOPS-2010	1371-EOPS-2011	1371-HORZ-2001
1371-HORZ-2002	1371-HORZ-2003	

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer equipment, Utilities equipment

CLB-MANT-4001: Maintain engineer equipment

SUPPORTED MCT(S):

MCT 4.2.2.4	MCT 4.4.3.1	MCT 4.4.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on engineer equipment.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:

1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

CHAINED EVENTS:

CLB-MANT-3002	CLB-MANT-3003	CLB-MANT-3004
CLB-MANT-3005	CLB-MANT-3006	

RELATED EVENTS:

1169-ADMN-2006	1169-ADMN-2007	1169-ADMN-2012
1169-ADMN-2021	1169-ADMN-2022	1169-ADMN-2041
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2061
1169-ADMN-2064	1169-ADMN-2071	1169-ADMN-2072
1169-ADMN-2073	1169-ADMN-2074	1169-ADMN-2075
1310-ADMN-2004	1310-ADMN-2009	1310-MANT-2001
1310-MANT-2002	1341-ADMN-1001	1341-ADMN-1002
1341-ADMN-2002	1341-ADMN-2003	1341-ADMN-2004
1341-MANT-1001	1341-MANT-1002	1341-MANT-2010
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-MANT-2001	1349-MANT-2002

REFERENCES:

1. Applicable Technical Manuals Publications
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. Local Standard Operating Procedures (SOP)
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCO 4731.1_ Oil Analysis Program for Ground Equipment
8. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
9. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
10. MCO 4855.10_ Product Quality Deficiency Report (PQDR)

11. MCO 5100.29_ Marine Corps Safety Program
12. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
13. MCO P4790.2_ MIMMS Field Procedures Manual
14. MCWP 4-11 Tactical-Level Logistics
15. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Tool sets, chests, and kits.

CLB-MOBL-4001: Conduct security for clearance operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct security for clearance operations to provide sweep team freedom of action.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To allow the sweep team freedom of maneuver while conducting sweeping operations in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Coordinate w/clearance unit on site, as required.
6. Establish area clearance security measures, as required.
7. Visually identify other potential hazards within area.
8. Visually identify potential suspects/civilians in area.
9. Control/cordon all movement going into area, as required.
10. Maintain communications w/clearance/sweep unit.
11. Submit required reports.

CHAINED EVENTS:

CLB-MOBL-3002	CLB-MOBL-3003

RELATED EVENTS:

1302-MOBL-1003	1302-MOBL-1004	1302-MOBL-1005
1302-MOBL-1009	1371-MOBL-1006	

REFERENCES:
1. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment

2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range

EQUIPMENT: Combat engineer equipment, Squad and Fire team weapons, Command and Control assets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-MOBL-4002: Detect obstacles during clearance operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Detect obstacles during clearance operations in order to provide the MAGTF assured mobility.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To ensure all obstacles and explosive hazards are detected, identified, and marked for reduction or bypass in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect explosive hazards within area if possible.
8. Operate dismounted handheld detectors as required.
9. Operate mounted detectors as required.
10. Operate other detection equipment as required.
11. Alternate detector operators to prevent fatigue as required.
12. Mark obstacles for reduction as required.
13. Submit required reports.

CHAINED EVENTS:
CLB-MOBL-3001 CLB-MOBL-3002

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1345-MANT-2001	1371-MOBL-2018
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Motor Transportation, Engineer equipment, Route clearance assets, Command and Control assets.

CLB-MOBL-4003: Breach obstacles for clearance operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Breach obstacles during clearance operations to ensure the safe passage of combat, CS, and CSS organizations.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolition tools, explosives, and references.

STANDARD: To ensure all explosives and non-explosive hazards are removed or destroyed in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, boobytraps, and unexploded ordnance within area if

possible.
8. Operate mounted mine detectors as required.
9. Operated other detection equipment as required.
10. Conduct earthmoving operations to detect obstacles as required.
11. Alternate detector operators as required to prevent fatigue.
12. Mark obstacles for reduction as required.
13. Destroy obstacle as required.
14. Verify obstacle destruction.
15. Submit required reports.

CHAINED EVENTS:

CLB-MOBL-3001	CLB-MOBL-3002

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1345-HEOP-1006
1345-HEOP-2009	1345-MANT-1001	1345-MANT-2001
1371-MOBL-1001	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2019	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2023
1371-MOBL-2024	1371-MOBL-2025	1371-MOBL-2026
1371-MOBL-2027		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	3 rockets per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
M913 Charge, Demolition High Explosive Li	2 charges per squad
M914 Charge, Demolition Inert Linear M68A	1 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer detection equipment, Engineer Material Handling Equipment, Combat engineer breaching equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CLB-MOBL-4004: Conduct dismounted route sweep operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct dismounted route sweep operations to detect, investigate, mark, report, and reduce Explosive Hazards (EH) and other obstacles along a defined route to enable assured mobility.

CONDITION: Given a mission, commander's intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel [command element, detection team(s) (the ear), marking team(s) (the finger), and demolition team] and equipment, and references.

STANDARD: To ensure all explosive/non-explosive hazards are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commander's intent integrating all available resources.

EVENT COMPONENTS:
1. Analyze search route intelligence.
2. Coordinate with supported unit for security as required.
3. Coordinate with supporting units.
4. Move to search area.
5. Detect obstacles along route.
6. Alternate detector operators as required to prevent fatigue.
7. Identify explosive components of obstacle(s).
8. Mark obstacle(s) as required.
9. Destroy obstacle(s) as required.
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities as required.
12. Coordinate weapons intelligence team activities as required.
13. Coordinate with other specialist personnel as required.
14. Submit required reports.

RELATED EVENTS:
1302-MOBL-1002 1302-MOBL-1004 1302-MOBL-1009

1302-MOBL-1010	1371-MOBL-1001	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2018	1371-MOBL-2019
1371-MOBL-2020	1371-MOBL-2022	1371-MOBL-2023

REFERENCES:

1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	30 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M670 Fuse, Blasting Time M700	250 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
MN08 Igniter, Time Blasting Fuse with Sho	25 igniters per squad
MN88 Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per squad
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, AN/PRC 119, mine detectors, probe, compass, protractor, Hand Emplaced Mine Marking System (HEMMS) kit, sickle stick, DA FORM 1355-1-R.

MATERIAL: Engineer tape, concertina wire, barbed wire, engineer stakes, tie wire, mine signs, sandbags.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-MOBL-4005: Conduct deliberate breach

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct a deliberate breach (mounted and dismounted) to cross a well-defended obstacle in order to continue the mission.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark lane through a minefield/obstacle in accordance mission and commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with assault force, support force, and support breach team(s).
6. Verify suppression/obscuration effects.
7. Employ deception plan as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing as required.
11. Conduct earthmoving operations as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per Team
M913 Charge, Demolition High Explosive Li	1 charges per Team
M914 Charge, Demolition Inert Linear M68A	2 charges per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching

equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CLB-MOBL-4006: Conduct route improvement

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct route improvement to maintain the route and to prevent/limit explosive hazard concealment opportunities for the enemy.

CONDITION: Given a tactical situation, an operations order, commander's intent, a route to be improved, task organized personnel and equipment, engineer reconnaissance reports, and references.

STANDARD: To maintain the route in support of mobility operations and commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance report(s).
2. Coordinate with route clearance mission commander (for repair materials, logistics, security, etc.).
3. Confirm improvement requirements.
4. Move to improvement area.
5. Operate as part of route clearance team.
6. Visually detect explosive and other hazards as required.
7. Identify surface repairs as required.
8. Operate engineer equipment as required.
9. Remove obstructions (i.e., rubble/debris, vegetation, trash) as required.
10. Remove upheaval to required specifications.
11. Remove berms as required.
12. Place additional fill/stabilization/reinforcement materials as required.
13. Identify drainage structure repairs as required.
14. Conduct culvert denial activities as required.
15. Submit required reports.

CHAINED EVENTS:
CLB-HEOP-3002 CLB-HEOP-3003 CLB-HORZ-3001

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2023
1371-MOBL-2024	1371-MOBL-2025	1371-MOBL-2026
1371-MOBL-2027		

REFERENCES:

1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Combat engineer equipment, Engineer equipment

CLB-MOBL-4007: Repair Runway Crater

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: These repairs may be required due to enemy or friendly action/ damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. This task may be part of Airfield Damage Repair (ADR), and Base Recovery after an Attack (BRAAT).

CONDITION: Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references

STANDARD: To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

EVENT COMPONENTS:

1. Analyze engineer reconnaissance/damage assessment report(s).
2. Coordinate crater repair.
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.
6. Operate motor transport equipment as required.
7. Remove ejecta from operating surfaces.
8. Remove upheaval to required specifications.

9. Square hole as required.
10. Place fill/stabilization/reinforcement materials as required.
11. Compact fill materials as required.
12. Place geotextile layer(s) as required.
13. Surface repair with foreign object debris (FOD) cover as required.
14. Reconstitute crater repair team.
15. Submit required reports

CHAINED EVENTS:

CLB-HEOP-3002	CLB-HEOP-3003	CLB-HORZ-3001
CLB-RECN-3006		

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1007	1302-RECN-1001
1371-EOPS-2004	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	

REFERENCES:

1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.5 Combined Arms Countermobility Operations
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, Combat engineer equipment

CLB-MOBL-4008: Repair Spall(s)

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. This task may be part of Airfield Damage Repair (ADR), and Base Recovery after an Attack (BRAAT). Damage classified as a spall does not reach the base course underneath the operating surface of an airfield or road.

CONDITION: Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references

STANDARD: To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance/damage assessment report(s).
2. Coordinate spall repair(s).
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.
6. Remove ejecta from operating surfaces.
7. Fill damaged area with materials suitable for airfield operating surface.
8. Square hole as required.
9. Tamp repair as required.
10. Screed as required.
11. Reconstitute spall repair team.
12. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-3002	CLB-HEOP-3003	CLB-RECN-3006

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1007	1302-EOPS-1009
1302-RECN-1001	1371-EOPS-2004	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012		

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, Motor transportation equipment, Combat engineer tools and kits, Combat engineer equipment

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CLB-MOBL-4009: Repair Road Crater

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: These repairs may be required due to enemy or friendly

action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage.

CONDITION: Given a tactical situation, an operations order, commander's intent, a roadway operating surface requiring repair, task organized personnel and equipment, engineer reconnaissance reports, and references.

STANDARD: To return the road operating surface to a minimum operational capability within the design criteria and the commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance report(s).
2. Coordinate crater repair (materials, logistics, security, etc.).
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.
6. Operate motor transport equipment as required.
7. Remove upheaval to required specifications.
8. Remove debris from operating surfaces as required.
9. Fill hole.
10. Compact fill materials as required.
11. Square hole as required.
12. Place geotextile layer(s) as required.
13. Place additional fill/stabilization/reinforcement materials as required.
14. Repair shape of road as required.
15. Surface repair as required.
16. Repair drainage structures as required.
17. Reconstitute crater repair team.
18. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-3002	CLB-HEOP-3003	CLB-HORZ-3001

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-HORZ-1002
1302-MOBL-1001	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-2002	1371-HORZ-2003

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, Combat engineer tools and kits, Combat engineer equipment, Motor transportation equipment

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CLB-MOBL-4010: Construct expedient Helicopter Landing Zone (HLZ)

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct construction of expedient HLZ; includes but is not limited to clearing and grubbing geographical locations for takeoff and landing of rotary wing in support of troop transport, resupply, MEDEVAC operations, etc.

CONDITION: Given a mission, commander's intent, available resources, and references.

STANDARD: To create a landing site that will support rotary wing aircraft for the loading and unloading of personnel, resupply, and equipment in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Task organize
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Coordinate resource requirements.
5. Issue the order.
6. Clear landing site.
7. Maintain/improve landing site as required.
8. Submit required reports.

CHAINED EVENTS:

CLB-HEOP-3002	CLB-HEOP-3003	CLB-HORZ-4001
CLB-MOBL-3001		

RELATED EVENTS:

1302-MOBL-1016	1302-RECN-1001	1371-MOBL-2001

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Engineer Material Handling equipment

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CLB-MOBL-4011: Employ demolitions in support of mobility operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ Class V munitions to reduce/destroy obstacles (explosive and non-explosive) that present mobility impediments to Operating forces on routes.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To reduce mobility obstacles on designated routes and ensure mobility in accordance in the commander's intent, concept of operations and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Reduce obstacle(s).
10. Proof obstacle(s).
11. Clear site with support equipment as required.
12. Reconstitute obstacle clearing force.
13. Submit required reports.

CHAINED EVENTS:
CLB-HEOP-3002 CLB-HEOP-3003 CLB-MOBL-3001

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	30 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	30 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M591 Dynamite, Military M1	20 charges per squad
M670 Fuse, Blasting Time M700	1000 FT per squad
ML03 Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	30 igniters per squad
MN52 MK154 Mod 0	20 detonators per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

CLB-PINF-4001: Fight as provisional infantry

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Fight as Provide provisional infantry to participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, task organized personnel and equipment, commander's intent and references.

STANDARD: To augment a supported unit during the conduct of offensive or defensive operations.

EVENT COMPONENTS:
1. Receive orders.
2. Conduct inspections, rehearsals, and preparations.

3. Conduct final preparations.
4. Employ appropriate squad formations and tactics as required.
5. Employ organic weapons as required.
6. Employ communications as required.
7. Treat and evacuate casualties as required.
8. Process detainees as required.
9. Submit required reports.

CHAINED EVENTS:
CLB-MOBL-3002 CLB-MOBL-3003

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 3000 Level Events Chained to this event.

CLB-RECN-4001: Conduct site survey

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Reconnoitering a site or area as part of survey, liaison and reconnaissance party to allow critical planning of specific construction and or operations in support of the MAGTF.

CONDITION: Provided a mission order, task organized personnel and equipment, and references.

STANDARD: To allow for critical planning of facilities and projects in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit as required.
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Move to site or area.

5. Gather critical information as required.
6. Make liaisons as required.
7. Develop draft plans and schematics as required.
8. Plan resources as required.
9. Submit required reports.

CHAINED EVENTS: CLB-RECN-3001

RELATED EVENTS:

1302-HORZ-1001	1302-PLAN-1002	1302-PLAN-2004
1302-VERT-1001	1361-SRVY-1001	1361-SRVY-1002
1361-SRVY-1003	1361-SRVY-1004	1361-SRVY-1005
1361-SRVY-1006	1361-SRVY-1007	1361-SRVY-1008
1361-SRVY-1009	1361-SRVY-1010	1361-SRVY-1011
1361-SRVY-1012	1361-SRVY-2002	1361-XENG-2001
1361-XENG-2002	1371-PLAN-2002	

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7F Project Management
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer survey equipment

UNITS/PERSONNEL: Engineer surveyor 1361

CLB-RECN-4002: Conduct cache sweep operations

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify, and secure materials discovered during the course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze search area intelligence.
2. Task organize.

3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s), as required.
8. Destroy captured enemy ammunition as required.
9. Verify cache destruction.
10. Coordinate explosive ordnance disposal activities as required.
11. Coordinate weapons intelligence team activities as required.
12. Coordinate with other specialist personnel as required.
13. Document/preserve evidence as required.
14. Submit required reports.

CHAINED EVENTS: CLB-RECN-3002

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-1 Ground Combat Operations
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
K143 Mine, Antipersonnel M18A1 with M57 F	1 mines per squad
L495 Flare, Surface Trip M49 Series	4 flares per squad
L598 Simulator, Explosive Booby Trap Flas	4 Simulator per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	1 charges per squad
M421 Charge, Demolition Shaped M3 Series	1 charges per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area

Facility Code 17730 Fire And Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits, Combat Engineer detection equipment.

UNITS/PERSONNEL: Explosive Ordnance Personnel, Weapons Intelligence team, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-RECN-4003: Conduct zone reconnaissance

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To reconnoiter a delineated area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, zone infrastructure.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct final rehearsals and immediate action drills, as required.
6. Reconnoiter for enemy threat, as required.
7. Reconnoiter routes, as required.
8. Reconnoiter infrastructures as, required.
9. Reconnoiter for obstacles as, required.
10. Submit required reports.

CHAINED EVENTS:

CLB-RECN-3003	CLB-RECN-3004	CLB-RECN-3005

RELATED EVENTS:

1302-RECN-1001	1371-RECN-1001	1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range

EQUIPMENT: Combat engineer equipment.

CLB-RECN-4004: Conduct route reconnaissance

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To reconnoiter specific routes to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, infrastructure.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements and security).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes, as required.
8. Reconnoiter tunnels, as required.
9. Reconnoiter bridges, as required.
10. Reconnoiter for fords/ferries, as required.
11. Reconnoiter for landing zones, as required.
12. Submit required reports.

CHAINED EVENTS:
CLB-RECN-3003 CLB-RECN-3004 CLB-RECN-3005

RELATED EVENTS:
1302-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 5-2-5 Engineer Reconnaissance
3. GTA 5-7-13 Bridge Classification Booklet
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.5 Combined Arms Countermobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment

CLB-RECN-4005: Conduct area reconnaissance

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To reconnoiter an area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, area infrastructure in established lateral boundaries.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements, security, etc.).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes to specified area, as required.
8. Reconnoiter infrastructure/facilities in specified area, as required.
9. Reconnoiter obstacles in specified area, as required.
10. Reconnoiter structures in specified area, as required.
11. Submit required reports.

CHAINED EVENTS:
ESB-RECN-3001 ESB-RECN-3003 ESB-RECN-3004
ESB-RECN-3005 ESB-RECN-3006 ESB-RECN-3007
ESB-RECN-3008

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Combat engineer equipment

CLB-SURV-4001: Harden existing structure

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Harden existing structures in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

CONDITION: Provided a mission, in an urban environment, commander's intent, reconnaissance reports, and survivability plan, a task organization of personnel and equipment, and references.

STANDARD: To meet the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Construct perimeter security, as required.
7. Shore walls/ floors/ roofs, as required.
8. Remove/ reinforce windows, as required.

9. Compartmentalize interior of structure, as required.
10. Emplace prefabricated barrier(s), as required.
11. Construct earth filled barrier/structure(s), as required.
12. Conduct earthmoving operations, as required.
13. Construct overhead cover, as required.
14. Construct shelter/bunker, as required.
15. Construct triggering screen, as required.
16. Provide tactical power, as required.
17. Submit required reports.

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1009	1302-RECN-1001	1302-SURV-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-2004	1371-HORZ-2005	1371-RECN-1001
1371-RECN-1001	1371-RECN-2001	1371-SURV-1001
1371-SURV-2001	1371-SURV-2002	1371-VERT-1001
1371-VERT-1002	1371-VERT-1003	1371-VERT-1004
1371-VERT-1005	1371-VERT-2001	1371-VERT-2002

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. FM 5-553 General Drafting
4. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
5. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
6. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
7. MCRP 3-17.7C Carpentry
8. MCRP 3-17.7D Concrete and Masonry
9. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
10. MCRP 3-17.7F Project Management
11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7L Explosives and Demolitions
13. MCRP 3-17A Engineering Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
16. MCWP 3-13.2 MINE WARFARE
17. MCWP 3-17 Engineering Operations
18. MCWP 3-17.4 Engineer Reconnaissance
19. MCWP 3-17.6 Survivability
20. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer Material Handling Equipment, Engineer earthmoving equipment, Combat engineer tools & kits, Utilities equipment.

CLB-SURV-4002: Construct field fortifications

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct field fortifications that reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: To meet mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific position placement and requirements.
4. Construct survivability positions, as required.
5. Construct wire obstacles, as required.
6. Construct field expedient obstacles, as required.
7. Construct/emplace barrier(s), as required.
8. Construct/emplace explosive obstacle(s), as required.
9. Conduct vertical construction, as required.
10. Harden existing structures, as required.
11. Conduct earthmoving operations, as required.
12. Provide tactical power, as required.
13. Submit required reports.

CHAINED EVENTS:

CLB-SURV-3001	CLB-SURV-3002	CLB-SURV-3003
CLB-SURV-3004	CLB-SURV-3005	CLB-SURV-3006
CLB-SURV-3007		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-EOPS-1001
1302-EOPS-1002	1302-EOPS-1003	1302-EOPS-1009
1302-RECN-1001	1302-SURV-1001	1302-SURV-1002
1302-SURV-1003	1302-SURV-1005	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-CMOB-2003	1371-DEMO-1001
1371-EOPS-1001	1371-EOPS-2005	1371-EOPS-2006
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-1001	1371-HORZ-1002	1371-HORZ-1003
1371-HORZ-2004	1371-HORZ-2005	1371-SURV-1001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Combat engineer tools and equipment, Utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-4003: Construct Vehicle Control Point (VCP)

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct Vehicle Control Point (VCP) to control, restrict and monitor movement of personnel and equipment and to gain information/data on suspected vehicles during military operations.

CONDITION: Provided a mission, commander's intent, intelligence reports, task organization of personnel and equipment, Class IV supplies, and references.

STANDARD: To gain information and maintain control of vehicles, pedestrians, and materials in accordance with mission requirements and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review intelligence reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Coordinate security, as required.
6. Conduct site preparation and layout.

7. Construct survivability positions, as required.
8. Emplace prefabricated barrier(s), as required.
9. Construct wire obstacles, as required.
10. Construct expedient obstacles, as required.
11. Construct earth filled barrier/structure(s), as required.
12. Conduct earthmoving operations, as required.
13. Establish vehicle waiting area, as required.
14. Construct search lanes, as required.
15. Construct personnel search area(s), as required.
16. Construct/emplace signs, as required.
17. Provide tactical power, as required.
18. Submit required reports.

CHAINED EVENTS:

CLB-SURV-3002	CLB-SURV-3003	CLB-SURV-3004
CLB-SURV-3005		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-DEMO-1001	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-SURV-1001	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling Equipment, engineer earthmoving equipment, combat engineer tools, kits and utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-4004: Construct Entry Access Point (EAP)

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct Entry Access Point to prevent unauthorized personnel into military facilities.

CONDITION: Provided a mission, commander's intent, intelligence reports, task organization of personnel and equipment, Class IV supplies, and references.

STANDARD: To control and monitor access of vehicles, pedestrians, and materials onto military facilities in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review force protection requirements.
3. Coordinate resources for project.
4. Coordinate security, as required.
5. Conduct site preparation and layout.
6. Construct survivability positions, as required.
7. Emplace prefabricated barrier(s), as required.
8. Construct wire obstacles, as required.
9. Construct expedient obstacles, as required.
10. Construct earth filled barrier/structure(s), as required.
11. Conduct earthmoving operations, as required.
12. Establish vehicle turn-around area, as required.
13. Establish pedestrian lanes, as required.
14. Construct personnel search area(s), as required.
15. Construct/emplace signs, as required.
16. Provide tactical power, as required
17. Submit required reports.

CHAINED EVENTS:

CLB-SURV-3002	CLB-SURV-3003	CLB-SURV-3004
CLB-SURV-3005		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-DEMO-1001	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-SURV-1001	1371-SURV-2001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1004

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.7L Explosives and Demolitions

3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17311 Range Support Building
Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling Equipment, Engineer Earthmoving equipment, Combat Engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-4005: Construct earth filled barrier/structure

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct earth filled barrier/structure in support of survivability of the force.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: That supports the mission requirements and concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific placement and requirements.
4. Construct/emplace barrier(s), as required.
5. Conduct earthmoving operations, as required.
6. Submit required reports.

CHAINED EVENTS:
CLB-HEOP-3002 CLB-SURV-3001 CLB-SURV-3002
CLB-SURV-3004

RELATED EVENTS:

1302-RECN-1001	1302-SURV-1001	1302-SURV-1002
1302-SURV-1003	1302-SURV-1004	1302-SURV-1005
1371-RECN-1001	1371-RECN-2001	1371-SURV-2001
1371-SURV-2002		

REFERENCES:
1. MCRP 3-17.7I Earthmoving Operations
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment

CLB-SURV-4006: Employ demolitions in support of survivability operations

SUPPORTED MCT(S):

MCT 4.4.1.1	MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ demolitions in support of survivability operations to support the defense of friendly positions or clearance of natural/man-made obstacles for fields of fire to eliminate enemy cover and concealment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To enhance friendly survivability positions and fields of fire to defeat the enemy per the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare personnel for mission requirements as required.
5. Construct booby traps as required.
6. Clear fields of fire as required.
7. Place expedient explosive devices to support positions as required.
8. Mark fortifications/explosive devices as required.
9. Reconstitute force as required.
10. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-3001	ESB-CMOB-3002	ESB-CMOB-3003
ESB-HEOP-3002	ESB-HEOP-3003	ESB-MOBL-3004
ESB-RECN-3003		

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-SURV-1001
1302-SURV-1003	1302-SURV-1005	1371-CMOB-2003
1371-DEMO-1001	1371-DEMO-2002	1371-EOPS-1002
1371-EOPS-1003	1371-EOPS-1004	1371-SURV-1001
1371-SURV-2001	1371-SURV-2002	

REFERENCES:

1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	20 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	20 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M591 Dynamite, Military M1	20 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
ML03 Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-UTIL-4001: Provide limited tactical electrical power

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan and coordinate limited power generation/electrical distribution in accordance with the unit's mission statement. Limited tactical electric supply is a scaled level of power generation and distribution that provides support to a single unit. Unit performing limited tactical electrical supply is constrained by capacity and capability from providing tactical electrical support beyond its own footprint.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: In accordance with the operational order and commander's intent.

EVENT COMPONENTS:
1. Plan tactical power requirements.
2. Coordinate logistical support/requirements.
3. Establish generator site(s).
4. Establish power distribution.
5. Maintain utilities equipment, as required.
6. Submit required reports.

RELATED EVENTS:

1169-ADMN-2002	1169-ADMN-2003	1169-ADMN-2021
1169-ADMN-2022	1169-XENG-2501	1169-XENG-2502
1169-XENG-2521	1169-XENG-2522	1169-XENG-2561
1169-XENG-2621	1169-XENG-2622	1169-XENG-2721
1169-XENG-2821	1169-XENG-2965	1169-XENG-2966

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems
2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
3. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, engineer Material Handling Equipment (MHE), Motor Transport equipment.

MATERIAL: POLs, HazMat Kits, spill containment kits, fuel

CLB-UTIL-4002: Provide limited potable water

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Produce, store, and distribute potable water in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To meet planning requirements.

EVENT COMPONENTS:
1. Perform Water Recon.
2. Establish Water Point.
3. Produce Potable Water.
4. Store Potable Water.
5. Establish Water Distribution Points.

RELATED EVENTS:

1169-ADMN-2007	1169-ADMN-2021	1169-ADMN-2022
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2075
1169-ADMN-2091	1169-XENG-2501	1169-XENG-2502
1169-XENG-2553	1169-XENG-2653	1169-XENG-2752
1169-XENG-2753	1169-XENG-2853	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment with supplemental kits (cartridges, NBC filters etc.), MHE, water testing kit, tool kits, PPE

MATERIAL: Chemicals to purify raw water source

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

CLB-UTIL-4003: Provide tactical hygiene support

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited tactical hygiene support in order to provide sanitary shower, laundry, and field sanitation support to meet the commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To meet planning requirements in accordance with commander's intent.

EVENT COMPONENTS:
1. Establish shower facilities.
2. Establish laundry facilities.
3. Supervise field sanitation.

RELATED EVENTS:

1169-ADMN-2007	1169-ADMN-2021	1169-ADMN-2022
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2091
1169-XENG-2501	1169-XENG-2502	1169-XENG-2555
1169-XENG-2655	1169-XENG-2755	1169-XENG-2855

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, Material Handling equipment, PPE

MATERIAL: Building materials (gravel, lime, pest insecticide, lumber etc.)

CLB-VERT-4001: Conduct limited vertical construction

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct limited vertical construction to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the GCE and CLB.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey as required.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility as required.
7. Erect prefabricated structure, as required.
8. Construct wood frame structure, as required.
9. Construct timber structure, as required.
10. Construct expedient drainage structure, as required.

11. Wire structure for electricity as required.
12. Submit required reports.

RELATED EVENTS:

1302-PLAN-1002	1302-RECN-1001	1302-VERT-1001
1316-XENG-1001	1316-XENG-1006	1361-DRAF-1001
1361-DRAF-1002	1361-DRAF-1003	1361-SRVY-1004
1361-SRVY-1008	1361-SRVY-2003	1361-SRVY-2004
1361-SRVY-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2008	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-2002	1371-HORZ-2003
1371-RECN-2001	1371-VERT-2001	1371-VERT-2002

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 5-7-13 Bridge Classification Booklet
3. GTA 5-7-6 Bridge Design Card
4. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
5. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
6. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
7. MCRP 3-17.7C Carpentry
8. MCRP 3-17.7D Concrete and Masonry
9. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
10. MCRP 3-17.7F Project Management
11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17.7M Construction Estimating
14. MCRP 3-17.7N Base Camps
15. MCRP 3-17A Engineering Field Data
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCWP 3-17 Engineering Operations
18. MCWP 3-33 Military Operations Other Than War (MOOTW)
19. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
20. MCWP 4-11 Tactical-Level Logistics
21. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools and kits, Material Handling Equipment

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CLB-VERT-4002: Construct wood frame structure

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct wood frame structures for use in all operations conducted to include but not limited to strong backs, sheds, facilities, sea huts, etc., or may be specified in mission directives.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, construction plans, design specifications, construction materials and references.

STANDARD: To meet the requirements listed in the design specifications in accordance with commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install footers, as required.
7. Construct/install flooring structure, as required
8. Construct/install wall structure(s), as required.
9. Construct/install roof structure, as required.
10. Construct/install doors, as required.
11. Construct/install windows, as required.
12. Finish interior, as required.
13. Finish exterior, as required.
14. Submit required reports.

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-VERT-1001	1371-EOPS-1002	1371-EOPS-1003
1371-EOPS-1004	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2008	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-2002	1371-HORZ-2003
1371-MANT-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-2001	1371-VERT-2002	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer Tools and Kits, PPE

MATERIAL: Class IV

OTHER SUPPORT REQUIREMENTS: Electrical and fuel requirements.

CLB-VERT-4003: Construct concrete block structure

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To conduct concrete block and other masonry construction as directed. Task emphasizes type of material, placement, finishing, and equipment used to build structures and foundations. This task also implies use of wood frame components for roofs and opening enclosures (doors, windows, etc.).

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: That meets the requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install foundation as required.
7. Construct/install wall structure(s) as required.
8. Place opening(s) as required.
9. Construct/place roof as required.
10. Construct/install doors as required.
11. Construct/install windows as required.
12. Submit required reports.

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-VERT-1001	1316-XENG-1001	1316-XENG-1006
1371-EOPS-1001	1371-EOPS-1004	1371-EOPS-2005
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-1001
1371-HORZ-1002	1371-HORZ-1003	1371-HORZ-2004
1371-HORZ-2005	1371-MANT-1001	1371-RECN-2001
1371-VERT-1003		

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7F Project Management
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.8 Combined Arms Mobility Operations
8. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

EQUIPMENT: Concrete and Masonry kit, concrete mixer, Pioneer kit, PPE

MATERIAL: Portland cement, coarse and fine aggregate, ad-mixture

OTHER SUPPORT REQUIREMENTS: Electrical and fuel requirements.

CLB-VERT-4004: Construct timber structure

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Engineers will conduct construction of timber structures for survivability of personnel and equipment. Structures consist of but not limited to bunkers, shelters, overhead cover, guard posts, crew-serve weapons positions, and individual fighting positions.

CONDITION: Given a mission, commander's intent, tactical situations, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To meet the survivability requirements and in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/prefabricate structures as required.
7. Emplace structures as required.
8. Construct/install wall structure(s) as required.
9. Construct/install roof structure/components as required.
10. Construct/install doors as required.
11. Construct/install portholes as required.
12. Sandbag structure as required.
13. Camouflage as required.
14. Install grenade sumps as required.
15. Submit required reports.

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-SURV-1001	1302-SURV-1002	1302-VERT-1001
1371-EOPS-1002	1371-EOPS-1003	1371-EOPS-1004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2008
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-MANT-1001	1371-RECN-2001	1371-SURV-1001
1371-SURV-2001	1371-SURV-2002	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	1371-VERT-1005

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating

4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and Kits

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CLB-VERT-4005: Repair existing structures

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Engineers will conduct this task for any type of structure (wood, concrete, steel, bridges, etc.) or facilities that have been damaged/flawed or incorrect per design specifications.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, structure/facility in need of repair, construction materials and references.

STANDARD: To meet the original design requirements/specifications to restore structure or facilities and in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics as required.
2. Review engineer reconnaissance and survey as required.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Repair/replace structural components as required.
7. Repair/replace electrical as required.
8. Repair bridge abutments as required.
9. Submit required reports.

PREREQUISITE EVENTS: CLB-RECN-4001

CHAINED EVENTS:

CLB-HEOP-3002	CLB-UTIL-3001

RELATED EVENTS:

1302-EOPS-1009	1302-RECN-1001	1302-VERT-1001
1316-XENG-1001	1316-XENG-1006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-RECN-1001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and kits

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CLB-VERT-4006: Construct concrete structure

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construction of concrete structures for use in all operations conducted to include but not limited to wing walls, buildings, foundations, retaining walls, etc., or may be specified in mission directives in support of the MAGTF.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To meet the requirements listed in the design specifications, in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install form work for footers as required.
7. Construct/install form work for walls as required.
8. Place reinforcement material as required.
9. Place concrete for footer(s) as required.
10. Place concrete for wall(s) as required.
11. Place concrete for slab(s) as required.
12. Consolidate concrete as required.
13. Finish concrete as required.
14. Remove forms as required.
15. Submit required reports.

RELATED EVENTS:
1302-EOPS-1001 1302-EOPS-1002 1302-EOPS-1003

1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-SURV-1001	1302-SURV-1005	1302-VERT-1001
1316-XENG-1001	1316-XENG-1006	1371-EOPS-1001
1371-EOPS-1004	1371-EOPS-2005	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-1001	1371-HORZ-1002
1371-HORZ-1003	1371-HORZ-2004	1371-HORZ-2005
1371-MANT-1001	1371-RECN-2001	1371-SURV-1001
1371-SURV-2001	1371-VERT-1003	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and kits

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CLB-VERT-4007: Construct manufactured steel structure

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Any manufactured steel structures to include but not limited to K-Spans, Butler Buildings, Pre-engineered buildings, Framed Shelters w/vinyl covers, etc.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, steel structure components, design specifications, construction materials and appropriate references.

STANDARD: That meets the requirements listed in the manufacturer specifications, in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install foundation as required.
7. Construct/install flooring as required
8. Construct/install structure(s) as required.
9. Construct/install doors as required.
10. Construct/install windows as required.
11. Submit required reports.

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1005	1302-VERT-1001	1316-XENG-1001
1316-XENG-1006	1371-EOPS-1001	1371-EOPS-1004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-1001
1371-HORZ-1002	1371-HORZ-1003	1371-HORZ-2004
1371-HORZ-2005	1371-MANT-1001	1371-RECN-2001
1371-SURV-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7C Carpentry
6. MCRP 3-17.7D Concrete and Masonry
7. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
8. MCRP 3-17.7F Project Management
9. MCRP 3-17.7I Earthmoving Operations
10. MCRP 3-17.7K Theater of Operations Electrical Systems
11. MCRP 3-17.7L Explosives and Demolitions
12. MCRP 3-17A Engineering Field Data
13. MCRP 4-11.1D Field Hygiene and Sanitation
14. MCWP 3-17 Engineering Operations
15. MCWP 3-33 Military Operations Other Than War (MOOTW)
16. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
17. MCWP 3-41.1 Rear Area Operations
18. MCWP 4-1 Logistics Operations
19. MCWP 4-11 Tactical-Level Logistics
20. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Combat engineer equipment, Utilities equipment

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5006. 3000-LEVEL EVENTS

CLB-CMOB-3001: Employ explosive obstacles

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Position an explosive obstacle to turn, block, fix, or disrupt

enemy movement or maneuver of personnel or equipment.

CONDITION: Given an operations order, personnel, demolitions material, engineer equipment, and personal protective equipment.

STANDARD: To turn, block, fix, or disrupt the enemy in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare site.
3. Build the explosive obstacle (if required).
4. Emplace explosive obstacle.
5. Recover as required.
6. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2003	1371-DEMO-1002	

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J007 Mine, Antipersonnel M18A 1 with Non-	2 mines per Team
L598 Simulator, Explosive Booby Trap Flas	10 Simulator per Team
M023 Charge, Demolition Block M112 1-1/4	20 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	6 charges per Team
M327 Coupling Base, Firing Device with Pr	10 primers per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
ML03 Firing Device, Demolition Multi-Purp	10 detonators per Team

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range
Facility Code 17905 Mine Warfare Area

EQUIPMENT: PPE, Combat engineer equipment, tools and kits

MATERIAL: Class IV material.

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this

event.

CLB-CMOB-3002: Build non-explosive obstacles

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Build non-explosive obstacles to, block, fix, or disrupt the enemy. Typical examples are: Wire, Tank ditches, Log cribs, Steel H beam post obstacles, falling or tumble blocks, Dragon's teeth, hedgehogs, tetrahedrons and non-explosive abatis.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, natural terrain, battlefield materials, etc.).

STANDARD: To, block, fix, or disrupt the enemy in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review mission and schematics.
2. Determine actual work sequence.
3. Coordinate logistical requirements.
4. Coordinate overwatch/security for obstacle construction.
5. Move to obstacle site.
6. Tie obstacles into natural/existing obstacles as required.
7. Construct/place mobility obstacles (barriers, hedgehogs, etc.) as required.
8. Construct wire obstacles as required.
9. Construct/place field expedient obstacles (logs, abatis, rubble, etc.) as required.
10. Construct/create phony obstacles as required.
11. Construct tank ditches as required.
12. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-ADMN-2002	1345-HEOP-1003
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1006
1345-HEOP-1007	1345-HEOP-2012	1345-MANT-1001
1345-MANT-2001	1345-MANT-2003	1345-MANT-2004
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1001	1371-CMOB-2001
1371-CMOB-2003		

REFERENCES:
1. Appropriate Technical Manuals
2. MCWP 3-17.5 Combined Arms Obstacle Integration

3. UNIT SOP Unit's Standing Operating Procedures
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-1 Ground Combat Operations
9. MCWP 3-13.2 MINE WARFARE
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.1 Combined Arms Gap-Crossing Operations
12. MCWP 3-17.4 Engineer Reconnaissance
13. MCWP 3-33 Military Operations Other Than War (MOOTW)
14. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
L495	Flare, Surface Trip M49 Series	2 flares per Team
M032	Charge, Demolition Block TNT 1-Pound	4 charges per Team
M039	Charge, Demolition Cratering 40-Poun	4 charges per Team
M130	Cap, Blasting Electric M6	6 blasting caps per Team
M131	Cap, Blasting Non-Electric M7	6 blasting caps per Team
M327	Coupling Base, Firing Device with Pr	6 primers per Team
M421	Charge, Demolition Shaped M3 Series	4 charges per Team
M456	Cord, Detonating PETN Type I Class E	250 FT per Team
M591	Dynamite, Military M1	6 charges per Team
M670	Fuse, Blasting Time M700	125 FT per Team
M757	Charge, Assembly Demolition M183 Com	2 cases per Team
ML03	Firing Device, Demolition Multi-Purp	4 detonators per Team
MN08	Igniter, Time Blasting Fuse with Sho	6 igniters per Team
MN14	Firing Device, Dual Mode MK54	4 detonators per Team
MN52	MK154 Mod 0	10 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, tools and kits, MHE, Earthmoving equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-CMOB-3003: Construct demolition obstacles

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ expedient anti-personnel devices and explosive hazards as explosive obstacles.

CONDITION: Given an operations order, personnel, demolitions material, engineer equipment, and while wearing fighting load.

STANDARD: To support the defensive concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare site.
3. Build the explosive obstacle.
4. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-DEMO-1001
1302-DEMO-1002	1371-CMOB-1003	1371-DEMO-1001

REFERENCES:
1. Appropriate Technical Manuals
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
11. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M030 Charge, Demolition Block TNT 1/4-Pou	4 charges per Team
M130 Cap, Blasting Electric M6	4 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	4 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
ML03 Firing Device, Demolition Multi-Purp	4 detonators per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-DEMO-3001: Destroy captured arms and ammunition with demolitions

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy captured arms and ammunition with demolitions to ensure destruction. Examples include: confined gaseous, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot-control agents; smokes and incendiaries (including bulk explosives); chemical warfare agents; chemical munitions; rockets; guided and ballistic missiles; bombs; warheads; mortar rounds; artillery ammunition; small arms ammunition; grenades; mines; torpedoes; depth charges; cluster munitions and dispensers; demolition charges; and devices and components of the above.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of arms and ammunition.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1003	1371-MOBL-2023

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team

M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-DEMO-3002: Destroy bridge with demolitions

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy bridge with demolitions which results in either a gap that exceeds the enemy's assault bridging capability by 5 meters, or that leaves demolished components which are unable to provide sufficient bearing capacity for enemy assault breaching assets.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of bridge.

10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1007
1371-CMOB-2004	1371-DEMO-1001	1371-DEMO-2015

REFERENCES:

1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-DEMO-3003: Destroy tunnel with demolitions

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy tunnel with demolitions to ensure destruction of the tunnel.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of tunnel.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-MOBL-1007	1371-DEMO-1001	1371-DEMO-2001
1371-DEMO-2002		

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team

MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-DEMO-3004: Destroy building with demolitions

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy building with demolitions to ensure destruction of the building.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of building.
10. Submit required reports.

RELATED EVENTS:
1302-DEMO-1001 1302-DEMO-1002 1302-DEMO-2001
1302-MOBL-1007 1371-DEMO-1001

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions

4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: 260 CFM, PPE.

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-FUEL-3001: Operate bulk fuel distribution site

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ bulk fuel systems, to include: SixCon pump and tank module and Expedient Refueling System (ERS) to establish a bulk fuel site.

CONDITION: With a bulk fuel distribution plan, bulk fuel supply, distribution system, safety equipment and personnel.

STANDARD: To dispense fuel to using units in order to meet mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Dispense fuel as required.
3. Receive fuel resupply as required.
4. Produce reports as required.
5. Recover system as required.

RELATED EVENTS:

1310-ADMN-2009	1310-ADMN-2010	1310-HEOP-2001
1310-MANT-2002	1345-HEOP-1001	1345-HEOP-1002
1345-HEOP-1003	1345-HEOP-1006	1345-MANT-1001
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1391-XENG-1001	1391-XENG-1002
1391-XENG-1004	1391-XENG-1005	1391-XENG-1006
1391-XENG-1007	1391-XENG-1008	1391-XENG-1009
1391-XENG-1011	1391-XENG-1012	1391-XENG-1013
1391-XENG-1014	1391-XENG-1015	

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
3. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17933 POL Training Area

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment, Bulk fuel equipment, Motor Transport equipment, Engineer lifting equipment, Tactical communications equipment.

MATERIAL: Class III/IV

CLB-FUEL-3002: Provide tactical bulk fuel storage

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide tactical bulk fuel storage.

CONDITION: Given fuel, equipment, personnel and references.

STANDARD: To ensure Days of Supply (DOS) are maintained.

EVENT COMPONENTS:
1. Receive fuel.
2. Inventory stored fuel.
3. Test stored fuel for quality control measures.

4. Measure fuel by metering or/and gauging.
5. Submit reports as required.

RELATED EVENTS:

1391-XENG-1006	1391-XENG-1007	1391-XENG-1008
1391-XENG-1009	1391-XENG-1011	1391-XENG-1012
1391-XENG-1013	1391-XENG-1014	

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17933 POL Training Area

EQUIPMENT: Bulk fuel equipment, PPE.

MATERIAL: Class III/IV

CLB-HEOP-3001: Provide crane support

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ organic crane assets, to include: ATC 50-ton and LRT 110 7-ton cranes.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct lift of material.
7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2007
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-2002	1345-HEOP-2002	1345-HEOP-2003
1345-MANT-2001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2007	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002		

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Personnel operating cranes are required to be licensed on the equipment operating.

CLB-HEOP-3002: Provide Material Handling Equipment (MHE) support

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide Material Handling Equipment (MHE) support to the GCE and CLB utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct lift of material.
7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-1002	1345-HEOP-1001	1345-HEOP-1002
1345-HEOP-1003	1345-HEOP-2009	1345-MANT-1001
1349-ADMN-2006	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CLB-HEOP-3003: Provide earth moving equipment support

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited earth moving equipment support to the mission utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct combined earthmoving operations.
7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-1002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-1007
1345-HEOP-2004	1345-HEOP-2005	1345-HEOP-2006
1345-HEOP-2008	1345-HEOP-2009	1345-MANT-1001
1349-ADMN-2002	1349-ADMN-2006	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

CLB-HORZ-3001: Conduct dust abatement

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ a dust palliative with the assistance of organic engineer assets.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: To mitigate the effects of wind-blown dust on combatants and combat equipment that meets or exceeds commander's intent and supports the concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit, as required.
2. Conduct survey and visibly establish area to be treated.
3. Determine soil composition.
4. Determine dust palliative product.
5. Determine dust palliative product quantity.
6. Determine dust palliative product application equipment.
7. Determine dust palliative application guidance (Helipads / Roads / Base Camps) as required.
8. Prepare equipment for operation.
9. Move to site.
9. Don PPE, as required.
10. Incorporate Admix Methods (Grade / Spray / Blend / Compact / Spray), as required.
11. Clean and maintain equipment after operation.
12. Monitor cure time, as required.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1310-MANT-2002	1345-HEOP-1007
1345-HEOP-2008	1349-HORZ-2002	1349-HORZ-2003
1349-MANT-2002		

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7I Earthmoving Operations
4. MCWP 3-17 Engineering Operations
5. Dust Abatement Handbook

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving and Material Handling equipment

CLB-MANT-3001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 4.2.2.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Maintain engineer equipment by conducting preventive and corrective maintenance on engineer equipment using unit assigned maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2003	1310-ADMN-2004
1310-ADMN-2005	1310-ADMN-2008	1310-MANT-2001
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-1003
1316-ADMN-2001	1316-ADMN-2002	1316-MANT-1002
1316-MANT-1004	1316-XENG-1001	1316-XENG-1002
1316-XENG-1004	1316-XENG-1005	1316-XENG-1006
1341-ADMN-1001	1341-ADMN-1002	1341-ADMN-2001
1341-ADMN-2002	1341-ADMN-2003	1341-ADMN-2004
1341-MANT-1001	1341-MANT-1002	1341-MANT-1003
1341-MANT-1004	1341-MANT-1005	1341-MANT-1006
1341-MANT-1007	1341-MANT-1008	1341-MANT-1009
1341-MANT-1010	1341-MANT-2009	1341-MANT-2010
1345-ADMN-1002	1345-MANT-1001	1345-MANT-2001
1345-MANT-2002	1349-ADMN-2001	1349-ADMN-2002
1349-ADMN-2003	1349-ADMN-2004	1349-ADMN-2008
1349-MANT-2001	1349-MANT-2002	1371-MANT-1001
1371-MANT-2002		

REFERENCES:
1. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
5. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
6. MCO 5100.29_ Marine Corps Safety Program
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. SOP Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer tools, sets, kits.

CLB-MANT-3002: Maintain tactical power distribution system

SUPPORTED MCT(S): MCT 4.2.2.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Maintain equipment to ensure the safe distribution of electrical power to meet mission requirements.

CONDITION: With a Preventive Maintenance Checks and Service (PMCS) Schedule, testing equipment, tools, and personnel.

STANDARD: To ensure the equipment is safe and operational.

EVENT COMPONENTS:
1. Review PMCS schedule, as required.
2. Induct equipment into maintenance cycle.
3. Conduct preventive maintenance, as required.
4. Conduct corrective maintenance, as required.
5. Complete modifications, as required.
6. Ground system, as required.
7. Electrically energize system, as required.
8. Diagnose malfunction, as required.
9. Requisition repair parts, as required.
10. Install repair parts, as required.
11. Test system.
12. Complete quality control requirements.
13. Complete administrative maintenance requirements.

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-ADMN-1008
1141-ADMN-1010	1141-ADMN-1011	1141-ADMN-2073
1141-MANT-1101	1141-MANT-1224	1141-MANT-1324
1141-MANT-1424	1141-MANT-2191	1141-MANT-2244
1141-MANT-2344	1141-MANT-2444	1141-XENG-1601
1141-XENG-1703	1142-ADMN-1006	1142-ADMN-1008
1142-ADMN-1010	1142-ADMN-1011	1142-ADMN-2073
1142-MANT-1101	1142-MANT-1106	1142-MANT-1108
1142-MANT-1109	1142-MANT-1142	1142-MANT-1351
1142-MANT-1451	1142-MANT-1466	1142-MANT-1467
1142-MANT-1468	1142-MANT-1469	1142-MANT-1493
1142-MANT-2191	1142-MANT-2308	1142-MANT-2309
1142-MANT-2318	1142-MANT-2354	1142-MANT-2365
1142-MANT-2408	1142-MANT-2409	

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Multi-meter, tools, power generation equipment, PPE.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task includes conducting maintenance on generators, MEPDIS and MEPDIS-R.

CLB-MANT-3003: Maintain water purification equipment

SUPPORTED MCT(S): MCT 4.2.2.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on water purification equipment to meet mission requirements and commander's intent.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units' readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspections (LTI).
3. Open service request (GCSS-MC).
4. Order repair parts.
5. Install repair parts.
6. Complete modifications, as required.
7. Perform operational checks.
8. Complete quality control requirements.
9. Complete administrative maintenance requirements.

RELATED EVENTS:

1142-ADMN-2061	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-1382	1142-MANT-1493	1142-MANT-2191
1142-MANT-2383	1171-ADMN-1006	1171-ADMN-1007

1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-ADMN-2071	1171-ADMN-2072	1171-ADMN-2073
1171-MANT-1233	1171-MANT-1248	1171-MANT-1271
1171-MANT-1272	1171-MANT-1274	1171-MANT-1277
1171-MANT-1278	1171-MANT-1279	1171-MANT-1280
1171-MANT-1282	1171-MANT-1284	1171-MANT-1285
1171-MANT-1333	1171-MANT-1348	1171-MANT-1371
1171-MANT-1372	1171-MANT-1374	1171-MANT-1379
1171-MANT-1382	1171-MANT-1433	1171-MANT-1441
1171-MANT-1448	1171-MANT-1471	1171-MANT-1472
1171-MANT-1474	1171-MANT-1478	1171-MANT-1482
1171-MANT-1484	1171-MANT-1485	1171-MANT-2101
1171-MANT-2191	1171-MANT-2396	1171-MANT-2397

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
4. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, appropriate tools and kits

MATERIAL: POLs as required

CLB-MANT-3004: Maintain hygiene equipment

SUPPORTED MCT(S): MCT 4.2.2.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on water support equipment to meet mission requirements and commander's intent.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).

3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete modifications, as required.
7. Perform operational checks.
8. Complete quality control requirements.
9. Complete maintenance administrative requirements.

RELATED EVENTS:

1142-MANT-1101	1142-MANT-1106	1142-MANT-1108
1142-MANT-1109	1142-MANT-1331	1142-MANT-1392
1142-MANT-1493	1142-MANT-2332	1142-MANT-2338
1142-MANT-2438	1171-ADMN-1006	1171-ADMN-1007
1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-ADMN-2071	1171-ADMN-2072	1171-ADMN-2073
1171-MANT-1231	1171-MANT-1232	1171-MANT-1241
1171-MANT-1277	1171-MANT-1278	1171-MANT-1331
1171-MANT-1332	1171-MANT-1431	1171-MANT-1432
1171-MANT-1477	1171-MANT-1478	1171-MANT-2101
1171-MANT-2191	1171-MANT-2338	1171-MANT-2395
1171-MANT-2396	1171-MANT-2438	

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.4 Maintenance Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, appropriate tools and kits

MATERIAL: Appropriate POLs as required

CLB-MANT-3005: Maintain refrigeration system(s)

SUPPORTED MCT(S): MCT 4.2.2.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct maintenance in order to sustain the refrigeration system(s) in operable status.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete quality control requirements.
9. Complete maintenance administrative requirements.

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-1392	1142-MANT-1493	1142-MANT-2191
1142-MANT-2327	1161-ADMN-1006	1161-ADMN-1008
1161-ADMN-1010	1161-ADMN-1011	1161-ADMN-2073
1161-MANT-1101	1161-MANT-1102	1161-MANT-1103
1161-MANT-1104	1161-MANT-1106	1161-MANT-1107
1161-MANT-1108	1161-MANT-1109	1161-MANT-1235
1161-MANT-1335	1161-MANT-1402	1161-MANT-1404
1161-MANT-2191		

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling Equipment, power generation equipment, tools and kits.

CLB-MANT-3006: Maintain Environmental Control Units (ECU)

SUPPORTED MCT(S): MCT 4.2.2.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct maintenance in order to sustain the ECU(s) in operable status.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete quality control requirements.
9. Return administrative maintenance requirements.

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-2191	1142-MANT-2311	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1010	1161-ADMN-1011
1161-ADMN-2015	1161-ADMN-2016	1161-ADMN-2073
1161-MANT-1101	1161-MANT-1102	1161-MANT-1103
1161-MANT-1104	1161-MANT-1106	1161-MANT-1107
1161-MANT-1108	1161-MANT-1109	1161-MANT-1211
1161-MANT-1218	1161-MANT-1311	1161-MANT-1318
1161-MANT-1401	1161-MANT-1403	1161-MANT-2191

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Utilities equipment, tools and kits

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CLB-MOBL-3001: Fell standing timber

SUPPORTED MCT(S): MCT 4.3.6

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Fell standing timber to clear a forested area in support of operations.

CONDITION: Given an operations order, standing timber, appropriate hand tools, an SL-3 complete chainsaw, mixed fuel, personnel, and all personal protective equipment (PPE).

STANDARD: To clear a forested area in support of operations in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine equipment required.
3. Calculate time required for construction.
4. Prepare equipment for operation.
5. Move to site.
6. Establish safety zone.
7. Cut timber.
8. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-SURV-1001	1310-ADMN-2002
1310-ADMN-2004	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-MANT-1001
1345-MANT-2001	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-CMOB-2001	1371-EOPS-1002	1371-EOPS-1003
1371-EOPS-2008		

REFERENCES:
1. Appropriate TM/Manufacture's Manual for Chainsaw
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	6 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	6 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	20 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
MN08 Igniter, Time Blasting Fuse with Sho	10 igniters per Team
MN52 MK154 Mod 0	10 detonators per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits, HazMat containment kit, PPE.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-MOBL-3002: Employ a medium machinegun team

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ a medium machinegun team in a mounted/dismounted position.

CONDITION: Given an operations order, a medium machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

STANDARD: To support the scheme of maneuver in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-1 Ground Combat Operations
2. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A011 Cartridge, 12 Gauge #00 Buckshot M16	100 round per Marine
A131 Cartridge, 7.62mm 4 Ball M80/1 Trace	900 rounds per Marine

RANGE/TRAINING AREA:
Facility Code 17580 Machine Gun Transition Range
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety officer, Corpsman

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training

rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-MOBL-3003: Employ a heavy machinegun team

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ a heavy machinegun team in a mounted/dismounted position.

CONDITION: Given an operations order, a heavy machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads

STANDARD: To support the scheme of maneuver.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-1 Ground Combat Operations
2. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A576 Cartridge, Caliber .50 4 API M8/1 AP	650 rounds per Marine

RANGE/TRAINING AREA:
Facility Code 17580 Machine Gun Transition Range
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety officer, Corpsman

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-RECN-3001: Survey site for construction

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Survey site for construction to allow critical planning for construction and or operations in support of the MAGTF.

CONDITION: Provided a construction mission, a map, a scientific calculator, task organized personnel, equipment, and references.

STANDARD: To support commander's intent, mission requirements and concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Move to survey site.
3. Reconnoiter project site as required.
4. Submit required reports.

RELATED EVENTS:

1302-HORZ-1001	1302-PLAN-1002	1302-PLAN-2004
1302-RECN-1001	1302-VERT-1001	1361-SRVY-1001
1361-SRVY-1002	1361-SRVY-1003	1361-SRVY-1004
1361-SRVY-1005	1361-SRVY-1006	1361-SRVY-1007
1361-SRVY-1008	1361-SRVY-1009	1361-SRVY-1010
1361-SRVY-1011	1361-SRVY-1012	1361-SRVY-2002
1361-XENG-2001	1361-XENG-2002	1371-PLAN-2002
1371-RECN-1001	1371-RECN-2001	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17.4 Engineer Reconnaissance
5. NAVEDTRA 10696 Engineer Aid 3
6. TM 5-581B Construction Drafting
7. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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CLB-RECN-3002: Conduct cache sweep

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and

secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission order, detection equipment, personnel, engineer equipment, Class IV, personal protective equipment, and references.

STANDARD: To locate, mark, and reduce all discovered ordnance, munitions, mines, ammunition, weapons, and explosives per commander's intent and mission requirement.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine detector to be used.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Conduct area sweep.
7. Locate and mark the object.
8. Identify the object.
9. Destroy object(s) as required.
10. Proof area to ensure explosive object has been properly neutralized.
11. Submit required reports.

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1302-RECN-1001	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2018	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	10 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, tools and kits

UNITS/PERSONNEL: Range safety officer, Corpsman, EOD personnel, Weapons intelligence team

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

CLB-RECN-3003: Conduct obstacle reconnaissance

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct obstacle reconnaissance to focus on answering obstacle intelligence IR-obstacle location, width, and depth; obstacle composition (wire, mines by type, and so forth.); soil conditions; locations of lanes and bypasses; and the location of enemy direct-fire systems.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To identify obstacles; identify suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Determine obstacle type and location.
5. Reconnoiter obstacle as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 05-07-013 Bridge Classification Card (2006)
3. GTA 5-2-5 Engineer Reconnaissance

4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps

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CLB-RECN-3004: Conduct bridge reconnaissance

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct bridge reconnaissance to collect detailed technical information on selected bridges. This assessment provides the basic Military Load Classification (MLC) information necessary for the commander to plan for the use of the bridge.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To classify bridges, identify obstacles, identify suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter bridge.
5. Classify bridge(s), as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging

6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-1 Ground Combat Operations
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.3 MAGTF Breaching Operations
12. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

CLB-RECN-3005: Conduct road reconnaissance

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct road reconnaissance to collect detailed technical information on the engineering characteristics and trafficability of a road section within a route.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To classify roads, routes; identify obstacles; identify suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter road(s) or route(s) as required.
5. Classify road(s) as required.
6. Classify route(s) as required
7. Identify suitable bypasses.
8. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations

8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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CLB-RECN-3006: Assess damage to airfield surfaces

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Surface defects can usually be attributed to excessive loads, inferior surfacing material, poor subgrade or base conditions, inadequate drainage, or a combination of these conditions. Surface inspections should include a complete inventory of the current pavement defects. Careful investigation of the causes of the defects will allow for timely maintenance to prevent the pavement defects from requiring repair.

CONDITION: Given a tactical situation, a forward operating base to be repaired, an operations order, commander's intent, personnel, equipment, and references.

STANDARD: To restore the forward operating base to optimum operational capability to reestablish surface roughness criteria in order to maintain serviceability of the airfield surface.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD).
3. Determine personnel, tool, and equipment requirement(s).
4. Proceed to assigned objective.
5. Reconnoiter damaged airfield surface as required.
6. Determine the type and extent of repair required.
7. Determine material required to complete the repair.
8. Issue the repair order.
9. Inspect completed repair.
10. Submit appropriate engineer reports.

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1007	1302-EOPS-1009
1371-EOPS-2004	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012		

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17B Engineer Forms and Reports

4. MCWP 3.21.1 Aviation Ground Support
5. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, PPE

UNITS/PERSONNEL: EOD personnel

CLB-RECN-3007: Assess damage to airfield facilities and structures

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Airfield facilities and structures used by coalition forces may be of sub-standard construction practices/materials or may have degraded over time therefore periodic inspections should be performed to ensure structural integrity and safety of the occupants.

CONDITION: Given an operations order, an airfield facility or structure to be repaired, task organized equipment and personnel, resources, and references.

STANDARD: To restore airfield facilities and structures to operating conditions in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine personnel, tool, and equipment requirement(s).
3. Proceed to assigned objective.
4. Reconnoiter damaged airfield facilities, as required.
5. Determine the type and extent of repair required.
6. Determine material required to complete the repair.
7. Submit appropriate engineer reports.

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1009	1361-DRAF-1001
1361-DRAF-1003	1361-SRVY-1007	1361-SRVY-2003
1361-SRVY-2004	1361-SRVY-2005	1371-EOPS-2004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design

3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3.21.1 Aviation Ground Support
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.7 General Engineering

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, PPE

UNITS/PERSONNEL: EOD personnel

CLB-SURV-3001: Construct trenches

SUPPORTED MCT(S): MCT 4.4.1.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ organic hand tools and/or earth moving assets, tools and equipment.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows multiple combatants' protection from direct fire weapons affords a force the capability to engage targets from front and oblique's, meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Calculate time required for construction.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement as required.
7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-2005	1349-HEOP-2001
1349-MANT-2002	1371-SURV-1001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.5 Combined Arms Countermobility Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-3002: Construct shelters/bunkers

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct shelters/bunkers to provide combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That provides combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons, and meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct shelter/bunker, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-SURV-1001
1302-SURV-1003	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-2001	1316-ADMN-2002
1316-XENG-1001	1316-XENG-1006	1316-XENG-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007

1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-SURV-1001	1371-SURV-2001
1371-SURV-2002		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-41.1 Rear Area Operations
8. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools and kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-3003: Construct vehicle survivability position/revetment

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct vehicle survivability position/revetment to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: To build vehicle survivability positions/revetments that meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.

5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct revetment, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:
1. GTA 05-08-001 Survivability Positions
2. JP 3-34 Joint Engineer Operations
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.5 Combined Arms Countermobility Operations
7. MCWP 3-17.6 Survivability
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces
EQUIPMENT: Engineer equipment assets

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials, as required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-3004: Construct crew served weapons position

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct crew served weapons position to enable weapons to engage targets from front and oblique's.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows a weapons team the capability to engage targets from front and oblique's, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.
7. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools and kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV supplies, as required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-3005: Construct overhead cover

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct overhead cover that meets or exceeds the maximum threat capability of enemy weapons systems.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To design specifications that meets or exceeds the maximum threat capability of enemy weapons systems in accordance with the concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct overhead cover, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-2007	1345-HEOP-2012	1345-MANT-1001
1345-MANT-2001	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-SURV-1001	1371-SURV-2001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools and kits

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports, Class IV supplies, as required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-3006: Construct individual fighting position

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct individual fighting positions and/or trenches to protect one or more dismounted Marines armed with individual weapons, while supporting their ability to engage the enemy. Fighting positions typically consist of a hole in the ground, supplemented with frontal, overhead, and flank or rear cover as the time and situation permits. Trenches typically connect fighting positions, C2 nodes and logistical hubs while providing cover from enemy observation and direct/indirect fire.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: Positions are planned and designed so that they are concealed, mutually supporting, and have interlocking fields of fire in all directions and protect occupants against enemy direct-fire weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.
7. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-2012	1345-MANT-1001	1371-SURV-1001
1371-SURV-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools and kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-3007: Construct triggering screen

SUPPORTED MCT(S): MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Triggering screens are built separately or added on to existing structures and used to activate the fuze of an incoming shell or projectile at a designated standoff distance from the structure.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: So that it provides an effective screen against enemy weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct blast screen, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:
1302-SURV-1001 1302-SURV-1002 1371-SURV-1001
1371-SURV-2001

REFERENCES:
1. JP 3-34 ENGINEER DOCTRINE FOR JOINT OPERATIONS
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry

4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools and kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials, as required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-SURV-3008: Construct vehicle fighting position

SUPPORTED MCT(S):
MCT 4.4.1.1 MCT 4.4.2.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct vehicle fighting position to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: That meets or exceeds the mission requirement for the specified vehicle/weapons system in accordance with the concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supported unit.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement as required per vehicle type and weapon employment.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1007
1345-HEOP-2006	1345-HEOP-2007	1345-HEOP-2012

1345-MANT-1001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-SURV-2001		

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.6 Survivability
4. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment assets

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

CLB-UTIL-3001: Establish tactical power distribution system

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited power distribution equipment to establish a tactical electric grid in order to distribute electric power that meets the operational requirement and commanders intent. Limited tactical electric supply is a scaled level of electrical distribution that provides support to a single unit. Unit performing limited tactical electrical supply is constrained by capacity and capability from providing tactical electrical support beyond its own footprint.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To accomplish operational requirements and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Determine load requirements.
3. Plan power distribution system(s).
4. Set up distribution system(s).
5. Inspect grounding and connections.
6. Energize system(s).
7. Test system(s).

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-MANT-1101
1141-MANT-1224	1141-MANT-2244	1141-XENG-1601
1141-XENG-1624	1141-XENG-1703	1141-XENG-2501
1141-XENG-2521	1141-XENG-2621	1141-XENG-2622
1141-XENG-2623	1141-XENG-2721	1141-XENG-2821

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Distribution Systems, Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit

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CLB-UTIL-3002: Provide floodlight support

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide illumination during low light conditions in order to meet mission requirements and commander's intent.

CONDITION: With an operational order, required equipment and personnel.

STANDARD: To properly illuminate required area.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Establish illumination plan.
3. Set up floodlight set(s).
4. Operate a floodlight.

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1101	1141-MANT-1247
1141-XENG-1703	1141-XENG-1747	1141-XENG-2622

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems
2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

EQUIPMENT: PPE, tools and kits

CLB-UTIL-3003: Establish power generation site(s)

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited power generation equipment to meet operational requirement and commander's intent. Limited tactical electric supply is a scaled level of power generation that provides support to a single unit. Unit performing limited tactical electrical supply is constrained by capacity and capability from providing tactical electrical support beyond its own footprint.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Set up generator site(s).
3. Inspect grounding and connections.
4. Energize system(s).
5. Perform operational check(s).
6. Test system.

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1101	1141-XENG-1601
1141-XENG-1618	1141-XENG-1751	1141-XENG-1752
1141-XENG-1753	1141-XENG-1754	1141-XENG-1757
1141-XENG-1763	1141-XENG-1765	1141-XENG-1795
1141-XENG-2622	1141-XENG-2718	1141-XENG-2737
1141-XENG-2750	1141-XENG-2755	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit

---

CLB-UTIL-3004: Wire a structure for electricity

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Install limited interior electrical wiring in order to distribute electricity to meet electrical power requirements.

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish operational power per commander's intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Estimate and requisition materials (as required).
3. Calculate time required to wire structure.
4. Gather tools and materials.
5. Set safety zone, lockout and tagout any preexisting electrical circuits that will be worked on, as required.
6. Verify the location of preexisting underground utility lines.
7. Install electrical boxes, interior/exterior wiring, service feeder, service entrance cables and main and sub panel boxes, as required.
8. Install equipment and system grounding, as required.
9. Request qualified inspector to complete uncovered/rough-in electrical inspection.
10. Install devices, circuit breakers, fixtures and electrical equipment, as required.
11. Request qualified inspector to complete final electrical inspection.
12. Request qualified personnel to connect service feeder to appropriate transformer or power generation, as required.
13. Energize and test electrical system.
14. Submit required reports.

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-2031	1141-MANT-1101
1141-XENG-1601	1141-XENG-1703	1141-XENG-1961
1141-XENG-1962	1141-XENG-2561	1141-XENG-2622
1141-XENG-2623	1141-XENG-2694	1141-XENG-2696
1141-XENG-2963	1141-XENG-2964	1141-XENG-2965
1141-XENG-2966		

REFERENCES:
1. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. FM 5-424 Theater of Operations Electrical Systems
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Electrical materials (as required), PPE, tools and kits

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Final inspection must be performed by a qualified inspector who is a graduate of one or more listed courses: Advanced Electrician (AE), Utilities Chief (UC), or Utilities Officer (UO) Course.

CLB-UTIL-3005: Provide Environmental Control Unit (ECU) support

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Utilize ECU equipment in order to provide adequate climate control for critical equipment that is sensitive to extreme temperatures.

CONDITION: With an operational order, required equipment and personnel.

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Establish ECU support plan.
3. Install ECU(s).
4. Maintain ECU(s).

RELATED EVENTS:

1161-ADMN-1006	1161-MANT-1211	1161-MANT-1218
1161-XENG-1611	1161-XENG-1614	1161-XENG-1634
1161-XENG-2541	1161-XENG-2618	1161-XENG-2641
1161-XENG-2741		

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, power generation, distribution, ECU equipment, maintenance equipment, as required

---

CLB-UTIL-3006: Provide refrigeration support

SUPPORTED MCT(S): MCT 4.4.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide limited refrigeration for cooling and freezing as required.

CONDITION: With an operational order, required equipment and personnel.

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Setup refrigeration unit(s).
3. Maintain refrigeration unit(s).
4. Recover refrigeration unit(s).

RELATED EVENTS:

1161-ADMN-1006	1161-MANT-1235	1161-XENG-1635
1161-XENG-2541	1161-XENG-2642	1161-XENG-2741

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, power generation equipment, ECUs, distribution, maintenance equipment as required

---

CLB-UTIL-3007: Produce potable water

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Produce and store limited potable water in order to meet mission requirements. Limited water production operations are a scaled-level of engineer service restrained by the capability and capacity of the unit performing. Single point distribution is generally the norm.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Perform water recon.

2. Establish water point.
3. Produce potable water.
4. Test water for potability.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1282	1171-XENG-1604
1171-XENG-1782	1171-XENG-2501	1171-XENG-2502
1171-XENG-2553	1171-XENG-2651	1171-XENG-2653
1171-XENG-2752	1171-XENG-2753	1171-XENG-2754
1171-XENG-2853		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment with supplemental kits (cartridges, NBC filters etc.), MHE, water testing kit, tool kits, PPE

MATERIAL: Chemicals to purify raw water source

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT), as required

---

CLB-UTIL-3008: Store potable water

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Store a limited amount of potable water in order to meet mission requirements. Limited water production operations are a scaled-level of engineer service restrained by the capability and capacity of the unit performing. Single point distribution is generally the norm.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Determine storage requirements.
2. Establish storage site(s).
3. Test water for potability.
4. Store water for distribution.

PREREQUISITE EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-MANT-1241	1171-MANT-1248	1171-MANT-1277
1171-MANT-1278	1171-MANT-1284	1171-MANT-1285
1171-XENG-1677	1171-XENG-1678	1171-XENG-1684
1171-XENG-1685	1171-XENG-1702	1171-XENG-2553
1171-XENG-2653	1171-XENG-2752	1171-XENG-2753
1171-XENG-2853		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities potable storage equipment, MHE, water testing kit, tool kits, PPE

MATERIAL: Chemicals to sustain potable water

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT), as required

---

CLB-UTIL-3009: Establish water distribution site

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Establish an accessible and limited potable water distribution site for the supported unit in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Determine water requirements.
2. Set up distribution system(s).
3. Inspect system(s).
4. Test water for potability.
5. Distribute potable water.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1241	1171-MANT-1248
1171-MANT-1271	1171-MANT-1272	1171-MANT-1274

1171-MANT-1277	1171-MANT-1278	1171-MANT-1279
1171-MANT-1280	1171-MANT-1284	1171-MANT-1285
1171-XENG-1648	1171-XENG-1677	1171-XENG-1678
1171-XENG-1680	1171-XENG-1684	1171-XENG-1685
1171-XENG-1702	1171-XENG-1748	1171-XENG-1771
1171-XENG-1772	1171-XENG-1774	1171-XENG-1779
1171-XENG-2752	1171-XENG-2753	1171-XENG-2754
1171-XENG-2853		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, water testing kit, PPE, MHE, motor transport, tool kits, appropriate POLs

MATERIAL: Chemicals to sustain potable water

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT), as required

---

CLB-UTIL-3010: Provide laundry services

SUPPORTED MCT(S):

MCT 4.4.3.1	MCT 4.4.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide limited laundry services to meet mission requirements and commanders intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Establish laundry facilities.
3. Implement laundry schedule.
4. Operate laundry unit(s).

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1232	1171-MANT-1278
1171-MANT-1284	1171-MANT-1285	1171-XENG-1632

1171-XENG-1678	1171-XENG-1684	1171-XENG-1685
1171-XENG-1732	1171-XENG-2555	1171-XENG-2655
1171-XENG-2755		

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, PPE, MHE, motor transport, tool kits

MATERIAL: Laundry detergent, gravel, lime, insecticide

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Note: Water does not have to be completely potable-untreated Class III fresh water can be utilized.

CLB-UTIL-3011: Provide shower services

SUPPORTED MCT(S):

MCT 4.4.3.1	MCT 4.4.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide limited shower services to meet mission requirements and commanders intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Establish shower facilities.
3. Implement shower schedule.
4. Operate shower unit(s).

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1231	1171-MANT-1278
1171-XENG-1631	1171-XENG-1678	1171-XENG-1731
1171-XENG-2555	1171-XENG-2655	1171-XENG-2755
1171-XENG-2855		

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, PPE, MHE, motor transport, tool kits, POLs

MATERIAL: Building material, cleaning supplies, lime, insecticide, gravel

UNITS/PERSONNEL: Note: Water must be potable (class I) for showers

---

CLB-UTIL-3012: Install plumbing in a structure

SUPPORTED MCT(S): MCT 4.4.3.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Install a limited piping system in order to meet plumbing requirements and commander's intent.

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish water and sewer services per commanders intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Estimate and requisition materials, as required.
3. Calculate time required to plumb structure.
4. Gather tools and materials.
5. Set safety zone.
6. Verify the location of preexisting underground utility lines.
7. Install interior/exterior drainage plumbing system with appropriately sized vent(s), trap(s) and cleanout(s).
8. Pressurize drainage system to identify possible leaks.
9. Install hot and cold water supply lines with shut-off and relief valve(s), as required.
10. Request qualified inspector to complete uncovered/rough-in plumbing inspection.
11. Install plumbing fixtures.
12. Request qualified personnel to install water meter and shut-off valve, as required.
13. Connect structure main water supply line to water meter, as required.
14. Request qualified personnel to install sewer/septic system, as required.
15. Connect structure main sanitation pipe(s) to sewer/septic system, as required.
16. Request qualified inspector to complete final plumbing inspection.
17. Submit required reports.

RELATED EVENTS:

1171-ADMN-1006	1171-XENG-1981	1171-XENG-1982
1171-XENG-1984	1171-XENG-1985	1171-XENG-1986
1171-XENG-2581	1171-XENG-2983	1171-XENG-2987

1171-XENG-2988 1171-XENG-2989

REFERENCES:
1. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT: PPE, tools and kits

MATERIAL: Building materials

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Final inspection must be performed by a qualified inspector who is a graduate of one or more listed courses: Advanced Water Support Technician (AWST), Utilities Chief (UC), or Utilities Officer (UO) Course.

ENG & UTIL T&R MANUAL

CHAPTER 6

ESB COLLECTIVE EVENTS

	PARAGRAPH	PAGE
PURPOSE	6000	6-2
EVENT CODING.	6001	6-2
INDEX OF COLLECTIVE EVENTS.	6002	6-3
7000-LEVEL EVENTS	6003	6-6
6000-LEVEL EVENTS	6004	6-9
5000-LEVEL EVENTS	6005	6-20
4000-LEVEL EVENTS	6006	6-55
3000-LEVEL EVENTS	6007	6-112

CHAPTER 6

ESB COLLECTIVE EVENTS

6000. PURPOSE. Chapter 6 contains collective training events for the Engineer Support Battalion (ESB).

6001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
ESB	Engineer Support Battalion

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
CMOB	Countermobility
DEMO	Demolitions
EOPS	Engineer Operations
FUEL	Bulk Fuel
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction
MANT	Maintenance
MOBL	Mobility
PINF	Provisional Infantry
PLAN	Planning
RECN	Engineer Reconnaissance
SURV	Survivability
UTIL	Utilities
VERT	Vertical Construction

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
7000	Battalion Level
6000	Company Level
5000	Platoon Level
4000	Squad Level
3000	Team Level

6002. INDEX OF COLLECTIVE EVENTS

EVENT	E-CODED	DESCRIPTION	PAGE
7000-LEVEL EVENTS			
ESB-ADMN-7001	YES	Command and control engineer forces	6-
ESB-EOPS-7001	YES	Train engineer forces	6-
ESB-PLAN-7001	YES	Plan engineer operations	6-
6000–LEVEL EVENTS			
ESB-ADMN-6001	YES	Command and control engineer forces	6-
ESB-CMOB-6001	YES	Conduct countermobility operations	6-
ESB-EOPS-6001	YES	Train engineer forces	6-
ESB-EOPS-6002	YES	Conduct engineer operations	6-
ESB-FUEL-6001	YES	Conduct tactical bulk fuel operations	6-
ESB-MOBL-6001	YES	Conduct mobility operations	6-
ESB-MOBL-6002	YES	Employ non-standard bridging	6-
ESB-PINF-6001	NO	Provide provisional infantry	6-
ESB-PLAN-6001	YES	Plan engineer operations	6-
ESB-SURV-6001	YES	Conduct survivability operations	6-
5000-LEVEL EVENTS			
ESB-CMOB-5001	YES	Create an obstacle group	6-
ESB-DEMO-5001	YES	Conduct demolition operations	6-
ESB-FUEL-5001	YES	Construct bulk fuel site	6-
ESB-FUEL-5002	YES	Conduct tactical bulk fuel operations	6-
ESB-HEOP-5001	YES	Provide engineer equipment support	6-
ESB-HORZ-5001	YES	Conduct horizontal construction	6-
ESB-HORZ-5002	YES	Prepare site for construction	6-
ESB-MANT-5001	YES	Maintain engineer equipment	6-
ESB-MOBL-5001	NO	Conduct obstacle breaching operations	6-
ESB-MOBL-5002	YES	Conduct breach lane improvement operations	6-
ESB-MOBL-5003	YES	Construct expedient Helicopter Landing Zone (HLZ)	6-
ESB-MOBL-5004	YES	Construct combat roads	6-
ESB-MOBL-5005	YES	Install a medium girder bridge	6-
ESB-MOBL-5006	YES	Install Ribbon Bridge	6-
ESB-MOBL-5007	YES	Construct non-standard bridge	6-
ESB-MOBL-5008	YES	Repair non-standard bridge	6-
ESB-MOBL-5009	YES	Conduct rafting operations	6-
ESB-MOBL-5010	YES	Conduct area clearance operations	6-
ESB-MOBL-5011	YES	Construct tactical landing zones	6-
ESB-MOBL-5012	YES	Conduct airfield damage repair	6-
ESB-PINF-5001	NO	Fight as Provisional Infantry	6-
ESB-RECN-5001	YES	Conduct engineer reconnaissance	6-
ESB-RECN-5002	YES	Conduct cache sweep operations	6-
ESB-SURV-5001	YES	Construct survivability positions	6-
ESB-SURV-5002	YES	Harden existing structure	6-
ESB-SURV-5003	YES	Construct field fortifications	6-
ESB-UTIL-5001	YES	Provide utilities support	6-
ESB-VERT-5001	YES	Conduct vertical construction	6-
4000-LEVEL EVENTS			
ESB-CMOB-4001	YES	Create an explosive obstacle	6-
ESB-CMOB-4002	YES	Create non-explosive obstacles/barriers	6-

ESB-CMOB-4003	YES	Employ demolitions in support of countermobility operations	6-
ESB-FUEL-4001	NO	Construct bulk fuel site	6-
ESB-FUEL-4002	NO	Conduct tactical bulk fuel operations	6-
ESB-HEOP-4001	YES	Conduct MHE operations	6-
ESB-HORZ-4001	YES	Conduct horizontal construction	6-
ESB-HORZ-4002	YES	Construct expedient drainage structure	6-
ESB-MANT-4001	YES	Maintain engineer equipment	6-
ESB-MOBL-4001	YES	Conduct security for clearance operations	6-
ESB-MOBL-4002	NO	Detect obstacles during clearance operations	6-
ESB-MOBL-4003	NO	Breach obstacles for clearance operations	6-
ESB-MOBL-4004	YES	Conduct dismounted route sweep operations	6-
ESB-MOBL-4005	NO	Conduct deliberate breach	6-
ESB-MOBL-4006	YES	Conduct route improvement	6-
ESB-MOBL-4007	NO	Repair runway crater	6-
ESB-MOBL-4008	NO	Repair spall(s)	6-
ESB-MOBL-4009	YES	Repair road crater	6-
ESB-MOBL-4010	YES	Employ demolitions in support of mobility operations	6-
ESB-MOBL-4011	YES	Assemble medium girder bridge	6-
ESB-MOBL-4012	YES	Assemble ribbon bridge	6-
ESB-MOBL-4013	YES	Assemble ribbon raft	6-
ESB-MOBL-4014	YES	Maneuver a standard military ribbon raft	6-
ESB-PINF-4001	NO	Fight as Provisional Infantry	6-
ESB-RECN-4001	YES	Conduct Site Survey	6-
ESB-RECN-4002	YES	Conduct cache sweep	6-
ESB-RECN-4003	YES	Conduct zone reconnaissance	6-
ESB-RECN-4004	YES	Conduct route reconnaissance	6-
ESB-RECN-4005	YES	Conduct area reconnaissance	6-
ESB-SURV-4001	YES	Harden existing structure	6-
ESB-SURV-4002	YES	Construct field fortifications	6-
ESB-SURV-4003	YES	Construct Vehicle Control Point (VCP)	6-
ESB-SURV-4004	YES	Construct Entry Access Point (EAP)	6-
ESB-SURV-4005	YES	Construct earth filled barrier/structure	6-
ESB-SURV-4006	YES	Employ demolitions in support of survivability operations	6-
ESB-UTIL-4001	YES	Provide tactical electrical power	6-
ESB-UTIL-4002	YES	Provide potable water	6-
ESB-UTIL-4003	YES	Provide tactical hygiene support	6-
ESB-VERT-4001	YES	Conduct vertical construction	6-
ESB-VERT-4002	YES	Construct wood frame structure	6-
ESB-VERT-4003	YES	Construct concrete block structure	6-
ESB-VERT-4004	YES	Construct timber structure	6-
ESB-VERT-4005	YES	Repair existing structures	6-
ESB-VERT-4006	YES	Construct concrete structure	6-
ESB-VERT-4007	NO	Construct manufactured steel structure	6-
3000-LEVEL EVENTS			
ESB-CMOB-3001	YES	Employ explosive obstacles	6-
ESB-CMOB-3002	YES	Build non-explosive obstacles	6-
ESB-CMOB-3003	YES	Construct demolition obstacles	6-
ESB-DEMO-3001	NO	Destroy captured arms and ammunition with demolitions	6-

ESB-DEMO-3002	NO	Destroy Bridge with demolitions	6-
ESB-DEMO-3003	NO	Destroy tunnel with demolitions	6-
ESB-DEMO-3004	NO	Destroy building with demolitions	6-
ESB-FUEL-3001	NO	Operate bulk fuel distribution site	6-
ESB-FUEL-3002	NO	Provide tactical bulk fuel storage	6-
ESB-HEOP-3001	NO	Provide crane support	6-
ESB-HEOP-3002	YES	Provide Material Handling Equipment (MHE) support	6-
ESB-HEOP-3003	YES	Provide earth moving equipment support	6-
ESB-HORZ-3001	YES	Conduct dust abatement	6-
ESB-MANT-3001	YES	Maintain engineer equipment	6-
ESB-MANT-3002	NO	Employ maintenance team	6-
ESB-MANT-3003	NO	Maintain tactical power distribution system(s)	6-
ESB-MANT-3004	YES	Maintain water purification equipment	6-
ESB-MANT-3005	YES	Maintain hygiene equipment	6-
ESB-MANT-3006	NO	Maintain refrigeration system(s)	6-
ESB-MANT-3007	NO	Maintain Environmental Control Units (ECU)	6-
ESB-MOBL-3001	NO	Operate small craft	6-
ESB-MOBL-3002	YES	Employ a medium machinegun team	6-
ESB-MOBL-3003	YES	Employ a heavy machinegun team	6-
ESB-MOBL-3004	NO	Fell standing timber	6-
ESB-MOBL-3005	NO	Create a lane through an obstacle	6-
ESB-MOBL-3006	NO	Proof a lane through an obstacle	6-
ESB-MOBL-3007	NO	Mark a lane through an obstacle	6-
ESB-RECN-3001	YES	Survey site for construction	6-
ESB-RECN-3002	YES	Conduct cache sweep	6-
ESB-RECN-3003	YES	Conduct obstacle reconnaissance	6-
ESB-RECN-3004	YES	Conduct bridge reconnaissance	6-
ESB-RECN-3005	YES	Conduct road reconnaissance	6-
ESB-RECN-3006	NO	Assess damage to airfield surfaces	6-
ESB-RECN-3007	NO	Assess damage to airfield facilities and structures	6-
ESB-RECN-3008	YES	Conduct gap reconnaissance	6-
ESB-SURV-3001	YES	Construct trenches	6-
ESB-SURV-3002	YES	Construct shelter/bunkers	6-
ESB-SURV-3003	YES	Construct vehicle survivability position position/revetment	6-
ESB-SURV-3004	YES	Construct crew served weapons position	6-
ESB-SURV-3005	YES	Construct overhead cover	6-
ESB-SURV-3006	YES	Construct individual fighting position	6-
ESB-SURV-3007	YES	Construct triggering screen	6-
ESB-SURV-3008	YES	Construct vehicle fighting position	6-
ESB-UTIL-3001	YES	Establish tactical power distribution system	6-
ESB-UTIL-3002	NO	Provide floodlight support	6-
ESB-UTIL-3003	YES	Establish power generation sites	6-
ESB-UTIL-3004	NO	Wire a structure for electricity	6-
ESB-UTIL-3005	NO	Provide Environmental Control Unit (ECU) Support	6-
ESB-UTIL-3006	YES	Provide refrigeration support	6-
ESB-UTIL-3007	YES	Produce potable water	6-
ESB-UTIL-3008	NO	Store potable water	6-
ESB-UTIL-3009	NO	Establish water distribution site	6-

ESB-UTIL-3010	NO	Provide laundry services	6-
ESB-UTIL-3011	NO	Provide shower services	6-
ESB-UTIL-3012	NO	Install plumbing in a structure	6-

6003. 7000-LEVEL EVENTS

ESB-ADMN-7001: Command and control engineer forces

SUPPORTED MCT(S):
MCT 1.1.2 MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: As the MEF's general support engineer force, the ESB commander and staff will act as the SME on all general engineering functions for the MAGTF. The ESB commander organizes the battalion staff to enable command and control of the battalion, and provide staff support to any LCE engineer units assigned in support of the MAGTF. Collection efforts of higher and subordinate units, external agencies, and the battalion's S-2 are integrated to meet all intelligence requirements. The ESB intelligence officer actively participates in the engineer portion of the Group intelligence collection effort. The battalion is capable of self-administration.

CONDITION: Given an order commander's intent and references.

STANDARD: To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces, and coordinate operations with adjacent engineers in the accomplishment of the mission in accordance with MCWP 3-17 Engineer Operations.

EVENT COMPONENTS:
1. Establish COC and communications with higher, adjacent, supported and subordinate units.
2. Command assigned units.
3. Maintain the engineer common operational picture (COP).
4. Direct and coordinate current engineer operations and initiate appropriate actions.
5. Track commander's critical information requirements (CCIR).
6. Maintain status of available engineer resources.
7. Integrate engineer reconnaissance products with intelligence effort.
8. Make recommendations to the commander on the employment of engineer forces.

CHAINED EVENTS:
ESB-ADMN-6001 ESB-CMOB-6001 ESB-EOPS-6001
ESB-EOPS-6002 ESB-FUEL-6001 ESB-MOBL-6001
ESB-MOBL-6002 ESB-PINF-6001 ESB-PLAN-6001
ESB-SURV-6001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-43 Command and Control

4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: C4ISR Assets

ESB-EOPS-7001: Train engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.4.1	MCT 1.4.2
MCT 2.2.2	MCT 4.4.1	MCT 4.4.2
MCT 4.4.3	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, countermobility, survivability, engineer reconnaissance, amphibious operations and tactical electrical power.

CONDITION: Given an engineer unit, approved Mission Essential Task List (METL), commanders training guidance, training plans, training schedules, resources and trainers.

STANDARD: To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results in accordance with the references.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.
8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA)
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

CHAINED EVENTS:

ESB-ADMN-6001	ESB-CMOB-6001	ESB-EOPS-6001
ESB-EOPS-6002	ESB-FUEL-6001	ESB-MOBL-6001

ESB-MOBL-6002 ESB-PINF-6001 ESB-PLAN-6001
ESB-SURV-6001

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCRP 3-0A Unit Training Management Guide
3. MCRP 3-0B How to Conduct Training
4. MCWP 3-17 Engineering Operations
5. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area

ESB-PLAN-7001: Plan engineer operations

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.4.1	MCT 1.4.2
MCT 2.2.2	MCT 4.4.1	MCT 4.4.2
MCT 4.4.3	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan engineer operations to identify all potential engineer requirements (e.g., mobility, countermobility, survivability, limited vertical and horizontal construction, topographic support and civil-military operations support) during the planning process. The ESB conducts its internal planning with focus on mobility, countermobility, survivability and utilities in accordance with the Marine Corps Planning Process (MCPP).

CONDITION: Given higher commander's initial guidance, battle space area evaluation, and a warning or operations order.

STANDARD: To identify the best use of engineer personnel and equipment consistent with problem framing, commander’s intent, and concept of operations.

EVENT COMPONENTS:
1. Perform problem framing.
2. Develop courses of action.
3. War game courses of action.
4. Compare courses of action.
5. Brief commanders.
6. Develop orders.
7. Transition to produce operations plan or order.
8. Develop branches and sequels, if applicable.

CHAINED EVENTS: ESB-PLAN-6001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations

2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7F Project Management
6. MCRP 3-17.7I Earthmoving Operations
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.6 Survivability
10. MCWP 3-17.7 General Engineering
11. MCWP 3-17.8 Combined Arms Mobility Operations
12. MCWP 5-1 Marine Corps Planning Process (MCPP)

6004. 6000-LEVEL EVENTS

ESB-ADMN-6001: Command and control engineer forces

SUPPORTED MCT(S): MCT 1.1.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Command and control engineer forces to exercise authority and direction over assigned forces, advise the Battalion Commander on the use of engineer forces, and coordinate operations with adjacent engineers.

CONDITION: Given an order and commanders intent.

STANDARD: To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces, and coordinate operations with adjacent engineers in the accomplishment of the mission.

EVENT COMPONENTS:
1. Establish COC.
2. Establish communications with higher, adjacent, supported and subordinate units.
3. Command assigned units.
4. Maintain the engineer Common Operational Picture (COP).
5. Direct/coordinate current engineer operations.
6. Initiate appropriate actions.
7. Track CCIRs.
8. Maintain status of available engineer resources.
9. Integrate engineer reconnaissance products into intelligence efforts.
10. Make recommendations to the commander.

CHAINED EVENTS:

ESB-CMOB-5001	ESB-DEMO-5001	ESB-FUEL-5001
ESB-FUEL-5002	ESB-HEOP-5001	ESB-HORZ-5001
ESB-HORZ-5002	ESB-MANT-5001	ESB-MOBL-5001
ESB-MOBL-5002	ESB-MOBL-5003	ESB-MOBL-5004
ESB-MOBL-5005	ESB-MOBL-5006	ESB-MOBL-5007
ESB-MOBL-5008	ESB-MOBL-5009	ESB-MOBL-5010
ESB-MOBL-5011	ESB-MOBL-5012	ESB-PINF-5001

ESB-RECN-5001 ESB-RECN-5002 ESB-UTIL-5001
ESB-VERT-5001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-43 Command and Control
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

MATERIAL: C4ISR assets.

ESB-CMOB-6001: Conduct countermobility operations

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct countermobility operations to augment natural terrain with obstacle systems that disrupt the enemy's ability to maneuver its forces. With its movement disrupted, turned, fixed or blocked, the enemy is vulnerable.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan and references.

STANDARD: To turn, block, fix, or disrupt enemy forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct countermobility planning.
2. Integrate countermobility plan into concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete engineering portion to orders.
6. Issue orders.
7. Construct obstacles and barriers.
8. Maintain obstacles and barriers.
9. Submit reports as required.

CHAINED EVENTS:
ESB-CMOB-5001 ESB-HEOP-5001

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration

2. MCWP 3-13.2 MINE WARFARE
3. MCWP 3-17 Engineering Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)
5. MCWP 3-43 Command and Control

ESB-EOPS-6001: Train engineer forces

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.4.1	MCT 1.4.2
MCT 2.2.2	MCT 4.4.1	MCT 4.4.2
MCT 4.4.3	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, countermobility, survivability, vertical/horizontal construction, bulk liquids, bridging and tactical utility support.

CONDITION: Given an engineer unit, approved Mission Essential Task List (METL), commanders training guidance, training plans, training schedules, resources and trainers.

STANDARD: To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results.

EVENT COMPONENTS:
1. Conduct problem framing.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.
8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA).
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

CHAINED EVENTS:

ESB-CMOB-5001	ESB-DEMO-5001	ESB-FUEL-5001
ESB-FUEL-5002	ESB-HEOP-5001	ESB-HORZ-5001
ESB-HORZ-5002	ESB-MANT-5001	ESB-MOBL-5001
ESB-MOBL-5002	ESB-MOBL-5003	ESB-MOBL-5004
ESB-MOBL-5005	ESB-MOBL-5006	ESB-MOBL-5007
ESB-MOBL-5008	ESB-MOBL-5009	ESB-MOBL-5010
ESB-MOBL-5011	ESB-MOBL-5012	ESB-RECN-5001
ESB-RECN-5002	ESB-SURV-5001	ESB-SURV-5002
ESB-SURV-5003	ESB-UTIL-5001	ESB-VERT-5001

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCRP 3-0A Unit Training Management Guide
3. MCRP 3-0B How to Conduct Training
4. MCWP 3-17 Engineering Operations
5. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

ESB-EOPS-6002: Conduct engineer operations

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.4.1	MCT 1.4.2
MCT 2.2.2	MCT 4.4.1	MCT 4.4.2
MCT 4.4.3	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: The ESB is the primary Marine engineer unit to provide expeditionary vertical/horizontal construction, utilities and engineer equipment support. Providing this support includes but is not limited to; Prepare plans, orders, and to direct, lead and coordinate forces in support of MAGTF operations.

CONDITION: Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and security element.

STANDARD: In accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Provide engineer reconnaissance and survey.
2. Repair, improve, and construct standard and non-standard bridging.
3. Construct and maintain expedient roads.
4. Construct, maintain, and improve vertical or short takeoff and landing sites.
5. Construct and maintain mission essential base camp requirements (temporary structures).
6. Provide technical and equipment assistance for erection of pre-engineered buildings.
7. Provide tactical utilities support.
8. Provide bulk fuel handling, storing, and dispensing services.
9. Develop, improve, and maintain drainage systems.
10. Provide technical assistance to support camouflage requirements.
11. Provide expeditionary horizontal construction.
12. Provide expeditionary vertical construction.

13. Provide material handling equipment support.

CHAINED EVENTS:

ESB-CMOB-5001	ESB-DEMO-5001	ESB-FUEL-5001
ESB-FUEL-5002	ESB-HEOP-5001	ESB-HORZ-5001
ESB-HORZ-5002	ESB-MANT-5001	ESB-MOBL-5001
ESB-MOBL-5002	ESB-MOBL-5003	ESB-MOBL-5004
ESB-MOBL-5005	ESB-MOBL-5006	ESB-MOBL-5007
ESB-MOBL-5008	ESB-MOBL-5009	ESB-RECN-5001
ESB-UTIL-5001	ESB-VERT-5001	

REFERENCES:

1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCRP 3-17.1B Military Non-Standard Fixed Bridging
3. MCRP 3-17.6A Camouflage, Concealment, and Decoys
4. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
5. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
6. MCRP 3-17.7D Concrete and Masonry
7. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
8. MCRP 3-17.7F Project Management
9. MCRP 3-17.7G Military Soils Engineering
10. MCRP 3-17.7I Earthmoving Operations
11. MCRP 3-17.7K Theater of Operations Electrical Systems
12. MCRP 3-17.7N Base Camps
13. MCRP 3-17A Engineering Field Data
14. MCWP 3-17 Engineering Operations
15. MCWP 3-17.4 Engineer Reconnaissance
16. MCWP 3-17.5 Combined Arms Countermobility Operations
17. MCWP 4-11 Tactical-Level Logistics
18. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
19. NAVAIR 51-60-A-1 Installation, Maintenance, Repackaging and Illustrated Parts Breakdown, AM-2 Airfield Mat and Accessories

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer Earthmoving equipment, Engineer Material Handling equipment, Utilities equipment, Refrigeration equipment, Bulk fuel equipment, Combat Engineer tools & kits

UNITS/PERSONNEL: EOD support and Logistical support

ESB-FUEL-6001: Conduct tactical bulk fuel operations

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct Tactical Bulk Fuel operations in support of the MEF. The engineer support battalion (ESB) is responsible for providing general bulk fuel support to the MEF to include receipt, storage, distribution, and quality surveillance. Each ESB has one bulk fuel company to provide support to each respective MEF.

CONDITION: Given a mission order, estimated fuel requirements, required personnel and equipment, a communications plan, necessary support equipment and current references.

STANDARD: To provide uninterrupted fuel support per mission requirements.

EVENT COMPONENTS:
1. Review mission.
2. Determine type of set up for storage and distribution of fuel per mission requirements.
3. Task organized personnel and equipment needed.
4. Coordinate security requirements with supported unit as required.
5. Construct bulk fuel site.
6. Receipt for supplies.
7. Establish fuel systems communications plan.
8. Plan fuel distribution site for operations.
9. Establish a fuel laboratory quality surveillance and control program.
10. Submit required reports.

CHAINED EVENTS:

ESB-FUEL-5001	ESB-FUEL-5002	ESB-HEOP-5001
ESB-HORZ-5001	ESB-HORZ-5002	ESB-MANT-5001
ESB-RECN-5001	ESB-SURV-5001	

RELATED EVENTS:

1390-XENG-2001	1390-XENG-2002	1390-XENG-2003
1390-XENG-2004	1390-XENG-2005	1390-XENG-2007
1390-XENG-2009	1390-XENG-2010	1390-XENG-2011
1390-XENG-2012	1390-XENG-2013	1390-XENG-2014
1390-XENG-2015	1391-XENG-1001	1391-XENG-1002
1391-XENG-1003	1391-XENG-1004	1391-XENG-1005
1391-XENG-1006	1391-XENG-1007	1391-XENG-1008
1391-XENG-1009	1391-XENG-1010	1391-XENG-1012
1391-XENG-1013	1391-XENG-1014	1391-XENG-1015
1391-XENG-1016	1391-XENG-2001	1391-XENG-2002
1391-XENG-2003	1391-XENG-2004	1391-XENG-2005
1391-XENG-2006	1391-XENG-2007	1391-XENG-2008
1391-XENG-2009	1391-XENG-2010	1391-XENG-2011
1391-XENG-2012	1391-XENG-2013	1391-XENG-2014
1391-XENG-2015	1391-XENG-2016	1391-XENG-2017
1391-XENG-2018	1391-XENG-2019	

REFERENCES:
1. MCRP 4-11B Environmental Considerations
2. MCWP 3-17.4 Engineer Reconnaissance
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products

5. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
6. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17933 POL Training Area

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment, Bulk fuel equipment, Motor Transport equipment, Engineer lifting equipment, Tactical communications equipment.

MATERIAL: Class III/IV

ESB-MOBL-6001: Conduct mobility operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct mobility operations to enable the force commander to maneuver units into advantageous positions. It includes but is not limited to breaching, mounted route clearance, combat roads and trails, and assault bridging.

CONDITION: Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

STANDARD: To provide mobility for maneuver forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Conduct mobility planning.
2. Conduct engineer reconnaissance.
3. Integrate mobility plan with the concept of operations.
4. Participate in supported unit planning.
5. Task organize.
6. Complete the engineering portion of the orders.
7. Issue orders.
8. Clear mobility obstructions.
9. Construct and maintain mobility corridors (i.e., roads, routes, bridges, landing zones, etc.).
10. Submit reports as required.

CHAINED EVENTS:

ESB-HEOP-5001	ESB-MOBL-5001	ESB-MOBL-5002
ESB-MOBL-5003	ESB-MOBL-5004	ESB-MOBL-5005
ESB-MOBL-5006	ESB-MOBL-5007	ESB-MOBL-5008

ESB-MOBL-5009 ESB-MOBL-5010 ESB-MOBL-5011
ESB-MOBL-5012

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. UNIT SOP Unit's Standing Operating Procedures
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations
9. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces

ESB-MOBL-6002: Employ non-standard bridging

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Non-standard bridging construction requires preliminary information that is adequate for planning and design. The construction method used will depend site constrains and availability of engineer equipment, materials and manpower. A through reconnaissance can prevent needless return trips to the proposed site. Before making any final decisions pertaining to construction, consider the following factors: Access roads, Approach roads, Width, Banks, Flow characteristics, Stream bottom, Elevation, and Materials.

CONDITION: Provided a mission, commander's intent, a gap, bridge MLC requirement, tools, vehicles, task organized personnel and references.

STANDARD: To construct a bridge that meets design specifications and intended bridge classification in accordance with the commander's intent, concept of operations and FM 5-446 Military Non-Standard Fixed Bridges.

EVENT COMPONENTS:
1. Gather gap/site intelligence as required.
2. Analyze gap/site intelligence.
3. Determine bridge type based on gap and MLC as required.
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations as required.
8. Construct drainage structures/erosion controls as required.

9. Construct abutment(s) as required.
10. Construct intermediate supports as required.
11. Construct substructure components as required.
12. Construct superstructure components as required.
13. Verify MLC classification.
14. Turnover bridge to designated forces.
15. Submit required reports.

CHAINED EVENTS:
ESB-HEOP-5001 ESB-MOBL-5005 ESB-MOBL-5006
ESB-MOBL-5007 ESB-MOBL-5008

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor transportation equipment, Material Handling equipment

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ESB-PINF-6001: Provide provisional infantry

SUPPORTED MCT(S): MCT 1.1.2
MCT 1.12.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide provisional infantry to participate in offensive operations such as attacks, raids, and movement to contact. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To ensure a deployable detachment is capable of providing task organized forces to a supported unit in accordance with the concept of operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Employ appropriate formations and tactics.
6. Conduct final preparations.
7. Utilize, coordinate and deconflict fires.
8. Employ supporting arms.
9. Establish redundant communications.
10. Treat and evacuate casualties.
11. Process detainees.
12. Send and receive required reports.

CHAINED EVENTS: ESB-PINF-5001

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. MCDP 1 Warfighting
3. MCWP 3-1 Ground Combat Operations
4. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17730 Fire and Movement Range

ESB-PLAN-6001: Plan engineer operations

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.4.1	MCT 1.4.2
MCT 2.2.2	MCT 4.4.1	MCT 4.4.2
MCT 4.4.3	MCT 4.4.4	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Plan engineer operations to optimize the use of engineer personnel and equipment in accordance with mission analysis, commander's intent and concept of operations.

CONDITION: Given higher commander's initial guidance, battle space area evaluation, and a warning order or operations order.

STANDARD: To identify the best use of engineer personnel and equipment consistent with problem framing, commander's intent, and concept of operations.

EVENT COMPONENTS:
1. Perform problem framing.
2. Develop courses of action.
3. War game courses of action.
4. Compare courses of action.
5. Conduct decision brief.
6. Develop orders.
7. Transition to produce operations plan or order.
8. Develop branches and sequels, if applicable.

RELATED EVENTS:

1302-ADMN-1001	1302-ADMN-2001	1302-CMOB-1001
1302-CMOB-1002	1302-CMOB-1003	1302-DEMO-1001
1302-DEMO-1004	1302-DEMO-2001	1302-EOPS-1005
1302-FUEL-1001	1302-HORZ-1001	1302-HORZ-1002
1302-MOBL-1001	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1005	1302-MOBL-1007	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 5-1 Marine Corps Planning Process (MCPP)

ESB-SURV-6001: Conduct survivability operations

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct survivability operations to provide survivability planning and positions for supported units (Such as construction of field fortifications, hardening of command, communication and combat train locations, weapon system firing positions, and infantry fighting combat positions).

CONDITION: Given a mission, commander's intent, warning and operations orders, available resources and references.

STANDARD: To provide survivability positions for supported units in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Perform vulnerability assessment.
2. Integrate survivability plan with the concept of operations.
3. Conduct survivability planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct survivability positions.
8. Provide SME input to AF/FP plan, as required.
9. Maintain survivability positions, as required.
10. Maintain oversight of survivability construction efforts.
11. Receive and submit reports, as required.

CHAINED EVENTS:

ESB-SURV-5001	ESB-SURV-5002	ESB-SURV-5003
ESB-VERT-5001		

RELATED EVENTS:

1302-SURV-1001	1302-SURV-1002	1302-SURV-1003
1371-SURV-1001	1371-SURV-2001	1371-SURV-2002

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations

5. MCWP 3-17.6 Survivability
6. MCWP 5-1 Marine Corps Planning Process (MCPP)

6005. 5000-LEVEL EVENTS

ESB-CMOB-5001: Create an obstacle group

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Create obstacle groups of two or more obstacles grouped to provide a specific obstacle effect turn, block, fix, or disrupt the enemy.

CONDITION: Given a mission, commander's intent, a map, designated area, task organized personnel and equipment and references.

STANDARD: To turn, block, fix, or disrupt the enemy and supports the commanders intent and concept of operations.

EVENT COMPONENTS:
1. Develop/review obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine possible obstacle locations and types.
4. Identify the commander's obstacle priorities.
5. Determine resources.
6. Determine actual work sequence.
7. Determine task organization required.
8. Determine coordination required.
9. Coordinate with supported unit for specific obstacle placement and observation.
10. Coordinate observation and reporting for decision/triggering point(s) for reserve/situational obstacles as required.
11. Emplace explosive obstacle(s).
12. Create non-explosive obstacle(s).
13. Close lanes as required.
14. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-4001	ESB-CMOB-4002	ESB-CMOB-4003
ESB-HEOP-3003	ESB-HEOP-4001	

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1371-CMOB-2001	1371-CMOB-2002	

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. JP 3-34 Joint Engineer Operations
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance

7. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

ESB-DEMO-5001: Conduct demolition operations

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct demolition operations to produce the desired effect. These tasks may include placing explosives near heavy weapons, enemy munitions, destroying cave systems, facilities, equipment, and improving mobility in urban terrain and designated or reserve targets.

CONDITION: Given a tactical situation, an order, task organized equipment and personnel, specifications, and appropriate references.

STANDARD: To achieve desired effects in accordance with commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive demolition concept of operations.
2. Conduct engineer reconnaissance.
3. Destroy captured arms and ammunition as required.
4. Employ demolitions in support of mobility operations, as required.
5. Employ demolitions in support of survivability position construction as required.
6. Employ demolitions in support of counter-mobility operations as required.
7. Submit required reports.

CHAINED EVENTS:
ESB-CMOB-4003 ESB-MOBL-4010 ESB-RECN-4002
ESB-SURV-4006

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-DEMO-1004	1302-RECN-1001	1371-DEMO-2001
1371-DEMO-2002	1371-RECN-1001	1371-RECN-2001

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.6 Survivability
11. MCWP 3-17.7 General Engineering
12. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer demolitions kit, pioneer kit, PPE.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are in concert with the 4000-level events chained to this event.

ESB-FUEL-5001: Construct bulk fuel site

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct and set up fuel storage and distribution systems to accommodate multiple fuel requirements in support of the MEF.

CONDITION: Provided a bulk fuel plan with a systems layout, a location, task-organized personnel and equipment.

STANDARD: To meet fuel support requirements in accordance with the commander's intent and the mobility plan.

EVENT COMPONENTS:

1. Review mission.
2. Determine construction criteria.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supporting units.

5. Issue order.
6. Conduct site preparation as required.
7. Construct drainage structures as required.
8. Construct berms as required.
9. Install tactical fuel systems components.
10. Conduct dust abatement as required
11. Construct access road(s) as required.
12. Submit required reports.

CHAINED EVENTS:

ESB-FUEL-3001	ESB-FUEL-4001	ESB-HEOP-4001
ESB-HORZ-3001		

RELATED EVENTS:

1371-HORZ-2002	1371-HORZ-2003	1390-XENG-2001
1390-XENG-2011	1390-XENG-2012	1390-XENG-2014
1390-XENG-2015	1391-XENG-1001	1391-XENG-1014
1391-XENG-2009	1391-XENG-2017	1391-XENG-2018

REFERENCES:
1. MCRP 4-11B Environmental Considerations
2. MCWP 3-17.4 Engineer Reconnaissance
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17933 POL Training Area

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment, Bulk fuel equipment, Motor Transport equipment, Engineer lifting equipment, and Tactical communications equipment.

MATERIAL: Class III/IV

ESB-FUEL-5002: Conduct tactical bulk fuel operations

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct tactical bulk fuel operations in support of the MEF.

CONDITION: Given a mission order, location of operation, estimated fuel requirements, required personnel and equipment, a communications plan, necessary support equipment and current references.

STANDARD: To provide uninterrupted fuel support per mission requirements.

EVENT COMPONENTS:

1. Establish bulk fuel site security plan.
2. Construct bulk fuel site(s).
3. Establish bulk fuel site safety/environmental plan.
4. Coordinate for fuel receipt.
5. Receive fuel as required.
6. Store fuel.
7. Test fuel quality as required.
8. Coordinate for fuel distribution.
9. Dispense fuel as required.

CHAINED EVENTS:

ESB-FUEL-4002	ESB-HEOP-4001

RELATED EVENTS:

1390-XENG-2001	1390-XENG-2002	1390-XENG-2003
1390-XENG-2004	1390-XENG-2005	1390-XENG-2006
1390-XENG-2007	1390-XENG-2009	1390-XENG-2010
1390-XENG-2011	1390-XENG-2012	1390-XENG-2013
1390-XENG-2014	1390-XENG-2015	1391-XENG-1001
1391-XENG-1002	1391-XENG-1003	1391-XENG-1004
1391-XENG-1005	1391-XENG-1006	1391-XENG-1007
1391-XENG-1008	1391-XENG-1009	1391-XENG-1011
1391-XENG-1012	1391-XENG-1013	1391-XENG-1014
1391-XENG-1015	1391-XENG-2001	1391-XENG-2002
1391-XENG-2003	1391-XENG-2004	1391-XENG-2005
1391-XENG-2006	1391-XENG-2007	1391-XENG-2008
1391-XENG-2009	1391-XENG-2010	1391-XENG-2011
1391-XENG-2012	1391-XENG-2013	1391-XENG-2014
1391-XENG-2015	1391-XENG-2016	1391-XENG-2017
1391-XENG-2018	1391-XENG-2019	

REFERENCES:

1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
3. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17933 POL Training Area

EQUIPMENT: Material Handling Equipment, Bulk fuel equipment, Utilities equipment, Engineer earthmoving equipment, Motor Transport equipment, Engineer lifting equipment, Tactical communications equipment.

MATERIAL: Class III/IV

ESB-HEOP-5001: Provide engineer equipment support

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 4.4.1
MCT 4.4.2	MCT 4.4.3	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Provide engineer equipment support to the mission utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given a mission, a support plan, equipment availability, commander's intent, personnel and equipment, an area of operations or support and references.

STANDARD: To provide required engineer support in accordance with unit SOPs, concept of operations and commander's intent.

EVENT COMPONENTS:

1. Review equipment support plan.
2. Analyze support requirements and location(s).
3. Determine resources.
4. Determine schedule of work.
5. Determine task organization.
6. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
7. Coordinate logistics.
8. Manage engineer equipment operations.
9. Conduct earthmoving operations, as required.
10. Conduct material handling operations, as required.
11. Conduct horizontal construction, as required.
12. Conduct maintenance, as required.
13. Recover engineer equipment, as required.
14. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-4001	ESB-HORZ-4001	ESB-HORZ-4002
ESB-MANT-4001	ESB-MOBL-4006	ESB-MOBL-4007
ESB-MOBL-4008	ESB-MOBL-4009	

RELATED EVENTS:

1310-ADMN-2001	1310-ADMN-2002	1310-ADMN-2003
1310-ADMN-2004	1310-ADMN-2005	1310-ADMN-2006
1310-ADMN-2008	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1310-MANT-2001	1310-MANT-2002
1341-ADMN-2001	1341-ADMN-2002	1341-ADMN-2003
1341-ADMN-2004	1341-ADMN-2005	1341-ADMN-2006
1341-ADMN-2007	1341-ADMN-2008	1349-ADMN-2001
1349-ADMN-2002	1349-ADMN-2003	1349-ADMN-2004
1349-ADMN-2005	1349-ADMN-2006	1349-ADMN-2008
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-HORZ-2001	1349-HORZ-2002	1349-HORZ-2003
1349-MANT-2001	1349-MANT-2002	

REFERENCES:
1. JP 3-34 Joint Engineer Operations
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer equipment, Motor Transport equipment, Utilities equipment.

UNITS/PERSONNEL: Engineer equipment maintainers, Utilities equipment maintainers.

ESB-HORZ-5001: Conduct horizontal construction

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 4.4.1
MCT 4.4.3	MCT 6.1.4	

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: To conduct horizontal construction in order to shape the terrain to meet the operational requirements of the MAGTF and includes expedient road construction and/or maintenance; expeditionary HLZs; site preparation for bed down facilities; and ordnance storage facilities.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To build the assigned project to meet or exceed the requirements listed in the design specifications, meets commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan horizontal construction.
2. Conduct engineer reconnaissance.
3. Conduct survey, as required.
4. Coordinate horizontal construction.
5. Conduct site preparation.
6. Conduct soil stabilization/dust abatement, as required.
7. Construct non-explosive obstacles, as required.
8. Employ heavy equipment assets, as required.
9. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-4002	ESB-HEOP-4001	ESB-HORZ-3001
ESB-HORZ-4001	ESB-HORZ-4002	ESB-RECN-4001

RELATED EVENTS:

1302-HORZ-1001	1302-HORZ-1002	1302-HORZ-1003
1302-RECN-1001	1371-RECN-2001	

REFERENCES:

1. FM 5-101-5-1 Operational Terrain and Symbols
2. JP 3-34 Joint Engineer Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliport Design
5. MCRP 3-17.7D Concrete and Masonry
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7I Earthmoving Operations
9. MCRP 3-17A Engineering Field Data
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 3-17.6 Survivability
13. MCWP 3-17.7 General Engineering
14. MCWP 3-17.8 Combined Arms Mobility Operations
15. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Utilities equipment.

ESB-HORZ-5002: Prepare site for construction

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 4.4.3
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Prepare site for construction to reduce construction time and meet design specifications. This includes all types of limited vertical and horizontal construction.

CONDITION: Given a mission, a support plan, a site for construction or engineer operations, commander's intent, task organized personnel, equipment and references.

STANDARD: To reduce construction time and meet design specifications in

accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review construction site plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc.).
5. Move to site.
6. Conduct area clearance.
7. Conduct earthmoving operations as required.
8. Conduct demolition operations as required.
9. Conduct material handling operations as required.
10. Employ utilities support as required.
11. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-4001	ESB-HORZ-4001	ESB-HORZ-4002
ESB-RECN-4001	ESB-RECN-4005	ESB-UTIL-4001
ESB-VERT-4001		

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-HORZ-1001
1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1003
1302-RECN-1001	1371-DEMO-1001	1371-DEMO-2002
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-HORZ-1001	1371-HORZ-1002	1371-HORZ-1003
1371-HORZ-2002	1371-HORZ-2003	1371-HORZ-2004
1371-HORZ-2005	1371-RECN-1001	1371-RECN-2001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-2001	1371-VERT-2002

REFERENCES:
1. FM 5-33 Terrain Analysis
2. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Motor Transportation equipment, Utilities equipment.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented in concert with the 3000 level events chained to this event.

ESB-MANT-5001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Maintain engineer equipment by conducting preventive and corrective maintenance on engineer equipment using unit assigned maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit readiness requirements.

EVENT COMPONENTS:
1. Manage Maintenance Programs.
2. Monitor Equipment Readiness.
3. Conduct Reconciliation.
4. Assign Tasks.
5. Maintain utilities equipment as required.
6. Maintain bulk fuel equipment as required.
7. Maintain MHE as required.
8. Maintain earthmoving equipment as required.
9. Maintain other organic tactical engineer equipment as required.
10. Submit required reports.

CHAINED EVENTS: ESB-MANT-4001

RELATED EVENTS:

1120-ADMN-2006	1120-ADMN-2007	1120-ADMN-2012
1120-ADMN-2021	1120-ADMN-2022	1120-ADMN-2041
1120-ADMN-2051	1120-ADMN-2052	1120-ADMN-2061
1120-ADMN-2065	1120-ADMN-2071	1120-ADMN-2072
1120-ADMN-2073	1120-ADMN-2074	1120-ADMN-2075
1310-ADMN-2004	1310-HEOP-2001	1310-MANT-2001
1310-MANT-2002	1316-ADMN-1001	1316-ADMN-1002
1316-ADMN-1003	1316-MANT-1002	1316-MANT-1004
1316-XENG-1001	1316-XENG-1002	1316-XENG-1004
1316-XENG-1005	1316-XENG-1006	

REFERENCES:
1. Applicable technical references
2. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
5. MCO 5100.29_ Marine Corps Safety Program
6. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
7. MCWP 4-11 Tactical-Level Logistics
8. MCWP 4-11.4 Maintenance Operations
9. MCWP 4-11.6 Petroleum and Water Logistics Operations
10. SOP Standard Operating Procedures (SOP)

11. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
12. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Maintenance Contact vehicle

MATERIAL: Tools sets chests and kits

UNITS/PERSONNEL: Engineer equipment mechanics, utilities maintenance personnel, welders, equipment operators and bulk fuel personnel

OTHER SUPPORT REQUIREMENTS: POL and HAZ-MAT

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-MOBL-5001: Conduct obstacle breaching operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct obstacle breaching operations to breach lanes through enemy obstacles, to advance an attacking force to the far side of an obstacle that is covered by fire.

CONDITION: Given a mission, commander's intent, a map, designated area, tasked organized personnel, equipment, and references.

STANDARD: To breach lanes through enemy obstacles to support the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Gather obstacle intelligence as required.
2. Analyze obstacle intelligence.
3. Determine breach requirement.
4. Task organize obstacle clearing detachment(s) (OCD).
5. Coordinate suppression of enemy over-watching obstacle.
6. Coordinate obscuration of enemy over-watching obstacle.
7. Coordinate security for breach lanes.
8. Coordinate breach with assault force, support force, and support breach team(s).
9. Verify suppression/obscuration effects.
10. Breach lanes through obstacle(s).
11. Turnover lane(s) to designated forces.
12. Reconstitute the breach force.
13. Submit required reports.

CHAINED EVENTS:
ESB-HEOP-4001 ESB-MOBL-4003 ESB-MOBL-4005
ESB-MOBL-4010

RELATED EVENTS:
1302-MOBL-1005 1302-RECN-1001 1371-MOBL-1003
1371-MOBL-2012 1371-MOBL-2017 1371-RECN-1001
1371-RECN-2001

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.3 MAGTF Breaching Operations
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat Engineer Breaching equipment, Engineer Earthmoving equipment, Engineer Material Handling equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

ESB-MOBL-5002: Conduct breach lane improvement operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: As the breach force progresses, it creates two lanes in the tactical obstacles. The breach force marks lanes with the initial lane-marking pattern and passes the assault force through the lanes. At this stage of the breaching operation, the TF maintains lanes in the tactical obstacles and controls all movement of forces within the breach area.

CONDITION: Given a mission, commander's intent, a map, a breached lane marked to initial standard, tasked organized personnel, equipment, and references.

STANDARD: To improve breach lanes through enemy obstacles to support two-way traffic, in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze breach lane reporting.
2. Determine breach lane improvement requirements.
3. Task organize support breach teams.
4. Coordinate receipt of breached lanes.
5. Coordinate security for breach lanes as required.
6. Improve breach lanes for trafficability as required.
7. Widen lanes as required.
8. Mark lanes as required.
9. Submit required reports.
10. Turnover lane(s) to designated forces.
11. Reconstitute the support breach team.

CHAINED EVENTS:

ESB-HEOP-4001	ESB-MOBL-4006	ESB-MOBL-4009
ESB-MOBL-4010		

RELATED EVENTS:

1302-MOBL-1004	1302-MOBL-1005	1302-MOBL-1009
1371-MOBL-1001	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017	1371-MOBL-2022	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment

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ESB-MOBL-5003: Construct expedient Helicopter Landing Zone (HLZ)

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct construction of expedient HLZ; includes but is not limited to clearing and grubbing geographical locations for takeoff and landing of rotary wing in support of troop transport, resupply, MEDEVAC operations, etc.

CONDITION: Given a mission, commander's intent, available resources, and references.

STANDARD: To create a landing site that will support rotary wing aircraft for the loading and unloading of personnel, resupply, and equipment in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Task organize
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Coordinate resource requirements.
5. Issue the order.
6. Clear landing site.
7. Maintain/improve landing site as required.
8. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-4001	ESB-HORZ-4001	ESB-MOBL-3004
ESB-MOBL-4010	ESB-RECN-4001	

RELATED EVENTS:

1302-MOBL-1016	1302-RECN-1001	1371-EOPS-1003
1371-EOPS-2008	1371-MOBL-2001	1371-RECN-1001

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Engineer Material Handling equipment

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ESB-MOBL-5004: Construct combat roads

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: The ESB has the most robust capability to conduct this type of construction. Combat roads and trails may be hastily cut pathways designed

to initial standards in order to enhance mobility for only a short time (less than six months). More permanent road networks, such as MSRs and primary LOCs, are designed to temporary standards to sustain mobility for a longer period of time (up to two years). During contingency operations, nearly all roads are constructed to temporary standards. Engineers should always strive to take full advantage of existing infrastructure and natural terrain features when constructing combat trails and roads.

CONDITION: Provided a mission order, commander's intent, a tactical situation, task organized engineer equipment and personnel.

STANDARD: That meets the minimum traffic support requirements in accordance with the commander's intent and the mobility plan.

EVENT COMPONENTS:
1. Review mission.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Task organize.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations as required.
8. Clear the road.
9. Construct expedient drainage structures as required.
10. Conduct expedient soil stabilization as required.
11. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-4001	ESB-HORZ-4001	ESB-HORZ-4002
ESB-MOBL-4006	ESB-MOBL-4009	ESB-MOBL-4010
ESB-RECN-4001	ESB-RECN-4004	

RELATED EVENTS:

1302-HORZ-1002	1302-HORZ-1003	1302-MOBL-1001
1302-RECN-1001	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1345-HEOP-1003
1345-HEOP-1006	1345-HEOP-2001	1345-HORZ-2001
1345-MANT-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-EOPS-2002	1371-EOPS-2003	1371-EOPS-2007
1371-EOPS-2011	1371-HORZ-2001	1371-HORZ-2002
1371-HORZ-2003	1371-RECN-1001	1371-RECN-2001

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17.7L Explosives and Demolitions
7. MCRP 3-17A Engineering Field Data
8. MCWP 3-17 Engineering Operations

9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Material Handling Equipment, Combat engineer equipment, Utilities equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

ESB-MOBL-5005: Install a medium girder bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF. The medium-girder bridge (MGB) is a lightweight, hand-built, easily transportable bridge that can be erected in various configurations to cover a full range of military and emergency bridging requirements. The deck units are fitted between two longitudinal girders to provide a 13-foot-wide roadway. A bridge set has sufficient components to construct one 102-foot bridge in a double-story configuration or three 31-foot bridges in a single-story configuration. The MGB is constructed on rollers and launched using a detachable launching nose. It is transported on 7 ton trucks with trailers.

CONDITION: Provided a mission, commanders intent, a bridge construction site, Medium Girder Bridge (MGB) components, tools, launch vehicle, task organized personnel, and reference.

STANDARD: To meet design specifications and intended bridge classification in accordance with the commander's intent, concept of operations and TM 5-5420-212-12 Medium Girder Bridge.

EVENT COMPONENTS:
1. Gather gap intelligence as required.
2. Analyze gap intelligence.
3. Task organize.
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Prepare site for construction.
8. Emplace erection set.
9. Build the bridge.
10. Emplace reinforcement components as required.

11. Dress the bridge as required.
12. Submit required reports.
13. Turnover lane(s) to designated forces.
14. Recover as required.

CHAINED EVENTS: ESB-MOBL-4011

RELATED EVENTS:

1302-EOPS-1009	1302-HORZ-1001	1302-HORZ-1003
1302-MOBL-1012	1302-RECN-1001	1310-HEOP-2001
1310-MANT-2002	1345-HEOP-1003	1345-HEOP-1006
1349-HEOP-2001	1349-MANT-2002	1371-EOPS-2002
1371-EOPS-2003	1371-EOPS-2011	1371-HORZ-2001
1371-MOBL-1004	1371-MOBL-2002	1371-MOBL-2007
1371-RECN-1001	1371-RECN-2001	

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17.8 Combined Arms Mobility Operations
3. TM 08676A-10/1-1 Operators Manual Medium Girder Bridge
4. TM 5-5420-212-12 Medium Girder Bridge
5. TM 5-5420-212-12-1 Link Reinforcement Set

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: MTVR 7/Ton Truck, Engineer Material Handling Equipment

UNITS/PERSONNEL: Range safety officer, corpsman, MTVR 7ton truck operator

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ESB-MOBL-5006: Install Ribbon Bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF.

CONDITION: Provided a mission, commander's intent, a bridging site (wet gap), Improved Ribbon Bridge (IRB) components, Bridge Erection Boats (BEB), tools, vehicles, task organized personnel, and reference.

STANDARD: To meet design specifications and intended bridge classification in accordance with, the concept of operations, commanders intent, and TM 5420-209-12 Operators and Organizational Manual Improved Floating (Ribbon Bridge).

EVENT COMPONENTS:
1. Analyze gap/site intelligence.
2. Gather gap/site intelligence as required.
3. Task organize.

4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Prepare approach(s) as required.
8. Assemble components for bridge.
9. Anchor bridge as required.
10. Direct vehicles and equipment onto bridge.
11. Direct vehicles and equipment off bridge.
12. Submit required reports.
13. Turnover to designated forces as required.
14. Recover as required.

CHAINED EVENTS: ESB-MOBL-4012

RELATED EVENTS:

1302-MOBL-1011	1302-MOBL-1015	1310-HEOP-2001
1310-MANT-2002	1345-HEOP-1006	1349-HEOP-2001
1349-MANT-2002	1371-EOPS-2011	1371-MOBL-2003
1371-MOBL-2004	1371-MOBL-2007	1371-MOBL-2028

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17.8 Combined Arms Mobility Operations
5. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
6. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: MK 48/18, IRB Interior Bay, IRB Ramp Bay, MK III BEB

UNITS/PERSONNEL: Range Safety Officer, Corpsman, MK 48/18, Operator, MK II BEB Operator

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ESB-MOBL-5007: Construct non-standard bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: New-bridge construction requires preliminary information that is adequate for planning and design. The construction method used will depend on site constraints and the availability of equipment, materials, and manpower. A thorough reconnaissance can prevent needless return trips to the proposed site. Before making any final decisions pertaining to construction, consider the following factors: Access roads, Approach roads, Width, Banks, Flow characteristics, Stream bottom, Elevation, and Materials.

CONDITION: Provided a mission, commanders intent, a gap, bridge MLC

requirement, tools, vehicles, task organized personnel, and reference.

STANDARD: To construct a bridge that meets design specifications and intended bridge classification in accordance with the concept of operations, commander's intent and MCRP 3-17.1b Military Non-Standard Fixed Bridges.

EVENT COMPONENTS:
1. Gather gap/site intelligence as required.
2. Analyze gap/site intelligence.
3. Determine bridge type based on gap and MLC as required.
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations as required.
8. Construct drainage structures/erosion controls as required.
9. Construct abutment(s) as required.
10. Construct intermediate supports as required.
11. Construct substructure components as required.
12. Construct superstructure components as required.
13. Verify MLC classification.
14. Turnover bridge to designated forces.
15. Submit required reports.

CHAINED EVENTS:

ESB-RECN-3008	ESB-RECN-4001	ESB-RECN-4003
ESB-RECN-4004	ESB-RECN-4005	

RELATED EVENTS:

1302-EOPS-1009	1302-HORZ-1001	1302-HORZ-1002
1302-RECN-1001	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1345-HEOP-1003
1345-HEOP-1006	1345-HEOP-1007	1371-EOPS-2002
1371-EOPS-2003	1371-HORZ-2002	1371-HORZ-2003
1371-MOBL-2002	1371-MOBL-2004	1371-MOBL-2007
1371-MOBL-2008	1371-MOBL-2009	1371-RECN-1001
1371-RECN-2001		

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor transportation equipment, Material Handling equipment

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ESB-MOBL-5008: Repair non-standard bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Use existing bridges whenever possible. Bridges located on established routes require less work on the approaches, which saves time and material and permits the release of tactical bridging assets to other areas. Also, bridge repair often eliminates long detours and difficult bypasses. If necessary, determine how the characteristics of the gap will affect additional bents or pile piers and where there are alternate sites.

CONDITION: Provided a mission, commanders intent, a damaged bridge, bridge MLC requirement, tools, vehicles, task organized personnel, and reference.

STANDARD: To ensure the bridge in functional and repairs meet design specifications in accordance with the concept of operations, commander's intent and MCRP 3-17.1b Military Non-Standard Fixed Bridges.

EVENT COMPONENTS:
1. Gather gap/site intelligence, as required
2. Analyze gap/site intelligence.
3. Determine bridge repairs type based on type and MLC as required
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations, as required.
8. Repair drainage structures/erosion controls, as required.
9. Repair abutment(s), as required.
10. Repair intermediate supports, as required.
11. Repair substructure components, as required.
12. Repair superstructure components, as required.
13. Verify MLC classification.
14. Turnover bridge to designated forces.
15. Submit required reports.

CHAINED EVENTS: ESB-RECN-3004

RELATED EVENTS:

1302-HORZ-1002	1302-MOBL-1013	1302-RECN-1001
1371-HORZ-2002	1371-HORZ-2003	1371-MOBL-2009

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor transportation equipment, Material Handling equipment

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ESB-MOBL-5009: Conduct rafting operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Rafts are employed to cross wet-gaps when standard and non-standard bridging is unavailable or inadequate. Rafts are employed to cross wet gaps when time is critical; when floating bridging is unavailable or impractical; or when they are supporting a larger wet gap.

CONDITION: Provided a mission, commanders intent, a rafting site (wet gap), Improved Ribbon Bridge (IRB) components, Bridge Erection Boats (BEB), tools, vehicles, task organized personnel, and reference.

STANDARD: To meet design specifications and intended raft classification in accordance with concept of operations and commander's intent.

EVENT COMPONENTS:
1. Gather gap intelligence as required.
2. Analyze gap intelligence.
3. Task organize.
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Prepare approach(s) as required.
8. Assemble raft(s).
9. Prepare boats for rafting operations.
10. Load vehicles and equipment.
11. Transport vehicle(s) and equipment across the gap.
12. Unload vehicles and equipment.
13. Submit required reports.
14. Recover as required.

CHAINED EVENTS:

ESB-MOBL-4013	ESB-MOBL-4014	ESB-RECN-3008

RELATED EVENTS:

1302-MOBL-1011	1302-MOBL-1015	1302-RECN-1001
1371-MOBL-2003	1371-MOBL-2004	1371-MOBL-2005
1371-MOBL-2006		

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.1 Combined Arms Gap-Crossing Operations
4. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: Motor Transportation Vehicles

ESB-MOBL-5010: Conduct area clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct area clearance operations to eliminate obstacle(s) [explosive or non-explosive] to provide a secure environment.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To eliminate all obstacle(s) [explosive or non-explosive] in an area to provide a secure environment for military operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance and survey.
3. Estimate engineer equipment requirements.
4. Coordinate necessary support.
5. Finalize clearing plan.
6. Issue the order.
7. Locate all obstacle(s).
8. Identify all obstacle(s).
9. Reduce obstacle(s).
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities as required.
12. Coordinate weapons intelligence team activities as required.
13. Coordinate with other specialist personnel as required.
14. Mark cleared area as required.
15. Submit required reports.

CHAINED EVENTS:

ESB-MOBL-4001	ESB-MOBL-4002	ESB-MOBL-4004
ESB-RECN-5001		

RELATED EVENTS:

1302-MOBL-1003	1302-MOBL-1004	1302-MOBL-1005
1302-MOBL-1009	1302-MOBL-1010	1302-RECN-1001
1371-DEMO-1001	1371-MOBL-1001	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2012	1371-MOBL-2017
1371-MOBL-2018	1371-MOBL-2019	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2023
1371-RECN-1001	1371-RECN-2001	

REFERENCES:
1. FM 5-101-5-1 Operational Terrain and Symbols
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-13.2 MINE WARFARE
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.3 MAGTF Breaching Operations
11. MCWP 3-17.4 Engineer Reconnaissance

12. MCWP 3-17.8 Combined Arms Mobility Operations
13. MCWP 3-33 Military Operations Other Than War (MOOTW)
14. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Combat engineer equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

ESB-MOBL-5011: Construct tactical landing zones

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct construction of tactical landing zones; includes but is not limited to site selection, construction, repair, and maintenance of existing or expeditionary airfields, landing zones, and other facilities for takeoff and landing of fixed and rotary wing aircraft in support of MAGTF operations.

CONDITION: Given a mission, commander's intent, available resources, and references.

STANDARD: To create, repair, and maintain tactical landing zones that meet or exceed landing zone requirements listed in the design specifications in accordance with the size, type, number of aircraft and concept of operations.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance.
3. Conduct survey.
4. Estimate engineer equipment requirements.
5. Coordinate necessary support.
6. Finalize construction plan.
7. Issue the order.
8. Construct/repair airfield, landing zone, or other facilities as required.
9. Maintain and improve airfield, landing zone, or other facilities as required.
10. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-3003	ESB-HEOP-4001	ESB-HORZ-4001
ESB-MOBL-4007	ESB-MOBL-4008	ESB-MOBL-4009

ESB-RECN-4001 ESB-RECN-5001

RELATED EVENTS:

1302-EOPS-1009	1302-HORZ-1001	1302-MOBL-1016
1302-RECN-1001	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1345-HORZ-2001	1349-HEOP-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-EOPS-2007
1371-EOPS-2011	1371-MOBL-2001	1371-RECN-1001
1371-RECN-2001		

REFERENCES:

1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCRP 4-11.3E Multi-service Helicopter Sling Load: Vols I,II and III
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Utilities equipment

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ESB-MOBL-5012: Conduct airfield damage repair

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: These repairs may be required due to enemy or friendly action/ damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. May be part of Airfield Damage Repair (ADR) as part of Base Recovery after an Attack (BRAAT).

CONDITION: Given a tactical situation, an operations order, commander's intent, an airfield/landing zone requiring repair, task organized personnel and equipment, and references.

STANDARD: To restore the airfield/landing zone operating surfaces to minimum operational capability within the design criteria and the commander's intent.

EVENT COMPONENTS:

1. Plan airfield damage repair.
2. Coordinate airfield damage repair.
3. Conduct engineer reconnaissance/damage assessment of airfield operating surfaces and critical facilities.
4. Determine minimum operating strip.
5. Conduct Explosive Ordnance Disposal (EOD) operations, as required.
6. Conduct crater repair, as required.
7. Conduct spall repair, as required.
8. Conduct foreign object debris clearance, as required.
9. Repair critical facilities/utilities, as required.
10. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-3003	ESB-HEOP-4001	ESB-HORZ-4001
ESB-MOBL-4007	ESB-MOBL-4008	ESB-RECN-3006
ESB-RECN-3007	ESB-RECN-5001	ESB-UTIL-4001
ESB-UTIL-4002	ESB-UTIL-4003	

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1009	1302-RECN-1001
1371-EOPS-2002	1371-EOPS-2003	1371-EOPS-2004
1371-RECN-2001		

REFERENCES:

1. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17.7L Explosives and Demolitions
7. MCRP 3-17A Engineering Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Equipment for Combat Engineers, MHE, EOD and other support personnel.

ESB-PINF-5001: Fight as provisional infantry

SUPPORTED MCT(S):

MCT 1.1.2	MCT 1.4.1	MCT 1.4.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide provisional infantry to participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive

operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment supported unit or conduct offensive and defensive operations to support mission requirements.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms as required.
9. Establish redundant communications.
10. Treat and evacuate casualties as required.
11. Process detainees as required.
12. Send and receive required reports.

CHAINED EVENTS: ESB-PINF-4001

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17730 Fire and Movement Range

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000-Level Events Chained to this event.

ESB-RECN-5001: Conduct engineer reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct engineer reconnaissance to collect data and obtain detailed information, within/along designated routes, zones, and/or areas that provides the MAGTF information on terrain and infrastructure (e.g., built-up areas, transportation networks, utilities and existing natural or

manmade obstacles/resources) necessary to support ongoing or future operations.

CONDITION: Given a mission, commander's intent, task organization of personnel and equipment, and references.

STANDARD: To gather all relevant engineer data and produce an engineer estimate in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review reconnaissance plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc.).
5. Conduct zone reconnaissance, as required.
6. Conduct area reconnaissance, as required.
7. Conduct route reconnaissance, as required.
8. Conduct host-nation infrastructure assessment, as required.
9. Submit required reports.

CHAINED EVENTS:
ESB-RECN-4001 ESB-RECN-4003 ESB-RECN-4004 ESB-RECN-4005

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. 5-446 Military Non-Standard Fixed Bridge
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations

ESB-RECN-5002: Conduct cache sweep operations

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify, and secure materials discovered during the

course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze search area intelligence.
2. Tasks organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s) as required.
8. Destroy captured enemy ammunition as required.
9. Verify cache destruction.
10. Coordinate explosive ordnance disposal activities as required.
11. Coordinate weapons intelligence team activities as required.
12. Coordinate with other specialist personnel as required.
13. Document/preserve evidence as required.
14. Submit required reports.

CHAINED EVENTS: ESB-RECN-4002

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits.

UNITS/PERSONNEL: Explosive ordnance disposal personnel, Weapons Intelligence Team, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 4000 Level Events Chained to this event.

ESB-SURV-5001: Construct survivability positions

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct positions designed to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection. Positions may include fighting and protective positions.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, survivability plan, a task organization of personnel and equipment, and references.

STANDARD: That meets the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supported unit for specific position placement and requirements.
5. Coordinate resources for project.
6. Conduct site preparation.
7. Harden existing structure(s), as required.
8. Emplace pre-fabricated barriers, as required.
9. Provide SME input to AT/FP plan, as required.
10. Construct field fortification, as required.
11. Construct Vehicle Control Point (VCP), as required.
12. Construct Entry Access Point (EAP), as required.
13. Construct earth filled barrier/structure, as required.
14. Construct individual fighting positions, as required.
15. Construct vehicle fighting positions, as required.
16. Construct vehicle survivability positions/revetments, as required.
17. Construct crew-served weapon positions, as required.
18. Construct overhead cover, as required.
19. Construct shelter/bunker, as required.
20. Construct berms, as required.
21. Conduct earth moving operations, as required.
22. Construct triggering screen, as required.
23. Construct trench, as required.
24. Provide electrical power, as required.
25. Submit required reports.

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.6 Survivability

10. MCWP 3-33 Military Operations Other Than War (MOOTW)
11. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
12. MCWP 3-35.5 Jungle Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment, Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-5002: Harden existing structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: To harden positions in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

CONDITION: Provided a mission, in an urban environment, commander's intent, reconnaissance reports, and survivability plan, a task organization of personnel and equipment, and references.

STANDARD: To harden an existing structure that meets the mission requirements and supports the concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Plan structure hardening.
2. Conduct engineer reconnaissance and survey.
3. Analyze reconnaissance reports.
4. Coordinate with supported unit for specific position requirements.
5. Coordinate resources for project.
6. Conduct site preparation.
7. Construct perimeter security, as required.
8. Shore walls/floors/roofs, as required.
9. Remove/reinforce windows, as required.
10. Compartmentalize interior of structure, as required.
11. Emplace prefabricated barriers, as required.
12. Construct earth filled barrier/structure, as required.
13. Conduct earthmoving operations, as required.
14. Construct overhead cover, as required.
15. Construct shelter/bunker, as required.
16. Construct triggering screen, as required.

17. Wire position for electricity, as required.
18. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-3003	ESB-HEOP-4001	ESB-RECN-4001
ESB-RECN-5001	ESB-SURV-3002	ESB-SURV-3005
ESB-SURV-3007	ESB-SURV-4001	ESB-SURV-4002
ESB-SURV-4005	ESB-UTIL-4001	ESB-VERT-4001
ESB-VERT-4002	ESB-VERT-4003	ESB-VERT-4004
ESB-VERT-4005	ESB-VERT-4006	ESB-VERT-4007

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.6 Survivability
7. MCWP 3-17.7 General Engineering
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools and kits, Utilities equipment

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ESB-SURV-5003: Construct field fortifications

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: To build field fortifications that reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, task organized personnel and equipment, and references.

STANDARD: That meets the mission requirements and supports the concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supported unit for specific position placement and requirements.
5. Construct survivability positions, as required.
6. Construct obstacles, as required.
7. Conduct vertical construction, as required.

8. Conduct earthmoving operations, as required.
9. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-4001	ESB-CMOB-4002	ESB-HEOP-3003
ESB-RECN-4001	ESB-RECN-5001	ESB-SURV-4002
ESB-SURV-4003	ESB-SURV-4004	ESB-SURV-4005
ESB-VERT-4001	ESB-VERT-4002	ESB-VERT-4003
ESB-VERT-4004	ESB-VERT-4005	ESB-VERT-4006
ESB-VERT-4007		

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7I Earthmoving Operations
6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.6 Survivability
9. MCWP 3-17.7 General Engineering
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 3-33 Military Operations Other Than War (MOOTW)
12. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Combat engineer tools and kits

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ESB-UTIL-5001: Provide utilities support

SUPPORTED MCT(S):

MCT 4.4.3	MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide tactical electrical supply and distribution; heating, ventilation, air conditioning and refrigeration service; and maintenance capabilities for specified utilities equipment in accordance with the unit's mission statement.

CONDITION: Given a mission, support plan, equipment availability, personnel, equipment, and references.

STANDARD: To provide support IAW with the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:
1. Coordinate supported unit requirements.
2. Establish utilities plan.
3. Establish utilities site(s).
4. Provide tactical electrical support, as required.
5. Provide non-tactical utilities support, as required.

6. Provide water production/storage/distribution equipment.
7. Maintain utilities equipment.
8. Recover utilities equipment, as required.
9. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-4001	ESB-MANT-4001	ESB-UTIL-4001
ESB-UTIL-4002	ESB-UTIL-4003	

RELATED EVENTS:

1120-ADMN-2001	1120-ADMN-2002	1120-ADMN-2003
1120-ADMN-2004	1120-ADMN-2005	1120-ADMN-2006
1120-ADMN-2007	1120-ADMN-2012	1120-ADMN-2021
1120-ADMN-2022	1120-ADMN-2031	1120-ADMN-2051
1120-ADMN-2052	1120-ADMN-2061	1120-ADMN-2065
1120-ADMN-2071	1120-ADMN-2072	1120-ADMN-2073
1120-ADMN-2074	1120-ADMN-2075	1120-ADMN-2081
1120-ADMN-2091	1120-ADMN-2092	1120-XENG-2501
1120-XENG-2502	1120-XENG-2521	1120-XENG-2522
1120-XENG-2541	1120-XENG-2553	1120-XENG-2555
1120-XENG-2558	1120-XENG-2561	1120-XENG-2581
1120-XENG-2621	1120-XENG-2622	1120-XENG-2641
1120-XENG-2653	1120-XENG-2655	1120-XENG-2658
1120-XENG-2721	1120-XENG-2741	1120-XENG-2752
1120-XENG-2753	1120-XENG-2755	1120-XENG-2758
1120-XENG-2821	1120-XENG-2841	1120-XENG-2853
1120-XENG-2855	1120-XENG-2858	1120-XENG-2965
1120-XENG-2966	1120-XENG-2988	1120-XENG-2989

REFERENCES:

1. Appropriate Technical Manuals
2. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
3. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
4. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
5. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
6. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
7. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
8. FM 10-52 Water Supply in Theaters of Operation
9. FM 10-52-1 Water Supply Point Equipment and Operations
10. FM 5-424 Theater of Operations Electrical Systems
11. JP 4-03 Joint Bulk Petroleum and Water Doctrine
12. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
13. MCRP 3-17B Engineer Forms and Reports
14. MCRP 4-11.1D Field Hygiene and Sanitation
15. MCRP 4-11B Environmental Considerations

16. MCWP 3-17 Engineering Operations
17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 4-11 Tactical-Level Logistics
19. MCWP 4-11.4 Maintenance Operations
20. MCWP 4-11.6 Petroleum and Water Logistics Operations
21. MCWP 5-1 Marine Corps Planning Process (MCPP)
22. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
23. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
24. TB MED 593 Guidelines for Field Waste Management
25. TC 3-34.489 The Soldier and the Environment
26. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
27. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, Motor Transport equipment, HAZMAT handling equipment.

ESB-VERT-5001: Conduct limited vertical construction

SUPPORTED MCT(S):
MCT 1.4.1 MCT 4.4.2 MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: To conduct vertical construction is to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the MAGTF.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey, as required.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility, as required.
7. Erect prefabricated structure, as required.
8. Construct wood frame structure, as required.

9. Construct timber structure, as required.
10. Construct expedient drainage structure, as required.
11. Wire structure for electricity, as required.
12. Plumb structure, as required.
13. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-4001	ESB-RECN-4001	ESB-UTIL-4001
ESB-UTIL-4002	ESB-UTIL-4003	ESB-VERT-4001
ESB-VERT-4002	ESB-VERT-4003	ESB-VERT-4004
ESB-VERT-4005	ESB-VERT-4006	ESB-VERT-4007

RELATED EVENTS:

1302-HORZ-1001	1302-RECN-1001	1302-VERT-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-HORZ-2002
1371-HORZ-2003	1371-HORZ-2004	1371-HORZ-2005
1371-RECN-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	1371-VERT-1005
1371-VERT-2001	1371-VERT-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7C Carpentry
6. MCRP 3-17.7D Concrete and Masonry
7. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
8. MCRP 3-17.7F Project Management
9. MCRP 3-17.7I Earthmoving Operations
10. MCRP 3-17.7K Theater of Operations Electrical Systems
11. MCRP 3-17.7M Construction Estimating
12. MCRP 3-17.7N Base Camps
13. MCRP 3-17A Engineering Field Data
14. MCRP 4-11.1D Field Hygiene and Sanitation
15. MCWP 3-17 Engineering Operations
16. MCWP 3-33 Military Operations Other Than War (MOOTW)
17. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
18. MCWP 4-11 Tactical-Level Logistics
19. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools and equipment; kits, Material Handling Equipment.

MATERIAL: Class III/IV

UNITS/PERSONNEL: MT, UT, & HE operators, Engineers, Surveyors

6006. 4000-LEVEL EVENTS

ESB-CMOB-4001: Create an explosive obstacle

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create an explosive obstacle to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV and V supplies, etc.).

STANDARD: That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Emplace expedient anti-personnel devices as required.
8. Account for all personnel and equipment prior to returning to friendly lines.
9. Coordinate lane closure plan with supported unit as required.
10. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-3001	ESB-CMOB-3003	ESB-HEOP-3002
ESB-HEOP-3003		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2003	1371-DEMO-1002	

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. UNIT SOP Unit's Standing Operating Procedures
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions

6. MCRP 3-17A Engineering Field Data
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
J007	Mine, Antipersonnel M18A 1 with Non-	2 mines per squad
L495	Flare, Surface Trip M49 Series	4 flares per squad
L598	Simulator, Explosive Booby Trap Flas	4 Simulator per squad
M032	Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039	Charge, Demolition Cratering 40-Poun	1 charges per squad
M130	Cap, Blasting Electric M6	10 blasting caps per squad
M131	Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420	Charge, Demolition Shaped M2 Series	1 charges per squad
M421	Charge, Demolition Shaped M3 Series	1 charges per squad
M456	Cord, Detonating PETN Type I Class E	1500 FT per squad
M591	Dynamite, Military M1	10 charges per squad
M670	Fuse, Blasting Time M700	500 FT per squad
M757	Charge, Assembly Demolition M183 Com	2 charges per squad
ML03	Firing Device, Demolition Multi-Purp	2 primers per squad
MN08	Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, Material Handling Equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-CMOB-4002: Create non-explosive obstacles/barriers

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create non-explosive obstacles/barriers to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV,

natural terrain, battlefield materials, etc.).

STANDARD: That is part of an obstacle group that will turn, block, fix, or disrupts enemy personnel or equipment in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Tie obstacles into natural/existing obstacles, as required.
8. Emplace obstacles (barriers, hedgehogs, etc.), as required.
9. Emplace wire obstacles, as required.
10. Emplace field expedient obstacles (logs, abatis, rubble, etc.), as required.
11. Create craters, as required.
12. Emplace deception obstacles, as required.
13. Create tank ditches, as required.
14. Account for all personnel and equipment prior to returning to friendly lines.
15. Coordinate lane closure plan with supported unit, as required.
16. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-3001	ESB-CMOB-3002	ESB-CMOB-3003
ESB-HEOP-3003		

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-HEOP-2001
1310-HORZ-2001	1310-HORZ-2002	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1006	1345-HEOP-2007	1345-HEOP-2009
1345-HORZ-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-2001	1371-CMOB-2003	

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.5 Combined Arms Countermobility Operations
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
7. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
L495 Flare, Surface Trip M49 Series	6 flares per squad
M032 Charge, Demolition Block TNT 1-Pound	12 charges per squad
M039 Charge, Demolition Cratering 40-Poun	12 charges per squad
M130 Cap, Blasting Electric M6	12 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	12 blasting caps per squad
M327 Coupling Base, Firing Device with Pr	12 primers per squad
M421 Charge, Demolition Shaped M3 Series	8 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	6 cases per squad
ML03 Firing Device, Demolition Multi-Purp	12 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	12 igniters per squad
MN14 Firing Device, Dual Mode MK54	12 detonators per squad
MN52 MK154 Mod 0	8 detonators per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range
Facility Code 17830 Light Demolition Range
Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Combat engineer equipment, Material Handling Equipment, Engineer earthmoving equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-CMOB-4003: Employ demolitions in support of countermobility operations

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ demolitions in support of countermobility operations to create mobility obstacles (explosively) such as craters, ditches or to destroy structures (bridges, tunnels, etc.). This could include field expedient explosive obstacles (improvised anti-vehicular/anti-personnel explosive devices) to destroy enemy personnel and equipment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To construct countermobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commander's intent, concept of operations, and mission requirement.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Create obstacle(s), as required.
10. Inspect obstacle(s), as required.
11. Improve obstacle site with support equipment, as required.
12. Reconstitute the force.
13. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-3001	ESB-CMOB-3003	ESB-HEOP-3002

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-1002	1345-ADMN-2002	1345-HEOP-1003
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1006
1345-HEOP-2009	1345-MANT-1001	1349-ADMN-2002
1349-ADMN-2006	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	1371-CMOB-1003
1371-CMOB-2001	1371-CMOB-2003	1371-DEMO-1002

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	20 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	10 charges per squad
M130 Cap, Blasting Electric M6	6 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	6 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	5 charges per squad
M421 Charge, Demolition Shaped M3 Series	10 charges per squad
M456 Cord, Detonating PETN Type I Class E	1000 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
ML03 Firing Device, Demolition Multi-Purp	6 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	6 igniters per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-FUEL-4001: Construct bulk fuel site

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct and set up fuel storage and distribution systems to accommodate multiple fuel requirements in support of the respective MEF.

CONDITION: Provided a fuel distribution plan with a system layout, tasked organized personnel/equipment and references.

STANDARD: To ensure set up for bulk fuel operations per the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review plan for storage and distribution of fuel.
3. Task-organize personnel and equipment, as required.
4. Coordinate security requirements with supported unit as required.
5. Clear site, as required.
6. Construct berms, as required.
7. Layout fuel storage and distribution point(s), as required.
8. Connect components, as required.
9. Construct fuel distribution point(s), as required.
10. Place safety equipment, as required.
11. Submit required reports.

CHAINED EVENTS:

ESB-FUEL-3001	ESB-FUEL-3002	ESB-HEOP-3002
ESB-HEOP-3003		

RELATED EVENTS:

1361-SRVY-1001	1361-SRVY-1002	1361-SRVY-1006
1361-SRVY-1008	1361-SRVY-1009	1361-SRVY-1010
1361-SRVY-1011	1361-SRVY-1012	1361-SRVY-2001
1361-SRVY-2002	1361-XENG-2002	

REFERENCES:

1. MCRP 4-11B Environmental Considerations
2. MCWP 3-17.4 Engineer Reconnaissance
3. MCWP 4-11 Tactical-Level Logistics
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17933 POL Training Area

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment, Bulk fuel equipment, Motor Transport equipment, Engineer lifting equipment, Tactical communications equipment.

MATERIAL: Class III/IV

ESB-FUEL-4002: Conduct tactical bulk fuel operations

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct tactical bulk fuel operations in support of respective MEF.

CONDITION: Given a mission order, location of operation, estimated fuel requirements, personnel and required equipment.

STANDARD: To support mission requirements per concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Determine type of set up for storage and distribution of fuel per mission requirements.
3. Task-organize personnel and equipment needed.
4. Coordinate security requirements with supported unit, as required.
5. Coordinate receipt of supplies.
6. Determine fuel systems communications plan.
7. Develop safety plan for storage and distribution.
8. Plan fuel distribution site for operation.
9. Establish a Fuel Laboratory Quality Surveillance and Control Program.
10. Submit required reports.

CHAINED EVENTS:
ESB-FUEL-3001 ESB-FUEL-3002 ESB-HEOP-3002
ESB-HEOP-3003

RELATED EVENTS:
1391-XENG-1001 1391-XENG-1002 1391-XENG-1003

1391-XENG-1004	1391-XENG-1005	1391-XENG-1006
1391-XENG-1007	1391-XENG-1008	1391-XENG-1009
1391-XENG-1011	1391-XENG-1012	1391-XENG-1013
1391-XENG-1014	1391-XENG-1015	1391-XENG-2001
1391-XENG-2002	1391-XENG-2003	1391-XENG-2004
1391-XENG-2005	1391-XENG-2006	

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
3. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17933 POL Training Area

EQUIPMENT: Material Handling Equipment, Bulk fuel equipment, Utilities equipment, Engineer earthmoving equipment, Motor Transport equipment, Engineer lifting equipment, Tactical communications equipment.

MATERIAL: Class III/IV

ESB-HEOP-4001: Conduct MHE operations

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 4.4.1
MCT 4.4.2	MCT 4.4.3	MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide Material Handling Equipment (MHE) support to enable handling of loads (equipment, supplies, materials, etc.) exceeding carrying capacity of personnel.

CONDITION: Given a mission, commander's intent, personnel and equipment, and references.

STANDARD: To provide support IAW unit SOPs or guidance to support the concept of operations in accordance with commander's intent.

EVENT COMPONENTS:
1. Review tasking.
2. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
3. Operate MHE, as required.
4. Load and unload materiel(s), as required.
5. Employ safety measures, as required.
6. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-3001	ESB-HEOP-3002	ESB-HEOP-3003

RELATED EVENTS:

1310-HEOP-2001	1310-HORZ-2001	1310-HORZ-2002
1310-HORZ-2003	1345-HEOP-2012	1345-HORZ-2001
1345-MANT-2001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	

REFERENCES:

1. MCRP 3-17B Engineer Forms and Reports
2. MCWP 3-41.1 Rear Area Operations
3. MCWP 4-11 Tactical-Level Logistics
4. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Engineer support equipment

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ESB-HORZ-4001: Conduct horizontal construction

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 2.2.2
MCT 4.4.1	MCT 4.4.3	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: To conduct horizontal construction as required to shape the terrain to meet the operational requirements of the MAGTF and includes MSR construction and/or maintenance; expeditionary airfields; site preparation for bed down facilities; and ordnance storage facilities.

CONDITION: Given a mission, commander's intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To construct the assigned project to meet or exceed the requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:

1. Review horizontal construction plans.
2. Review engineer reconnaissance and survey.
3. Coordinate support for horizontal construction.
4. Operate/employ engineer equipment and kits.
5. Clear site for construction.
6. Conduct beachhead lane improvement, as required.
7. Construct base course for road(s), as required.
8. Emplace soil stabilization, as required.
9. Conduct ditching for roads, as required.
10. Emplace road surface, as required
11. Construct expedient HLZ, as required.

12. Emplace dust abatement material, as required.
13. Construct expedient HLZ, as required.
14. Construct drainage structures, as required.
15. Construct expeditionary airfield, as required.
16. Submit required reports.

PREREQUISITE EVENTS:

ESB-RECN-3001	ESB-RECN-4001

CHAINED EVENTS:

ESB-HEOP-3001	ESB-HEOP-3002	ESB-HEOP-3003
ESB-HORZ-3001	ESB-HORZ-4002	ESB-MANT-3001
ESB-MANT-3002	ESB-MOBL-3004	ESB-MOBL-4006
ESB-MOBL-4009	ESB-RECN-3001	ESB-UTIL-3001

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1003	1302-EOPS-1007
1302-EOPS-1009	1302-HORZ-1001	1302-HORZ-1002
1302-HORZ-1003	1302-MOBL-1016	1345-ADMN-2001
1345-ADMN-2002	1345-HEOP-2004	1345-HEOP-2009
1345-HEOP-2012	1345-HORZ-2001	1345-MANT-2001
1345-MANT-2003	1345-MANT-2004	1361-DRAF-1001
1361-DRAF-1002	1361-SRVY-1001	1361-SRVY-1002
1361-SRVY-1003	1361-SRVY-1004	1361-SRVY-1005
1361-SRVY-1006	1361-SRVY-1008	1361-SRVY-1009
1361-SRVY-1010	1361-SRVY-1011	1361-SRVY-1012
1361-SRVY-2001	1361-SRVY-2002	1361-SRVY-2005
1361-XENG-2001	1371-EOPS-1001	1371-EOPS-1002
1371-EOPS-1003	1371-EOPS-1004	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2008	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-1001
1371-HORZ-1002	1371-HORZ-1003	1371-HORZ-2001
1371-HORZ-2002	1371-HORZ-2003	1371-HORZ-2004
1371-HORZ-2005	1371-MANT-1001	1371-MOBL-2001

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
5. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7G Military Soils Engineering
9. MCRP 3-17.7I Earthmoving Operations
10. MCRP 3-17.7L Explosives and Demolitions
11. MCRP 3-17.7M Construction Estimating
12. MCRP 3-17.7N Base Camps
13. MCRP 3-17A Engineering Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 4-11.1D Field Hygiene and Sanitation
16. MCWP 3-17 Engineering Operations

17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 3-33 Military Operations Other Than War (MOOTW)
19. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
20. MCWP 3-41.1 Rear Area Operations
21. MCWP 4-11 Tactical-Level Logistics
22. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Combat engineer equipment, Utilities equipment

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ESB-HORZ-4002: Construct expedient drainage structure

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 4.4.3
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construction of expedient drainage structures (ditching, culverts, etc.) are designed for temporary conduit for water runoff from existing or proposed base camps, roads, airfields and watersheds until a permanent structure(s) can be installed.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To meet the requirements listed in the design specifications in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct expedient ditch relief culverts.
7. Construct expedient log culverts.
8. Construct oil drum culvert.
9. Construct sandbag culvert.
10. Cover expedient culverts, as required.
11. Construct expedient head/wing walls, as required.
12. Submit required reports.

PREREQUISITE EVENTS:
ESB-RECN-3001 ESB-RECN-4001 ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-HORZ-3001
ESB-MOBL-3004	ESB-RECN-3001	ESB-UTIL-3001

RELATED EVENTS:

1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-1007
1345-HEOP-2009	1345-MANT-1001	1361-DRAF-1001
1361-DRAF-1002	1361-SRVY-1011	1361-SRVY-2001
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2008
1371-EOPS-2010	1371-EOPS-2011	1371-HORZ-2001
1371-HORZ-2002	1371-HORZ-2003	

REFERENCES:

1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer equipment, Utilities equipment

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ESB-MANT-4001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 4.2.2.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct required maintenance on organic engineer equipment at your unit's authorized maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above readiness requirements.

EVENT COMPONENTS:

1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain utilities equipment, as required.
5. Maintain material handling equipment, as required.
6. Maintain earthmoving equipment, as required.
7. Maintain bulk fuel equipment, as required.

8. Maintain other organic tactical engineer equipment, as required.
9. Manage maintenance programs.
10. Submit required reports.

CHAINED EVENTS:

ESB-MANT-3001	ESB-MANT-3002	ESB-MANT-3003
ESB-MANT-3004	ESB-MANT-3005	ESB-MANT-3006
ESB-MANT-3007		

RELATED EVENTS:

1169-ADMN-2006	1169-ADMN-2007	1169-ADMN-2012
1169-ADMN-2021	1169-ADMN-2022	1169-ADMN-2041
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2061
1169-ADMN-2064	1169-ADMN-2071	1169-ADMN-2072
1169-ADMN-2073	1169-ADMN-2074	1169-ADMN-2075
1310-ADMN-2004	1310-ADMN-2009	1310-MANT-2001
1310-MANT-2002	1341-ADMN-1001	1341-ADMN-1002
1341-ADMN-2002	1341-ADMN-2003	1341-ADMN-2004
1341-MANT-1001	1341-MANT-1002	1341-MANT-2010
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-MANT-2001	1349-MANT-2002

REFERENCES:

1. Applicable Technical Manuals Publications
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. Local Standard Operating Procedures (SOP)
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCO 4731.1_ Oil Analysis Program for Ground Equipment
8. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
9. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
10. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
11. MCO 5100.29_ Marine Corps Safety Program
12. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
13. MCO P4790.2_ MIMMS Field Procedures Manual
14. MCWP 4-11 Tactical-Level Logistics
15. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17931 Medium/Heavy Equipment Training Area

EQUIPMENT: Tool sets, chests, and kits.

ESB-MOBL-4001: Conduct security for clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct security for clearance operations to provide sweep team freedom of action.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To allow the sweep team freedom of maneuver while conducting sweeping operations in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Coordinate w/clearance unit on site as required.
6. Establish area clearance security measures as required.
7. Visually identify other potential hazards within area.
8. Visually identify potential suspects/civilians in area.
9. Control/cordon all movement going into area as required.
10. Maintain communications w/clearance/sweep unit.
11. Submit required reports.

CHAINED EVENTS:
ESB-MOBL-3002 ESB-MOBL-3003

RELATED EVENTS:
1302-MOBL-1003 1302-MOBL-1004 1302-MOBL-1005
1302-MOBL-1009 1371-MOBL-1006

REFERENCES:
1. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range

EQUIPMENT: Combat engineer equipment, organic weapons, command and control assets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-MOBL-4002: Detect obstacles during clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Detect obstacles during clearance operations in order to provide the MAGTF assured mobility.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, equipment, intelligence support and references.

STANDARD: To ensure all obstacles/explosive hazards are detected, identified, and marked for reduction or bypass in accordance with the concept of operations.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit, as required.
3. Coordinate with supporting units, as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect explosive hazards within area if possible.
8. Operate dismounted handheld detectors, as required.
9. Operate mounted detectors, as required.
10. Operate other detection equipment, as required.
11. Alternate detector operators to prevent fatigue, as required.
12. Mark obstacles for reduction, as required.
13. Submit required reports.

CHAINED EVENTS:

ESB-MOBL-3005	ESB-MOBL-3006	ESB-MOBL-3007

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1345-MANT-2001	1371-MOBL-2018
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2024
1371-MOBL-2025	1371-MOBL-2026	1371-MOBL-2027

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Motor Transportation, Engineer equipment, Route clearance assets, Command and Control assets.

ESB-MOBL-4003: Breach obstacles for clearance operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Breach obstacles during clearance operations to ensure the safe passage of combat, CS, and CSS organizations.

CONDITION: Provided a mission, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all explosive and non-explosive hazards are removed or destroyed in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze intelligence for designated area.
2. Coordinate with supported unit, as required.
3. Coordinate with supporting units, as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, boobytraps, and unexploded ordnance within area if possible.
8. Operate mounted mine detectors, as required.
9. Operated other detection equipment, as required.
10. Conduct earthmoving operations to detect obstacles, as required.
11. Alternate detector operators as required to prevent fatigue.
12. Mark obstacles for reduction, as required.
13. Destroy obstacle, as required.
14. Verify obstacle destruction.
15. Submit required reports.

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.3 MAGTF Breaching Operations

9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	3 cases per squad
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
M913 Charge, Demolition High Explosive Li	2 charges per squad
M914 Charge, Demolition Inert Linear M68A	1 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer detection equipment, Engineer Material Handling Equipment, Combat engineer breaching equipment.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

ESB-MOBL-4004: Conduct dismounted route sweep operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct dismounted route sweep operations to detect, investigate, mark, report, and reduce Explosive Hazards (EH) and other obstacles along a defined route to enable assured mobility.

CONDITION: Given a mission, commander's intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel and equipment, and references.

STANDARD: To ensure all explosive/non-explosive hazards are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commander's intent integrating all

available resources.

EVENT COMPONENTS:
1. Analyze search route intelligence.
2. Coordinate with supported unit for security, as required.
3. Coordinate with supporting units.
4. Move to search area.
5. Detect obstacles along route.
6. Alternate detector operators as required to prevent fatigue.
7. Identify explosive components of obstacle(s).
8. Mark obstacle(s), as required.
9. Destroy obstacle(s), as required.
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities, as required.
12. Coordinate with other SME personnel, as required.
13. Submit required reports.

CHAINED EVENTS:
ESB-MOBL-3002 ESB-MOBL-3003 ESB-MOBL-3006 ESB-MOBL-3007

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M130 Cap, Blasting Electric M6	30 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M670 Fuse, Blasting Time M700	250 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 cases per squad
MN08 Igniter, Time Blasting Fuse with Sho	25 igniters per squad
MN88 Cap, Blasting, 500 ft mini-tube M21	5 blasting caps per squad
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, AN/PRC 119, mine detectors, probe, compass, protractor, Hand Emplaced Mine Marking System (HEMMS) kit, sickle stick, DA FORM 1355-1-R.

MATERIAL: Engineer tape, concertina wire, barbed wire, engineer stakes,

tie wire, mine signs, sandbags.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-MOBL-4005: Conduct deliberate breach

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct a deliberate breach (mounted and dismounted) to cross a strong and/or well-defended obstacle in order to continue the mission.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable explosive/non-explosive obstacle), a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark lanes through a minefield/obstacle in accordance with the mission and commander's intent.

EVENT COMPONENTS:
1. Verify obstacle intelligence, as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with assault force, support force, and support breach team(s).
6. Verify suppression/obscuration effects.
7. Employ deception plan, as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing, as required.
11. Conduct earthmoving operations, as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-MOBL-3002
ESB-MOBL-3003	ESB-MOBL-3005	ESB-MOBL-3006
ESB-MOBL-3007		

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per Team
M913 Charge, Demolition High Explosive Li	1 charges per Team
M914 Charge, Demolition Inert Linear M68A	2 charges per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17830 Light Demolition Range
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection.

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event. In addition, mission and situation will dictate which breaching charge will be used.

ESB-MOBL-4006: Conduct route improvement

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct route improvement to maintain the route and to prevent/limit explosive hazard concealment opportunities for the enemy.

CONDITION: Given a tactical situation, an operations order, commander's intent, a route to be improved, task organized personnel and equipment, engineer reconnaissance reports, and references.

STANDARD: To maintain the route in support of maneuver operations in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance report(s).
2. Coordinate with route clearance mission commander (for repair materials, logistics, security, etc.).
3. Confirm improvement requirements.
4. Move to improvement area.
5. Operate as part of route clearance team.
6. Visually detect explosive and other hazards, as required.
7. Identify surface repairs, as required.
8. Operate engineer equipment, as required.
9. Remove obstructions (i.e., rubble/debris, vegetation, trash), as required.
10. Remove upheaval to required specifications.
11. Remove berms, as required.
12. Place additional fill/stabilization/reinforcement materials, as required.
13. Identify drainage structure repairs, as required.
14. Conduct culvert denial activities, as required.
15. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-HORZ-3001

RELATED EVENTS:

1302-MOBL-1002	1302-MOBL-1003	1302-MOBL-1004
1302-MOBL-1009	1302-MOBL-1010	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	1371-MOBL-2023
1371-MOBL-2024	1371-MOBL-2025	1371-MOBL-2026
1371-MOBL-2027		

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Combat engineer equipment, Engineer equipment.

ESB-MOBL-4007: Repair Runway Crater

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. This task may be part of Airfield Damage Repair (ADR), and Base Recovery after an Attack (BRAAT).

CONDITION: Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references.

STANDARD: To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance/damage assessment report(s).
2. Coordinate crater repair.
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations, as required.
5. Operate engineer equipment, as required.
6. Operate motor transport equipment, as required.
7. Remove ejecta from operating surfaces.
8. Remove upheaval to required specifications.
9. Square hole, as required.
10. Place fill/stabilization/reinforcement materials, as required.
11. Compact fill materials, as required.
12. Place geotextile layer(s), as required.
13. Surface repair with foreign object debris (FOD) cover, as required.
14. Reconstitute crater repair team.
15. Submit required reports

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-RECN-3006

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1007	1302-RECN-1001
1371-EOPS-2004	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.4 Engineer Reconnaissance

9. MCWP 3-17.5 Combined Arms Countermobility Operations
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, Combat engineer equipment

ESB-MOBL-4008: Repair Spall(s)

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. This task may be part of Airfield Damage Repair (ADR), and Base Recovery after an Attack (BRAAT). Damage classified as a spall does not reach the base course underneath the operating surface of an airfield or road.

CONDITION: Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references.

STANDARD: To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance/damage assessment report(s).
2. Coordinate spall repair(s).
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations, as required.
5. Operate engineer equipment, as required.
6. Remove ejecta from operating surfaces.
7. Fill damaged area with materials suitable for airfield operating surface.
8. Square hole, as required.
9. Tamp repair, as required.
10. Screed, as required.
11. Reconstitute spall repair team.
12. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-RECN-3006

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1007	1302-EOPS-1009
1302-RECN-1001	1371-EOPS-2004	1371-EOPS-2006

1371-EOPS-2007 1371-EOPS-2010 1371-EOPS-2011
1371-EOPS-2012

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, Motor transportation equipment, Combat engineer tools and kits, Combat engineer equipment

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ESB-MOBL-4009: Repair Road Crater

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: These repairs may be required due to enemy or friendly action/ damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage.

CONDITION: Given a tactical situation, an operations order, commander's intent, a roadway operating surface requiring repair, task organized personnel and equipment, engineer reconnaissance reports, and references.

STANDARD: To return the road operating surface to a minimum operational capability within the design criteria and the commander's intent.

EVENT COMPONENTS:
1. Analyze engineer reconnaissance report(s).
2. Coordinate crater repair (materials, logistics, security, etc.).
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations, as required.
5. Operate engineer equipment, as required.
6. Operate motor transport equipment, as required.
7. Remove upheaval to required specifications.
8. Remove debris from operating surfaces, as required.
9. Fill hole.
10. Compact fill materials, as required.
11. Square hole, as required.
12. Place geotextile layer(s), as required.

13. Place additional fill/stabilization/reinforcement materials, as required.
14. Repair shape of road, as required.
15. Surface repair, as required.
16. Repair drainage structures, as required.
17. Reconstitute crater repair team.
18. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-HORZ-1002
1302-MOBL-1001	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-2002	1371-HORZ-2003

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, Combat engineer tools and kits, Combat engineer equipment, Motor transportation equipment

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ESB-MOBL-4010: Employ demolitions in support of mobility operations

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ demolitions in support of mobility operations to reduce/destroy obstacles (explosive and non-explosive) that present mobility impediments to operating forces on routes.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To reduce mobility obstacles on designated routes and ensure mobility in accordance in the commander's intent, concept of operations and mission requirement.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.), as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Reduce obstacle(s).
10. Proof obstacle(s).
11. Clear site with support equipment, as required.
12. Reconstitute obstacle clearing force.
13. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-3002	ESB-MOBL-3002	ESB-MOBL-3003
ESB-MOBL-3005	ESB-MOBL-3006	ESB-MOBL-3007

REFERENCES:

1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	30 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	30 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M591 Dynamite, Military M1	20 charges per squad
M670 Fuse, Blasting Time M700	1000 FT per squad
ML03 Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	30 igniters per squad
MN52 MK154 Mod 0	20 detonators per squad

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this

event. In addition, mission and situation will dictate which breaching charge will be used.

ESB-MOBL-4011: Assemble Medium Girder Bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF.

CONDITION: Provided a mission, commanders intent, a bridge construction site, Medium Girder Bridge (MGB) components, tools, launch vehicle, task organized personnel, and reference.

STANDARD: To meet design specifications and intended bridge classification while observing safety precautions during erection and launch in accordance with TM 5-5420-212-12.

EVENT COMPONENTS:
1. Review gap specific engineer reconnaissance information.
2. Verify gap physical characteristics.
3. Prepare site for construction.
4. Assemble bridge erection set.
5. Assemble end of bridge components.
6. Assemble bridge components (top panels, bottom panels, reinforcement, etc.), as required.
7. Assemble launching nose components.
8. Boom/launch bridge to specified panel point.
9. Assemble far shore components.
10. Lower bridge to deck.
11. Complete reinforcement of bridge, as required.
12. Recover bridge erection set and far shore components.
13. Dress the bridge.
14. Submit required reports.

CHAINED EVENTS:
ESB-HEOP-3002 ESB-HEOP-3003 ESB-RECN-3001
ESB-RECN-3008

RELATED EVENTS:
1302-MOBL-1012 1371-MOBL-1004

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17921 Armored Vehicle Launch Bridge, Raft, And Ford Area

EQUIPMENT: Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat engineer equipment

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ESB-MOBL-4012: Assemble Ribbon Bridge

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: The ribbon bridge is a floating modular asset with an integral superstructure and floating supports. Individual bays are joined to form rafts or bridges for river-crossing operations. Ribbon bridges and rafts provide a reliable and responsive means of crossing wet gaps.

CONDITION: Provided a mission, commanders intent, wet gap crossing site, improved ribbon bridge components, tools, bridge erection boats, fuel, task organized personnel, and references.

STANDARD: To meet design specifications and mobility requirements while observing safety precautions during erection and launch in accordance with TM 5420-209-12.

EVENT COMPONENTS:
1. Review references/directives/specifications.
2. Review gap specific engineer reconnaissance information.
3. Verify wet gap physical characteristics.
4. Brief/instruct the crew on the mission/assignment.
5. Offload bridge erection boats.
6. Offload bridge bays.
7. Connect interior bays.
8. Connect ramp bays.
9. Position bridge.
10. Lower ramps on banks.
11. Anchor bridge as required.
12. Coordinate emergency procedures with safety boat(s).
13. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-3008

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-MOBL-3001

RELATED EVENTS:

1302-MOBL-1011	1302-MOBL-1015	1302-RECN-1001
1371-MOBL-2002	1371-MOBL-2003	1371-MOBL-2007

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17.8 Combined Arms Mobility Operations
5. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
6. TM 5420-209-12 Operators and Organizational Manual Improved Floating

Bridge (Ribbon Bridge)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat engineer equipment, Motor Transportation

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ESB-MOBL-4013: Assemble ribbon raft

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: The ribbon bridge is a floating modular asset with an integral superstructure and floating supports. Individual bays are joined to form rafts or bridges for river-crossing operations. Ribbon bridges and rafts provide a reliable and responsive means of crossing wet gaps.

CONDITION: Provided a mission, commanders intent, wet gap crossing site, bridge components, bridge erection equipment, tools, bridge erection boats, fuel, task organized personnel, and references.

STANDARD: To meet design specification while observing safety precautions during erection and launch in accordance with TM 5420-209-12 Operators and Organizational manual Improved Floating Bridge (Ribbon Bridge).

EVENT COMPONENTS:
1. Review references/directives/specifications.
2. Review gap specific engineer reconnaissance information.
3. Verify wet gap physical characteristics.
4. Brief/instruct the crew on the mission/assignment.
5. Offload bridge erection boats.
6. Offload bridge bays.
7. Connect interior bays.
8. Connect ramp bays.
9. Connect boats to raft.
10. Position raft.
11. Prepare to load/stow vehicles/equipment.
12. Coordinate emergency procedures with safety boat(s).
13. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-3008

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-MOBL-3001

RELATED EVENTS:

1302-MOBL-1011	1302-MOBL-1015	1371-MOBL-2003
1371-MOBL-2005	1371-MOBL-2006	1371-MOBL-2007
1371-MOBL-2008		

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17.8 Combined Arms Mobility Operations
5. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
6. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat engineer equipment, Motor Transportation

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ESB-MOBL-4014: Maneuver a standard military ribbon raft

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF.

CONDITION: Given a mission, commander’s intent, task organization of equipment and personnel, an assembled ribbon raft, a wet gap, and references.

STANDARD: To ensure mobility to meet the mission requirements while observing safety precautions during all rafting operations in accordance with the concept of operations, commander's intent and TM 5420-209-12 Operators and Organizational manual Improved Floating Bridge (Ribbon Bridge).

EVENT COMPONENTS:
1. Review gap specific engineer reconnaissance information.
2. Verify wet gap physical characteristics.
3. Supervise loading/ stowage of vehicles/ equipment.
4. Distribute personal floatation devices as required.
5. Coordinate emergency procedures with safety boat(s).
6. Command rafting operations.
7. Land raft.
8. Supervise unloading/ offload of vehicles/ equipment.
9. Repeat as required.
10. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-3008

CHAINED EVENTS:

ESB-HEOP-3002	ESB-MOBL-3001

RELATED EVENTS:

1302-MOBL-1011	1302-MOBL-1015	1371-MOBL-2003
1371-MOBL-2005	1371-MOBL-2006	1371-MOBL-2007

1371-MOBL-2008

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCRP 3-17B Engineer Forms and Reports
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.1 Combined Arms Gap-Crossing Operations
5. MCWP 3-17.8 Combined Arms Mobility Operations
6. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
7. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: Engineer Material Handling equipment, Motor transportation, CRRC/Safety boat

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ESB-PINF-4001: Fight as provisional infantry

SUPPORTED MCT(S):
MCT 1.1.2 MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Fight as provisional infantry participate in offensive operations such as attacks, raids, movement to contact, etc. Defensive operations that include withdrawal, patrolling, check point ops, convoy ops, and employment of organic weapons. Additional responsibilities may include operations other than war (civil disturbance, TRAP, cordon and search) and MOUT (attack, defend, patrol, clear a building, vehicle check point).

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment a supported unit during the conduct of offensive or defensive operations.

EVENT COMPONENTS:
1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms, as required.
9. Establish redundant communications.
10. Treat and evacuate casualties, as required.
11. Process detainees, as required.
12. Send and receive required reports.

CHAINED EVENTS:

ESB-MOBL-3002 ESB-MOBL-3003

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-02G First Aid
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17730 Fire and Movement Range

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Type/quantities of ammunition, explosives and pyrotechnics are documented with the 3000 Level Events Chained to this event.

ESB-RECN-4001: Conduct site survey

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct site survey to reconnoiter a site or area as part of survey, liaison and reconnaissance party to allow critical planning of specific construction and or operations in support of the MAGTF.

CONDITION: Provided a mission order, task organized personnel and equipment, and references.

STANDARD: To allow for critical planning of facilities and projects in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit, as required.
3. Conduct final coordination with supported unit (location, requirements, security, etc.), as required.
4. Move to site or area.
5. Gather critical information, as required.
6. Make liaisons as required.
7. Develop draft plans and schematics, as required.
8. Plan resources, as required.
9. Submit required reports.

CHAINED EVENTS: ESB-RECN-3001

RELATED EVENTS:
1302-HORZ-1001 1302-PLAN-1002 1302-PLAN-2004

1302-VERT-1001	1361-SRVY-1001	1361-SRVY-1002
1361-SRVY-1003	1361-SRVY-1004	1361-SRVY-1005
1361-SRVY-1006	1361-SRVY-1007	1361-SRVY-1008
1361-SRVY-1009	1361-SRVY-1010	1361-SRVY-1011
1361-SRVY-1012	1361-SRVY-2002	1361-XENG-2001
1361-XENG-2002	1371-PLAN-2002	

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17.7F Project Management
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer survey equipment

UNITS/PERSONNEL: Engineer surveyor 1361

ESB-RECN-4002: Conduct cache sweep

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct cache sweep operations in order to detect, identify and secure materials (documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc.). Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: To detect, identify, and secure materials discovered during the course of the search in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Analyze search area intelligence.
2. Tasks organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s) as required.
8. Destroy captured enemy ammunition, as required.
9. Verify cache destruction.
10. Coordinate explosive ordnance disposal activities, as required.
11. Coordinate weapons intelligence team activities, as required.
12. Coordinate with other specialist personnel, as required.

13. Document/preserve evidence, as required.
14. Submit required reports.

CHAINED EVENTS: ESB-RECN-3002

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1371-MOBL-1002	1371-MOBL-1003
1371-MOBL-2018	1371-MOBL-2020	1371-MOBL-2021
1371-MOBL-2022		

REFERENCES:

1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-1 Ground Combat Operations
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
K143 Mine, Antipersonnel M18A1 with M57 F	1 mines per squad
L495 Flare, Surface Trip M49 Series	4 flares per squad
L598 Simulator, Explosive Booby Trap Flas	4 Simulator per squad
M032 Charge, Demolition Block TNT 1-Pound	10 charges per squad
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M420 Charge, Demolition Shaped M2 Series	1 charges per squad
M421 Charge, Demolition Shaped M3 Series	1 charges per squad
M456 Cord, Detonating PETN Type I Class E	1500 FT per squad
M591 Dynamite, Military M1	10 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
M757 Charge, Assembly Demolition M183 Com	2 charges per squad
ML03 Firing Device, Demolition Multi-Purp	2 igniters per squad
MN08 Igniter, Time Blasting Fuse with Sho	35 igniters per squad

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17730 Fire and Movement Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits, Combat Engineer detection equipment.

UNITS/PERSONNEL: Explosive Ordnance Personnel, Weapons Intelligence team, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per squad. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-RECN-4003: Conduct zone reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct zone reconnaissance to reconnoiter a delineated area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, zone infrastructure.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.).
4. Conduct final coordination with supporting units (logistics, etc.).
5. Conduct final rehearsals and immediate action drills, as required.
6. Reconnoiter for enemy threat, as required.
7. Reconnoiter routes, as required.
8. Reconnoiter infrastructures, as required.
9. Reconnoiter for obstacles, as required.
10. Submit required reports.

CHAINED EVENTS:

ESB-RECN-3002	ESB-RECN-3003	ESB-RECN-3004
ESB-RECN-3005	ESB-RECN-3008	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17730 Fire and Movement Range

EQUIPMENT: Combat engineer equipment.

ESB-RECN-4004: Conduct route reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct route reconnaissance to reconnoiter specific routes to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, infrastructure.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements and security).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes, as required.
8. Reconnoiter tunnels, as required.
9. Reconnoiter bridges, as required.
10. Reconnoiter for fords/ferries, as required.
11. Reconnoiter for landing zones, as required.
12. Submit required reports.

CHAINED EVENTS:
ESB-RECN-3003 ESB-RECN-3004 ESB-RECN-3005
ESB-RECN-3008

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. GTA 5-7-13 Bridge Classification Booklet
3. JP 3-34 Joint Engineer Operations
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.5 Combined Arms Countermobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment

ESB-RECN-4005: Conduct area reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct area reconnaissance to reconnoiter an area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, area infrastructure in established lateral boundaries.

CONDITION: Given a mission, commander's intent, task organized personnel and equipment, and references.

STANDARD: To gather all relevant data, and produce an engineer estimate (or designated products or guidance) in accordance with unit SOPs, the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements, security, etc.).
5. Conduct final coordination with supporting units, as required.
6. Conduct final rehearsals and immediate action drills, as required.
7. Reconnoiter roads/routes to specified area, as required.
8. Reconnoiter infrastructure/facilities in specified area, as required.
9. Reconnoiter obstacles in specified area, as required.
10. Reconnoiter structures in specified area, as required.
11. Submit required reports.

CHAINED EVENTS:

ESB-RECN-3001	ESB-RECN-3003	ESB-RECN-3004
ESB-RECN-3005	ESB-RECN-3006	ESB-RECN-3007
ESB-RECN-3008		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.4 Engineer Reconnaissance

11. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Combat engineer equipment

ESB-SURV-4001: Harden existing structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Harden existing structure in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

CONDITION: Provided a mission, in an urban environment, commander's intent, reconnaissance reports, and survivability plan, a task organization of personnel and equipment, and references.

STANDARD: To meet the mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Construct perimeter security, as required.
7. Shore walls/ floors/ roofs, as required.
8. Remove/ reinforce windows, as required.
9. Compartmentalize interior of structure, as required.
10. Emplace prefabricated barrier(s), as required.
11. Construct earth filled barrier/structure(s), as required.
12. Conduct earthmoving operations, as required.
13. Construct overhead cover, as required.
14. Construct shelter/bunker, as required.
15. Construct triggering screen, as required.
16. Provide tactical power, as required.
17. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-CMOB-3001	ESB-CMOB-3002	ESB-CMOB-3003
ESB-HEOP-3001	ESB-HEOP-3002	ESB-HEOP-3003
ESB-SURV-3001	ESB-SURV-3002	ESB-SURV-3003
ESB-SURV-3004	ESB-SURV-3005	ESB-SURV-3006

ESB-SURV-3007	ESB-SURV-3008	ESB-UTIL-3001
ESB-UTIL-3002	ESB-UTIL-3003	ESB-UTIL-3004

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1009	1302-RECN-1001	1302-SURV-1001
1371-EOPS-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-2004	1371-HORZ-2005	1371-RECN-1001
1371-RECN-2001	1371-SURV-1001	1371-SURV-2001
1371-SURV-2002	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	1371-VERT-1005
1371-VERT-2001	1371-VERT-2002	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. FM 5-553 General Drafting
4. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
5. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
6. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
7. MCRP 3-17.7C Carpentry
8. MCRP 3-17.7D Concrete and Masonry
9. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
10. MCRP 3-17.7F Project Management
11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7L Explosives and Demolitions
13. MCRP 3-17A Engineering Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
16. MCWP 3-13.2 MINE WARFARE
17. MCWP 3-17 Engineering Operations
18. MCWP 3-17.4 Engineer Reconnaissance
19. MCWP 3-17.6 Survivability
20. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer Material Handling Equipment, Engineer earthmoving equipment, Combat engineer tools & kits, Utilities equipment.

ESB-SURV-4002: Construct field fortifications

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct field fortifications that reduce the vulnerability of

personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: To meet mission requirements in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific position placement and requirements.
4. Construct survivability positions, as required.
5. Construct wire obstacles, as required.
6. Construct field expedient obstacles, as required.
7. Construct/emplace barrier(s), as required.
8. Construct/emplace explosive obstacle(s), as required.
9. Conduct vertical construction, as required.
10. Harden existing structures, as required.
11. Conduct earthmoving operations, as required.
12. Provide tactical power, as required.
13. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

CLB-VERT-4001	ESB-CMOB-3001	ESB-CMOB-3002
ESB-HEOP-3002	ESB-HEOP-3003	ESB-SURV-3001
ESB-SURV-3002	ESB-SURV-3003	ESB-SURV-3004
ESB-SURV-3005	ESB-UTIL-3001	ESB-UTIL-3003
ESB-UTIL-3004	ESB-VERT-4001	

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-EOPS-1001
1302-EOPS-1002	1302-EOPS-1003	1302-EOPS-1009
1302-RECN-1001	1302-SURV-1001	1302-SURV-1002
1302-SURV-1003	1302-SURV-1005	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-CMOB-2003	1371-DEMO-1001
1371-EOPS-1001	1371-EOPS-2005	1371-EOPS-2006
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-1001	1371-HORZ-1002	1371-HORZ-1003
1371-HORZ-2004	1371-HORZ-2005	1371-SURV-1001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data

5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer earthmoving equipment, Engineer Material Handling Equipment, Combat engineer tools and equipment, Utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-4003: Construct Vehicle Control Point (VCP)

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct Vehicle Control Point (VCP) to control, restrict and monitor movement of personnel and equipment and to gain information/data on suspected vehicles during military operations.

CONDITION: Provided a mission, commander's intent, intelligence reports, task organization of personnel and equipment, Class IV supplies, and references.

STANDARD: To gain information and maintain control of vehicles, pedestrians, and materials in accordance with mission requirements and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review intelligence reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Coordinate security, as required.
6. Conduct site preparation and layout.
7. Construct survivability positions, as required.
8. Emplace prefabricated barrier(s), as required.
9. Construct wire obstacles, as required.
10. Construct expedient obstacles, as required.
11. Construct earth filled barrier/structure(s), as required.
12. Conduct earthmoving operations, as required.

13. Establish vehicle waiting area, as required.
14. Construct search lanes, as required.
15. Construct personnel search area(s), as required.
16. Construct/emplace signs, as required.
17. Provide tactical power, as required.
18. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-3001	ESB-CMOB-3002	ESB-HEOP-3002
ESB-HEOP-3003	ESB-RECN-3001	ESB-SURV-3001
ESB-SURV-3002	ESB-SURV-3003	ESB-SURV-3004
ESB-SURV-3005	ESB-SURV-3006	ESB-SURV-3007
ESB-SURV-3008	ESB-UTIL-3001	ESB-UTIL-3002
ESB-UTIL-3003	ESB-UTIL-3004	

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-EOPS-1001
1302-EOPS-1002	1302-EOPS-1003	1302-EOPS-1009
1302-RECN-1001	1302-SURV-1001	1302-SURV-1002
1302-SURV-1003	1302-SURV-1005	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-CMOB-2003	1371-DEMO-1001
1371-EOPS-1001	1371-EOPS-2005	1371-EOPS-2006
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-HORZ-1001	1371-HORZ-1002	1371-HORZ-1003
1371-HORZ-2004	1371-HORZ-2005	1371-SURV-1001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.6 Survivability
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling Equipment, engineer earthmoving equipment, combat engineer tools, kits and utilities equipment.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-4004: Construct Entry Access Point (EAP)

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: Construct Entry Access Point to prevent unauthorized personnel into military facilities.

CONDITION: Provided a mission, commander's intent, intelligence reports, task organization of personnel and equipment, Class IV supplies, and references.

STANDARD: To control and monitor access of vehicles, pedestrians, and materials onto military facilities in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review force protection requirements.
3. Coordinate resources for project.
4. Coordinate security, as required.
5. Conduct site preparation and layout.
6. Construct survivability positions, as required.
7. Emplace prefabricated barrier(s), as required.
8. Construct wire obstacles, as required.
9. Construct expedient obstacles, as required.
10. Construct earth filled barrier/structure(s), as required.
11. Conduct earthmoving operations, as required.
12. Establish vehicle turn-around area, as required.
13. Establish pedestrian lanes, as required.
14. Construct personnel search area(s), as required.
15. Construct/emplace signs, as required.
16. Provide tactical power, as required
17. Submit required reports.

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-RECN-3001
ESB-SURV-3001	ESB-SURV-3002	ESB-SURV-3003
ESB-SURV-3004	ESB-SURV-3005	ESB-UTIL-3001
ESB-UTIL-3003	ESB-UTIL-3004	

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1302-CMOB-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1002	1302-SURV-1003	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-CMOB-2003	1371-DEMO-1001
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-SURV-1001
1371-SURV-1001	1371-SURV-2001	1371-VERT-1001

1371-VERT-1002 1371-VERT-1004

REFERENCES:
1. MCWP 3-17.5 Combined Arms Obstacle Integration
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling Equipment, Engineer Earthmoving equipment, Combat Engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-4005: Construct earth filled barrier/structure

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct earth filled barrier/structure in support of survivability of the force.

CONDITION: Provided a mission, commander's intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: That supports the mission requirements and concept of operations in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific placement and requirements.
4. Construct/emplace barrier(s), as required.
5. Conduct earthmoving operations, as required.
6. Submit required reports.

CHAINED EVENTS:
ESB-HEOP-3002 ESB-HEOP-3003 ESB-RECN-3001

RELATED EVENTS:
1302-RECN-1001 1302-SURV-1001 1302-SURV-1002

1302-SURV-1003	1302-SURV-1004	1302-SURV-1005
1371-RECN-1001	1371-RECN-2001	1371-SURV-2001
1371-SURV-2002		

REFERENCES:
1. MCRP 3-17.7I Earthmoving Operations
2. MCRP 3-17A Engineering Field Data
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment.

ESB-SURV-4006: Employ demolitions in support of survivability operations

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ demolitions in support of survivability operations to support the defense of friendly positions or clearance of natural/man-made obstacles for fields of fire to eliminate enemy cover and concealment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To enhance friendly survivability positions and fields of fire to defeat the enemy per the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.), as required.
4. Prepare personnel for mission requirements, as required.
5. Construct booby traps, as required.
6. Clear fields of fire, as required.
7. Place expedient explosive devices to support positions, as required.
8. Mark fortifications/explosive devices, as required.
9. Reconstitute force, as required.
10. Submit required reports.

CHAINED EVENTS:

ESB-CMOB-3001	ESB-CMOB-3002	ESB-CMOB-3003
ESB-HEOP-3002	ESB-HEOP-3003	ESB-MOBL-3004
ESB-RECN-3003		

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-SURV-1001
1302-SURV-1003	1302-SURV-1005	1371-CMOB-2003
1371-DEMO-1001	1371-DEMO-2002	1371-EOPS-1002
1371-EOPS-1003	1371-EOPS-1004	1371-SURV-1001
1371-SURV-2001	1371-SURV-2002	

REFERENCES:

1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	20 charges per squad
M032 Charge, Demolition Block TNT 1-Pound	20 charges per squad
M130 Cap, Blasting Electric M6	10 blasting caps per squad
M131 Cap, Blasting Non-Electric M7	20 blasting caps per squad
M456 Cord, Detonating PETN Type I Class E	2000 FT per squad
M591 Dynamite, Military M1	20 charges per squad
M670 Fuse, Blasting Time M700	500 FT per squad
ML03 Firing Device, Demolition Multi-Purp	10 detonators per squad
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per squad
MN52 MK154 Mod 0	10 detonators per squad

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-UTIL-4001: Provide tactical electrical power

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Plan and coordinate power generation/electrical distribution in accordance with the unit's mission statement.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: In accordance with the operational order and commander's intent.

EVENT COMPONENTS:
1. Plan tactical power requirements.
2. Coordinate logistical support/requirements.
3. Establish generator site(s).
4. Establish power distribution.
5. Maintain utilities equipment, as required.
6. Submit required reports.

CHAINED EVENTS:

ESB-MANT-3001	ESB-MANT-3003	ESB-UTIL-3001
ESB-UTIL-3002	ESB-UTIL-3003	ESB-UTIL-3004
ESB-UTIL-3005	ESB-UTIL-3006	

RELATED EVENTS:

1169-ADMN-2002	1169-ADMN-2003	1169-ADMN-2021
1169-ADMN-2022	1169-XENG-2501	1169-XENG-2502
1169-XENG-2521	1169-XENG-2522	1169-XENG-2561
1169-XENG-2621	1169-XENG-2622	1169-XENG-2721
1169-XENG-2821	1169-XENG-2965	1169-XENG-2966

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems
2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
3. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, engineer Material Handling Equipment (MHE), Motor Transport equipment.

MATERIAL: POLs, HazMat Kits, spill containment kits, fuel.

ESB-UTIL-4002: Provide potable water

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Produce, store, and distribute potable water in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To meet planning requirements.

EVENT COMPONENTS:
1. Perform Water Recon.
2. Establish Water Point.
3. Produce Potable Water.
4. Store Potable Water.
5. Establish Water Distribution Points.

CHAINED EVENTS:

ESB-UTIL-3007	ESB-UTIL-3008	ESB-UTIL-3009

RELATED EVENTS:

1169-ADMN-2007	1169-ADMN-2021	1169-ADMN-2022
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2075
1169-ADMN-2091	1169-XENG-2501	1169-XENG-2502
1169-XENG-2553	1169-XENG-2653	1169-XENG-2752
1169-XENG-2753	1169-XENG-2853	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment with supplemental kits (cartridges, NBC filters etc.), MHE, water testing kit, tool kits, PPE.

MATERIAL: Chemicals to purify raw water source.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

ESB-UTIL-4003: Provide tactical hygiene support

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide tactical hygiene support in order to provide sanitary shower, laundry, and field sanitation support to meet the commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To meet planning requirements in accordance with commander's intent.

EVENT COMPONENTS:

1. Establish shower facilities.
2. Establish laundry facilities.
3. Supervise field sanitation.

CHAINED EVENTS:

ESB-MANT-3001	ESB-MANT-3002	ESB-MANT-3003
ESB-MANT-3004	ESB-MANT-3005	ESB-UTIL-3009
ESB-UTIL-3010	ESB-UTIL-3011	ESB-UTIL-3012

RELATED EVENTS:

1169-ADMN-2007	1169-ADMN-2021	1169-ADMN-2022
1169-ADMN-2051	1169-ADMN-2052	1169-ADMN-2091
1169-XENG-2501	1169-XENG-2502	1169-XENG-2555
1169-XENG-2655	1169-XENG-2755	1169-XENG-2855

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, Material Handling equipment, PPE.

MATERIAL: Building materials (gravel, lime, pest insecticide, lumber etc.

ESB-VERT-4001: Conduct vertical construction

SUPPORTED MCT(S): MCT 4.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct vertical construction to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the MAGTF.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build and/or improve facilities that meet the minimum requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance.
3. Conduct survey as required.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Repair facility as required.

7. Erect prefabricated structure, as required.
8. Construct wood frame structure, as required.
9. Construct timber structure, as required.
10. Construct expedient drainage structure, as required.
11. Wire structure for electricity as required.
12. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3001	ESB-HEOP-3002	ESB-HEOP-3003
ESB-MOBL-3004	ESB-RECN-3001	ESB-UTIL-3001
ESB-UTIL-3003		

RELATED EVENTS:

1302-PLAN-1002	1302-RECN-1001	1302-VERT-1001
1316-XENG-1001	1316-XENG-1006	1361-DRAF-1001
1361-DRAF-1002	1361-DRAF-1003	1361-SRVY-1004
1361-SRVY-1008	1361-SRVY-2003	1361-SRVY-2004
1361-SRVY-2005	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2008	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-2002	1371-HORZ-2003
1371-RECN-2001	1371-VERT-2001	1371-VERT-2002

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 5-7-13 Bridge Classification Booklet
3. GTA 5-7-6 Bridge Design Card
4. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
5. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
6. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
7. MCRP 3-17.7C Carpentry
8. MCRP 3-17.7D Concrete and Masonry
9. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
10. MCRP 3-17.7F Project Management
11. MCRP 3-17.7I Earthmoving Operations
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17.7M Construction Estimating
14. MCRP 3-17.7N Base Camps
15. MCRP 3-17A Engineering Field Data
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCWP 3-17 Engineering Operations
18. MCWP 3-33 Military Operations Other Than War (MOOTW)
19. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
20. MCWP 4-11 Tactical-Level Logistics
21. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT:
Engineer earthmoving equipment, Combat engineer tools & kits, and Material Handling Equipment.

ESB-VERT-4002: Construct wood frame structure

SUPPORTED MCT(S): MCT 4.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct wood frame structures for use in all operations conducted to include but not limited to strong backs, sheds, facilities, sea huts, etc., or may be specified in mission directives.

CONDITION: Given a mission, commanders intent, tactical situation, task organized equipment and personnel, construction plans, design specifications, construction materials and references.

STANDARD: To meet the requirements listed in the design specifications in accordance with commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install footers, as required.
7. Construct/install flooring structure, as required
8. Construct/install wall structure(s), as required.
9. Construct/install roof structure, as required.
10. Construct/install doors, as required.
11. Construct/install windows, as required.
12. Finish interior, as required.
13. Finish exterior, as required.
14. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3001	ESB-HEOP-3002	ESB-HEOP-3003
ESB-MOBL-3004	ESB-RECN-3001	ESB-UTIL-3001

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-VERT-1001	1371-EOPS-1002	1371-EOPS-1003
1371-EOPS-1004	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2008	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-2002	1371-HORZ-2003
1371-MANT-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-2001	1371-VERT-2002	

REFERENCES:

1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer Tools and Kits, PPE.

MATERIAL: Class IV

OTHER SUPPORT REQUIREMENTS: Electrical and fuel requirements.

ESB-VERT-4003: Construct concrete block structure

SUPPORTED MCT(S): MCT 4.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: To conduct concrete block and other masonry construction as directed. Task emphasizes type of material, placement, finishing, and equipment used to build structures and foundations. This task also implies use of wood frame components for roofs and opening enclosures (doors, windows, etc.).

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: That meets the requirements listed in the design specifications in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install foundation, as required.
7. Construct/install wall structure(s), as required.
8. Place opening(s), as required.
9. Construct/place roof, as required
10. Construct/install doors, as required.
11. Construct/install windows, as required.
12. Submit required reports.

13. Construct/install windows, as required.
14. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3001	ESB-HEOP-3002	ESB-HEOP-3003
ESB-RECN-3001	ESB-UTIL-3001	

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-VERT-1001	1316-XENG-1001	1316-XENG-1006
1371-EOPS-1001	1371-EOPS-1004	1371-EOPS-2005
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-1001
1371-HORZ-1002	1371-HORZ-1003	1371-HORZ-2004
1371-HORZ-2005	1371-MANT-1001	1371-RECN-2001
1371-VERT-1003		

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7F Project Management
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.8 Combined Arms Mobility Operations
8. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Concrete and Masonry kit, concrete mixer, Pioneer kit, PPE.

MATERIAL: Portland cement, coarse and fine aggregate, ad-mixture.

OTHER SUPPORT REQUIREMENTS: Electrical and fuel requirements.

ESB-VERT-4004: Construct timber structure

SUPPORTED MCT(S): MCT 4.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct construction of timber structures for survivability of personnel and equipment. Structures consist of but not limited to bunkers, shelters, overhead cover, guard posts, crew-serve weapons positions, and individual fighting positions.

CONDITION: Given a mission, commander's intent, tactical situations, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To meet the survivability requirements in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct/prefabricate structures, as required.
7. Emplace structures, as required.
8. Construct/install wall structure(s), as required.
9. Construct/install roof structure/components, as required.
10. Construct/install doors, as required.
11. Construct/install portholes, as required.
12. Sandbag structure, as required.
13. Camouflage as required.
14. Install grenade sumps, as required.
15. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-SURV-3002
ESB-SURV-3003	ESB-SURV-3004	ESB-SURV-3005
ESB-SURV-3006	ESB-SURV-3007	ESB-SURV-3008
ESB-UTIL-3001		

RELATED EVENTS:

1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-SURV-1001	1302-SURV-1002	1302-VERT-1001
1371-EOPS-1002	1371-EOPS-1003	1371-EOPS-1004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2008
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012
1371-MANT-1001	1371-RECN-2001	1371-SURV-1001
1371-SURV-2001	1371-SURV-2002	1371-VERT-1001
1371-VERT-1002	1371-VERT-1004	1371-VERT-1005

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7F Project Management
3. MCRP 3-17.7M Construction Estimating
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.7 General Engineering
7. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light

Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and Kits

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ESB-VERT-4005: Repair existing structures

SUPPORTED MCT(S): MCT 4.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Engineers will conduct this task for any type of structure (wood, concrete, steel, bridges, etc.) or facilities that have been damaged/flawed or incorrect per design specifications.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, structure/facility in need of repair, construction materials and references.

STANDARD: To meet the original design requirements/specifications to restore structure or facilities and in accordance with the commander's intent.

EVENT COMPONENTS:
1. Review construction plans and schematics, as required.
2. Review engineer reconnaissance and survey, as required.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Repair/replace structural components, as required.
7. Repair/replace electrical, as required.
8. Repair bridge abutments, as required.
9. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3002	ESB-HEOP-3003	ESB-UTIL-3001

RELATED EVENTS:

1302-EOPS-1009	1302-RECN-1001	1302-VERT-1001
1316-XENG-1001	1316-XENG-1006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-RECN-1001
1371-VERT-1001	1371-VERT-1002	1371-VERT-1003
1371-VERT-1004	1371-VERT-1005	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and kits

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ESB-VERT-4006: Construct concrete structure

SUPPORTED MCT(S): MCT 4.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construction of concrete structures for use in all operations conducted to include but not limited to wing walls, buildings, foundations, retaining walls, etc., or may be specified in mission directives in support of the MAGTF.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To meet the requirements listed in the design specifications, in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation, as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install form work for footers, as required.
7. Construct/install form work for walls, as required.
8. Place reinforcement material, as required.
9. Place concrete for footer(s), as required.
10. Place concrete for wall(s), as required.
11. Place concrete for slab(s), as required.
12. Consolidate concrete, as required.
13. Finish concrete, as required.
14. Remove forms, as required.
15. Submit required reports.

PREREQUISITE EVENTS: ESB-RECN-5001

CHAINED EVENTS:

ESB-HEOP-3001	ESB-HEOP-3002	ESB-HEOP-3003
ESB-RECN-3001	ESB-UTIL-3001	

RELATED EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1007	1302-EOPS-1009	1302-RECN-1001
1302-SURV-1001	1302-SURV-1005	1302-VERT-1001

1316-XENG-1001	1316-XENG-1006	1371-EOPS-1001
1371-EOPS-1004	1371-EOPS-2005	1371-EOPS-2006
1371-EOPS-2007	1371-EOPS-2010	1371-EOPS-2011
1371-EOPS-2012	1371-HORZ-1001	1371-HORZ-1002
1371-HORZ-1003	1371-HORZ-2004	1371-HORZ-2005
1371-MANT-1001	1371-RECN-2001	1371-SURV-1001
1371-SURV-2001	1371-VERT-1003	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7F Project Management
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer tools and kits

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ESB-VERT-4007: Construct manufactured steel structure

SUPPORTED MCT(S): MCT 4.4.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Any manufactured steel structures to include but not limited to K-Spans, Butler Buildings, Pre-engineered buildings, Framed Shelters w/vinyl covers, etc.

CONDITION: Given a mission, commander's intent, tactical situation, task organized equipment and personnel, steel structure components, design specifications, construction materials and appropriate references.

STANDARD: That meets the requirements listed in the manufacturer specifications, in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install foundation as required.
7. Construct/install flooring as required
8. Construct/install structure(s) as required.
9. Construct/install doors as required.
10. Construct/install windows as required.
11. Submit required reports.

PREREQUISITE EVENTS:

1302-EOPS-1001	1302-EOPS-1002	1302-EOPS-1003
1302-EOPS-1007	1302-EOPS-1009	1302-SURV-1001
1302-SURV-1005	1302-VERT-1001	1316-XENG-1001
1316-XENG-1006	1371-EOPS-1001	1371-EOPS-1004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	1371-HORZ-1001
1371-HORZ-1002	1371-HORZ-1003	1371-HORZ-2004
1371-HORZ-2005	1371-MANT-1001	1371-RECN-2001
1371-SURV-1001	1371-VERT-1001	1371-VERT-1002
1371-VERT-1003	1371-VERT-1004	

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7C Carpentry
6. MCRP 3-17.7D Concrete and Masonry
7. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
8. MCRP 3-17.7F Project Management
9. MCRP 3-17.7I Earthmoving Operations
10. MCRP 3-17.7K Theater of Operations Electrical Systems
11. MCRP 3-17.7L Explosives and Demolitions
12. MCRP 3-17A Engineering Field Data
13. MCRP 4-11.1D Field Hygiene and Sanitation
14. MCWP 3-17 Engineering Operations
15. MCWP 3-33 Military Operations Other Than War (MOOTW)
16. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
17. MCWP 3-41.1 Rear Area Operations
18. MCWP 4-1 Logistics Operations
19. MCWP 4-11 Tactical-Level Logistics
20. TM 5-232 Elements of Construction Surveying

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Combat engineer equipment, Utilities equipment

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6007. 3000-LEVEL EVENTS

ESB-CMOB-3001: Employ explosive obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Create explosive obstacles to turn, block, fix, or disrupt enemy movement or maneuver of personnel or equipment.

CONDITION: Given an operations order, personnel, demolitions material, engineer equipment, and personal protective equipment.

STANDARD: To turn, block, fix, or disrupt the enemy in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare site.
3. Build the explosive obstacle (if required).
4. Emplace explosive obstacle.
5. Recover as required.
6. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2002
1310-ADMN-2006	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-ADMN-1002
1345-ADMN-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-2009
1345-MANT-1001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2003	1371-DEMO-1002	

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J007 Mine, Antipersonnel M18A 1 with Non-	2 mines per Team
L598 Simulator, Explosive Booby Trap Flas	10 Simulator per Team
M023 Charge, Demolition Block M112 1-1/4	20 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	6 charges per Team
M327 Coupling Base, Firing Device with Pr	10 primers per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
ML03 Firing Device, Demolition Multi-Purp	10 detonators per Team

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range
Facility Code 17905 Mine Warfare Area

EQUIPMENT: PPE, Combat engineer equipment, tools and kits

MATERIAL: Class IV material.

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-CMOB-3002: Build non-explosive obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Build non-explosive obstacles to, block, fix, or disrupt the enemy. Typical examples are: Wire, Tank ditches, Log cribs, Steel H beam post obstacles, falling or tumble blocks, Dragon's teeth, hedgehogs, tetrahedrons and non-explosive abatis.

CONDITION: Given a mission, commander's intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, natural terrain, battlefield materials, etc.).

STANDARD: To, block, fix, or disrupt the enemy in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Review mission and schematics.
2. Determine actual work sequence.
3. Coordinate logistical requirements.
4. Coordinate overwatch/security for obstacle construction.
5. Move to obstacle site.
6. Tie obstacles into natural/existing obstacles, as required.
7. Construct/place mobility obstacles (barriers, hedgehogs, etc.) as required.
8. Construct wire obstacles, as required.
9. Construct/place field expedient obstacles (logs, abatis, rubble, etc.), as required.
10. Construct/create phony obstacles, as required.
11. Construct tank ditches, as required.
12. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1002	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-ADMN-2002	1345-HEOP-1003
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1006
1345-HEOP-1007	1345-HEOP-2012	1345-MANT-1001
1345-MANT-2001	1345-MANT-2003	1345-MANT-2004
1349-ADMN-2002	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1371-CMOB-1001	1371-CMOB-2001
1371-CMOB-2003		

REFERENCES:
1. Appropriate Technical Manuals
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. UNIT SOP Unit's Standing Operating Procedures
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data

6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
8. MCWP 3-1 Ground Combat Operations
9. MCWP 3-13.2 MINE WARFARE
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.1 Combined Arms Gap-Crossing Operations
12. MCWP 3-17.4 Engineer Reconnaissance
13. MCWP 3-33 Military Operations Other Than War (MOOTW)
14. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
L495 Flare, Surface Trip M49 Series	2 flares per Team
M032 Charge, Demolition Block TNT 1-Pound	4 charges per Team
M039 Charge, Demolition Cratering 40-Poun	4 charges per Team
M130 Cap, Blasting Electric M6	6 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	6 blasting caps per Team
M327 Coupling Base, Firing Device with Pr	6 primers per Team
M421 Charge, Demolition Shaped M3 Series	4 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	125 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 cases per Team
ML03 Firing Device, Demolition Multi-Purp	4 detonators per Team
MN08 Igniter, Time Blasting Fuse with Sho	6 igniters per Team
MN14 Firing Device, Dual Mode MK54	4 detonators per Team
MN52 MK154 Mod 0	10 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, tools and kits, MHE, Earthmoving equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-CMOB-3003: Construct demolition obstacles

SUPPORTED MCT(S): MCT 1.4.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ expedient anti-personnel devices and explosive hazards as explosive obstacles.

CONDITION: Given an operations order, personnel, demolitions material, engineer equipment, and while wearing fighting load.

STANDARD: To support the defensive concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare site.
3. Build the explosive obstacle.
4. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-DEMO-1001
1302-DEMO-1002	1371-CMOB-1003	1371-DEMO-1001

REFERENCES:
1. Appropriate Technical Manuals
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-13.2 MINE WARFARE
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
11. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M030 Charge, Demolition Block TNT 1/4-Pou	4 charges per Team
M130 Cap, Blasting Electric M6	4 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	4 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
ML03 Firing Device, Demolition Multi-Purp	4 detonators per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-DEMO-3001: Destroy captured arms and ammunition with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy captured arms and ammunition with demolitions to ensure destruction. Examples include: confined gaseous, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot-control agents; smokes and incendiaries (including bulk explosives); chemical warfare agents; chemical munitions; rockets; guided and ballistic missiles; bombs; warheads; mortar rounds; artillery ammunition; small arms ammunition; grenades; mines; torpedoes; depth charges; cluster munitions and dispensers; demolition charges; and devices and components of the above.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of arms and ammunition.
10. Submit required reports.

RELATED EVENTS:
1302-DEMO-1004 1302-MOBL-1003 1371-MOBL-2023

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team

M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	4 charges per Team
MM45- Change. Demo Flex Linear Shaped 125	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-DEMO-3002: Destroy bridge with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy bridge with demolitions which results in either a gap that exceeds the enemy's assault bridging capability by 5 meters, or that leaves demolished components which are unable to provide sufficient bearing capacity for enemy assault breaching assets.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of bridge.

10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1007
1371-CMOB-2004	1371-DEMO-1001	1371-DEMO-2015

REFERENCES:

1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45- Change. Demo Flex Linear Shaped 125	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-DEMO-3003: Destroy tunnel with demolitions

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy tunnel with demolitions to ensure destruction of the tunnel.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of tunnel.
10. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-DEMO-1003
1302-MOBL-1007	1371-DEMO-1001	1371-DEMO-2001
1371-DEMO-2002		

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team

MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-DEMO-3004: Destroy building with demolitions

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Destroy building with demolitions to ensure destruction of the building.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commander's intent and mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Establish safety zone.
8. Detonate explosive.
9. Verify destruction of building.
10. Submit required reports.

RELATED EVENTS:
1302-DEMO-1001 1302-DEMO-1002 1302-DEMO-2001
1302-MOBL-1007 1371-DEMO-1001

REFERENCES:
1. GTA 5-10-33 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions

4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M032 Charge, Demolition Block TNT 1-Pound	3 charges per Team
M039 Charge, Demolition Cratering 40-Poun	3 charges per Team
M130 Cap, Blasting Electric M6	5 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M591 Dynamite, Military M1	6 charges per Team
M670 Fuse, Blasting Time M700	150 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	6 FT per Team
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	15 igniters per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: 260 CFM, PPE.

UNITS/PERSONNEL: Range Safety officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-FUEL-3001: Operate bulk fuel distribution site

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ bulk fuel systems, to include: SixCon pump and tank module, Expedient Refueling System (ERS), Amphibious Assault Refueling System (AAFS), Hose Reel System (HRS) to establish a bulk fuel site.

CONDITION: With a bulk fuel distribution plan, bulk fuel supply, distribution system, safety equipment and personnel.

STANDARD: To dispense fuel to using units in order to meet mission

requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Dispense fuel, as required.
3. Receive fuel resupply, as required.
4. Produce reports, as required.
5. Recover system, as required.

RELATED EVENTS:

1310-ADMN-2009	1310-ADMN-2010	1310-HEOP-2001
1310-MANT-2002	1345-HEOP-1001	1345-HEOP-1002
1345-HEOP-1003	1345-HEOP-1006	1345-MANT-1001
1349-ADMN-2009	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002	1391-XENG-1001	1391-XENG-1002
1391-XENG-1004	1391-XENG-1005	1391-XENG-1006
1391-XENG-1007	1391-XENG-1008	1391-XENG-1009
1391-XENG-1011	1391-XENG-1012	1391-XENG-1013
1391-XENG-1014	1391-XENG-1015	

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
3. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17933 POL Training Area

EQUIPMENT: Engineer earthmoving equipment, Material Handling Equipment, Utilities equipment, Bulk fuel equipment, Motor Transport equipment, Engineer lifting equipment, Tactical communications equipment.

MATERIAL: Plan for POL and HazMat.

ESB-FUEL-3002: Provide tactical bulk fuel storage

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide Tactical Bulk Fuel Storage.

CONDITION: Given fuel, equipment, personnel and references.

STANDARD: To ensure Days of Supply (DOS) are maintained.

EVENT COMPONENTS:
1. Receive fuel.

2. Inventory stored fuel.
3. Test stored fuel for quality control measures.
4. Measure fuel by metering or/and gauging.
5. Submit reports, as required.

RELATED EVENTS:

1391-XENG-1006	1391-XENG-1007	1391-XENG-1008
1391-XENG-1009	1391-XENG-1011	1391-XENG-1012
1391-XENG-1013	1391-XENG-1014	

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17933 POL Training Area

EQUIPMENT: Bulk fuel equipment, PPE.

ESB-HEOP-3001: Provide crane support

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 4.4.1
MCT 4.4.2	MCT 4.4.3	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ organic crane assets, to include: ATC 50-ton and LRT 110 7-ton cranes.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct lift of material.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2007
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-2002	1345-HEOP-2002	1345-HEOP-2003
1345-MANT-2001	1349-ADMN-2002	1349-ADMN-2006
1349-ADMN-2007	1349-ADMN-2010	1349-HEOP-2001
1349-MANT-2002		

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Personnel operating cranes are required to be licensed on the equipment operating.

ESB-HEOP-3002: Provide Material Handling Equipment (MHE) support

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 4.4.1
MCT 4.4.2	MCT 4.4.3	MCT 4.4.4
MCT 6.1.4		

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ organic MHE assets, to include: KALMAR RTCH, 624 TRAMs, Extended Boom Fork Lift, and MMV forklifts.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct lift of material.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-1002	1345-HEOP-1001	1345-HEOP-1002
1345-HEOP-1003	1345-HEOP-2009	1345-MANT-1001
1349-ADMN-2006	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

ESB-HEOP-3003: Provide earth moving equipment support

SUPPORTED MCT(S):

MCT 1.4.1	MCT 1.4.2	MCT 4.4.1
MCT 4.4.2	MCT 4.4.3	MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide earth moving equipment support to support the mission utilizing the required type(s) of engineer equipment and personnel.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Deploy safety measures for equipment.
6. Conduct combined earthmoving operations.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2006	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-ADMN-1002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-HEOP-1007
1345-HEOP-2004	1345-HEOP-2005	1345-HEOP-2006
1345-HEOP-2008	1345-HEOP-2009	1345-MANT-1001
1349-ADMN-2002	1349-ADMN-2006	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. Applicable technical references

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

ESB-HORZ-3001: Conduct dust abatement

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 4.4.3
MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ a dust palliative with the assistance of organic engineer assets.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: To mitigate the effects of wind-blown dust on combatants and combat equipment that meets or exceeds commander's intent and supports the concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct blast screen, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:
1310-ADMN-2002 1310-ADMN-2009 1310-ADMN-2010
1310-HEOP-2001 1310-HORZ-2001 1310-HORZ-2002
1310-HORZ-2003 1310-MANT-2002 1345-HEOP-1007
1345-HEOP-2008 1349-HORZ-2002 1349-HORZ-2003
1349-MANT-2002

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7I Earthmoving Operations
4. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer Earthmoving and Material Handling equipment

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ESB-MANT-3001: Maintain engineer equipment

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Maintain engineer equipment by conducting preventive and corrective maintenance on engineer equipment using unit assigned maintenance levels.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Monitor equipment readiness.
2. Conduct reconciliation.
3. Assign tasks.
4. Maintain organic tactical engineer equipment.
5. Manage maintenance programs.
6. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2003	1310-ADMN-2004
1310-ADMN-2005	1310-ADMN-2008	1310-MANT-2001
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-1003
1316-ADMN-2001	1316-ADMN-2002	1316-MANT-1002
1316-MANT-1004	1316-XENG-1001	1316-XENG-1002
1316-XENG-1004	1316-XENG-1005	1316-XENG-1006
1341-ADMN-1001	1341-ADMN-1002	1341-ADMN-2001
1341-ADMN-2002	1341-ADMN-2003	1341-ADMN-2004
1341-MANT-1001	1341-MANT-1002	1341-MANT-1003
1341-MANT-1004	1341-MANT-1005	1341-MANT-1006
1341-MANT-1007	1341-MANT-1008	1341-MANT-1009
1341-MANT-1010	1341-MANT-2009	1341-MANT-2010
1345-ADMN-1002	1345-MANT-1001	1345-MANT-2001
1345-MANT-2002	1349-ADMN-2001	1349-ADMN-2002
1349-ADMN-2003	1349-ADMN-2004	1349-ADMN-2008
1349-MANT-2001	1349-MANT-2002	1371-MANT-1001
1371-MANT-2002		

REFERENCES:
1. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
5. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
6. MCO 5100.29_ Marine Corps Safety Program
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. SOP Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer tools, sets, kits.

ESB-MANT-3002: Employ maintenance team

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To ensure equipment is in operational condition to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine personnel, tool, and equipment requirement(s).
3. Determine maintenance support requirement.
4. Conduct Limited Technical Inspection (LTI).
5. Repair equipment, as required.
6. Recover and evacuate, as required.
7. Submit required reports.

RELATED EVENTS:

1310-ADMN-2002	1310-ADMN-2004	1310-MANT-2001
1310-MANT-2002	1341-ADMN-1002	1341-ADMN-2002
1341-ADMN-2003	1341-ADMN-2004	1341-MANT-1002
1341-MANT-2006	1341-MANT-2009	1341-MANT-2010
1349-ADMN-2002	1349-ADMN-2009	1349-MANT-2001
1349-MANT-2002		

REFERENCES:
1. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
2. MCO 4610.35 USMC Equipment Characteristics File
3. MCO 4731.1_ Oil Analysis Program for Ground Equipment
4. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Maintenance Contact vehicle and equipment, PPE

ESB-MANT-3003: Maintain tactical power distribution system

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Maintain equipment to ensure the safe distribution of electrical power to meet mission requirements.

CONDITION: With a Preventive Maintenance Checks and Service (PMCS) Schedule, testing equipment, tools, and personnel.

STANDARD: To ensure the equipment is safe and operational.

EVENT COMPONENTS:
1. Review PMCS schedule, as required.
2. Induct equipment into maintenance cycle.
3. Conduct preventive maintenance, as required.
4. Conduct corrective maintenance, as required.
5. Complete modifications, as required.
6. Ground system, as required.
7. Electrically energize system, as required.
8. Diagnose malfunction, as required.
9. Requisition repair parts, as required.
10. Install repair parts, as required.
11. Test system.
12. Complete quality control requirements.
13. Complete administrative maintenance requirements.

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-ADMN-1008
1141-ADMN-1010	1141-ADMN-1011	1141-ADMN-2073
1141-MANT-1101	1141-MANT-1224	1141-MANT-1324
1141-MANT-1424	1141-MANT-2191	1141-MANT-2244
1141-MANT-2344	1141-MANT-2444	1141-XENG-1601
1141-XENG-1703	1142-ADMN-1006	1142-ADMN-1008
1142-ADMN-1010	1142-ADMN-1011	1142-ADMN-2073
1142-MANT-1101	1142-MANT-1106	1142-MANT-1108
1142-MANT-1109	1142-MANT-1142	1142-MANT-1351
1142-MANT-1451	1142-MANT-1466	1142-MANT-1467
1142-MANT-1468	1142-MANT-1469	1142-MANT-1493
1142-MANT-2191	1142-MANT-2308	1142-MANT-2309
1142-MANT-2318	1142-MANT-2354	1142-MANT-2365
1142-MANT-2408	1142-MANT-2409	

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Multi-meter, tools, power generation equipment, PPE.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task includes conducting maintenance on generators, MEPDIS and MEPDIS-R.

ESB-MANT-3004: Maintain water purification equipment

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on water purification equipment to meet mission requirements and commander's intent.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit's readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspections (LTI).
3. Open service request (GCSS-MC).
4. Order repair parts.
5. Install repair parts.
6. Complete modifications, as required.
7. Perform operational checks.
8. Complete quality control requirements.
9. Complete administrative maintenance requirements.

RELATED EVENTS:

1142-ADMN-2061	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-1382	1142-MANT-1493	1142-MANT-2191
1142-MANT-2383	1171-ADMN-1006	1171-ADMN-1007
1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-ADMN-2071	1171-ADMN-2072	1171-ADMN-2073
1171-MANT-1233	1171-MANT-1248	1171-MANT-1271
1171-MANT-1272	1171-MANT-1274	1171-MANT-1277
1171-MANT-1278	1171-MANT-1279	1171-MANT-1280
1171-MANT-1282	1171-MANT-1284	1171-MANT-1285
1171-MANT-1333	1171-MANT-1348	1171-MANT-1371
1171-MANT-1372	1171-MANT-1374	1171-MANT-1379
1171-MANT-1382	1171-MANT-1433	1171-MANT-1441
1171-MANT-1448	1171-MANT-1471	1171-MANT-1472
1171-MANT-1474	1171-MANT-1478	1171-MANT-1482

1171-MANT-1484	1171-MANT-1485	1171-MANT-2101
1171-MANT-2191	1171-MANT-2396	1171-MANT-2397

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
4. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, appropriate tools and kits.

MATERIAL: POLs as required.

ESB-MANT-3005: Maintain hygiene equipment

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Manage and conduct preventive and corrective maintenance on water support equipment to meet mission requirements and commander's intent.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit’s readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete modifications, as required.
7. Perform operational checks.
8. Complete quality control requirements.
9. Complete maintenance administrative requirements.

RELATED EVENTS:

1142-MANT-1101	1142-MANT-1106	1142-MANT-1108
1142-MANT-1109	1142-MANT-1331	1142-MANT-1392

1142-MANT-1493	1142-MANT-2332	1142-MANT-2338
1142-MANT-2438	1171-ADMN-1006	1171-ADMN-1007
1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-ADMN-2071	1171-ADMN-2072	1171-ADMN-2073
1171-MANT-1231	1171-MANT-1232	1171-MANT-1241
1171-MANT-1277	1171-MANT-1278	1171-MANT-1331
1171-MANT-1332	1171-MANT-1431	1171-MANT-1432
1171-MANT-1477	1171-MANT-1478	1171-MANT-2101
1171-MANT-2191	1171-MANT-2338	1171-MANT-2395
1171-MANT-2396	1171-MANT-2438	

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.4 Maintenance Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, Engineer Material Handling Equipment, appropriate tools and kits.

MATERIAL: Appropriate POLs as required.

ESB-MANT-3006: Maintain refrigeration system(s)

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct maintenance in order to sustain the refrigeration system(s) in operable status.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above units readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications, as required.
7. Perform Operational Checks.
8. Complete quality control requirements.
9. Complete maintenance administrative requirements.

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-1392	1142-MANT-1493	1142-MANT-2191
1142-MANT-2327	1161-ADMN-1006	1161-ADMN-1008
1161-ADMN-1010	1161-ADMN-1011	1161-ADMN-2073
1161-MANT-1101	1161-MANT-1102	1161-MANT-1103
1161-MANT-1104	1161-MANT-1106	1161-MANT-1107
1161-MANT-1108	1161-MANT-1109	1161-MANT-1235
1161-MANT-1335	1161-MANT-1402	1161-MANT-1404
1161-MANT-2191		

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling Equipment, power generation equipment, tools and kits.

ESB-MANT-3007: Maintain Environmental Control Units (ECU)

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct maintenance in order to sustain the ECU(s) in operable status.

CONDITION: With equipment, tools, repair parts, supplies, personnel and references.

STANDARD: To sustain equipment in an operational status at or above unit’s readiness requirements.

EVENT COMPONENTS:
1. Conduct operational checks and services.
2. Conduct Limited Technical Inspection (LTI).
3. Open service request (GCSS-MC).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications, as required.

7. Perform Operational Checks.
8. Complete quality control requirements.
9. Return administrative maintenance requirements.

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-ADMN-2073	1142-MANT-1101
1142-MANT-1106	1142-MANT-1108	1142-MANT-1109
1142-MANT-2191	1142-MANT-2311	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1010	1161-ADMN-1011
1161-ADMN-2015	1161-ADMN-2016	1161-ADMN-2073
1161-MANT-1101	1161-MANT-1102	1161-MANT-1103
1161-MANT-1104	1161-MANT-1106	1161-MANT-1107
1161-MANT-1108	1161-MANT-1109	1161-MANT-1211
1161-MANT-1218	1161-MANT-1311	1161-MANT-1318
1161-MANT-1401	1161-MANT-1403	1161-MANT-2191

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Material Handling equipment, Utilities equipment, tools and kits

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ESB-MOBL-3001: Operate small craft

SUPPORTED MCT(S):
MCT 1.4.1 MCT 2.2.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ small craft to reconnoiter littoral areas in support of mobility requirements.

CONDITION: Given a mission, commander's intent, a map, task organization of personnel and equipment, waterway to reconnaissance/scout, and the references.

STANDARD: To conduct an engineer reconnaissance of specified waterway, gather all relevant engineer data, produce a report in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Review the order.
2. Coordinate with supported unit.
3. Prepare equipment for operation.
4. Move to launch point.
5. Launch reconnaissance team.
6. Conduct reconnaissance mission.
7. Recover reconnaissance team.
8. Submit required reports.

RELATED EVENTS:

1302-MOBL-1015	1310-ADMN-2002	1310-ADMN-2004
1310-ADMN-2009	1310-MANT-2001	1310-MANT-2002
1342-MANT-1001	1342-MANT-1002	1342-MANT-1004
1342-MANT-1010	1349-ADMN-2002	1349-ADMN-2004
1349-ADMN-2009	1349-MANT-2001	1349-MANT-2002
1371-MOBL-1005	1371-MOBL-2005	1371-MOBL-2008

REFERENCES:
1. MCWP 3-17.4 Engineer Reconnaissance
2. MCWP 3-17.8 Combined Arms Mobility Operations
3. TM 09665 B-10/1 Combat Rubber Reconnaissance Craft Field Service Manual
4. TM 09665A-13&P/1-1 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
5. TM 09665A-13&P/1-2 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
6. TM 09665B The 55 HP Engine

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

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ESB-MOBL-3002: Employ a medium machinegun team

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Employ a medium machinegun team in a mounted/dismounted position.

CONDITION: Given an operations order, a medium machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

STANDARD: To support the scheme of maneuver in accordance with the concept of operations and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.

6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-1 Ground Combat Operations
2. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A064 Cartridge, 5.56mm 4 Ball M855/1 Trac	456 rounds per Team
A131 Cartridge, 7.62mm 4 Ball M80/1 Trace	882 rounds per Team
A135 Cartridge, 7.62mm Dummy M63	12 rounds per Team

RANGE/TRAINING AREA:
Facility Code 17580 Machine Gun Transition Range
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety officer, Corpsman

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-MOBL-3003: Employ a heavy machinegun team

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Employ a heavy machinegun team in a mounted/dismounted position.

CONDITION: Given an operations order, a heavy machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

STANDARD: To support the scheme of maneuver.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:
1. MCWP 3-1 Ground Combat Operations
2. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A560 Cartridge, Caliber .50 Dummy M2	20 rounds per Team
A576 Cartridge, Caliber .50 4 API M8/1 AP	604 rounds per Team
B472 Cartridge, 40mm Dummy M922	20 rounds per Team
B542 Cartridge, 40mm HEDP M430/M430A1 Lin	254 rounds per Team
BA21 Cartridge, 40mm Practice (Day/Night)	32 rounds per Team

RANGE/TRAINING AREA:
Facility Code 17580 Machine Gun Transition Range
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety officer, Corpsman

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT. Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-MOBL-3004: Fell standing timber

SUPPORTED MCT(S):
MCT 1.4.1 MCT 1.4.2 MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Fell standing timber to clear a forested area in support of operations.

CONDITION: Given an operations order, standing timber, appropriate hand tools, an SL-3 complete chainsaw, mixed fuel, personnel, and all personal protective equipment (PPE).

STANDARD: To clear a forested area in support of operations in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine equipment required.
3. Calculate time required for construction.
4. Prepare equipment for operation.

5. Move to site.
6. Establish safety zone.
7. Cut timber.
8. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-SURV-1001	1310-ADMN-2002
1310-ADMN-2004	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-HEOP-1004
1345-HEOP-1005	1345-HEOP-1006	1345-MANT-1001
1345-MANT-2001	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-CMOB-2001	1371-EOPS-1002	1371-EOPS-1003
1371-EOPS-2008		

REFERENCES:
1. Appropriate TM/Manufacture's Manual for Chainsaw
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	6 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	6 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	20 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
MN08 Igniter, Time Blasting Fuse with Sho	10 igniters per Team
MN52 MK154 Mod 0	10 detonators per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits, HazMat containment kit, PPE.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-MOBL-3005: Create a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Create a lane through an obstacle that provides safe passage of a passing force. The route may be reduced and proofed as part of a breaching operation, be constructed as part of the obstacle, or be marked as a bypass.

CONDITION: Given a tactical situation, an order, breaching assets, location of lane to be created, current obstacle intelligence, and references.

STANDARD: To assure mobility in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Acquire explosive/non-explosive breaching assets.
3. Conduct battle drills (team) to rehearse the breach of an obstacle.
4. Move to breach site.
5. Execute the breach.
6. Proof lane.
7. Mark lane.
8. Submit required reports.

RELATED EVENTS:

1302-MOBL-1005	1310-ADMN-2009	1310-ADMN-2010
1310-HEOP-2001	1310-MANT-2002	1345-HEOP-1004
1345-MANT-1001	1349-ADMN-2009	1349-ADMN-2010
1349-HEOP-2001	1349-MANT-2002	1371-MOBL-1003
1371-MOBL-2012	1371-MOBL-2017	

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	4 rockets per Team
M028 Demolition Kit, Bangalore Torpedo M1	1 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M130 Cap, Blasting Electric M6	60 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1500 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
M913 Charge, Demolition High Explosive Li	1 charges per Team
M914 Charge, Demolition Inert Linear M68A	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	100 igniters per Team
MN79 Mine, Antipersonnel Obstacle Breachi	1 mines per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	10 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer breaching assets, Demo kit, PPE.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-MOBL-3006: Proof a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Proof a lane through an obstacle to verify that a lane is free of explosive hazards and that the width and trafficability of the point of breach are suitable for the assault force. Proofing can be conducted visually (against surface-laid minefields), electronically (mine detectors), or mechanically (mine clearing rollers [MCRs]). Proofing is conducted when the risk of live mines remaining in the lane exceeds the risk of loss (lives and equipment) to enemy fires while waiting to complete proofing.

CONDITION: Given a breached lane, task organized equipment and personnel, and references.

STANDARD: To verify that a lane is free of all remnants of explosive and non-explosive obstacles and to allow for rapid passage of assault forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Conduct mechanical proof of breached lane, as required.
3. Conduct manual proof of breached lane, as required.
4. Submit required reports.

RELATED EVENTS:

1302-DEMO-1001	1302-DEMO-1002	1302-MOBL-1004
1302-MOBL-1005	1302-MOBL-1009	1302-MOBL-1010
1371-DEMO-1001	1371-DEMO-2002	1371-DEMO-2003
1371-DEMO-2004	1371-DEMO-2005	1371-MOBL-1001
1371-MOBL-1002	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017	1371-MOBL-2019	1371-MOBL-2020
1371-MOBL-2022	1371-MOBL-2023	1371-MOBL-2035

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations

3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M130 Cap, Blasting Electric M6	60 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	100 igniters per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	10 igniters per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	10 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat Engineer breaching assets, mine detectors, Demo kit.

UNITS/PERSONNEL: Range Safety officer, Corpsman.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-MOBL-3007: Mark a lane through an obstacle

SUPPORTED MCT(S): MCT 1.4.1

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Mark a lane through an obstacle to identify a breached lane for rapid passage of the force.

CONDITION: Given a proofed lane, task organized equipment and personnel, and references.

STANDARD: To identify a breached lane for rapid passage of assault forces in accordance with the commander's intent and the concept of operations.

EVENT COMPONENTS:
1. Receive the mission.
2. Mark the breached lane.
3. Submit required reports.

RELATED EVENTS:

1302-MOBL-1005	1371-MOBL-1003	1371-MOBL-2012
1371-MOBL-2017		

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17.4 Engineer Reconnaissance
4. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: HEMMS Kit and Minefield marking kit

UNITS/PERSONNEL: Range Safety officer, Corpsman

ESB-RECN-3001: Survey site for construction

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Survey site for construction to allow critical planning for construction and or operations in support of the MAGTF.

CONDITION: Provided a construction mission, a map, a scientific calculator, task organized personnel, equipment, and references.

STANDARD: To support commander's intent, mission requirements and concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Move to survey site.
3. Reconnoiter project site, as required.
4. Submit required reports.

RELATED EVENTS:

1302-HORZ-1001	1302-PLAN-1002	1302-PLAN-2004
1302-RECN-1001	1302-VERT-1001	1361-SRVY-1001
1361-SRVY-1002	1361-SRVY-1003	1361-SRVY-1004
1361-SRVY-1005	1361-SRVY-1006	1361-SRVY-1007
1361-SRVY-1008	1361-SRVY-1009	1361-SRVY-1010
1361-SRVY-1011	1361-SRVY-1012	1361-SRVY-2002
1361-XENG-2001	1361-XENG-2002	1371-PLAN-2002
1371-RECN-1001	1371-RECN-2001	

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17A Engineering Field Data

4. MCWP 3-17.4 Engineer Reconnaissance
5. NAVEDTRA 10696 Engineer Aid 3
6. TM 5-581B Construction Drafting
7. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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ESB-RECN-3002: Conduct cache sweep

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: Conduct cache sweep to detect suspected caches of weapons/ordnance, to include: IEDs, mines, ammunition, weapons, and explosives.

CONDITION: Provided a mission order, detection equipment, personnel, engineer equipment, Class IV, personal protective equipment, and references.

STANDARD: To locate, mark, and reduce all discovered ordnance, munitions, mines, ammunition, weapons, and explosives per commander's intent and mission requirement.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine detector to be used.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Conduct area sweep.
7. Locate and mark the object.
8. Identify the object.
9. Destroy object(s), as required.
10. Proof area to ensure explosive object has been properly neutralized.
11. Submit required reports.

RELATED EVENTS:

1302-DEMO-1004	1302-MOBL-1002	1302-MOBL-1003
1302-MOBL-1009	1302-RECN-1001	1371-MOBL-1002
1371-MOBL-1003	1371-MOBL-2018	1371-MOBL-2020
1371-MOBL-2021	1371-MOBL-2022	

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17B Engineer Forms and Reports

6. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	20 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per squad
M130 Cap, Blasting Electric M6	20 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	1000 FT per Team
M591 Dynamite, Military M1	10 charges per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	20 igniters per Team

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer equipment, tools and kits

UNITS/PERSONNEL: Range safety officer, Corpsman, EOD personnel, Weapons intelligence team

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution per team. Final amounts should be adjusted to reflect sustainment intervals for this event.

ESB-RECN-3003: Conduct obstacle reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct obstacle reconnaissance to focus on answering obstacle intelligence IR-obstacle location, width, and depth; obstacle composition (wire, mines by type, and so forth.); soil conditions; locations of lanes and bypasses; and the location of enemy direct-fire systems.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To identify obstacles; identify suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay

using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Determine obstacle type and location.
5. Reconnoiter obstacle, as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. GTA 05-07-013 Bridge Classification Card (2006)
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor Transport equipment, Range finder, Tape measure, Compass, Protractor, Camera, Maps.

ESB-RECN-3004: Conduct bridge reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct bridge reconnaissance to collect detailed technical information on selected bridges. This assessment provides the basic Military Load Classification (MLC) information necessary for the commander to plan for the use of the bridge.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To classify bridges, identify obstacles, identify suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter bridge.
5. Classify bridge(s), as required.
6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-1 Ground Combat Operations
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.3 MAGTF Breaching Operations
12. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

ESB-RECN-3005: Conduct road reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Conduct road reconnaissance to collect detailed technical information on the engineering characteristics and trafficability of a road section within a route.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references.

STANDARD: To classify roads, routes; identify obstacles; identify suitable bypasses; and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.

3. Proceed to assigned objective.
4. Reconnoiter road(s) or route(s), as required.
5. Classify road(s), as required.
6. Classify route(s), as required
7. Identify suitable bypasses.
8. Submit required reports.

RELATED EVENTS:
1302-RECN-1001 1371-RECN-1001 1371-RECN-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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ESB-RECN-3006: Assess damage to airfield surfaces

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Surface defects can usually be attributed to excessive loads, inferior surfacing material, poor subgrade or base conditions, inadequate drainage, or a combination of these conditions. Surface inspections should include a complete inventory of the current pavement defects. Careful investigation of the causes of the defects will allow for timely maintenance to prevent the pavement defects from requiring repair.

CONDITION: Given a tactical situation, a forward operating base to be repaired, an operations order, commander's intent, personnel, equipment, and references.

STANDARD: To restore the forward operating base to optimum operational capability to reestablish surface roughness criteria in order to maintain serviceability of the airfield surface.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD).
3. Determine personnel, tool, and equipment requirement(s).
4. Proceed to assigned objective.
5. Reconnoiter damaged airfield surface, as required.

6. Determine the type and extent of repair required.
7. Determine material required to complete the repair.
8. Issue the repair order.
9. Inspect completed repair.
10. Submit appropriate engineer reports.

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1007	1302-EOPS-1009
1371-EOPS-2004	1371-EOPS-2006	1371-EOPS-2007
1371-EOPS-2010	1371-EOPS-2011	1371-EOPS-2012

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3.21.1 Aviation Ground Support
5. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, PPE

UNITS/PERSONNEL: EOD personnel

ESB-RECN-3007: Assess damage to airfield facilities and structures

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Airfield facilities and structures used by coalition forces may be of sub-standard construction practices/materials or may have degraded over time therefore periodic inspections should be performed to ensure structural integrity and safety of the occupants.

CONDITION: Given an operations order, an airfield facility or structure to be repaired, task organized equipment and personnel, resources, and references.

STANDARD: To restore airfield facilities and structures to operating conditions in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine personnel, tool, and equipment requirement(s).
3. Proceed to assigned objective.
4. Reconnoiter damaged airfield facilities, as required.

5. Determine the type and extent of repair required.
6. Determine material required to complete the repair.
7. Submit appropriate engineer reports.

RELATED EVENTS:

1302-EOPS-1004	1302-EOPS-1009	1361-DRAF-1001
1361-DRAF-1003	1361-SRVY-1007	1361-SRVY-2003
1361-SRVY-2004	1361-SRVY-2005	1371-EOPS-2004
1371-EOPS-2006	1371-EOPS-2007	1371-EOPS-2010
1371-EOPS-2011	1371-EOPS-2012	

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3.21.1 Aviation Ground Support
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.7 General Engineering

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, PPE

UNITS/PERSONNEL: EOD personnel

ESB-RECN-3008: Conduct gap reconnaissance

SUPPORTED MCT(S): MCT 2.2.2

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Conduct gap reconnaissance to evaluate gaps and fording sites, identify obstacles, suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms, personnel, equipment, and reference.

STANDARD: To ensure the crossing is supportable and accounts for all tactical control measures in accordance with the concept of operations and the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter gap, as required.
5. Determine wet gap fording/bridging sites, as required.

6. Identify suitable bypasses.
7. Submit required reports.

RELATED EVENTS:

1302-MOBL-1010	1302-MOBL-1011	1302-MOBL-1012
1302-MOBL-1013	1302-MOBL-1014	1302-MOBL-1015
1302-RECN-1001	1371-MOBL-2006	1371-MOBL-2007
1371-MOBL-2009	1371-MOBL-2017	1371-RECN-1001
1371-RECN-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17.1B Military Non-Standard Fixed Bridging
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
9. MCWP 3-1 Ground Combat Operations
10. MCWP 3-17 Engineering Operations
11. MCWP 3-17.3 MAGTF Breaching Operations
12. MCWP 3-17.4 Engineer Reconnaissance
13. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17920 Panel Bridge Area

ESB-SURV-3001: Construct trenches

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ organic hand tools and/or earth moving assets, tools and equipment.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows multiple combatants' protection from direct fire weapons affords a force the capability to engage targets from front and oblique's, meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Calculate time required for construction.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.

6. Dig emplacement, as required.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-2005	1349-HEOP-2001
1349-MANT-2002	1371-SURV-1001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.5 Combined Arms Countermobility Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-3002: Construct shelters/bunkers

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct shelters/bunkers to provide combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That provides combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons, and meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.

3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct shelter/bunker, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-CMOB-1001	1302-CMOB-1003	1302-SURV-1001
1302-SURV-1003	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-2001	1316-ADMN-2002
1316-XENG-1001	1316-XENG-1006	1316-XENG-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-CMOB-1001
1371-CMOB-1002	1371-CMOB-1003	1371-CMOB-2001
1371-CMOB-2002	1371-SURV-1001	1371-SURV-2001
1371-SURV-2002		

REFERENCES:

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-41.1 Rear Area Operations
8. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools and kits.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-3003: Construct vehicle survivability position/revetment

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct vehicle survivability position/revetment to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: To build vehicle survivability positions/revetments that meets or exceeds the mission requirement and supports the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct revetment, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:
1. GTA 05-08-001 Survivability Positions
2. JP 3-34 Joint Engineer Operations
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.5 Combined Arms Countermobility Operations
7. MCWP 3-17.6 Survivability
8. MCWP 3-33 Military Operations Other Than War (MOOTW)
9. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment assets.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance

reports, Class IV materials, as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-3004: Construct crew served weapons position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct crew served weapons position to enable weapons to engage targets from front and oblique's.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows a weapons team the capability to engage targets from front and oblique's, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.
7. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1316-ADMN-2001	1316-ADMN-2002	1316-XENG-2002
1316-XENG-2005	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-1007	1345-HEOP-2006	1345-HEOP-2007
1345-HEOP-2012	1345-MANT-1001	1345-MANT-2001
1349-HEOP-2001	1349-HORZ-2001	1349-HORZ-2002
1349-HORZ-2003	1349-MANT-2002	1371-SURV-2001

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.6 Survivability
6. MCWP 3-33 Military Operations Other Than War (MOOTW)
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
8. MCWP 3-41.1 Rear Area Operations
9. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV supplies as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM.

ESB-SURV-3005: Construct overhead cover

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct overhead cover that meets or exceeds the maximum threat capability of enemy weapons systems.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: To design specifications that meets or exceeds the maximum threat capability of enemy weapons systems in accordance with the concept of operations.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct overhead cover, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1316-ADMN-1001	1316-ADMN-1002	1316-ADMN-2001
1316-ADMN-2002	1316-XENG-1001	1316-XENG-1006
1316-XENG-2002	1345-HEOP-1003	1345-HEOP-1004
1345-HEOP-2007	1345-HEOP-2012	1345-MANT-1001
1345-MANT-2001	1349-ADMN-2004	1349-ADMN-2009
1349-ADMN-2010	1349-HEOP-2001	1349-MANT-2002
1371-SURV-1001	1371-SURV-2001	

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration

3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment and combat engineer tools & kits.

MATERIAL: Map, Compass, Protractor, Overlay Sheets, Reconnaissance Reports, Class IV supplies as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-3006: Construct individual fighting position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct individual fighting positions and/or trenches to protect one or more dismounted Marines armed with individual weapons, while supporting their ability to engage the enemy. Fighting positions typically consist of a hole in the ground, supplemented with frontal, overhead, and flank or rear cover as the time and situation permits. Trenches typically connect fighting positions, C2 nodes and logistical hubs while providing cover from enemy observation and direct/indirect fire.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: Positions are planned and designed so that they are concealed, mutually supporting, and have interlocking fields of fire in all directions and protect occupants against enemy direct-fire weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement, as required.
6. Displace equipment, as required.
7. Submit required reports.

RELATED EVENTS:

1302-SURV-1001	1310-ADMN-2004	1310-ADMN-2009
1310-ADMN-2010	1310-HEOP-2001	1310-MANT-2002
1345-HEOP-1003	1345-HEOP-1004	1345-HEOP-1005
1345-HEOP-2012	1345-MANT-1001	1371-SURV-1001
1371-SURV-2001		

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-3007: Construct triggering screen

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Triggering screens are built separately or added on to existing structures and used to activate the fuze of an incoming shell or projectile at a designated standoff distance from the structure.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: So that it provides an effective screen against enemy weapons systems.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.

6. Move to site.
7. Establish safety zone.
8. Construct blast screen, as required.
9. Displace equipment, as required.
10. Submit required reports.

RELATED EVENTS:
1302-SURV-1001 1302-SURV-1002 1371-SURV-1001
1371-SURV-2001

REFERENCES:
1. JP 3-34 ENGINEER DOCTRINE FOR JOINT OPERATIONS
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.6 Survivability
7. MCWP 3-33 Military Operations Other Than War (MOOTW)
8. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical-Level Logistics

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: Map, Compass, Protractor, Overlay sheets, Reconnaissance reports, Class IV materials, as required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-SURV-3008: Construct vehicle fighting position

SUPPORTED MCT(S): MCT 6.1.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Construct vehicle fighting position to increase vehicle survivability.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: That meets or exceeds the mission requirement for the specified vehicle/weapons system in accordance with the concept of operations.

EVENT COMPONENTS:
1. Review the mission.

2. Coordinate with supported unit.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement as required per vehicle type and weapon employment.
7. Displace equipment, as required.
8. Submit required reports.

RELATED EVENTS:

1302-SURV-1002	1310-HEOP-2001	1310-HORZ-2001
1310-HORZ-2002	1310-HORZ-2003	1310-MANT-2002
1345-HEOP-1004	1345-HEOP-1005	1345-HEOP-1007
1345-HEOP-2006	1345-HEOP-2007	1345-HEOP-2012
1345-MANT-1001	1349-HEOP-2001	1349-HORZ-2001
1349-HORZ-2002	1349-HORZ-2003	1349-MANT-2002
1371-SURV-2001		

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.6 Survivability
4. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment assets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ESB-UTIL-3001: Establish tactical power distribution system

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide power distribution equipment to establish a tactical electric grid in order to distribute electric power that meets operational requirement and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel

STANDARD: To accomplish operational requirements and commander's intent.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Determine load requirements.
3. Plan power distribution system(s).
4. Set up distribution system(s).

5. Inspect grounding and connections.
6. Energize system(s).
7. Test system(s).

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-MANT-1101
1141-MANT-1224	1141-MANT-2244	1141-XENG-1601
1141-XENG-1624	1141-XENG-1703	1141-XENG-2501
1141-XENG-2521	1141-XENG-2621	1141-XENG-2622
1141-XENG-2623	1141-XENG-2721	1141-XENG-2821

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Distribution Systems, Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit.

ESB-UTIL-3002: Provide floodlight support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide illumination during low light conditions in order to meet mission requirements and commander's intent.

CONDITION: With an operational order, required equipment and personnel

STANDARD: To properly illuminate required area.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Establish illumination plan.
3. Set up floodlight set(s).
4. Operate a floodlight.

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1101	1141-MANT-1247
1141-XENG-1703	1141-XENG-1747	1141-XENG-2622

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems

2. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

EQUIPMENT: PPE, tools and kits.

ESB-UTIL-3003: Establish power generation site(s)

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide power generation equipment to meet the operational requirement and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Set up generator site(s).
3. Inspect grounding and connections.
4. Energize system(s).
5. Perform operational check(s).
6. Test system.

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-MANT-1101	1141-XENG-1601
1141-XENG-1618	1141-XENG-1751	1141-XENG-1752
1141-XENG-1753	1141-XENG-1754	1141-XENG-1757
1141-XENG-1763	1141-XENG-1765	1141-XENG-1795
1141-XENG-2622	1141-XENG-2718	1141-XENG-2737
1141-XENG-2750	1141-XENG-2755	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-424 Theater of Operations Electrical Systems
3. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Power Generation Systems, PPE, MHE, Motor Transport equipment, HazMat Containment Kit.

ESB-UTIL-3004: Wire a structure for electricity

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Install interior electrical wiring in order to distribute electricity to meet electrical power requirements.

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish operational power per commander's intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Estimate and requisition materials, as required.
3. Calculate time required to wire structure.
4. Gather tools and materials.
5. Set safety zone, lockout and tagout any preexisting electrical circuits that will be worked on, as required.
6. Verify the location of preexisting underground utility lines.
7. Install electrical boxes, interior/exterior wiring, service feeder, service entrance cables and main and sub panel boxes, as required.
8. Install equipment and system grounding, as required.
9. Request qualified inspector to complete uncovered/rough-in electrical inspection.
10. Install devices, circuit breakers, fixtures and electrical equipment, as required.
11. Request qualified inspector to complete final electrical inspection.
12. Request qualified personnel to connect service feeder to appropriate transformer or power generation, as required.
13. Energize and test electrical system.
14. Submit required reports.

RELATED EVENTS:

1141-ADMN-1002	1141-ADMN-2031	1141-MANT-1101
1141-XENG-1601	1141-XENG-1703	1141-XENG-1961
1141-XENG-1962	1141-XENG-2561	1141-XENG-2622
1141-XENG-2623	1141-XENG-2694	1141-XENG-2696
1141-XENG-2963	1141-XENG-2964	1141-XENG-2965
1141-XENG-2966		

REFERENCES:
1. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. FM 5-424 Theater of Operations Electrical Systems

5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Electrical materials (as required), PPE, tools and kits.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Final inspection must be performed by a qualified inspector who is a graduate of one or more listed courses: Advanced Electrician (AE), Utilities Chief (UC), or Utilities Officer (UO) Course.

ESB-UTIL-3005: Provide Environmental Control Unit (ECU) support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Utilize ECU equipment in order to provide adequate climate control for critical equipment that is sensitive to extreme temperatures.

CONDITION: With an operational order, required equipment and personnel

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Establish ECU support plan.
3. Install ECU(s).
4. Maintain ECU(s).

RELATED EVENTS:

1161-ADMN-1006	1161-MANT-1211	1161-MANT-1218
1161-XENG-1611	1161-XENG-1614	1161-XENG-1634
1161-XENG-2541	1161-XENG-2618	1161-XENG-2641
1161-XENG-2741		

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, power generation, distribution, ECU equipment, maintenance equipment as required

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ESB-UTIL-3006: Provide refrigeration support

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Provide refrigeration for cooling and freezing.

CONDITION: With an operational order, required equipment and personnel.

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Setup refrigeration unit(s).
3. Maintain refrigeration unit(s).
4. Recover refrigeration unit(s).

RELATED EVENTS:

1161-ADMN-1006	1161-MANT-1235	1161-XENG-1635
1161-XENG-2541	1161-XENG-2642	1161-XENG-2741

REFERENCES:
1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, power generation equipment, ECUs, distribution, maintenance equipment as required.

ESB-UTIL-3007: Produce potable water

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Produce and store, potable water in order to meet mission

requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Perform water recon.
2. Establish water point.
3. Produce potable water.
4. Test water for potability.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1282	1171-XENG-1604
1171-XENG-1782	1171-XENG-2501	1171-XENG-2502
1171-XENG-2553	1171-XENG-2651	1171-XENG-2653
1171-XENG-2752	1171-XENG-2753	1171-XENG-2754
1171-XENG-2853		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment with supplemental kits (cartridges, NBC filters etc.), MHE, water testing kit, tool kits, PPE

MATERIAL: Chemicals to purify raw water source.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

ESB-UTIL-3008: Store potable water

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Store potable water in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:

1. Determine storage requirements.
2. Establish storage site(s).
3. Test water for potability.
4. Store water for distribution.

PREREQUISITE EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-MANT-1241	1171-MANT-1248	1171-MANT-1277
1171-MANT-1278	1171-MANT-1284	1171-MANT-1285
1171-XENG-1677	1171-XENG-1678	1171-XENG-1684
1171-XENG-1685	1171-XENG-1702	1171-XENG-2553
1171-XENG-2653	1171-XENG-2752	1171-XENG-2753
1171-XENG-2853		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities potable storage equipment, MHE, water testing kit, tool kits, PPE

MATERIAL: Chemicals to sustain potable water.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT), as required.

ESB-UTIL-3009: Establish water distribution site

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Establish an accessible potable water distribution site for the supported unit in order to meet mission requirements.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Determine water requirements.
2. Set up distribution system(s).
3. Inspect system(s).
4. Test water for potability.
5. Distribute potable water.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1241	1171-MANT-1248
1171-MANT-1271	1171-MANT-1272	1171-MANT-1274
1171-MANT-1277	1171-MANT-1278	1171-MANT-1279
1171-MANT-1280	1171-MANT-1284	1171-MANT-1285
1171-XENG-1648	1171-XENG-1677	1171-XENG-1678
1171-XENG-1680	1171-XENG-1684	1171-XENG-1685
1171-XENG-1702	1171-XENG-1748	1171-XENG-1771
1171-XENG-1772	1171-XENG-1774	1171-XENG-1779
1171-XENG-2752	1171-XENG-2753	1171-XENG-2754
1171-XENG-2853		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, water testing kit, PPE, MHE, motor transport, tool kits, appropriate POLs

MATERIAL: Chemicals to sustain potable water.

UNITS/PERSONNEL: Note: Request Navy Medical Technician and Preventive Medicine Technician (PMT) as required.

ESB-UTIL-3010: Provide laundry services

SUPPORTED MCT(S): MCT 4.4.4

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide laundry services to meet mission requirements and commander's intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Establish laundry facilities.
3. Implement laundry schedule.
4. Operate laundry unit(s).

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1232	1171-MANT-1278
1171-MANT-1284	1171-MANT-1285	1171-XENG-1632
1171-XENG-1678	1171-XENG-1684	1171-XENG-1685
1171-XENG-1732	1171-XENG-2555	1171-XENG-2655
1171-XENG-2755		

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, PPE, MHE, motor transport, tool kits

MATERIAL: Laundry detergent, gravel, lime, insecticide

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Note: Water does not have to be completely potable-untreated Class III fresh water can be utilized.

ESB-UTIL-3011: Provide shower services

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Provide shower services to meet mission requirements and commanders intent.

CONDITION: With a utilities plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Establish shower facilities.
3. Implement shower schedule.
4. Operate shower unit(s).

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1231	1171-MANT-1278
1171-XENG-1631	1171-XENG-1678	1171-XENG-1731
1171-XENG-2555	1171-XENG-2655	1171-XENG-2755
1171-XENG-2855		

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, PPE, MHE, motor transport, tool kits, POLs.

MATERIAL: Building material, cleaning supplies, lime, insecticide, gravel

UNITS/PERSONNEL: Note: Water must be potable (class I) for showers.

ESB-UTIL-3012: Install plumbing in a structure

SUPPORTED MCT(S): MCT 4.4.3

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Install piping system in order to meet plumbing requirements and commanders intent.

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish water and sewer services per commanders intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit(s).
2. Estimate and requisition materials, as required.
3. Calculate time required to plumb structure.
4. Gather tools and materials.
5. Set safety zone.
6. Verify the location of preexisting underground utility lines.
7. Install interior/exterior drainage plumbing system with appropriately sized vent(s), trap(s) and cleanout(s).
8. Pressurize drainage system to identify possible leaks.
9. Install hot and cold water supply lines with shut-off and relief valve(s), as required.
10. Request qualified inspector to complete uncovered/rough-in plumbing inspection.
11. Install plumbing fixtures.
12. Request qualified personnel to install water meter and shut-off valve, as required.
13. Connect structure main water supply line to water meter, as required.
14. Request qualified personnel to install sewer/septic system, as required.
15. Connect structure main sanitation pipe(s) to sewer/septic system, as required.
16. Request qualified inspector to complete final plumbing inspection.
17. Submit required reports.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1007	1171-ADMN-1008
1171-ADMN-1009	1171-MANT-1231	1171-MANT-1278

1171-XENG-1631	1171-XENG-1678	1171-XENG-1731
1171-XENG-2555	1171-XENG-2655	1171-XENG-2755
1171-XENG-2855		

REFERENCES:

1. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT: PPE, tools and kits

MATERIAL: Building materials

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Final inspection must be performed by a qualified inspector who is a graduate of one or more listed courses: Advanced Water Support Technician (AWST), Utilities Chief (UC), or Utilities Officer (UO) Course.

ENG & UTIL T&R MANUAL

CHAPTER 7

MOS 1120 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	7000	7-2
EVENT CODING	7001	7-2
INDEX OF INDIVIDUAL EVENTS	7002	7-3
2000-LEVEL EVENTS	7003	7-5

CHAPTER 7

MOS 1120 INDIVIDUAL EVENTS

7000. PURPOSE. This chapter details the individual events that pertain to the Utilities Officer. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

7001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1120	Utilities Officer

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
XENG	General Engineering

c. Field three

(1) The first digit of this field provides the level at which the event is accomplished. The following event levels are used:

Code	Description
2000	Core Plus Skills

(2) As the Task Analyst/Advocate has deemed appropriate the second digit of this field represents a sub-function to that duty area identified in field two. The following sub-functions are used in this chapter:

Code	Description
X0XX	Administrative
X5XX	Planning
X6XX	Equipment set up
X7XX	Equipment operation
X8XX	Equipment recovery
X9XX	Electrician/Plumber (tradesman) duty based on requirements in the National Electrical Code (NEC) or Uniform Plumbing Code (UPC), etc.

(3) The last two digits of this field are used to identify and categorize like events or equipment across all MOSs of the OccFld (see Chapters 7 through 12), or are just numerical sequencing of events. Following are **some** examples of the categories used:

Code	Description
X002	Core and Core Plus Skills related to controlling hazardous energy. See: 1120-ADMN-2002, 1141-ADMN-1002, 1142-ADMN-1002, 1161-ADMN-1002, 1169-ADMN-2002 and 1171-ADMN-1002.
X012	Core and Core Plus Skills related to NAVMC 10772 initiation, validation and submission. See: 1120-ADMN-2012, 1141-ADMN-1012, 1142-ADMN-1012, 1161-ADMN-1012, 1169-ADMN-2012 and 1171-ADMN-1012.
2023	Core Plus advanced level MOS training program functions. See: 1120-ADMN-2023, 1141-ADMN-2023, 1142-ADMN-2023, 1161-ADMN-2023, 1169-ADMN-2023 and 1171-ADMN-2023.
206X	Core Plus advanced level supply support functions. See: 1120-ADMN-2061, 1120-ADMN-2062, 1120-ADMN-2063, 1120-ADMN-2064, 1120-ADMN-2065, 1141-ADMN-2061, 1141-ADMN-2062, 1142-ADMN-2061, 1142-ADMN-2062, 1161-ADMN-2061, 1161-ADMN-2062, 1169-ADMN-2061, 1169-ADMN-2062, 1169-ADMN-2063, 1169-ADMN-2064, 1169-ADMN-2065, 1171-ADMN-2061, and 1171-ADMN-2062.
2X58	Core Plus Skills related to field sanitation. See: 1120-XENG-2558, 1120-XENG-2658, 1120-XENG-2758, 1120-XENG-2858, 1169-XENG-2558, 1169-XENG-2658, 1169-XENG-2758, 1169-XENG-2858, 1171-XENG-2558, 1171-XENG-2658, and 1171-XENG-2858.

7002. INDEX OF INDIVIDUAL EVENTS

EVENT	TITLE	PAGE
2000-LEVEL EVENTS		
1120-ADMN-2001	Manage Operational Risk (ORM)	7-5
1120-ADMN-2002	Administer a Lockout/Tagout Program	7-6
1120-ADMN-2003	Recover an electric shock victim	7-7
1120-ADMN-2004	Respond to a hazardous materials spill	7-8
1120-ADMN-2005	Administer first aid for chemical	7-9
1120-ADMN-2006	Monitor publications control	7-10
1120-ADMN-2007	Validate equipment SL-3 Components List/Basic Issue Items (BII) inventories	7-11
1120-ADMN-2012	Validate a NAVMC 10772	7-12
1120-ADMN-2021	Enforce safety programs	7-13
1120-ADMN-2022	Enforce environmental regulations	7-14
1120-ADMN-2023	Manage MOS training program	7-14
1120-ADMN-2031	Brief utilities safety to end users	7-16

1120-ADMN-2041	Validate a PQDR	7-17
1120-ADMN-2043	Initiate an UNS	7-18
1120-ADMN-2051	Manage preventive maintenance	7-19
1120-ADMN-2052	Manage corrective maintenance	7-20
1120-ADMN-2061	Manage section's supply support	7-21
1120-ADMN-2062	Place new equipment in service	7-22
1120-ADMN-2063	Validate unit T/O&E	7-22
1120-ADMN-2064	Reconcile section's CMR	7-23
1120-ADMN-2065	Manage equipment availability	7-24
1120-ADMN-2071	Validate maintenance management reports	7-25
1120-ADMN-2072	Manage maintenance related programs	7-26
1120-ADMN-2073	Manage equipment records	7-27
1120-ADMN-2074	Validate Maintenance Shop procedures	7-27
1120-ADMN-2075	Establish field maintenance	7-28
1120-ADMN-2081	Monitor equipment embarkation requirements	7-29
1120-ADMN-2082	Manage equipment operator licensing program	7-30
1120-ADMN-2083	Manage Motor Pool operations	7-31
1120-ADMN-2091	Brief utilities support plan	7-32
1120-ADMN-2092	Brief commander on utilities situation	7-33
1120-XENG-2501	Plan a utilities site survey	7-34
1120-XENG-2502	Conduct utilities site survey	7-36
1120-XENG-2521	Plan a field electrical power	7-38
1120-XENG-2522	Design a field expedient electrical distribution	7-40
1120-XENG-2541	Plan field refrigeration/environmental control equipment support	7-42
1120-XENG-2553	Plan field water support	7-44
1120-XENG-2555	Plan field hygiene equipment support	7-46
1120-XENG-2558	Plan a field sanitation system	7-48
1120-XENG-2561	Plan an interior electrical wiring system	7-50
1120-XENG-2581	Plan an interior plumbing system	7-51
1120-XENG-2621	Manage field electrical power generation/distribution system installation	7-52
1120-XENG-2622	Validate ground test set measurements	7-54
1120-XENG-2641	Manage field refrigeration/environmental control equipment set up/installation	7-55
1120-XENG-2653	Manage field water purification/storage/distribution system	7-57
1120-XENG-2655	Manage field hygiene equipment set up	7-59
1120-XENG-2658	Manage camp sanitation system installation	7-60
1120-XENG-2721	Manage field electrical power generation/distribution system operation	7-62

1120-XENG-2741	Manage field refrigeration/environmental control equipment operation	7-63
1120-XENG-2752	Validate water test equipment measurements	7-64
1120-XENG-2753	Manage field water purification/storage/distribution system	7-65
1120-XENG-2755	Manage field hygiene equipment operation	7-66
1120-XENG-2758	Manage camp sanitation system operation	7-67
1120-XENG-2821	Manage field electrical power generation/distribution system recovery	7-68
1120-XENG-2841	Manage field refrigeration/environmental control equipment recovery	7-69
1120-XENG-2853	Manage field water purification/storage/distribution system recovery	7-71
1120-XENG-2855	Manage field hygiene equipment recovery	7-72
1120-XENG-2858	Manage camp sanitation system recovery/closure	7-73
1120-XENG-2965	Manage interior electrical wiring system	7-74
1120-XENG-2966	Manage interior electrical wiring system repairs	7-75
1120-XENG-2988	Manage interior plumbing system installation	7-76
1120-XENG-2989	Manage interior plumbing system repairs	7-77

7003. 2000-EVEL EVENTS

1120-ADMN-2001: Manage Operational Risk (ORM)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a task/mission, a Risk Management Worksheet, and references.

STANDARD: So task/mission effectiveness is increased while loss of personnel and materiel is minimized through the implementation of risk management controls.

PERFORMANCE STEPS:
1. Identify task/mission requirements.
2. Review references.
3. Identify hazards, recording them on Risk Management Worksheet.
4. Assess severity and probability of hazards to determine risk levels.
5. Develop risk control measures.
6. Make risk decisions.
7. Supervise implementation of controls.
8. Periodically review task/mission, hazards and controls.

PREREQUISITE EVENTS: 1169-ADMN-2001

RELATED EVENTS:
1141-ADMN-1001 1142-ADMN-1001 1161-ADMN-1001
1171-ADMN-1001

REFERENCES:
1. Appropriate Technical Manuals
2. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
3. FM 5-19 Composite Risk Management
4. MCO 3500.27_ Operational Risk Management (ORM)
5. MCO 5100.29_ Marine Corps Safety Program
6. OPNAVINST 3500.39_ Operational Risk Management

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2). Risk assessment is taught at all basic MOS producing courses in the Occupational Field.

1120-ADMN-2002: Administer a Lockout/Tagout Program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: In a shop setting or field environment, with personnel, equipment, equipment manuals, Lockout/Tagout devices, forms, and references.

STANDARD: So prior to personnel performing maintenance, service, repair, or modification to equipment, the equipment shall be locked out or tagged out to protect against accidental or inadvertent start-up, or operation that may cause injury to personnel.

PERFORMANCE STEPS:
1. Review references.
2. Evaluate Lockout/Tagout Program using NAVMC 11402 (annual requirement).
3. Ensure availability of an ample supply of locks and tags.
4. Review/approve Lockout/Tagout Checklists, NAVMC 11403.
5. Maintain Lockout/Tagout Log, NAVMC 11404.
6. Control issue of Lockout/Tagout devices to authorized workers.
7. Ensure timely return of Lockout/Tagout devices.

PREREQUISITE EVENTS: 1169-ADMN-2002

RELATED EVENTS:
1141-ADMN-1002 1142-ADMN-1002 1161-ADMN-1002
1171-ADMN-1002

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
3. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
4. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
Lockout/Tagout devices
NAVMC 11402 (Lockout/Tagout Program Evaluation)
NAVMC 11403 (Lockout/Tagout Checklist)
NAVMC 11404 (Lockout/Tagout Log)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: NAVMC Dir 5100.8, Chapter 12, provides detailed instructions for this event. Initial training for this event is received in the Utilities Chief course (CID: M0311E2). Control of hazardous energy (Lockout/Tagout) is taught at all basic MOS producing courses in the Occupational Field.

1120-ADMN-2003: Recover an electric shock victim

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a situation and without references.

STANDARD: So danger to personnel is eliminated and victim is cared for.

PERFORMANCE STEPS:
1. Evaluate situation.
2. Send for help.
3. Provide for personal protection.
4. Isolate victim from electrical source.
5. Evaluate victim.
6. Start artificial resuscitation (if necessary).
7. Remain with victim until medical help arrives.
8. Report incident.

RELATED EVENTS:
1141-ADMN-1003 1142-ADMN-1003 1161-ADMN-1003
1169-ADMN-2003 1171-ADMN-1003

REFERENCES:
1. MCRP 3-02G First Aid
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 2000-15/4 Power System Reference Manual
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Ropes
Brooms, mops or tree branches

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Recovery of an electric shock victim is taught at all basic MOS producing courses in the Occupational Field.

1120-ADMN-2004: Respond to a hazardous materials spill

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a situation and without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Provide for personal protection.
3. Contain spill.
4. Report spill.
5. Remove uncontaminated material.
6. Dispose of hazardous material.

RELATED EVENTS:
1141-ADMN-1004 1142-ADMN-1004 1161-ADMN-1004
1169-ADMN-2004 1171-ADMN-1004

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials

3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations

SUPPORT REQUIREMENTS:

MATERIAL: Spill containment kit

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCO 4450.12A, Chapter 7 and MCRP 4-11B, Appendix J, Tab A provide detailed information for this event. Responding to a hazardous materials spill is taught at all basic MOS producing courses in the Occupational Field.

1120-ADMN-2005: Administer first aid for chemical ingestion/contact

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a situation and Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and MCRP 3-02G.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (if required).
5. Give first aid.
6. Remain with victim until medical help arrives.
7. Report incident.

RELATED EVENTS:

1141-ADMN-1005	1142-ADMN-1005	1161-ADMN-1005
1169-ADMN-2005	1171-ADMN-1005	

REFERENCES:
1. MCRP 3-02G First Aid

SUPPORT REQUIREMENTS:

MATERIAL: Material Safety Data Sheet (MSDS) file

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCRP 3-02G, Chapter 7 provides detailed information for this event. First aid for chemical ingestion/contact is

taught at all basic MOS producing courses in the Occupational Field.

1120-ADMN-2006: Monitor publications control

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With unit's Publications Listing (PL), access to publications websites and management systems, and references.

STANDARD: So required publications are available to maintain section's operational capabilities and readiness.

PERFORMANCE STEPS:
1. Review references.
2. Identify publication requirements based on mission and T/O&E.
3. Audit section's PL.
4. Validate on-hand publications inventory.
5. Inspect section's library for missing or outdated publications.
6. Verify published changes are made to publications.
7. Evaluate control procedures.
8. Evaluate NAVMC 10772 procedures.
9. Correct deficiencies.

PREREQUISITE EVENTS: 1169-ADMN-2006

RELATED EVENTS: 1120-ADMN-2012

REFERENCES:
1. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
2. MCO 5215.1_ Marine Corps Directives Management Program
3. MCO 5600.20_ Marine Corps Doctrinal Publications System
4. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. MCO P5215.17_ The Marine Corps Technical Publications System
7. SECNAV M-5210.2_ Department of the Navy Standard Subject Identification Code (SSIC) Manual
8. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
9. UNIT SOP Unit's Standing Operating Procedures
10. Unit T/O&E Unit's Table of Organization and Equipment

SUPPORT REQUIREMENTS:

MATERIAL: Unit's Publication Listing (PL)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, is required in order to complete this event.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2007: Validate equipment SL-3 Components List/Basic Issue Items (BII) inventories

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With personnel, equipment, and references.

STANDARD: So serviceability of equipment and accountability of all components is maintained per the SL-3 Components/Basic Issue Items (BII) List and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review references.
2. Review item inventory requirements (SL-3 Components List or TM listing Basic Issue Items [BII]).
3. Schedule inventories.
4. Validate inventories.
5. Ensure deficiencies are requisitioned/acquired.
6. Ensure inventories are documented.

PREREQUISITE EVENTS: 1169-ADMN-2007

RELATED EVENTS:
1141-ADMN-1007 1142-ADMN-1007 1161-ADMN-1007
1171-ADMN-1007

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. SI 10510-OR/1 Tool Warranty/Replacement Instructions for Using the USMC ServMart
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: SL-3/BII inventory sheets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 6 provides detailed information for this event. Conducting SL-3/BII inventories is

taught at all basic MOS producing courses in the Occupational Field.

1120-ADMN-2012: Validate a NAVMC 10772

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NAVMC 10772 is Recommended Change to Technical Publications/Logistics-Maintenance Data Coding.

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a completed/draft NAVMC 10772 and references.

STANDARD: So corrections/improvements to publications are affected per TM 4700-15/1H and MCO P5215.17C.

PERFORMANCE STEPS:
1. Review references.
2. Audit NAVMC 10772.
3. Review affected technical manual to verify recommended change will correct the error/deficiency.
4. If applicable, approve Part II with signature and date.
5. Forward NAVMC 10772 per Unit's SOP (on line if applicable).

PREREQUISITE EVENTS: 1169-ADMN-2012

RELATED EVENTS: 1120-ADMN-2006

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10772 (Recommended Change to Technical Publications/Logistics-Maintenance Data Coding)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website: https://portal.logcom.usmc.mil/sites/pubs/Site%20Pages/NAVMC10772RFC.aspx.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 23 provides detailed information for this event. Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2021: Enforce safety programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place and adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Validate equipment safety requirements.
3. Validate personnel safety requirements.
4. Validate Operational Risk Assessments.
5. Implement safety procedures.
6. Monitor safety awareness training.
7. Monitor safety programs.
8. Enforce safety regulations.
9. Provide input for/submit required reports.

PREREQUISITE EVENTS:
1120-ADMN-2001 1120-ADMN-2002 1169-ADMN-2021

REFERENCES:
1. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO 5100.19_ Marine Corps Traffic Safety Program (Drivesafe)
4. MCO 5100.29_ Marine Corps Safety Program
5. MCO 5100.30_ Marine Corps Recreation and Off-Duty Safety (RODS) Program
6. MCO 5100.34_ Deadline Safety of Use Message Instructions to Suspend Operations of Marine Corps Ground Equipment and Weapons Systems and Safety of Use Alerts
7. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
8. MCO 5104.2_ Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program
9. MCO 5104.3_ Marine Corps Radiation Safety Program
10. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
11. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
12. OPNAVINST 5100.23_ Navy Safety and Occupational Health (SOH) Program Manual
13. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
14. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2022: Enforce environmental regulations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With references.

STANDARD: So environmental policies and procedures are adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Inspect section's compliance with applicable environmental regulations and restrictions.
3. Manage platoon/section hazardous material disposal program.
4. Manage hazardous materials storage areas.
5. Inspect Material Safety Data Sheets (MSDS).
6. Report any situations that require reporting.
7. Conduct environmental regulations compliance planning for unit field operations.
8. Provide input for unit SOPs and environmental impact statements.

PREREQUISITE EVENTS:
1120-ADMN-2004 1169-ADMN-2022

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations
5. OPNAVINST 5090.1_ Environmental Readiness Program Manual

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2023: Manage MOS training program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MOS is Military Occupational Specialty.

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Verify individual training requirements (review T&R Manual and MOS Roadmaps).
3. Verify unit training requirements (review unit METL/Commander's intent).
4. Develop training program policies and procedures.
5. Validate on the job and sustainment training requirements by grade and MOS.
6. Plan MOS training program (considering apprenticeship programs).
7. Review lesson plans.
8. Review training methods/aids/materials.
9. Schedule MOS sustainment training.
10. Develop Letter of Instruction (LOI).
11. Ensure training is conducted.
12. Ensure lesson plans are maintained.
13. Ensure training is documented.
14. Evaluate training.
15. Encourage use of self-directed study and assist in providing resources.

PREREQUISITE EVENTS: 1169-ADMN-2023

REFERENCES:
1. DoDD 1322.18 Military Training
2. MCO 1553.1_ The Marine Corps Training and Education System
3. MCO 1553.2_ Management of Marine Corps Formal Schools and Training Detachments
4. MCO 1553.3_ Unit Training Management (UTM) Program
5. MCO 1553.4_ Professional Military Education (PME)
6. MCO 1553.6_ Development, Management, and Acquisition of Interactive Courseware (ICW) for Marine Corps Instruction
7. MCO 1560.25_ Marine Corps Lifelong Learning Program
8. MCO 3500.26_ Universal Naval Task List (UNTL) Version 3.0
9. MCO P3500.72_ Marine Corps Ground Training and Readiness (T&R) Program
10. MCRP 3-0A Unit Training Management Guide
11. MCRP 3-0B How to Conduct Training
12. NAVMC 1553.1_ Systems Approach to Training (SAT) Users Guide
13. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
14. OPNAVINST 1560.10_ Administration of the United Services Military Apprenticeship Program (USMAP)
15. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2031: Brief utilities safety to end users

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With utilities support (electrical, air conditioning, refrigeration, water, hygiene and/or sanitation) plan(s), sample warning signs, and references.

STANDARD: So "Off Limit" areas, meaning of warning signs, prohibited equipment and reasons, prohibited practices, emergency procedures, and unsafe conditions are identified and addressed.

PERFORMANCE STEPS:
1. Review support plans and references.
2. Identify prohibited equipment.
3. Identify prohibited practices.
4. Identify unsafe conditions.
5. Identify "Off Limit" areas.
6. Identify emergency procedures.
7. Assemble briefing notes and materials.
8. Deliver brief.
9. Monitor utilities safety compliance.

PREREQUISITE EVENTS:
1120-ADMN-2001 1169-ADMN-2031

RELATED EVENTS:
1120-ADMN-2002 1120-ADMN-2003 1120-ADMN-2021

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. ATTP 5-0.1 Commander and Staff Officer Guide
5. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
6. FM 10-52 Water Supply in Theaters of Operation
7. FM 10-52-1 Water Supply Point Equipment and Operations
8. JP 4-03 Joint Bulk Petroleum and Water Doctrine
9. MCO 3500.27_ Operational Risk Management (ORM)
10. MCO 5100.29_ Marine Corps Safety Program
11. MCRP 3-17.7K Theater of Operations Electrical Systems
12. MCRP 4-11.1D Field Hygiene and Sanitation
13. MCWP 4-11.6 Petroleum and Water Logistics Operations
14. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH)

Program Manual
15. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
16. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
17. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
18. TB MED 593 Guidelines for Field Waste Management

SUPPORT REQUIREMENTS:

MATERIAL: Sample warning signs.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2041: Validate a PQDR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PQDR is Product Quality Deficiency Report (SF 368).

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a completed Product Quality Deficiency Report (PQDR), access to the defective item, and references.

STANDARD: So deficiency is reported.

PERFORMANCE STEPS:
1. Review references.
2. Ensure deficiency requires a PQDR.
3. Determine if deficiency is Category I or Category II.
4. Verify exhibit is controlled (if required).
5. Audit DD Forms 1575 and 2332 (if required).
6. Audit PQDR (SF 368).
7. Ensure PQDR is submitted to the Marine Corps PQDR Screening Point.

PREREQUISITE EVENTS: 1169-ADMN-2041

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
3. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
4. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
5. MCO P4400.150_ Consumer Level Supply Policy Manual

6. MCO P4400.82_ Regulated/Controlled Item Management Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
DD Form 1575 (Suspended Tag - Materiel)
DD Form 2332 (Product Quality Deficiency Report Exhibit)
SF 368 (Product Quality Deficiency Report [PQDR])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2). Additional information for this event can be found at http//www.logcom.usmc.mil/pqdr.

1120-ADMN-2043: Initiate an UNS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

DESCRIPTION: An UNS is a Universal Need Statement.

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With internet access and Common Access Card (CAC), or a Universal Need Statement (NAVMC 11475), and references.

STANDARD: So a capabilities shortfall and proposed solution(s) are documented for decision/action at the flag (General) officer level per MCO 3900.17_.

PERFORMANCE STEPS:
1. Review references.
2. Validate requirement.
3. Obtain input/justification/recommendations from other units.
4. Research recommended solutions.
5. Fill in "Part 1a of 5 - Originator's Request" of the NAVMC 11475 (UNS).
6. Route UNS through chain of command.

RELATED EVENTS: 1169-ADMN-2043

REFERENCES:
1. CJCSI 3470.01 Rapid Validation and Resourcing of Joint Urgent Operational Needs (JUONS) in the Year of Execution
2. MCO 3900.15_ Marine Corps Expeditionary Force Development System (EFDS)
3. MCO 3900.17_ The Marine Corps Urgent Needs Process (UNP) and the Urgent Universal Need Statement (Urgent UNS)

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 11475 (Universal Need Statement)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, will be required in order to complete this event. The NAVMC 11475 may be downloaded from https://www.mccdc.usmc.mil/OpsDiv/CAB/UNS.htm. Detailed instructions for filling in and processing the form are also available at this website.

1120-ADMN-2051: Manage preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment records, maintenance management reports, forms, and references.

STANDARD: So serviceable equipment will be available to support unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit PMCS roster (NAVMC 10561).
4. Audit maintenance management reports.
5. Audit equipment records.
6. Determine maintenance priorities.
7. Validate support and test equipment assets and requirements.
8. Ensure PMCS schedule is followed.
9. Ensure PMCS actions are documented.

PREREQUISITE EVENTS: 1169-ADMN-2051

RELATED EVENTS:

1120-ADMN-2052	1120-ADMN-2065	1120-ADMN-2071
1120-ADMN-2072	1120-ADMN-2073	

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. MCWP 4-11.4 Maintenance Operations
5. TB 11-6115-741-24 Field and Sustainment Maintenance for Tactical Generator Desert Operations Special Test, Inspection, and Repair Requirements
6. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and

Diagnostic Equipment Calibration and Maintenance Program
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)
Equipment records
Maintenance management reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2052: Manage corrective maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment records, maintenance management reports, and references.

STANDARD: So equipment is repaired in a timely manner, enhancing the unit's readiness.

PERFORMANCE STEPS:
1. Review references.
2. Audit Maintenance Process Report (MPR) and other maintenance management reports.
3. Determine support and test equipment assets and requirements.
4. Determine maintenance priorities.
5. Ensure repairs are made.
6. Ensure repair actions are documented.

PREREQUISITE EVENTS: 1169-ADMN-2052

RELATED EVENTS:
1120-ADMN-2065 1120-ADMN-2071 1120-ADMN-2072
1120-ADMN-2073

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 4-11.4 Maintenance Operations
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
Equipment records
Maintenance management reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2061: Manage section's supply support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With maintenance, supply and fiscal reports, and references.

STANDARD: So section readiness is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Coordinate supply support requirements with unit's supply section.
3. Validate equipment SL-3 Using Unit Responsibility Items (UURI) requirements.
4. Provide input for budget requirements.
5. Manage execution of allocated funding.
6. Determine maintenance requirements.
7. Determine supply requirements.
8. Determine fuel requirements.
9. Manage shop/section Pre-Expended Bin (PEB) and repair order layette procedures.
10. Ensure parts, supplies, and fuel are obtained.
11. Manage shop/section validation/reconciliation procedures.
12. Ensure required documentation is maintained.

RELATED EVENTS: 1169-ADMN-2061

REFERENCES:
1. MCO 4050.38_ Personal Effects and Baggage Manual
2. MCO 4105.2_ Marine Corps Warranty Program
3. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
4. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
5. MCO 4410.9_ Assignment of Local Stock Numbers and Criteria for Determining Assignment of National Stock Numbers
6. MCO 4450.12_ Storage and Handling of Hazardous Materials
7. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostic Equipment

(TMDE) Calibration and Maintenance Program (CAMP)
8. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
9. MCO 5530.14_ Marine Corps Physical Security Program Manual
10. MCO 7300.21_ Marine Corps Financial Management Standard Operating Procedure Manual
11. MCO P4400.150_ Consumer Level Supply Policy Manual
12. MCO P4400.82_ Regulated/Controlled Item Management Manual
13. MCO P4790.2_ MIMMS Field Procedures Manual
14. NAVMC 2664 Financial Guidebook for Commanders
15. SECNAVINST 4355.18_ Reporting of Supply Discrepancies
16. TM 4700-15/1_ Ground Equipment Record Procedures
17. TM 4795-34/2_ Corrosion Prevention and Control, Rustproofing and Underbody Coating Procedures for Tactical Vehicles, Trailers, and Engineering Equipment
18. TM 4795-OR/1A Organizational Corrosion Prevention and Control Procedures for USMC Ground Combat Equipment
19. UNIT SOP Unit's Standing Operating Procedures

1120-ADMN-2062: Place new equipment in service

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, Fielding Plan (FP), and references.

STANDARD: So equipment is supported by maintainers and operators.

PERFORMANCE STEPS:
1. Review equipment's Fielding Plan (FP).
2. Establish a training plan for the new equipment.
3. Determine licensing requirements.
4. Determine impact on unit's budget.

RELATED EVENTS: 1169-ADMN-2062

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. UNIT SOP Unit's Standing Operating Procedures

1120-ADMN-2063: Validate unit T/O&E

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: T/O&E is Table of Organization and Equipment.

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With current T/O&E, unit's Mission Essential Task List (METL), personnel roster, Consolidated Memorandum Receipt (CMR), and references.

STANDARD: So platoon/section capabilities will support unit's METL.

PERFORMANCE STEPS:
1. Review references.
2. Review unit's METLs.
3. Review T/O&E mission statement.
4. Compare T/O to personnel assigned to unit.
5. Compare T/E to CMR and equipment assigned to unit.
6. Identify discrepancies (additions/deletions).
7. Initiate T/O&E Change Request (TOECR), if required.

RELATED EVENTS: 1120-ADMN-2064

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 5311.1_ Total Force Structure Process (TFSP)
3. MCO 5320.12_ Precedence Levels for Manning and Staffing
4. MCO P4400.150_ Consumer Level Supply Policy Manual
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. UNIT SOP Unit's Standing Operating Procedures
7. Unit T/O&E Unit's Table of Organization and Equipment

1120-ADMN-2064: Reconcile section's CMR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: CMR is Consolidated Memorandum Receipt.

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, chests, sets, kits, personnel, records, and references.

STANDARD: So assets are accounted for and available to support unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Review CMR.
3. Validate equipment National Stock Numbers (NSN).
4. Validate equipment serial numbers.
5. Collect documentation (SL-3 inventories, 1348-1s, ECR cards, Service

Requests (SR), etc.).
6. Verify equipment quantities.
7. Identify deficiencies/discrepancies.
8. Initiate Missing, Lost, Stolen, Recovered (MLSR) report (if required).

RELATED EVENTS:
1120-ADMN-2007 1120-ADMN-2063

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO 5530.14_ Marine Corps Physical Security Program Manual
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. UNIT SOP Unit's Standing Operating Procedures
8. Unit T/O&E Unit's Table of Organization and Equipment

1120-ADMN-2065: Manage equipment availability

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, reports, and references.

STANDARD: So unit's mission is supported with required equipment.

PERFORMANCE STEPS:
1. Review references.
2. Identify shortages/excesses.
3. Review readiness.
4. Review priority designator assignments.
5. Review maintenance cycle time.
6. Develop a plan to increase equipment availability.

PREREQUISITE EVENTS:
1120-ADMN-2071 1120-ADMN-2072 1120-ADMN-2073

RELATED EVENTS:
1120-ADMN-2061 1120-ADMN-2062

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness

Reporting (MRR) Policy
6. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
7. MCO P4400.150_ Consumer Level Supply Policy Manual
8. MCO P4790.2_ MIMMS Field Procedures Manual
9. UNIT SOP Unit's Standing Operating Procedures

1120-ADMN-2071: Validate maintenance management reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With access to Global Combat Support System-Marine Corps (GCSS-MC), maintenance management reports, supporting documentation, and references.

STANDARD: So accuracy of maintenance management reports is validated and unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Obtain current Maintenance Process Report (MPR).
2. Review references.
3. Review supporting documentation (equipment records).
4. Review MPR maintenance cycle times.
5. Identify MPR "exceptions."
6. Determine actions (if any) to correct "exceptions."
7. Make corrections (if any) to Service Requests (SR).
8. Debrief SRs.

PREREQUISITE EVENTS:

1120-ADMN-2006	1120-ADMN-2007	1120-ADMN-2064

RELATED EVENTS:

1120-ADMN-2061	1120-ADMN-2062	1120-ADMN-2065
1120-ADMN-2072	1120-ADMN-2073	1169-ADMN-2071

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Maintenance Process Report (MPR)

1120-ADMN-2072: Manage maintenance related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, equipment records, and references.

STANDARD: So unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Review references.
2. Determine unit's maintenance program requirements.
3. Inspect equipment.
4. Manage Modification Control program.
5. Manage Calibration Control program.
6. Manage New Equipment Warranty program.
7. Manage Quality Deficiency (QDR) program.
8. Manage Recoverable Items (WIR) program.
9. Manage Quality Control (QC) program.
10. Manage Corrosion Prevention and Control (CPAC) program.
11. Ensure program and equipment records are maintained.

PREREQUISITE EVENTS: 1169-ADMN-2072

RELATED EVENTS:

1120-ADMN-2041	1120-ADMN-2051	1120-ADMN-2052
1120-ADMN-2065	1120-ADMN-2071	1120-ADMN-2073

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4400.194_ Marine Corps Class VII Stock Rotation Policy
3. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
4. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4400.82_ Regulated/Controlled Item Management Manual
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
9. TM 4700-15/1_ Ground Equipment Record Procedures
10. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
11. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2). Some programs listed above may not be required at all units.

1120-ADMN-2073: Manage equipment records

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, equipment records, forms, and references.

STANDARD: So section's readiness can be determined.

PERFORMANCE STEPS:
1. Review references.
2. Identify records requirements.
3. Ensure records are established for each piece of equipment.
4. Manage records.

RELATED EVENTS: 1169-ADMN-2073

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 3000.13_ Marine Corps Readiness Reporting Standard Operating Procedures (SOP)
6. MCO 5210.11_ Marine Corps Records Management Program
7. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
8. MCO P4400.160_ Field Supply and Maintenance Analysis Office Program (FSMAO)
9. MCO P4790.2_ MIMMS Field Procedures Manual
10. TM 4700-15/1_ Ground Equipment Record Procedures
11. Unit SOP Unit's Standing Operating Procedures

1120-ADMN-2074: Validate Maintenance Shop procedures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: In a shop, with maintenance management checklists and references.

STANDARD: So all functional areas are certified mission capable.

PERFORMANCE STEPS:
1. Review checklists.
2. Gather/review the required checklist references.
3. Inspect shop functional areas.
4. Administer corrective actions, as necessary.

RELATED EVENTS:

1120-ADMN-2001	1120-ADMN-2002	1120-ADMN-2006
1120-ADMN-2007	1120-ADMN-2021	1120-ADMN-2022
1120-ADMN-2023	1120-ADMN-2051	1120-ADMN-2052
1120-ADMN-2061	1120-ADMN-2062	1120-ADMN-2063
1120-ADMN-2064	1120-ADMN-2065	1120-ADMN-2071
1120-ADMN-2072	1120-ADMN-2073	1120-ADMN-2081
1120-ADMN-2082	1120-ADMN-2083	

REFERENCES:
1. MCO P4400.160_ Field Supply and Maintenance Analysis Office Program (FSMAO)
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: There are numerous Marine Corps websites that have downloadable checklists. However; it is recommend that the checklists used for this event be obtained from local inspectors.

1120-ADMN-2075: Establish field maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Operation Order, environmental impact report, camp layout, equipment, resources, and references.

STANDARD: So unit's mission is supported with required maintenance capabilities.

PERFORMANCE STEPS:
1. Review Operation Order, environmental impact report, camp layout, and the references.
2. Plan field maintenance operation.
3. Obtain contingency RUCs/JONs, etc.
4. Validate utilities portions of contingency Class IX repair parts block.

5. Determine safety/environmental considerations.
6. Establish guidelines for field maintenance facility operation.
7. Manage field maintenance facility set up.
8. Ensure equipment records are maintained.
9. Recover field maintenance facility.

RELATED EVENTS:

1120-ADMN-2021	1120-ADMN-2022	1120-ADMN-2051
1120-ADMN-2052	1120-ADMN-2065	1120-ADMN-2071
1120-ADMN-2073	1120-ADMN-2074	

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. Unit SOP Unit's Standing Operating Procedures

1120-ADMN-2081: Monitor equipment embarkation requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, personnel, unit embarkation reports, equipment marking/labeling support, and references.

STANDARD: So unit's readiness/movement will be supported per MCRP 4-11.3G.

PERFORMANCE STEPS:
1. Review references.
2. Validate turnover folders/desktop procedures.
3. Reconcile Unit Deployment List (UDL) with Table of Organization and Equipment (T/O&E) and Consolidated Memorandum Receipt (CMR).
4. Review MAGTF Deployment Support System II (MDSS II)/Marine Air Ground Task Force II (MAGTF II) Logistics Automated Information System (LOGAIS) reports.
5. Review Joint Operational Planning and Execution System (JOPES) reports.
6. Inspect assigned equipment.
7. Identify Remain Behind Equipment (RBE).
8. Identify Leave Behind Equipment (LBE).
9. Ensure equipment is marked/labeled for transportation/embarkation.
10. Ensure equipment is disassembled, stowed, packed, and/or prepared for transportation/embarkation.
11. Provide input for Tab B (Embarkation Plan) to Appendix 14 to Annex C of Operation Orders.
12. Coordinate with unit embarkation personnel to ensure discrepancies with MDSS II/MAGTF II LOGAIS, and/or JOPES reports are corrected.

RELATED EVENTS:

1120-ADMN-2007 1120-ADMN-2063 1120-ADMN-2064
1120-ADMN-2065 1120-ADMN-2073

REFERENCES:
1. CJCSM 3122.05 Operating Procedures for Joint Operation Planning and Execution System (JOPES) - Information Systems (IS) Governance
2. DoDD 4500.09E Transportation and Traffic Management
3. DTR 4500.9-R Defense Transportation Regulation
4. JP 1-02 Department of Defense Dictionary of Military and Associated Terms
5. JP 3-02 Amphibious Operations
6. JP 3-02.1 Amphibious Embarkation and Debarkation
7. JP 4-0 Joint Logistics
8. JP 4-01.2 Sealift Support to Joint Operations
9. JP 4-01.5 Joint Terminal Operations
10. JP 4-01.6 Joint Logistics Over-the-Shore (JLOTS)
11. JP 4-07 Joint Tactics, Techniques, and Procedures for Common-User Logistics during Joint Operations
12. JP 5-0 Joint Operation Planning
13. MCBul 4081 Marine Air Ground Task Force (MAGTF) Logistics Support Systems (MLS2)
14. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
15. MCO 4410.28_ Item Unique Identification (IUID) of Ground Equipment
16. MCO 4631.10_ Operational Support Airlift Management
17. MCO 4680.5_ Containerization Policy
18. MCO P4030.19_ Preparing Hazardous Materials for Military Air Shipments
19. MCO P4600.7_ Marine Corps Transportation Manual
20. MCRP 3-31B Amphibious Ships and Landing Craft Data Book
21. MCRP 4-11.3G Unit Embarkation Handbook
22. MCRP 4-11C Combat Cargo Operations Handbook
23. MCRP 5-12D Organization of Marine Corps Forces
24. MCWP 3-31.5 Ship-to-Shore Movement
25. MCWP 3-32 Maritime Prepositioning Force Operations
26. MCWP 4-1 Logistics Operations
27. MCWP 4-11 Tactical-Level Logistics
28. MCWP 4-11.3 Transportation Operations
29. MCWP 4-11.8 Services in an Expeditionary Environment
30. MCWP 4-12 Operational-Level Logistics
31. MCWP 5-1 Marine Corps Planning Process (MCPP)
32. TM 11240-OD Principal Technical Characteristics of U.S. Marine Corps Motor Transportation Equipment
33. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
34. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
35. TM 4750-OD/1 Painting, Coating, Underbody and Registration Marking for Marine Corps Combat and Tactical Equipment
36. Unit SOP Unit's Standing Operating Procedures
37. Unit T/O&E Unit's Table of Organization and Equipment

1120-ADMN-2082: Manage equipment operator licensing program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With personnel, supporting documentation, licensing records, and references.

STANDARD: So licensed operators are available to operate the unit's equipment per TM 11275-15/4.

PERFORMANCE STEPS:
1. Review references.
2. Determine operator licensing requirements.
3. Review Operator History File.
4. Review equipment training and testing programs.
5. Review Action Date File to ensure timely renewal actions.
6. Review and approve or reject license applications (and renewals).
7. Review and approve completed OF 346 (U.S. Government Motor Vehicle Operator's Identification Card).
8. Ensure all issued licenses are recorded in the License Log Book.
9. Ensure any licensing action (issues/renewals/revocations) is recorded in the individual's Service Record Book (SRB).

PREREQUISITE EVENTS: 1169-ADMN-2082

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO 6260.1_ Marine Corps Hearing Conservation Program
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 11240-15/3_ Motor Vehicle Licensing Official's Manual
5. TM 11240-OD Principal Technical Characteristics of U.S. Marine Corps Motor Transportation Equipment
6. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
7. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
8. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2083: Manage Motor Pool operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: In a shop environment, with a Motor Transport Operations Chief (MOS 3537) and references.

STANDARD: So all functional areas are mission capable, supporting unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Review inspection checklists.
3. Inspect shop functions.
4. Identify discrepancies.
5. Administer corrective actions.

RELATED EVENTS:

1120-ADMN-2021	1120-ADMN-2022	1120-ADMN-2051
1120-ADMN-2052	1120-ADMN-2061	1120-ADMN-2063
1120-ADMN-2064	1120-ADMN-2065	1120-ADMN-2071
1120-ADMN-2072	1120-ADMN-2073	1120-ADMN-2074
1120-ADMN-2075	1120-ADMN-2082	

REFERENCES:
1. DoDI 5410.01 Release of Information Concerning Accidents Involving Military Personnel or Equipment or Concerning Senior Personnel
2. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
5. MCWP 4-11.3 Transportation Operations
6. NAVMC 3500.39_ Motor Transport Training and Readiness Manual
7. TM 11240-15/3_ Motor Vehicle Licensing Official's Manual
8. TM 11240-OD Principal Technical Characteristics of U.S. Marine Corps Motor Transportation Equipment
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 3537 (Motor Transport Operations Chief)

1120-ADMN-2091: Brief utilities support plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, site survey, cantonment plan, and references.

STANDARD: So command staff is aware of utilities support capabilities.

PERFORMANCE STEPS:
1. Determine briefing requirements.
2. Gather briefing materials.
3. Present information.
4. Answer questions (as required).

PREREQUISITE EVENTS: 1169-ADMN-2091

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. MCWP 5-1 Marine Corps Planning Process (MCPP)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2092: Brief commander on utilities situation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 1 month

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With current data and references.

STANDARD: So command staff will understand section's capabilities/priorities.

PERFORMANCE STEPS:
1. Determine briefing requirements.
2. Gather briefing materials.
3. Present information.
4. Answer questions (as required).

PREREQUISITE EVENTS:

1120-ADMN-2021	1120-ADMN-2022	1120-ADMN-2023
1120-ADMN-2063	1120-ADMN-2064	1120-ADMN-2065
1120-ADMN-2071		

RELATED EVENTS: 1120-ADMN-2091

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES)

Equipment
5. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
6. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
7. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
8. MCO 5311.1_ Total Force Structure Process (TFSP)
9. MCO 5320.12_ Precedence Levels for Manning and Staffing
10. MCO 5600.20_ Marine Corps Doctrinal Publications System
11. MCO 7300.21_ Marine Corps Financial Management Standard Operating Procedure Manual
12. MCO P4400.150_ Consumer Level Supply Policy Manual
13. MCO P4790.2_ MIMMS Field Procedures Manual
14. MCO P5090.2_ Environmental Compliance and Protection Manual
15. MCRP 3-17.7K Theater of Operations Electrical Systems
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCRP 4-11B Environmental Considerations
18. MCWP 4-11.4 Maintenance Operations
19. MCWP 4-11.6 Petroleum and Water Logistics Operations
20. MCWP 5-1 Marine Corps Planning Process (MCPP)
21. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
22. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
23. TM 4700-15/1_ Ground Equipment Record Procedures
24. UNIT SOP Unit's Standing Operating Procedures
25. Unit T/O&E Unit's Table of Organization and Equipment

1120-XENG-2501: Plan a utilities site survey

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With mission, commander's intent, map, and references.

STANDARD: So detailed Requests for Information (RFI) are developed, ensuring information is gathered to plan utilities support in compliance with the mission and commander's intent.

PERFORMANCE STEPS:
1. Review mission, enemy, terrain and weather, troops and fire support available - time available, space, and logistics (METT-TSL).
2. Review commander's intent.
3. Review map.
4. Develop RFIs on available host nation/local vendor support.
5. Develop RFIs on water sources.
6. Develop RFIs for water storage sites.
7. Develop RFIs for hygiene sites.

8. Develop RFIs on waste water disposal.
9. Develop RFIs for refrigeration sites.
10. Develop RFIs for environmental control requirements.
11. Develop RFIs for generator sites.
12. Develop RFIs on electrical power distribution requirements.
13. Prioritize RFIs.

RELATED EVENTS: 1120-XENG-2502

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. FM 3-55 Information Collection
5. FMFM 7-29 Mountain Operations
6. JP 4-03 Joint Bulk Petroleum and Water Doctrine
7. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
8. MCO 3500.27_ Operational Risk Management (ORM)
9. MCO P5090.2_ Environmental Compliance and Protection Manual
10. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
11. MCRP 3-17.7F Project Management
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17B Engineer Forms and Reports
14. MCRP 3-35.1D Cold Region Operations
15. MCRP 4-11.1D Field Hygiene and Sanitation
16. MCRP 4-11.8A Marine Corps Field Feeding Program
17. MCRP 4-11B Environmental Considerations
18. MCRP 5-12A Operational Terms and Graphics
19. MCWP 3-17 Engineering Operations
20. MCWP 3-17.4 Engineer Reconnaissance
21. MCWP 3-17.7 General Engineering
22. MCWP 3-35.5 Jungle Operations
23. MCWP 3-35.6 Desert Operations
24. MCWP 4-11.4 Maintenance Operations
25. MCWP 4-11.6 Petroleum and Water Logistics Operations
26. MCWP 5-1 Marine Corps Planning Process (MCPP)
27. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
28. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
29. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
30. TB MED 593 Guidelines for Field Waste Management
31. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
32. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
33. TM 5-811-1 Electric Power Supply and Distribution
34. TM 5-813-1 Water Supply, Sources and General Considerations
35. TM 5-813-3 Water Supply, Water Treatment
36. TM 5-813-4 Water Supply, Water Storage
37. TM 5-813-5 Water Supply, Water Distribution
38. TM 5-813-7 Water Supply for Special Projects

39. TM 5-813-8 Water Desalination
40. TM 5-813-9 Water Supply, Pumping Stations
41. TM 5-820-4 Drainage for Areas Other Than Airfields
42. Unit T/O&E Unit's Table of Organization and Equipment

SUPPORT REQUIREMENTS:

MATERIAL: Map

1120-XENG-2502: Conduct utilities site survey

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With warning order, developed Requests for Information (RFI), personnel, transportation, area map, equipment, materials, forms, and references.

STANDARD: So data for planning unit support will be available to generate utilities support plan(s) per the warning order.

PERFORMANCE STEPS:
1. Review warning order, Requests for Information (RFI) and references.
2. Review map.
3. Brief personnel.
4. Conduct survey.
5. Evaluate site(s) for safety concerns.
6. Evaluate site(s) for environmental concerns.
7. Ensure site conditions are evaluated and recorded on reconnaissance reports and Smartcards.
8. Evaluate alternate sites.
9. Evaluate site(s) for camouflage, concealment, and decoys.
10. Evaluate site(s) for Rear Area Security concerns.
11. Develop Site Survey report.
12. Brief Site Survey to those concerned.
13. Provide input for camp layout.
14. Provide input for engineer portions of operation orders.

PREREQUISITE EVENTS:
1120-XENG-2501 1169-XENG-2502

RELATED EVENTS:
1120-XENG-2521 1120-XENG-2553 1120-XENG-2555
1120-XENG-2558 1120-XENG-2622 1141-XENG-2501
1171-XENG-2501

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide

2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. FM 3-55 Information Collection
5. FMFM 7-29 Mountain Operations
6. JP 4-03 Joint Bulk Petroleum and Water Doctrine
7. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
8. MCO 3500.27_ Operational Risk Management (ORM)
9. MCRP 3-17.6A Camouflage, Concealment, and Decoys
10. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
11. MCRP 3-17.7F Project Management
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCRP 4-11.8A Marine Corps Field Feeding Program
18. MCRP 4-11B Environmental Considerations
19. MCRP 5-12A Operational Terms and Graphics
20. MCWP 3-17 Engineering Operations
21. MCWP 3-17.4 Engineer Reconnaissance
22. MCWP 3-17.7 General Engineering
23. MCWP 3-35.5 Jungle Operations
24. MCWP 3-35.6 Desert Operations
25. MCWP 3-41.1 Rear Area Operations
26. MCWP 4-1 Logistics Operations
27. MCWP 4-11 Tactical-Level Logistics
28. MCWP 4-11.6 Petroleum and Water Logistics Operations
29. MCWP 5-1 Marine Corps Planning Process (MCPP)
30. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
31. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
32. TB MED 593 Guidelines for Field Waste Management
33. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
34. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
35. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
36. TM 5-811-1 Electric Power Supply and Distribution
37. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
38. TM 5-813-1 Water Supply, Sources and General Considerations
39. TM 5-813-3 Water Supply, Water Treatment
40. TM 5-813-4 Water Supply, Water Storage
41. TM 5-813-5 Water Supply, Water Distribution
42. TM 5-813-7 Water Supply for Special Projects
43. TM 5-813-8 Water Desalination
44. TM 5-813-9 Water Supply, Pumping Stations
45. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Compass [K4222]
Camera
Calculator
Multimeter [H7030]
Tape measure

MATERIAL:
Area topographical map(s)
DA Form 1712-R (Water Reconnaissance Report)
Electricity Smartcard (Figure C-4 of MCWP 3-17.4)
Water Smartcard (Figure C-3 of MCWP 3-17.4)
Pens/pencils

UNITS/PERSONNEL:
Security may be required
MOS 1171 (Water Support Technician) to test water with WQAS-P
MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) to test water for NBC contamination

OTHER SUPPORT REQUIREMENTS: Transportation (by vehicle or aircraft) will be required for access to prospective site(s).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) will test water for NBC contamination
MOS 1171 (Water Support Technicians) are licensed operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Initial training for this event is received in the Utilities Chief course (CID: M0311E2)

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1120-XENG-2521: Plan a field electrical power generation/distribution system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with electrical

power generation and distribution drawn on camp layout(s) and a Course of Action (COA) established; and input provided for Annex D of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring electrical support.
3. Determine electrical power generation/distribution equipment requirements, selecting equipment sites.
4. Determine environmental impacts.
5. Plot generation sites on camp layout(s), making provision for traffic.
6. Identify potential impact of weather/climate on electrical power generation/distribution operations.
7. Determine risks, conducting operational risk assessments.
8. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
9. Determine number and type of warning signs required.
10. Schedule Preventive Maintenance Checks and Services (PMCS).
11. Determine POL requirements.
12. Determine camouflage, concealment, and decoy requirements.
13. Determine security requirements.
14. Estimate man-hour requirements, determining number of electricians required to support the mission.
15. Establish operator schedules.
16. Estimate logistical support (truck, forklift, etc.) required.
17. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
18. Generate work request(s) for any required construction.
19. Establish a Course of Action (COA).
20. Record requirements for input into Annex D of the Operation Order.
21. Brief electrical support plan (if required).

PREREQUISITE EVENTS:
1120-XENG-2502 1169-XENG-2521

RELATED EVENTS:
1120-XENG-2522 1120-XENG-2621 1120-XENG-2721
1120-XENG-2821

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. ATTP 5-0.1 Commander and Staff Officer Guide
5. FMFM 7-29 Mountain Operations
6. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
7. MCO 3500.27_ Operational Risk Management (ORM)
8. MCRP 3-17.6A Camouflage, Concealment, and Decoys

9. MCRP 3-17.7F Project Management
10. MCRP 3-17.7K Theater of Operations Electrical Systems
11. MCRP 3-17.7N Base Camps
12. MCRP 3-17B Engineer Forms and Reports
13. MCRP 3-35.1D Cold Region Operations
14. MCRP 4-11.8A Marine Corps Field Feeding Program
15. MCRP 4-11B Environmental Considerations
16. MCRP 5-12A Operational Terms and Graphics
17. MCWP 3-17 Engineering Operations
18. MCWP 3-17.4 Engineer Reconnaissance
19. MCWP 3-17.7 General Engineering
20. MCWP 3-35.5 Jungle Operations
21. MCWP 3-35.6 Desert Operations
22. MCWP 3-41.1 Rear Area Operations
23. MCWP 4-1 Logistics Operations
24. MCWP 4-11 Tactical-Level Logistics
25. MCWP 4-11.5 SeaBee Operations in the MAGTF
26. MCWP 5-1 Marine Corps Planning Process (MCPP)
27. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
28. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
29. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
30. TM 5-811-1 Electric Power Supply and Distribution
31. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
32. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Electric Smartcards (Figure C-4 of MCWP 3-17.4)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2522: Design a field expedient electrical distribution panel

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: THIS EVENT IS A "LAST RESORT." Completion of this event will be the first step in ensuring uninterrupted electrical power in a field environment, as a stop gap, if required MEPDIS/MEPDIS-R is not available. The "electrical distribution panel" is more commonly known as a "bus-bar."

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a known requirement for uninterrupted electrical power, a list of available materials, and references.

STANDARD: So electrical power can be distributed/disconnected/paralleled from the electrical power source, through overcurrent protection, to the distribution system as safely as possible.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARDS.
2. Determine maximum amperage of electrical distribution grid.
3. Determine size of conductors.
4. Determine size of over current protection.
5. Determine bonding and grounding requirements.
6. Determine impact of weather on "distribution panel."
7. Identify safety zones, signage requirements.
8. Determine remaining construction and electrical materials required.
9. Draw "distribution panel," detailing safety considerations.
10. Establish a Bill of Materials (BOM).
11. Document operational risks.
12. Obtain approval of risks from appropriate command level.

PREREQUISITE EVENTS:
1120-ADMN-2001 1120-ADMN-2002 1120-ADMN-2031
1169-XENG-2522

RELATED EVENTS: 1120-XENG-2521

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
3. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
4. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
5. ATTP 5-0.1 Commander and Staff Officer Guide
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCRP 3-17.7K Theater of Operations Electrical Systems
8. MCRP 3-17.7M Construction Estimating
9. MCWP 5-1 Marine Corps Planning Process (MCPP)
10. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
11. TC 11-6 Grounding Techniques
12. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
13. TM 5-811-1 Electric Power Supply and Distribution
14. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection

15. TM 5-811-7 Electrical Design, Cathodic Protection
16. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Initial training for this event is received in the Utilities Chief course (CID: M0311E2).
Risk Management Worksheet should be approved by appropriate commander after risks are fully briefed.

1120-XENG-2541: Plan field refrigeration/environmental control equipment support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with refrigeration/environmental control equipment drawn on camp layout(s) and a Course of Action (COA) established; and input provided for the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring heating and air conditioning support.
3. Determine environmental control equipment requirements, selecting equipment sites.
4. Identify areas/activities requiring refrigeration support.
5. Determine field refrigeration system requirements, selecting equipment sites.
6. Determine environmental impacts.
7. Plot Environmental Control Unit (ECU) sites on camp layout(s).
8. Plot field refrigeration system sites on camp layout(s).
9. Identify potential impact of weather/climate on refrigeration/ECU operations.
10. Determine risks, conducting operational risk assessments.
11. Determine number and type of warning signs required.

12. Schedule Preventive Maintenance Checks and Services (PMCS).
13. Determine camouflage, concealment, and decoy requirements.
14. Estimate man-hour requirements, determining number of Refrigeration and Air Conditioning Technicians required to support the mission.
15. Estimate logistical support (truck, forklift, etc.) required.
16. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
17. Generate work request(s) for any required construction.
18. Establish a Course of Action (COA).
19. Record requirements for input into the Operation Order.
20. Brief plan (if required).

PREREQUISITE EVENTS:

1120-XENG-2502	1169-XENG-2541	

RELATED EVENTS:

1120-XENG-2641	1120-XENG-2741	1120-XENG-2841

REFERENCES:

1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
4. MCO 3500.27_ Operational Risk Management (ORM)
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7N Base Camps
8. MCRP 3-17B Engineer Forms and Reports
9. MCRP 3-35.1D Cold Region Operations
10. MCRP 4-11.8A Marine Corps Field Feeding Program
11. MCRP 4-11B Environmental Considerations
12. MCRP 5-12A Operational Terms and Graphics
13. MCWP 3-17 Engineering Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-17.7 General Engineering
16. MCWP 3-35.5 Jungle Operations
17. MCWP 3-35.6 Desert Operations
18. MCWP 3-41.1 Rear Area Operations
19. MCWP 5-1 Marine Corps Planning Process (MCPP)
20. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
21. SL-3-11574A Components List for Large Field Refrigeration System
22. SL-3-11609A Components List for Small Field Refrigeration System
23. SL-3-4120 Components List for Family of Environmental Control Units
24. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
25. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
26. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)

Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2553: Plan field water support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), water reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with water sites and distribution points drawn on camp layout(s) and a Course of Action (COA) established; and input provided for Appendix 2 to Annex D of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring water support.
3. Determine water purification/storage/distribution equipment requirements, selecting equipment sites.
4. Determine environmental impacts.
5. Plot equipment sites on camp layout(s).
6. Select water point location(s) making provision for traffic and drainage.
7. Plot water point(s) on camp layout(s).
8. Plot distribution methods on camp layout(s).
9. Identify potential impact of weather/climate on water purification, storage, and distribution operations.
10. Determine risks, conducting operational risk assessments.
11. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
12. Determine number and type of warning signs required.
13. Schedule Preventive Maintenance Checks and Services (PMCS).
14. Determine POL requirements.
15. Determine chemical requirements for purification/storage operations.
16. Determine camouflage, concealment, and decoy requirements.
17. Determine security requirements.
18. Estimate man-hour requirements, determining number of water support personnel required to support the mission.
19. Establish operator schedules.

20. Estimate logistical support (truck, forklift, etc.) required.
21. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
22. Generate work request(s) for any required construction.
23. Establish a Course of Action (COA).
24. Record requirements for input into Appendix 2 to Annex D of the Operation Order.
25. Brief water support plan (if required).

PREREQUISITE EVENTS:

1120-XENG-2502	1169-XENG-2553

RELATED EVENTS:

1120-XENG-2555	1120-XENG-2558	1120-XENG-2653
1120-XENG-2753	1120-XENG-2853	

REFERENCES:

1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 10-52 Water Supply in Theaters of Operation
4. FM 10-52-1 Water Supply Point Equipment and Operations
5. FM 3-55 Information Collection
6. FMFM 7-29 Mountain Operations
7. JP 4-03 Joint Bulk Petroleum and Water Doctrine
8. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
9. MCO 3500.27_ Operational Risk Management (ORM)
10. MCRP 3-17.6A Camouflage, Concealment, and Decoys
11. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
12. MCRP 3-17.7F Project Management
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11B Environmental Considerations
17. MCRP 5-12A Operational Terms and Graphics
18. MCWP 3-17 Engineering Operations
19. MCWP 3-17.4 Engineer Reconnaissance
20. MCWP 3-17.7 General Engineering
21. MCWP 3-35.5 Jungle Operations
22. MCWP 3-35.6 Desert Operations
23. MCWP 3-41.1 Rear Area Operations
24. MCWP 4-1 Logistics Operations
25. MCWP 4-11 Tactical-Level Logistics
26. MCWP 4-11.5 SeaBee Operations in the MAGTF
27. MCWP 4-11.6 Petroleum and Water Logistics Operations
28. MCWP 5-1 Marine Corps Planning Process (MCPP)
29. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
30. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
31. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
32. TM 5-813-1 Water Supply, Sources and General Considerations
33. TM 5-813-3 Water Supply, Water Treatment

34. TM 5-813-4 Water Supply, Water Storage
35. TM 5-813-5 Water Supply, Water Distribution
36. TM 5-813-7 Water Supply for Special Projects
37. TM 5-813-8 Water Desalination
38. TM 5-813-9 Water Supply, Pumping Stations
39. TM 5-820-4 Drainage for Areas Other Than Airfields
40. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
DA Form 1712-Rs (Water Reconnaissance Reports)
Water Smartcards (Figure C-3 of MCWP 3-17.4)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2555: Plan field hygiene equipment support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a warning order requiring a base camp(s), map(s), reconnaissance report(s), camp layout(s) with water source and distribution points indicated, any environmental impact report(s), known soil type(s), and references.

STANDARD: So requirements of warning order are supported; with hygiene equipment site(s) drawn on the camp layout(s) and a Course of Action (COA) established; and input provided for Annex D and Appendix 6 to Annex Q of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify personnel requiring hygiene support.
3. Determine hygiene equipment requirements, selecting equipment sites and making provisions for traffic and drainage.
4. Determine environmental impacts.
5. Plot equipment sites on camp layout(s).
6. Identify potential impact of weather/climate on hygiene equipment

operations.
7. Determine risks, conducting operational risk assessments.
8. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
9. Determine number and type of warning sign(s) required.
10. Schedule Preventive Maintenance Checks and Services (PMCS).
11. Determine POL requirements.
12. Determine chemical requirements for hygiene operations.
13. Determine camouflage, concealment, and decoy requirements.
14. Determine security requirements.
15. Determine laundry/shower schedules for supported units.
16. Estimate man-hour requirements, determining number of water support personnel required to support hygiene mission.
17. Establish operator schedules.
18. Estimate logistical support (truck, forklift, etc.) required.
19. Establish a Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
20. Generate work request(s) for any required construction.
21. Establish a Course of Action (COA).
22. Record requirements for input into Annex D and Appendix 6 to Annex Q of the Operation Order.
23. Brief hygiene equipment support plan (if required).

PREREQUISITE EVENTS:
1120-XENG-2553 1169-XENG-2555

RELATED EVENTS:
1120-XENG-2558 1120-XENG-2655 1120-XENG-2755
1120-XENG-2855

REFERENCES:
1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 3-55 Information Collection
4. FMFM 7-29 Mountain Operations
5. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCRP 3-17.6A Camouflage, Concealment, and Decoys
8. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
9. MCRP 3-17.7F Project Management
10. MCRP 3-17.7N Base Camps
11. MCRP 3-17B Engineer Forms and Reports
12. MCRP 3-35.1D Cold Region Operations
13. MCRP 4-11.1D Field Hygiene and Sanitation
14. MCRP 4-11B Environmental Considerations
15. MCRP 5-12A Operational Terms and Graphics
16. MCWP 3-17 Engineering Operations
17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 3-17.7 General Engineering
19. MCWP 3-35.5 Jungle Operations
20. MCWP 3-35.6 Desert Operations
21. MCWP 3-41.1 Rear Area Operations
22. MCWP 4-1 Logistics Operations

23. MCWP 4-11 Tactical-Level Logistics
24. MCWP 4-11.5 SeaBee Operations in the MAGTF
25. MCWP 5-1 Marine Corps Planning Process (MCPP)
26. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
27. TB MED 593 Guidelines for Field Waste Management
28. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
29. TM 5-820-4 Drainage for Areas Other Than Airfields
30. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s) with water source and distribution points indicated

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2558: Plan a field sanitation system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With a warning order requiring a base camp(s), map(s), reconnaissance report(s), camp layout(s), any environmental impact report(s), known soil type(s), and references.

STANDARD: So requirements of warning order are supported; with sanitation devices/sites drawn on the camp layout(s) and a Course of Action (COA) established; and input provided for Annex D and Appendix 6 to Annex Q of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify locations of equipment, devices and facilities to be supported/impacted by sanitation requirements.
3. Determine soil absorption rates.
4. Identify potential impact of weather/climate on sanitation devices.
5. Determine amount of waste water that will be generated.
6. Determine numbers of sanitation devices/facilities (grease traps,

head/latrines, garbage pits, and soakage pits) required.
7. Determine environmental impacts.
8. Plot sanitation devices/facilities on camp layout(s), making provisions for traffic.
9. Determine risks, conducting operational risk assessments.
10. Determine number and type of warning signs required.
11. Determine camouflage, concealment, and decoy requirements.
12. Estimate man-hour requirements, determining number of water support personnel required to support sanitation mission.
13. Determine cleaning/inspection/maintenance schedule.
14. Estimate logistical support (truck, forklift, etc.) required.
15. Establish a Bill of Materials (BOM) including camouflage, environmental, and safety items.
16. Generate work request(s) for any required construction.
17. Establish a Course of Action (COA).
18. Record requirements for input into Annex D and Appendix 6 to Annex Q of the Operation Order.
19. Brief sanitation plan (if required).

PREREQUISITE EVENTS:

1120-XENG-2553	1120-XENG-2555	1169-XENG-2558

RELATED EVENTS:

1120-XENG-2658	1120-XENG-2758	1120-XENG-2858

REFERENCES:
1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 3-55 Information Collection
4. FMFM 7-29 Mountain Operations
5. INSTALLATION SOP Installation's Standing Operating Procedures
6. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
7. MCO 3500.27_ Operational Risk Management (ORM)
8. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
9. MCO P5090.2_ Environmental Compliance and Protection Manual
10. MCRP 3-17.6A Camouflage, Concealment, and Decoys
11. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
12. MCRP 3-17.7F Project Management
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCRP 4-11.8A Marine Corps Field Feeding Program
18. MCRP 4-11B Environmental Considerations
19. MCRP 5-12A Operational Terms and Graphics
20. MCWP 3-17 Engineering Operations
21. MCWP 3-17.4 Engineer Reconnaissance
22. MCWP 3-17.7 General Engineering
23. MCWP 3-35.5 Jungle Operations
24. MCWP 3-35.6 Desert Operations
25. MCWP 3-41.1 Rear Area Operations
26. MCWP 4-11.5 SeaBee Operations in the MAGTF
27. MCWP 5-1 Marine Corps Planning Process (MCPP)

28. TB MED 593 Guidelines for Field Waste Management
29. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
30. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s) with equipment, devices and facilities indicated

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2561: Plan an interior electrical wiring system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With construction plans for a structure, a list of electrical fixtures/appliances to be installed, local code requirements, and references.

STANDARD: Per the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Review construction plans, local code and references.
2. Review list of electrical fixtures/appliances to be installed.
3. Calculate general lighting load.
4. Identify power requirements.
5. Determine code requirements.
6. Size branch circuits.
7. Size over current protection devices.
8. Plot electrical symbols on construction plans.
9. Ensure interior electrical wiring system plan conforms to references and the building's requirements.
10. Establish a Bill of Materials (BOM), including safety items.
11. Establish a Course of Action (COA).

PREREQUISITE EVENTS: 1169-XENG-2561

RELATED EVENTS:
1120-XENG-2965 1120-XENG-2966

REFERENCES:

1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 5-553 General Drafting
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. MCRP 3-17.7M Construction Estimating
6. MCWP 5-1 Marine Corps Planning Process (MCPP)
7. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
8. TM 5-704 Construction Print Reading in the Field
9. TM 5-811-1 Electric Power Supply and Distribution
10. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
11. TM 5-811-7 Electrical Design, Cathodic Protection

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2581: Plan an interior plumbing system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With construction plans for a structure, a list of plumbing fixtures to be installed, local code requirements, and references.

STANDARD: Per the Uniform Plumbing Code (UPC).

PERFORMANCE STEPS:
1. Review construction plans, local code, and references.
2. Review list of plumbing fixtures/appliances to be installed.
3. Identify plumbing symbols.
4. Determine code requirements.
5. Identify water supply requirements.
6. Identify sanitary drainage requirements.
7. Identify vent requirements.
8. Plot plumbing system/fixtures on construction plans.
9. Estimate man-hour requirements.
10. Determine risks, conducting operational risk assessments.
11. Establish a Bill of Materials (BOM), including safety items.
12. Establish a Course of Action (COA).

PREREQUISITE EVENTS: 1169-XENG-2581

RELATED EVENTS:
1120-XENG-2988 1120-XENG-2989

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 5-553 General Drafting
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7M Construction Estimating
6. MCWP 5-1 Marine Corps Planning Process (MCPP)
7. TM 5-704 Construction Print Reading in the Field
8. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2621: Manage field electrical power generation/distribution system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, electrical support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, electrical support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Monitor electrical power generation equipment installation.
7. Monitor electrical power distribution system installation.
8. Inspect installed field electrical power generation/distribution system.
9. Inspect equipment/system grounding.
10. Correct discrepancies.

PREREQUISITE EVENTS: 1120-XENG-2521

RELATED EVENTS:
1120-XENG-2522 1120-XENG-2721 1120-XENG-2821

REFERENCES:
1. Appropriate Technical Manuals
2. FM 3-34.480 Engineer Prime Power Operations
3. MCRP 3-17.6A Camouflage, Concealment, and Decoys
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7K Theater of Operations Electrical Systems
6. MCRP 3-17.7N Base Camps
7. MCRP 4-11B Environmental Considerations
8. MCWP 4-11.5 Seabee Operations in the MAGTF
9. TM 5-811-1 Electric Power Supply and Distribution
10. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Forklift (with capacity to lift generators and distribution panels)
Earthmoving equipment (if required to prepare site(s))
Generator(s) (size and quantity designated by electrical support plan)
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R):
5kW Indoor [B0027]
5kW Outdoor [B0028]
15kW [B0029]
30kW [B0030]
100kW [B0031] - and/or –
300kW [B0032]
(Sizes and quantities as designated by the electrical support plan)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Spill containment materials
Warning signs
Water (if needed)
Metal Plates (if needed)
Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Only licensed Marines (MOS 1141) will install/operate MEPDIS-R
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1141 electricians to install and operate MEPDIS-R [B0027, B0028, B0029, B0030, B0031 and B0032].

1120-XENG-2622: Validate ground test set measurements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: At a site supported by an established electrical power generation and distribution system, with a ground test set, test set measurements, and references.

STANDARD: So a safe ground for supported personnel and equipment is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Determine grounding electrode/system resistance (ohms) to ground requirements for electrical equipment/system.
3. Review ground test set measurement reports.
4. Identify potential impact of weather (humidity/temperature) on grounding system.
5. Direct improvements/upgrades to grounding system as necessary.

PREREQUISITE EVENTS: 1169-XENG-2622

RELATED EVENTS:

1120-XENG-2502	1120-XENG-2521	1120-XENG-2522
1120-XENG-2621	1120-XENG-2721	

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution

3. MCRP 3-17.7K Theater of Operations Electrical Systems
4. MCRP 4-11B Environmental Considerations
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
6. SL-3-10069A Components List for Ohmmeter (Earth Ground Resistance Tester), Model R1L-C
7. SL-3-10139A Components List for Grounding Kit, MK-2551A/U
8. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
9. TC 11-6 Grounding Techniques
10. TM 10069A-14 Operation and Maintenance Instructions with Illustrated Parts Breakdown for Ground Resistance Ohmmeter Model R1L-C
11. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
12. TM 11-5820-1118-13&P Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Grounding Kit, MK-2551A/U
13. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
14. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Ohmmeter, Earth Ground Resistance Tester, Model R1L-C [A7059]

MATERIAL:
Water (if needed)
Metal Plates (if needed)
Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

UNITS/PERSONNEL: MOS 1141 (Electrician)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2641: Manage field refrigeration/environmental control equipment set up/installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, refrigeration and environmental control support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, refrigeration and environmental control support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Monitor environmental control unit set up/installation.
7. Monitor set up of refrigeration system(s).
8. Inspect installed field refrigeration/environmental control equipment.
9. Inspect equipment grounding.
10. Ensure inspection of refrigeration equipment by preventive medicine personnel.
11. Correct discrepancies.

PREREQUISITE EVENTS: 1120-XENG-2541

RELATED EVENTS:
1120-XENG-2741 1120-XENG-2841

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7N Base Camps
5. MCRP 4-11.8A Marine Corps Field Feeding Program
6. MCRP 4-11B Environmental Considerations
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Forklift (with capacity to lift refrigeration/environmental control equipment)
Earthmoving equipment (if required to prepare site(s))
Environmental Control Units (ECU) (Sizes and quantities as designated by the support plan)
Refrigeration systems (Sizes and quantities as designated by the support plan)

MATERIAL:
Refrigeration and environmental control support plan with established Course of Action (COA)
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1161 (Refrigeration and Air Conditioning Technician) to set up/install equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for equipment set up/installation.

1120-XENG-2653: Manage field water purification/storage/distribution system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, water support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, water support plan, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Manage water source development.
7. Manage water purification equipment set up.
8. Manage field water storage equipment set up.
9. Manage field water distribution system installation.
10. Inspect installed field water purification/storage/distribution system.
11. Inspect equipment grounding.
12. Ensure inspection of installed system by preventive medicine personnel.
13. Correct discrepancies.

PREREQUISITE EVENTS: 1120-XENG-2553

RELATED EVENTS:

1120-XENG-2655	1120-XENG-2658	1120-XENG-2752
1120-XENG-2753	1120-XENG-2853	

REFERENCES:

1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7N Base Camps
9. MCRP 4-11B Environmental Considerations
10. MCWP 4-11.6 Petroleum and Water Logistics Operations
11. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
12. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
13. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Forklift (with capacity to lift designated water support equipment)
Earthmoving equipment (if required to prepare site(s))
Electric power generation and distribution equipment (if required)
Water support equipment as designated by the water support plan

MATERIAL:

DA Form 1712-R (Water Reconnaissance Report)
Water support plan with established Course of Action (COA)
DA Form 1712-R (Water Reconnaissance Report)
Water Smartcard (see Figure C-3 of MCWP 3-17.4)
Spill containment materials
Warning signs

UNITS/PERSONNEL:

MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1171 (Water Support Technician) (quantity designated by water support plan) to set up/install equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:

Only licensed Marines (MOS 1171) will install/operate water support equipment
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1171 water support technicians to install and operate water support equipment.

1120-XENG-2655: Manage field hygiene equipment set up

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, hygiene support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, hygiene support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Monitor set up of field shower facility (if required).
7. Monitor set up of laundry unit(s) (if required).
8. Monitor set up of M-80/M-85 water heater(s) (if required).
9. Inspect set up field hygiene equipment.
10. Inspect equipment grounding.
11. Ensure inspection of installed equipment by preventive medicine personnel.
12. Correct discrepancies.

PREREQUISITE EVENTS: 1120-XENG-2555

RELATED EVENTS:
1120-XENG-2653 1120-XENG-2658 1120-XENG-2755
1120-XENG-2855

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7N Base Camps
6. MCRP 4-11.1D Field Hygiene and Sanitation
7. MCRP 4-11B Environmental Considerations

8. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
9. TB MED 593 Guidelines for Field Waste Management
10. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift designated hygiene equipment)
Earthmoving equipment (if required to prepare site(s))
Electric power generation and distribution equipment (if required)
Hygiene equipment as designated by the hygiene support plan

MATERIAL:
Hygiene support plan with established Course of Action (COA)
Spill containment materials
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1171 (Water Support Technician) (quantity designated by hygiene support plan) to set up equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Only licensed Marines (MOS 1171) will install/operate hygiene equipment
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1171 water support technicians to install and operate hygiene equipment.

1120-XENG-2658: Manage camp sanitation system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, field sanitation plan and established Course of Action (COA), environmental impact report, area map, camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, field sanitation plan, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Monitor installation of grease traps (if required).
6. Monitor installation of head/latrines (if required).
7. Monitor installation of garbage pits (if required).
8. Monitor installation of soakage pits (if required).
9. Inspect installed sanitation system.
10. Ensure inspection of installed system by preventive medicine personnel.
11. Correct discrepancies.

PREREQUISITE EVENTS: 1120-XENG-2558

RELATED EVENTS:
1120-XENG-2653 1120-XENG-2655 1120-XENG-2758
1120-XENG-2858

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 3-17.6A Camouflage, Concealment, and Decoys
5. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7N Base Camps
8. MCRP 4-11.1D Field Hygiene and Sanitation
9. MCRP 4-11B Environmental Considerations
10. MCWP 3-41.1 Rear Area Operations
11. TB MED 593 Guidelines for Field Waste Management
12. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (if required to prepare site(s))
Equipment designated by the sanitation plan

MATERIAL:
Sanitation plan with established Course of Action (COA)
Material designated by the sanitation plan
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s)
MOS 1371 (Combat Engineer) to construct sanitation devices

MOS 1171 (Water Support Technician) (quantity designated by sanitation plan) to install device(s)/develop site(s)
Preventive Medicine Technician

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in establishing and maintaining sanitary sites/devices

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1120-XENG-2721: Manage field electrical power generation/distribution system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, electrical power generation/distribution system, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed electrical power generation/distribution system.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Monitor operation of generator sets.
8. Monitor operation of floodlight sets.
9. Monitor operation of load banks.
10. Monitor electrical distribution system.
11. Ensure electrical loads are balanced.
12. Manage electrical power generation/distribution system operator maintenance.
13. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:
1120-XENG-2621 1120-XENG-2622

RELATED EVENTS:
1120-ADMN-2073 1120-XENG-2521 1120-XENG-2741
1120-XENG-2753 1120-XENG-2755 1120-XENG-2758

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 5-811-1 Electric Power Supply and Distribution
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1141 (Electricians) to operate/maintain equipment and system

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1120-XENG-2741: Manage field refrigeration/environmental control equipment operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, refrigeration/environmental control equipment, personnel, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed refrigeration/air conditioning equipment.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish maintenance schedule.
6. Brief personnel.
7. Monitor operation of air conditioning equipment.
8. Monitor operation of refrigeration units.
9. Manage refrigeration/air conditioning equipment maintenance.
10. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS: 1120-XENG-2641

RELATED EVENTS:

1120-ADMN-2073	1120-XENG-2541	1120-XENG-2721
1120-XENG-2753	1120-XENG-2755	1120-XENG-2758

REFERENCES:

1. Appropriate Technical Manuals
2. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
3. SL-3-11574A Components List for Large Field Refrigeration System
4. SL-3-11609A Components List for Small Field Refrigeration System
5. SL-3-4120 Components List for Family of Environmental Control Units
6. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1161 (Refrigeration and Air Conditioning Technicians) to maintain equipment

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1120-XENG-2752: Validate water test equipment measurements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With water test measurement reports, equipment, personnel, and references.

STANDARD: So continuous safety of unit's potable water supply is maintained per NAVMED P-5010-10.

PERFORMANCE STEPS:
1. Review references.
2. Review test measurement reports.
3. Have water tested.
4. Ensure measurements are within standards.
5. Take necessary actions to improve product water quality, disabling any PMT in the area.

PREREQUISITE EVENTS: 1169-XENG-2752

RELATED EVENTS: 1120-XENG-2753

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. JP 4-03 Joint Bulk Petroleum and Water Doctrine
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
6. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair

Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
7. TM 5-813-3 Water Supply, Water Treatment
8. TM 5-813-4 Water Supply, Water Storage
9. TM 5-813-5 Water Supply, Water Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]

MATERIAL: Water test measurement reports

UNITS/PERSONNEL: MOS 1171 (Water Support Technician) to test water

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1120-XENG-2753: Manage field water purification/storage/distribution system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, water purification/storage/distribution system, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed water purification/storage/distribution system.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Monitor operation of water purification equipment.
8. Monitor operation of water storage/distribution system.
9. Monitor operation of Forward Area Water Point Supply Systems.
10. Monitor operation of SIXCON module systems.
11. Monitor operation of water pump assemblies.

12. Monitor use of collapsible tanks and bladders.
13. Ensure water quantity and quality meet requirements.
14. Ensure all water production reports and logs are completed and submitted.
15. Manage water purification/storage/distribution equipment operator maintenance.
16. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:

1120-XENG-2653	1120-XENG-2752

RELATED EVENTS:

1120-ADMN-2073	1120-XENG-2553	1120-XENG-2721
1120-XENG-2741	1120-XENG-2755	1120-XENG-2758

REFERENCES:

1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 4-11.6 Petroleum and Water Logistics Operations
8. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
9. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
10. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
11. TM 4700-15/1_ Ground Equipment Record Procedures
12. TM 5-813-1 Water Supply, Sources and General Considerations
13. TM 5-813-3 Water Supply, Water Treatment
14. TM 5-813-4 Water Supply, Water Storage
15. TM 5-813-5 Water Supply, Water Distribution
16. TM 5-813-7 Water Supply for Special Projects
17. TM 5-813-8 Water Desalination
18. TM 5-813-9 Water Supply, Pumping Stations
19. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain equipment and system

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1120-XENG-2755: Manage field hygiene equipment operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, hygiene equipment, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed hygiene equipment.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Monitor operation of laundry units.
8. Monitor operation of shower facilities.
9. Monitor operation of water heaters.
10. Ensure drainage system is functioning properly.
11. Ensure daily sanitation standards are met.
12. Manage hygiene equipment operator maintenance.
13. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:
1120-XENG-2655 1120-XENG-2658

RELATED EVENTS:
1120-ADMN-2073 1120-XENG-2555 1120-XENG-2721
1120-XENG-2741 1120-XENG-2753 1120-XENG-2758

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 4-11.1D Field Hygiene and Sanitation
5. MCRP 4-11B Environmental Considerations
6. TB MED 593 Guidelines for Field Waste Management
7. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain equipment

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1120-XENG-2758: Manage camp sanitation system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, camp sanitation system, personnel, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect components of camp sanitation system.
3. Review safety concerns.
4. Review environmental concerns.
5. Coordinate with Preventive Medicine.
6. Monitor operation of camp sanitation system.
7. Identify components needing cleaning/repair/closure.
8. Brief personnel.
9. Monitor system maintenance.

PREREQUISITE EVENTS:
1120-XENG-2655 1120-XENG-2658

RELATED EVENTS:
1120-XENG-2721 1120-XENG-2741 1120-XENG-2753
1120-XENG-2755

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7N Base Camps
5. MCRP 4-11.1D Field Hygiene and Sanitation
6. MCRP 4-11B Environmental Considerations
7. MCWP 3-41.1 Rear Area Operations
8. TB MED 593 Guidelines for Field Waste Management
9. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain system

---

1120-XENG-2821: Manage field electrical power generation/distribution system recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Monitor distribution system recovery.
6. Monitor generator recovery.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1120-ADMN-2007	1120-ADMN-2065	1120-ADMN-2073
1120-XENG-2621	1120-XENG-2721	1120-XENG-2841
1120-XENG-2853	1120-XENG-2855	1120-XENG-2858

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 9-6115-624-BD Battlefield Damage Assessment and Repair for Generators

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Forklift (with capacity to lift generators and distribution panels)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Spill containment materials

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1120-XENG-2841: Manage field refrigeration/environmental control equipment recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Monitor refrigeration equipment recovery.
6. Monitor recovery of Environmental Control Units.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1120-ADMN-2007	1120-ADMN-2065	1120-ADMN-2073
1120-XENG-2641	1120-XENG-2741	1120-XENG-2821
1120-XENG-2853	1120-XENG-2855	1120-XENG-2858

REFERENCES:
1. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
2. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
3. SL-3-11574A Components List for Large Field Refrigeration System
4. SL-3-11609A Components List for Small Field Refrigeration System
5. SL-3-4120 Components List for Family of Environmental Control Units
6. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
7. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
8. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Forklift (with capacity to lift equipment)

MATERIAL: Refrigeration and environmental control support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1141 (Electrician) to disconnect electrical power
MOS 1161 (Refrigeration and Air Conditioning Technician) (quantity

designated by support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1120-XENG-2853: Manage field water purification/storage/distribution system recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Monitor recovery of water purification equipment.
6. Monitor water storage equipment recovery.
7. Monitor water distribution equipment recovery.
8. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
9. Ensure SL-3/BII inventories are conducted/recorded.
10. Resolve discrepancies.

RELATED EVENTS:

1120-ADMN-2007	1120-ADMN-2065	1120-ADMN-2073
1120-XENG-2653	1120-XENG-2753	1120-XENG-2821
1120-XENG-2841	1120-XENG-2855	1120-XENG-2858

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift water support equipment)

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1171 (Water Support Technician) (quantity designated by water support

plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1120-XENG-2855: Manage field hygiene equipment recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Monitor shower facility recovery.
6. Monitor laundry unit recovery.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1120-ADMN-2007	1120-ADMN-2065	1120-ADMN-2073
1120-XENG-2655	1120-XENG-2755	1120-XENG-2821
1120-XENG-2841	1120-XENG-2853	1120-XENG-2858

REFERENCES:
1. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
2. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
3. SL-3-10006A Components List for Bath Shower Unit, Expedition
4. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
5. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
6. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
7. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
8. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift hygiene equipment)

MATERIAL: Hygiene support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1171 (Water Support Technician) (quantity designated by hygiene support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1120-XENG-2858: Manage camp sanitation system recovery/closure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Platoon Commander, Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, environmental impact report, area map, camp layout, equipment, personnel, and references.

STANDARD: So reusable devices are recovered and waste areas are covered, marked, and recorded.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental impact report and area map.
4. Inspect sanitation system.
5. Brief recovery/closure crew.
6. Monitor recovery of sanitation devices/warning signs.
7. Monitor closure of sanitation pits.
8. Ensure closed sanitation sites are marked.
9. Inspect closed/marked sanitation system.
10. Ensure inspection of closed/marked system by preventive medicine personnel.
11. Ensure closed latrine sites are recorded on area map.
12. Forward marked map to those concerned.

RELATED EVENTS:

1120-XENG-2658	1120-XENG-2758	1120-XENG-2821
1120-XENG-2841	1120-XENG-2853	1120-XENG-2855

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCRP 4-11.1D Field Hygiene and Sanitation
3. MCRP 4-11B Environmental Considerations

4. TB MED 593 Guidelines for Field Waste Management

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (to cover sanitation pits)

MATERIAL:
Area map
Environmental impact report
Field sanitation plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) for earth moving requirements

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in recovery and closure of sanitation devices/pits

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site closure
A map/diagram of closed site(s) should be forwarded to higher headquarters per Installation's SOP

1120-XENG-2965: Manage interior electrical wiring system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring electrical work, with an interior electrical plan, a Bill of Materials (BOM), personnel, tools, and references.

STANDARD: So structure is wired per the interior electrical plan, in compliance with the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Review blueprints, electrical plan and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Brief installation crew.
4. Inventory BOM.
5. Supervise wire runs (and conduit installation, if applicable).
6. Supervise installation of devices/fixtures.
7. Check service equipment.
8. Test the installed electrical wiring system.

RELATED EVENTS:
1120-XENG-2561 1120-XENG-2966 1169-XENG-2965

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TM 5-704 Construction Print Reading in the Field
4. TM 5-811-1 Electric Power Supply and Distribution
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1141 (Electrician)

1120-XENG-2966: Manage interior electrical wiring system repairs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure with a faulty electrical system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made and system is brought into compliance with the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Examine interior electrical wiring system needing repairs.
2. Identify ELECTROCUTION HAZARD(S).
3. Review references, determining safety/code requirements.
4. Assess risks (ORM).
5. Review blueprints, electrical plan and Bill of Materials (BOM).
6. Brief repair crew.
7. Inventory BOM.
8. Ensure hazardous energy is controlled (Lockout/Tagout).
9. Supervise wire repairs (and conduit repairs, if applicable).
10. Supervise replacement of defective devices/fixtures.
11. Check service equipment.
12. Test the repaired electrical wiring system.

PREREQUISITE EVENTS:
1120-ADMN-2001 1120-ADMN-2002

RELATED EVENTS:
1120-XENG-2561 1120-XENG-2965

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
4. TC 11-6 Grounding Techniques
5. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
6. TM 5-704 Construction Print Reading in the Field
7. TM 5-811-1 Electric Power Supply and Distribution
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1141 (Electrician)

1120-XENG-2988: Manage interior plumbing system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring plumbing, with an interior plumbing system plan, Bill of Materials (BOM), personnel, tools, and references.

STANDARD: So structure has plumbing per the interior plumbing plan, in compliance with the Uniform Plumbing Code (UPC) (IAPMO/ANSI).

PERFORMANCE STEPS:
1. Review blueprints, plumbing plan and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Brief installation crew.
4. Inventory BOM.
5. Supervise installation of water supply system.
6. Supervise installation of sanitary drainage system.

7. Supervise installation of vent system.
8. Supervise installation of fixtures.
9. Test the installed plumbing system.

RELATED EVENTS:
1120-XENG-2581 1120-XENG-2989

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. MCRP 3-17.7F Project Management
3. TM 5-704 Construction Print Reading in the Field
4. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1171 (Water Support Technician)

1120-XENG-2989: Manage interior plumbing system repairs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure with a faulty plumbing system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made and system is brought into compliance with the Uniform Plumbing Code (UPC) (IAPMO/ANSI).

PERFORMANCE STEPS:
1. Examine plumbing system needing repairs.
2. Review references, determining safety/code requirements.
3. Assess risks (ORM).
4. Review blueprints, plumbing plan and Bill of Materials (BOM).
5. Brief repair crew.
6. Inventory BOM.
7. Supervise repairs to water supply system.
8. Supervise repairs to sanitary drainage system.
9. Supervise repairs to vent system.
10. Supervise replacement of fixtures.
11. Test the repaired plumbing system.

PREREQUISITE EVENTS: 1120-ADMN-2001

RELATED EVENTS:
1120-XENG-2581 1120-XENG-2988

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. MCRP 3-17.7F Project Management
3. TB SIG 222 Solder and Soldering
4. TM 5-704 Construction Print Reading in the Field
5. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1171 (Water Support Technician)

CHAPTER 8

MOS 1141 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	8000	8-2
EVENT CODING	8001	8-2
INDEX OF INDIVIDUAL EVENTS	8002	8-4
1000-LEVEL EVENTS	8003	8-6
2000-LEVEL EVENTS	8004	8-52

CHAPTER 8

MOS 1141 INDIVIDUAL EVENTS

8000. PURPOSE. This chapter details the individual events that pertain to the Electrician. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

8001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1141	Electrician

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
MANT	Maintenance
XENG	General Engineering

c. Field three.

(1) The first digit of this field provides the level at which the event is accomplished. The following event levels are used:

Code	Description
1000	Core Skills
2000	Core Plus Skills

(2) As the Task Analyst/Advocate has deemed appropriate the second digit of this field represents a sub-function to that duty area identified in field two. The following sub-functions are used in this chapter:

Code	Description
X0XX	Administrative
X1XX	Miscellaneous maintenance functions
X2XX	Preventive Maintenance Checks and Services
X3XX	Diagnosing equipment malfunctions
X4XX	Repairing equipment
X5XX	Planning
X6XX	Equipment set up
X7XX	Equipment operation

X8XX Equipment recovery
X9XX Electrician/Plumber (tradesman) duty based on requirements in the National Electrical Code (NEC) or Uniform Plumbing Code (UPC), etc.

(3) The last two digits of this field are used to identify and categorize like events or equipment across all MOSs of the 1100 OccFld (see Chapters 7 through 12), or are just numerical sequencing of events. Following are **some** examples of the categories used:

Code	Description
X002	Core and Core Plus Skills related to controlling hazardous energy. See: 1120-ADMN-2002, 1141-ADMN-1002, 1142-ADMN-1002, 1161-ADMN-1002, 1169-ADMN-2002, 1171-ADMN-1002.
X012	Core and Core Plus Skills related to NAVMC 10772 initiation, validation and submission. See: 1120-ADMN-2012, 1141-ADMN-1012, 1142-ADMN-1012, 1161-ADMN-1012, 1169-ADMN-2012, 1171-ADMN-1012.
2023	Core Plus advanced level MOS training program functions. See: 1120-ADMN-2023, 1141-ADMN-2023, 1142-ADMN-2023, 1161-ADMN-2023, 1169-ADMN-2023 and 1171-ADMN-2023.
206X	Core Plus advanced level supply support functions. See: 1120-ADMN-2061, 1120-ADMN-2062, 1120-ADMN-2063, 1120-ADMN-2064, 1120-ADMN-2065, 1141-ADMN-2061, 1141-ADMN-2062, 1142-ADMN-2061, 1142-ADMN-2062, 1161-ADMN-2061, 1161-ADMN-2062, 1169-ADMN-2061, 1169-ADMN-2062, 1169-ADMN-2063, 1169-ADMN-2064, 1169-ADMN-2065, 1171-ADMN-2061, 1171-ADMN-2062.
XX18	Core and Core Plus Skills related to maintaining and Operating the Integrated Tent, ECU and Generator (ITEG). See: 1141-XENG-1618, 1141-MANT-2218, 1141-XENG-2718, 1142-MANT-2318, 1161-MANT-1318, 1161-MANT-2618.

NOTE: There are three MOSs involved with this equipment.

XX42	Core and Core Plus Skills related to load testing generator Sets and maintaining and operating load testing equipment. See: 1141-MANT-1142, 1142-MANT-1142, 1142-MANT-1242, 1142-MANT-1342, 1142-MANT-2442.

NOTE: Of the 96 non-"ADMN" events performed by MOSs 1141 and 1142 only five "MANT" events could be called common to both MOSs. These are 114X-MANT-1101, 114X-MANT-1142, 114X-XXXX-1X95, 114X-MANT-2191 and 114X-MANT-2199. This leaves 56 unique events for MOS 1141 and 40 unique events for MOS 1142. There are 22 "ADMN" events that are common to both MOSs, but they are also common to all other basic MOSs in the OccFld.

8002. INDEX OF INDIVIDUAL EVENTS

EVENT	TITLE	PAGE
1000-LEVEL EVENTS		
1141-ADMN-1001	Conduct an Operational Risk Assessment (ORA)	8-6
1141-ADMN-1002	Control (Lockout/Tagout) hazardous energy	8-6
1141-ADMN-1003	Recover an electric shock victim	8-7
1141-ADMN-1004	Respond to a hazardous materials spill	8-8
1141-ADMN-1005	Administer first aid for chemical ingestion/contact	8-9
1141-ADMN-1006	Obtain equipment publications	8-10
1141-ADMN-1007	Conduct an SL-3 Components List/Basic Issue Items (BII) inventory	8-11
1141-ADMN-1008	Conduct an LTI	8-12
1141-ADMN-1009	Document equipment operation history	8-13
1141-ADMN-1010	Requisition repair parts	8-13
1141-ADMN-1011	Document equipment service/repair history	8-14
1141-ADMN-1012	Initiate a NAVMC 10772	8-15
1141-MANT-1101	Operate a multimeter	8-16
1141-MANT-1142	Load test generator set(s)	8-17
1141-MANT-1224	Perform scheduled PMCS on MEPDIS-R	8-18
1141-MANT-1247	Perform scheduled PMCS on a Floodlight Set	8-20
1141-MANT-1251	Perform scheduled PMCS on a MEP Tactical Generator Set	8-21
1141-MANT-1324	Diagnose a MEPDIS-R malfunction	8-25
1141-MANT-1424	Repair MEPDIS-R	8-26
1141-XENG-1601	Establish a grounding system	8-28
1141-XENG-1618	Establish a generator site	8-29
1141-XENG-1624	Install a tactical power distribution system	8-31
1141-XENG-1692	Connect an electric motor	8-33
1141-XENG-1693	Connect electric motor control circuits	8-34
1141-XENG-1703	Operate a ground resistance tester	8-35
1141-XENG-1747	Operate a floodlight set	8-36
1141-XENG-1751	Operate a 3kW Tactical Generator Set	8-37
1141-XENG-1752	Operate a 5kW Tactical Generator Set	8-39
1141-XENG-1753	Operate a 10kW Tactical Generator Set	8-40
1141-XENG-1754	Operate a 15kW Tactical Generator Set	8-42
1141-XENG-1757	Operate a 30kW Tactical Generator Set	8-43
1141-XENG-1763	Operate a 60kW Tactical Generator Set	8-45
1141-XENG-1765	Operate a 100kW Tactical Generator Set	8-47
1141-XENG-1795	Parallel tactical generator sets	8-48
1141-XENG-1961	Install an interior electrical wiring system in a permanent structure	8-50
1141-XENG-1962	Repair the interior electrical wiring system of a permanent structure	8-51
2000-LEVEL EVENTS		
1141-ADMN-2021	Apply safety programs	8-52
1141-ADMN-2022	Apply environmental regulations	8-53

1141-ADMN-2023	Conduct MOS training	8-54
1141-ADMN-2031	Brief electrical safety to end users	8-55
1141-ADMN-2032	Conduct a pole top rescue	8-56
1141-ADMN-2041	Initiate a PQDR	8-56
1141-ADMN-2051	Establish equipment preventive maintenance schedule	8-57
1141-ADMN-2061	Maintain PEB	8-58
1141-ADMN-2062	Maintain equipment repair parts bins	8-59
1141-ADMN-2071	Monitor maintenance management reports	8-59
1141-ADMN-2072	Monitor maintenance related programs	8-60
1141-ADMN-2073	Inspect maintenance actions (quality control)	8-61
1141-MANT-2191	Comply with a Modification Instruction (MI)	8-62
1141-MANT-2199	Mount/dismount a generator set on a trailer	8-63
1141-MANT-2218	Perform scheduled PMCS on an ITEG generator	8-64
1141-MANT-2244	Perform scheduled PMCS on MEPDIS	8-66
1141-MANT-2254	Perform scheduled PMCS on a MMG-25 20kW, 60Hz Generator Set	8-67
1141-MANT-2332	Diagnose a CBL electrical malfunction	8-68
1141-MANT-2344	Diagnose a MEPDIS malfunction	8-69
1141-MANT-2402	Repair a general supply equipment electrical system	8-71
1141-MANT-2444	Repair MEPDIS	8-72
1141-XENG-2501	Determine electrical support requirements	8-73
1141-XENG-2521	Develop a field electrical support plan	8-74
1141-XENG-2561	Design an interior electrical wiring system	8-76
1141-XENG-2602	Construct a field expedient electrical distribution panel	8-77
1141-XENG-2603	Splice a field wire connection	8-79
1141-XENG-2621	Direct field electrical power generation/distribution system installation	8-80
1141-XENG-2622	Monitor ground test set measurements	8-82
1141-XENG-2623	Balance an electrical load	8-83
1141-XENG-2694	Climb a pole/tree	8-84
1141-XENG-2695	Construct an overhead electrical power distribution system	8-85
1141-XENG-2696	Bury electrical power distribution cable	8-88
1141-XENG-2718	Operate an ITEG	8-89
1141-XENG-2721	Direct field electrical power generation/distribution system operation	8-91
1141-XENG-2737	Operate a 200kW Tactical Generator Set	8-92
1141-XENG-2750	Operate a 2kW 60Hz Tactical Generator Set	8-93
1141-XENG-2755	Operate a MMG-25 20kW 60Hz Generator Set	8-94
1141-XENG-2821	Direct field electrical power generation/distribution system recovery	8-96
1141-XENG-2963	Install conduit in a permanent structure	8-97
1141-XENG-2964	Inspect the interior electrical wiring system of a permanent structure	8-98

1141-XENG-2965	Direct interior electrical wiring system installation	8-99
1141-XENG-2966	Direct interior electrical wiring system repairs	8-100

8003. 1000-LEVEL EVENTS

1141-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a task/mission, a Risk Management Worksheet, and references.

STANDARD: So task/mission effectiveness is increased while loss of personnel and materiel is minimized through the use of risk management controls.

PERFORMANCE STEPS:
1. Identify task/mission requirements.
2. Review references.
3. Identify hazards, recording them on Risk Management Worksheet.
4. Assess severity and probability of hazards to determine risk levels.
5. Develop risk control measures.
6. Make risk decisions and/or forward Risk Management Worksheet to supervisor for decision/approval.
7. Implement controls.

RELATED EVENTS:
1142-ADMN-1001 1161-ADMN-1001 1171-ADMN-1001

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1141-ADMN-1002: Control (Lockout/Tagout) hazardous energy

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment manuals, Lockout/Tagout devices, forms, and references.

STANDARD: So equipment is locked out or tagged out to protect against accidental or inadvertent start-up, or operation that may cause injury to personnel performing maintenance, service, repair, or modification to the equipment.

PERFORMANCE STEPS:
1. Review references.
2. Locate all energy isolating devices and hazardous energy sources (NOTE: there may be more than one).
3. Obtain required number of Lockout/Tagout devices from program coordinator.
4. Notify all effected personnel and supervisors.
5. Don Personal Protective Equipment (PPE).
6. Shut down equipment/turn off circuit.
7. Dissipate or restrain any stored energy.
8. Apply Lockout/Tagout devices.
9. Verify energy is isolated/dissipated (test circuit).
10. Effect required service, maintenance, repairs or modifications to equipment/circuit.
11. Remove Lockout/Tagout devices.
12. Restore equipment/circuit to normal operation.
13. Return Lockout/Tagout devices to program coordinator.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1142-ADMN-1002 1161-ADMN-1002 1171-ADMN-1002

REFERENCES:
1. Appropriate Technical Manuals
2. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE)

MATERIAL:
Lockout/Tagout devices
NAVMC 11403 (Lockout/Tagout Checklist)

UNITS/PERSONNEL: Lockout/Tagout Program Coordinator

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: NAVMC Dir 5100.8, Chapter 12, provides detailed information for this event.

1141-ADMN-1003: Recover an electric shock victim

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So danger to personnel is eliminated and victim is cared for.

PERFORMANCE STEPS:
1. Evaluate situation.
2. Send for help.
3. Provide for personal protection.
4. Isolate victim from electrical source.
5. Evaluate victim.
6. Start artificial resuscitation (if necessary).
7. Remain with victim until medical help arrives.
8. Report incident.

RELATED EVENTS:
1120-ADMN-2003 1142-ADMN-1003 1161-ADMN-1003
1169-ADMN-2003 1171-ADMN-1003

REFERENCES:
1. MCRP 3-02G First Aid
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 2000-15/4 Power System Reference Manual
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Ropes
Brooms, mops or tree branches

1141-ADMN-1004: Respond to a hazardous materials spill

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Provide for personal protection.
3. Contain spill.
4. Report spill.
5. Remove uncontaminated material.
6. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1142-ADMN-1004	1161-ADMN-1004
1169-ADMN-2004	1171-ADMN-1004	

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations

SUPPORT REQUIREMENTS:

MATERIAL: Spill containment kit

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCO 4450.12A, Chapter 7 and MCRP 4-11B, Appendix J, Tab A provide detailed information for this event.

1141-ADMN-1005: Administer first aid for chemical ingestion/contact

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and MCRP 3-02G.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (if required).
5. Give first aid.
6. Remain with victim until medical help arrives.
7. Report incident.

RELATED EVENTS:
1120-ADMN-2005 1142-ADMN-1005 1161-ADMN-1005
1169-ADMN-2005 1171-ADMN-1005

REFERENCES:
1. MCRP 3-02G First Aid

SUPPORT REQUIREMENTS:

MATERIAL: Material Safety Data Sheet (MSDS) file

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCRP 3-02G, Chapter 7 provides detailed information for this event.

1141-ADMN-1006: Obtain equipment publications

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a tasking, equipment, and references.

STANDARD: So appropriate publication(s) are used with corresponding equipment.

PERFORMANCE STEPS:
1. Determine/record equipment National Stock Number (NSN).
2. Determine/record equipment Model Number.
3. Determine/record equipment Identification Number.
4. Ascertain section's authorized echelon of maintenance.
5. Identify publications that are published/available for equipment.
6. Check required publications out of section's Publication Library.

RELATED EVENTS:
1142-ADMN-1006 1161-ADMN-1006 1171-ADMN-1006

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required to complete this event at some units.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information to assist or increase personal knowledge for this event is contained in MCI 0416B - The Marine Corps Publications and Directives System.

1141-ADMN-1007: Conduct an SL-3 Components List/Basic Issue Items (BII) inventory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment and references.

STANDARD: So accountability of all components is validated per the SL-3/BII list and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review references.
2. Obtain Components List (SL-3 or TM listing Basic Issue Items [BII]) for item.
3. Identify each component using the SL-3/BII.
4. Identify missing components.
5. Identify unserviceable components.
6. Document inventory results.
7. Report any inventory discrepancies and unserviceable components.

PREREQUISITE EVENTS: 1141-ADMN-1006

RELATED EVENTS:
1142-ADMN-1007 1161-ADMN-1007 1171-ADMN-1007

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. SI 10510-OR/1 Tool Warranty/Replacement Instructions for Using the USMC ServMart
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: SL-3/BII inventory sheets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 6 provides detailed information for this event.

1141-ADMN-1008: Conduct an LTI

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: LTI is Limited Technical Inspection.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment requiring inspection and the equipment's records, forms, tools, and references.

STANDARD: So equipment is inspected for serviceability and discrepancies are identified.

PERFORMANCE STEPS:
1. Review references.
2. Lockout/Tagout equipment (if required).
3. Provide for personal protection (if required).
4. Identify components.
5. Verify component function/serviceability.
6. Verify authorized modifications.
7. Record discrepancies (if any).
8. Attach NAVMC 1018 to equipment (if required).
9. Complete the NAVMC 10560.

PREREQUISITE EVENTS:

1141-ADMN-1002	1141-ADMN-1006	1141-ADMN-1007

RELATED EVENTS:

1142-ADMN-1008	1161-ADMN-1008	1171-ADMN-1008

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. TM 9-6115-624-BD Battlefield Damage Assessment and Repair for Generators
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL:
NAVMC 1018 (Inspection/Repair Tag)
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection of Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 9 provides information for completing the NAVMC 1018 and TM 4700-15/1H, Chapter 2, Section 22 provides information for completing the NAVMC 10560.

1141-ADMN-1009: Document equipment operation history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment's records, forms, and references.

STANDARD: So hours/days of operation for the equipment are indicated and preventive maintenance intervals can be scheduled/rescheduled.

PERFORMANCE STEPS:
1. Review references.
2. Validate equipment descriptive data on NAVMC 696D.
3. Ensure equipment descriptive data on NAVMC 10524 is correct.
4. Record hours/days equipment was operated (on NAVMC 10524 and in GCSS-MC).

RELATED EVENTS:
1142-ADMN-1009 1161-ADMN-1009 1171-ADMN-1009

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 14 provides information for completing the NAVMC 696D and TM 4700-15/1H, Chapter 2, Section 21 provides information for completing the NAVMC 10524.

1141-ADMN-1010: Requisition repair parts

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: So valid requisitions are created.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Retrieve and review assigned GCSS-MC Service Request (SR) task, validating equipment identification data.
4. Debrief GCSS-MC SR task by entering repair part(s)/component(s) requirement information.
5. Change GCSS-MC SR status to "waiting approval."
6. Follow up/reconcile requisitions (as needed/required).

PREREQUISITE EVENTS: 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1011 1142-ADMN-1010 1161-ADMN-1010
1171-ADMN-1010

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 3 provides information that will assist in entering repair part/component requirements into GCSS-MC.

1141-ADMN-1011: Document equipment service/repair history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms and references.

STANDARD: So service/repair actions for equipment are debriefed.

PERFORMANCE STEPS:
1. Review references.
2. Retrieve and review assigned GCSS-MC Service Request (SR).
3. Debrief GCSS-MC SR task by updating information with service/repair actions taken.
4. Change GCSS-MC SR status to "waiting approval."

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1008	1141-ADMN-1009
1141-ADMN-1010	1142-ADMN-1011	1161-ADMN-1011
1171-ADMN-1011		

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event.

1141-ADMN-1012: Initiate a NAVMC 10772

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NAVMC 10772 is Recommended Change to Technical Publications/Logistics-Maintenance Data Coding.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an identified error/deficiency to a technical publication and references.

STANDARD: So corrections/improvements to the publication will be affected per TM 4700-15/1H and MCO P5215.17C.

PERFORMANCE STEPS:
1. Review references.
2. Determine if error/deficiency requires use of Part I or Part II of NAVMC 10772.
3. Fill in all required blocks of NAVMC 10772.

4. Forward completed NAVMC 10772.

PREREQUISITE EVENTS: 1141-ADMN-1006

RELATED EVENTS:
1142-ADMN-1012 1161-ADMN-1012 1171-ADMN-1012

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10772 (Recommended Change to Technical Publications/Logistics-Maintenance Data Coding)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website: https://portal.logcom.usmc.mil/sites/pubs/Site%20Pages/NAVMC10772RFC.aspx.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 23 provides detailed information for this event.

1141-MANT-1101: Operate a multimeter

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment having an electrical circuit(s).

STANDARD: So electrical outputs of the circuit are measured.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Determine correct setting (AC, DC, resistance or current).
3. Test circuit (voltage, resistance, current).
4. Record measurements/readings.
5. Analyze measurements/readings.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006

RELATED EVENTS:
1142-MANT-1101 1161-MANT-1101 1171-MANT-2101

REFERENCES:
1. Appropriate Technical Manuals
2. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
3. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
4. SL-3-09869A Components List for Multimeter, Model 77-4BN
5. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
6. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Multimeter [H7030]
Anti-Static Wrist Strap (if required)
Equipment with an electrical circuit

1141-MANT-1142: Load test generator set(s)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, forms, and references.

STANDARD: So ability of generator set(s) to safely take a designated electrical load is determined.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review references, including generator technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ground equipment.
7. Connect load bank to generator(s) (using overcurrent protection).
8. Start generator(s), contacting load.
9. Perform before operation checks on load bank.
10. Apply load to generator(s).
11. Perform during operation checks on load bank.
12. Record readings from load bank.
13. Analyze data collected during test.
14. Disconnect load from generator(s).
15. Perform after operation checks on load bank.
16. Shut down load bank.
17. Shut down generator(s).
18. Disconnect load bank.
19. Record test results.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1009 1141-ADMN-1011
1142-MANT-1142

REFERENCES:
1. Appropriate Technical Manuals
2. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
100kW Electrical Load Bank [B0579]
Generator(s) to be load tested

MATERIAL:
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the 100kW Electrical Load Bank [B0579].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) and Engineer Equipment Electrical Systems Technicians (MOS 1142) will be licensed to operate a 100kW Electrical Load Bank [B0579].

1141-MANT-1224: Perform scheduled PMCS on MEPDIS-R

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services. MEPDIS-R is Power Distribution Panel, Mobile Electric Power Distribution System Replacement.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, forms, and references.

STANDARD: So equipment is checked and serviced per TM 6110-OI/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manuals.
3. Review Service Request (SR).
4. Don Personal Protective Equipment (PPE).
5. Connect generator.
6. Contain (Lockout/Tagout) hazardous energy.
7. Start generator.
8. Inspect equipment.
9. Shut down generator.
10. Service equipment.
11. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-ADMN-1011

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1008

REFERENCES:
1. Appropriate Technical Manuals
2. SL-3-6110 Components List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. TM 6110-OI/1 Operation/Maintenance Manual with Repair Parts List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R):
5kW Indoor [B0027]
5kW Outdoor [B0028]
15kW [B0029]
30kW [B0030]
100kW [B0031] - and/or –
300kW [B0032]
Generator

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely

move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

1141-MANT-1247: Perform scheduled PMCS on a Floodlight Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 11120A-OI and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review equipment technical manuals.
5. Review Service Request (SR).
6. Don Personal Protective Equipment (PPE).
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.
10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-ADMN-1011

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1008

REFERENCES:
1. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
2. TM 11120A-OI Operation/Maintenance Manual with Repair Parts List for Floodlight Set (Model MLT5060MIT)
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MLT5060MIT Floodlight Set [B0640]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

1141-MANT-1251: Perform scheduled PMCS on a MEP Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services. MEP is Mobile Electric Power.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per generator's technical manual(s) and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review equipment technical manuals.
5. Review Service Request (SR).
6. Don Personal Protective Equipment (PPE).
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.
10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-ADMN-1011

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1008

REFERENCES:
1. Appropriate Technical Manuals
2. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
3. DP 6115 Disposal Plan for the Military Standard Generator Sets
4. DP 6115/1 Disposal Plan for the Alpha Model Tactical Quiet Generator Sets
5. FP 07464C Fielding Plan for B1045 MEP-807A 100kW Tactical Quiet Generator (TQG)

6. FP 6115 Fielding Plan for the Advanced Medium Mobile Power Sources (AMMPS)
7. LO 9-6115-641-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 5kW, 60Hz, MEP-802A
8. LO 9-6115-642-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 10kW, 60Hz MEP-803A and 400Hz MEP-813A
9. LO 9-6115-671-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60Hz MEP-805B and 400Hz MEP-815B
10. LO 9-6115-672-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60Hz MEP-806B and 400Hz MEP-816B
11. MI 07464C-OI Installation of Pulse Solar Charger on Tactical Quiet Generators, 100 Kilowatt, 60 Hertz (MEP-807A)
12. MI 09018A-34/1 Replacement of Diesel Engine Power Generating Unit with Generator Set, Diesel Engine, MEP-803A, in the Shop Equipment, General Purpose Repair, Semi Trailer Mounted (SGPRSMD)
13. MI 09247A/09248A-OR/1 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 10 Kilowatt 60 Hertz (MEP-803A) and 10 Kilowatt 400 Hertz (MEP-813A)
14. MI 10155A-OR/1 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 3 Kilowatt 60 Hertz (MEP-831A)
15. MI 11125A-OI/2 Relocation of Ether Bottle for the Generator Set, 20kW MMG-25
16. MI 11125A-OI/3 Drilling of the Oil Drain Access Hole for the Generator Set, 20kW MMG-25
17. MI 11125A-OR Installation of Pulse Solar Charger (PSC) on Generator Set, 20kW MMG25
18. MI 6115-24/24D Trailer Mounting of 10kW, MEP-003A, MEP-112A, MEP-803A, MEP-813A Generators on M116A2/3 Series Trailer
19. MI 6115-34/30 Battery Charging Fuse Modification and Control Power Circuit to Tactical Quiet Generator Models MEP-805B, MEP-815B, MEP-806B, MEP-816B
20. MI 6115-OI/25C Trailer Mounting of 3kW, MEP-831A Generators on M116A2/3 Series Trailer
21. MI 6115-OR/26A Trailer Mounting of Tactical Quiet Generators (TQG), 60 Kilowatt 60 Hertz (MEP-806A/B) or 60 Kilowatt 400 Hertz (MEP-816A/B) on M353 Trailer
22. MI 6115-OR/27A Trailer Mounting of Tactical Quiet Generators (TQG), 30 Kilowatt 60 Hertz (MEP-805A/B) or 30 Kilowatt 400 Hertz (MEP-815A/B) on M353 Trailer
23. MI 6115-OR/31 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 30 Kilowatt 60 Hertz (MEP-805A/B) and 30 Kilowatt 400 Hertz (MEP-815A/B)
24. MI 6115-OR/32 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 60 Kilowatt 60 Hertz (MEP-806A/B) and 60 Kilowatt 400 Hertz (MEP-816A/B)
25. SI 07464C-OI/1 Warranty Procedures for MEP-807A 100kW Tactical Quiet Generator
26. SI 09247A/09248A-24 Warranty Program for Generator Set, Tactical Quiet, 10kW, 60 and 400Hz, MEP-803A and MEP-813A
27. SI 11101A-OI/1 Warranty Procedures for MEP-531A 2kW Military Tactical Generator
28. SI 11125A-OI/1 Warranty Procedures for Generator Set, 20kW MMG-25
29. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series
30. SI 6115-OI Warranty Procedures for Advanced Medium Mobile Power Sources
31. SL-3-05926B/10155A Components List for Generator Set, Diesel Engine Driven, Skid Mounted, 3kW, 60Hz, MEP-016B/MEP-831A

32. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
33. TB 11-6115-741-24 Field and Sustainment Maintenance for Tactical Generator Desert Operations Special Test, Inspection, and Repair Requirements
34. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
35. TI 11125A-OI Engine Replacement Technical Instruction for Mobile Generator Set, MMG25
36. TI 6115-OR Product Improvement of the Pulse Receptacle Unit Component of the Pulse Solar Charger Kit
37. TM 07464C-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
38. TM 07464C-24/2A Field and Sustainment Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
39. TM 07464C-24P/3 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
40. TM 07464C-35 Systems Operation Testing and Adjusting for Caterpillar Generator Sets
41. TM 09244B/09245B-14/1 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806B and MEP-816B
42. TM 09244B/09245B-IN Field and Sustainment Maintenance Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806B and MEP-816B
43. TM 09244C/09245C-OI Operator's Manual for Generator Set, Skid Mounted 60kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1070 50/60Hz and MEP-1071 400Hz
44. TM 09244C/09245C-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 60kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1070 50/60Hz and MEP-1071 400Hz
45. TM 09245B/2815-24/3 Unit, Direct Support and General Support Maintenance Manual for Diesel Engine, Model 6068TF151, 6 Cylinder, 6.8 Liter, [MEP-806B/MEP-816B]
46. TM 09245B/2815-24P/4 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model 6068TF151, 6 Cylinder, 6.8 Liter, [MEP-806B/MEP-816B]
47. TM 09246C/11776A-OI Operator's Manual for Generator Set, Skid Mounted 30kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1060 50/60Hz and MEP-1061 400Hz
48. TM 09246C/11776A-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 30kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1060 50/60Hz and MEP-1061 400Hz
49. TM 09247A/09248A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
50. TM 09247A/09248A-24/2 Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
51. TM 09247A/09248A-24P/3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Generator Set, Tactical Quiet, 10kW, 60/400Hz, MEP-803A/MEP-813
52. TM 09249B/09246B-14/1 Operator, Unit, Direct Support and General Support

Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400Hz, MEP-805B/MEP-815B
53. TM 09249B/09246B-24P/2 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805B and MEP-815B
54. TM 09249B/2815-24/3 Unit, Direct Support and General Support Maintenance Manual for Diesel Engine, Model 4045TF151, 4 Cylinder, 4.5 Liter [MEP-805B/MEP-815B]
55. TM 09249B/2815-24P/4 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model 4045TF151, 4 Cylinder, 4.5 Liter [MEP-805B/MEP-815B]
56. TM 09292B-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 5kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1030 50/60Hz and MEP-1031 400Hz
57. TM 09292B-OI/3 Operator's Manual for Generator Set, Skid Mounted 5kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1030 50/60Hz and MEP-1031 400Hz
58. TM 10155A/2815-24/3 Unit, Direct Support, and General Support Maintenance Manual for Diesel Engine Assembly, Model L70AE-DEGFR
59. TM 10155A/2815-24P/4 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model L70AE-DEGFR
60. TM 10155A-OI/1A Operator and Field Maintenance Manual (Including Repair Parts and Special Tools List) for 3kW Tactical Quiet Generator Set MEP-831A (60Hz) and MEP-832A (400Hz)
61. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
62. TM 11125A-OI/A Operation/Maintenance Manual with Repair Parts List for Generator Set, Diesel Engine (Model MMG25)
63. TM 11598A-OI/A Field and Sustainment Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet 200kW 50/60Hz MEP-809A
64. TM 11598A-OR Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 200kW, 50/60Hz, MEP-809A
65. TM 11773A-OI Operator's Manual for Generator Set, Skid Mounted 15kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1050 50/60Hz and MEP-1051 400Hz
66. TM 11773A-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 15kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1050 50/60Hz and MEP-1051 400Hz
67. TM 11783A/11784A-OI Operator's Manual for Generator Set, Skid Mounted 10kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1040 50/60Hz and MEP-1041 400Hz
68. TM 11783A/11784A-OI/2 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 10kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1040 50/60Hz and MEP-1041 400Hz
69. TM 2815-24/3 Unit, Direct Support and General Support Maintenance Instructions for Diesel Engine, Model DN4M, 4 Cylinder, 1.2 Liter
70. TM 2815-24P/1 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model DN4M-1, Four-Cylinder, Four Cycle, Fuel Injected
71. TM 4700-15/1_ Ground Equipment Record Procedures
72. TM 9-6115-641-10 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 5kW, 60 and 400Hz, MEP-802A and MEP-812A
73. TM 9-6115-641-24 Field and Sustainment Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 5kW, 60 and 400Hz, MEP-802A and MEP-812A

74. TM 9-6115-641-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Generator Set, Tactical Quiet, 5kW, 60/400Hz, MEP-802A and MEP-812A
75. TM 9-6115-673-13&P Operator and Field Maintenance Manual (Including Repair Parts and Special Tools List) for 2kW Military Tactical Generator Sets, 120VAC, 60Hz, MEP-531A
76. TM 9-6115-730-24P Field and Sustainment Level Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 200kW, 50/60Hz, MEP-809A
77. ULSS 004295-15B User's Logistics Support Summary for Marine Corps Family of Tactical Quiet Generators (TQGs)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tactical Generator Set

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

1141-MANT-1324: Diagnose a MEPDIS-R malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MEPDIS-R is Power Distribution Panel, Mobile Electric Power Distribution System Replacement.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Ensure equipment is grounded.
6. Ensure any hazardous energy is controlled (Lockout/Tagout).
7. Check switches for correct settings.
8. Isolate faulty component(s).

9. Determine if component fault was caused by a defect elsewhere.
10. Determine echelon(s) of maintenance.
11. Document findings (complete LTI/update Service Request).
12. Order parts (if required).

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1010 1141-ADMN-1011
1141-MANT-1224

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SI 6110-OI/1 Warranty Procedures for Mobile Electric Power Distribution System Replacement
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures
7. TM 6110-OI/1 Operation/Maintenance Manual with Repair Parts List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Faulty Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R):
5kW Indoor [B0027]
5kW Outdoor [B0028]
15kW [B0029]
30kW [B0030]
100kW [B0031] - and/or –
300kW [B0032]

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1141-MANT-1424: Repair MEPDIS-R

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MEPDIS-R is Power Distribution Panel, Mobile Electric Power Distribution System Replacement.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 6110-OI/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded (or bonded to power source).
7. Ensure hazardous energy is controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1141-ADMN-1006
1141-ADMN-1008	1141-ADMN-1011	1141-MANT-1324

RELATED EVENTS: 1141-MANT-1224

REFERENCES:
1. FP 11183A Fielding Plan for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. SI 6110-OI/1 Warranty Procedures for Mobile Electric Power Distribution System Replacement
5. SL-3-6110 Components List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
6. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. TM 6110-OI/1 Operation/Maintenance Manual with Repair Parts List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Degraded/deadlined Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R):
5kW Indoor [B0027]
5kW Outdoor [B0028]
15kW [B0029]
30kW [B0030]

100kW [B0031] - and/or –
300kW [B0032]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1141-XENG-1601: Establish a grounding system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With electrical support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: So unit's mission is supported per the commander's intent and equipment and/or electrical system is grounded in accordance with MCRP 3-17.7K, National Electric Code (NEC) (NFPA 70), TM 9406-15 and equipment technical manuals.

PERFORMANCE STEPS:
1. Review electrical support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site.
6. Install grounding system.
7. Measure resistance to ground.
8. Record findings.
9. Analyze findings.
10. Make corrections (repeating as necessary).
11. Post safety/warning signs.
12. Camouflage system.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-XENG-1703

RELATED EVENTS:
1141-ADMN-1002 1141-XENG-1618 1141-XENG-1624

REFERENCES:
1. Appropriate Technical Manuals
2. FP 11390A Fielding Plan for Tool Kit, Intermediate Level Electrician's
3. FP 11509A Fielding Plan for Tool Kit, Lineman's Electrician
4. MCRP 3-17.6A Camouflage, Concealment, and Decoys
5. MCRP 3-17.7K Theater of Operations Electrical Systems
6. NEC (NFPA 70) National Electrical Code - by National Fire Protection

Association
7. SL-3-10069A Components List for Ohmmeter (Earth Ground Resistance Tester), Model R1L-C
8. SL-3-10139A Components List for Grounding Kit, MK-2551A/U
9. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit)(TK-1141/1)
10. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
11. TC 11-6 Grounding Techniques
12. TM 10069A-14 Operation and Maintenance Instructions with Illustrated Parts Breakdown for Ground Resistance Ohmmeter Model R1L-C
13. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
14. TM 11-5820-1118-13&P Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Grounding Kit, MK-2551A/U
15. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
16. TM 5-811-1 Electric Power Supply and Distribution
17. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Ohmmeter, Earth Ground Resistance Tester, Model R1L-C [A7059]
Earthmoving equipment (if required to prepare site)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Warning signs
Water (if needed)
Metal Plates (if needed)
Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) may be needed to prepare site.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system development.

1141-XENG-1618: Establish a generator site

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With electrical support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: So unit's mission is supported per the commander's intent and generators are set up in accordance with MCRP 3-17.7K and equipment technical manuals.

PERFORMANCE STEPS:
1. Review electrical support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site, making provisions for refueling.
6. Install spill containment.
7. Set up generator(s) and any accessories.
8. Ground generator(s).
9. Post safety/warning signs.
10. Camouflage site.
11. Provide for security.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1141-XENG-1601 1141-XENG-1624

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7K Theater of Operations Electrical Systems
4. MCRP 4-11B Environmental Considerations
5. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
6. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Forklift (with capacity to lift generator(s))
Earthmoving equipment (if required to prepare site)
Generator(s) (size and quantity designated by electrical support plan)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Spill containment materials

Warning signs

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site and move generator(s)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1141-XENG-1624: Install a tactical power distribution system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Due to the hazards involved, to both personnel and equipment, MEPDIS-R should only be installed by licensed (MOS 1141) Electricians.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With electrical support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: So unit's mission is supported per the commander's intent and distribution system is set up in accordance with MCRP 3-17.7K and equipment technical manuals.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review electrical support plan and Course of Action (COA).
3. Review references.
4. Reassess operational risk.
5. Don Personal Protective Equipment (PPE).
6. Prepare site(s) for distribution panel(s)/busbar(s).
7. Install distribution panel(s)/busbar(s).
8. Install distribution cables.
9. Ground distribution system.
10. Post safety/warning signs.
11. Test distribution system.
12. Camouflage distribution system.
13. Provide for security.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1141-XENG-1601 1141-XENG-1618

REFERENCES:
1. Appropriate Technical Manuals

2. FP 11390A Fielding Plan for Tool Kit, Intermediate Level Electrician's
3. FP 11418A Fielding Plan for the Climber's Set
4. FP 11509A Fielding Plan for Tool Kit, Lineman's Electrician
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7K Theater of Operations Electrical Systems
7. MCRP 4-11B Environmental Considerations
8. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1)
9. SL-3-11418A Components List for Climber's Set, Tree and Pole (TK-1141/C)
10. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
11. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
12. TM 6110-OI/1 Operation/Maintenance Manual with Repair Parts List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
13. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Forklift (with capacity to lift distribution panels)
Earthmoving equipment (if required to prepare site(s))
Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R):
5kW Indoor [B0027]
5kW Outdoor [B0028]
15kW [B0029]
30kW [B0030]
100kW [B0031] - and/or –
300kW [B0032]
(Sizes and quantities as designated by the electrical support plan.)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Warning signs
Busbar (if required by electrical support plan)
Conductors

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move distribution panels.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Graduates of the Basic Electrician Course (CID: M0311B2) are licensed to install and operate MEPDIS-R [B0027, B0028, B0029, B0030, B0031 and B0032]. They are also taught how to install (but not how to construct) a busbar. Only licensed Marines (MOS 1141) will install/operate MEPDIS-R. Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation.

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1141 electricians

to install and operate MEPDIS-R [B0027, B0028, B0029, B0030, B0031 and B0032].

1141-XENG-1692: Connect an electric motor

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment containing an electric motor, electrical power source, tools, and references.

STANDARD: So electric motor will power equipment in accordance with equipment manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Don Personal Protective Equipment (PPE).
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Wire motor to equipment.
6. Ensure motor is grounded.
7. Test motor operation.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-MANT-1101

RELATED EVENTS:
1141-XENG-1693 1142-MANT-1493

REFERENCES:
1. Appropriate Technical Manuals
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. MCRP 3-17.7K Theater of Operations Electrical Systems
4. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
5. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 2000-15/4 Power System Reference Manual
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)

Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Equipment with an electric motor

MATERIAL:
Wire
Connector(s)

OTHER SUPPORT REQUIREMENTS: Electrical power source

1141-XENG-1693: Connect electric motor control circuits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment containing an electric motor, electrical power source, tools, parts, and references.

STANDARD: So positive control of electric motor is established in accordance with equipment manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Don Personal Protective Equipment (PPE).
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Identify motor control function.
6. Determine motor voltage requirement.
7. Wire motor control.
8. Inspect wiring.
9. Test motor operation.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-MANT-1101

RELATED EVENTS:
1141-XENG-1692 1142-MANT-1493

REFERENCES:
1. Appropriate Technical Manuals
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. EMR Electric Motor Repair, Third Addition
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
6. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current

7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 2000-15/4 Power System Reference Manual
9. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Equipment with an electric motor
Electric motor control

MATERIAL:
Parts
Wire
Connector(s)

OTHER SUPPORT REQUIREMENTS: Electrical power source

1141-XENG-1703: Operate a ground resistance tester

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a grounding system, with established ground resistance parameters and references.

STANDARD: So resistance provided by grounding system is measured.

PERFORMANCE STEPS:
1. Review references and grounding parameters.
2. Perform pre-operation checks on tester.
3. Determine correct settings for the resistance tester.
4. Connect tester.
5. Test the ground.
6. Record findings.
7. Analyze findings.
8. Perform after operation checks on tester.

RELATED EVENTS: 1141-MANT-1101

REFERENCES:
1. SL-3-10069A Components List for Ohmmeter (Earth Ground Resistance Tester), Model R1L-C
2. SL-3-10139A Components List for Grounding Kit, MK-2551A/U
3. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
4. TC 11-6 Grounding Techniques

5. TM 10069A-14 Operation and Maintenance Instructions with Illustrated Parts Breakdown for Ground Resistance Ohmmeter Model R1L-C
6. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
7. TM 11-5820-1118-13&P Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Grounding Kit, MK-2551A/U
8. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
9. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Ohmmeter, Earth Ground Resistance Tester, Model R1L-C [A7059]

1141-XENG-1747: Operate a floodlight set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With electrical support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 11120A-OI, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk.
7. Don Personal Protective Equipment (PPE).
8. Place applicable environmental safeguards in place.
9. Set up floodlight set.
10. Post safety/warning signs.
11. Ensure equipment is grounded.
12. Perform before operation checks.
13. Start generator.
14. Illuminate designated area.
15. Perform during operation checks/services.
16. Maintain equipment logs.
17. Shut down equipment per operational situation.
18. Perform after operation checks.
19. Document equipment operation.

20. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1009 1141-MANT-1247 1141-XENG-1753

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. TM 11120A-OI Operation/Maintenance Manual with Repair Parts List for Floodlight Set (Model MLT5060MIT)
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Floodlight Set, Model MLT5060MIT [B0640]

MATERIAL:
Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the Model MLT5060MIT Floodlight Set [B0640]. All other operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a Model MLT5060MIT Floodlight Set [B0640].

1141-XENG-1751: Operate a 3kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, material, and references.

STANDARD: Per TM 10155A-OI/1A, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk, ensuring warning signs are posted.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Perform before operation checks, including all electrical power cable connections.
10. Start up generator.
11. Contact load.
12. Perform during operation checks/services.
13. Maintain equipment logs.
14. Shut down equipment per operational situation.
15. Perform after operation checks.
16. Document equipment operation.
17. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:

1141-ADMN-1009	1141-MANT-1251	1141-XENG-1752
1141-XENG-1753	1141-XENG-1754	1141-XENG-2755

REFERENCES:
1. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
2. SL-3-05926B/10155A Components List for Generator Set, Diesel Engine Driven, Skid Mounted, 3kW, 60Hz, MEP-016B/MEP-831A
3. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
4. TM 10155A-OI/1A Operator and Field Maintenance Manual (Including Repair Parts and Special Tools List) for 3kW Tactical Quiet Generator Set MEP-831A (60Hz) and MEP-832A (400Hz)
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-831A 3kW 60Hz Tactical Quiet Generator Set [B0730]

MATERIAL:
Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-831A 3kW 60Hz Tactical

Quiet Generator Set [B0730]. All other operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a MEP-831A 3kW 60Hz Tactical Quiet Generator Set [B0730].

1141-XENG-1752: Operate a 5kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, material, and references.

STANDARD: Per TM 9-6115-641-10 or TM 09292B-OI/1, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk, ensuring warning signs are posted.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Perform before operation checks, including all electrical power cable connections.
10. Start up generator.
11. Check switches/gauges for correct settings.
12. Contact load.
13. Perform during operation checks/services.
14. Maintain equipment logs.
15. Shut down equipment per operational situation.
16. Perform after operation checks.
17. Document equipment operation.
18. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-XENG-1618

RELATED EVENTS:

1141-ADMN-1009	1141-MANT-1251	1141-XENG-1751
1141-XENG-1753	1141-XENG-1754	1141-XENG-2755

REFERENCES:
1. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted

2. TM 09292B-OI/3 Operator's Manual for Generator Set, Skid Mounted 5kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1030 50/60Hz and MEP-1031 400Hz
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 9-6115-641-10 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 5kW, 60 and 400Hz, MEP-802A and MEP-812A

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-802A 5kW 60Hz Tactical Quiet Generator Set [B0077] - or –
MEP-1030 5kW 50/60Hz AMMPS Generator Set [B0077]

MATERIAL:
Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-1030 5kW 50/60Hz AMMPS Generator Set [B0077]. All other operators of the MEP-1030 will need to be licensed through an authorized licensing program in the Total Force. Graduates of the Basic Electrician Course (CID: M0311B2) ARE NOT licensed operators of the MEP-802A 5kW 60Hz Tactical Quiet Generator Set [B0077]. All operators of the MEP-802A will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a MEP-1030 5kW 50/60Hz AMMPS Generator Set [B0077] or a MEP-802A 5kW 60Hz Tactical Quiet Generator Set [B0077].

1141-XENG-1753: Operate a 10kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, material, and references.

STANDARD: Per TM 09247A/09248A-10/1 or TM 11783A/11784A-OI, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk, ensuring warning signs are posted.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Perform before operation checks, including all electrical power cable connections.
10. Start up generator.
11. Check switches/gauges for correct settings.
12. Contact load.
13. Perform during operation checks/services.
14. Maintain equipment logs.
15. Shut down equipment per operational situation.
16. Perform after operation checks.
17. Document equipment operation.
18. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-XENG-1618

RELATED EVENTS:
1141-ADMN-1009 1141-MANT-1251 1141-XENG-1747
1141-XENG-1751 1141-XENG-1752 1141-XENG-1754
1141-XENG-2755

REFERENCES:
1. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
2. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
3. TM 09247A/09248A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
4. TM 11783A/11784A-OI Operator's Manual for Generator Set, Skid Mounted 10kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1040 50/60Hz and MEP-1041 400Hz
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-803A 10kW 60Hz Tactical Quiet Generator Set [B0891] - or –
MEP-813A 10kW 400Hz Tactical Quiet Generator Set [B0921] - or –
MEP-1040 10kW 50/60Hz AMMPS Generator Set [B0891] - or –
MEP-1041 10kW 400Hz AMMPS Generator Set [B0921]

MATERIAL:
Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service

Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-803A 10kW 60Hz Tactical Quiet Generator Set [B0891], MEP-813A 10kW 400Hz Tactical Quiet Generator Set [B0921], MEP-1040 10kW 50/60Hz AMMPS Generator Set [B0891] and MEP-1041 10kW 400Hz AMMPS Generator Set [B0921]. All other operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a MEP-803A 10kW 60Hz Tactical Quiet Generator Set [B0891], MEP-813A 10kW 400Hz Tactical Quiet Generator Set [B0921], MEP-1040 10kW 50/60Hz AMMPS Generator Set [B0891] or MEP-1041 10kW 400Hz AMMPS Generator Set [B0921].

1141-XENG-1754: Operate a 15kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, material, and references.

STANDARD: Per TM 11773A-OI, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk, ensuring warning signs are posted.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Perform before operation checks, including all electrical power cable connections.
10. Start up generator.
11. Check switches/gauges for correct settings.
12. Contact load.
13. Perform during operation checks/services.
14. Maintain equipment logs.
15. Shut down equipment per operational situation.
16. Perform after operation checks.
17. Document equipment operation.
18. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-XENG-1618

RELATED EVENTS:
1141-ADMN-1009 1141-MANT-1251 1141-XENG-1751
1141-XENG-1752 1141-XENG-1753 1141-XENG-2755

REFERENCES:
1. TM 11773A-OI Operator's Manual for Generator Set, Skid Mounted 15kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1050 50/60Hz and MEP-1051 400Hz
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-1050 15kW 50/60Hz AMMPS Generator Set [B0043]

MATERIAL:
Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-1050 15kW 50/60Hz AMMPS Generator Set [B0043]. All other operators of the MEP-1050 will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a MEP-1050 15kW 50/60Hz AMMPS Generator Set [B0043].

1141-XENG-1757: Operate a 30kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, material, and references.

STANDARD: Per TM 09249A/09246A-10/1, TM 09249B/09246B-14/1 or TM 09246C/11776A-OI documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk, ensuring warning signs are posted.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Perform before operation checks, including all electrical power cable connections.
10. Start up generator.
11. Check switches/gauges for correct settings.
12. Contact load.
13. Perform during operation checks/services.
14. Maintain equipment logs.
15. Shut down equipment per operational situation.
16. Perform after operation checks.
17. Document equipment operation.
18. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-XENG-1618

RELATED EVENTS:

1141-ADMN-1009	1141-MANT-1251	1141-XENG-1751
1141-XENG-1752	1141-XENG-1753	1141-XENG-1754
1141-XENG-1763	1141-XENG-1765	1141-XENG-2737
1141-XENG-2755		

REFERENCES:
1. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
2. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
3. TM 09246C/11776A-OI Operator's Manual for Generator Set, Skid Mounted 30kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1060 50/60Hz and MEP-1061 400Hz
4. TM 09249A/09246A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805A/MEP-815A
5. TM 09249B/09246B-14/1 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400Hz, MEP-805B/MEP-815B
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-805A 30kW 60Hz Tactical Quiet Generator Set [B0953] - or –
MEP-815A 30kW 400Hz Tactical Quiet Generator Set [B0971] - or –
MEP-805B 30kW 60Hz Tactical Quiet Generator Set [B0953] - or –
MEP-815B 30kW 400Hz Tactical Quiet Generator Set [B0971] - or –

MEP-1060 30kW 50/60Hz AMMPS Generator Set [B0953] - or –
MEP-1061 30kW 400Hz AMMPS Generator Set [B0971]

MATERIAL:
Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-805B 30kW 60Hz Tactical Quiet Generator Set [B0953], MEP-815B 30kW 400Hz Tactical Quiet Generator Set [B0971], MEP-1060 30kW 50/60Hz AMMPS Generator Set [B0953] and MEP-1061 30kW 400Hz AMMPS Generator Set [B0971]. Graduates of the Basic Electrician Course (CID: M0311B2) ARE NOT licensed operators of the MEP-805A 30kW 60Hz Tactical Quiet Generator Set [B0953] or the MEP-815B 30kW 400Hz Tactical Quiet Generator Set [B0971]. They will need to be licensed on the MEP-805A and MEP-815A through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-805A 30kW 60Hz Tactical Quiet Generator Set [B0953], MEP-815A 30kW 400Hz Tactical Quiet Generator Set [B0971], MEP-805B 30kW 60Hz Tactical Quiet Generator Set [B0953], MEP-815B 30kW 400Hz Tactical Quiet Generator Set [B0971], MEP-1060 30kW 50/60Hz AMMPS Generator Set [B0953] or MEP-1061 30kW 400Hz AMMPS Generator Set [B0971].

1141-XENG-1763: Operate a 60kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, material, and references.

STANDARD: Per TM 09244A/09245A-10/1A, TM 09244B/09245B-14/1, or TM 09244C/09245C-OI, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk, ensuring warning signs are posted.
7. Don Personal Protective Equipment (PPE).

8. Ensure equipment is grounded.
9. Perform before operation checks, including all electrical power cable connections.
10. Start up generator.
11. Check switches/gauges for correct settings.
12. Contact load.
13. Perform during operation checks/services.
14. Maintain equipment logs.
15. Shut down equipment per operational situation.
16. Perform after operation checks.
17. Document equipment operation.
18. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-XENG-1618

RELATED EVENTS:

1141-ADMN-1009	1141-MANT-1251	1141-XENG-1751
1141-XENG-1752	1141-XENG-1753	1141-XENG-1754
1141-XENG-1757	1141-XENG-1765	1141-XENG-2737
1141-XENG-2755		

REFERENCES:

1. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
2. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
3. TM 09244A/09245A-10/1A Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, MEP-806A/MEP-816A
4. TM 09244B/09245B-14/1 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806B and MEP-816B
5. TM 09244C/09245C-OI Operator's Manual for Generator Set, Skid Mounted 60kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1070 50/60Hz and MEP-1071 400Hz
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-806A 60kW 60Hz Tactical Quiet Generator Set [B1021] - or –
MEP-816A 60kW 400Hz Tactical Quiet Generator Set [B1016] - or –
MEP-806B 60kW 60Hz Tactical Quiet Generator Set [B1021] - or –
MEP-816B 60kW 400Hz Tactical Quiet Generator Set [B1016] - or –
MEP-1070 60kW 50/60Hz AMMPS Generator Set [B1021] - or –
MEP-1071 60kW 400Hz AMMPS Generator Set [B1016]

MATERIAL:

Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-806B 60kW 60Hz Tactical Quiet Generator Set [B1021], MEP-816B 60kW 400Hz Tactical Quiet Generator Set [B1016], MEP-1070 60kW 50/60Hz AMMPS Generator Set [B1021] and MEP-1071 60kW 400Hz AMMPS Generator Set [B1016]. Graduates of the Basic Electrician Course (CID: M0311B2) ARE NOT licensed operators of the MEP-806A 60kW 60Hz Tactical Quiet Generator Set [B1021] or the MEP-816B 60kW 400Hz Tactical Quiet Generator Set [B1016]. They will need to be licensed on the MEP-806A and MEP-816A through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-806A 60kW 60Hz Tactical Quiet Generator Set [B1021], MEP-816A 60kW 400Hz Tactical Quiet Generator Set [B1016], MEP-806B 60kW 60Hz Tactical Quiet Generator Set [B1021], MEP-816B 60kW 400Hz Tactical Quiet Generator Set [B1016], MEP-1070 60kW 50/60Hz AMMPS Generator Set [B1021] or MEP-1071 60kW 400Hz AMMPS Generator Set [B1016].

1141-XENG-1765: Operate a 100kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, material, and references.

STANDARD: Per TM 07464B-12 or TM 07464C-10/1, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk, ensuring warning signs are posted.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Perform before operation checks, including all electrical power cable connections.
10. Start up generator.
11. Check switches/gauges for correct settings.
12. Contact load.
13. Perform during operation checks/services.
14. Maintain equipment logs.
15. Shut down equipment per operational situation.
16. Perform after operation checks.

17. Document equipment operation.
18. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-XENG-1618

RELATED EVENTS:
1141-ADMN-1009 1141-MANT-1251 1141-XENG-1751
1141-XENG-1752 1141-XENG-1753 1141-XENG-1754
1141-XENG-1757 1141-XENG-1763 1141-XENG-2737
1141-XENG-2755

REFERENCES:
1. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
2. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
3. TM 07464B-12 Operator and Organizational Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 100kW, 50/60Hz, 3 Phase, 4 Wire, MEP-007B
4. TM 07464C-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-007B 100kW 50/60Hz Tactical Generator Set [B1045] - or –
MEP-807A 100kW 50/60Hz Tactical Quiet Generator Set [B1045]

MATERIAL:
Electrical support plan
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-807A 100kW 50/60Hz Tactical Quiet Generator Set [B1045]. Graduates of the Basic Electrician Course (CID: M0311B2) ARE NOT licensed operators of the MEP-007B 100kW 50/60Hz Tactical Generator Set [B1045]. They will need to be licensed on the MEP-007B through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-007B 100kW 50/60Hz Tactical Generator Set [B1045] or MEP-807A 100kW 50/60Hz Tactical Quiet Generator Set [B1045].

1141-XENG-1795: Parallel tactical generator sets

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NOTE: Due to the hazards involved, to both personnel and equipment, tactical generators should only be placed in parallel by licensed (MOS 1141) Electricians or qualified (MOS 1142) Engineer Equipment Electrical Systems Technicians.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established generator site, with electrical support plan, equipment, tools, paralleling cable, conductors, overcurrent protection, and references.

STANDARD: So generators are synchronized and sharing the electrical load in support of unit's mission and commander's intent.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review electrical support plan.
5. Review references.
6. Reassess operational risk.
7. Don Personal Protective Equipment (PPE).
8. Ensure generators are grounded.
9. Perform before operation checks on generators.
10. Connect generators with paralleling cable and conductors through overcurrent protection.
11. Ensure all load/voltage requirements are observed.
12. Synchronize generators.
13. Contact load.
14. Make necessary adjustments.
15. Perform during operation checks/services.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1141-XENG-1752
1141-XENG-1753	1141-XENG-1754	1141-XENG-1757
1141-XENG-1763	1141-XENG-1765	

RELATED EVENTS: 1142-MANT-1195

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Overcurrent protection (MEPDIS/MEPDIS-R preferred if available)
Tactical generator sets (sizes designated by electrical support plan)

MATERIAL:
Electrical support plan
Paralleling cable
Conductors
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Graduates of the Basic Electrician Course (CID: M0311B2) are trained and qualified to parallel generators.
Only trained/qualified Marines (MOS 1141 & 1142) will parallel generators.

SPECIAL PERSONNEL CERTS: Due to the hazards involved, to both personnel and equipment, tactical generators should only be placed in parallel by licensed (MOS 1141) Electricians or qualified (MOS 1142) Engineer Equipment Electrical Systems Technicians.

1141-XENG-1961: Install an interior electrical wiring system in a permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure requiring electrical work, with an interior electrical plan, a Bill of Materials (BOM), tools, and references.

STANDARD: So structure is wired per the interior electrical plan.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Bill of Materials (BOM).
3. Inventory BOM.
4. Review references.
5. Review electrical plan.
6. Assess risks (ORM).
7. Don Personal Protective Equipment (PPE).
8. Run wiring.
9. Install electrical devices.
10. Inspect wiring.
11. Test the electrical wiring system.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:

1141-ADMN-1002	1141-MANT-1101	1141-XENG-1692
1141-XENG-1693	1141-XENG-2603	

REFERENCES:

1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit)(TK-1141/1)
4. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 5-704 Construction Print Reading in the Field
7. TM 5-811-1 Electric Power Supply and Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

1141-XENG-1962: Repair the interior electrical wiring system of a permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure with a faulty electrical system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Review the repairs to be made.
3. Review references.
4. Determine code requirements.
5. Identify risks (ORM).
6. Don Personal Protective Equipment (PPE).
7. Isolate repair area (Lockout/Tagout).
8. Remove broken/damaged materials.
9. Make repairs.
10. Test repairs.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-MANT-1101

RELATED EVENTS:
1141-XENG-1692 1141-XENG-1693 1141-XENG-2603

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit)(TK-1141/1)
4. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

8004. 2000-LEVEL EVENTS

1141-ADMN-2021: Apply safety programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place and enforced.

PERFORMANCE STEPS:
1. Review references.
2. Identify equipment safety requirements.
3. Identify personnel safety requirements.
4. Conduct Operational Risk Assessments.
5. Implement safety procedures.
6. Conduct safety awareness training.
7. Evaluate safety programs.
8. Enforce safety regulations.
9. Provide input for/submit required reports.

PREREQUISITE EVENTS:

1141-ADMN-1001 1141-ADMN-1002

RELATED EVENTS:
1142-ADMN-2021 1161-ADMN-2021 1171-ADMN-2021

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO 5100.19_ Marine Corps Traffic Safety Program (Drivesafe)
4. MCO 5100.29_ Marine Corps Safety Program
5. MCO 5100.30_ Marine Corps Recreation and Off-Duty Safety (RODS) Program
6. MCO 5100.34_ Deadline Safety of Use Message Instructions to Suspend Operations of Marine Corps Ground Equipment and Weapons Systems and Safety of Use Alerts
7. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
8. MCO 5104.2_ Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program
9. MCO 5104.3_ Marine Corps Radiation Safety Program
10. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
11. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
12. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
13. UNIT SOP Unit's Standing Operating Procedures

1141-ADMN-2022: Apply environmental regulations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references.

STANDARD: So environmental policies and procedures will be adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Verify section's compliance with applicable environmental regulations and restrictions.
3. Monitor platoon/section hazardous material disposal program.
4. Maintain hazardous materials storage areas.
5. Maintain Material Safety Data Sheets (MSDS).
6. Report any situations that require reporting.

PREREQUISITE EVENTS: 1141-ADMN-1004

RELATED EVENTS:
1142-ADMN-2022 1161-ADMN-2022 1171-ADMN-2022

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations
5. OPNAVINST 5090.1_ Environmental Readiness Program Manual

1141-ADMN-2023: Conduct MOS training

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MOS is Military Occupational Specialty.

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Identify individual training requirements (review T&R Manual and MOS Roadmaps).
3. Identify unit training requirements (review unit METL/Commander's intent).
4. Determine on the job and sustainment training requirements by grade and MOS.
5. Develop lesson plans.
6. Develop training methods/aids/materials (as required).
7. Conduct training.
8. Document training.
9. Encourage use of self-directed study and assist in providing resources.

RELATED EVENTS:
1142-ADMN-2023 1161-ADMN-2023 1171-ADMN-2023

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCO 1553.4_ Professional Military Education (PME)
3. MCO 3500.26_ Universal Naval Task List (UNTL) Version 3.0
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 1553.1_ Systems Approach to Training (SAT) Users Guide
7. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
8. OPNAVINST 1560.10_ Administration of the United Services Military Apprenticeship Program (USMAP)
9. UNIT SOP Unit's Standing Operating Procedures

1141-ADMN-2031: Brief electrical safety to end users

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a field electrical power generation and distribution system plan, sample warning signs, and references.

STANDARD: So "Off Limit" areas, meanings of warning signs, prohibited electrical equipment and reasons, prohibited practices, emergency procedures, and unsafe conditions are identified and addressed.

PERFORMANCE STEPS:
1. Review electrical system plan and references.
2. Identify prohibited electrical equipment.
3. Identify prohibited practices.
4. Identify unsafe conditions.
5. Identify "Off Limit" areas.
6. Identify emergency procedures.
7. Assemble briefing notes and materials.
8. Deliver brief.
9. Supervise electrical safety compliance.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1141-ADMN-1003 1169-ADMN-2031

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. ATTP 5-0.1 Commander and Staff Officer Guide
5. MCO 3500.27_ Operational Risk Management (ORM)
6. MCRP 3-17.7K Theater of Operations Electrical Systems
7. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
8. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
9. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment

SUPPORT REQUIREMENTS:

MATERIAL: Sample warning signs.

1141-ADMN-2032: Conduct a pole top rescue

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Without references and with a lineman's tool kit and rope.

STANDARD: So injured person is lowered to the ground without further injury.

PERFORMANCE STEPS:
1. Evaluate the situation.
2. Send for help.
3. Provide personal protection.
4. Climb to the rescue position (with rescue rope).
5. Evaluate the victim's condition.
6. Tie rescue rope to victim.
7. Lower victim to the ground.
8. Start artificial resuscitation (if necessary).
9. Remain with victim until medical help arrives.
10. Report incident.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-XENG-2694

RELATED EVENTS: 1141-ADMN-1003

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCRP 3-02G First Aid
3. MCRP 3-17.7K Theater of Operations Electrical Systems

SUPPORT REQUIREMENTS:

EQUIPMENT: Tool Kit, Lineman's Electrician (TK-1141) [B0062]

MATERIAL: Ropes

1141-ADMN-2041: Initiate a PQDR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PQDR is Product Quality Deficiency Report (SF 368).

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a defective item, blank forms, and references.

STANDARD: So deficiency can be identified.

PERFORMANCE STEPS:
1. Review references.
2. Collect data.
3. Verify deficiency requires a PQDR.
4. Determine if deficiency is Category I or Category II.
5. Establish exhibit controls using DD Forms 1575 and 2332 (if required).
6. Complete PQDR.
7. Submit PQDR per Unit SOP.

RELATED EVENTS:
1142-ADMN-2041 1161-ADMN-2041 1171-ADMN-2041

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
DD Form 1575 (Suspended Tag - Materiel)
DD Form 2332 (Product Quality Deficiency Report Exhibit)
SF 368 (Product Quality Deficiency Report [PQDR])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information for this event can be found at http//www.logcom.usmc.mil/pqdr.

1141-ADMN-2051: Establish equipment preventive maintenance schedule

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, forms, and references.

STANDARD: So operational readiness of equipment is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit equipment records.

4. Complete PMCS roster (NAVMC 10561).

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1011

RELATED EVENTS:
1142-ADMN-2051 1161-ADMN-2051 1171-ADMN-2051

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 4-11.4 Maintenance Operations
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)
Equipment records

1141-ADMN-2061: Maintain PEB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PEB is Pre-Expended Bin.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With commander's pre-expended bin authorization and references.

STANDARD: So common, low-cost, high usage parts are continuously available for immediate maintenance/repair of equipment.

PERFORMANCE STEPS:
1. Review references.
2. Identify criteria for items placed in PEB.
3. Validate authorized PEB listing, ensuring it is signed annually by the commander.
4. Identify accountability requirements.
5. Requisition replacement parts, as required.
6. Roll back/dispose excess items.

RELATED EVENTS:
1141-ADMN-2062 1142-ADMN-2061 1161-ADMN-2061
1171-ADMN-2061

REFERENCES:
1. Appropriate Technical Manuals

2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1141-ADMN-2062: Maintain equipment repair parts bins

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With forms and references.

STANDARD: So parts are kept in appropriate bin (layette) until maintenance/repair of specified equipment is accomplished.

PERFORMANCE STEPS:
1. Review references.
2. Receive repair parts, placing repair parts in appropriate bin.
3. Update Service Request (SR).
4. Take corrective action if repair parts do not match requisitions.
5. Inventory bin every 2 weeks.
6. Issue repair parts when all are received, updating SR per unit's SOP.
7. Debrief task in GCSS-MC.

RELATED EVENTS:
1141-ADMN-2061 1142-ADMN-2062 1161-ADMN-2062
1171-ADMN-2062

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
Storage bins
Forms

1141-ADMN-2071: Monitor maintenance management reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With access to Global Combat Support System-Marine Corps (GCSS-MC), maintenance management reports, supporting documentation, and references.

STANDARD: So accuracy of maintenance management reports is validated and unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Obtain current Maintenance Process Report (MPR).
2. Review references.
3. Review supporting documentation (equipment records).
4. Review MPR maintenance cycle times.
5. Validate daily maintenance reports.
6. Validate weekly maintenance reports.
7. Validate readiness reports.
8. Identify "exceptions."
9. Determine actions (if any) to correct "exceptions."
10. Make corrections (if any) to Service Requests (SR).
11. Debrief SRs.

PREREQUISITE EVENTS:

1141-ADMN-1006	1141-ADMN-1007	1141-ADMN-1008
1141-ADMN-1009	1141-ADMN-1010	1141-ADMN-1011

RELATED EVENTS:

1141-ADMN-2061	1141-ADMN-2062	1141-ADMN-2072
1142-ADMN-2071	1161-ADMN-2071	1171-ADMN-2071

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Maintenance Process Report (MPR)

1141-ADMN-2072: Monitor maintenance related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment records, and references.

STANDARD: So unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Review references.
2. Determine unit's maintenance program requirements.
3. Inspect equipment.
4. Monitor Modification Control program.
5. Monitor Calibration Control program.
6. Monitor New Equipment Warranty program.
7. Monitor Quality Deficiency (QDR) program.
8. Monitor Recoverable Items (WIR) program.
9. Monitor Quality Control (QC) program.
10. Monitor Corrosion Prevention and Control (CPAC) program.
11. Ensure program and equipment records are maintained.

RELATED EVENTS:

1141-ADMN-2041	1141-ADMN-2051	1141-ADMN-2071
1141-ADMN-2073	1142-ADMN-2072	1161-ADMN-2072
1169-ADMN-2072	1171-ADMN-2072	

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4400.194_ Marine Corps Class VII Stock Rotation Policy
3. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
4. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4400.82_ Regulated/Controlled Item Management Manual
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
9. TM 4700-15/1_ Ground Equipment Record Procedures
10. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
11. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Some programs listed above may not be required at all units.

1141-ADMN-2073: Inspect maintenance actions (quality control)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Quality Control NCO

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With repaired equipment, equipment records and references.

STANDARD: So equipment repairs and documentation are certified complete.

PERFORMANCE STEPS:
1. Review references.
2. Review Service Request (SR).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1008

RELATED EVENTS:
1141-ADMN-1009 1141-ADMN-1011 1142-ADMN-2073
1161-ADMN-2073 1171-ADMN-2073

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

OTHER SUPPORT REQUIREMENTS: Access to Global Combat Support System-Marine Corps (GCSS-MC)

1141-MANT-2191: Comply with a Modification Instruction (MI)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on effected equipment, the effected equipment, a Modification Instruction (MI), parts, tools, forms, and references.

STANDARD: Per the MI and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review MI.
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE) (if required).
6. Apply modification.
7. Test modification.
8. Document modification.

PREREQUISITE EVENTS: 1141-ADMN-1006

RELATED EVENTS:

1141-ADMN-1008	1141-ADMN-1010	1141-ADMN-1011
1142-MANT-2191	1161-MANT-2191	1171-MANT-2191

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Electrical equipment being modified

MATERIAL:
Modification Instruction (MI)
Parts (if required)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1141-MANT-2199: Mount/dismount a generator set on a trailer

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a generator set, trailer, personnel, forklift or crane and

operator, tools, and references.

STANDARD: So trailer can be safely transported/towed in support of unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Assess operational risk.
3. Don Personal Protective Equipment (PPE).
4. Prepare equipment.
5. Lift generator set on to trailer.
6. Fasten generator set to trailer.
7. Reverse procedure to dismount generator set.

RELATED EVENTS: 1142-MANT-2199

REFERENCES:
1. Appropriate Technical Manuals
2. MI 6115-24/24D Trailer Mounting of 10kW, MEP-003A, MEP-112A, MEP-803A, MEP-813A Generators on M116A2/3 Series Trailer
3. MI 6115-OI/25C Trailer Mounting of 3kW, MEP-831A Generators on M116A2/3 Series Trailer
4. MI 6115-OR/26A Trailer Mounting of Tactical Quiet Generators (TQG), 60 Kilowatt 60 Hertz (MEP-806A/B) or 60 Kilowatt 400 Hertz (MEP-816A/B) on M353 Trailer
5. MI 6115-OR/27A Trailer Mounting of Tactical Quiet Generators (TQG), 30 Kilowatt 60 Hertz (MEP-805A/B) or 30 Kilowatt 400 Hertz (MEP-815A/B) on M353 Trailer

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Forklift or crane (with capacity to lift generator)
Generator
Trailer

MATERIAL: Fasteners to hold generator on trailer

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to operate forklift or crane
Personnel (any MOS) to help place generator

1141-MANT-2218: Perform scheduled PMCS on an ITEG generator

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services. ITEG is Integrated Trailer/ECU/Generator. ECU is Environmental Control Unit.

BILLETS: Electrician
GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, personnel, material, and references.

STANDARD: So equipment is checked and serviced per TM 11490A-OR and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review equipment technical manuals.
5. Review Service Request (SR).
6. Don Personal Protective Equipment (PPE).
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.
10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-ADMN-1011

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1008

REFERENCES:
1. FP 11490A Fielding Plan for Integrated Trailer Environmental Control Unit & Generator (ITEG)
2. SI 11490A-OI Warranty Procedures for the Integrated Trailer-ECU-Generator
3. SL-3-11490A Components List for Integrated Trailer, Environmental Control Unit, Generator (ITEG)
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from a Refrigeration and Air Conditioning Technician (MOS 1161) is required for PMCS on the ECU portion of the ITEG.

1141-MANT-2244: Perform scheduled PMCS on MEPDIS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services. MEPDIS is Power Distribution Panel, Power Distribution System.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, personnel, tools, forms, and references.

STANDARD: So equipment is checked/serviced per TM 09124A/09125A/09127A-14/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manuals.
3. Review Service Request (SR).
4. Don Personal Protective Equipment (PPE).
5. Connect generator.
6. Contain (Lockout/Tagout) hazardous energy.
7. Inspect equipment.
8. Service equipment.
9. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-ADMN-1011

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1008

REFERENCES:
1. SL-3-09124A/09125A/09127A Components List for Power Distribution System, Models PD-100, PD-030, and PD-015
2. SL-4-09124A/09125A/09127A Repair Parts for Power Distribution System, Models PD-100, PD-030, and PD-015
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 09124A/09125A/09127A-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models PD-100, PD-030, & PD-015
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Power Distribution Panel, Power Distribution System (MEPDIS):
15kW PD-015 [B0595]
30kW PD-030 [B0600] - and/or –
100kW PD-100 [B0605]
Generator

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

1141-MANT-2254: Perform scheduled PMCS on a MMG-25 20kW, 60Hz Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 11125A-OI and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review equipment technical manuals.
5. Review Service Request (SR).
6. Don Personal Protective Equipment (PPE).
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.
10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006
1141-ADMN-1011

RELATED EVENTS:

1141-ADMN-1007 1141-ADMN-1008

REFERENCES:
1. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
2. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
3. TM 11125A-OI/A Operation/Maintenance Manual with Repair Parts List for Generator Set, Diesel Engine (Model MMG25)
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MMG-25 20kW, 60Hz Generator Set [B0930]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

1141-MANT-2332: Diagnose a CBL electrical malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

DESCRIPTION: A CBL is a Containerized Batch Laundry Unit.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 120/208VAC 60Hz electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check switches for correct settings.

9. Isolate fault from breaker box to washer/dryer.
10. Determine if component fault was caused by a defect elsewhere.
11. Determine echelon(s) of maintenance.
12. Document findings (complete LTI/update Service Request).
13. Order parts (if required).

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1010 1141-ADMN-1011

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
6. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Faulty Containerized Batch Laundry (CBL) Unit [B0066] or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 60Hz electrical power source (normally a 100kW MEP-807A Tactical Quiet Generator)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142) may be required to fully diagnose an electrical system malfunction. Assistance from a Water Support Technician (MOS 1171) may be required to check switches for correct settings.

1141-MANT-2344: Diagnose a MEPDIS malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MEPDIS is a Power Distribution Panel, Power Distribution System

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Ensure equipment is grounded.
6. Ensure any hazardous energy is controlled (Lockout/Tagout).
7. Check switches for correct settings.
8. Isolate faulty component(s).
9. Determine if component fault was caused by a defect elsewhere.
10. Determine echelon(s) of maintenance.
11. Document findings (complete LTI/update Service Request).
12. Order parts (if required).

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1010 1141-ADMN-1011
1141-MANT-2244

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SL-4-09124A/09125A/09127A Repair Parts for Power Distribution System, Models PD-100, PD-030, and PD-015
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 09124A/09125A/09127A-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models PD-100, PD-030, & PD-015
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Faulty Power Distribution Panel, Power Distribution System (MEPDIS):
15kW PD-015 [B0595]
30kW PD-030 [B0600] - and/or –
100kW PD-100 [B0605]

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical

Inspection for Engineer Equipment [LTI])

1141-MANT-2402: Repair a general supply equipment electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in equipment's technical manuals and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Supply Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area (s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1141-ADMN-1006
1141-ADMN-1008	1141-ADMN-1011	

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Degraded/deadlined piece of general supply equipment

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1141-MANT-2444: Repair MEPDIS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MEPDIS is Power Distribution Panel, Power Distribution System.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 09124A/09125A/09127A-14/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1141-ADMN-1006
1141-ADMN-1008	1141-ADMN-1011	1141-MANT-2344

RELATED EVENTS: 1141-MANT-2244

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SL-3-09124A/09125A/09127A Components List for Power Distribution System, Models PD-100, PD-030, and PD-015
4. SL-4-09124A/09125A/09127A Repair Parts for Power Distribution System, Models PD-100, PD-030, and PD-015

5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 09124A/09125A/09127A-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models PD-100, PD-030, & PD-015
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Degraded/deadlined Power Distribution Panel, Power Distribution System (MEPDIS):
15kW PD-015 [B0595]
30kW PD-030 [B0600] - and/or –
100kW PD-100 [B0605]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1141-XENG-2501: Determine electrical support requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order, area map, equipment, materials, forms, and references.

STANDARD: So designated equipment and personnel will be supported.

PERFORMANCE STEPS:
1. Review warning order and references.
2. Plan movement to possible electrical support site(s).
3. Move to a possible electrical support site.
4. Complete Identification Data on Electricity Smartcard.
5. Record site conditions on Electricity Smartcard.
6. Sketch proposed site layout on Electricity Smartcard.
7. Photograph site.
8. Verify completeness of smartcards.
9. Move to next possible source (repeating steps 3 through 9 as required).
10. Return from reconnaissance.
11. Identify equipment/personnel requiring electrical support.
12. Determine support requirements.
13. Submit initial list of estimated electrical equipment/personnel required to support requirements of warning order.

RELATED EVENTS:
1141-ADMN-2022 1141-ADMN-2031 1141-XENG-2623

REFERENCES:
1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. MCRP 3-17.7K Theater of Operations Electrical Systems
4. MCRP 3-17B Engineer Forms and Reports
5. MCRP 4-11.8A Marine Corps Field Feeding Program
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 5-1 Marine Corps Planning Process (MCPP)
8. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
9. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
10. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
11. TM 5-811-1 Electric Power Supply and Distribution
12. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection

SUPPORT REQUIREMENTS:

EQUIPMENT:
Compass [K4222]
Camera
Calculator
Multimeter [H7030]
Tape measure

MATERIAL:
Area topographical map(s)
Electricity Smartcard (Figure C-4 of MCWP 3-17.4)
Pens/pencils

OTHER SUPPORT REQUIREMENTS: Transportation (by vehicle or aircraft) will be required for access to prospective electrical support site(s).

1141-XENG-2521: Develop a field electrical support plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with electrical power generation and distribution drawn on camp layout(s) and a Course of

Action (COA) established; and input provided for Annex D of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring electrical support.
3. Determine electrical power generation/distribution equipment requirements, selecting equipment sites.
4. Determine environmental impacts.
5. Plot generation sites on camp layout(s), making provision for traffic.
6. Identify potential impact of weather/climate on electrical power generation/distribution operations.
7. Determine risks, conducting operational risk assessments.
8. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
9. Determine number and type of warning signs required.
10. Schedule Preventive Maintenance Checks and Services (PMCS).
11. Determine POL requirements.
12. Determine camouflage, concealment, and decoy requirements.
13. Determine security requirements.
14. Estimate man-hour requirements, determining number of electricians required to support the mission.
15. Establish operator schedules.
16. Estimate logistical support (truck, forklift, etc.) required.
17. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
18. Generate work request(s) for any required construction.
19. Establish a Course of Action (COA).
20. Record requirements for input into Annex D of the Operation Order.
21. Brief electrical support plan (if required).

PREREQUISITE EVENTS: 1141-XENG-2501

RELATED EVENTS:

1141-XENG-1601	1141-XENG-1618	1141-XENG-1624
1141-XENG-2621	1141-XENG-2623	1141-XENG-2721
1141-XENG-2821		

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. ATTP 5-0.1 Commander and Staff Officer Guide
5. FMFM 7-29 Mountain Operations
6. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
7. MCO 3500.27_ Operational Risk Management (ORM)
8. MCRP 3-17.6A Camouflage, Concealment, and Decoys
9. MCRP 3-17.7F Project Management

10. MCRP 3-17.7K Theater of Operations Electrical Systems
11. MCRP 3-17.7N Base Camps
12. MCRP 3-17B Engineer Forms and Reports
13. MCRP 3-35.1D Cold Region Operations
14. MCRP 4-11.8A Marine Corps Field Feeding Program
15. MCRP 4-11B Environmental Considerations
16. MCRP 5-12A Operational Terms and Graphics
17. MCWP 3-17 Engineering Operations
18. MCWP 3-17.4 Engineer Reconnaissance
19. MCWP 3-17.7 General Engineering
20. MCWP 3-35.5 Jungle Operations
21. MCWP 3-35.6 Desert Operations
22. MCWP 3-41.1 Rear Area Operations
23. MCWP 4-1 Logistics Operations
24. MCWP 4-11 Tactical-Level Logistics
25. MCWP 4-11.5 SeaBee Operations in the MAGTF
26. MCWP 5-1 Marine Corps Planning Process (MCPP)
27. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
28. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
29. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
30. TM 5-811-1 Electric Power Supply and Distribution
31. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
32. TM 5-811-7 Electrical Design, Cathodic Protection
33. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Electric Smartcards (Figure C-4 of MCWP 3-17.4)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

1141-XENG-2561: Design an interior electrical wiring system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With construction plans for a structure, a list of electrical fixtures/appliances to be installed, local code requirements, and references.

STANDARD: Per the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Review construction plans, local code and references.
2. Review list of electrical fixtures/appliances to be installed.
3. Calculate general lighting load.
4. Identify power requirements.
5. Determine code requirements.
6. Size branch circuits.
7. Size over current protection devices.
8. Plot electrical symbols on construction plans.
9. Ensure interior electrical wiring system plan conforms to references and the building's requirements.
10. Establish a Bill of Materials (BOM), including safety items.
11. Establish a Course of Action (COA).

RELATED EVENTS:

1141-XENG-1961	1141-XENG-2501	1141-XENG-2521
1141-XENG-2623	1141-XENG-2963	1141-XENG-2964
1141-XENG-2965		

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 5-553 General Drafting
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. MCRP 3-17.7M Construction Estimating
6. MCWP 5-1 Marine Corps Planning Process (MCPP)
7. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
8. TM 5-704 Construction Print Reading in the Field
9. TM 5-811-1 Electric Power Supply and Distribution
10. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
11. TM 5-811-7 Electrical Design, Cathodic Protection

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans

1141-XENG-2602: Construct a field expedient electrical distribution panel

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

DESCRIPTION: Due to the hazards involved, to both personnel and equipment, a field expedient electrical distribution panel should only be constructed by qualified personnel based on a design from a Utilities Officer or Utilities Chief approved by the commander.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a field electrical support plan, a field expedient

electrical distribution panel design approved by the commander, equipment, material, and references.

STANDARD: So unit's mission is supported per the commander's intent and finished field expedient distribution panel complies with all safety considerations in the design.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review electrical distribution panel design and approved risk assessment.
3. Review Bill of Materials (BOM).
4. Review references.
5. Reassess operational risk.
6. Don Personal Protective Equipment (PPE).
7. Prepare site(s) for distribution panel
8. Assemble panel, testing connections.
9. Install distribution cables.
10. Ground the panel.
11. Install safety signs and barriers.
12. Inspect/test (ring out) the panel.
13. Report any safety concerns.

PREREQUISITE EVENTS:

1120-XENG-2522	1141-ADMN-1001	1141-MANT-1101
1141-XENG-1601	1141-XENG-1618	1141-XENG-1703
1169-XENG-2522		

RELATED EVENTS: 1141-XENG-1624

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. TC 11-6 Grounding Techniques
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
5. TM 5-704 Construction Print Reading in the Field
6. TM 5-811-1 Electric Power Supply and Distribution
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]
Earthmoving equipment (if required to prepare site(s))

MATERIAL:
Electrical support plan with established Course of Action (COA)
Approved field expedient electrical distribution panel design
Bill of Materials (BOM)
Warning signs

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Due to the hazards involved, to both personnel and equipment, a field expedient electrical distribution panel should only be constructed by qualified personnel based on a design from a Utilities Officer or Utilities Chief approved by the commander.

1141-XENG-2603: Splice a field wire connection

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, material, and references.

STANDARD: So electrical continuity is established with tensile strength required by the application.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Determine type of splice required.
4. Don Personal Protective Equipment (PPE).
5. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
6. Strip wire(s).
7. Construct splice.
8. Test splice.
9. Insulate bare wires (if required by application).

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002

RELATED EVENTS:
1141-XENG-1961 1141-XENG-1962 1142-MANT-1108
1161-MANT-1108

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
3. TM 2000-15/4 Power System Reference Manual
4. TM 5-811-1 Electric Power Supply and Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]

MATERIAL:
Wire
Connector(s) (if required)
Electrical tape (if required)

1141-XENG-2621: Direct field electrical power generation/distribution system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, electrical support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, electrical support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Supervise electrical power generation equipment installation.
7. Supervise electrical power distribution system installation.
8. Inspect installed field electrical power generation/distribution system.
9. Inspect equipment/system grounding.
10. Correct discrepancies.

PREREQUISITE EVENTS: 1141-XENG-2521

RELATED EVENTS:

1141-XENG-1601	1141-XENG-1618	1141-XENG-1624
1141-XENG-1795	1141-XENG-2602	1141-XENG-2603
1141-XENG-2622	1141-XENG-2623	1141-XENG-2694
1141-XENG-2695	1141-XENG-2696	1141-XENG-2721
1141-XENG-2821		

REFERENCES:
1. Appropriate Technical Manuals
2. FM 3-34.480 Engineer Prime Power Operations
3. MCRP 3-17.6A Camouflage, Concealment, and Decoys
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7K Theater of Operations Electrical Systems
6. MCRP 3-17.7N Base Camps
7. MCRP 4-11B Environmental Considerations
8. MCWP 4-11.5 Seabee Operations in the MAGTF

9. TM 5-811-1 Electric Power Supply and Distribution
10. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Forklift (with capacity to lift generators and distribution panels)
Earthmoving equipment (if required to prepare site(s))
Generator(s) (size and quantity designated by electrical support plan)
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R):
5kW Indoor [B0027]
5kW Outdoor [B0028]
15kW [B0029]
30kW [B0030]
100kW [B0031] - and/or –
300kW [B0032]
(Sizes and quantities as designated by the electrical support plan)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Spill containment materials
Warning signs
Water (if needed)
Metal Plates (if needed)
Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Only licensed Marines (MOS 1141) will install/operate MEPDIS-R Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1141 electricians to install and operate MEPDIS-R [B0027, B0028, B0029, B0030, B0031 and

B0032].

1141-XENG-2622: Monitor ground test set measurements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a site supported by an established electrical power generation and distribution system, with a ground test set, test set measurements, and references.

STANDARD: So a safe ground for supported personnel and equipment is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Determine grounding electrode/system resistance (ohms) to ground requirements for electrical equipment/system.
3. Review ground test set measurement reports.
4. Identify potential impact of weather (humidity/temperature) on grounding system.
5. Direct improvements/upgrades to grounding system as necessary.

RELATED EVENTS:
1141-XENG-1601 1141-XENG-1703 1141-XENG-2623
1141-XENG-2721

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. MCRP 3-17.7K Theater of Operations Electrical Systems
4. MCRP 4-11B Environmental Considerations
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
6. SL-3-10069A Components List for Ohmmeter (Earth Ground Resistance Tester), Model R1L-C
7. SL-3-10139A Components List for Grounding Kit, MK-2551A/U
8. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
9. TC 11-6 Grounding Techniques
10. TM 10069A-14 Operation and Maintenance Instructions with Illustrated Parts Breakdown for Ground Resistance Ohmmeter Model R1L-C
11. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
12. TM 11-5820-1118-13&P Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Grounding Kit, MK-2551A/U
13. TM 5-690 Grounding and Bonding in Command, Control, Communications,

Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
14. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Ohmmeter, Earth Ground Resistance Tester, Model R1L-C [A7059]

MATERIAL:
Water (if needed)
Metal Plates (if needed)
Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

1141-XENG-2623: Balance an electrical load

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a field electrical power generation and distribution system, system plans, a requirement for additional load(s), and references.

STANDARD: So electrical power generation and distribution system is balanced to within 10% of connected load.

PERFORMANCE STEPS:
1. Review system plan.
2. Examine distribution system to determine power consumption of phases and components.
3. Ensure power is measured accurately on all phases.
4. Ensure calculation of percent of unbalance is correct.
5. Examine plan for redistribution of load(s).
6. Ensure power is measured accurately on all phases after redistribution.
7. Ensure calculation of percent of balance is correct after redistribution.

RELATED EVENTS:

1141-XENG-1601	1141-XENG-1618	1141-XENG-1624
1141-XENG-2501	1141-XENG-2521	1141-XENG-2561
1141-XENG-2621	1141-XENG-2622	

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
4. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
5. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
6. TM 5-811-1 Electric Power Supply and Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]

MATERIAL: Electrical support plan

1141-XENG-2694: Climb a pole/tree

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a requirement to establish an overhead electrical power distribution system, equipment, material, and references.

STANDARD: To the height designated for the distribution system, circumnavigating the pole/tree 360 degrees (as necessary) while installing overhead distribution equipment/wiring, and descending.

PERFORMANCE STEPS:
1. Inspect pole/tree.
2. Put on required equipment.
3. Climb pole/tree.
4. Belt in.
5. Perform required work (circumnavigating pole/tree as necessary).
6. Unbelt.
7. Descend pole/tree.

PREREQUISITE EVENTS:
1141-ADMN-1001 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-2032 1141-XENG-1601 1141-XENG-1618
1141-XENG-1624 1141-XENG-1961 1141-XENG-2695
1141-XENG-2696

REFERENCES:
1. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. MCRP 3-17.7N Base Camps
4. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
5. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit)(TK-1141/1)
6. SL-3-11418A Components List for Climber's Set, Tree and Pole (TK-1141/C)
7. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
8. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
9. TM 2000-15/4 Power System Reference Manual
10. TM 5-811-1 Electric Power Supply and Distribution
11. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]

MATERIAL:
Wire
Insulators

1141-XENG-2695: Construct an overhead electrical power distribution system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, electrical support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, electrical support plan and camp layout.
2. Review safety requirements.
3. Review environmental requirements.

4. Review references.
5. Set poles (as required).
6. Install crossarms, brackets and insulators (as required).
7. String conductors (wire).
8. Tension conductors, leaving required sag (to +/- 10%).
9. Install guys, anchors and push braces (as needed).
10. Install lightning arresters (as needed).
11. Install and test pole grounds (as required).
12. Post safety/warning signs.
13. Inspect installed overhead electrical power distribution system.
14. Connect distribution system to electrical power source(s) and panel(s)/service(s).
15. Test system.
16. Correct discrepancies.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1141-XENG-2501
1141-XENG-2521	1141-XENG-2694	

RELATED EVENTS:

1141-ADMN-1003	1141-ADMN-2032	1141-XENG-1601
1141-XENG-1618	1141-XENG-1624	1141-XENG-1961
1141-XENG-2602	1141-XENG-2603	1141-XENG-2623
1141-XENG-2696		

REFERENCES:

1. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
2. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
3. DoDD 5100.46 Foreign Disaster Relief
4. DODI 2205.2 Humanitarian and Civic Assistance (HCA) Activities
5. FM 3-34.480 Engineer Prime Power Operations
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7K Theater of Operations Electrical Systems
9. MCRP 3-17.7N Base Camps
10. MCRP 4-11B Environmental Considerations
11. MCWP 3-41.1 Rear Area Operations
12. MCWP 4-11.5 SeaBee Operations in the MAGTF
13. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
14. SL-3-10069A Components List for Ohmmeter (Earth Ground Resistance Tester), Model R1L-C
15. SL-3-10139A Components List for Grounding Kit, MK-2551A/U
16. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit)(TK-1141/1)
17. SL-3-11418A Components List for Climber's Set, Tree and Pole (TK-1141/C)
18. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
19. TC 11-6 Grounding Techniques
20. TM 10069A-14 Operation and Maintenance Instructions with Illustrated Parts Breakdown for Ground Resistance Ohmmeter Model R1L-C

21. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
22. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
23. TM 11-5820-1118-13&P Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Grounding Kit, MK-2551A/U
24. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
25. TM 2000-15/4 Power System Reference Manual
26. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
27. TM 5-811-1 Electric Power Supply and Distribution
28. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Generator(s) (size and quantity designated by electrical support plan)
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Ohmmeter, Earth Ground Resistance Tester, Model R1L-C [A7059]

MATERIAL:
Electrical support plan with established Course of Action (COA)
Poles
Crossarms, braces and insulators
Conductors (wire)
Guys and anchors
Warning signs
Busbar (if required by electrical support plan)
Water (if needed)
Metal Plates (if needed)
Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation.

1141-XENG-2696: Bury electrical power distribution cable

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, electrical support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, electrical support plan and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review references.
5. Identify subsurface obstructions (gas mains, telephone duct lines, sewer mains, water mains, steam pipes and service laterals/connections).
6. Make test borings.
7. Dig trenches.
8. Install duct system, manholes and service boxes (as required).
9. Lay/run cable, making service connections.
10. Connect distribution system to electrical power source(s).
11. Inspect installed underground electrical power distribution system.
12. Test system.
13. Correct discrepancies.
14. Fill in trenches.
15. Post safety/warning signs.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1141-XENG-2501
1141-XENG-2521		

RELATED EVENTS:

1141-XENG-1601	1141-XENG-1618	1141-XENG-1624
1141-XENG-1961	1141-XENG-2602	1141-XENG-2603
1141-XENG-2623	1141-XENG-2695	1141-XENG-2963

REFERENCES:
1. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
2. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
3. DoDD 5100.46 Foreign Disaster Relief
4. DODI 2205.2 Humanitarian and Civic Assistance (HCA) Activities
5. FM 3-34.480 Engineer Prime Power Operations

6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7K Theater of Operations Electrical Systems
9. MCRP 3-17.7N Base Camps
10. MCRP 4-11B Environmental Considerations
11. MCWP 3-41.1 Rear Area Operations
12. MCWP 4-11.5 SeaBee Operations in the MAGTF
13. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
14. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit)(TK-1141/1)
15. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
16. TC 11-6 Grounding Techniques
17. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
18. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
19. TM 2000-15/4 Power System Reference Manual
20. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
21. TM 5-811-1 Electric Power Supply and Distribution
22. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Generator(s) (size and quantity designated by electrical support plan)
Backhoe

MATERIAL:
Electrical support plan with established Course of Action (COA)
Manholes, ducts and service boxes (if required)
Conductors (wire)
Warning signs

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to operate backhoe

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation.

1141-XENG-2718: Operate an ITEG

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: ITEG is Integrated Trailer/ECU/Generator.

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, material, and references.

STANDARD: Per TM 11490A-OR, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review references.
5. Assess operational risk.
6. Don Personal Protective Equipment (PPE).
7. Unpack ITEG.
8. Place applicable environmental safeguards in place.
9. Set up ITEG.
10. Post safety/warning signs.
11. Ensure equipment is grounded.
12. Perform before operation checks.
13. Start generator.
14. Contact load.
15. Perform during operation checks/services.
16. Maintain equipment logs.
17. Shut down equipment per operational situation.
18. Perform after operation checks.
19. Document equipment operation.
20. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1009 1141-MANT-2218

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. SL-3-11490A Components List for Integrated Trailer, Environmental Control Unit, Generator (ITEG)
3. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018]

MATERIAL:
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: All operators of the Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018] will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate an Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018].

1141-XENG-2721: Direct field electrical power generation/distribution system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, electrical power generation/distribution system, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed electrical power generation/distribution system.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Supervise operation of generator sets.
8. Supervise operation of floodlight sets.
9. Supervise operation of load banks.
10. Supervise electrical distribution system.
11. Ensure electrical loads are balanced.
12. Supervise electrical power generation/distribution system operator maintenance.
13. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:
1141-XENG-2621 1141-XENG-2622

RELATED EVENTS:
1141-XENG-2521 1169-XENG-2721

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 5-811-1 Electric Power Supply and Distribution
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1141 (Electricians) to operate/maintain equipment and system

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1141-XENG-2737: Operate a 200kW Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At an established generator site, with equipment, material, and references.

STANDARD: Per TM 11598A-OR, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review references.
5. Reassess operational risk, ensuring warning signs are posted.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Perform before operation checks, including all electrical power cable connections.
9. Start up generator.
10. Check switches/gauges for correct settings.
11. Contact load.
12. Perform during operation checks/services.
13. Maintain equipment logs.
14. Shut down equipment per operational situation.
15. Perform after operation checks.
16. Document equipment operation.
17. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:

1141-ADMN-1009	1141-MANT-1251	1141-XENG-1751
1141-XENG-1752	1141-XENG-1753	1141-XENG-1754
1141-XENG-1757	1141-XENG-1763	1141-XENG-1765
1141-XENG-2755		

REFERENCES:
1. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
2. TM 11598A-OR Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 200kW, 50/60Hz, MEP-809A
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]
- MEP-809A 200kW 50/60Hz Tactical Quiet Generator Set [B0083]

MATERIAL:
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) ARE NOT licensed operators of the MEP-809A 200kW 50/60Hz Tactical Quiet Generator Set [B0083]. They will need to be licensed on the MEP-809A through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-809A 200kW 50/60Hz Tactical Quiet Generator Set [B0083].

1141-XENG-2750: Operate a 2kW 60Hz Tactical Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, material, and references.

STANDARD: Per TM 9-6115-673-13&P, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review references.
5. Don Personal Protective Equipment (PPE).
6. Set up generator set, ensuring it is grounded.
7. Perform before operation checks.
8. Start generator set.
9. Contact load.
10. Perform during operation checks/services.
11. Maintain equipment logs.
12. Shut down generator set per operational situation.
13. Perform after operation checks.
14. Document equipment operation.
15. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1009 1141-MANT-1251

REFERENCES:
1. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
2. TM 4700-15/1_ Ground Equipment Record Procedures
3. TM 9-6115-673-13&P Operator and Field Maintenance Manual (Including Repair Parts and Special Tools List) for 2kW Military Tactical Generator Sets, 120VAC, 60Hz, MEP-531A

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MEP-531A 2kW 60Hz Tactical Generator Set [B0980]

MATERIAL:
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) ARE NOT licensed to operate the MEP-531A 2kW 60Hz Generator Set [B0980]. All electricians/operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate the MEP-531A 2kW 60Hz Generator Set [B0980].

1141-XENG-2755: Operate a MMG-25 20kW 60Hz Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a Combat Operations Center (COC), with equipment, material, and references.

STANDARD: Per TM 11125A-OI/A, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review references.
5. Don Personal Protective Equipment (PPE).
6. Set up generator set, ensuring it is grounded.
7. Perform before operation checks.
8. Start generator set.
9. Contact load.
10. Perform during operation checks/services.
11. Maintain equipment logs.
12. Shut down generator set per operational situation.
13. Perform after operation checks.
14. Document equipment operation.
15. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1009 1141-MANT-1251 1141-XENG-2718

REFERENCES:
1. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
2. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
3. TM 11125A-OI/A Operation/Maintenance Manual with Repair Parts List for Generator Set, Diesel Engine (Model MMG25)
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
MMG-25 20kW 60Hz Generator Set [B0930]

MATERIAL:
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service

Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) ARE NOT licensed to operate the MMG-25 20kW 60Hz Generator Set [B0930]. All electricians/operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate the MMG-25 20kW 60Hz Generator Set [B0930].

1141-XENG-2821: Direct field electrical power generation/distribution system recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise distribution system recovery.
6. Supervise generator recovery.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1141-ADMN-1007	1141-ADMN-1008	1141-ADMN-1009
1141-ADMN-1011	1141-XENG-1601	1141-XENG-1618
1141-XENG-1624	1141-XENG-2621	1141-XENG-2721

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 9-6115-624-BD Battlefield Damage Assessment and Repair for Generators

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Forklift (with capacity to lift generators and distribution panels)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Spill containment materials

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1141-XENG-2963: Install conduit in a permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring electrical work, with an interior electrical plan, a Bill of Materials (BOM), tools, and references.

STANDARD: So structure will be wired per the interior electrical plan and the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Bill of Materials (BOM).
3. Inventory BOM.
4. Review references.
5. Review electrical plan.
6. Assess risks (ORM).
7. Don Personal Protective Equipment (PPE).
8. Bend conduit.
9. Place conduit in structure.
10. Inspect installation.

PREREQUISITE EVENTS: 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1141-MANT-1101 1141-XENG-1961
1141-XENG-1962

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems

2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. SL-3-11390A Components List for Tool Kit, Intermediate Level Electricians (I-Level Tool Kit)(TK-1141/1)
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM), with conduit

1141-XENG-2964: Inspect the interior electrical wiring system of a permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure, with construction blueprints, tools, and references.

STANDARD: So electrical wiring system compliance with the National Electric Code (NEC) (NFPA 70) is determined.

PERFORMANCE STEPS:
1. Review applicable section(s) of references.
2. Review blueprints.
3. Inspect wiring.
4. Inspect devices/fixtures.
5. Inspect service equipment.
6. Record/report discrepancies (if any).

RELATED EVENTS:
1141-XENG-1961 1141-XENG-1962

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TM 5-704 Construction Print Reading in the Field
4. TM 5-811-1 Electric Power Supply and Distribution
5. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
6. TM 5-811-7 Electrical Design, Cathodic Protection
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT: Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

1141-XENG-2965: Direct interior electrical wiring system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring electrical work, with an interior electrical plan, a Bill of Materials (BOM), personnel, tools, and references.

STANDARD: So structure is wired per the interior electrical plan, in compliance with the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Review blueprints, electrical plan and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Brief installation crew.
4. Inventory BOM.
5. Supervise wire runs (and conduit installation, if applicable).
6. Supervise installation of devices/fixtures.
7. Check service equipment.
8. Test the installed electrical wiring system.

RELATED EVENTS:
1141-XENG-1961 1141-XENG-1962 1141-XENG-2963
1141-XENG-2966 1169-XENG-2965

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TM 5-704 Construction Print Reading in the Field
4. TM 5-811-1 Electric Power Supply and Distribution
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1141 (Electrician)

1141-XENG-2966: Direct interior electrical wiring system repairs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure with a faulty electrical system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made and system is brought into compliance with the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review electrical report detailing required repairs.
3. Review references, determining safety/code requirements.
4. Assess risks (ORM).
5. Review blueprints, electrical plan and Bill of Materials (BOM).
6. Brief repair crew.
7. Inventory BOM.
8. Ensure hazardous energy is controlled (Lockout/Tagout).
9. Supervise wire repairs (and conduit repairs, if applicable).
10. Supervise replacement of defective devices/fixtures.
11. Check service equipment.
12. Test the repaired electrical wiring system.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1141-XENG-2964

RELATED EVENTS:

1141-XENG-1601	1141-XENG-1961	1141-XENG-1962
1141-XENG-2501	1141-XENG-2561	1141-XENG-2963
1141-XENG-2965	1169-XENG-2966	

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
4. TC 11-6 Grounding Techniques
5. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
6. TM 5-704 Construction Print Reading in the Field
7. TM 5-811-1 Electric Power Supply and Distribution
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1141 (Electrician)

ENG & UTIL T&R MANUAL

CHAPTER 9

MOS 1142 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	9000	9-2
EVENT CODING	9001	9-2
INDEX OF INDIVIDUAL EVENTS	9002	9-3
1000-LEVEL EVENTS	9003	9-5
2000-LEVEL EVENTS	9004	9-41

CHAPTER 9

MOS 1142 INDIVIDUAL EVENTS

9000. PURPOSE. This chapter details the individual events that pertain to the Engineer Equipment Electrical Systems Technician. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

9001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1142	Engineer Equipment Electrical Systems Technician

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
MANT	Maintenance

c. Field three.

(1) The first digit of this field provides the level at which the event is accomplished. The following event levels are used:

Code	Description
1000	Core Skills
2000	Core Plus Skills

(2) As the Task Analyst/Advocate has deemed appropriate the second digit of this field represents a sub-function to that duty area identified in field two. The following sub-functions are used in this chapter:

Code	Description
X0XX	Administrative
X1XX	Miscellaneous maintenance functions
X2XX	Preventive Maintenance Checks and Services
X3XX	Diagnosing equipment malfunctions
X4XX	Repairing equipment

(3) The last two digits of this field are used to identify and categorize like events or equipment across all MOSs of the 1100 OccFld (see

Chapters 7 through 12), or are just numerical sequencing of events. Following are **some** examples of the categories used:

Code	Description
X002	Core and Core Plus Skills related to controlling hazardous energy. See: 1120-ADMN-2002, 1141-ADMN-1002, 1142-ADMN-1002, 1161-ADMN-1002, 1169-ADMN-2002, 1171-ADMN-1002.
X012	Core and Core Plus Skills related to NAVMC 10772 initiation, validation and submission. See: 1120-ADMN-2012, 1141-ADMN-1012, 1142-ADMN-1012, 1161-ADMN-1012, 1169-ADMN-2012, 1171-ADMN-1012.
2023	Core Plus advanced level MOS training program functions. See: 1120-ADMN-2023, 1141-ADMN-2023, 1142-ADMN-2023, 1161-ADMN-2023, 1169-ADMN-2023, 1171-ADMN-2023.
206X	Core Plus advanced level supply support functions. See: 1120-ADMN-2061, 1120-ADMN-2062, 1120-ADMN-2063, 1120-ADMN-2064, 1120-ADMN-2065, 1141-ADMN-2061, 1141-ADMN-2062, 1142-ADMN-2061, 1142-ADMN-2062, 1161-ADMN-2061, 1161-ADMN-2062, 1169-ADMN-2061, 1169-ADMN-2062, 1169-ADMN-2063, 1169-ADMN-2064, 1169-ADMN-2065, 1171-ADMN-2061, 1171-ADMN-2062.
XX18	Core and Core Plus Skills related to maintaining and operating the Integrated Tent, ECU and Generator (ITEG). See: 1141-XENG-1618, 1141-MANT-2218, 1141-XENG-2718, 1142-MANT-2318, 1161-MANT-1318, 1161-MANT-2618. **NOTE:** There are three MOSs involved with this equipment.
XX42	Core and Core Plus Skills related to load testing generator sets and maintaining and operating load testing equipment. See: 1141-MANT-1142, 1142-MANT-1142, 1142-MANT-1242, 1142-MANT-1342, 1142-MANT-2442.

NOTE: Of the 96 non-"ADMN" events performed by MOSs 1141 and 1142 only five "MANT" events could be called common to both MOSs. These are 114X-MANT-1101, 114X-MANT-1142, 114X-XXXX-1X95, 114X-MANT-2191 and 114X-MANT-2199. This leaves 56 unique events for MOS 1141 and 40 unique events for MOS 1142. There are 22 "ADMN" events that are common to both MOSs, but they are also common to all other basic MOSs in the OccFld.

9002. INDEX OF INDIVIDUAL EVENTS

EVENT	TITLE	PAGE
1000-LEVEL EVENTS		
1142-ADMN-1001	Conduct an Operational Risk Assessment (ORA)	9-5
1142-ADMN-1002	Control (Lockout/Tagout) hazardous energy	9-6
1142-ADMN-1003	Recover an electric shock victim	9-7
1142-ADMN-1004	Respond to a hazardous materials spill	9-8
1142-ADMN-1005	Administer first aid for chemical ingestion/contact	9-8

1142-ADMN-1006	Obtain equipment publications	9-9
1142-ADMN-1007	Conduct an SL-3 Components List/Basic Issue Items (BII) inventory	9-10
1142-ADMN-1008	Conduct an LTI	9-11
1142-ADMN-1009	Document equipment operation history	9-12
1142-ADMN-1010	Requisition repair parts	9-13
1142-ADMN-1011	Document equipment service/repair history	9-14
1142-ADMN-1012	Initiate a NAVMC 10772	9-14
1142-MANT-1101	Operate a multimeter	9-15
1142-MANT-1106	Operate a semiconductor test device	9-16
1142-MANT-1108	Repair a wire connection on equipment	9-17
1142-MANT-1109	Solder an electrical connection	9-18
1142-MANT-1142	Load test generator set(s)	9-19
1142-MANT-1195	Parallel tactical generator sets	9-21
1142-MANT-1242	Perform scheduled PMCS on a 100kW Electrical Load Bank	9-22
1142-MANT-1331	Diagnose an M-80/M-85 Water Heater electrical system malfunction	9-23
1142-MANT-1342	Diagnose a 100kW Electrical Load Bank malfunction	9-25
1142-MANT-1351	Diagnose a generator set malfunction	9-26
1142-MANT-1382	Analyze TWPS electrical circuit characteristics	9-31
1142-MANT-1392	Diagnose an electric motor malfunction	9-32
1142-MANT-1451	Repair a tactical generator set electrical system	9-33
1142-MANT-1466	Repair a generator set air intake/exhaust system	9-35
1142-MANT-1467	Repair a generator set cooling system	9-36
1142-MANT-1468	Repair a generator set fuel system	9-37
1142-MANT-1469	Repair a generator set lubrication system	9-38
1142-MANT-1493	Connect electric motor control circuits	9-39
2000-LEVEL EVENTS		
1142-ADMN-2021	Apply safety programs	9-41
1142-ADMN-2022	Apply environmental regulations	9-42
1142-ADMN-2023	Conduct MOS training	9-42
1142-ADMN-2041	Initiate a PQDR	9-43
1142-ADMN-2051	Establish equipment preventive maintenance schedule	9-44
1142-ADMN-2061	Maintain PEB	9-45
1142-ADMN-2062	Maintain equipment repair parts bins	9-46
1142-ADMN-2071	Monitor maintenance management reports	9-47
1142-ADMN-2072	Monitor maintenance related programs	9-48
1142-ADMN-2073	Inspect maintenance actions (quality control)	9-49
1142-MANT-2191	Comply with a Modification Instruction (MI)	9-49
1142-MANT-2199	Mount/dismount a generator set on a trailer	9-50
1142-MANT-2308	Diagnose an electrical starter malfunction	9-51
1142-MANT-2309	Diagnose an alternator malfunction	9-52
1142-MANT-2311	Diagnose an ECU electrical system malfunction	9-53
1142-MANT-2318	Diagnose an ITEG electrical system malfunction	9-55
1142-MANT-2327	Diagnose a tactical refrigeration equipment electrical system malfunction	9-57
1142-MANT-2332	Diagnose a CBL washer/dryer electrical malfunction	9-59
1142-MANT-2338	Diagnose an M26 JSTDS-SS electrical system malfunction	9-60
1142-MANT-2347	Diagnose a floodlight set malfunction	9-62

1142-MANT-2354	Diagnose a MMG-25 20kW 60Hz Generator Set Synchronizer Box malfunction	9-63
1142-MANT-2365	Diagnose a MEP-807A 100kW 60Hz Tactical Quiet Generator Set engine malfunction	9-64
1142-MANT-2383	Diagnose a TWPS electrical malfunction	9-66
1142-MANT-2395	Diagnose an electrical fault on a hydraulic/pneumatic system	9-67
1142-MANT-2397	Diagnose a tactical engineer equipment electrical system malfunction	9-69
1142-MANT-2408	Repair an electrical starter	9-70
1142-MANT-2409	Repair an alternator	9-71
1142-MANT-2438	Repair an M26 JSTDS-SS electrical system	9-73
1142-MANT-2442	Repair a 100kW Electrical Load Bank	9-74
1142-MANT-2447	Repair a floodlight set	9-75
1142-MANT-2497	Repair an engineer equipment electrical system	9-77
1142-MANT-2498	Repair a general supply equipment electrical system	9-78

9003. 1000-LEVEL EVENTS

1142-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a task/mission, a Risk Management Worksheet, and references.

STANDARD: So task/mission effectiveness is increased while loss of personnel and material is minimized through the use of risk management controls.

PERFORMANCE STEPS:
1. Identify task/mission requirements.
2. Review references.
3. Identify hazards, recording them on Risk Management Worksheet.
4. Assess severity and probability of hazards to determine risk levels.
5. Develop risk control measures.
6. Make risk decisions and/or forward Risk Management Worksheet to supervisor for decision/approval.
7. Implement controls.

RELATED EVENTS:
1141-ADMN-1001 1161-ADMN-1001 1171-ADMN-1001

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1142-ADMN-1002: Control (Lockout/Tagout) hazardous energy

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment manuals, Lockout/Tagout devices, forms, and references.

STANDARD: So equipment is locked out or tagged out to protect against accidental or inadvertent start-up, or operation that may cause injury to personnel performing maintenance, service, repair, or modification to the equipment.

PERFORMANCE STEPS:
1. Review references.
2. Locate all energy isolating devices and hazardous energy sources (NOTE: there may be more than one).
3. Obtain required number of Lockout/Tagout devices from program coordinator.
4. Notify all effected personnel and supervisors.
5. Don Personal Protective Equipment (PPE).
6. Shut down equipment/turn off circuit.
7. Dissipate or restrain any stored energy.
8. Apply Lockout/Tagout devices.
9. Verify energy is isolated/dissipated (test circuit).
10. Effect required service, maintenance, repairs or modifications to equipment/circuit.
11. Remove Lockout/Tagout devices.
12. Restore equipment/circuit to normal operation.
13. Return Lockout/Tagout devices to program coordinator.

PREREQUISITE EVENTS: 1142-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1161-ADMN-1002 1171-ADMN-1002

REFERENCES:
1. Appropriate Technical Manuals
2. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE)

MATERIAL:

Lockout/Tagout devices
NAVMC 11403 (Lockout/Tagout Checklist)

UNITS/PERSONNEL: Lockout/Tagout Program Coordinator

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: NAVMC Dir 5100.8, Chapter 12, provides detailed information for this event.

1142-ADMN-1003: Recover an electric shock victim

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So danger to personnel is eliminated and victim is cared for.

PERFORMANCE STEPS:
1. Evaluate situation.
2. Send for help.
3. Provide for personal protection.
4. Isolate victim from electrical source.
5. Evaluate victim.
6. Start artificial resuscitation (if necessary).
7. Remain with victim until medical help arrives.
8. Report incident.

RELATED EVENTS:
1120-ADMN-2003 1141-ADMN-1003 1161-ADMN-1003
1169-ADMN-2003 1171-ADMN-1003

REFERENCES:
1. MCRP 3-02G First Aid
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 2000-15/4 Power System Reference Manual
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Ropes
Brooms, mops or tree branches

1142-ADMN-1004: Respond to a hazardous materials spill

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Provide for personal protection.
3. Contain spill.
4. Report spill.
5. Remove uncontaminated material.
6. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1141-ADMN-1004	1161-ADMN-1004
1169-ADMN-2004	1171-ADMN-1004	

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations

SUPPORT REQUIREMENTS:

MATERIAL: Spill containment kit

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCO 4450.12A, Chapter 7 and MCRP 4-11B, Appendix J, Tab A provide detailed information for this event.

1142-ADMN-1005: Administer first aid for chemical ingestion/contact

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and MCRP 3-02G.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (if required).
5. Give first aid.
6. Remain with victim until medical help arrives.
7. Report incident.

RELATED EVENTS:
1120-ADMN-2005 1141-ADMN-1005 1161-ADMN-1005
1169-ADMN-2005 1171-ADMN-1005

REFERENCES:
1. MCRP 3-02G First Aid

SUPPORT REQUIREMENTS:

MATERIAL: Material Safety Data Sheet (MSDS) file

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCRP 3-02G, Chapter 7 provides detailed information for this event.

1142-ADMN-1006: Obtain equipment publications

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a tasking, equipment, and references.

STANDARD: So appropriate publication(s) are used with corresponding equipment.

PERFORMANCE STEPS:
1. Determine/record equipment National Stock Number (NSN).
2. Determine/record equipment Model Number.
3. Determine/record equipment Identification Number.
4. Ascertain section's authorized echelon of maintenance.
5. Identify publications that are published/available for equipment.
6. Check required publications out of section's Publication Library.

RELATED EVENTS:
1141-ADMN-1006 1161-ADMN-1006 1171-ADMN-1006

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required to complete this event at some units.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information to assist or increase personal knowledge for this event is contained in MCI 0416B - The Marine Corps Publications and Directives System.

1142-ADMN-1007: Conduct an SL-3 Components List/Basic Issue Items (BII) inventory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment and references.

STANDARD: So accountability of all components is validated per the SL-3/BII list and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review references.
2. Obtain Components List (SL-3 or TM listing Basic Issue Items [BII]) for item.
3. Identify each component using the SL-3/BII.
4. Identify missing components.
5. Identify unserviceable components.
6. Document inventory results.
7. Report any inventory discrepancies and unserviceable components.

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:
1141-ADMN-1007 1161-ADMN-1007 1171-ADMN-1007

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. SI 10510-OR/1 Tool Warranty/Replacement Instructions for Using the USMC ServMart

4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: SL-3/BII inventory sheets

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 6 provides detailed information for this event.

1142-ADMN-1008: Conduct an LTI

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: LTI is Limited Technical Inspection.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment requiring inspection and the equipment's records, forms, tools, and references.

STANDARD: So equipment is inspected for serviceability and discrepancies are identified.

PERFORMANCE STEPS:
1. Review references.
2. Lockout/Tagout equipment (if required).
3. Provide for personal protection (if required).
4. Identify components.
5. Verify component function/serviceability.
6. Verify authorized modifications.
7. Record discrepancies (if any).
8. Attach NAVMC 1018 to equipment (if required).
9. Complete the NAVMC 10560.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1007	1142-MANT-1101	

RELATED EVENTS:

1141-ADMN-1008	1161-ADMN-1008	1171-ADMN-1008

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
4. TM 4700-15/1_ Ground Equipment Record Procedures

5. TM 9-6115-624-BD Battlefield Damage Assessment and Repair for Generators
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]

MATERIAL:
NAVMC 1018 (Inspection/Repair Tag)
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection of Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 9 provides information for completing the NAVMC 1018 and TM 4700-15/1H, Chapter 2, Section 22 provides information for completing the NAVMC 10560.

1142-ADMN-1009: Document equipment operation history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment's records, forms, and references.

STANDARD: So hours/days of operation for the equipment are indicated and preventive maintenance intervals can be scheduled/rescheduled.

PERFORMANCE STEPS:
1. Review references.
2. Validate equipment descriptive data on NAVMC 696D.
3. Ensure equipment descriptive data on NAVMC 10524 is correct.
4. Record hours/days equipment was operated (on NAVMC 10524 and in GCSS-MC).

RELATED EVENTS:
1141-ADMN-1009 1161-ADMN-1009 1171-ADMN-1009

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 14 provides information for completing the NAVMC 696D and TM 4700-15/1H, Chapter 2, Section 21 provides information for completing the NAVMC 10524.

1142-ADMN-1010: Requisition repair parts

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: So valid requisitions are created.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Retrieve and review assigned GCSS-MC Service Request (SR) task, validating equipment identification data.
4. Debrief GCSS-MC SR task by entering repair part(s)/component(s) requirement information.
5. Change GCSS-MC SR status to "waiting approval."
6. Follow up/reconcile requisitions (as needed/required).

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:
1141-ADMN-1010 1142-ADMN-1011 1161-ADMN-1010
1171-ADMN-1010

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be

required in order to complete this event.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 3 provides information that will assist in entering repair part/component requirements into GCSS-MC.

1142-ADMN-1011: Document equipment service/repair history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms and references.

STANDARD: So service/repair actions for equipment are debriefed.

PERFORMANCE STEPS:
1. Review references.
2. Retrieve and review assigned GCSS-MC Service Request (SR).
3. Debrief GCSS-MC SR task by updating information with service/repair actions taken.
4. Change GCSS-MC SR status to "waiting approval."

RELATED EVENTS:

1141-ADMN-1011	1142-ADMN-1006	1142-ADMN-1008
1142-ADMN-1009	1142-ADMN-1010	1161-ADMN-1011
1171-ADMN-1011		

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event.

1142-ADMN-1012: Initiate a NAVMC 10772

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NAVMC 10772 is Recommended Change to Technical Publications/Logistics-Maintenance Data Coding.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an identified error/deficiency to a technical publication and references.

STANDARD: So corrections/improvements to the publication will be affected per TM 4700-15/1H and MCO P5215.17C.

PERFORMANCE STEPS:
1. Review references.
2. Determine if error/deficiency requires use of Part I or Part II of NAVMC 10772.
3. Fill in all required blocks of NAVMC 10772.
4. Forward completed NAVMC 10772.

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:
1141-ADMN-1012 1161-ADMN-1012 1171-ADMN-1012

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10772 (Recommended Change to Technical Publications/Logistics-Maintenance Data Coding)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website: https://portal.logcom.usmc.mil/sites/pubs/Site%20Pages/NAVMC10772RFC.aspx.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 23 provides detailed information for this event.

1142-MANT-1101: Operate a multimeter

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment having an electrical circuit(s).

STANDARD: So electrical outputs of the circuit are measured.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Determine correct setting (AC, DC, resistance or current).
3. Test circuit (voltage, resistance, current).
4. Record measurements/readings.
5. Analyze measurements/readings.

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006

RELATED EVENTS:
1141-MANT-1101 1161-MANT-1101 1171-MANT-2101

REFERENCES:
1. Appropriate Technical Manuals
2. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
3. SL-3-09869A Components List for Multimeter, Model 77-4BN
4. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
5. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
6. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Multimeter [H7030]
Anti-Static Wrist Strap (if required)
Equipment with an electrical circuit

1142-MANT-1106: Operate a semiconductor test device

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With solid state device(s), equipment, and references.

STANDARD: So serviceability of the solid state device(s) is determined.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Determine correct settings for test device.

4. Test solid state device.
5. Record measurements/readings.
6. Analyze measurements/readings.

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006

RELATED EVENTS: 1142-MANT-1101

REFERENCES:
1. Appropriate Technical Manuals
2. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
3. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
4. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Test Set, Semiconductor Device [H7020]
Multimeter [H7030]
Anti-Static Wrist Strap (if required)
Solid state devices

1142-MANT-1108: Repair a wire connection on equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: So electrical continuity is established with tensile strength required by technical manuals related to the application.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Determine type of splice/connection required.
4. Don Personal Protective Equipment (PPE).
5. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
6. Strip wire(s).
7. Clean component(s) and wire(s).
8. Construct the splice/connection.
9. Test splice/connection.
10. Insulate bare wires.

PREREQUISITE EVENTS:
1142-ADMN-1002 1142-ADMN-1006 1142-MANT-1101

RELATED EVENTS:
1142-MANT-1109 1161-MANT-1108

REFERENCES:
1. Appropriate Technical Manuals
2. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Equipment with faulty wire connection(s)

MATERIAL
Wire
Connector(s) (if required)
Electrical tape

1142-MANT-1109: Solder an electrical connection

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: So electrical continuity is established with tensile strength required by TB SIG 222 and technical manuals related to the application.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify VAPOR HAZARD(S).
3. Review references.
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Clean component(s) and wire(s).
6. Don Personal Protective Equipment (PPE).
7. Position component(s) and wire(s).

8. Apply flux (if needed).
9. Heat connection.
10. Apply solder.
11. Allow connection to cool.
12. Test connection.
13. Insulate bare wires.

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006
1142-MANT-1101

RELATED EVENTS:
1142-MANT-1108 1161-MANT-1109

REFERENCES:
1. Appropriate Technical Manuals
2. TB SIG 222 Solder and Soldering
3. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
4. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Soldering Iron
Equipment with faulty wire connection(s)

MATERIAL:
Wire
Connector(s) (if required)
Flux (if needed)
Solder
Electrical tape

OTHER SUPPORT REQUIREMENTS: Ventilation is required if this event is performed indoors.

1142-MANT-1142: Load test generator set(s)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, forms, and references.

STANDARD: So ability of generator set(s) to safely take a designated electrical load is determined.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review references, including generator technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ground equipment.
7. Connect load bank to generator(s) (using overcurrent protection).
8. Start generator(s), contacting load.
9. Perform before operation checks on load bank.
10. Apply load to generator(s).
11. Perform during operation checks on load bank.
12. Record readings from load bank.
13. Analyze data collected during test.
14. Disconnect load from generator(s).
15. Perform after operation checks on load bank.
16. Shut down load bank.
17. Shut down generator(s).
18. Disconnect load bank.
19. Record test results.

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1006

RELATED EVENTS:
1141-MANT-1142 1142-ADMN-1008 1142-ADMN-1009
1142-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals
2. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Multimeter [H7030]
100kW Electrical Load Bank [B0579]
Generator(s) to be load tested

MATERIAL:
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service

Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Engineer Equipment Electrical Systems Technician Course (CID: M03UAA2) are licensed operators of the 100kW Electrical Load Bank [B0579].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) and Engineer Equipment Electrical Systems Technicians (MOS 1142) will be licensed to operate a 100kW Electrical Load Bank [B0579].

1142-MANT-1195: Parallel tactical generator sets

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NOTE: Due to the hazards involved, to both personnel and equipment, tactical generators should only be placed in parallel by licensed (MOS 1141) Electricians or qualified (MOS 1142) Engineer Equipment Electrical Systems Technicians.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With multiple generator sets, equipment, tools, paralleling cable, conductors, overcurrent protection, and references.

STANDARD: So generators are synchronized and sharing the electrical load.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review references.
5. Reassess operational risk.
6. Don Personal Protective Equipment (PPE).
7. Ensure generators are grounded.
8. Perform before operation checks on generators.
9. Connect generators with paralleling cable and conductors through overcurrent protection.
10. Ensure all load/voltage requirements are observed.
11. Synchronize generators.
12. Contact load.
13. Make necessary adjustments.
14. Perform during operation checks/services.

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006
1142-MANT-1142

RELATED EVENTS: 1141-XENG-1795

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Multimeter [H7030]
Overcurrent protection (MEPDIS/MEPDIS-R preferred if available)
Tactical generator sets

MATERIAL:
Paralleling cable
Conductors
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Engineer Equipment Electrical Systems Technician Course (CID: M03UAA2) are trained and qualified to parallel generators. Only trained/qualified Marines (MOS 1141 & 1142) will parallel generators.

SPECIAL PERSONNEL CERTS: Due to the hazards involved, to both personnel and equipment, tactical generators should only be placed in parallel by licensed (MOS 1141) Electricians or qualified (MOS 1142) Engineer Equipment Electrical Systems Technicians.

1142-MANT-1242: Perform scheduled PMCS on a 100kW Electrical Load Bank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 07500C-OI and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manuals.
3. Review Service Request (SR).
4. Don Personal Protective Equipment (PPE).
5. Ensure equipment is grounded.
6. Contain (Lockout/Tagout) hazardous energy.
7. Inspect equipment.
8. Service equipment.
9. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006
1142-ADMN-1011 1142-MANT-1142

RELATED EVENTS:
1142-ADMN-1007 1142-ADMN-1008

REFERENCES:
1. FP 07500C Fielding Plan for the Mobile Electric Power Load Bank, Electrical
2. SI 07500C-OI/1 Warranty Procedures for Load Bank, Electrical
3. SI 07500C-OI/2 Warranty Procedures for Digital Monitoring System and Multifunctional Display for the Load Bank, Electrical, 100kW
4. SL-3-07500C Components List for Load Bank, Electrical, 100kW, Model LSH100D42423
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- General Mechanics Tool Kit (GMTK) [C7915]
- 100kW Load Bank, Electrical [B0579]
- Generator set

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

1142-MANT-1331: Diagnose an M-80/M-85 Water Heater electrical system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review LTI.
5. Review equipment technical manuals/wiring diagrams/schematics.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Ensure any hazardous energy is controlled (Lockout/Tagout) (if required).
9. Check switches/gauges for correct settings.
10. Isolate faulty circuit(s).
11. Trace current/voltage paths in circuits.
12. Isolate faulty component(s).
13. Determine if component fault was caused by a defect elsewhere (repeating steps 10, 11, and/or 12 as required).
14. Determine echelon(s) of maintenance.
15. Document findings (complete LTI/update Service Request).
16. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1142-MANT-2332	1171-MANT-1331	1171-MANT-1332

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap (if required)

Faulty M-80 or M-85 Water Heater

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: MOS 1171 (Water Support Technician) to facilitate troubleshooting process

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: M-80 and M-85 Water Heaters are components of the Shower Facility, Bare Base [B0055] and Containerized Batch Laundry (CBL) Unit [B0066].

1142-MANT-1342: Diagnose a 100kW Electrical Load Bank malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don Personal Protective Equipment (PPE).
5. Ensure equipment is grounded.
6. Check switches/gauges for correct settings.
7. Isolate faulty circuit(s).
8. Trace current/voltage paths in circuits.
9. Isolate faulty component(s).
10. Determine if component fault was caused by a defect elsewhere (repeating steps 7, 8, and/or 9 as required).
11. Determine echelon(s) of maintenance.
12. Document findings (complete LTI/update Service Request).
13. Order parts (if required).

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1006 1142-MANT-1101

1142-MANT-1142

RELATED EVENTS:
1142-ADMN-1008 1142-ADMN-1010 1142-ADMN-1011
1142-MANT-1242

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap (if required)
Faulty 100kW Load Bank, Electrical [B0579]
Generator set

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Engineer Equipment Electrical Systems Technician Course (CID: M03UAA2) are licensed operators of the 100kW Electrical Load Bank [B0579].

1142-MANT-1351: Diagnose a generator set malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s)

initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review LTI.
5. Review equipment technical manuals/wiring diagrams/schematics.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout) (if required).
9. Check switches/gauges for correct settings.
10. Isolate faulty circuit(s).
11. Trace current/voltage paths in circuits.
12. Isolate faulty component(s).
13. Determine if component fault was caused by a defect elsewhere (repeating steps 10, 11, and/or 12 as required).
14. Determine echelon(s) of maintenance.
15. Document findings (complete LTI/update Service Request).
16. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101	1142-MANT-1106	

RELATED EVENTS:

1141-MANT-1251	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011		

REFERENCES:
1. Appropriate Technical Manuals
2. CG MarCorSysCom msg R011721Z May 07 Maintenance Advisory Message (MAM): Pulse Solar Charger (PSC) Installation on USMC Tactical Generator Fleet
3. DP 6115 Disposal Plan for the Military Standard Generator Sets
4. DP 6115/1 Disposal Plan for the Alpha Model Tactical Quiet Generator Sets
5. FP 07464C Fielding Plan for B1045 MEP-807A 100kW Tactical Quiet Generator (TQG)
6. FP 6115 Fielding Plan for the Advanced Medium Mobile Power Sources (AMMPS)
7. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
8. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
9. LO 9-6115-641-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 5kW, 60Hz, MEP-802A
10. LO 9-6115-642-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 10kW, 60Hz MEP-803A and 400Hz MEP-813A
11. LO 9-6115-671-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60Hz MEP-805B and 400Hz MEP-815B
12. LO 9-6115-672-12 Lubrication Order for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60Hz MEP-806B and 400Hz MEP-816B
13. MI 07464C-OI Installation of Pulse Solar Charger on Tactical Quiet Generators, 100 Kilowatt, 60 Hertz (MEP-807A)
14. MI 09018A-34/1 Replacement of Diesel Engine Power Generating Unit with Generator Set, Diesel Engine, MEP-803A, in the Shop Equipment, General Purpose Repair, Semi Trailer Mounted (SGPRSMD)

15. MI 09247A/09248A-OR/1 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 10 Kilowatt 60 Hertz (MEP-803A) and 10 Kilowatt 400 Hertz (MEP-813A)
16. MI 10155A-OR/1 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 3 Kilowatt 60 Hertz (MEP-831A)
17. MI 11125A-OI/2 Relocation of Ether Bottle for the Generator Set, 20kW MMG-25
18. MI 11125A-OI/3 Drilling of the Oil Drain Access Hole for the Generator Set, 20kW MMG-25
19. MI 11125A-OR Installation of Pulse Solar Charger (PSC) on Generator Set, 20kW MMG25
20. MI 6115-24/24D Trailer Mounting of 10kW, MEP-003A, MEP-112A, MEP-803A, MEP-813A Generators on M116A2/3 Series Trailer
21. MI 6115-34/30 Battery Charging Fuse Modification and Control Power Circuit to Tactical Quiet Generator Models MEP-805B, MEP-815B, MEP-806B, MEP-816B
22. MI 6115-OI/25C Trailer Mounting of 3kW, MEP-831A Generators on M116A2/3 Series Trailer
23. MI 6115-OR/26A Trailer Mounting of Tactical Quiet Generators (TQG), 60 Kilowatt 60 Hertz (MEP-806A/B) or 60 Kilowatt 400 Hertz (MEP-816A/B) on M353 Trailer
24. MI 6115-OR/27A Trailer Mounting of Tactical Quiet Generators (TQG), 30 Kilowatt 60 Hertz (MEP-805A/B) or 30 Kilowatt 400 Hertz (MEP-815A/B) on M353 Trailer
25. MI 6115-OR/31 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 30 Kilowatt 60 Hertz (MEP-805A/B) and 30 Kilowatt 400 Hertz (MEP-815A/B)
26. MI 6115-OR/32 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 60 Kilowatt 60 Hertz (MEP-806A/B) and 60 Kilowatt 400 Hertz (MEP-816A/B)
27. SI 07464C-OI/1 Warranty Procedures for MEP-807A 100kW Tactical Quiet Generator
28. SI 09247A/09248A-24 Warranty Program for Generator Set, Tactical Quiet, 10kW, 60 and 400Hz, MEP-803A and MEP-813A
29. SI 11101A-OI/1 Warranty Procedures for MEP-531A 2kW Military Tactical Generator
30. SI 11125A-OI/1 Warranty Procedures for Generator Set, 20kW MMG-25
31. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series
32. SI 6115-OI Warranty Procedures for Advanced Medium Mobile Power Sources
33. SL-3-05926B/10155A Components List for Generator Set, Diesel Engine Driven, Skid Mounted, 3kW, 60Hz, MEP-016B/MEP-831A
34. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
35. TB 11-6115-741-24 Field and Sustainment Maintenance for Tactical Generator Desert Operations Special Test, Inspection, and Repair Requirements
36. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
37. TI 11125A-OI Engine Replacement Technical Instruction for Mobile Generator Set, MMG25
38. TI 6115-OR Product Improvement of the Pulse Receptacle Unit Component of the Pulse Solar Charger Kit
39. TM 07464C-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
40. TM 07464C-24/2A Field and Sustainment Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A

41. TM 07464C-24P/3 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
42. TM 07464C-35 Systems Operation Testing and Adjusting for Caterpillar Generator Sets
43. TM 09244B/09245B-14/1 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806B and MEP-816B
44. TM 09244B/09245B-IN Field and Sustainment Maintenance Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806B and MEP-816B
45. TM 09244C/09245C-OI Operator's Manual for Generator Set, Skid Mounted 60kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1070 50/60Hz and MEP-1071 400Hz
46. TM 09244C/09245C-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 60kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1070 50/60Hz and MEP-1071 400Hz
47. TM 09245B/2815-24/3 Unit, Direct Support and General Support Maintenance Manual for Diesel Engine, Model 6068TF151, 6 Cylinder, 6.8 Liter, [MEP-806B/MEP-816B]
48. TM 09245B/2815-24P/4 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model 6068TF151, 6 Cylinder, 6.8 Liter, [MEP-806B/MEP-816B]
49. TM 09246C/11776A-OI Operator's Manual for Generator Set, Skid Mounted 30kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1060 50/60Hz and MEP-1061 400Hz
50. TM 09246C/11776A-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 30kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1060 50/60Hz and MEP-1061 400Hz
51. TM 09247A/09248A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
52. TM 09247A/09248A-24/2 Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
53. TM 09247A/09248A-24P/3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Generator Set, Tactical Quiet, 10kW, 60/400Hz, MEP-803A/MEP-813
54. TM 09249B/09246B-14/1 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400Hz, MEP-805B/MEP-815B
55. TM 09249B/09246B-24P/2 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805B and MEP-815B
56. TM 09249B/2815-24/3 Unit, Direct Support and General Support Maintenance Manual for Diesel Engine, Model 4045TF151, 4 Cylinder, 4.5 Liter [MEP-805B/MEP-815B]
57. TM 09249B/2815-24P/4 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model 4045TF151, 4 Cylinder, 4.5 Liter [MEP-805B/MEP-815B]
58. TM 09292B-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 5kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1030 50/60Hz and MEP-1031 400Hz

59. TM 09292B-OI/3 Operator's Manual for Generator Set, Skid Mounted 5kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1030 50/60Hz and MEP-1031 400Hz
60. TM 10155A/2815-24/3 Unit, Direct Support, and General Support Maintenance Manual for Diesel Engine Assembly, Model L70AE-DEGFR
61. TM 10155A/2815-24P/4 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model L70AE-DEGFR
62. TM 10155A-OI/1A Operator and Field Maintenance Manual (Including Repair Parts and Special Tools List) for 3kW Tactical Quiet Generator Set MEP-831A (60Hz) and MEP-832A (400Hz)
63. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
64. TM 11125A-OI/A Operation/Maintenance Manual with Repair Parts List for Generator Set, Diesel Engine (Model MMG25)
65. TM 11598A-OI/A Field and Sustainment Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet 200kW 50/60Hz MEP-809A
66. TM 11598A-OR Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 200kW, 50/60Hz, MEP-809A
67. TM 11773A-OI Operator's Manual for Generator Set, Skid Mounted 15kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1050 50/60Hz and MEP-1051 400Hz
68. TM 11773A-OI/1 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 15kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1050 50/60Hz and MEP-1051 400Hz
69. TM 11783A/11784A-OI Operator's Manual for Generator Set, Skid Mounted 10kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1040 50/60Hz and MEP-1041 400Hz
70. TM 11783A/11784A-OI/2 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted 10kW Advanced Medium Mobile Power Sources (AMMPS) MEP-1040 50/60Hz and MEP-1041 400Hz
71. TM 2815-24/3 Unit, Direct Support and General Support Maintenance Instructions for Diesel Engine, Model DN4M, 4 Cylinder, 1.2 Liter
72. TM 2815-24P/1 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Diesel Engine, Model DN4M-1, Four-Cylinder, Four Cycle, Fuel Injected
73. TM 4700-15/1_ Ground Equipment Record Procedures
74. TM 9-6115-641-10 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 5kW, 60 and 400Hz, MEP-802A and MEP-812A
75. TM 9-6115-641-24 Field and Sustainment Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 5kW, 60 and 400Hz, MEP-802A and MEP-812A
76. TM 9-6115-641-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Generator Set, Tactical Quiet, 5kW, 60/400Hz, MEP-802A and MEP-812A
77. TM 9-6115-673-13&P Operator and Field Maintenance Manual (Including Repair Parts and Special Tools List) for 2kW Military Tactical Generator Sets, 120VAC, 60Hz, MEP-531A
78. TM 9-6115-730-24P Field and Sustainment Level Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 200kW, 50/60Hz, MEP-809A
79. ULSS 004295-15B User's Logistics Support Summary for Marine Corps Family of Tactical Quiet Generators (TQGs)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap (if required)
Faulty generator set or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Engineer Equipment Electrical Systems Technician Course (CID: M03UAA2) ARE NOT licensed as generator set operators.

1142-MANT-1382: Analyze TWPS electrical circuit characteristics

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: TWPS is Tactical Water Purification System

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment and references.

STANDARD: So faulty electrical circuit(s) are identified.

PERFORMANCE STEPS:
1. Review LTI.
2. Review equipment technical manuals/wiring diagrams/schematics.
3. Isolate circuit(s).
4. Trace current/voltage paths in circuits.
5. Identify faulty component(s).
6. Determine if component fault was caused by a defect elsewhere (repeating steps 3, 4, and/or 5 as required).
7. Determine echelon(s) of maintenance.
8. Document findings (update LTI).

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:
1142-ADMN-1008 1142-ADMN-1011 1171-MANT-1382

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid

2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
4. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
5. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1142-MANT-1392: Diagnose an electric motor malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don Personal Protective Equipment (PPE).
5. Ensure equipment is grounded.
6. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
7. Check switches for correct settings.
8. Determine type of electric motor (single-phase/three-phase/split phase/capacitor start).
9. Isolate faulty circuit(s).
10. Trace current/voltage paths in circuits.
11. Isolate faulty component(s).
12. Determine if component fault was caused by a defect elsewhere (repeating steps 9, 10, and/or 11 as required).
13. Determine echelon(s) of maintenance.
14. Document findings (complete LTI/update Service Request).
15. Order parts (if required).

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006

1142-MANT-1101

RELATED EVENTS:

1141-XENG-1692	1141-XENG-1693	1142-ADMN-1008
1142-ADMN-1010	1142-ADMN-1011	1142-MANT-1493

REFERENCES:

1. Appropriate Technical Manuals
2. EMR Electric Motor Repair, Third Addition
3. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
4. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 2000-15/4 Power System Reference Manual
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap (if required)
Equipment with faulty electric motor or the faulty electric motor

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Operator of equipment with faulty electric motor may be required to facilitate troubleshooting process.

OTHER SUPPORT REQUIREMENTS: Electrical power source will be required

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1142-MANT-1451: Repair a tactical generator set electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So generator functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1101
1142-MANT-1108	1142-MANT-1109	1142-MANT-1142
1142-MANT-1351		

RELATED EVENTS:

1141-MANT-1142	1142-MANT-1466	1142-MANT-1467
1142-MANT-1468	1142-MANT-1469	

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 11-6115-741-24 Field and Sustainment Maintenance for Tactical Generator Desert Operations Special Test, Inspection, and Repair Requirements
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
100kW Electrical Load Bank [B0579]
Anti-Static Wrist Strap (if required)
Degraded/deadlined generator set

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-1466: Repair a generator set air intake/exhaust system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So generator functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1142
1142-MANT-1351		

RELATED EVENTS:

1142-MANT-1451	1142-MANT-1467	1142-MANT-1468
1142-MANT-1469		

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –

General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
100kW Electrical Load Bank [B0579]
Degraded/deadlined generator set

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-1467: Repair a generator set cooling system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So generator functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1142
1142-MANT-1351		

RELATED EVENTS:

1142-MANT-1451	1142-MANT-1466	1142-MANT-1468
1142-MANT-1469		

REFERENCES:

1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
100kW Electrical Load Bank [B0579]
Degraded/deadlined generator set

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-1468: Repair a generator set fuel system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So generator functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.

12. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1142
1142-MANT-1351		

RELATED EVENTS:

1142-MANT-1451	1142-MANT-1466	1142-MANT-1467
1142-MANT-1469		

REFERENCES:

1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
100kW Electrical Load Bank [B0579]
Degraded/deadlined generator set

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-1469: Repair a generator set lubrication system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So generator functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1142
1142-MANT-1351		

RELATED EVENTS:

1142-MANT-1451	1142-MANT-1466	1142-MANT-1467
1142-MANT-1468		

REFERENCES:

1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
100kW Electrical Load Bank [B0579]
Degraded/deadlined generator set

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-1493: Connect electric motor control circuits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment containing an electric motor, electrical power source, parts, and references.

STANDARD: So positive control of electric motor is established in accordance with equipment manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Don Personal Protective Equipment (PPE).
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Identify motor type (single-phase, three-phase, split phase, capacitor start).
6. Determine motor voltage requirements.
7. Determine type of motor control required.
8. Wire motor control to electric motor circuit(s).
9. Inspect wiring.
10. Ensure motor is grounded/bonded.
11. Test motor operation.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101		

RELATED EVENTS:

1141-XENG-1692	1141-XENG-1693	1142-MANT-1108
1142-MANT-1109	1142-MANT-1392	

REFERENCES:
1. Appropriate Technical Manuals
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. EMR Electric Motor Repair, Third Addition
4. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
5. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
6. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
7. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
8. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
9. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
10. TM 2000-15/4 Power System Reference Manual
11. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)

Multimeter [H7030]
Anti-Static Wrist Strap (if required)
General Mechanics Tool Kit (GMTK) [C7915]
Equipment with an electric motor
Electric motor controls

MATERIAL:
Parts
Wire
Connector(s)

OTHER SUPPORT REQUIREMENTS: Electrical power source

9004. 2000-LEVEL EVENTS

1142-ADMN-2021: Apply safety programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place and enforced.

PERFORMANCE STEPS:
1. Review references.
2. Identify equipment safety requirements.
3. Identify personnel safety requirements.
4. Conduct Operational Risk Assessments.
5. Implement safety procedures.
6. Conduct safety awareness training.
7. Evaluate safety programs.
8. Enforce safety regulations.
9. Provide input for/submit required reports.

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002

RELATED EVENTS:
1141-ADMN-2021 1161-ADMN-2021 1171-ADMN-2021

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO 5100.19_ Marine Corps Traffic Safety Program (Drivesafe)
4. MCO 5100.29_ Marine Corps Safety Program
5. MCO 5100.30_ Marine Corps Recreation and Off-Duty Safety (RODS) Program

6. MCO 5100.34_ Deadline Safety of Use Message Instructions to Suspend Operations of Marine Corps Ground Equipment and Weapons Systems and Safety of Use Alerts
7. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
8. MCO 5104.2_ Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program
9. MCO 5104.3_ Marine Corps Radiation Safety Program
10. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
11. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
12. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
13. UNIT SOP Unit's Standing Operating Procedures

1142-ADMN-2022: Apply environmental regulations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With references.

STANDARD: So environmental policies and procedures will be adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Verify section's compliance with applicable environmental regulations and restrictions.
3. Monitor platoon/section hazardous material disposal program.
4. Maintain hazardous materials storage areas.
5. Maintain Material Safety Data Sheets (MSDS).
6. Report any situations that require reporting.

PREREQUISITE EVENTS: 1142-ADMN-1004

RELATED EVENTS:
1141-ADMN-2022 1161-ADMN-2022 1171-ADMN-2022

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations
5. OPNAVINST 5090.1_ Environmental Readiness Program Manual

1142-ADMN-2023: Conduct MOS training

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MOS is Military Occupational Specialty.

BILLETS: Engineer Equipment Electrical Systems Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Identify individual training requirements (review T&R Manual and MOS Roadmaps).
3. Identify unit training requirements (review unit METL/Commander's intent).
4. Determine on the job and sustainment training requirements by grade and MOS.
5. Develop lesson plans.
6. Develop training methods/aids/materials (as required).
7. Conduct training.
8. Document training.
9. Encourage use of self-directed study and assist in providing resources.

RELATED EVENTS:
1141-ADMN-2023 1161-ADMN-2023 1171-ADMN-2023

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCO 1553.4_ Professional Military Education (PME)
3. MCO 3500.26_ Universal Naval Task List (UNTL) Version 3.0
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 1553.1_ Systems Approach to Training (SAT) Users Guide
7. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
8. OPNAVINST 1560.10_ Administration of the United Services Military Apprenticeship Program (USMAP)
9. UNIT SOP Unit's Standing Operating Procedures

1142-ADMN-2041: Initiate a PQDR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PQDR is Product Quality Deficiency Report (SF 368).

BILLETS: Engineer Equipment Electrical Systems Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a defective item, blank forms, and references.

STANDARD: So deficiency can be identified.

PERFORMANCE STEPS:
1. Review references.
2. Collect data.
3. Verify deficiency requires a PQDR.
4. Determine if deficiency is Category I or Category II.
5. Establish exhibit controls using DD Forms 1575 and 2332 (if required).
6. Complete PQDR.
7. Submit PQDR per Unit SOP.

RELATED EVENTS:
1141-ADMN-2041 1161-ADMN-2041 1171-ADMN-2041

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
DD Form 1575 (Suspended Tag - Materiel)
DD Form 2332 (Product Quality Deficiency Report Exhibit)
SF 368 (Product Quality Deficiency Report [PQDR])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information for this event can be found at http//www.logcom.usmc.mil/pqdr.

1142-ADMN-2051: Establish equipment preventive maintenance schedule

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, forms, and references.

STANDARD: So operational readiness of equipment is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS)

requirements.
3. Audit equipment records.
4. Complete PMCS roster (NAVMC 10561).

PREREQUISITE EVENTS:
1142-ADMN-1006 1142-ADMN-1011

RELATED EVENTS:
1141-ADMN-2051 1161-ADMN-2051 1171-ADMN-2051

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 4-11.4 Maintenance Operations
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)
Equipment records

1142-ADMN-2061: Maintain PEB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PEB is Pre-Expended Bin.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With commander's pre-expended bin authorization and references.

STANDARD: So common, low-cost, high usage parts are continuously available for immediate maintenance/repair of equipment.

PERFORMANCE STEPS:
1. Review references.
2. Identify criteria for items placed in PEB.
3. Validate authorized PEB listing, ensuring it is signed annually by the commander.
4. Identify accountability requirements.
5. Requisition replacement parts, as required.
6. Roll back/dispose excess items.

RELATED EVENTS:
1141-ADMN-2061 1142-ADMN-2062 1161-ADMN-2061
1171-ADMN-2061

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1142-ADMN-2062: Maintain equipment repair parts bins

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With forms and references.

STANDARD: So parts are kept in appropriate bin (layette) until maintenance/repair of specified equipment is accomplished.

PERFORMANCE STEPS:
1. Review references.
2. Receive repair parts, placing repair parts in appropriate bin.
3. Update Service Request (SR).
4. Take corrective action if repair parts do not match requisitions.
5. Inventory bin every 2 weeks.
6. Issue repair parts when all are received, updating SR per unit's SOP.
7. Debrief task in GCSS-MC.

RELATED EVENTS:
1141-ADMN-2062 1142-ADMN-2061 1161-ADMN-2062
1171-ADMN-2062

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
Storage bins
Forms

1142-ADMN-2071: Monitor maintenance management reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With access to Global Combat Support System-Marine Corps (GCSS-MC), maintenance management reports, supporting documentation, and references.

STANDARD: So accuracy of maintenance management reports is validated and unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Obtain current Maintenance Process Report (MPR).
2. Review references.
3. Review supporting documentation (equipment records).
4. Review MPR maintenance cycle times.
5. Validate daily maintenance reports.
6. Validate weekly maintenance reports.
7. Validate readiness reports.
8. Identify "exceptions."
9. Determine actions (if any) to correct "exceptions."
10. Make corrections (if any) to Service Requests (SR).
11. Debrief SRs.

PREREQUISITE EVENTS:

1142-ADMN-1006	1142-ADMN-1007	1142-ADMN-1008
1142-ADMN-1009	1142-ADMN-1010	1142-ADMN-1011

RELATED EVENTS:

1141-ADMN-2071	1142-ADMN-2061	1142-ADMN-2062
1142-ADMN-2072	1161-ADMN-2071	1171-ADMN-2071

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Maintenance Process Report (MPR)

1142-ADMN-2072: Monitor maintenance related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment records, and references.

STANDARD: So unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Review references.
2. Determine unit's maintenance program requirements.
3. Inspect equipment.
4. Monitor Modification Control program.
5. Monitor Calibration Control program.
6. Monitor New Equipment Warranty program.
7. Monitor Quality Deficiency (QDR) program.
8. Monitor Recoverable Items (WIR) program.
9. Monitor Quality Control (QC) program.
10. Monitor Corrosion Prevention and Control (CPAC) program.
11. Ensure program and equipment records are maintained.

RELATED EVENTS:

1141-ADMN-2072	1142-ADMN-2041	1142-ADMN-2051
1142-ADMN-2071	1142-ADMN-2073	1161-ADMN-2072
1169-ADMN-2072	1171-ADMN-2072	

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4400.194_ Marine Corps Class VII Stock Rotation Policy
3. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
4. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4400.82_ Regulated/Controlled Item Management Manual
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
9. TM 4700-15/1_ Ground Equipment Record Procedures
10. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
11. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Some programs listed above may not be required at all units.

1142-ADMN-2073: Inspect maintenance actions (quality control)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Engineer Equipment Electrical Systems Technician, Quality Control NCO

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With repaired equipment, equipment records and references.

STANDARD: So equipment repairs and documentation are certified complete.

PERFORMANCE STEPS:
1. Review references.
2. Review Service Request (SR).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS:
1142-ADMN-1006 1142-ADMN-1008

RELATED EVENTS:
1141-ADMN-2073 1142-ADMN-1009 1142-ADMN-1011
1161-ADMN-2073 1171-ADMN-2073

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

OTHER SUPPORT REQUIREMENTS: Access to Global Combat Support System-Marine Corps (GCSS-MC)

1142-MANT-2191: Comply with a Modification Instruction (MI)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on effected equipment, the effected equipment, a Modification Instruction (MI), parts, tools, forms, and references.

STANDARD: Per the MI and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review MI.
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE) (if required).
6. Apply modification.
7. Test modification.
8. Document modification.

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:

1141-MANT-2191	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1161-MANT-2191	1171-MANT-2191

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Equipment being modified

MATERIAL:
Modification Instruction (MI)
Parts (if required)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1142-MANT-2199: Mount/dismount a generator set on a trailer

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a generator set, trailer, personnel, forklift or crane and operator, tools, and references.

STANDARD: So trailer can be safely transported/towed in support of unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Assess operational risk.
3. Don Personal Protective Equipment (PPE).
4. Prepare equipment.
5. Lift generator set on to trailer.
6. Fasten generator set to trailer.
7. Reverse procedure to dismount generator set.

RELATED EVENTS: 1141-MANT-2199

REFERENCES:
1. Appropriate Technical Manuals
2. MI 6115-24/24D Trailer Mounting of 10kW, MEP-003A, MEP-112A, MEP-803A, MEP-813A Generators on M116A2/3 Series Trailer
3. MI 6115-OI/25C Trailer Mounting of 3kW, MEP-831A Generators on M116A2/3 Series Trailer
4. MI 6115-OR/26A Trailer Mounting of Tactical Quiet Generators (TQG), 60 Kilowatt 60 Hertz (MEP-806A/B) or 60 Kilowatt 400 Hertz (MEP-816A/B) on M353 Trailer
5. MI 6115-OR/27A Trailer Mounting of Tactical Quiet Generators (TQG), 30 Kilowatt 60 Hertz (MEP-805A/B) or 30 Kilowatt 400 Hertz (MEP-815A/B) on M353 Trailer

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift or crane (with capacity to lift generator)
Generator
Trailer

MATERIAL: Fasteners to hold generator on trailer

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to operate forklift or crane
Personnel (any MOS) to help place generator

1142-MANT-2308: Diagnose an electrical starter malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Identify faulty component(s).
6. Determine if component fault was caused by a defect elsewhere.
7. Document findings (complete LTI/update Service Request).
8. Order parts (if required).

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1006 1142-MANT-1101

RELATED EVENTS:
1142-ADMN-1008 1142-ADMN-1010 1142-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 2000-15/4 Power System Reference Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Faulty electrical starter

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source will be required.

1142-MANT-2309: Diagnose an alternator malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Identify faulty component(s).
6. Determine if component fault was caused by a defect elsewhere.
7. Document findings (complete LTI/update Service Request).
8. Order parts (if required).

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1006 1142-MANT-1101

RELATED EVENTS:
1142-ADMN-1008 1142-ADMN-1010 1142-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 2000-15/4 Power System Reference Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Special tool(s) (if required)
Faulty alternator

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1142-MANT-2311: Diagnose an ECU electrical system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: ECU is Environmental Control Unit.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals/wiring diagrams/schematics.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check switches/gauges for correct settings.
9. Isolate faulty circuit(s).
10. Trace current/voltage paths in circuits.
11. Isolate faulty component(s).
12. Determine if component fault was caused by a defect elsewhere (repeating steps 9, 10, and/or 11 as required).
13. Determine echelon(s) of maintenance.
14. Document findings (complete LTI/update Service Request).
15. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1161-MANT-1311		

REFERENCES:
1. Appropriate Technical Manuals
2. DP 10230 Disposal Plan for the Military Standard Environmental Control Equipment
3. DP 4120 Disposal Plan for the 400Hz Environmental Control Units/Vertical Skids
4. FP 11079A/11079B Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0010 (10 Ton)
5. FP 11080A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0003 (1.5 Ton)
6. FP 11082A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0014 (3 Ton)
7. FP 11084A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0008 (5 Ton)

8. FP 11453A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0074 (.75 Ton)
9. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
10. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
11. MI 11082A-OI Installation Instructions for Installing Wye-Duct Adaptor on the AN/TPS-63B (A1300) When Using 3 Ton Environmental Control Unit (B0014)
12. SI 4120-OI/3B Warranty Procedures for the Family of Marine Corps Environmental Control Units
13. SL-3-4120 Components List for Family of Environmental Control Units
14. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
15. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
16. TM 11079A/11079B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 10 Ton, 120,000 BTU (120K ECU)
17. TM 11080A/11080B-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Environmental Control Unit, 1.5-Ton, 18,000 BTU
18. TM 11082A/11082B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 3 Ton, 36,000 BTU/hr (36K ECU)
19. TM 11084A/11084B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 5-Ton, 60,000 BTU/hr (60K ECU)
20. TM 11453A/11453B-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Environmental Control Unit, .75-Ton, 9,000 BTU/hr (9K ECU)
21. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Multimeter [H7030]
Anti-Static Wrist Strap
Faulty ECU or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: MOS 1161 (Refrigeration and Air Conditioning Technician) to facilitate troubleshooting process.

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Advanced Engineer Equipment Electrical Systems Technician Course (CID: M03A212) WILL NOT BE certified by the Environmental Protection Agency (EPA) to handle refrigerants.

1142-MANT-2318: Diagnose an ITEG electrical system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
ITEG is Integrated Trailer/ECU/Generator.
ECU is Environmental Control Unit.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Identify FROST BITE HAZARD(S).
5. Review LTI.
6. Review equipment technical manuals/wiring diagrams/schematics.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
10. Check switches/gauges for correct settings.
11. Determine if malfunction is ECU or generator related.
12. Determine if malfunction is electrical or mechanical.
13. Isolate faulty circuit(s).
14. Trace current/voltage paths in circuits.
15. Isolate faulty component(s).
16. Determine if component fault was caused by a defect elsewhere (repeating steps 10, 11, 12, 13, 14 and/or 15 as required).
17. Determine echelon(s) of maintenance.
18. Document findings (complete LTI/update Service Request).
19. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101	1142-MANT-1106	1142-MANT-1142

RELATED EVENTS:

1141-MANT-2218	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-MANT-1351	1142-MANT-2311
1161-MANT-1218	1161-MANT-1318	

REFERENCES:
1. FP 11490A Fielding Plan for Integrated Trailer Environmental Control Unit & Generator (ITEG)
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid

3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. SI 11490A-OI Warranty Procedures for the Integrated Trailer-ECU-Generator
5. SL-3-11490A Components List for Integrated Trailer, Environmental Control Unit, Generator (ITEG)
6. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Multimeter [H7030]
Anti-Static Wrist Strap
Faulty Integrated Trailer/ECU/Generator (ITEG) [B0018] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: MOS 1161 (Refrigeration and Air Conditioning Technician) to facilitate troubleshooting process on ECU portion of ITEG.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Advanced Engineer Equipment Electrical Systems Technician Course (CID: M03A212) WILL NOT BE certified by the Environmental Protection Agency (EPA) to handle refrigerants.

1142-MANT-2327: Diagnose a tactical refrigeration equipment electrical system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals/wiring diagrams/schematics.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check switches/gauges for correct settings.
9. Isolate faulty circuit(s).
10. Trace current/voltage paths in circuits.
11. Isolate faulty component(s).
12. Determine if component fault was caused by a defect elsewhere (repeating steps 9, 10, and/or 11 as required).
13. Determine echelon(s) of maintenance.
14. Document findings (complete LTI/update Service Request).
15. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011

REFERENCES:

1. FP 11574A/11609A Fielding Plan for the Field Refrigeration Systems TAMCN B00497B and B00757B
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. SI 11574A/11609A-OI Warranty Procedures for Field Refrigeration System
5. SL-3-11574A Components List for Large Field Refrigeration System
6. SL-3-11609A Components List for Small Field Refrigeration System
7. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
8. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
9. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
10. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
11. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Multimeter [H7030)
Anti-Static Wrist Strap
Faulty refrigeration equipment or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: MOS 1161 (Refrigeration and Air Conditioning Technician) to facilitate troubleshooting process.

OTHER SUPPORT REQUIREMENTS: Electrical power source will be required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Engineer Equipment Electrical Systems Technicians ARE NOT certified (at Marine Corps Engineer School) by the Environmental Protection Agency (EPA) to handle refrigerants.

1142-MANT-2332: Diagnose a CBL washer/dryer electrical malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: CBL is Containerized Batch Laundry Unit.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals/wiring diagrams/schematics.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check switches/gauges for correct settings.
9. Isolate faulty circuit(s).
10. Trace current/voltage paths in circuits.
11. Isolate faulty component(s).
12. Determine if component fault was caused by a defect elsewhere (repeating steps 9, 10, and/or 11 as required).
13. Determine echelon(s) of maintenance.
14. Document findings (complete LTI/update Service Request).
15. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101	1142-MANT-1106	

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1142-MANT-1331	1171-MANT-1331	1171-MANT-1332

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SI 11413A Warranty Procedures for the Containerized Batch Laundry
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Faulty washer or dryer

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: MOS 1171 (Water Support Technician) to facilitate troubleshooting process

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required

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1142-MANT-2338: Diagnose an M26 JSTDS-SS electrical system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: JSTDS-SS is Joint Service Transportable Decontamination System-Small Scale.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTRIC SHOCK HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).

3. Identify CARBON MONOXIDE HAZARD(S).
4. Review LTI.
5. Review equipment technical manuals/wiring diagrams/schematics.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Ensure any hazardous energy is controlled (Lockout/Tagout) (if required).
9. Check switches/gauges for correct settings.
10. Isolate faulty circuit(s).
11. Trace current/voltage paths in circuits.
12. Isolate faulty component(s).
13. Determine if component fault was caused by a defect elsewhere (repeating steps 10, 11, and/or 12 as required).
14. Determine echelon(s) of maintenance.
15. Document findings (complete LTI/update Service Request).
16. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1171-MANT-2338		

REFERENCES:

1. FP 12112A Fielding Plan for the Joint Service Transportable Decontamination System, Small Scale
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 12112A-OR Operator Manual for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26
7. TM 3-4230-238-23&P Field Maintenance Manual Including Repair Parts and Special Tools List for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Faulty M26 JSTDS-SS or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: MOS 5711 (Nuclear, Biological, and Chemical Defense Marine) to facilitate troubleshooting process

1142-MANT-2347: Diagnose a floodlight set malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review LTI.
5. Review equipment technical manuals/wiring diagrams/schematics.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Check switches/gauges for correct settings.
9. Isolate faulty circuit(s).
10. Trace current/voltage paths in circuits.
11. Isolate faulty component(s).
12. Determine if component fault was caused by a defect elsewhere (repeating steps 9, 10, and/or 11 as required).
13. Determine echelon(s) of maintenance.
14. Document findings (complete LTI/update Service Request).
15. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101		

RELATED EVENTS:

1141-MANT-1247	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011		

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MI 11120A-OI/1 Installation of Safety Modification Kit for the USMC Floodlight Set (FLS)(Model MLT5060MIT)
4. MI 11120A-OI/2 Modifications of the USMC Floodlight Set, Model MLT5060MIT
5. SI 11120A-OI/1 Warranty Procedures for B0640 Floodlight Set
6. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 11120A-OI Operation/Maintenance Manual with Repair Parts List for Floodlight Set (Model MLT5060MIT)

9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Faulty Floodlight Set [B0640] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-2354: Diagnose a MMG-25 20kW 60Hz Generator Set Synchronizer Box malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review the LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don Personal Protective Equipment (PPE).
5. Ensure equipment is grounded.
6. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
7. Check switches/gauges for correct settings.
8. Isolate faulty circuit(s).
9. Trace current/voltage paths in circuits.
10. Isolate faulty component(s).
11. Determine if component fault was caused by a defect elsewhere (repeating steps 8, 9, and/or 10 as required).
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/update Service Request).
14. Order parts (if required).

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006

RELATED EVENTS:
1141-MANT-2254 1142-ADMN-1008 1142-ADMN-1010
1142-ADMN-1011

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 11125A-OI/A Operation/Maintenance Manual with Repair Parts List for Generator Set, Diesel Engine (Model MMG25)
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap (if required)
Faulty MMG-25 20kW 60Hz Generator Set Synchronizer Box

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-2365: Diagnose a MEP-807A 100kW 60Hz Tactical Quiet Generator Set engine malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review LTI.
5. Review equipment technical manuals/wiring diagrams/schematics.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.

8. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout) (if required).
9. Check Digital Voltage Regulator (DVR) and Generator Set Controls (GSC) for correct settings.
10. Determine if malfunction is electrical or mechanical.
11. Isolate faulty circuit(s).
12. Trace current/voltage paths in circuits.
13. Isolate faulty component(s).
14. Determine if component fault was caused by a defect elsewhere (repeating steps 10, 11, 12, and/or 13 as required).
15. Determine echelon(s) of maintenance.
16. Document findings (complete LTI/update Service Request).
17. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101	1142-MANT-1142	

RELATED EVENTS:

1141-MANT-1251	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-MANT-1351	

REFERENCES:
1. FP 07464C Fielding Plan for B1045 MEP-807A 100kW Tactical Quiet Generator (TQG)
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. SI 07464C-OI/1 Warranty Procedures for MEP-807A 100kW Tactical Quiet Generator
5. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
6. TB 11-6115-741-24 Field and Sustainment Maintenance for Tactical Generator Desert Operations Special Test, Inspection, and Repair Requirements
7. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
8. TM 07464C-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
9. TM 07464C-24/2A Field and Sustainment Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
10. TM 07464C-24P/3 Field and Sustainment Maintenance Manual Including Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
11. TM 07464C-35 Systems Operation Testing and Adjusting for Caterpillar Generator Sets
12. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
13. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap

Caterpillar Electronic Technician (CAT-E-Tool)
Faulty MEP-807A 100kW 60Hz Tactical Quiet Generator Set [B1045] or components

MATERIAL:
DVR/GSC Programming Fault Guide
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-2383: Diagnose a TWPS electrical malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: TWPS is Tactical Water Purification System.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 416VAC 60Hz 3-Phase electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify CHEMICAL HAZARD(S).
3. Identify FIRE/EXPLOSION HAZARD(S).
4. Identify CARBON MONOXIDE HAZARD(S).
5. Identify GRAYWATER HAZARD(S).
6. Review LTI.
7. Review equipment technical manuals/wiring diagrams/schematics.
8. Don Personal Protective Equipment (PPE).
9. Ensure equipment is grounded.
10. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
11. Check switches/gauges for correct settings.
12. Isolate faulty circuit(s).
13. Trace current/voltage paths in circuits.
14. Isolate faulty component(s).
15. Determine if component fault was caused by a defect elsewhere (repeating steps 12, 13, and/or 14 as required).
16. Determine echelon(s) of maintenance.
17. Document findings (complete LTI/update Service Request).
18. Order parts (if required).

PREREQUISITE EVENTS:
1142-ADMN-1001 1142-ADMN-1002 1142-ADMN-1006

1142-MANT-1101	1142-MANT-1106	1142-MANT-1382

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1171-MANT-1282	1171-MANT-1382	1171-MANT-2397

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
4. SI 10802A-OR/2 Supply Instruction for Advance Change Notice to the Marine Corps Tactical Water Purification System (MC-TWPS)
5. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
6. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
9. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
10. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
11. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap
Faulty 1,500 GPH Tactical Water Purification System (TWPS) [B2605] or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: MOS 1171 (Water Support Technician) to facilitate troubleshooting process

OTHER SUPPORT REQUIREMENTS: 416VAC 60Hz 3-Phase electrical power source (normally a 60kW Tactical Generator Set)

1142-MANT-2395: Diagnose an electrical fault on a hydraulic/pneumatic system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don Personal Protective Equipment (PPE).
5. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout) (if required).
6. Check levers, valves, switches and/or gauges for correct settings.
7. Determine if malfunction is electrical or mechanical.
8. Isolate faulty circuit(s).
9. Trace current/voltage paths in circuits.
10. Isolate faulty component(s).
11. Determine if component fault was caused by a defect elsewhere (repeating steps 7, 8, 9, and/or 10 as required).
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/update Service Request).
14. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101	1142-MANT-1106	

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap (if required)
Equipment with faulty hydraulic/pneumatic system

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: Operator licensed on equipment with faulty hydraulic/pneumatic system.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: The operator will assist by advising on proper lever, valve, switch and/or gauge settings and on the functions of components controlled by hydraulic/pneumatic system.

1142-MANT-2397: Diagnose a tactical engineer equipment electrical system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don Personal Protective Equipment (PPE).
5. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout) (if required).
6. Check levers, valves, switches and/or gauges for correct settings.
7. Determine if malfunction is electrical or mechanical.
8. Isolate faulty circuit(s).
9. Trace current/voltage paths in circuits.
10. Isolate faulty component(s).
11. Determine if component fault was caused by a defect elsewhere (repeating steps 7, 8, 9, and/or 10 as required).
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/update Service Request).
14. Order parts (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-MANT-1101	1142-MANT-1106	

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals

2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap (if required)
Faulty tactical engineer equipment or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Operator licensed on equipment with faulty electrical system.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: The operator will assist by advising on proper lever, valve, switch and/or gauge settings and on the functions of components.

1142-MANT-2408: Repair an electrical starter

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, an inoperable starter, electrical power source, repair parts from layette, tools, forms, and references.

STANDARD: So starter functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Remove faulty part(s).
7. Prepare area(s) for new part(s).

8. Attach new part(s), making necessary adjustments.
9. Test repairs.
10. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1101
1142-MANT-1108	1142-MANT-1109	

RELATED EVENTS: 1142-MANT-1451

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Inoperable starter

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source will be required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Advanced Engineer Equipment Electrical Systems Technician Course (CID: M03A212) WILL NOT BE qualified to rewind starters.

1142-MANT-2409: Repair an alternator

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, an inoperable alternator, repair parts from layette, tools, forms, and references.

STANDARD: So alternator functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Remove faulty part(s).
7. Prepare area(s) for new part(s).
8. Attach new part(s), making necessary adjustments.
9. Test repairs.
10. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1006	1142-ADMN-1008
1142-ADMN-1011	1142-MANT-1101	1142-MANT-1108
1142-MANT-1109		

RELATED EVENTS: 1142-MANT-1451

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Inoperable alternator

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Advanced Engineer Equipment

Electrical Systems Technician Course (CID: M03A212) WILL NOT BE qualified to rewind alternators.

1142-MANT-2438: Repair an M26 JSTDS-SS electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: JSTDS-SS is Joint Service Transportable Decontamination System-Small Scale.

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So JSTDS-SS functions/operates as specified in TM 12112A-OR and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTRIC SHOCK HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review Service Request (SR).
5. Inventory parts from layette.
6. Review equipment technical manuals.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
10. Remove faulty part(s).
11. Prepare area(s) for new part(s).
12. Attach new part(s), making necessary adjustments.
13. Test repairs.
14. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1101
1142-MANT-1108	1142-MANT-1109	1142-MANT-2338

RELATED EVENTS:
1171-MANT-2438

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment

4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 12112A-OR Operator Manual for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26
6. TM 3-4230-238-23&P Field Maintenance Manual Including Repair Parts and Special Tools List for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Anti-Static Wrist Strap
Degraded/deadlined M26 JSTDS-SS

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: MOS 5711 (Nuclear, Biological, and Chemical Defense Marine) may be required to facilitate the repair process

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1142-MANT-2442: Repair a 100kW Electrical Load Bank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So load bank functions/operates as specified in TM 07500C-OI and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).

9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1101
1142-MANT-1108	1142-MANT-1109	1142-MANT-1142
1142-MANT-1342		

RELATED EVENTS: 1142-MANT-1242

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Anti-Static Wrist Strap
Degraded/deadlined load bank

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1142-MANT-2447: Repair a floodlight set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So floodlight functions/operates as specified in TM 11120A-OI and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review Service Request (SR).
5. Inventory parts from layette.
6. Review equipment technical manuals.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
10. Remove faulty part(s).
11. Prepare area(s) for new part(s).
12. Attach new part(s), making necessary adjustments.
13. Test repairs.
14. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1101
1142-MANT-1108	1142-MANT-1109	1142-MANT-2347

RELATED EVENTS: 1141-MANT-1247

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 11120A-OI Operation/Maintenance Manual with Repair Parts List for Floodlight Set (Model MLT5060MIT)
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Anti-Static Wrist Strap
Degraded/deadlined floodlight set

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1142-MANT-2497: Repair an engineer equipment electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review Service Request (SR).
5. Inventory parts from layette.
6. Review equipment technical manuals.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
10. Remove faulty part(s).
11. Prepare area(s) for new part(s).
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1101
1142-MANT-1108	1142-MANT-1109	1142-MANT-2397

RELATED EVENTS:

1141-MANT-2402	1142-MANT-2498

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)

Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Degraded/deadlined engineer equipment

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Operator licensed on equipment with faulty electrical system.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: The operator will assist by advising on proper lever, valve, switch and/or gauge settings and on the functions of components.

1142-MANT-2498: Repair a general supply equipment electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review Service Request (SR).
5. Inventory parts from layette.
6. Review equipment technical manuals.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
10. Remove faulty part(s).
11. Prepare area(s) for new part(s).
12. Attach new part(s), making necessary adjustments.
13. Test repairs.

14. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1006
1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1101
1142-MANT-1108	1142-MANT-1109	

RELATED EVENTS: 1142-MANT-2497

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Shop Equipment, General Purpose, Common No. 24 [C7911] - and/or –
Shop Equipment, General Purpose, Common No. 34 [C7913] - and/or –
General Mechanics Tool Kit (GMTK) [C7915] - and/or –
Shop Equipment, General Purpose, Common No. 30 [C7930]
Multimeter [H7030]
Degraded/deadlined general supply equipment

MATERIAL:
Repair parts

UNITS/PERSONNEL: Operator licensed on equipment with faulty electrical system.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: The operator will assist by advising on proper lever, valve, switch and/or gauge settings and on the functions of components.

CHAPTER 10

MOS 1161 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE.	10000	10-2
EVENT CODING	10001	10-2
INDEX OF INDIVIDUAL EVENTS	10002	10-3
1000-LEVEL EVENTS.	10003	10-5
2000-LEVEL EVENTS.	10004	10-45

CHAPTER 10

MOS 1161 INDIVIDUAL EVENTS

10000. PURPOSE. This chapter details the individual events that pertain to the Refrigeration and Air Conditioning Technician. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

10001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1161	Refrigeration and Air Conditioning Technician

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
MANT	Maintenance
XENG	General Engineering

c. Field three.

(1) The first digit of this field provides the level at which the event is accomplished. The following event levels are used:

Code	Description
1000	Core Skills
2000	Core Plus Skills

(2) As the Task Analyst/Advocate has deemed appropriate the second digit of this field represents a sub-function to that duty area identified in field two. The following sub-functions are used in this chapter:

Code	Description
X0XX	Administrative
X1XX	Miscellaneous maintenance functions
X2XX	Preventive Maintenance Checks and Services
X3XX	Diagnosing equipment malfunctions
X4XX	Repairing equipment
X5XX	Planning
X6XX	Equipment set up

X7XX Equipment operation
X9XX Civilian (tradesman/COTS type) duties based on operational/ humanitarian/disaster relief requirements.

(3) The last two digits of this field are used to identify and categorize like events or equipment across all MOSs of the 1100 OccFld (see Chapters 7 through 12), or are just numerical sequencing of events. Following are **some** examples of the categories used:

Code Description

X002 Core and Core Plus Skills related to controlling hazardous energy. See: 1120-ADMN-2002, 1141-ADMN-1002, 1142-ADMN-1002, 1161-ADMN-1002, 1169-ADMN-2002 and 1171-ADMN-1002.

X012 Core and Core Plus Skills related to NAVMC 10772 initiation, validation and submission. See: 1120-ADMN-2012, 1141-ADMN-1012, 1142-ADMN-1012, 1161-ADMN-1012, 1169-ADMN-2012 and 1171-ADMN-1012.

2023 Core Plus advanced level MOS training program functions. See: 1120-ADMN-2023, 1141-ADMN-2023, 1142-ADMN-2023, 1161-ADMN-2023, 1169-ADMN-2023 and 1171-ADMN-2023.

206X Core Plus advanced level supply support functions. See: 1120-ADMN-2061, 1120-ADMN-2062, 1120-ADMN-2063, 1120-ADMN-2064, 1120-ADMN-2065, 1141-ADMN-2061, 1141-ADMN-2062, 1142-ADMN-2061, 1142-ADMN-2062, 1161-ADMN-2061, 1161-ADMN-2062, 1169-ADMN-2061, 1169-ADMN-2062, 1169-ADMN-2063, 1169-ADMN-2064, 1169-ADMN-2065, 1171-ADMN-2061 and 1171-ADMN-2062.

XX18 Core and Core Plus Skills related to maintaining and operating the Integrated Tent, ECU and Generator (ITEG). See: 1141-XENG-1618, 1141-MANT-2218, 1141-XENG-2718, 1142-MANT-2318, 1161-MANT-1318 and 1161-MANT-2618. **NOTE**: There are three MOSs involved with this equipment.

10002. INDEX OF INDIVIDUAL EVENTS

EVENT	TITLE	PAGE
1000-LEVEL EVENTS		
1161-ADMN-1001	Conduct an Operational Risk Assessment (ORA)	10-5
1161-ADMN-1002	Control (Lockout/Tagout) hazardous energy	10-5
1161-ADMN-1003	Recover an electric shock victim	10-6
1161-ADMN-1004	Respond to a hazardous materials spill	10-7
1161-ADMN-1005	Administer first aid for chemical ingestion/contact	10-8
1161-ADMN-1006	Obtain equipment publications	10-9
1161-ADMN-1007	Conduct an SL-3 Components List/Basic Issue Items (BII) inventory	10-10
1161-ADMN-1008	Conduct an LTI	10-11
1161-ADMN-1009	Document equipment operation history	10-12
1161-ADMN-1010	Requisition repair parts	10-12

1161-ADMN-1011	Document equipment service/repair history	10-13
1161-ADMN-1012	Initiate a NAVMC 10772	10-14
1161-ADMN-1017	Maintain EPA Section 608 Type I Technician Certification	10-15
1161-ADMN-1018	Maintain EPA Section 608 Type II Technician Certification	10-16
1161-MANT-1101	Operate a multimeter	10-17
1161-MANT-1102	Operate a bar gauge manifold	10-18
1161-MANT-1103	Operate a vacuum pump	10-19
1161-MANT-1104	Recover refrigerant	10-20
1161-MANT-1105	Flare tubing	10-21
1161-MANT-1106	Braze tubing	10-22
1161-MANT-1107	Charge a system with refrigerant	10-23
1161-MANT-1108	Repair a wire connection on equipment	10-24
1161-MANT-1109	Solder an electrical connection	10-25
1161-MANT-1211	Perform scheduled PMCS on an ECU	10-26
1161-MANT-1218	Perform scheduled PMCS on an ITEG ECU	10-28
1161-MANT-1235	Perform scheduled PMCS on an FRS	10-29
1161-MANT-1311	Diagnose an ECU malfunction	10-31
1161-MANT-1318	Diagnose an ITEG ECU malfunction	10-32
1161-MANT-1335	Diagnose an FRS malfunction	10-34
1161-MANT-1401	Repair an ECU mechanical system	10-35
1161-MANT-1402	Repair a refrigeration system mechanical system	10-36
1161-MANT-1403	Repair an ECU electrical system	10-38
1161-MANT-1404	Repair a refrigeration system electrical system	10-39
1161-XENG-1611	Install a 1.5-Ton ECU	10-40
1161-XENG-1614	Set up a Packaged System ECU	10-41
1161-XENG-1634	Install a 3/4-Ton ECU	10-43
1161-XENG-1635	Set up an FRS	10-44
	2000-LEVEL EVENTS	
1161-ADMN-2015	Maintain high pressure air conditioning systems	10-45
1161-ADMN-2016	Maintain low pressure air conditioning systems	10-47
1161-ADMN-2021	Apply safety programs	10-48
1161-ADMN-2022	Apply environmental regulations	10-50
1161-ADMN-2023	Conduct MOS training	10-50
1161-ADMN-2041	Initiate a PQDR	10-51
1161-ADMN-2051	Establish equipment preventive maintenance schedule	10-52
1161-ADMN-2061	Maintain PEB	10-53
1161-ADMN-2062	Maintain equipment repair parts bins	10-54
1161-ADMN-2071	Monitor maintenance management reports	10-55
1161-ADMN-2072	Monitor maintenance related programs	10-56
1161-ADMN-2073	Inspect maintenance actions (quality control)	10-57
1161-MANT-2191	Comply with a Modification Instruction (MI)	10-58
1161-XENG-2541	Develop a field refrigeration/environmental control equipment support plan	10-59
1161-XENG-2571	Design an interior HVAC system for a semi-permanent structure	10-60
1161-XENG-2618	Set up an ITEG	10-61
1161-XENG-2641	Direct environmental control equipment set up/installation	10-63
1161-XENG-2642	Direct refrigeration equipment set up	10-64
1161-XENG-2741	Monitor field refrigeration/environmental control	10-65

	equipment operation	
1161-XENG-2974	Inspect interior HVAC system of a permanent structure	10-66
1161-XENG-2978	Install commercial HVAC system	10-68

10003. 1000-LEVEL EVENTS

1161-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a task/mission, a Risk Management Worksheet, and references.

STANDARD: So task/mission effectiveness is increased while loss of personnel and materiel is minimized through the use of risk management controls.

PERFORMANCE STEPS:
1. Identify task/mission requirements.
2. Review references.
3. Identify hazards, recording them on Risk Management Worksheet.
4. Assess severity and probability of hazards to determine risk levels.
5. Develop risk control measures.
6. Make risk decisions and/or forward Risk Management Worksheet to supervisor for decision/approval.
7. Implement controls.

RELATED EVENTS:
1141-ADMN-1001 1142-ADMN-1001 1171-ADMN-1001

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1161-ADMN-1002: Control (Lockout/Tagout) hazardous energy

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment manuals, Lockout/Tagout devices, forms, and references.

STANDARD: So equipment is locked out or tagged out to protect against accidental or inadvertent start-up, or operation that may cause injury to personnel performing maintenance, service, repair, or modification to the equipment.

PERFORMANCE STEPS:
1. Review references.
2. Locate all energy isolating devices and hazardous energy sources (NOTE: there may be more than one).
3. Obtain required number of Lockout/Tagout devices from program coordinator.
4. Notify all effected personnel and supervisors.
5. Don Personal Protective Equipment (PPE).
6. Shut down equipment/turn off circuit.
7. Dissipate or restrain any stored energy.
8. Apply Lockout/Tagout devices.
9. Verify energy is isolated/dissipated (test circuit).
10. Effect required service, maintenance, repairs or modifications to equipment/circuit.
11. Remove Lockout/Tagout devices.
12. Restore equipment/circuit to normal operation.
13. Return Lockout/Tagout devices to program coordinator.

PREREQUISITE EVENTS: 1161-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1142-ADMN-1002 1171-ADMN-1002

REFERENCES:
1. Appropriate Technical Manuals
2. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE)

MATERIAL:
Lockout/Tagout devices
NAVMC 11403 (Lockout/Tagout Checklist)

UNITS/PERSONNEL: Lockout/Tagout Program Coordinator

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: NAVMC Dir 5100.8, Chapter 12, provides detailed information for this event.

1161-ADMN-1003: Recover an electric shock victim

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So danger to personnel is eliminated and victim is cared for.

PERFORMANCE STEPS:
1. Evaluate situation.
2. Send for help.
3. Provide for personal protection.
4. Isolate victim from electrical source.
5. Evaluate victim.
6. Start artificial resuscitation (if necessary).
7. Remain with victim until medical help arrives.
8. Report incident.

RELATED EVENTS:
1120-ADMN-2003 1141-ADMN-1003 1142-ADMN-1003
1169-ADMN-2003 1171-ADMN-1003

REFERENCES:
1. MCRP 3-02G First Aid
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 2000-15/4 Power System Reference Manual
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Ropes
Brooms, mops or tree branches

1161-ADMN-1004: Respond to a hazardous materials spill

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Provide for personal protection.
3. Contain spill.
4. Report spill.
5. Remove uncontaminated material.
6. Dispose of hazardous material.

RELATED EVENTS:
1120-ADMN-2004 1141-ADMN-1004 1142-ADMN-1004
1169-ADMN-2004 1171-ADMN-1004

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations

SUPPORT REQUIREMENTS:

MATERIAL: Spill containment kit

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCO 4450.12A, Chapter 7 and MCRP 4-11B, Appendix J, Tab A provide detailed information for this event.

1161-ADMN-1005: Administer first aid for chemical ingestion/contact

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and MCRP 3-02G.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (if required).
5. Give first aid.
6. Remain with victim until medical help arrives.
7. Report incident.

RELATED EVENTS:
1120-ADMN-2005 1141-ADMN-1005 1142-ADMN-1005
1169-ADMN-2005 1171-ADMN-1005

REFERENCES:
1. MCRP 3-02G First Aid

SUPPORT REQUIREMENTS:

MATERIAL: Material Safety Data Sheet (MSDS) file

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCRP 3-02G, Chapter 7 provides detailed information for this event.

1161-ADMN-1006: Obtain equipment publications

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a tasking, equipment, and references.

STANDARD: So appropriate publication(s) are used with corresponding equipment.

PERFORMANCE STEPS:
1. Determine/record equipment National Stock Number (NSN).
2. Determine/record equipment Model Number.
3. Determine/record equipment Identification Number.
4. Ascertain section's authorized echelon of maintenance.
5. Identify publications that are published/available for equipment.
6. Check required publications out of section's Publication Library.

RELATED EVENTS:
1141-ADMN-1006 1142-ADMN-1006 1171-ADMN-1006

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required to complete this event at some units.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information to assist or increase personal knowledge for this event is contained in MCI 0416B - The Marine Corps Publications and Directives System.

1161-ADMN-1007: Conduct an SL-3 Components List/Basic Issue Items (BII) inventory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment and references.

STANDARD: So accountability of all components is validated per the SL-3/BII list and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review references.
2. Obtain Components List (SL-3 or TM listing Basic Issue Items [BII]) for item.
3. Identify each component using the SL-3/BII.
4. Identify missing components.
5. Identify unserviceable components.
6. Document inventory results.
7. Report any inventory discrepancies and unserviceable components.

PREREQUISITE EVENTS: 1161-ADMN-1006

RELATED EVENTS:
1141-ADMN-1007 1142-ADMN-1007 1171-ADMN-1007

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. SI 10510-OR/1 Tool Warranty/Replacement Instructions for Using the USMC ServMart
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: SL-3/BII inventory sheets

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 6 provides detailed information for this event.

1161-ADMN-1008: Conduct an LTI

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: LTI is Limited Technical Inspection.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment requiring inspection and the equipment's records, forms, tools, and references.

STANDARD: So equipment is inspected for serviceability and discrepancies are identified.

PERFORMANCE STEPS:
1. Review references.
2. Lockout/Tagout equipment (if required).
3. Provide for personal protection (if required).
4. Identify components.
5. Verify component function/serviceability.
6. Verify authorized modifications.
7. Record discrepancies (if any).
8. Attach NAVMC 1018 to equipment (if required).
9. Complete NAVMC 10560.

PREREQUISITE EVENTS:
1161-ADMN-1002 1161-ADMN-1006 1161-ADMN-1007

RELATED EVENTS:
1141-ADMN-1008 1142-ADMN-1008 1171-ADMN-1008

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL:
NAVMC 1018 (Inspection/Repair Tag)
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection of Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 9 provides

information for completing the NAVMC 1018 and TM 4700-15/1H, Chapter 2, Section 22 provides information for completing the NAVMC 10560.

1161-ADMN-1009: Document equipment operation history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment's records, forms, and references.

STANDARD: So hours/days of operation for the equipment are indicated and preventive maintenance intervals can be scheduled/rescheduled.

PERFORMANCE STEPS:
1. Review references.
2. Validate equipment descriptive data on NAVMC 696D.
3. Ensure equipment descriptive data on NAVMC 10524 is correct.
4. Record hours/days equipment was operated (on NAVMC 10524 and in GCSS-MC).

RELATED EVENTS:
1141-ADMN-1009 1142-ADMN-1009 1171-ADMN-1009

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 14 provides information for completing the NAVMC 696D and TM 4700-15/1H, Chapter 2, Section 21 provides information for completing the NAVMC 10524.

1161-ADMN-1010: Requisition repair parts

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: So valid requisitions are created.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Retrieve and review assigned GCSS-MC Service Request (SR) task, validating equipment identification data.
4. Debrief GCSS-MC SR task by entering repair part(s)/component(s) requirement information.
5. Change GCSS-MC SR status to "waiting approval."
6. Follow up/reconcile requisition (as needed/required).

PREREQUISITE EVENTS: 1161-ADMN-1006

RELATED EVENTS:
1141-ADMN-1010 1142-ADMN-1010 1161-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 3 provides information that will assist in entering repair part/component requirements into GCSS-MC.

1161-ADMN-1011: Document equipment service/repair history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms and references.

STANDARD: So service/repair actions for equipment are debriefed.

PERFORMANCE STEPS:
1. Review references.
2. Retrieve and review assigned GCSS-MC Service Request (SR).
3. Debrief GCSS-MC SR task by updating information with service/repair actions taken.
4. Change GCSS-MC SR status to "waiting approval."

RELATED EVENTS:

1141-ADMN-1011	1142-ADMN-1011	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1009	1161-ADMN-1010
1171-ADMN-1011		

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event.

1161-ADMN-1012: Initiate a NAVMC 10772

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NAVMC 10772 is Recommended Change to Technical Publications/Logistics-Maintenance Data Coding.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an identified error/deficiency to a technical publication and references.

STANDARD: So corrections/improvements to the publication will be affected per TM 4700-15/1H and MCO P5215.17C.

PERFORMANCE STEPS:
1. Review references.
2. Determine if error/deficiency requires use of Part I or Part II of NAVMC 10772.
3. Fill in all required blocks of NAVMC 10772.
4. Forward completed NAVMC 10772.

PREREQUISITE EVENTS: 1161-ADMN-1006

RELATED EVENTS:
1141-ADMN-1012 1142-ADMN-1012 1171-ADMN-1012

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10772 (Recommended Change to Technical Publications/Logistics-Maintenance Data Coding)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website: https://portal.logcom.usmc.mil/sites/pubs/Site%20Pages/NAVMC10772RFC.aspx.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 23 provides detailed information for this event.

1161-ADMN-1017: Maintain EPA Section 608 Type I Technician Certification

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: EPA is the Environmental Protection Agency.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With the aid of instruction and references.

STANDARD: To guarantee compliance with Clean Air Act requirements for technician certification.

PERFORMANCE STEPS:
1. Review references.
2. Pass Environmental Protection Agency (EPA) Section 608 Core examination.
3. Pass EPA Section 608 Type I examination.
4. Obtain documentation of certification.
5. Monitor changes to Section 608 of the Clean Air Act (CAA).
6. Comply with EPA Section 608 Type I Technician requirements.

RELATED EVENTS: 1161-ADMN-1018

REFERENCES:

1. Appropriate Technical Manuals
2. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
3. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
4. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
5. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Refrigeration and Air Conditioning Technician Course (CID: M0311D2) have Environmental Protection Agency (EPA) Section 608 Type I certification. EPA Section 608 Type I certification allows the technician to work on "small appliances." Certification is obtained from an authorized EPA test proctoring activity. Current information on Section 608 of the Clean Air Act (CAA) can be found at www.epa.gov/ozone/title6/608.

SPECIAL PERSONNEL CERTS: EPA Section 608 Type I Technician Certificate.

1161-ADMN-1018: Maintain EPA Section 608 Type II Technician Certification

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: EPA is the Environmental Protection Agency.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With the aid of instruction and references.

STANDARD: To guarantee compliance with Clean Air Act requirements for technician certification.

PERFORMANCE STEPS:
1. Review references.
2. Pass Environmental Protection Agency (EPA) Section 608 Core examination.
3. Pass EPA Section 608 Type II examination.
4. Obtain documentation of certification.
5. Monitor changes to Section 608 of the Clean Air Act (CAA).
6. Comply with EPA Section 608 Type II Technician requirements.

PREREQUISITE EVENTS: 1161-ADMN-1017

REFERENCES:
1. Appropriate Technical Manuals
2. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
3. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)

4. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
5. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Refrigeration and Air Conditioning Technician Course (CID: M0311D2) have Environmental Protection Agency (EPA) Section 608 Type II certification. EPA Section 608 Type II certification allows the technician to work on high pressure and very high pressure refrigerant systems (most Marine Corps equipment). Certification is obtained from an authorized EPA test proctoring activity. Current information on Section 608 of the Clean Air Act (CAA) can be found at www.epa.gov/ozone/title6/608.

SPECIAL PERSONNEL CERTS: EPA Section 608 Type II Technician Certificate.

1161-MANT-1101: Operate a multimeter

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment having an electrical circuit(s).

STANDARD: So electrical outputs of the circuit are measured.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Determine correct setting (AC, DC, resistance or current).
3. Test circuit (voltage, resistance, current).
4. Record measurements/readings.
5. Analyze measurements/readings.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006

RELATED EVENTS:

1141-MANT-1101	1142-MANT-1101	1171-MANT-2101

REFERENCES:
1. Appropriate Technical Manuals
2. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
3. MRAC Modern Refrigeration & Air Conditioning Text Book
4. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
5. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
6. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and

Solid State Power Supplies and Amplifiers
7. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Multimeter [H7030]
Anti-Static Wrist Strap (if required)
Equipment with an electrical circuit

1161-MANT-1102: Operate a bar gauge manifold

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: So refrigerant system pressures are observed and measured.

PERFORMANCE STEPS:
1. Identify FROST BITE HAZARD(S).
2. Review references.
3. Perform before operation checks on bar gauge manifold.
4. Don Personal Protective Equipment (PPE).
5. Attach charging line (hoses) to refrigeration/air conditioning equipment.
6. Purge charging line.
7. Check for leaks.
8. Observe readings.
9. Analyze readings.
10. Equalize system pressure on bar gauge manifold.
11. Disconnect charging line from refrigeration/air conditioning equipment.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1017 1161-ADMN-1018

RELATED EVENTS:
1161-MANT-1103 1161-MANT-1104 1161-MANT-1106
1161-MANT-1107

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Refrigeration/Air conditioning equipment to be serviced/repaired

MATERIAL: Refrigerant (if needed)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA certification for refrigerant system being worked on.

1161-MANT-1103: Operate a vacuum pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, an electrical power source, and references.

STANDARD: So moisture and non-condensables are removed and integrity of refrigerant tubing (leaks) is determined.

PERFORMANCE STEPS:
1. Identify FROST BITE HAZARD(S).
2. Review references.
3. Perform before operation checks on vacuum pump.
4. Don Personal Protective Equipment (PPE).
5. Connect vacuum pump to refrigerant system tubing via bar gauge manifold.
6. Turn on pump.
7. Check for suction.
8. Monitor bar gauge manifold until vacuum is established.
9. Turn off pump.
10. Verify refrigerant tubing is not leaking.
11. Perform after operation checks on vacuum pump.

PREREQUISITE EVENTS:

1161-ADMN-1006	1161-ADMN-1017	1161-ADMN-1018
1161-MANT-1102		

RELATED EVENTS:

1161-MANT-1104	1161-MANT-1106	1161-MANT-1107

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Equipment with refrigerant tubing

OTHER SUPPORT REQUIREMENTS: Electrical power source

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA certification for refrigerant system being worked on.

1161-MANT-1104: Recover refrigerant

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, an electrical power source, and references.

STANDARD: So refrigerant is recovered with "de minimis" atmospheric impact.

PERFORMANCE STEPS:
1. Identify FROST BITE HAZARD(S).
2. Review references.
3. Don Personal Protective Equipment (PPE).
4. Attach hoses to equipment being serviced.
5. Perform before operation checks.
6. Check for leaks.
7. Turn on compressor.
8. Recover refrigerant.
9. Perform during operation checks.
10. Turn off compressor.

PREREQUISITE EVENTS:

1161-ADMN-1006	1161-ADMN-1017	1161-ADMN-1018

RELATED EVENTS:

1161-MANT-1102	1161-MANT-1103	1161-MANT-1107

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
4. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit

(CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Refrigeration or air conditioning equipment being serviced

MATERIAL: Refrigerant

OTHER SUPPORT REQUIREMENTS: Electrical power source

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA certification for refrigerant system being worked on.

1161-MANT-1105: Flare tubing

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: So connection(s) will not leak when under designated pressure.

PERFORMANCE STEPS:
1. Review references.
2. Size tubing.
3. Prepare tubing and fitting (clean).
4. Create flare.
5. Make connection.
6. Test connection for leaks.

RELATED EVENTS:
1161-MANT-1106 1161-MANT-1109

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:

Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Equipment with faulty tubing

MATERIAL:
Air Conditioner/Refrigeration (ACR) copper tubing
Fittings

1161-MANT-1106: Braze tubing

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: Per TB SIG 222 to obtain leak proof connection(s).

PERFORMANCE STEPS:
1. Identify FIRE HAZARD(S).
2. Identify VAPOR HAZARD(S).
3. Review references.
4. Size tubing.
5. Prepare tubing and fittings (sand and flux).
6. Don Personal Protective Equipment (PPE).
7. Heat connection(s).
8. Apply solder/braze connection(s).
9. Clean connection(s).
10. Test connection(s) for leaks.

RELATED EVENTS:
1161-MANT-1105 1161-MANT-1109

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. TB SIG 222 Solder and Soldering
4. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Equipment with faulty tubing

MATERIAL:
Air Conditioner/Refrigeration (ACR) copper tubing
Fittings

Flux (if required)
Solder
Emery cloth

OTHER SUPPORT REQUIREMENTS: Ventilation is required if this event is performed indoors.

1161-MANT-1107: Charge a system with refrigerant

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: So refrigerant system operating pressures are obtained per the equipment's technical manuals.

PERFORMANCE STEPS:
1. Identify FROST BITE HAZARD(S).
2. Review references to determine normal operating pressures.
3. Don Personal Protective Equipment (PPE).
4. Connect bar gauge manifold to refrigerant system.
5. Evacuate system (if required).
6. Ensure vacuum is maintained (if needed).
7. Introduce refrigerant.
8. Monitor bar gauge manifold until operating pressure is reached.
9. Test refrigerant system.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1006	1161-ADMN-1017
1161-ADMN-1018	1161-MANT-1102	

RELATED EVENTS:

1161-MANT-1103	1161-MANT-1104

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Refrigeration or air conditioning equipment being serviced

MATERIAL: Refrigerant

OTHER SUPPORT REQUIREMENTS: Electrical power source

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA certification for refrigerant system being worked on.

1161-MANT-1108: Repair a wire connection on equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: So electrical continuity is established with tensile strength required by technical manuals related to the application.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Determine type of splice/connection required.
4. Don Personal Protective Equipment (PPE).
5. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
6. Strip wire(s).
7. Clean component(s) and wire(s).
8. Construct the splice/connection.
9. Test splice/connection.
10. Insulate bare wires.

PREREQUISITE EVENTS:
1161-ADMN-1002 1161-ADMN-1006 1161-MANT-1101

RELATED EVENTS:
1142-MANT-1108 1161-MANT-1109

REFERENCES:
1. Appropriate Technical Manuals
2. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Equipment with faulty wire connection(s)

MATERIAL:
Wire
Connector(s) (if required)
Electrical tape

1161-MANT-1109: Solder an electrical connection

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, material, and references.

STANDARD: So electrical continuity is established with tensile strength required by TB SIG 222 and technical manuals related to the application.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify VAPOR HAZARD(S).
3. Review references.
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Clean component(s) and wire(s).
6. Don Personal Protective Equipment (PPE).
7. Position component(s) and wire(s).
8. Apply flux (if needed).
9. Heat connection.
10. Apply solder.
11. Allow connection to cool.
12. Test connection.
13. Insulate bare wires.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002 1161-ADMN-1006
1161-MANT-1101

RELATED EVENTS:
1142-MANT-1109 1161-MANT-1108

REFERENCES:
1. Appropriate Technical Manuals
2. TB SIG 222 Solder and Soldering
3. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
4. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and

Solid State Power Supplies and Amplifiers
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Soldering Iron
Equipment with faulty wire connection(s)

MATERIAL:
Wire
Connector(s) (if required)
Flux (if needed)
Solder
Electrical tape

OTHER SUPPORT REQUIREMENTS: Ventilation is required if this event is performed indoors.

1161-MANT-1211: Perform scheduled PMCS on an ECU

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
ECU is Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, electrical power source, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per equipment technical manuals and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review equipment technical manual.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.

10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002 1161-ADMN-1006
1161-ADMN-1011

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1008

REFERENCES:
1. Appropriate Technical Manuals
2. DP 10230 Disposal Plan for the Military Standard Environmental Control Equipment
3. DP 4120 Disposal Plan for the 400Hz Environmental Control Units/Vertical Skids
4. FP 11079A/11079B Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0010 (10 Ton)
5. FP 11080A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0003 (1.5 Ton)
6. FP 11082A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0014 (3 Ton)
7. FP 11084A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0008 (5 Ton)
8. FP 11453A Fielding Plan for the Environmental Control Unit (ECU) TAMCN B0074 (.75 Ton)
9. MI 11082A-OI Installation Instructions for Installing Wye-Duct Adaptor on the AN/TPS-63B (A1300) When Using 3 Ton Environmental Control Unit (B0014)
10. SI 4120-OI/3B Warranty Procedures for the Family of Marine Corps Environmental Control Units
11. SL-3-4120 Components List for Family of Environmental Control Units
12. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
13. TM 11079A/11079B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 10 Ton, 120,000 BTU (120K ECU)
14. TM 11080A/11080B-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Environmental Control Unit, 1.5-Ton, 18,000 BTU
15. TM 11082A/11082B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 3 Ton, 36,000 BTU/hr (36K ECU)
16. TM 11084A/11084B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 5-Ton, 60,000 BTU/hr (60K ECU)
17. TM 11453A/11453B-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Environmental Control Unit, .75-Ton, 9,000 BTU/hr (9K ECU)
18. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]

Environmental Control Unit (ECU)

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 608 Type II Technician Certificate.

1161-MANT-1218: Perform scheduled PMCS on an ITEG ECU

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
ITEG is Integrated Trailer/ECU/Generator.
ECU is Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, material, and references.

STANDARD: So equipment is checked and serviced per TM 11490A-OR and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.
10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002 1161-ADMN-1006
1161-ADMN-1011

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1008

REFERENCES:
1. FP 11490A Fielding Plan for Integrated Trailer Environmental Control Unit & Generator (ITEG)
2. SI 11490A-OI Warranty Procedures for the Integrated Trailer-ECU-Generator
3. SL-3-11490A Components List for Integrated Trailer, Environmental Control Unit, Generator (ITEG)
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Electrician (MOS 1141) is required for PMCS on the generator portion of the ITEG.

1161-MANT-1235: Perform scheduled PMCS on an FRS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
FRS is Field Refrigeration System (either Small or Large).

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, a 120/208VAC 60Hz 3-Phase electrical power source, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per equipment technical manuals and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).

2. Identify FROST BITE HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.
10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002 1161-ADMN-1006
1161-ADMN-1011

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1008

REFERENCES:
1. FP 11502A Fielding Plan for the Cooling and Refrigeration Expeditionary Kit TAMCN B0061
2. FP 11574A/11609A Fielding Plan for the Field Refrigeration Systems TAMCN B00497B and B00757B
3. SI 11502A-OI Warranty Procedures for the Cooling and Refrigeration Expeditionary Kit
4. SI 11574A/11609A-OI Warranty Procedures for Field Refrigeration System
5. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
6. SL-3-11574A Components List for Large Field Refrigeration System
7. SL-3-11609A Components List for Small Field Refrigeration System
8. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
9. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
10. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
11. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
12. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Small Field Refrigeration System (SFRS) [B0075] - or –
Large Field Refrigeration System (LFRS) [B0049]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services

OTHER SUPPORT REQUIREMENTS: 120/208VAC 60Hz 3-Phase electrical power source

1161-MANT-1311: Diagnose an ECU malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: ECU is Environmental Control Unit

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check switches/gauges for correct settings.
9. Determine if malfunction is electrical or mechanical.
10. Isolate faulty circuit(s)/component(s).
11. Determine if circuit/component fault was caused by a defect elsewhere (repeating steps 8, 9, and/or 10 as required).
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/update Service Request).
14. Order parts (if required).

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1018	1161-MANT-1101	1161-MANT-1102

RELATED EVENTS:

1161-ADMN-1008	1161-ADMN-1010	1161-ADMN-1011
1161-MANT-1211		

REFERENCES:
1. Appropriate Technical Manuals
2. Doolin's Trouble Shooters Bible
3. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
4. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Anti-Static Wrist Strap
Faulty Environmental Control Unit (ECU) or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 608 Type II Technician Certificate.

1161-MANT-1318: Diagnose an ITEG ECU malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
ITEG is Integrated Trailer/ECU/Generator.
ECU is Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Identify FROST BITE HAZARD(S).
5. Review LTI.
6. Review equipment technical manuals.
7. Don Personal Protective Equipment (PPE).
8. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
9. Check switches/gauges for correct settings.
10. Determine if malfunction is ECU or generator related.
11. Trace current/voltage paths in circuits.
12. Determine if malfunction is electrical or mechanical.
13. Isolate faulty circuit(s)/component(s).

14. Determine if circuit/component fault was caused by a defect elsewhere (repeating steps 10, 11, 12 and/or 13 as required).
15. Determine echelon(s) of maintenance.
16. Document findings (complete LTI/update Service Request).
17. Order parts (if required).

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1018	1161-MANT-1101	1161-MANT-1102

RELATED EVENTS:

1161-ADMN-1008	1161-ADMN-1010	1161-ADMN-1011
1161-MANT-1218	1161-MANT-1311	

REFERENCES:

1. Doolin's Trouble Shooters Bible
2. FP 11490A Fielding Plan for Integrated Trailer Environmental Control Unit & Generator (ITEG)
3. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
4. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
5. SI 11490A-OI Warranty Procedures for the Integrated Trailer-ECU-Generator
6. SL-3-11490A Components List for Integrated Trailer, Environmental Control Unit, Generator (ITEG)
7. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
8. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
9. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
10. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Anti-Static Wrist Strap (if required)
Faulty Integrated Trailer/ECU/Generator (ITEG) [B0018] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 608 Type II Technician Certificate. Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142) may be required to assist in diagnosing malfunctions between the ECU and generator portions of the ITEG.

SPECIAL PERSONNEL CERTS: Graduates of the Basic Refrigeration and Air Conditioning Technician Course (CID: M0311D2) ARE NOT licensed as ITEG operators.

1161-MANT-1335: Diagnose an FRS malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: FRS is Field Refrigeration System.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check switches/gauges for correct settings.
9. Determine if malfunction is electrical or mechanical.
10. Isolate faulty circuit(s)/component(s).
11. Determine if circuit/component fault was caused by a defect elsewhere (repeating steps 8, 9 and/or 10 as required).
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/update Service Request).
14. Order parts (if required).

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1018	1161-MANT-1101	1161-MANT-1102

RELATED EVENTS:

1161-ADMN-1008	1161-ADMN-1010	1161-ADMN-1011
1161-MANT-1235		

REFERENCES:
1. Doolin's Trouble Shooters Bible
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

7. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
8. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Anti-Static Wrist Strap (if required)
Faulty Field Refrigeration System (FRS) or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 608 Type II Technician Certificate.

1161-MANT-1401: Repair an ECU mechanical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: ECU is Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, refrigerant (if needed), tools, forms, and references.

STANDARD: So equipment functions/operates as specified in the equipment's technical manuals and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).

9. Recover refrigerant (if necessary).
10. Remove faulty part(s).
11. Prepare area(s) for new part(s).
12. Attach new part(s), making necessary adjustments.
13. Vacuum test refrigerant system (if needed).
14. Recharge refrigerant system (if needed).
15. Test repairs.
16. Document repairs.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1011	1161-ADMN-1018
1161-MANT-1102	1161-MANT-1103	1161-MANT-1104
1161-MANT-1105	1161-MANT-1106	1161-MANT-1107
1161-MANT-1311		

RELATED EVENTS:

1161-MANT-1211	1161-MANT-1403

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Degraded/deadlined Environmental Control Unit (ECU)

MATERIAL:
Refrigerant (if needed)
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required to test repairs

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 608 Type II Technician Certificate.

1161-MANT-1402: Repair a refrigeration system mechanical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, refrigerant (if needed), tools, forms, and references.

STANDARD: So equipment functions/operates as specified in equipment's technical manuals and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
9. Recover refrigerant (if necessary).
10. Remove faulty part(s).
11. Prepare area(s) for new part(s).
12. Attach new part(s), making necessary adjustments.
13. Vacuum test refrigerant system (if needed).
14. Recharge refrigerant system (if needed).
15. Test repairs.
16. Document repairs.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1011	1161-ADMN-1018
1161-MANT-1102	1161-MANT-1103	1161-MANT-1104
1161-MANT-1105	1161-MANT-1106	1161-MANT-1107
1161-MANT-1335		

RELATED EVENTS:

1161-MANT-1235	1161-MANT-1404

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
5. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
6. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Degraded/deadlined refrigeration equipment

MATERIAL:
Refrigerant (if needed)
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required to test repairs.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 608 Type II Technician Certificate.

1161-MANT-1403: Repair an ECU electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: ECU is Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in the equipment's technical manuals and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
9. Remove faulty part(s).
10. Prepare area(s) for new part(s).
11. Attach new part(s), making necessary adjustments.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1011	1161-MANT-1101
1161-MANT-1108	1161-MANT-1109	1161-MANT-1311

RELATED EVENTS:

1161-MANT-1211	1161-MANT-1401

REFERENCES:

1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Anti-Static Wrist Strap
Degraded/deadlined Environmental Control Unit (ECU)

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required to test repairs

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1161-MANT-1404: Repair a refrigeration system electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in equipment's technical manuals and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).

3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.
8. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
9. Remove faulty part(s).
10. Prepare area(s) for new part(s).
11. Attach new part(s), making necessary adjustments.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1011	1161-MANT-1101
1161-MANT-1108	1161-MANT-1109	1161-MANT-1335

RELATED EVENTS:

1161-MANT-1235	1161-MANT-1402

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
6. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
7. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Degraded/deadlined Refrigeration System

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required to test repairs.

1161-XENG-1611: Install a 1.5-Ton ECU

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: An ECU is an Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, material, and references.

STANDARD: So cooling, heating, dehumidification, and/or air filtering of designated military shelter/van is supported per TM 11080A/11080B-OI.

PERFORMANCE STEPS:
1. Review references.
2. Don Personal Protective Equipment (PPE).
3. Lock out/Tag out electrical power source, ensuring power stays off.
4. Install ECU and accessories, connecting power cable.
5. Perform before operation checks on ECU.
6. Reestablish electrical power.
7. Start ECU.
8. Perform during operation checks on ECU.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002

RELATED EVENTS:
1161-XENG-1614 1161-XENG-1634

REFERENCES:
1. Appropriate Technical Manuals
2. SL-3-4120 Components List for Family of Environmental Control Units
3. TM 11080A/11080B-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Environmental Control Unit, 1.5-Ton, 18,000 BTU

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Designated military shelter/tactical vehicle
Environmental Control Unit (ECU), 1.5-Ton [B0003]

MATERIAL: Lockout/Tagout devices

UNITS/PERSONNEL: The 1.5-Ton ECU is a four-man lift piece of equipment

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1161-XENG-1614: Set up a Packaged System ECU

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: An ECU is an Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With refrigeration and environmental control support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent and ECU is set up in accordance with equipment's technical manuals.

PERFORMANCE STEPS:
1. Review refrigeration and environmental control support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site.
6. Set up ECU and accessories, connecting power source.
7. Camouflage equipment and accessories.
8. Provide for security.
9. Perform before operation checks on ECU.
10. Start ECU.
11. Perform during operation checks on ECU.

PREREQUISITE EVENTS: 1161-ADMN-1001

RELATED EVENTS:
1161-XENG-1611 1161-XENG-1634 1161-XENG-1635

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys
2. SL-3-4120 Components List for Family of Environmental Control Units
3. TM 11079A/11079B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 10 Ton, 120,000 BTU (120K ECU)
4. TM 11082A/11082B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 3 Ton, 36,000 BTU/hr (36K ECU)
5. TM 11084A/11084B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 5-Ton, 60,000 BTU/hr (60K ECU)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Forklift (with capacity to lift ECU)
Earthmoving equipment (if required to prepare site)
Electric power generation and distribution equipment

Environmental Control Unit (ECU) (Size as designated by the support plan)

MATERIAL: Refrigeration and environmental control support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site and move ECU
MOS 1141 (Electrician) to establish electrical power support

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for equipment set up.

1161-XENG-1634: Install a 3/4-Ton ECU

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: An ECU is an Environmental Control Unit.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, material, and references.

STANDARD: So cooling, heating, dehumidification and/or air filtering of designated military shelter/tactical vehicle is supported per TM 11453A/11453B-OI.

PERFORMANCE STEPS:
1. Review references.
2. Don Personal Protective Equipment (PPE).
3. Lock out/Tag out electrical power source, ensuring power stays off.
4. Install ECU and accessories, connecting power cable.
5. Perform before operation checks on ECU.
6. Reestablish electrical power.
7. Start ECU.
8. Perform during operation checks on ECU.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002

RELATED EVENTS:
1161-XENG-1611 1161-XENG-1614

REFERENCES:
1. Appropriate Technical Manuals
2. SL-3-4120 Components List for Family of Environmental Control Units
3. TM 11453A/11453B-OI Operation and Unit Maintenance Instructions with

Illustrated Parts Breakdown for Environmental Control Unit, .75-Ton, 9,000 BTU/hr (9K ECU)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Designated military shelter/tactical vehicle
Environmental Control Unit (ECU), 3/4-Ton [B0074]

MATERIAL: Lockout/Tagout devices

UNITS/PERSONNEL: The 3/4-Ton ECU is a two-man lift piece of equipment

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1161-XENG-1635: Set up an FRS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: An FRS is a Field Refrigeration System.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With refrigeration and environmental control support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent and FRS is set up in accordance with equipment's technical manuals.

PERFORMANCE STEPS:
1. Review references.
2. Don Personal Protective Equipment (PPE).
3. Prepare site.
4. Set up FRS and accessories, connecting power source.
5. Camouflage equipment and accessories.
6. Perform before operation checks on FRS.
7. Start FRS.
8. Perform during operation checks on FRS.

PREREQUISITE EVENTS: 1161-ADMN-1001

RELATED EVENTS: 1161-XENG-1614

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys
2. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
3. SL-3-11574A Components List for Large Field Refrigeration System
4. SL-3-11609A Components List for Small Field Refrigeration System

5. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
6. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
7. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Forklift (with capacity to lift FRS)
Field Refrigeration System (Size as designated by the support plan)

MATERIAL: Refrigeration and environmental control support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to lift FRS
MOS 1141 (Electrician) to establish electrical power support

10004. 2000-LEVEL EVENTS

1161-ADMN-2015: Maintain high pressure air conditioning systems

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: This event encompasses maintaining high pressure air conditioning units for automotive and engineer equipment.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, material, tools, forms and references.

STANDARD: So equipment functions/operates as specified in equipment's technical manual(s) and maintenance is documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTRIC SHOCK HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review Service Request (SR).
4. Review equipment technical manuals.
5. Perform Limited Technical Inspection (LTI).
6. Don Personal Protective Equipment (PPE).
7. Ensure any stored/hazardous energy is dissipated/controlled

(Lockout/Tagout).
8. Perform maintenance checks and services, as required.
9. Troubleshoot equipment.
10. Recover refrigerant (if necessary).
11. Repair equipment, as required.
12. Recharge refrigerant system (if needed).
13. Test repairs.
14. Document maintenance performed.
15. Maintain EPA Section 609 Technician certification requirements.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1011	1161-MANT-1101
1161-MANT-1102	1161-MANT-1103	1161-MANT-1104
1161-MANT-1105	1161-MANT-1106	1161-MANT-1107
1161-MANT-1108	1161-MANT-1109	

RELATED EVENTS:

1161-ADMN-1017	1161-ADMN-1018	1161-ADMN-2016
1161-MANT-1211	1161-MANT-1311	1161-MANT-1401
1161-MANT-1403		

REFERENCES:
1. Appropriate Technical Manuals
2. Doolin's Trouble Shooters Bible
3. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
4. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
5. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
6. MRAC Modern Refrigeration & Air Conditioning Text Book
7. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
8. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
9. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
10. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Air conditioning equipment being serviced

MATERIAL:
Refrigerant (if needed)
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Operator, licensed on equipment to be serviced.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Section 609 certification is obtained from an authorized EPA test proctoring activity. Current information on Section 609 (dealing with automotive air conditioning systems) of the Clean Air Act (CAA) can be found at www.epa.gov/ozone/title6/609. An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, training for this event is not available to the 1161 unless it is obtained from outside agencies.

SPECIAL PERSONNEL CERTS: EPA Section 609 Technician Certificate.

1161-ADMN-2016: Maintain low pressure air conditioning systems

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: This event encompasses maintaining low pressure air conditioning units for automotive and engineer equipment.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, material, tools, forms and references.

STANDARD: So equipment functions/operates as specified in equipment's technical manual(s) and maintenance is documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTRIC SHOCK HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review Service Request (SR).
4. Review equipment technical manuals.
5. Perform Limited Technical Inspection (LTI).
6. Don Personal Protective Equipment (PPE).
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Perform maintenance checks and services, as required.
9. Troubleshoot equipment.
10. Recover refrigerant (if necessary).
11. Repair equipment, as required.
12. Recharge refrigerant system (if needed).
13. Test repairs.
14. Document maintenance performed.
15. Maintain EPA Section 608 Technician certification requirements.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1002	1161-ADMN-1006
1161-ADMN-1008	1161-ADMN-1011	1161-ADMN-1017
1161-ADMN-1018	1161-MANT-1101	1161-MANT-1102
1161-MANT-1103	1161-MANT-1104	1161-MANT-1105

1161-MANT-1106 1161-MANT-1107 1161-MANT-1108
1161-MANT-1109

RELATED EVENTS:
1161-ADMN-2015 1161-MANT-1211 1161-MANT-1311
1161-MANT-1401 1161-MANT-1403

REFERENCES:
1. Appropriate Technical Manuals
2. Doolin's Trouble Shooters Bible
3. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
4. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
5. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons
6. MRAC Modern Refrigeration & Air Conditioning Text Book
7. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
8. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
9. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
10. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Air conditioning equipment being serviced

MATERIAL:
Refrigerant (if needed)
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Operator, licensed on equipment to be serviced.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

SPECIAL PERSONNEL CERTS: Must have EPA Section 608 Type II Technician Certificate.

1161-ADMN-2021: Apply safety programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place and enforced.

PERFORMANCE STEPS:
1. Review references.
2. Identify equipment safety requirements.
3. Identify personnel safety requirements.
4. Conduct Operational Risk Assessments.
5. Implement safety procedures.
6. Conduct safety awareness training.
7. Evaluate safety programs.
8. Enforce safety regulations.
9. Provide input for/submit required reports.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002

RELATED EVENTS:
1141-ADMN-2021 1142-ADMN-2021 1171-ADMN-2021

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO 5100.19_ Marine Corps Traffic Safety Program (Drivesafe)
4. MCO 5100.29_ Marine Corps Safety Program
5. MCO 5100.30_ Marine Corps Recreation and Off-Duty Safety (RODS) Program
6. MCO 5100.34_ Deadline Safety of Use Message Instructions to Suspend Operations of Marine Corps Ground Equipment and Weapons Systems and Safety of Use Alerts
7. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
8. MCO 5104.2_ Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program
9. MCO 5104.3_ Marine Corps Radiation Safety Program
10. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
11. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
12. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
13. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-ADMN-2022: Apply environmental regulations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references.

STANDARD: So environmental policies and procedures will be adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Verify section's compliance with applicable environmental regulations and restrictions.
3. Monitor platoon/section hazardous material disposal program.
4. Maintain hazardous materials storage areas.
5. Maintain Material Safety Data Sheets (MSDS).
6. Report any situations that require reporting.

PREREQUISITE EVENTS: 1161-ADMN-1004

RELATED EVENTS:
1141-ADMN-2022 1142-ADMN-2022 1171-ADMN-2022

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations
5. OPNAVINST 5090.1_ Environmental Readiness Program Manual

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-ADMN-2023: Conduct MOS training

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MOS is Military Occupational Specialty.

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Identify individual training requirements (review T&R Manual and MOS Roadmaps).
3. Identify unit training requirements (review unit METL/Commander's intent).
4. Determine on the job and sustainment training requirements by grade and MOS.
5. Develop lesson plans.
6. Develop training methods/aids/materials (as required).
7. Conduct training.
8. Document training.
9. Encourage use of self-directed study and assist in providing resources.

RELATED EVENTS:
1141-ADMN-2023 1142-ADMN-2023 1171-ADMN-2023

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCO 1553.4_ Professional Military Education (PME)
3. MCO 3500.26_ Universal Naval Task List (UNTL) Version 3.0
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 1553.1_ Systems Approach to Training (SAT) Users Guide
7. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
8. OPNAVINST 1560.10_ Administration of the United Services Military Apprenticeship Program (USMAP)
9. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-ADMN-2041: Initiate a PQDR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PQDR is Product Quality Deficiency Report (SF 368).

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a defective item, blank forms, and references.

STANDARD: So deficiency can be identified.

PERFORMANCE STEPS:
1. Review references.
2. Collect data.
3. Verify deficiency requires a PQDR.
4. Determine if deficiency is Category I or Category II.
5. Establish exhibit controls using DD Forms 1575 and 2332 (if required).
6. Complete PQDR.
7. Submit PQDR per Unit SOP.

RELATED EVENTS:
1141-ADMN-2041 1142-ADMN-2041 1171-ADMN-2041

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
DD Form 1575 (Suspended Tag - Materiel)
DD Form 2332 (Product Quality Deficiency Report Exhibit)
SF 368 (Product Quality Deficiency Report [PQDR])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training. Additional information for this event can be found at http//www.logcom.usmc.mil/pqdr.

1161-ADMN-2051: Establish equipment preventive maintenance schedule

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, forms, and references.

STANDARD: So operational readiness of equipment is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.

3. Audit equipment records.
4. Complete PMCS roster (NAVMC 10561).

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1011

RELATED EVENTS:
1141-ADMN-2051 1142-ADMN-2051 1171-ADMN-2051

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 4-11.4 Maintenance Operations
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)
Equipment records

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-ADMN-2061: Maintain PEB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PEB is Pre-Expended Bin.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With commander's pre-expended bin authorization and references.

STANDARD: So common, low-cost, high usage parts are continuously available for immediate maintenance/repair of equipment.

PERFORMANCE STEPS:
1. Review references.
2. Identify criteria for items placed in PEB.
3. Validate authorized PEB listing, ensuring it is signed annually by the commander.
4. Identify accountability requirements.
5. Requisition replacement parts, as required.
6. Roll back/dispose excess items.

RELATED EVENTS:
1141-ADMN-2061 1142-ADMN-2061 1161-ADMN-2061
1161-ADMN-2062 1171-ADMN-2061

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1161-ADMN-2062: Maintain equipment repair parts bins

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With forms and references.

STANDARD: So parts are kept in appropriate bin (layette) until maintenance/repair of specified equipment is accomplished.

PERFORMANCE STEPS:
1. Review references.
2. Receive repair parts, placing repair parts in appropriate bin.
3. Update Service Request (SR).
4. Take corrective action if repair parts do not match requisitions.
5. Inventory bin every 2 weeks.
6. Issue repair parts when all are received, updating SR per unit's SOP.
7. Debrief task in GCSS-MC.

RELATED EVENTS:
1141-ADMN-2062 1142-ADMN-2062 1161-ADMN-2061
1171-ADMN-2062

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:

Storage bins
Forms

1161-ADMN-2071: Monitor maintenance management reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With access to Global Combat Support System-Marine Corps (GCSS-MC), maintenance management reports, supporting documentation, and references.

STANDARD: So accuracy of maintenance management reports is validated and unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Obtain current Maintenance Process Report (MPR).
2. Review references.
3. Review supporting documentation (equipment records).
4. Review MPR maintenance cycle times.
5. Validate daily maintenance reports.
6. Validate weekly maintenance reports.
7. Validate readiness reports.
8. Identify "exceptions."
9. Determine actions (if any) to correct "exceptions."
10. Make corrections (if any) to Service Requests (SR).
11. Debrief SRs.

PREREQUISITE EVENTS:

1161-ADMN-1006	1161-ADMN-1007	1161-ADMN-1008
1161-ADMN-1009	1161-ADMN-1010	1161-ADMN-1011

RELATED EVENTS:

1141-ADMN-2071	1142-ADMN-2071	1161-ADMN-2061
1161-ADMN-2062	1161-ADMN-2072	1171-ADMN-2071

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Maintenance Process Report (MPR)

1161-ADMN-2072: Monitor maintenance related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment records, and references.

STANDARD: So unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Review references.
2. Determine unit's maintenance program requirements.
3. Inspect equipment.
4. Monitor Modification Control program.
5. Monitor Calibration Control program.
6. Monitor New Equipment Warranty program.
7. Monitor Quality Deficiency (QDR) program.
8. Monitor Recoverable Items (WIR) program.
9. Monitor Quality Control (QC) program.
10. Monitor Corrosion Prevention and Control (CPAC) program.
11. Ensure program and equipment records are maintained.

RELATED EVENTS:

1141-ADMN-2072	1142-ADMN-2072	1161-ADMN-2041
1161-ADMN-2051	1161-ADMN-2071	1161-ADMN-2073
1169-ADMN-2072	1171-ADMN-2072	

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4400.194_ Marine Corps Class VII Stock Rotation Policy
3. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
4. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4400.82_ Regulated/Controlled Item Management Manual
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
9. TM 4700-15/1_ Ground Equipment Record Procedures
10. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
11. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training. Some programs listed above may not be required at all units.

1161-ADMN-2073: Inspect maintenance actions (quality control)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Quality Control NCO, Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With repaired equipment, equipment records and references.

STANDARD: So equipment repairs and documentation are certified complete.

PERFORMANCE STEPS:
1. Review references.
2. Review Service Request (SR).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS:

1161-ADMN-1006	1161-ADMN-1008

RELATED EVENTS:

1141-ADMN-2073	1142-ADMN-2073	1161-ADMN-1009
1161-ADMN-1011	1171-ADMN-2073	

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

OTHER SUPPORT REQUIREMENTS: Access to Global Combat Support System-Marine Corps (GCSS-MC)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-MANT-2191: Comply with a Modification Instruction (MI)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on effected equipment, the effected equipment, a Modification Instruction (MI), parts, tools, forms, and references.

STANDARD: Per the MI and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review MI.
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE) (if required).
6. Apply modification.
7. Test modification.
8. Document modification.

PREREQUISITE EVENTS: 1161-ADMN-1006

RELATED EVENTS:

1141-MANT-2191	1142-MANT-2191	1161-ADMN-1008
1161-ADMN-1010	1161-ADMN-1011	1171-MANT-2191

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Refrigeration or air conditioning equipment being modified

MATERIAL:
Modification Instruction (MI)
Parts (if required)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1161-XENG-2541: Develop a field refrigeration/environmental control equipment support plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with refrigeration/environmental control equipment drawn on camp layout(s) and a Course of Action (COA) established; and input provided for the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring heating and air conditioning support.
3. Determine environmental control equipment requirements, selecting equipment sites.
4. Identify areas/activities requiring refrigeration support.
5. Determine field refrigeration system requirements, selecting equipment sites.
6. Determine environmental impacts.
7. Plot Environmental Control Unit (ECU) sites on camp layout(s).
8. Plot field refrigeration system sites on camp layout(s).
9. Identify potential impact of weather/climate on refrigeration/ECU operations.
10. Determine risks, conducting operational risk assessments.
11. Determine number and type of warning signs required.
12. Schedule Preventive Maintenance Checks and Services (PMCS).
13. Determine camouflage, concealment, and decoy requirements.
14. Estimate man-hour requirements, determining number of Refrigeration and Air Conditioning Technicians required to support the mission.
15. Estimate logistical support (truck, forklift, etc.) required.
16. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
17. Generate work request(s) for any required construction.
18. Establish a Course of Action (COA).
19. Record requirements for input into the Operation Order.
20. Brief plan (if required).

RELATED EVENTS:
1161-XENG-2641 1161-XENG-2642

REFERENCES:
1. Appropriate Technical Manuals

2. ATTP 5-0.1 Commander and Staff Officer Guide
3. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
4. MCO 3500.27_ Operational Risk Management (ORM)
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7N Base Camps
8. MCRP 3-17B Engineer Forms and Reports
9. MCRP 3-35.1D Cold Region Operations
10. MCRP 4-11.8A Marine Corps Field Feeding Program
11. MCRP 4-11B Environmental Considerations
12. MCRP 5-12A Operational Terms and Graphics
13. MCWP 3-17 Engineering Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-17.7 General Engineering
16. MCWP 3-35.5 Jungle Operations
17. MCWP 3-35.6 Desert Operations
18. MCWP 3-41.1 Rear Area Operations
19. MCWP 5-1 Marine Corps Planning Process (MCPP)
20. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
21. SL-3-11574A Components List for Large Field Refrigeration System
22. SL-3-11609A Components List for Small Field Refrigeration System
23. SL-3-4120 Components List for Family of Environmental Control Units
24. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
25. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
26. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-XENG-2571: Design an interior HVAC system for a semi-permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: HVAC is Heating, Ventilation and Air Conditioning.

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With construction plans for a structure, local code requirements, and references.

STANDARD: So HVAC requirements of structure, based on local environment, are met.

PERFORMANCE STEPS:
1. Review the construction plans, local code and references.
2. Determine total space of structure.
3. Determine BTU/tons of air to be conditioned/moved.
4. Size HVAC units required.
5. Plot the placement of HVAC units on construction plans.
6. Ensure the HVAC system conforms to the building's requirements.
7. Plot ducts and vents on construction plans.
8. Estimate man-hour requirements.
9. Determine risks, conducting operational risk assessments.
10. Establish a Bill of Materials (BOM), including safety items.
11. Establish a Course of Action (COA).

RELATED EVENTS:
1161-XENG-2974 1161-XENG-2978

REFERENCES:
1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 5-553 General Drafting
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7M Construction Estimating
6. MCWP 5-1 Marine Corps Planning Process (MCPP)
7. MRAC Modern Refrigeration & Air Conditioning Text Book
8. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
9. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An Advanced Refrigeration and Air Conditioning Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-XENG-2618: Set up an ITEG

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: ITEG is Integrated Trailer/ECU/Generator.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, personnel, material, and references.

STANDARD: So unit's mission is supported and ITEG is set up in accordance with TM 11490-OR.

PERFORMANCE STEPS:
1. Review references.
2. Assess operational risk.
3. Don Personal Protective Equipment (PPE).
4. Prepare site, making provisions for refueling.
5. Unpack ITEG.
6. Place applicable environmental safeguards in place.
7. Set up ITEG and accessories.
8. Post safety/warning signs.
9. Ensure equipment is grounded.
10. Camouflage site.
11. Provide for security.

PREREQUISITE EVENTS: 1161-ADMN-1001

RELATED EVENTS:
1141-XENG-2718 1161-MANT-1218 1161-XENG-1614

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys
2. SL-3-11490A Components List for Integrated Trailer, Environmental Control Unit, Generator (ITEG)
3. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Earthmoving equipment (if required to prepare site)
Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018]

MATERIAL:
Spill containment materials
Warning signs

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: All operators of the Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018] will need to be

licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate an Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018].

1161-XENG-2641: Direct environmental control equipment set up/installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, refrigeration and environmental control support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, refrigeration and environmental control support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Supervise environmental control unit set up/installation.
7. Inspect set up/installed units.
8. Inspect equipment grounding.
9. Correct discrepancies.

PREREQUISITE EVENTS: 1161-XENG-2541

RELATED EVENTS:
1161-XENG-1611 1161-XENG-1614 1161-XENG-1634

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7N Base Camps
5. MCRP 4-11B Environmental Considerations
6. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]

Forklift (with capacity to lift ECU(s))
Earthmoving equipment (if required to prepare site(s))
Environmental Control Units (ECU) (Sizes and quantities as designated by the support plan)

MATERIAL:
Refrigeration and environmental control support plan with established Course of Action (COA)
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move Equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1161 (Refrigeration and Air Conditioning Technician) to set up/install equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for equipment set up/installation.

1161-XENG-2642: Direct refrigeration equipment set up

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, refrigeration and environmental control support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, refrigeration and environmental control support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Supervise set up of refrigeration system(s).
7. Inspect set up system(s).
8. Inspect equipment grounding.
9. Ensure inspection of equipment by preventive medicine personnel.
10. Correct discrepancies.

PREREQUISITE EVENTS: 1161-XENG-2541

RELATED EVENTS: 1161-XENG-1635

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7N Base Camps
5. MCRP 4-11.8A Marine Corps Field Feeding Program
6. MCRP 4-11B Environmental Considerations
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Forklift (with capacity to lift refrigeration system(s))
Earthmoving equipment (if required to prepare site(s))
Refrigeration systems (Sizes and quantities as designated by the support plan)

MATERIAL:
Refrigeration and environmental control support plan with established Course of Action (COA)
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move Equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1161 (Refrigeration and Air Conditioning Technician) to set up equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for equipment set up.

1161-XENG-2741: Monitor field refrigeration/environmental control equipment operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Refrigeration and Air Conditioning Technician, Section Head

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, refrigeration/environmental control equipment, personnel, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed refrigeration/air conditioning equipment.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish maintenance schedule.
6. Brief personnel.
7. Supervise operation of air conditioning equipment.
8. Supervise operation of refrigeration units.
9. Manage refrigeration/air conditioning equipment operator maintenance.
10. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:
1161-XENG-2641 1161-XENG-2642

RELATED EVENTS:
1161-XENG-2541 1169-XENG-2741

REFERENCES:
1. Appropriate Technical Manuals
2. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
3. SL-3-11574A Components List for Large Field Refrigeration System
4. SL-3-11609A Components List for Small Field Refrigeration System
5. SL-3-4120 Components List for Family of Environmental Control Units
6. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1161 (Refrigeration and Air Conditioning Technicians) to maintain equipment

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1161-XENG-2974: Inspect interior HVAC system of a permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: HVAC is Heating, Ventilation and Air Conditioning.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At structure containing an installed Heating, Ventilation and Air Conditioning (HVAC) system, with tools, and references.

STANDARD: So ability of HVAC system to support the structure and mission are determined, safety concerns are addressed and required repairs/upgrades identified.

PERFORMANCE STEPS:
1. Review references.
2. Access operational risk.
3. Don Personal Protective Equipment (PPE).
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Find and determine capabilities/serviceability of ducts and vents, recording findings.
6. Find and determine capabilities/serviceability of HVAC system electrical wiring, recording findings.
7. Determine size of structure and BTU/Tons required to condition the air, recording findings.
8. Identify any part of the HVAC system that fails to comply with structural requirements.
9. Analyze findings.
10. List all discrepancies identified, specifying any corrective action(s) required.

PREREQUISITE EVENTS:
1161-ADMN-1001 1161-ADMN-1002

RELATED EVENTS:
1161-XENG-2571 1161-XENG-2978

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
4. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have required EPA certifications. An Advanced Refrigeration and Air Conditioner Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

1161-XENG-2978: Install commercial HVAC system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

DESCRIPTION: HVAC is Heating, Ventilation and Air Conditioning.

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure, with construction blueprints, a Bill of Materials (BOM), personnel, tools, and references.

STANDARD: So structure will have air conditioning per construction blueprints and equipment manuals.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review blueprints.
3. Review Bill of Materials (BOM).
4. Inventory BOM.
5. Review applicable section(s) of references.
6. Assess risks (ORM).
7. Don Personal Protective Equipment (PPE).
8. Run copper tubing.
9. Install external unit.
10. Install internal unit.
11. Run electrical wiring.
12. Charge system with refrigerant.
13. Test split unit air conditioning system.

PREREQUISITE EVENTS:

1161-ADMN-1001	1161-ADMN-1017	1161-ADMN-1018

RELATED EVENTS:

1161-XENG-2571	1161-XENG-2641	1161-XENG-2974

REFERENCES:
1. Appropriate Technical Manuals
2. MRAC Modern Refrigeration & Air Conditioning Text Book
3. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
4. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to lift units
MOS 1141 (Electrician) to establish electrical power

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have required EPA certification. An Advanced Refrigeration and Air Conditioner Technician course is currently not available at a Formal School. Until one is established, this event is MOJT for initial training.

ENG & UTIL T&R MANUAL

CHAPTER 11

MOS 1169 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	11000	11-2
EVENT CODING	11001	11-2
INDEX OF INDIVIDUAL EVENTS	11002	11-3
2000-LEVEL EVENTS	11003	11-5

CHAPTER 11

MOS 1169 INDIVIDUAL EVENTS

11000. PURPOSE. This chapter details the individual events that pertain to the Utilities Chief. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

11001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1169	Utilities Chief

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
XENG	General Engineering

c. Field three.

(1) The first digit of this field provides the level at which the event is accomplished. The following event levels are used:

Code	Description
2000	Core Plus Skills

(2) As the Task Analyst/Advocate has deemed appropriate the second digit of this field represents a sub-function to that duty area identified in field two. The following sub-functions are used in this chapter:

Code	Description
X0XX	Administrative
X5XX	Planning
X6XX	Equipment set up
X7XX	Equipment operation
X8XX	Equipment recovery
X9XX	Electrician/Plumber (tradesman) duty based on requirements in the National Electrical Code (NEC) or Uniform Plumbing Code (UPC), etc.

(3) The last two digits of this field are used to identify and categorize like events or equipment across all MOSs of the OccFld (see Chapters 7 through 12), or are just numerical sequencing of events. Following are **some** examples of the categories used:

Code	Description
X002	Core and Core Plus Skills related to controlling hazardous energy. See: 1120-ADMN-2002, 1141-ADMN-1002, 1142-ADMN-1002 1161-ADMN-1002, 1169-ADMN-2002 and 1171-ADMN-1002
X012	Core and Core Plus Skills related to NAVMC 10772 initiation, validation and submission. See: 1120-ADMN-2012, 1141-ADMN-1012, 1142-ADMN-1012, 1161-ADMN-1012, 1169-ADMN-2012 and 1171-ADMN-1012.
2023	Core Plus advanced level MOS training program functions. See: 1120-ADMN-2023, 1141-ADMN-2023, 1142-ADMN-2023, 1161-ADMN-2023, 1169-ADMN-2023 and 1171-ADMN-2023.
206X	Core Plus advanced level supply support functions. See: 1120-ADMN-2061, 1120-ADMN-2062, 1120-ADMN-2063, 1120-ADMN-2064, 1120-ADMN-2065, 1141-ADMN-2061, 1141-ADMN-2062 1142-ADMN-2061, 1142-ADMN-2062, 1161-ADMN-2061, 1161-ADMN-2062 1169-ADMN-2061, 1169-ADMN-2062, 1169-ADMN-2063, 1169-ADMN-2064 1169-ADMN-2065, 1171-ADMN-2061 and 1171-ADMN-2062.
2X58	Core Plus Skills related to field sanitation. See: 1120-XENG-2558, 1120-XENG-2658, 1120-XENG-2758, 1120-XENG-2858 1169-XENG-2558, 1169-XENG-2658, 1169-XENG-2758, 1169-XENG-2858 1171-XENG-2558, 1171-XENG-2658 and 1171-XENG-2858

11002. INDEX OF INDIVIDUAL EVENTS

EVENT	TITLE	PAGE
1169-ADMN-2001	Supervise Operational Risk Management (ORM)	11-5
1169-ADMN-2002	Administer a Lockout/Tagout program	11-6
1169-ADMN-2003	Recover an electric shock victim	11-7
1169-ADMN-2004	Respond to a hazardous materials spill	11-8
1169-ADMN-2005	Administer first aid for chemical ingestion/contact	11-8
1169-ADMN-2006	Supervise publications control	11-9
1169-ADMN-2007	Supervise equipment SL-3 Components List/Basic Issue Items (BII) inventories	11-10
1169-ADMN-2012	Validate a NAVMC 10772	11-11
1169-ADMN-2021	Enforce safety programs	11-12
1169-ADMN-2022	Enforce environmental regulations	11-13
1169-ADMN-2023	Direct MOS training program	11-14
1169-ADMN-2031	Brief utilities safety to end users	11-15
1169-ADMN-2041	Validate a PQDR	11-16
1169-ADMN-2043	Initiate an UNS	11-17
1169-ADMN-2051	Supervise preventive maintenance	11-18

1169-ADMN-2052	Supervise corrective maintenance	11-19
1169-ADMN-2061	Supervise section's supply support	11-20
1169-ADMN-2062	Place new equipment in service	11-21
1169-ADMN-2063	Validate unit T/O&E	11-22
1169-ADMN-2064	Reconcile section's CMR	11-22
1169-ADMN-2065	Supervise equipment availability	11-23
1169-ADMN-2071	Validate maintenance management reports	11-24
1169-ADMN-2072	Monitor maintenance related programs	11-25
1169-ADMN-2073	Manage equipment records	11-26
1169-ADMN-2074	Validate Maintenance Shop procedures	11-27
1169-ADMN-2075	Supervise field maintenance	11-27
1169-ADMN-2081	Monitor equipment embarkation requirements	11-28
1169-ADMN-2082	Administer equipment operator licensing program	11-30
1169-ADMN-2091	Brief utilities support plan	11-30
1169-XENG-2501	Plan a utilities site survey	11-31
1169-XENG-2502	Conduct utilities site survey	11-33
1169-XENG-2521	Plan a field electrical power generation/distribution system	11-35
1169-XENG-2522	Design a field expedient electrical distribution panel	11-37
1169-XENG-2541	Plan field refrigeration/environmental control equipment support	11-39
1169-XENG-2553	Plan field water support	11-40
1169-XENG-2555	Plan field hygiene equipment support	11-43
1169-XENG-2558	Plan a field sanitation system	11-44
1169-XENG-2561	Plan an interior electrical wiring system	11-46
1169-XENG-2581	Plan an interior plumbing system	11-47
1169-XENG-2621	Supervise field electrical power generation/distribution system installation	11-48
1169-XENG-2622	Monitor ground test set measurements	11-50
1169-XENG-2641	Supervise field refrigeration/environmental control equipment set up/installation	11-51
1169-XENG-2653	Supervise field water purification/storage/distribution system installation	11-53
1169-XENG-2655	Supervise field hygiene equipment set up	11-55
1169-XENG-2658	Supervise camp sanitation system installation	11-56
1169-XENG-2721	Supervise field electrical power generation/distribution system operation	11-58
1169-XENG-2741	Supervise field refrigeration/environmental control equipment operation	11-59
1169-XENG-2752	Monitor water test equipment measurements	11-60
1169-XENG-2753	Supervise field water purification/storage/distribution system operation	11-61
1169-XENG-2755	Supervise field hygiene equipment operation	11-62
1169-XENG-2758	Supervise camp sanitation system operation	11-63
1169-XENG-2821	Supervise field electrical power generation/distribution system recovery	11-64

1169-XENG-2841	Supervise field refrigeration/environmental control equipment recovery	11-65
1169-XENG-2853	Supervise field water purification/storage/distribution system recovery	11-67
1169-XENG-2855	Supervise field hygiene equipment recovery	11-68
1169-XENG-2858	Supervise camp sanitation system recovery/closure	11-69
1169-XENG-2965	Supervise interior electrical wiring system installation	11-70
1169-XENG-2966	Supervise interior electrical wiring system repairs	11-71
1169-XENG-2988	Supervise interior plumbing system installation	11-72
1169-XENG-2989	Supervise interior plumbing system repairs	11-73

11003. 2000-LEVEL EVENTS

1169-ADMN-2001: Supervise Operational Risk Management (ORM)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a task/mission, a Risk Management Worksheet, and references.

STANDARD: So task/mission effectiveness is increased while loss of personnel and materiel is minimized through the implementation of risk management controls.

PERFORMANCE STEPS:
1. Identify task/mission requirements.
2. Review references.
3. Identify hazards, recording them on Risk Management Worksheet.
4. Assess severity and probability of hazards to determine risk levels.
5. Develop risk control measures.
6. Make risk decisions.
7. Supervise implementation of controls.
8. Periodically review task/mission, hazards and controls.

RELATED EVENTS:
1120-ADMN-2001 1141-ADMN-1001 1142-ADMN-1001
1161-ADMN-1001 1171-ADMN-1001

REFERENCES:
1. Appropriate Technical Manuals
2. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
3. FM 5-19 Composite Risk Management
4. MCO 3500.27_ Operational Risk Management (ORM)
5. MCO 5100.29_ Marine Corps Safety Program
6. OPNAVINST 3500.39_ Operational Risk Management

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Risk assessment is taught at all basic MOS producing courses in the Occupational Field.

1169-ADMN-2002: Administer a Lockout/Tagout program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: In a shop setting or field environment, with personnel, equipment, equipment manuals, Lockout/Tagout devices, forms, and references.

STANDARD: So prior to personnel performing maintenance, service, repair, or modification to equipment, the equipment shall be locked out or tagged out to protect against accidental or inadvertent start-up, or operation that may cause injury to personnel.

PERFORMANCE STEPS:
1. Review references.
2. Evaluate Lockout/Tagout Program using NAVMC 11402 (annual requirement).
3. Ensure availability of an ample supply of locks and tags.
4. Review/approve Lockout/Tagout Checklists, NAVMC 11403.
5. Maintain Lockout/Tagout Log, NAVMC 11404.
6. Control the issue of Lockout/Tagout devices to authorized workers.
7. Ensure the timely return of Lockout/Tagout devices.

RELATED EVENTS:
1141-ADMN-1002 1142-ADMN-1002 1161-ADMN-1002
1171-ADMN-1002

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
3. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
Lockout/Tagout devices

NAVMC 11402 (Lockout/Tagout Program Evaluation)
NAVMC 11403 (Lockout/Tagout Checklist)
NAVMC 11404 (Lockout/Tagout Log)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: NAVMC Dir 5100.8, Chapter 12, provides detailed instructions for this event. Control of hazardous energy (Lockout/Tagout) is taught at all basic MOS producing courses in the Occupational Field.

1169-ADMN-2003: Recover an electric shock victim

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a situation and without references.

STANDARD: So danger to personnel is eliminated and victim is cared for.

PERFORMANCE STEPS:
1. Evaluate situation.
2. Send for help.
3. Provide for personal protection.
4. Isolate victim from electrical source.
5. Evaluate victim.
6. Start artificial resuscitation (if necessary).
7. Remain with victim until medical help arrives.
8. Report incident.

RELATED EVENTS:
1120-ADMN-2003 1141-ADMN-1003 1142-ADMN-1003
1161-ADMN-1003 1171-ADMN-1003

REFERENCES:
1. MCRP 3-02G First Aid
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 2000-15/4 Power System Reference Manual
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Ropes
Brooms, mops or tree branches

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Recovery of an electric shock victim is taught at all basic MOS producing courses in the Occupational Field.

1169-ADMN-2004: Respond to a hazardous materials spill

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a situation and without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Provide for personal protection.
3. Contain spill.
4. Report spill.
5. Remove uncontaminated material.
6. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1141-ADMN-1004	1142-ADMN-1004
1161-ADMN-1004	1171-ADMN-1004	

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations

SUPPORT REQUIREMENTS:

MATERIAL: Spill containment kit

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCO 4450.12A, Chapter 7 and MCRP 4-11B, Appendix J, Tab A provide detailed information for this event. Responding to a hazardous materials spill is taught at all basic MOS producing courses in the Occupational Field.

1169-ADMN-2005: Administer first aid for chemical ingestion/contact

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a situation and Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and MCRP 3-02G.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (if required).
5. Give first aid.
6. Remain with victim until medical help arrives.
7. Report the incident.

RELATED EVENTS:

1120-ADMN-2005	1141-ADMN-1005	1142-ADMN-1005
1161-ADMN-1005	1171-ADMN-1005	

REFERENCES:
1. MCRP 3-02G First Aid

SUPPORT REQUIREMENTS:

MATERIAL: Material Safety Data Sheet (MSDS) file

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCRP 3-02G, Chapter 7 provides detailed information for this event. First aid for chemical ingestion/contact is taught at all basic MOS producing courses in the Occupational Field.

1169-ADMN-2006: Supervise publications control

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With unit's Publications Listing (PL), access to publications websites and management systems, and references.

STANDARD: So required publications are available to maintain section's operational capabilities and readiness.

PERFORMANCE STEPS:
1. Review references.
2. Identify publication requirements based on mission and T/O&E.
3. Audit section's PL.
4. Validate on-hand publications inventory.
5. Inspect section's library for missing or outdated publications.
6. Verify published changes are made to publications.
7. Evaluate control procedures.
8. Evaluate NAVMC 10772 procedures.
9. Correct deficiencies.

RELATED EVENTS:

1120-ADMN-2006	1141-ADMN-1006	1142-ADMN-1006
1161-ADMN-1006	1169-ADMN-2012	1171-ADMN-1006

REFERENCES:
1. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
2. MCO 5215.1_ Marine Corps Directives Management Program
3. MCO 5600.20_ Marine Corps Doctrinal Publications System
4. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. MCO P5215.17_ The Marine Corps Technical Publications System
7. SECNAV M-5210.2_ Department of the Navy Standard Subject Identification Code (SSIC) Manual
8. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
9. UNIT SOP Unit's Standing Operating Procedures
10. Unit T/O&E Unit's Table of Organization and Equipment

SUPPORT REQUIREMENTS:

MATERIAL: Unit's Publication Listing (PL).

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, is required in order to complete this event.

1169-ADMN-2007: Supervise equipment SL-3 Components List/Basic Issue Items (BII) inventories

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With personnel, equipment, and references.

STANDARD: So serviceability of equipment and accountability of all components is maintained per the SL-3 Components/Basic Issue Items (BII) List and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review references.
2. Review item inventory requirements (SL-3 Components List or TM listing Basic Issue Items [BII]).
3. Schedule inventories.
4. Monitor inventories.
5. Ensure inventories are documented (sign inventory sheets).
6. Ensure deficiencies are requisitioned/acquired.

RELATED EVENTS:
1120-ADMN-2007 1141-ADMN-1007 1142-ADMN-1007
1161-ADMN-1007 1171-ADMN-1007

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. SI 10510-OR/1 Tool Warranty/Replacement Instructions for Using the USMC ServMart
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: SL-3/BII inventory sheets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 6 provides detailed information for this event. Conducting SL-3/BII inventories is taught at all basic MOS producing courses in the Occupational Field.

1169-ADMN-2012: Validate a NAVMC 10772

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NAVMC 10772 is Recommended Change to Technical Publications/Logistics-Maintenance Data Coding.

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a completed/draft NAVMC 10772 and the references.

STANDARD: So corrections/improvements to publications are affected per TM 4700-15/1H and MCO P5215.17C.

PERFORMANCE STEPS:
1. Review references.
2. Audit NAVMC 10772.
3. Review affected technical manual to verify recommended change will correct

the error/deficiency.
4. If applicable, approve Part II with signature and date.
5. Forward NAVMC 10772 per Unit's SOP (on line if applicable).

RELATED EVENTS:
1141-ADMN-1012 1142-ADMN-1012 1161-ADMN-1012
1169-ADMN-2006 1171-ADMN-1012

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10772 (Recommended Change to Technical Publications/Logistics-Maintenance Data Coding)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP. The website: https://portal.logcom.usmc.mil/sites/pubs/Site%20Pages/NAVMC10772RFC.aspx.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 23 provides detailed information for this event.

1169-ADMN-2021: Enforce safety programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place and adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Identify equipment safety requirements.
3. Identify personnel safety requirements.
4. Conduct Operational Risk Assessments.
5. Implement safety procedures.
6. Conduct safety awareness training.
7. Evaluate safety programs.
8. Enforce safety regulations.
9. Provide input for/submit required reports.

PREREQUISITE EVENTS:
1169-ADMN-2001 1169-ADMN-2002

RELATED EVENTS:
1141-ADMN-2021 1142-ADMN-2021 1161-ADMN-2021
1171-ADMN-2021

REFERENCES:
1. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO 5100.19_ Marine Corps Traffic Safety Program (Drivesafe)
4. MCO 5100.29_ Marine Corps Safety Program
5. MCO 5100.30_ Marine Corps Recreation and Off-Duty Safety (RODS) Program
6. MCO 5100.34_ Deadline Safety of Use Message Instructions to Suspend Operations of Marine Corps Ground Equipment and Weapons Systems and Safety of Use Alerts
7. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
8. MCO 5104.2_ Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program
9. MCO 5104.3_ Marine Corps Radiation Safety Program
10. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
11. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
12. OPNAVINST 5100.23_ Navy Safety and Occupational Health (SOH) Program Manual
13. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
14. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2022: Enforce environmental regulations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references.

STANDARD: So environmental policies and procedures are adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Verify section's compliance with applicable environmental regulations and restrictions.
3. Supervise platoon/section hazardous waste/material disposal program.
4. Monitor hazardous materials storage areas.
5. Inventory Material Safety Data Sheets (MSDS).
6. Report any situations that require reporting.
7. Conduct environmental regulations compliance planning for unit field

operations.
8. Provide input for unit SOPs and environmental impact statements.

PREREQUISITE EVENTS: 1169-ADMN-2004

RELATED EVENTS:
1141-ADMN-2022 1142-ADMN-2022 1161-ADMN-2022
1171-ADMN-2022

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations
5. OPNAVINST 5090.1_ Environmental Readiness Program Manual

1169-ADMN-2023: Direct MOS training program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MOS is Military Occupational Specialty.

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Identify individual training requirements (review T&R Manual and MOS Roadmaps).
3. Identify unit training requirements (review unit METL/Commander's intent).
4. Develop training program policies and procedures.
5. Verify on the job and sustainment training requirements by grade and MOS.
6. Plan MOS training program (considering apprenticeship programs).
7. Review lesson plans.
8. Review training methods/aids/materials.
9. Schedule MOS sustainment training.
10. Develop Letter of Instruction (LOI).
11. Ensure training is conducted.
12. Maintain lesson plans.
13. Document training, maintaining individual training records.
14. Evaluate training.
15. Encourage use of self-directed study and assist in providing resources.

RELATED EVENTS:
1120-ADMN-2023 1141-ADMN-2023 1142-ADMN-2023
1161-ADMN-2023 1171-ADMN-2023

REFERENCES:
1. DoDD 1322.18 Military Training
2. MCO 1553.1_ The Marine Corps Training and Education System
3. MCO 1553.2_ Management of Marine Corps Formal Schools and Training Detachments
4. MCO 1553.3_ Unit Training Management (UTM) Program
5. MCO 1553.4_ Professional Military Education (PME)
6. MCO 1553.6_ Development, Management, and Acquisition of Interactive Courseware (ICW) for Marine Corps Instruction
7. MCO 1560.25_ Marine Corps Lifelong Learning Program
8. MCO 3500.26_ Universal Naval Task List (UNTL) Version 3.0
9. MCO P3500.72_ Marine Corps Ground Training and Readiness (T&R) Program
10. MCRP 3-0A Unit Training Management Guide
11. MCRP 3-0B How to Conduct Training
12. NAVMC 1553.1_ Systems Approach to Training (SAT) Users Guide
13. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
14. OPNAVINST 1560.10_ Administration of the United Services Military Apprenticeship Program (USMAP)
15. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2031: Brief utilities safety to end users

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With utilities support (electrical, air conditioning, refrigeration, water, hygiene and/or sanitation) plan(s), sample warning signs, and references.

STANDARD: So "Off Limit" areas, meaning of warning signs, prohibited equipment and reasons, prohibited practices, emergency procedures, and unsafe conditions are identified and addressed.

PERFORMANCE STEPS:
1. Review support plans and references.
2. Identify prohibited equipment.
3. Identify prohibited practices.
4. Identify unsafe conditions.
5. Identify "Off Limit" areas.
6. Identify emergency procedures.
7. Assemble briefing notes and materials.
8. Deliver brief.
9. Supervise utilities safety compliance.

PREREQUISITE EVENTS: 1169-ADMN-2001

RELATED EVENTS:

1120-ADMN-2031 1141-ADMN-2031 1169-ADMN-2002
1169-ADMN-2003 1169-ADMN-2021

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. ATTP 5-0.1 Commander and Staff Officer Guide
5. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
6. FM 10-52 Water Supply in Theaters of Operation
7. FM 10-52-1 Water Supply Point Equipment and Operations
8. JP 4-03 Joint Bulk Petroleum and Water Doctrine
9. MCO 3500.27_ Operational Risk Management (ORM)
10. MCO 5100.29_ Marine Corps Safety Program
11. MCRP 3-17.7K Theater of Operations Electrical Systems
12. MCRP 4-11.1D Field Hygiene and Sanitation
13. MCWP 4-11.6 Petroleum and Water Logistics Operations
14. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
15. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
16. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
17. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
18. TB MED 593 Guidelines for Field Waste Management

SUPPORT REQUIREMENTS:

MATERIAL: Sample warning signs.

1169-ADMN-2041: Validate a PQDR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PQDR is Product Quality Deficiency Report (SF 368).

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a completed Product Quality Deficiency Report (PQDR), access to the defective item, and references.

STANDARD: So deficiency is reported.

PERFORMANCE STEPS:

1. Review references.
2. Ensure deficiency requires a PQDR.
3. Determine if deficiency is Category I or Category II.
4. Verify exhibit is controlled (if required).
5. Audit DD Forms 1575 and 2332 (if required).
6. Audit PQDR (SF 368).
7. Ensure PQDR is submitted to the Marine Corps PQDR Screening Point.

RELATED EVENTS:
1141-ADMN-2041 1142-ADMN-2041 1161-ADMN-2041
1171-ADMN-2041

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
3. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
4. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4400.82_ Regulated/Controlled Item Management Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
DD Form 1575 (Suspended Tag - Materiel)
DD Form 2332 (Product Quality Deficiency Report Exhibit)
SF 368 (Product Quality Deficiency Report [PQDR])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information for this event can be found at http//www.logcom.usmc.mil/pqdr.

1169-ADMN-2043: Initiate an UNS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

DESCRIPTION: An UNS is a Universal Need Statement.

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With internet access and Common Access Card (CAC), or a Universal Need Statement (NAVMC 11475), and references.

STANDARD: So a capabilities shortfall and proposed solution(s) are documented for decision/action at the flag (General) officer level per MCO 3900.17_.

PERFORMANCE STEPS:
1. Review references.
2. Validate requirement.
3. Obtain input/justification/recommendations from other units.
4. Research recommended solutions.
5. Fill in "Part 1a of 5 - Originator's Request" of the NAVMC 11475 (UNS).
6. Route UNS through chain of command.

RELATED EVENTS: 1120-ADMN-2043

REFERENCES:
1. CJCSI 3470.01 Rapid Validation and Resourcing of Joint Urgent Operational Needs (JUONS) in the Year of Execution
2. MCO 3900.15_ Marine Corps Expeditionary Force Development System (EFDS)
3. MCO 3900.17_ The Marine Corps Urgent Needs Process (UNP) and the Urgent Universal Need Statement (Urgent UNS)

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 11475 (Universal Need Statement)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, will be required in order to complete this event. The NAVMC 11475 may be downloaded from https://www.mccdc.usmc.mil/OpsDiv/CAB/UNS.htm. Detailed instructions for filling in and processing the form are also available at this website.

1169-ADMN-2051: Supervise preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, maintenance management reports, forms, and references.

STANDARD: So serviceable equipment will be available to support unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit PMCS roster (NAVMC 10561).
4. Audit maintenance management reports.
5. Audit equipment records.
6. Determine maintenance priorities.
7. Validate support and test equipment assets and requirements.
8. Assign tasks, briefing personnel on PMCS requirements.

9. Ensure PMCS schedule is followed.
10. Ensure PMCS actions are documented.

RELATED EVENTS:

1120-ADMN-2051	1141-ADMN-2051	1142-ADMN-2051
1161-ADMN-2051	1169-ADMN-2052	1169-ADMN-2065
1169-ADMN-2071	1169-ADMN-2072	1169-ADMN-2073
1171-ADMN-2051		

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP)
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. MCWP 4-11.4 Maintenance Operations
5. TB 11-6115-741-24 Field and Sustainment Maintenance for Tactical Generator Desert Operations Special Test, Inspection, and Repair Requirements
6. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)
Equipment records
Maintenance management reports

1169-ADMN-2052: Supervise corrective maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, maintenance management reports, and references.

STANDARD: So equipment is repaired in a timely manner, enhancing the unit's readiness.

PERFORMANCE STEPS:
1. Review references.
2. Audit Maintenance Process Report (MPR) and other maintenance management reports.
3. Identify support and test equipment assets and requirements.
4. Determine maintenance priorities.
5. Assign maintenance tasks.
6. Ensure repairs are made.

7. Ensure repair actions are documented.

RELATED EVENTS:

1120-ADMN-2052	1169-ADMN-2051	1169-ADMN-2065
1169-ADMN-2071	1169-ADMN-2072	1169-ADMN-2073

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 4-11.4 Maintenance Operations
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
Equipment records
Maintenance management reports

1169-ADMN-2061: Supervise section's supply support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With maintenance, supply and fiscal reports, and references.

STANDARD: So section readiness in maintained.

PERFORMANCE STEPS:
1. Review references.
2. Coordinate supply support requirements with unit's supply section.
3. Validate equipment SL-3 Using Unit Responsibility Items (UURI) requirements.
4. Provide input for budget requirements.
5. Supervise execution of allocated funding.
6. Determine maintenance requirements.
7. Determine supply requirements.
8. Determine fuel requirements.
9. Supervise shop/section Pre-Expended Bin (PEB) and repair order layette procedures.
10. Ensure parts, supplies, and fuel are obtained.
11. Supervise shop/section validation/reconciliation procedures.
12. Ensure required documentation is maintained.

RELATED EVENTS: 1120-ADMN-2061

REFERENCES:
1. MCO 4050.38_ Personal Effects and Baggage Manual

2. MCO 4105.2_ Marine Corps Warranty Program
3. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
4. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
5. MCO 4410.9_ Assignment of Local Stock Numbers and Criteria for Determining Assignment of National Stock Numbers
6. MCO 4450.12_ Storage and Handling of Hazardous Materials
7. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP)
8. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
9. MCO 5530.14_ Marine Corps Physical Security Program Manual
10. MCO 7300.21_ Marine Corps Financial Management Standard Operating Procedure Manual
11. MCO P4400.150_ Consumer Level Supply Policy Manual
12. MCO P4400.82_ Regulated/Controlled Item Management Manual
13. MCO P4790.2_ MIMMS Field Procedures Manual
14. NAVMC 2664 Financial Guidebook for Commanders
15. SECNAVINST 4355.18_ Reporting of Supply Discrepancies
16. TM 4700-15/1_ Ground Equipment Record Procedures
17. TM 4795-34/2_ Corrosion Prevention and Control, Rustproofing and Underbody Coating Procedures for Tactical Vehicles, Trailers, and Engineering Equipment
18. TM 4795-OR/1A Organizational Corrosion Prevention and Control Procedures for USMC Ground Combat Equipment
19. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2062: Place new equipment in service

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, Fielding Plan (FP), and references.

STANDARD: So equipment is supported by maintainers and operators.

PERFORMANCE STEPS:
1. Review equipment's Fielding Plan (FP).
2. Establish a training plan for the new equipment.
3. Determine licensing requirements.

RELATED EVENTS: 1120-ADMN-2062

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2063: Validate unit T/O&E

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: T/O&E is Table of Organization and Equipment.

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With current T/O&E, unit's Mission Essential Task List (METL), personnel roster, Consolidated Memorandum Receipt (CMR), and references.

STANDARD: So platoon/section capabilities will support unit's METL.

PERFORMANCE STEPS:
1. Review references.
2. Review unit's METLs.
3. Review T/O&E mission statement.
4. Compare T/O to personnel assigned to unit.
5. Compare T/E to CMR and equipment assigned to unit.
6. Identify discrepancies (additions/deletions).
7. Initiate T/O&E Change Request (TOECR), if required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 5311.1_ Total Force Structure Process (TFSP)
3. MCO 5320.12_ Precedence Levels for Manning and Staffing
4. MCO P4400.150_ Consumer Level Supply Policy Manual
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. UNIT SOP Unit's Standing Operating Procedures
7. Unit T/O&E Unit's Table of Organization and Equipment

1169-ADMN-2064: Reconcile section's CMR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

DESCRIPTION: CMR is Consolidated Memorandum Receipt.

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, chests, sets, kits, personnel, records, and references.

STANDARD: So assets are accounted for and available to support unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Review CMR.
3. Validate equipment National Stock Numbers (NSN).
4. Validate equipment serial numbers.
5. Collect documentation (SL-3 inventories, 1348-1s, ECR cards, Service Requests (SR), etc.).
6. Verify equipment quantities.
7. Identify deficiencies/discrepancies.
8. Initiate Missing, Lost, Stolen, Recovered (MLSR) report (if required).

RELATED EVENTS:
1120-ADMN-2064 1169-ADMN-2007 1169-ADMN-2063

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO 5530.14_ Marine Corps Physical Security Program Manual
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. UNIT SOP Unit's Standing Operating Procedures
8. Unit T/O&E Unit's Table of Organization and Equipment

1169-ADMN-2065: Supervise equipment availability

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment records, reports, and references.

STANDARD: So unit's mission is supported with required equipment.

PERFORMANCE STEPS:
1. Review references.
2. Identify shortages/excesses.
3. Review readiness.
4. Review priority designator assignments.
5. Review maintenance cycle time.
6. Develop a plan to increase equipment availability.

PREREQUISITE EVENTS:
1169-ADMN-2071 1169-ADMN-2072 1169-ADMN-2073

RELATED EVENTS:
1120-ADMN-2065 1169-ADMN-2061 1169-ADMN-2062

REFERENCES:

1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
6. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
7. MCO P4400.150_ Consumer Level Supply Policy Manual
8. MCO P4790.2_ MIMMS Field Procedures Manual
9. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2071: Validate maintenance management reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With access to Global Combat Support System-Marine Corps (GCSS-MC), maintenance management reports, supporting documentation, and references.

STANDARD: So accuracy of maintenance management reports is validated and unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Obtain current Maintenance Process Report (MPR).
2. Review references.
3. Review supporting documentation (equipment records).
4. Review MPR maintenance cycle times.
5. Validate daily maintenance reports.
6. Validate weekly maintenance reports.
7. Validate readiness reports.
8. Identify "exceptions."
9. Determine actions (if any) to correct "exceptions."
10. Make corrections (if any) to Service Requests (SR).
11. Debrief SRs.

PREREQUISITE EVENTS:

1169-ADMN-2006	1169-ADMN-2007	1169-ADMN-2064

RELATED EVENTS:

1120-ADMN-2071	1169-ADMN-2061	1169-ADMN-2062
1169-ADMN-2065	1169-ADMN-2072	1169-ADMN-2073

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES)

Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. Unit SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Maintenance Process Report (MPR)

1169-ADMN-2072: Monitor maintenance related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment records, and references.

STANDARD: So unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Review references.
2. Determine unit's maintenance program requirements.
3. Inspect equipment.
4. Monitor Modification Control program.
5. Monitor Calibration Control program.
6. Monitor New Equipment Warranty program.
7. Monitor Quality Deficiency (QDR) program.
8. Monitor Recoverable Items (WIR) program.
9. Monitor Quality Control (QC) program.
10. Monitor Corrosion Prevention and Control (CPAC) program.
11. Ensure program and equipment records are maintained.

RELATED EVENTS:

1120-ADMN-2072	1141-ADMN-2072	1142-ADMN-2072
1161-ADMN-2072	1169-ADMN-2041	1169-ADMN-2051
1169-ADMN-2052	1169-ADMN-2065	1169-ADMN-2071
1169-ADMN-2073	1171-ADMN-2072	

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4400.194_ Marine Corps Class VII Stock Rotation Policy
3. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
4. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4400.82_ Regulated/Controlled Item Management Manual

7. MCO P4790.2_ MIMMS Field Procedures Manual
8. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
9. TM 4700-15/1_ Ground Equipment Record Procedures
10. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
11. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Some programs listed above may not be required at all units.

1169-ADMN-2073: Manage equipment records

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, equipment records, forms, and references.

STANDARD: So section's readiness can be determined.

PERFORMANCE STEPS:
1. Review references.
2. Identify records requirements.
3. Ensure records are established for each piece of equipment.
4. Manage records.

RELATED EVENTS: 1120-ADMN-2073

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 3000.13_ Marine Corps Readiness Reporting Standard Operating Procedures (SOP)
6. MCO 5210.11_ Marine Corps Records Management Program
7. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
8. MCO P4400.160_ Field Supply and Maintenance Analysis Office Program (FSMAO)
9. MCO P4790.2_ MIMMS Field Procedures Manual
10. TM 4700-15/1_ Ground Equipment Record Procedures
11. Unit SOP Unit's Standing Operating Procedures

1169-ADMN-2074: Validate Maintenance Shop procedures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: In a shop, with maintenance management checklists and references.

STANDARD: So all functional areas are certified mission capable.

PERFORMANCE STEPS:
1. Review checklists.
2. Gather/review the required checklist references.
3. Inspect shop functional areas.
4. Administer corrective actions, as necessary.

RELATED EVENTS:

1169-ADMN-2001	1169-ADMN-2002	1169-ADMN-2006
1169-ADMN-2007	1169-ADMN-2021	1169-ADMN-2022
1169-ADMN-2023	1169-ADMN-2051	1169-ADMN-2052
1169-ADMN-2061	1169-ADMN-2062	1169-ADMN-2063
1169-ADMN-2064	1169-ADMN-2065	1169-ADMN-2071
1169-ADMN-2072	1169-ADMN-2073	1169-ADMN-2081
1169-ADMN-2082		

REFERENCES:
1. MCO P4400.160_ Field Supply and Maintenance Analysis Office Program (FSMAO)
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: There are numerous Marine Corps websites that have downloadable checklists. However; it is recommend that the checklists used for this event be obtained from local inspectors.

1169-ADMN-2075: Supervise field maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, environmental impact report, camp layout, equipment, resources, and references.

STANDARD: So unit's mission is supported with required maintenance capabilities.

PERFORMANCE STEPS:
1. Review the Operation Order, environmental impact report, camp layout, and references.
2. Plan field maintenance operation.
3. Obtain contingency RUCs/JONs, etc.
4. Determine utilities portions of contingency Class IX repair parts block.
5. Determine safety/environmental considerations.
6. Establish guidelines for field maintenance facility operation.
7. Establish field maintenance facility.
8. Supervise equipment maintenance.
9. Supervise records maintenance.
10. Recover field maintenance facility.

RELATED EVENTS:

1169-ADMN-2021	1169-ADMN-2022	1169-ADMN-2051
1169-ADMN-2052	1169-ADMN-2065	1169-ADMN-2071
1169-ADMN-2073	1169-ADMN-2074	

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. Unit SOP Unit's Standing Operating Procedures

1169-ADMN-2081: Monitor equipment embarkation requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, personnel, unit embarkation reports, equipment marking/labeling support, and references.

STANDARD: So unit's readiness/movement will be supported per MCRP 4-11.3G.

PERFORMANCE STEPS:
1. Review references.
2. Validate turnover folders/desktop procedures.
3. Reconcile Unit Deployment List (UDL) with Table of Organization and Equipment (T/O&E) and Consolidated Memorandum Receipt (CMR).
4. Review MAGTF Deployment Support System II (MDSS II)/Marine Air Ground Task Force II (MAGTF II) Logistics Automated Information System (LOGAIS) reports.
5. Review Joint Operational Planning and Execution System (JOPES) reports.
6. Inspect assigned equipment.

7. Identify Remain Behind Equipment (RBE).
8. Identify Leave Behind Equipment (LBE).
9. Ensure equipment is marked/labeled for transportation/embarkation.
10. Ensure equipment is disassembled, stowed, packed, and/or prepared for transportation/embarkation.
11. Provide input for Tab B (Embarkation Plan) to Appendix 14 to Annex C of Operation Orders.
12. Coordinate with unit embarkation personnel to ensure that discrepancies with MDSS II, MAGTF II LOGAIS, and or JOPES reports are corrected.

RELATED EVENTS:

1120-ADMN-2081	1169-ADMN-2007	1169-ADMN-2063
1169-ADMN-2064	1169-ADMN-2065	1169-ADMN-2073

REFERENCES:

1. CJCSM 3122.05 Operating Procedures for Joint Operation Planning and Execution System (JOPES) - Information Systems (IS) Governance
2. DoDD 4500.09E Transportation and Traffic Management
3. DTR 4500.9-R Defense Transportation Regulation
4. JP 1-02 Department of Defense Dictionary of Military and Associated Terms
5. JP 3-02 Amphibious Operations
6. JP 3-02.1 Amphibious Embarkation and Debarkation
7. JP 4-0 Joint Logistics
8. JP 4-01.2 Sealift Support to Joint Operations
9. JP 4-01.5 Joint Terminal Operations
10. JP 4-01.6 Joint Logistics Over-the-Shore (JLOTS)
11. JP 4-07 Joint Tactics, Techniques, and Procedures for Common-User Logistics During Joint Operations
12. JP 5-0 Joint Operation Planning
13. MCBul 4081 Marine Air Ground Task Force (MAGTF) Logistics Support Systems (MLS2)
14. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
15. MCO 4410.28_ Item Unique Identification (IUID) of Ground Equipment
16. MCO 4631.10_ Operational Support Airlift Management
17. MCO 4680.5_ Containerization Policy
18. MCO P4030.19_ Preparing Hazardous Materials for Military Air Shipments
19. MCO P4600.7_ Marine Corps Transportation Manual
20. MCRP 3-31B Amphibious Ships and Landing Craft Data Book
21. MCRP 4-11.3G Unit Embarkation Handbook
22. MCRP 4-11C Combat Cargo Operations Handbook
23. MCRP 5-12D Organization of Marine Corps Forces
24. MCWP 3-31.5 Ship-to-Shore Movement
25. MCWP 3-32 Maritime Prepositioning Force Operations
26. MCWP 4-1 Logistics Operations
27. MCWP 4-11 Tactical-Level Logistics
28. MCWP 4-11.3 Transportation Operations
29. MCWP 4-11.8 Services in an Expeditionary Environment
30. MCWP 4-12 Operational-Level Logistics
31. MCWP 5-1 Marine Corps Planning Process (MCPP)
32. TM 11240-OD Principal Technical Characteristics of U.S. Marine Corps Motor Transportation Equipment
33. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

34. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
35. TM 4750-OD/1 Painting, Coating, Underbody and Registration Marking for Marine Corps Combat and Tactical Equipment
36. Unit SOP Unit's Standing Operating Procedures
37. Unit T/O&E Unit's Table of Organization and Equipment

1169-ADMN-2082: Administer equipment operator licensing program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, supporting documentation, licensing records, and references.

STANDARD: So licensed operators are available to operate the unit's equipment per TM 11275-15/4.

PERFORMANCE STEPS:
1. Review references.
2. Determine operator licensing requirements.
3. Review Operator History File.
4. Review equipment training and testing programs.
5. Review Action Date File to ensure timely renewal actions.
6. Review and approve or reject license applications (and renewals).
7. Review and approve completed OF 346 (U.S. Government Motor Vehicle Operator's Identification Card).
8. Ensure all issued licenses are recorded in the License Log Book.
9. Ensure any licensing action (issues/renewals/revocations) is recorded in the individual's Service Record Book (SRB).

RELATED EVENTS: 1120-ADMN-2082

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO 6260.1_ Marine Corps Hearing Conservation Program
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 11240-15/3_ Motor Vehicle Licensing Official's Manual
5. TM 11240-OD Principal Technical Characteristics of U.S. Marine Corps Motor Transportation Equipment
6. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
7. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
8. Unit SOP Unit's Standing Operating Procedures

1169-ADMN-2091: Brief utilities support plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Operation Order, site survey, camp layout, and references.

STANDARD: So command is aware of the utilities situation.

PERFORMANCE STEPS:
1. Determine briefing requirements.
2. Gather briefing materials.
3. Present the information.
4. Answer questions (as required).

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. MCWP 5-1 Marine Corps Planning Process (MCPP)

1169-XENG-2501: Plan a utilities site survey

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With mission, commander's intent, map, and references.

STANDARD: So detailed Requests for Information (RFI) are developed, ensuring information is gathered to plan utilities support in compliance with the mission and commander's intent.

PERFORMANCE STEPS:
1. Review mission, enemy, terrain and weather, troops and fire support available - time available, space, and logistics (METT-TSL).
2. Review commander's intent.
3. Review map.
4. Develop RFIs on available host nation/local vendor support.
5. Develop RFIs on water sources.
6. Develop RFIs for water storage sites.
7. Develop RFIs for hygiene sites.
8. Develop RFIs on waste water disposal.
9. Develop RFIs for refrigeration sites.
10. Develop RFIs for environmental control requirements.
11. Develop RFIs for generator sites.
12. Develop RFIs on electrical power distribution requirements.

13. Prioritize RFIs.

RELATED EVENTS:
1120-XENG-2501 1169-XENG-2502

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. FM 3-55 Information Collection
5. FMFM 7-29 Mountain Operations
6. JP 4-03 Joint Bulk Petroleum and Water Doctrine
7. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
8. MCO 3500.27_ Operational Risk Management (ORM)
9. MCO P5090.2_ Environmental Compliance and Protection Manual
10. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
11. MCRP 3-17.7F Project Management
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17B Engineer Forms and Reports
14. MCRP 3-35.1D Cold Region Operations
15. MCRP 4-11.1D Field Hygiene and Sanitation
16. MCRP 4-11.8A Marine Corps Field Feeding Program
17. MCRP 4-11B Environmental Considerations
18. MCRP 5-12A Operational Terms and Graphics
19. MCWP 3-17 Engineering Operations
20. MCWP 3-17.4 Engineer Reconnaissance
21. MCWP 3-17.7 General Engineering
22. MCWP 3-35.5 Jungle Operations
23. MCWP 3-35.6 Desert Operations
24. MCWP 4-11.4 Maintenance Operations
25. MCWP 4-11.6 Petroleum and Water Logistics Operations
26. MCWP 5-1 Marine Corps Planning Process (MCPP)
27. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
28. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
29. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
30. TB MED 593 Guidelines for Field Waste Management
31. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
32. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
33. TM 5-811-1 Electric Power Supply and Distribution
34. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
35. TM 5-813-1 Water Supply, Sources and General Considerations
36. TM 5-813-3 Water Supply, Water Treatment
37. TM 5-813-4 Water Supply, Water Storage
38. TM 5-813-5 Water Supply, Water Distribution
39. TM 5-813-7 Water Supply for Special Projects
40. TM 5-813-8 Water Desalination
41. TM 5-813-9 Water Supply, Pumping Stations
42. TM 5-820-4 Drainage for Areas Other Than Airfields

43. Unit T/O&E Unit's Table of Organization and Equipment

SUPPORT REQUIREMENTS:

MATERIAL: Map

1169-XENG-2502: Conduct utilities site survey

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With warning order, developed Requests for Information (RFI), personnel, transportation, area map, equipment, materials, forms, and references.

STANDARD: So data for planning unit support will be available to generate utilities support plan(s) per the warning order.

PERFORMANCE STEPS:
1. Review warning order, Requests for Information (RFI) and references.
2. Review map.
3. Brief personnel.
4. Conduct survey.
5. Evaluate site(s) for safety concerns.
6. Evaluate site(s) for environmental concerns.
7. Ensure conditions are evaluated and recorded on reconnaissance reports and Smartcards.
8. Evaluate alternate sites.
9. Evaluate site(s) for camouflage, concealment, and decoys.
10. Evaluate site(s) for Rear Area Security concerns.
11. Develop Site Survey Report.
12. Brief Site Survey to those concerned.
13. Provide input for camp layout.
14. Provide input for engineer portions of operation orders.

PREREQUISITE EVENTS: 1169-XENG-2501

RELATED EVENTS:

1141-XENG-2501	1169-XENG-2521	1169-XENG-2541
1169-XENG-2553	1169-XENG-2555	1169-XENG-2558
1169-XENG-2622	1171-XENG-1702	1171-XENG-2501

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. FM 3-55 Information Collection
5. FMFM 7-29 Mountain Operations

6. JP 4-03 Joint Bulk Petroleum and Water Doctrine
7. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
8. MCO 3500.27_ Operational Risk Management (ORM)
9. MCRP 3-17.6A Camouflage, Concealment, and Decoys
10. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
11. MCRP 3-17.7F Project Management
12. MCRP 3-17.7K Theater of Operations Electrical Systems
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCRP 4-11.8A Marine Corps Field Feeding Program
18. MCRP 4-11B Environmental Considerations
19. MCRP 5-12A Operational Terms and Graphics
20. MCWP 3-17 Engineering Operations
21. MCWP 3-17.4 Engineer Reconnaissance
22. MCWP 3-17.7 General Engineering
23. MCWP 3-35.5 Jungle Operations
24. MCWP 3-35.6 Desert Operations
25. MCWP 3-41.1 Rear Area Operations
26. MCWP 4-1 Logistics Operations
27. MCWP 4-11 Tactical-Level Logistics
28. MCWP 4-11.6 Petroleum and Water Logistics Operations
29. MCWP 5-1 Marine Corps Planning Process (MCPP)
30. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
31. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
32. TB MED 593 Guidelines for Field Waste Management
33. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
34. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
35. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
36. TM 5-811-1 Electric Power Supply and Distribution
37. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
38. TM 5-813-1 Water Supply, Sources and General Considerations
39. TM 5-813-3 Water Supply, Water Treatment
40. TM 5-813-4 Water Supply, Water Storage
41. TM 5-813-5 Water Supply, Water Distribution
42. TM 5-813-7 Water Supply for Special Projects
43. TM 5-813-8 Water Desalination
44. TM 5-813-9 Water Supply, Pumping Stations
45. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Compass [K4222]

Camera
Calculator
Tape measure

MATERIAL:
Area topographical map(s)
Electricity Smartcard (Figure C-4 of MCWP 3-17.4)
DA Form 1712-R (Water Reconnaissance Report)
Water Smartcard (Figure C-3 of MCWP 3-17.4)
Pens/pencils

UNITS/PERSONNEL:
Security may be required
MOS 1171 (Water Support Technician) to test water with WQAS-P
MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) to test water for NBC contamination

OTHER SUPPORT REQUIREMENTS: Transportation (by vehicle or aircraft) will be required for access to prospective site(s).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) will test water for NBC contamination
MOS 1171 (Water Support Technicians) are licensed operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Initial training for this event is received in the Utilities Chief course (CID: M0311E2)

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1169-XENG-2521: Plan a field electrical power generation/distribution system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with electrical power generation and distribution drawn on camp layout(s) and a Course of Action (COA) established; and input provided for Annex D of the Operation Order.

PERFORMANCE STEPS:

1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring electrical support.
3. Determine electrical power generation/distribution equipment requirements, selecting equipment sites.
4. Determine environmental impacts.
5. Plot generation sites on camp layout(s), making provision for traffic.
6. Identify potential impact of weather/climate on electrical power generation/distribution operations.
7. Determine risks, conducting operational risk assessments.
8. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
9. Determine number and type of warning signs required.
10. Schedule Preventive Maintenance Checks and Services (PMCS).
11. Determine POL requirements.
12. Determine camouflage, concealment, and decoy requirements.
13. Determine security requirements.
14. Estimate man-hour requirements, determining number of electricians required to support the mission.
15. Establish operator schedules.
16. Estimate logistical support (truck, forklift, etc.) required.
17. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
18. Generate work request(s) for any required construction.
19. Establish a Course of Action (COA).
20. Record requirements for input into Annex D of the Operation Order.
21. Brief electrical support plan (if required).

PREREQUISITE EVENTS: 1169-XENG-2502

RELATED EVENTS:

1120-XENG-2521	1141-XENG-2521	1169-XENG-2522
1169-XENG-2621	1169-XENG-2721	1169-XENG-2821

REFERENCES:

1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. ATTP 5-0.1 Commander and Staff Officer Guide
5. FMFM 7-29 Mountain Operations
6. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
7. MCO 3500.27_ Operational Risk Management (ORM)
8. MCRP 3-17.6A Camouflage, Concealment, and Decoys
9. MCRP 3-17.7F Project Management
10. MCRP 3-17.7K Theater of Operations Electrical Systems
11. MCRP 3-17.7N Base Camps
12. MCRP 3-17B Engineer Forms and Reports
13. MCRP 3-35.1D Cold Region Operations
14. MCRP 4-11.8A Marine Corps Field Feeding Program

15. MCRP 4-11B Environmental Considerations
16. MCRP 5-12A Operational Terms and Graphics
17. MCWP 3-17 Engineering Operations
18. MCWP 3-17.4 Engineer Reconnaissance
19. MCWP 3-17.7 General Engineering
20. MCWP 3-35.5 Jungle Operations
21. MCWP 3-35.6 Desert Operations
22. MCWP 3-41.1 Rear Area Operations
23. MCWP 4-1 Logistics Operations
24. MCWP 4-11 Tactical-Level Logistics
25. MCWP 4-11.5 Seabee Operations in the MAGTF
26. MCWP 5-1 Marine Corps Planning Process (MCPP)
27. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
28. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
29. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
30. TM 5-811-1 Electric Power Supply and Distribution
31. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
32. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Electric Smartcards (Figure C-4 of MCWP 3-17.4)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

1169-XENG-2522: Design a field expedient electrical distribution panel

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: THIS EVENT IS A "LAST RESORT." Completion of this event will be the first step in ensuring uninterrupted electrical power in a field environment, as a stop gap, if required MEPDIS/MEPDIS-R is not available. The "electrical distribution panel" is more commonly known as a "bus-bar."

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a known requirement for uninterrupted electrical power, a list of available materials, and references.

STANDARD: So electrical power can be distributed/disconnected/paralleled from the electrical power source, through overcurrent protection, to the distribution system as safely as possible.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARDS.
2. Determine maximum amperage of electrical distribution grid.
3. Determine size of conductors.
4. Determine size of over current protection.
5. Determine bonding and grounding requirements.
6. Determine impact of weather on "distribution panel."
7. Identify safety zones, signage requirements.
8. Determine remaining construction and electrical materials required.
9. Draw "distribution panel," detailing safety considerations.
10. Establish a Bill of Materials (BOM).
11. Document operational risks.
12. Obtain approval of risks from appropriate command level.

PREREQUISITE EVENTS:
1169-ADMN-2001 1169-ADMN-2002 1169-ADMN-2031

RELATED EVENTS:
1120-XENG-2522 1169-XENG-2521

REFERENCES:
1. Appropriate Technical Manuals
2. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
3. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
4. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
5. ATTP 5-0.1 Commander and Staff Officer Guide
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCRP 3-17.7K Theater of Operations Electrical Systems
8. MCRP 3-17.7M Construction Estimating
9. MCWP 5-1 Marine Corps Planning Process (MCPP)
10. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
11. TC 11-6 Grounding Techniques
12. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
13. TM 5-811-1 Electric Power Supply and Distribution
14. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
15. TM 5-811-7 Electrical Design, Cathodic Protection
16. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Risk Management Worksheet should be approved by appropriate commander after risks are fully briefed.

1169-XENG-2541: Plan field refrigeration/environmental control equipment support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with refrigeration/environmental control equipment drawn on camp layout(s) and a Course of Action (COA) established; and input provided for the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring heating and air conditioning support.
3. Determine environmental control equipment requirements, selecting equipment sites.
4. Identify areas/activities requiring refrigeration support.
5. Determine field refrigeration system requirements, selecting equipment sites.
6. Determine environmental impacts.
7. Plot Environmental Control Unit (ECU) sites on camp layout(s).
8. Plot field refrigeration system sites on camp layout(s).
9. Identify potential impact of weather/climate on refrigeration/ECU operations.
10. Determine risks, conducting operational risk assessments.
11. Determine number and type of warning signs required.
12. Schedule Preventive Maintenance Checks and Services (PMCS).
13. Determine camouflage, concealment, and decoy requirements.
14. Estimate man-hour requirements, determining number of Refrigeration and Air Conditioning Technicians required to support the mission.
15. Estimate logistical support (truck, forklift, etc.) required.
16. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
17. Generate work request(s) for any required construction.
18. Establish a Course of Action (COA).
19. Record requirements for input into the Operation Order.
20. Brief plan (if required).

PREREQUISITE EVENTS: 1169-XENG-2502

RELATED EVENTS:
1120-XENG-2541 1169-XENG-2641 1169-XENG-2741
1169-XENG-2841

REFERENCES:
1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
4. MCO 3500.27_ Operational Risk Management (ORM)
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7N Base Camps
8. MCRP 3-17B Engineer Forms and Reports
9. MCRP 3-35.1D Cold Region Operations
10. MCRP 4-11.8A Marine Corps Field Feeding Program
11. MCRP 4-11B Environmental Considerations
12. MCRP 5-12A Operational Terms and Graphics
13. MCWP 3-17 Engineering Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-17.7 General Engineering
16. MCWP 3-35.5 Jungle Operations
17. MCWP 3-35.6 Desert Operations
18. MCWP 3-41.1 Rear Area Operations
19. MCWP 5-1 Marine Corps Planning Process (MCPP)
20. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
21. SL-3-11574A Components List for Large Field Refrigeration System
22. SL-3-11609A Components List for Small Field Refrigeration System
23. SL-3-4120 Components List for Family of Environmental Control Units
24. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
25. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
26. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

1169-XENG-2553: Plan field water support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), water reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with water sites and distribution points drawn on camp layout(s) and a Course of Action (COA) established; and input provided for Appendix 2 to Annex D of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring water support.
3. Determine water purification/storage/distribution equipment requirements, selecting equipment sites.
4. Determine environmental impacts.
5. Plot equipment sites on camp layout(s).
6. Select water point location(s) making provision for traffic and drainage.
7. Plot water point(s) on camp layout(s).
8. Plot distribution methods on camp layout(s).
9. Identify potential impact of weather/climate on water purification, storage, and distribution operations.
10. Determine risks, conducting operational risk assessments.
11. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
12. Determine number and type of warning signs required.
13. Schedule Preventive Maintenance Checks and Services (PMCS).
14. Determine POL requirements.
15. Determine chemical requirements for purification/storage operations.
16. Determine camouflage, concealment, and decoy requirements.
17. Determine security requirements.
18. Estimate man-hour requirements, determining number of water support personnel required to support the mission.
19. Establish operator schedules.
20. Estimate logistical support (truck, forklift, etc.) required.
21. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
22. Generate work request(s) for any required construction.
23. Establish a Course of Action (COA).
24. Record requirements for input into Appendix 2 to Annex D of the Operation Order.
25. Brief water support plan (if required).

PREREQUISITE EVENTS: 1169-XENG-2502

RELATED EVENTS:

1120-XENG-2553	1169-XENG-2555	1169-XENG-2558
1169-XENG-2653	1169-XENG-2753	1169-XENG-2853
1171-XENG-2553		

REFERENCES:
1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 10-52 Water Supply in Theaters of Operation

4. FM 10-52-1 Water Supply Point Equipment and Operations
5. FM 3-55 Information Collection
6. FMFM 7-29 Mountain Operations
7. JP 4-03 Joint Bulk Petroleum and Water Doctrine
8. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
9. MCO 3500.27_ Operational Risk Management (ORM)
10. MCRP 3-17.6A Camouflage, Concealment, and Decoys
11. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
12. MCRP 3-17.7F Project Management
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11B Environmental Considerations
17. MCRP 5-12A Operational Terms and Graphics
18. MCWP 3-17 Engineering Operations
19. MCWP 3-17.4 Engineer Reconnaissance
20. MCWP 3-17.7 General Engineering
21. MCWP 3-35.5 Jungle Operations
22. MCWP 3-35.6 Desert Operations
23. MCWP 3-41.1 Rear Area Operations
24. MCWP 4-1 Logistics Operations
25. MCWP 4-11 Tactical-Level Logistics
26. MCWP 4-11.5 Seabee Operations in the MAGTF
27. MCWP 4-11.6 Petroleum and Water Logistics Operations
28. MCWP 5-1 Marine Corps Planning Process (MCPP)
29. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
30. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
31. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
32. TM 5-813-1 Water Supply, Sources and General Considerations
33. TM 5-813-3 Water Supply, Water Treatment
34. TM 5-813-4 Water Supply, Water Storage
35. TM 5-813-5 Water Supply, Water Distribution
36. TM 5-813-7 Water Supply for Special Projects
37. TM 5-813-8 Water Desalination
38. TM 5-813-9 Water Supply, Pumping Stations
39. TM 5-820-4 Drainage for Areas Other Than Airfields
40. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
DA Form 1712-Rs (Water Reconnaissance Reports)
Water Smartcards (Figure C-3 of MCWP 3-17.4)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

1169-XENG-2555: Plan field hygiene equipment support

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), map(s), reconnaissance report(s), camp layout(s) with water source and distribution points indicated, any environmental impact report(s), known soil type(s), and references.

STANDARD: So requirements of warning order are supported; with hygiene equipment site(s) drawn on the camp layout(s) and a Course of Action (COA) established; and input provided for Annex D and Appendix 6 to Annex Q of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify personnel requiring hygiene support.
3. Determine hygiene equipment requirements, selecting equipment sites and making provisions for traffic and drainage.
4. Determine environmental impacts.
5. Plot equipment sites on camp layout(s).
6. Identify potential impact of weather/climate on hygiene equipment operations.
7. Determine risks, conducting operational risk assessments.
8. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
9. Determine number and type of warning sign(s) required.
10. Schedule Preventive Maintenance Checks and Services (PMCS).
11. Determine POL requirements.
12. Determine chemical requirements for hygiene operations.
13. Determine camouflage, concealment, and decoy requirements.
14. Determine security requirements.
15. Determine laundry/shower schedules for supported units.
16. Estimate man-hour requirements, determining number of water support personnel required to support hygiene mission.
17. Establish operator schedules.
18. Estimate logistical support (truck, forklift, etc.) required.
19. Establish a Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
20. Generate work request(s) for any required construction.
21. Establish a Course of Action (COA).
22. Record requirements for input into Annex D and Appendix 6 to Annex Q of the Operation Order.
23. Brief hygiene equipment support plan (if required).

PREREQUISITE EVENTS: 1169-XENG-2553

RELATED EVENTS:

1120-XENG-2555	1169-XENG-2558	1169-XENG-2655
1169-XENG-2755	1169-XENG-2855	1171-XENG-2555

REFERENCES:

1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 3-55 Information Collection
4. FMFM 7-29 Mountain Operations
5. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCRP 3-17.6A Camouflage, Concealment, and Decoys
8. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
9. MCRP 3-17.7F Project Management
10. MCRP 3-17.7N Base Camps
11. MCRP 3-17B Engineer Forms and Reports
12. MCRP 3-35.1D Cold Region Operations
13. MCRP 4-11.1D Field Hygiene and Sanitation
14. MCRP 4-11B Environmental Considerations
15. MCRP 5-12A Operational Terms and Graphics
16. MCWP 3-17 Engineering Operations
17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 3-17.7 General Engineering
19. MCWP 3-35.5 Jungle Operations
20. MCWP 3-35.6 Desert Operations
21. MCWP 3-41.1 Rear Area Operations
22. MCWP 4-1 Logistics Operations
23. MCWP 4-11 Tactical-Level Logistics
24. MCWP 4-11.5 Seabee Operations in the MAGTF
25. MCWP 5-1 Marine Corps Planning Process (MCPP)
26. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
27. TB MED 593 Guidelines for Field Waste Management
28. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
29. TM 5-820-4 Drainage for Areas Other Than Airfields
30. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s) with water source and distribution points indicated

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1169-XENG-2558: Plan a field sanitation system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), map(s), reconnaissance report(s), camp layout(s), any environmental impact report(s), known soil type(s), and references.

STANDARD: So requirements of warning order are supported; with sanitation devices/sites drawn on the camp layout(s) and a Course of Action (COA) established; and input provided for Annex D and Appendix 6 to Annex Q of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify locations of equipment, devices and facilities to be supported/impacted by sanitation requirements.
3. Determine soil absorption rates.
4. Identify potential impact of weather/climate on sanitation devices.
5. Determine amount of waste water that will be generated.
6. Determine numbers of sanitation devices/facilities (grease traps, head/latrines, garbage pits, and soakage pits) required.
7. Determine environmental impacts.
8. Plot sanitation devices/facilities on camp layout(s), making provisions for traffic.
9. Determine risks, conducting operational risk assessments.
10. Determine number and type of warning signs required.
11. Determine camouflage, concealment, and decoy requirements.
12. Estimate man-hour requirements, determining number of water support personnel required to support sanitation mission.
13. Determine cleaning/inspection/maintenance schedule.
14. Estimate logistical support (truck, forklift, etc.) required.
15. Establish a Bill of Materials (BOM) including camouflage, environmental, and safety items.
16. Generate work request(s) for any required construction.
17. Establish a Course of Action (COA).
18. Record requirements for input into Annex D and Appendix 6 to Annex Q of the Operation Order.
19. Brief sanitation plan (if required).

PREREQUISITE EVENTS:
1169-XENG-2553 1169-XENG-2555

RELATED EVENTS:
1120-XENG-2558 1169-XENG-2658 1169-XENG-2758
1169-XENG-2858 1171-XENG-2558

REFERENCES:
1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 3-55 Information Collection
4. FMFM 7-29 Mountain Operations
5. INSTALLATION SOP Installation's Standing Operating Procedures

6. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
7. MCO 3500.27_ Operational Risk Management (ORM)
8. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
9. MCO P5090.2_ Environmental Compliance and Protection Manual
10. MCRP 3-17.6A Camouflage, Concealment, and Decoys
11. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
12. MCRP 3-17.7F Project Management
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCRP 4-11.8A Marine Corps Field Feeding Program
18. MCRP 4-11B Environmental Considerations
19. MCRP 5-12A Operational Terms and Graphics
20. MCWP 3-17 Engineering Operations
21. MCWP 3-17.4 Engineer Reconnaissance
22. MCWP 3-17.7 General Engineering
23. MCWP 3-35.5 Jungle Operations
24. MCWP 3-35.6 Desert Operations
25. MCWP 3-41.1 Rear Area Operations
26. MCWP 4-11.5 Seabee Operations in the MAGTF
27. MCWP 5-1 Marine Corps Planning Process (MCPP)
28. TB MED 593 Guidelines for Field Waste Management
29. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
30. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s) with equipment, devices and facilities indicated

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1169-XENG-2561: Plan an interior electrical wiring system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With construction plans for a structure, a list of electrical fixtures/appliances to be installed, local code requirements, and references.

STANDARD: Per the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Review construction plans, local code and references.

2. Review list of electrical fixtures/appliances to be installed.
3. Calculate general lighting load.
4. Identify power requirements.
5. Determine code requirements.
6. Size branch circuits.
7. Size over current protection devices.
8. Plot electrical symbols on construction plans.
9. Ensure interior electrical wiring system plan conforms to references and the building's requirements.
10. Establish a Bill of Materials (BOM), including safety items.
11. Establish a Course of Action (COA).

RELATED EVENTS:
1120-XENG-2561 1141-XENG-2561 1169-XENG-2965
1169-XENG-2966

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 5-553 General Drafting
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7K Theater of Operations Electrical Systems
5. MCRP 3-17.7M Construction Estimating
6. MCWP 5-1 Marine Corps Planning Process (MCPP)
7. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
8. TM 5-704 Construction Print Reading in the Field
9. TM 5-811-1 Electric Power Supply and Distribution
10. TM 5-811-3 Electrical Design, Lightning and Static Electricity Protection
11. TM 5-811-7 Electrical Design, Cathodic Protection

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans

1169-XENG-2581: Plan an interior plumbing system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With construction plans for a structure, a list of plumbing fixtures to be installed, local code requirements, and references.

STANDARD: Per the Uniform Plumbing Code (UPC).

PERFORMANCE STEPS:
1. Review construction plans, local code, and references.
2. Review list of plumbing fixtures/appliances to be installed.
3. Identify plumbing symbols.

4. Determine code requirements.
5. Identify water supply requirements.
6. Identify sanitary drainage requirements.
7. Identify vent requirements.
8. Plot plumbing system/fixtures on construction plans.
9. Estimate man-hour requirements.
10. Determine risks, conducting operational risk assessments.
11. Establish a Bill of Materials (BOM), including safety items.
12. Establish a Course of Action (COA).

RELATED EVENTS:
1120-XENG-2581 1169-XENG-2988 1169-XENG-2989
1171-XENG-2581

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 5-553 General Drafting
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7M Construction Estimating
6. MCWP 5-1 Marine Corps Planning Process (MCPP)
7. TM 5-704 Construction Print Reading in the Field
8. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans

1169-XENG-2621: Supervise field electrical power generation/distribution system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section SNCOIC, Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, electrical support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, electrical support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.

6. Monitor electrical power generation equipment installation.
7. Monitor electrical power distribution system installation.
8. Inspect installed field electrical power generation/distribution system.
9. Inspect equipment/system grounding.
10. Correct discrepancies.

PREREQUISITE EVENTS: 1169-XENG-2521

RELATED EVENTS:

1141-XENG-2621	1169-XENG-2522	1169-XENG-2622
1169-XENG-2721	1169-XENG-2821	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 3-34.480 Engineer Prime Power Operations
3. MCRP 3-17.6A Camouflage, Concealment, and Decoys
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7K Theater of Operations Electrical Systems
6. MCRP 3-17.7N Base Camps
7. MCRP 4-11B Environmental Considerations
8. MCWP 4-11.5 Seabee Operations in the MAGTF
9. TM 5-811-1 Electric Power Supply and Distribution
10. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Forklift (with capacity to lift generators and distribution panels)
Earthmoving equipment (if required to prepare site(s))
Generator(s) (size and quantity designated by electrical support plan)
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R):
5kW Indoor [B0027]
5kW Outdoor [B0028]
15kW [B0029]
30kW [B0030]
100kW [B0031] - and/or –
300kW [B0032] (Sizes and quantities as designated by the electrical support plan)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Spill containment materials
Warning signs
Water (if needed)
Metal Plates (if needed)

Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Only licensed Marines (MOS 1141) will install/operate MEPDIS-R
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1141 electricians to install and operate MEPDIS-R [B0027, B0028, B0029, B0030, B0031 and B0032].

1169-XENG-2622: Monitor ground test set measurements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a site supported by an established electrical power generation and distribution system, with a ground test set, test set measurements, and references.

STANDARD: So a safe ground for supported personnel and equipment is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Determine grounding electrode/system resistance (ohms) to ground requirements for electrical equipment/system.
3. Review ground test set measurement reports.
4. Identify potential impact of weather (humidity/temperature) on grounding system.
5. Direct improvements/upgrades to grounding system as necessary.

RELATED EVENTS:

1120-XENG-2622	1141-XENG-1601	1141-XENG-1703
1141-XENG-2622	1169-XENG-2521	1169-XENG-2522
1169-XENG-2621	1169-XENG-2721	

REFERENCES:

1. Appropriate Technical Manuals
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. MCRP 3-17.7K Theater of Operations Electrical Systems
4. MCRP 4-11B Environmental Considerations
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
6. SL-3-10069A Components List for Ohmmeter (Earth Ground Resistance Tester), Model R1L-C
7. SL-3-10139A Components List for Grounding Kit, MK-2551A/U
8. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
9. TC 11-6 Grounding Techniques
10. TM 10069A-14 Operation and Maintenance Instructions with Illustrated Parts Breakdown for Ground Resistance Ohmmeter Model R1L-C
11. TM 11509A-OR Users Manual for Model i1000s AC Current Probe for Oscilloscopes
12. TM 11-5820-1118-13&P Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Grounding Kit, MK-2551A/U
13. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
14. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Ground Rod(s), GP-16 [H7213] - and/or –
Grounding Kit, MK-2551A/U [H7255]
Ohmmeter, Earth Ground Resistance Tester, Model R1L-C [A7059]

MATERIAL:
Water (if needed)
Metal Plates (if needed)
Chemicals (if needed)
Magnesium sulfate (Epsom salts)
Copper sulfate (blue vitriol)
Calcium chloride
Sodium chloride (common table salt) - or –
Potassium nitrate (saltpeter)

UNITS/PERSONNEL: MOS 1141 (Electrician)

1169-XENG-2641: Supervise field refrigeration/environmental control equipment set up/installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, refrigeration and environmental control support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order, refrigeration and environmental control support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Monitor environmental control unit set up/installation.
7. Monitor set up of refrigeration system(s).
8. Inspect installed field refrigeration/environmental control equipment.
9. Inspect equipment grounding.
10. Ensure inspection of refrigeration equipment by preventive medicine personnel.
11. Correct discrepancies.

PREREQUISITE EVENTS: 1169-XENG-2541

RELATED EVENTS:
1161-XENG-2641 1161-XENG-2642 1169-XENG-2741
1169-XENG-2841

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7N Base Camps
5. MCRP 4-11.8A Marine Corps Field Feeding Program
6. MCRP 4-11B Environmental Considerations
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Forklift (with capacity to lift refrigeration/environmental control equipment)
Earthmoving equipment (if required to prepare site(s))
Environmental Control Units (ECU) (Sizes and quantities as designated by the support plan)
Refrigeration systems (Sizes and quantities as designated by the support plan)

MATERIAL:
Refrigeration and environmental control support plan with established Course of Action (COA)
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1161 (Refrigeration and Air Conditioning Technician) to set up/install equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for equipment set up/installation.

1169-XENG-2653: Supervise field water purification/storage/distribution system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, water support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, water support plan, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Monitor water source development.
7. Monitor water purification equipment set up.
8. Monitor field water storage equipment set up.
9. Monitor field water distribution system installation.
10. Inspect installed field water purification/storage/distribution system.
11. Inspect equipment grounding.
12. Ensure inspection of installed system by preventive medicine personnel.
13. Correct discrepancies.

PREREQUISITE EVENTS: 1169-XENG-2553

RELATED EVENTS:

1169-XENG-2655	1169-XENG-2658	1169-XENG-2752
1169-XENG-2753	1169-XENG-2853	1171-XENG-2653

REFERENCES:

1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7N Base Camps
9. MCRP 4-11B Environmental Considerations
10. MCWP 4-11.6 Petroleum and Water Logistics Operations
11. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
12. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
13. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Forklift (with capacity to lift designated water support equipment)
Earthmoving equipment (if required to prepare site(s))
Electric power generation and distribution equipment (if required)
Water support equipment as designated by the water support plan

MATERIAL:

DA Form 1712-R (Water Reconnaissance Report)
Water support plan with established Course of Action (COA)
DA Form 1712-R (Water Reconnaissance Report)
Water Smartcard (see Figure C-3 of MCWP 3-17.4)
Spill containment materials
Warning signs

UNITS/PERSONNEL:

MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move Equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1171 (Water Support Technician) (quantity designated by water support plan) to set up/install equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:

Only licensed Marines (MOS 1171) will install/operate water support Equipment
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1171 water support technicians to install and operate water support equipment.

1169-XENG-2655: Supervise field hygiene equipment set up

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, hygiene support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, hygiene support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Monitor set up of field shower facility (if required).
7. Monitor set up of laundry unit(s) (if required).
8. Monitor set up of M-80/M-85 water heater(s) (if required).
9. Inspect set up field hygiene equipment.
10. Inspect equipment grounding.
11. Ensure inspection of installed equipment by preventive medicine personnel.
12. Correct discrepancies.

PREREQUISITE EVENTS: 1169-XENG-2555

RELATED EVENTS:

1120-XENG-2655	1169-XENG-2653	1169-XENG-2658
1169-XENG-2755	1169-XENG-2855	1171-XENG-2655

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7N Base Camps
6. MCRP 4-11.1D Field Hygiene and Sanitation
7. MCRP 4-11B Environmental Considerations

8. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
9. TB MED 593 Guidelines for Field Waste Management
10. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift designated hygiene equipment)
Earthmoving equipment (if required to prepare site(s))
Electric power generation and distribution equipment (if required)
Hygiene equipment as designated by the hygiene support plan

MATERIAL:
Hygiene support plan with established Course of Action (COA)
Spill containment materials
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move Equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1171 (Water Support Technician) (quantity designated by hygiene support plan) to set up equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Only licensed Marines (MOS 1171) will install/operate hygiene equipment
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1171 water support technicians to install and operate hygiene equipment.

1169-XENG-2658: Supervise camp sanitation system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, field sanitation plan and established Course of Action (COA), environmental impact report, area map, camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, field sanitation plan, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Monitor installation of grease traps (if required).
6. Monitor installation of head/latrines (if required).
7. Monitor installation of garbage pits (if required).
8. Monitor installation of soakage pits (if required).
9. Inspect installed sanitation system.
10. Ensure inspection of installed system by preventive medicine personnel.
11. Correct discrepancies.

PREREQUISITE EVENTS: 1169-XENG-2558

RELATED EVENTS:

1120-XENG-2658	1169-XENG-2653	1169-XENG-2655
1169-XENG-2758	1169-XENG-2858	1171-XENG-2658

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 3-17.6A Camouflage, Concealment, and Decoys
5. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7N Base Camps
8. MCRP 4-11.1D Field Hygiene and Sanitation
9. MCRP 4-11B Environmental Considerations
10. MCWP 3-41.1 Rear Area Operations
11. TB MED 593 Guidelines for Field Waste Management
12. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (if required to prepare site(s))
Equipment designated by the sanitation plan

MATERIAL:
Sanitation plan with established Course of Action (COA)
Material designated by the sanitation plan
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s)
MOS 1371 (Combat Engineer) to construct sanitation devices

MOS 1171 (Water Support Technician) (quantity designated by sanitation plan) to install device(s)/develop site(s)
Preventive Medicine Technician

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in establishing and maintaining sanitary sites/devices

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1169-XENG-2721: Supervise field electrical power generation/distribution system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, electrical power generation/distribution system, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed electrical power generation/distribution system.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Supervise operation of generator sets.
8. Supervise operation of floodlight sets.
9. Supervise operation of load banks.
10. Supervise electrical distribution system.
11. Ensure electrical loads are balanced.
12. Manage electrical power generation/distribution system operator maintenance.
13. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:

1169-XENG-2621	1169-XENG-2622

RELATED EVENTS:

1120-XENG-2721	1141-XENG-2721	1169-ADMN-2073
1169-XENG-2521	1169-XENG-2741	1169-XENG-2753
1169-XENG-2755	1169-XENG-2758	

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
4. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 5-811-1 Electric Power Supply and Distribution
7. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1141 (Electricians) to operate/maintain equipment and system

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1169-XENG-2741: Supervise field refrigeration/environmental control equipment operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, refrigeration/environmental control equipment, personnel, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed refrigeration/air conditioning equipment.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish maintenance schedule.
6. Brief personnel.
7. Supervise operation of air conditioning equipment.
8. Supervise operation of refrigeration units.
9. Manage refrigeration/air conditioning equipment operator maintenance.
10. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS: 1169-XENG-2641

RELATED EVENTS:

1120-XENG-2741	1161-XENG-2741	1169-ADMN-2073
1169-XENG-2541	1169-XENG-2721	1169-XENG-2753
1169-XENG-2755	1169-XENG-2758	

REFERENCES:
1. Appropriate Technical Manuals
2. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
3. SL-3-11574A Components List for Large Field Refrigeration System
4. SL-3-11609A Components List for Small Field Refrigeration System
5. SL-3-4120 Components List for Family of Environmental Control Units
6. TM 12359A-OD Principal Technical Characteristics of Expeditionary Power Systems Equipment
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1161 (Refrigeration and Air Conditioning Technicians) to maintain equipment

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1169-XENG-2752: Monitor water test equipment measurements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water test measurement reports, equipment, personnel, and references.

STANDARD: So continuous safety of unit's potable water supply is maintained per NAVMED P-5010-10.

PERFORMANCE STEPS:
1. Review references.
2. Review test measurement reports.
3. Have water tested.
4. Ensure measurements are within standards.
5. Take necessary actions to improve product water quality, disabling any PMT in the area.

RELATED EVENTS:
1120-XENG-2752 1169-XENG-2753 1171-XENG-2752

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. JP 4-03 Joint Bulk Petroleum and Water Doctrine
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
6. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair

Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
7. TM 5-813-3 Water Supply, Water Treatment
8. TM 5-813-4 Water Supply, Water Storage
9. TM 5-813-5 Water Supply, Water Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]

MATERIAL: Water test measurement reports

UNITS/PERSONNEL: MOS 1171 (Water Support Technician) to test water

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630]

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1169-XENG-2753: Supervise field water purification/storage/distribution system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, water purification/storage/distribution system, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed water purification/storage/distribution system.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Supervise operation of water purification equipment.
8. Supervise operation of water storage/distribution system.
9. Supervise operation of Forward Area Water Point Supply Systems.
10. Supervise operation of SIXCON module systems.

11. Supervise operation of water pump assemblies.
12. Supervise use of collapsible tanks and bladders.
13. Ensure water quantity and quality meet requirements.
14. Ensure all water production reports and logs are completed and submitted.
15. Manage water purification/storage/distribution equipment operator maintenance.
16. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:

1169-XENG-2653	1169-XENG-2752

RELATED EVENTS:

1120-XENG-2753	1169-ADMN-2073	1169-XENG-2553
1169-XENG-2721	1169-XENG-2741	1169-XENG-2755
1169-XENG-2758	1171-XENG-2753	

REFERENCES:

1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 4-11.6 Petroleum and Water Logistics Operations
8. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
9. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
10. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
11. TM 4700-15/1_ Ground Equipment Record Procedures
12. TM 5-813-1 Water Supply, Sources and General Considerations
13. TM 5-813-3 Water Supply, Water Treatment
14. TM 5-813-4 Water Supply, Water Storage
15. TM 5-813-5 Water Supply, Water Distribution
16. TM 5-813-7 Water Supply for Special Projects
17. TM 5-813-8 Water Desalination
18. TM 5-813-9 Water Supply, Pumping Stations
19. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain equipment and system

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1169-XENG-2755: Supervise field hygiene equipment operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, hygiene equipment, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed hygiene equipment.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Supervise operation of laundry units.
8. Supervise operation of shower facilities.
9. Supervise operation of water heaters.
10. Ensure drainage system is functioning properly.
11. Ensure daily sanitation standards are met.
12. Manage hygiene equipment operator maintenance.
13. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:

1169-XENG-2655	1169-XENG-2658

RELATED EVENTS:

1120-XENG-2755	1169-ADMN-2073	1169-XENG-2555
1169-XENG-2721	1169-XENG-2741	1169-XENG-2753
1169-XENG-2758	1171-XENG-2755	

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 4-11.1D Field Hygiene and Sanitation
5. MCRP 4-11B Environmental Considerations
6. TB MED 593 Guidelines for Field Waste Management
7. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain equipment

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1169-XENG-2758: Supervise camp sanitation system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, camp sanitation system, personnel, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect components of the camp sanitation system.
3. Review safety concerns.
4. Review environmental concerns.
5. Coordinate with Preventive Medicine.
6. Monitor operation of camp sanitation system.
7. Identify components needing cleaning/repair/closure.
8. Brief personnel.
9. Monitor system maintenance.

PREREQUISITE EVENTS:
1169-XENG-2655 1169-XENG-2658

RELATED EVENTS:
1120-XENG-2758 1169-XENG-2721 1169-XENG-2741
1169-XENG-2753 1169-XENG-2755

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7N Base Camps
5. MCRP 4-11.1D Field Hygiene and Sanitation
6. MCRP 4-11B Environmental Considerations
7. MCWP 3-41.1 Rear Area Operations
8. TB MED 593 Guidelines for Field Waste Management
9. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain system

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1169-XENG-2821: Supervise field electrical power generation/distribution system recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise distribution system recovery.
6. Supervise generator recovery.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1120-XENG-2821	1141-XENG-2821	1169-ADMN-2007
1169-ADMN-2073	1169-XENG-2621	1169-XENG-2721
1169-XENG-2841	1169-XENG-2853	1169-XENG-2855
1169-XENG-2858		

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 9-6115-624-BD Battlefield Damage Assessment and Repair for Generators

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Climber's Set, Tree and Pole (TK-1141/C) [B0069]
Tool Kit, Intermediate Level Electricians (I-Level Tool Kit) (TK-1141/1) [B7900]
Forklift (with capacity to lift generators and distribution panels)

MATERIAL:
Electrical support plan with established Course of Action (COA)
Spill containment materials

UNITS/PERSONNEL:
MOS 1141 (Electrician) (quantity designated by electrical support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1169-XENG-2841: Supervise field refrigeration/environmental control equipment recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise refrigeration equipment recovery.
6. Supervise recovery of Environmental Control Units.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1120-XENG-2841	1169-ADMN-2007	1169-ADMN-2065
1169-ADMN-2073	1169-XENG-2621	1169-XENG-2741
1169-XENG-2821	1169-XENG-2853	1169-XENG-2855
1169-XENG-2858		

REFERENCES:
1. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
2. SL-3-11502A Components List for Cooling and Refrigeration Expeditionary Kit (CREK)
3. SL-3-11574A Components List for Large Field Refrigeration System
4. SL-3-11609A Components List for Small Field Refrigeration System
5. SL-3-4120 Components List for Family of Environmental Control Units
6. TM 11502A-OI User's Manual for Cooling and Refrigeration Expeditionary Kit (CREK)
7. TM 11574A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Large Field Refrigeration System
8. TM 11609A-OI Operation and Unit Maintenance Instructions with Illustrated Parts Breakdown for Small Field Refrigeration System
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
Forklift (with capacity to lift equipment)

MATERIAL: Refrigeration and environmental control support plan with

established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1141 (Electrician) to disconnect electrical power
MOS 1161 (Refrigeration and Air Conditioning Technician) (quantity designated by support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1169-XENG-2853: Supervise field water purification/storage/distribution system recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise recovery of water purification equipment.
6. Supervise water storage equipment recovery.
7. Supervise water distribution equipment recovery.
8. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
9. Ensure SL-3/BII inventories are conducted/recorded.
10. Resolve discrepancies.

RELATED EVENTS:

1120-XENG-2853	1169-ADMN-2007	1169-ADMN-2065
1169-ADMN-2073	1169-XENG-2653	1169-XENG-2753
1169-XENG-2821	1169-XENG-2841	1169-XENG-2855
1169-XENG-2858	1171-XENG-2853	

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]

Forklift (with capacity to lift water support equipment)

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1171 (Water Support Technician) (quantity designated by water support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1169-XENG-2855: Supervise field hygiene equipment recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise shower facility recovery.
6. Supervise laundry unit recovery.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1120-XENG-2855	1169-ADMN-2007	1169-ADMN-2065
1169-ADMN-2073	1169-XENG-2655	1169-XENG-2755
1169-XENG-2821	1169-XENG-2841	1169-XENG-2853
1169-XENG-2858	1171-XENG-2855	

REFERENCES:
1. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
2. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
3. SL-3-10006A Components List for Bath Shower Unit, Expedition
4. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
5. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base

6. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
7. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
8. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift hygiene equipment)

MATERIAL: Hygiene support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1171 (Water Support Technician) (quantity designated by hygiene support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1169-XENG-2858: Supervise camp sanitation system recovery/closure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, environmental impact report, area map, camp layout, equipment, personnel, and references.

STANDARD: So reusable devices are recovered and waste areas are covered, marked, and recorded.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental impact report and area map.
4. Inspect sanitation system.
5. Brief recovery/closure crew.
6. Supervise recovery of sanitation devices/warning signs.
7. Supervise closure of sanitation pits.
8. Ensure closed sanitation sites are marked.
9. Inspect closed/marked sanitation system.
10. Ensure inspection of closed/marked system by preventive medicine personnel.
11. Ensure closed latrine sites are recorded on area map.
12. Forward marked map to those concerned.

RELATED EVENTS:

1120-XENG-2858	1169-XENG-2658	1169-XENG-2758
1169-XENG-2821	1169-XENG-2841	1169-XENG-2853
1169-XENG-2855	1171-XENG-2858	

REFERENCES:

1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCRP 4-11.1D Field Hygiene and Sanitation
3. MCRP 4-11B Environmental Considerations
4. TB MED 593 Guidelines for Field Waste Management

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (to cover sanitation pits)

MATERIAL:
Area map
Environmental impact report
Field sanitation plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) for earth moving requirements

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in recovery and closure of sanitation devices/pits

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site closure
A map/diagram of closed site(s) should be forwarded to higher headquarters per Installation's SOP

1169-XENG-2965: Supervise interior electrical wiring system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1169

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring electrical work, with an interior electrical plan, a Bill of Materials (BOM), personnel, tools, and references.

STANDARD: So structure is wired per the interior electrical plan, in

compliance with the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Review blueprints, electrical plan and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Brief installation crew.
4. Inventory BOM.
5. Supervise wire runs (and conduit installation, if applicable).
6. Supervise installation of devices/fixtures.
7. Check service equipment.
8. Test the installed electrical wiring system.

RELATED EVENTS:
1120-XENG-2965 1141-XENG-2965 1169-XENG-2561
1169-XENG-2966

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TM 5-704 Construction Print Reading in the Field
4. TM 5-811-1 Electric Power Supply and Distribution
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1141 (Electrician)

1169-XENG-2966: Supervise interior electrical wiring system repairs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure with a faulty electrical system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made and system is brought into compliance with the National Electric Code (NEC) (NFPA 70).

PERFORMANCE STEPS:
1. Examine interior electrical wiring system needing repairs.
2. Identify ELECTROCUTION HAZARD(S).
3. Review references, determining safety/code requirements.
4. Assess risks (ORM).
5. Review blueprints, electrical plan and Bill of Materials (BOM).
6. Brief repair crew.
7. Inventory BOM.
8. Ensure hazardous energy is controlled (Lockout/Tagout).
9. Supervise wire repairs (and conduit repairs, if applicable).
10. Supervise replacement of defective devices/fixtures.
11. Check service equipment.
12. Test the repaired electrical wiring system.

PREREQUISITE EVENTS:
1169-ADMN-2001 1169-ADMN-2002

RELATED EVENTS:
1120-XENG-2966 1141-XENG-2966 1169-XENG-2561
1169-XENG-2965

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7K Theater of Operations Electrical Systems
3. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
4. TC 11-6 Grounding Techniques
5. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities
6. TM 5-704 Construction Print Reading in the Field
7. TM 5-811-1 Electric Power Supply and Distribution
8. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Lineman's Electrician (TK-1141) [B0062]
Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1141 (Electrician)

1169-XENG-2988: Supervise interior plumbing system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring plumbing, with an interior plumbing system plan, Bill of Materials (BOM), personnel, tools, and references.

STANDARD: So structure has plumbing per the interior plumbing plan, in compliance with the Uniform Plumbing Code (UPC) (IAPMO/ANSI).

PERFORMANCE STEPS:
1. Review the blueprints, plumbing plan and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Brief installation crew.
4. Inventory BOM.
5. Supervise installation of water supply system.
6. Supervise installation of sanitary drainage system.
7. Supervise installation of vent system.
8. Supervise installation of fixtures.
9. Test the installed plumbing system.

RELATED EVENTS:
1120-XENG-2988 1169-XENG-2581 1169-XENG-2989
1171-XENG-2988

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. MCRP 3-17.7F Project Management
3. TM 5-704 Construction Print Reading in the Field
4. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1171 (Water Support Technician)

1169-XENG-2989: Supervise interior plumbing system repairs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure with a faulty plumbing system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made and system is brought into compliance with the Uniform Plumbing Code (UPC) (IAPMO/ANSI).

PERFORMANCE STEPS:
1. Examine plumbing system needing repairs.
2. Review references, determining safety/code requirements.
3. Assess risks (ORM).
4. Review blueprints, plumbing plan and Bill of Materials (BOM).
5. Brief repair crew.
6. Inventory BOM.
7. Supervise repairs to water supply system.
8. Supervise repairs to sanitary drainage system.
9. Supervise repairs to vent system.
10. Supervise replacement of fixtures.
11. Test the repaired plumbing system.

PREREQUISITE EVENTS: 1169-ADMN-2001

RELATED EVENTS:
1120-XENG-2989 1169-XENG-2581 1169-XENG-2988
1171-XENG-2989

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. MCRP 3-17.7F Project Management
3. TB SIG 222 Solder and Soldering
4. TM 5-704 Construction Print Reading in the Field
5. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1171 (Water Support Technician)

ENG & UTIL T&R MANUAL

CHAPTER 12

MOS 1171 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE.	12000	12-2
EVENT CODING	12001	12-2
INDEX OF INDIVIDUAL EVENTS	12002	12-3
1000-LEVEL EVENTS.	12003	12-6
2000-LEVEL EVENTS.	12004	12-100

CHAPTER 12

MOS 1171 INDIVIDUAL EVENTS

12000. PURPOSE. This chapter details the individual events that pertain to the Water Support Technician. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

12001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1171	Water Support Technician

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
MANT	Maintenance
XENG	General Engineering

c. Field three.

(1) The first digit of this field provides the level at which the event is accomplished. The following event levels are used:

Code	Description
1000	Core Skills
2000	Core Plus Skills

(2) As the Task Analyst/Advocate has deemed appropriate the second digit of this field represents a sub-function to that duty area identified in field two. The following sub-functions are used in this chapter:

Code	Description
X0XX	Administrative
X1XX	Miscellaneous maintenance functions
X2XX	Preventive Maintenance Checks and Services
X3XX	Diagnosing equipment malfunctions
X4XX	Repairing equipment
X5XX	Planning
X6XX	Equipment set up
X7XX	Equipment operation

X8XX Equipment recovery
X9XX Electrician/Plumber (tradesman) duty based on requirements in the National Electrical Code (NEC) or Uniform Plumbing Code (UPC), etc.

(3) The last two digits of this field are used to identify and categorize like events or equipment across all MOSs of the 1100 OccFld (see Chapters 7 through 12), or are just numerical sequencing of events. Following are **some** examples of the categories used:

Code	Description
X002	Core and Core Plus Skills related to controlling hazardous energy. See: 1120-ADMN-2002, 1141-ADMN-1002, 1142-ADMN-1002, 1161-ADMN-1002, 1169-ADMN-2002 and 1171-ADMN-1002.
X012	Core and Core Plus Skills related to NAVMC 10772 initiation, validation and submission. See: 1120-ADMN-2012, 1141-ADMN-1012, 1142-ADMN-1012, 1161-ADMN-1012, 1169-ADMN-2012 and 1171-ADMN-1012.
1X33	Core Skills related to the Lightweight Water Purification System. See: 1171-MANT-1233, 1171-MANT-1333, 1171-MANT-1433 and 1171-XENG-1733.
2023	Core Plus advanced level MOS training program functions. See: 1120-ADMN-2023, 1141-ADMN-2023, 1142-ADMN-2023, 1161-ADMN-2023, 1169-ADMN-2023 and 1171-ADMN-2023.
206X	Core Plus advanced level supply support functions. See: 1120-ADMN-2061, 1120-ADMN-2062, 1120-ADMN-2063, 1120-ADMN-2064, 1120-ADMN-2065, 1141-ADMN-2061, 1141-ADMN-2062, 1142-ADMN-2061, 1142-ADMN-2062, 1161-ADMN-2061, 1161-ADMN-2062, 1169-ADMN-2061 1169-ADMN-2062, 1169-ADMN-2063, 1169-ADMN-2064, 1169-ADMN-2065, 1171-ADMN-2061 and 1171-ADMN-2062.
2X58	Core Plus Skills related to field sanitation. See: 1120-XENG-2558, 1120-XENG-2658, 1120-XENG-2758, 1120-XENG-2858, 1169-XENG-2558, 1169-XENG-2658 1169-XENG-2758, 1169-XENG-2858, 1171-XENG-2558 1171-XENG-2658 and 1171-XENG-2858.

12002. INDEX OF INDIVIDUAL EVENTS

EVENT	TITLE	PAGE
1000-LEVEL EVENTS		
1171-ADMN-1001	Conduct an Operational Risk Assessment (ORA)	12-6
1171-ADMN-1002	Control (Lockout/Tagout) hazardous energy	12-7
1171-ADMN-1003	Recover an electric shock victim	12-8
1171-ADMN-1004	Respond to a hazardous materials spill	12-9
1171-ADMN-1005	Administer first aid for chemical ingestion/contact	12-9
1171-ADMN-1006	Obtain equipment publications	12-10

1171-ADMN-1007	Conduct an SL-3 Components List/Basic Issue Items (BII) inventory	12-11
1171-ADMN-1008	Conduct an LTI	12-12
1171-ADMN-1009	Document equipment operation history	12-13
1171-ADMN-1010	Requisition repair parts	12-14
1171-ADMN-1011	Document equipment service/repair history	12-15
1171-ADMN-1012	Initiate a NAVMC 10772	12-15
1171-MANT-1231	Perform scheduled PMCS on a Bare Base Shower Facility	12-16
1171-MANT-1232	Perform scheduled PMCS on a CBL	12-18
1171-MANT-1233	Perform scheduled PMCS on a LWPS	12-19
1171-MANT-1241	Perform scheduled PMCS on a 500 Gallon Capacity Collapsible Fabric Potable Water Drum	12-20
1171-MANT-1248	Perform scheduled PMCS on a FAWPSS	12-21
1171-MANT-1271	Perform scheduled PMCS on a Hypochlorination Unit	12-23
1171-MANT-1272	Perform scheduled PMCS on a 125/150 GPM Water Pump (Hatz)	12-24
1171-MANT-1274	Perform scheduled PMCS on a 125 GPM Water Pump (Yanmar)	12-25
1171-MANT-1277	Perform scheduled PMCS on a SIXCON Water Tank Module	12-26
1171-MANT-1278	Perform scheduled PMCS on a 3,000 Gallon Capacity Collapsible Fabric Water Tank	12-27
1171-MANT-1279	Perform scheduled PMCS on a 600 GPM Water Pump	12-28
1171-MANT-1280	Perform scheduled PMCS on a TWDS	12-29
1171-MANT-1282	Perform scheduled PMCS on a TWPS	12-31
1171-MANT-1284	Perform scheduled PMCS on a 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank	12-33
1171-MANT-1285	Perform scheduled PMCS on a 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank	12-34
1171-MANT-1331	Diagnose a Bare Base Shower Facility malfunction	12-35
1171-MANT-1332	Diagnose a CBL malfunction	12-36
1171-MANT-1333	Diagnose a LWPS malfunction	12-38
1171-MANT-1348	Diagnose a FAWPSS malfunction	12-39
1171-MANT-1371	Diagnose a Hypochlorination Unit malfunction	12-40
1171-MANT-1372	Diagnose a 125/150 GPM Water Pump (Hatz) malfunction	12-41
1171-MANT-1374	Diagnose a 125 GPM Water Pump (Yanmar) malfunction	12-42
1171-MANT-1379	Diagnose a 600 GPM Water Pump malfunction	12-44
1171-MANT-1382	Diagnose a TWPS malfunction	12-45
1171-MANT-1431	Repair a Bare Base Shower Facility	12-47
1171-MANT-1432	Repair a CBL	12-48
1171-MANT-1433	Repair a LWPS	12-49
1171-MANT-1441	Repair a 500 Gallon Capacity Collapsible Fabric Potable Water Drum	12-51
1171-MANT-1448	Repair a FAWPSS	12-52
1171-MANT-1471	Repair a Hypochlorination Unit	12-53
1171-MANT-1472	Repair a 125/150 GPM Water Pump (Hatz)	12-54
1171-MANT-1474	Repair a 125 GPM Water Pump (Yanmar)	12-55
1171-MANT-1477	Repair a SIXCON Water Tank Module	12-56
1171-MANT-1478	Repair a 3,000 Gallon Capacity Collapsible Fabric Water Tank	12-58

1171-MANT-1479	Repair a 600 GPM Water Pump	12-59
1171-MANT-1482	Repair a TWPS	12-60
1171-MANT-1484	Repair a 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank	12-61
1171-MANT-1485	Repair a 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank	12-62
1171-XENG-1604	Establish a water purification site	12-63
1171-XENG-1605	Install field waste water disposal devices	12-65
1171-XENG-1631	Establish a shower site	12-66
1171-XENG-1632	Establish a laundry site	12-68
1171-XENG-1648	Establish a water supply point	12-69
1171-XENG-1677	Set up SIXCON Water Tank Modules	12-71
1171-XENG-1678	Set up a 3,000 Gallon Capacity Collapsible Fabric Water Tank	12-72
1171-XENG-1680	Set up a TWDS	12-74
1171-XENG-1684	Set up a 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank	12-76
1171-XENG-1685	Set up a 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank	12-77
1171-XENG-1702	Test water	12-78
1171-XENG-1731	Operate a Bare Base Shower Facility	12-79
1171-XENG-1732	Operate a CBL	12-81
1171-XENG-1733	Operate a LWPS	12-83
1171-XENG-1748	Operate a FAWPSS	12-85
1171-XENG-1771	Operate a Hypochlorination Unit	12-87
1171-XENG-1772	Operate a 125/150 GPM Water Pump (Hatz)	12-88
1171-XENG-1774	Operate a 125 GPM Water Pump (Yanmar)	12-90
1171-XENG-1779	Operate a 600 GPM Water Pump	12-91
1171-XENG-1782	Operate a TWPS	12-93
1171-XENG-1805	Recover/close field waste water disposal devices	12-95
1171-XENG-1981	Identify plumbing materials	12-96
1171-XENG-1982	Cut pipe	12-97
1171-XENG-1984	Connect pipe	12-97
1171-XENG-1985	Install plumbing fixtures in a permanent structure	12-98
1171-XENG-1986	Repair plumbing system of a permanent structure	12-99
2000-LEVEL EVENTS		
1171-ADMN-2021	Apply safety programs	12-100
1171-ADMN-2022	Apply environmental regulations	12-101
1171-ADMN-2023	Conduct MOS training	12-102
1171-ADMN-2041	Initiate a PQDR	12-103
1171-ADMN-2051	Establish equipment preventive maintenance schedule	12-103
1171-ADMN-2061	Maintain PEB	12-104
1171-ADMN-2062	Maintain equipment repair parts bins	12-105
1171-ADMN-2071	Monitor maintenance management reports	12-106
1171-ADMN-2072	Monitor maintenance related programs	12-107
1171-ADMN-2073	Inspect maintenance actions (quality control)	12-108
1171-MANT-2101	Operate a multimeter	12-109
1171-MANT-2191	Comply with a Modification Instruction (MI)	12-110
1171-MANT-2338	Diagnose an M26 JSTDS-SS water pump malfunction	12-110
1171-MANT-2395	Isolate an electrical malfunction on a Bare Base Shower Facility	12-112
1171-MANT-2396	Diagnose a water pump fuel system malfunction	12-113

1171-MANT-2397	Isolate a TWPS electrical malfunction	12-114
1171-MANT-2438	Repair an M26 JSTDS-SS water pump	12-116
1171-XENG-2501	Conduct a water reconnaissance	12-118
1171-XENG-2502	Analyze water reconnaissance report(s)	12-119
1171-XENG-2553	Develop a water support plan	12-121
1171-XENG-2555	Develop a hygiene equipment support plan	12-123
1171-XENG-2558	Develop a field sanitation plan	12-125
1171-XENG-2581	Design an interior plumbing system	12-127
1171-XENG-2651	Develop a water source	12-128
1171-XENG-2653	Direct field water purification/storage/distribution system installation	12-130
1171-XENG-2655	Direct field hygiene equipment set up	12-132
1171-XENG-2658	Direct camp sanitation system installation	12-133
1171-XENG-2752	Monitor water test equipment measurements	12-135
1171-XENG-2753	Direct field water purification/storage/distribution system operation	12-136
1171-XENG-2754	Calculate chlorine demand	12-137
1171-XENG-2755	Direct field hygiene equipment operation	12-138
1171-XENG-2853	Direct field water purification/storage/distribution system recovery	12-139
1171-XENG-2855	Direct field hygiene equipment recovery	12-140
1171-XENG-2858	Direct field waste water system recovery/closure	12-142
1171-XENG-2983	Thread pipe	12-143
1171-XENG-2987	Inspect an interior plumbing system	12-144
1171-XENG-2988	Direct interior plumbing system installation	12-145
1171-XENG-2989	Direct interior plumbing system repairs	12-146

12003. 1000-LEVEL EVENTS

1171-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a task/mission, a Risk Management Worksheet, and references.

STANDARD: So task/mission effectiveness is increased while loss of personnel and materiel is minimized through the use of risk management controls.

PERFORMANCE STEPS:
1. Identify task/mission requirements.
2. Review references.
3. Identify hazards, recording them on Risk Management Worksheet.
4. Assess severity and probability of hazards to determine risk levels.
5. Develop risk control measures.
6. Make risk decisions and/or forward Risk Management Worksheet to supervisor

for decision/approval.
7. Implement controls.

RELATED EVENTS:
1141-ADMN-1001 1142-ADMN-1001 1161-ADMN-1001

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1171-ADMN-1002: Control (Lockout/Tagout) hazardous energy

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment manuals, Lockout/Tagout devices, forms, and references.

STANDARD: So equipment is locked out or tagged out to protect against accidental or inadvertent start-up, or operation that may cause injury to personnel performing maintenance, service, repair, or modification to the equipment.

PERFORMANCE STEPS:
1. Review references.
2. Locate all energy isolating devices and hazardous energy sources (NOTE: there may be more than one).
3. Obtain required number of Lockout/Tagout devices from program coordinator.
4. Notify all effected personnel and supervisors.
5. Don Personal Protective Equipment (PPE).
6. Shut down equipment/turn off circuit.
7. Dissipate or restrain any stored energy.
8. Apply Lockout/Tagout devices.
9. Verify energy is isolated/dissipated (test circuit).
10. Effect required service, maintenance, repairs or modifications to equipment/circuit.
11. Remove Lockout/Tagout devices.
12. Restore equipment/circuit to normal operation.
13. Return Lockout/Tagout devices to program coordinator.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1142-ADMN-1002 1161-ADMN-1002

REFERENCES:
1. Appropriate Technical Manuals
2. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE)

MATERIAL:
Lockout/Tagout devices
NAVMC 11403 (Lockout/Tagout Checklist)

UNITS/PERSONNEL: Lockout/Tagout Program Coordinator

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: NAVMC Dir 5100.8, Chapter 12, provides detailed information for this event.

1171-ADMN-1003: Recover an electric shock victim

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So danger to personnel is eliminated and victim is cared for.

PERFORMANCE STEPS:
1. Evaluate situation.
2. Send for help.
3. Provide for personal protection.
4. Isolate victim from electrical source.
5. Evaluate victim.
6. Start artificial resuscitation (if necessary).
7. Remain with victim until medical help arrives.
8. Report incident.

RELATED EVENTS:

1120-ADMN-2003	1141-ADMN-1003	1142-ADMN-1003
1161-ADMN-1003	1169-ADMN-2003	

REFERENCES:
1. MCRP 3-02G First Aid
2. MCRP 3-17.7K Theater of Operations Electrical Systems

3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 2000-15/4 Power System Reference Manual
5. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Ropes
Brooms, mops or tree branches

1171-ADMN-1004: Respond to a hazardous materials spill

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Provide for personal protection.
3. Contain spill.
4. Report spill.
5. Remove uncontaminated material.
6. Dispose of hazardous material.

RELATED EVENTS:
1120-ADMN-2004 1141-ADMN-1004 1142-ADMN-1004
1161-ADMN-1004 1169-ADMN-2004

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations

SUPPORT REQUIREMENTS:

MATERIAL: Spill containment kit

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCO 4450.12A, Chapter 7 and MCRP 4-11B, Appendix J, Tab A provide detailed information for this event.

1171-ADMN-1005: Administer first aid for chemical ingestion/contact

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months
BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a situation and Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and MCRP 3-02G.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (if required).
5. Give first aid.
6. Remain with victim until medical help arrives.
7. Report incident.

RELATED EVENTS:
1120-ADMN-2005 1141-ADMN-1005 1142-ADMN-1005
1161-ADMN-1005 1169-ADMN-2005

REFERENCES:
1. MCRP 3-02G First Aid

SUPPORT REQUIREMENTS:

MATERIAL: Material Safety Data Sheet (MSDS) file

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: MCRP 3-02G, Chapter 7 provides detailed information for this event.

1171-ADMN-1006: Obtain equipment publications

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a tasking, equipment, and references.

STANDARD: So appropriate publication(s) are used with corresponding

equipment.

PERFORMANCE STEPS:
1. Determine/record equipment National Stock Number (NSN).
2. Determine/record equipment Model Number.
3. Determine/record equipment Identification Number.
4. Ascertain section's authorized echelon of maintenance.
5. Identify publications that are published/available for equipment.
6. Check required publications out of section's Publication Library.

RELATED EVENTS:
1141-ADMN-1006 1142-ADMN-1006 1161-ADMN-1006

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required to complete this event at some units.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information to assist or increase personal knowledge for this event is contained in MCI 0416B - The Marine Corps Publications and Directives System.

1171-ADMN-1007: Conduct an SL-3 Components List/Basic Issue Items (BII) inventory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment and references.

STANDARD: So accountability of all components is validated per the SL-3/BII list and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review references.
2. Obtain Components List (SL-3 or TM listing Basic Issue Items [BII]) for item.
3. Identify each component using the SL-3/BII.
4. Identify missing components.
5. Identify unserviceable components.

6. Document inventory results.
7. Report any inventory discrepancies and unserviceable components.

PREREQUISITE EVENTS: 1171-ADMN-1006
RELATED EVENTS:
1141-ADMN-1007 1142-ADMN-1007 1161-ADMN-1007

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. SI 10510-OR/1 Tool Warranty/Replacement Instructions for Using the USMC ServMart
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: SL-3/BII inventory sheets.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 6 provides detailed information for this event.

1171-ADMN-1008: Conduct an LTI

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: LTI is Limited Technical Inspection.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment requiring inspection and the equipment's records, forms, tools, and references.

STANDARD: So equipment is inspected for serviceability and discrepancies are identified.

PERFORMANCE STEPS:
1. Review references.
2. Lockout/Tagout equipment (if required).
3. Provide for personal protection (if required).
4. Identify components.
5. Verify component function/serviceability.
6. Verify authorized modifications.
7. Record discrepancies (if any).
8. Attach NAVMC 1018 to equipment (if required).
9. Complete NAVMC 10560.

PREREQUISITE EVENTS:
1171-ADMN-1002 1171-ADMN-1006 1171-ADMN-1007

RELATED EVENTS:
1141-ADMN-1008 1142-ADMN-1008 1161-ADMN-1008

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL:
NAVMC 1018 (Inspection/Repair Tag)
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection of Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 9 provides information for completing the NAVMC 1018 and TM 4700-15/1H, Chapter 2, Section 22 provides information for completing the NAVMC 10560.

1171-ADMN-1009: Document equipment operation history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment's records, forms, and references.

STANDARD: So hours/days of operation for the equipment are indicated and preventive maintenance intervals can be scheduled/rescheduled.

PERFORMANCE STEPS:
1. Review references.
2. Validate equipment descriptive data on NAVMC 696D.
3. Ensure equipment descriptive data on NAVMC 10524 is correct.
4. Record hours/days equipment was operated (on NAVMC 10524 and in GCSS-MC).

RELATED EVENTS:
1141-ADMN-1009 1142-ADMN-1009 1161-ADMN-1009

REFERENCES:

1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 14 provides information for completing the NAVMC 696D and TM 4700-15/1H, Chapter 2, Section 21 provides information for completing the NAVMC 10524.

1171-ADMN-1010: Requisition repair parts

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: So valid requisitions are created.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Retrieve and review assigned GCSS-MC Service Request (SR) task validating equipment identification data.
4. Debrief GCSS-MC SR task by entering repair part(s)/component(s) requirement information.
5. Change GCSS-MC SR status to "waiting approval."
6. Follow up/reconcile requisitions (as needed/required).

PREREQUISITE EVENTS: 1171-ADMN-1006

RELATED EVENTS:
1141-ADMN-1010 1142-ADMN-1010 1161-ADMN-1010
1171-ADMN-1011

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid

2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 3 provides information that will assist in entering repair part/component requirements into GCSS-MC.

1171-ADMN-1011: Document equipment service/repair history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to GCSS-MC and/or forms and references.

STANDARD: So service/repair actions for equipment are debriefed.

PERFORMANCE STEPS:
1. Review references.
2. Retrieve and review assigned GCSS-MC Service Request (SR).
3. Debrief GCSS-MC SR task by updating information with service/repair actions taken.
4. Change GCSS-MC SR status to "waiting approval."

RELATED EVENTS:

1141-ADMN-1011	1142-ADMN-1011	1161-ADMN-1011
1171-ADMN-1006	1171-ADMN-1008	1171-ADMN-1009
1171-ADMN-1010		

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event.

1171-ADMN-1012: Initiate a NAVMC 10772

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: NAVMC 10772 is Recommended Change to Technical Publications/Logistics-Maintenance Data Coding.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an identified error/deficiency to a technical publication and references.

STANDARD: So corrections/improvements to the publication will be affected per TM 4700-15/1H and MCO P5215.17C.

PERFORMANCE STEPS:
1. Review references.
2. Determine if error/deficiency requires use of Part I or Part II of NAVMC 10772.
3. Fill in all required blocks of NAVMC 10772.
4. Forward completed NAVMC 10772.

PREREQUISITE EVENTS: 1171-ADMN-1006

RELATED EVENTS:
1141-ADMN-1012 1142-ADMN-1012 1161-ADMN-1012

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P5215.17_ The Marine Corps Technical Publications System
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10772 (Recommended Change to Technical Publications/Logistics-Maintenance Data Coding)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website: https://portal.logcom.usmc.mil/sites/pubs/Site%20Pages/NAVMC10772RFC.aspx.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: TM 4700-15/1H, Chapter 2, Section 23 provides detailed information for this event.

1171-MANT-1231: Perform scheduled PMCS on a Bare Base Shower Facility

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 10006A-14&P/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Contain (Lockout/Tagout) hazardous energy.
7. Inspect equipment.
8. Service equipment.
9. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006
1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. SL-3-10006A Components List for Bath Shower Unit, Expedition
2. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
3. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
4. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Shower Facility, Bare Base [B0055]

MATERIAL:

NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel
UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1232: Perform scheduled PMCS on a CBL

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
CBL is Containerized Batch Laundry Unit.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, electrical power source, personnel, tools, part for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 11413A-OI/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Contain (Lockout/Tagout) hazardous energy.
7. Inspect equipment.
8. Service equipment.
9. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006
1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. FP 11413A Fielding Plan for Containerized Batch Laundry (CBL) Unit
2. SI 11413A Warranty Procedures for the Containerized Batch Laundry
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid

Fuel, Models M-80 and M-85
5. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
6. TM 10-8340-240-12&P Operator's and Unit Maintenance Manual, Including Repair Parts and Special Tools List for Modular General Purpose Tent System (MGPTS)
7. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. TM 55-8115-204-23&P Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for General Cargo Container

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Containerized Batch Laundry (CBL) Unit [B0066]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required.

1171-MANT-1233: Perform scheduled PMCS on a LWPS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
LWPS is Lightweight Water Purification System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked/serviced per TM 11720A-OI and actions/ deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify CHEMICAL HAZARD(S).

2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review equipment technical manuals.
5. Review Service Request (SR).
6. Don Personal Protective Equipment (PPE).
7. Inspect equipment.
8. Service equipment.
9. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1011	1171-MANT-1278	

RELATED EVENTS:

1171-ADMN-1007	1171-ADMN-1008

REFERENCES:

1. FP 11720A Fielding Plan for the Lightweight Water Purification System (LWPS)
2. SI 11720A-IN/1 Warranty Procedures for the Lightweight Tactical Water Purification System (LWPS)
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 11720A-OI Operator/Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Lightweight Water Purification System (LWPS)
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Lightweight Water Purification System (LWPS) [B0071]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment modules, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1241: Perform scheduled PMCS on a 500 Gallon Capacity Collapsible Fabric Potable Water Drum

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, forms, and references.

STANDARD: So equipment is checked and serviced per TM 10-8110-202-13&P and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review Service Request (SR).
3. Don Personal Protective Equipment (PPE).
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. SL-3-04483A Components List for Tiedown Kit, Drum, Fabric, Collapsible
2. SL-4-04483A Repair Parts List for Tiedown Kit, Drum, Fabric, Collapsible
3. SL-4-04485B Repair Parts List for Yoke, Towing and Lifting
4. TM 10-8110-202-10-HR Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL) for Drum, Fabric, Collapsible, Drinking Water, 500 Gallon Capacity
5. TM 10-8110-202-13&P Operator's, Organizational, and Direct Support Maintenance Manual and Repair Parts and Special Tools List for Drum, Fabric, Collapsible, Drinking Water, 500 Gallon Capacity
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
500 Gallon Capacity Collapsible Fabric Potable Water Drum [B0571]

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1248: Perform scheduled PMCS on a FAWPSS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
FAWPSS is Forward Area Water Point Supply System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 08936A-13&P/1 or TM 10-4320-346-12&P and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review Service Request (SR).
3. Don Personal Protective Equipment (PPE).
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. SL-3-08936A Components List for Forward Area Water Point Supply System
2. TM 08936A-13&P/1 Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Forward Area Water Point Supply System (FAWPSS)
3. TM 10-4320-346-12&P Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Forward Area Water Point Supply System
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Tool Kit, Multi-Capable Maintainer [C7036]
Forward Area Water Point Supply System (FAWPSS) [B0676]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

~~**1171-MANT-1271:** Perform scheduled PMCS on a Hypochlorination Unit~~

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 09476B-13/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify HYPOCHLORITE HAZARD(S).
2. Identify CHEMICAL BURN HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
2. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Hypochlorination Unit [B1140]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection

for Engineer Equipment [LTI])
Parts for scheduled services

1171-MANT-1272: Perform scheduled PMCS on a 125/150 GPM Water Pump (Hatz)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
GPM is Gallons per Minute.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 08922A-14/1 or TM 4320-OI and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. SL-4-08922C Repair Parts List for Pump Unit MWP-200, 125 GPM
2. TM 08922A-14/1 Operator's Organizational, Direct Support and General Support Maintenance Manual for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
3. TM 08922A-24P/2 Unit, Intermediate Direct Support and Intermediate General Support Maintenance Repair Parts and Special Tools List for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
4. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
5. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module

6. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. ULSS 004283-15 User's Logistics Support Summary for Water Pump and Storage Tank Modules

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
125/150 GPM Water Pump (Hatz) [B1581]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

1171-MANT-1274: Perform scheduled PMCS on a 125 GPM Water Pump (Yanmar)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
GPM is Gallons per Minute.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 10-4320-325-14 or TM 4320-14/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. LO 10-4320-325-12 Lubrication Order for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class 3
2. SL-3-00970D Components List for Pump Unit Set
3. TM 10-4320-325-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
4. TM 10-4320-325-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
5. TM 4320-14/1 Operator, Unit, Direct Support, and General Support Maintenance for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Water, Class 3, Diesel-Driven
6. TM 4320-24P/2 Unit, Direct Support and General Support Repair Parts and Special Tools List for Pump Unit, Centrifugal, Self-Priming, Class 3, Diesel-Driven, Model PAD 125A
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
125 GPM Water Pump (Yanmar) [B1620]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

1171-MANT-1277: Perform scheduled PMCS on a SIXCON Water Tank Module

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, forms, and references.

STANDARD: So equipment is checked and serviced per TM 09444A/08990A-15&P/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:

1. Review equipment technical manuals.
2. Review Service Request (SR).
3. Don Personal Protective Equipment (PPE).
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. MI 08990A-35/2 Instructions for Installing Modification Kit on the Tank, Water Module (SIXCON)
2. SL-3-08990A Components List for Module, Water Tank (SIXCON)
3. SL-4-08990A Repair Parts List for Tank, Water Module
4. TI 08990A-OD/1 Depot Level Repair and/or Rebuild of the Water Tank Module, SIXCON
5. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
6. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. ULSS 004283-15 User's Logistics Support Summary for Water Pump and Storage Tank Modules

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
SIXCON Water Tank Module [B2086]

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1171-MANT-1278: Perform scheduled PMCS on a 3,000 Gallon Capacity Collapsible Fabric Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, forms, and references.

STANDARD: So equipment is checked and serviced per TM 01034E-12&P/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review Service Request (SR).
3. Don Personal Protective Equipment (PPE).
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-MANT-1233
1171-MANT-1282

REFERENCES:
1. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
2. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
3,000 Gallon Capacity Collapsible Fabric Water Tank [B2130]

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1279: Perform scheduled PMCS on a 600 GPM Water Pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
GPM is Gallons per Minute.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, tools, parts for scheduled services, forms, and references.
STANDARD: So equipment is checked and serviced per TM 11986A-OI/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review equipment technical manuals.
4. Review Service Request (SR).
5. Don Personal Protective Equipment (PPE).
6. Contain (Lockout/Tagout) hazardous energy.
7. Inspect equipment.
8. Service equipment.
9. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006
1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. FP 11982A/11986A Fielding Plan for the 600-Gallons per Minute (GPM) Pump Assemblies
2. SI 11982A-OI Warranty Procedures for the 600 Gallons per Minute Fuel Pump Assembly and 600 Gallons per Minute Water Pump Assembly
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 11986A-OI/1 Operation and Maintenance Manual with Repair Parts List (RPL) for Pump Assembly, Water: Diesel-Engine-Driven (DED), 600 GPM, Model 600GPMWCPT
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
600 GPM Water Pump [B2394]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

1171-MANT-1280: Perform scheduled PMCS on a TWDS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
TWDS is Tactical Water Distribution System.
BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked and serviced per TM 10-4320-303-13 or TM 10-4320-317-13 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review Service Request (SR).
3. Don Personal Protective Equipment (PPE).
4. Contain (Lockout/Tagout) hazardous energy.
5. Inspect equipment.
6. Service equipment.
7. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1011		

RELATED EVENTS:

1171-ADMN-1007	1171-ADMN-1008	1171-MANT-1271
1171-MANT-1272	1171-MANT-1274	1171-MANT-1278
1171-MANT-1279	1171-MANT-1284	1171-MANT-1285

REFERENCES:
1. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
2. SL-3-09481A Components List for Connection Set, Hose
3. SL-3-09483A Components List for Connection Kit, Hose Nozzle
4. SL-3-09484A Components List for Connection Kit, 125 GPM Pump
5. SL-3-09495A Components List for Connection Kit, Tank
6. SL-3-09496A Components List for Kit, Spare Parts, Tank
7. SL-3-09536A Components List for Distribution Point
8. SL-3-09537A Components List for Connection Kit, Bag
9. SL-3-09538A Components List for Storage Assembly
10. SL-3-09539A Components List for Pumping Station
11. SL-3-09563A Components List for Interconnection Kit
12. SL-3-09721A Components List for Connection Set, Hose
13. SL-3-09854A Components List for 10 Mile Segment Kit
14. SL-3-10761A Tank, Fabric, Collapsible w/Chest, Fuel, 50,000 Gallon Capacity
15. SL-4-06999A Repair Parts List for Tank Assembly, Fabric, Collapsible: 20,000 Gallon Capacity

16. SL-4-08922C Repair Parts List for Pump Unit MWP-200, 125 GPM
17. TM 08922A-14/1 Operator's Organizational, Direct Support and General Support Maintenance Manual for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
18. TM 08922A-24P/2 Unit, Intermediate Direct Support and Intermediate General Support Maintenance Repair Parts and Special Tools List for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
19. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
20. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
21. TM 10-4320-303-13 Operator's, Unit and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System (TWDS) Set, 10-Mile Segment
22. TM 10-4320-317-13 Operator's, Unit, and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System, 10 Mile Segment
23. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
24. TM 4700-15/1_ Ground Equipment Record Procedures
25. TM 5-5430-211-13&P Operator's, Organizational and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List for Tank, Fabric, Collapsible, Pillow Type, 50,000 Gallons, Drinking Water
26. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water
27. ULSS 004283-15 User's Logistics Support Summary for Water Pump and Storage Tank Modules

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Tactical Water Distribution System (TWDS) [B2395]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services
Fuel

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1282: Perform scheduled PMCS on a TWPS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
PMCS is Preventive Maintenance Checks and Services.
TWPS is 1,500 GPH Tactical Water Purification System.
GPH is Gallons per Hour.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, electrical power source, personnel, tools, parts for scheduled services, forms, and references.

STANDARD: So equipment is checked/serviced per TM 10802A-OI/1A Vol 1 and TM 10802A-OI/1A Vol 2 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify CHEMICAL HAZARD(S).
3. Identify FIRE/EXPLOSION HAZARD(S).
4. Identify CARBON MONOXIDE HAZARD(S).
5. Identify GRAYWATER HAZARD(S).
6. Review equipment technical manuals.
7. Review Service Request (SR).
8. Don Personal Protective Equipment (PPE).
9. Ensure equipment is grounded (or bonded to power source).
10. Contain (Lockout/Tagout) hazardous energy.
11. Inspect equipment.
12. Service equipment.
13. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1011	1171-MANT-1278	

RELATED EVENTS:

1171-ADMN-1007	1171-ADMN-1008

REFERENCES:
1. FP 10802A Fielding Plan for 1,500 Gallons per Hour (GPH) Tactical Water Purification System (TWPS)
2. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
3. SI 10802A-OR/2 Supply Instruction for Advance Change Notice to the Marine Corps Tactical Water Purification System (MC-TWPS)
4. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
7. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
8. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
1,500 GPH Tactical Water Purification System (TWPS) [B2605]

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Parts for scheduled services

UNITS/PERSONNEL: TM 10802A-OI/1A Vol 1 identifies a requirement for three MOS 1171 (Water Support Technicians) to safely operate the TWPS. However, additional personnel (any MOS) are required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required.

1171-MANT-1284: Perform scheduled PMCS on a 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, forms, and references.

STANDARD: So equipment is checked and serviced per TM 5-5430-211-13&P and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review Service Request (SR).
3. Don Personal Protective Equipment (PPE).
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:
1. SL-3-10761A Tank, Fabric, Collapsible w/Chest, Fuel, 50,000 Gallon

Capacity
2. TM 4700-15/1_ Ground Equipment Record Procedures
3. TM 5-5430-211-13&P Operator's, Organizational and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List for Tank, Fabric, Collapsible, Pillow Type, 50,000 Gallons, Drinking Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
50,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2631]

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1285: Perform scheduled PMCS on a 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PMCS is Preventive Maintenance Checks and Services.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, personnel, tools, forms, and references.

STANDARD: So equipment is checked and serviced per TM 5-5430-216-13&P and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review Service Request (SR).
3. Don Personal Protective Equipment (PPE).
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008

REFERENCES:

1. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
2. SL-4-06999A Repair Parts List for Tank Assembly, Fabric, Collapsible: 20,000 Gallon Capacity
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
20,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2632]

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1331: Diagnose a Bare Base Shower Facility malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 120/208VAC 60Hz electrical power source, tools, forms and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check valves/switches/gauges for correct settings.
9. Isolate faulty component(s)/identify leaks.
10. Determine if component fault was caused by a defect elsewhere.
11. Determine echelon(s) of maintenance.
12. Document findings (complete LTI/update Service Request).
13. Order parts (if required).

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1010 1171-ADMN-1011
1171-MANT-1231

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty Shower Facility, Bare Base [B0055] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

OTHER SUPPORT REQUIREMENTS: 120/280VAC 60Hz electrical power source (normally a 10kW Tactical Generator)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142) or a graduate of the Advanced Water Support Technician Course (CID: M03UAC2) may be required to fully diagnose any electrical system related malfunction.

1171-MANT-1332: Diagnose a CBL malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: CBL is Containerized Batch Laundry Unit.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 120/208VAC 60Hz electrical power source, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check valves/switches/gauges for correct settings.
9. Isolate faulty component(s)/identify leaks.
10. Determine if component fault was caused by a defect elsewhere.
11. Determine echelon(s) of maintenance.
12. Document findings (complete LTI/update Service Request).
13. Order parts (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-MANT-1232		

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
6. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty Containerized Batch Laundry (CBL) Unit [B0066] or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 60Hz electrical power source (normally a 100kW Tactical Generator)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Electrician (MOS 1141), Engineer Equipment Electrical Systems Technician (MOS 1142) or a graduate of the Advanced Water Support Technician Course (CID: M03UAC2) may be required to fully diagnose any electrical system related malfunction.

1171-MANT-1333: Diagnose a LWPS malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: LWPS is Lightweight Water Purification System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify CHEMICAL HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review LTI.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure any stored/hazardous energy is dissipated/controlled.
8. Check valves/switches/gauges/meters for correct settings.
9. Isolate faulty component(s)/identify leaks.
10. Determine if component fault(s) was caused by a defect elsewhere.
11. Document findings (complete LTI/update Service Request).
12. Order parts (if required).

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1010 1171-ADMN-1011
1171-MANT-1233

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide

3. SI 11720A-IN/1 Warranty Procedures for the Lightweight Tactical Water Purification System (LWPS)
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 11720A-OI Operator/Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Lightweight Water Purification System (LWPS)
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty Lightweight Water Purification System (LWPS) [B0071] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from a graduate of the Advanced Water Support Technician Course (CID: M03UAC2) may be required to fully diagnose any electrical malfunction on the Cold Weather Module.

1171-MANT-1348: Diagnose a FAWPSS malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: FAWPSS is Forward Area Water Point Supply System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Review LTI.
2. Review equipment technical manuals.
3. Don Personal Protective Equipment (PPE).
4. Check valves/switches for correct settings.
5. Isolate faulty component(s)/identify leaks.
6. Determine if component fault was caused by a defect elsewhere.
7. Determine echelon(s) of maintenance.

8. Document findings (complete LTI/update Service Request).
9. Order parts (if required).

PREREQUISITE EVENTS: 1171-ADMN-1006
RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1010 1171-ADMN-1011
1171-MANT-1248

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 08936A-13&P/1 Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Forward Area Water Point Supply System (FAWPSS)
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 10-4320-346-12&P Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Forward Area Water Point Supply System
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty Forward Area Water Point Supply System (FAWPSS) [B0676] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1171-MANT-1371: Diagnose a Hypochlorination Unit malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify HYPOCHLORITE HAZARD(S).
2. Identify CHEMICAL BURN HAZARD(S).
3. Review LTI.

4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Check valves/switches for correct settings.
7. Isolate faulty component(s)/identify leaks.
8. Determine if component fault was caused by a defect elsewhere.
9. Determine echelon(s) of maintenance.
10. Document findings (complete LTI/update Service Request).
11. Order parts (if required).

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1010 1171-ADMN-1011
1171-MANT-1271

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
4. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty Hypochlorination Unit [B1140] or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1171-MANT-1372: Diagnose a 125/150 GPM Water Pump (Hatz) malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:

1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Check valves/switches for correct settings.
7. Isolate faulty component(s)/identify leaks.
8. Determine if component fault was caused by a defect elsewhere.
9. Determine echelon(s) of maintenance.
10. Document findings (complete LTI/update Service Request).
11. Order parts (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-MANT-1272		

REFERENCES:

1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SL-4-08922C Repair Parts List for Pump Unit MWP-200, 125 GPM
4. TM 08922A-14/1 Operator's Organizational, Direct Support and General Support Maintenance Manual for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
5. TM 08922A-24P/2 Unit, Intermediate Direct Support and Intermediate General Support Maintenance Repair Parts and Special Tools List for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
6. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
7. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module
8. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
9. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
10. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty 125/150 GPM Water Pump (Hatz) [B1581] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1171-MANT-1374: Diagnose a 125 GPM Water Pump (Yanmar) malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician
GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Check valves/switches for correct settings.
7. Isolate faulty component(s)/identify leaks.
8. Determine if component fault was caused by a defect elsewhere.
9. Determine echelon(s) of maintenance.
10. Document findings (complete LTI/update Service Request).
11. Order parts (if required).

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1010 1171-ADMN-1011
1171-MANT-1274

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 10-4320-325-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
5. TM 10-4320-325-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
6. TM 4320-14/1 Operator, Unit, Direct Support, and General Support Maintenance for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Water, Class 3, Diesel-Driven
7. TM 4320-24P/2 Unit, Direct Support and General Support Repair Parts and Special Tools List for Pump Unit, Centrifugal, Self-Priming, Class 3, Diesel-Driven, Model PAD 125A
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty 125 GPM Water Pump (Yanmar) [B1620]
MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1171-MANT-1379: Diagnose a 600 GPM Water Pump malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
7. Check valves/switches/gauges for correct settings.
8. Isolate faulty component(s)/identify leaks.
9. Determine if component fault was caused by a defect elsewhere.
10. Determine echelon(s) of maintenance.
11. Document findings (complete LTI/update Service Request).
12. Order parts (if required).

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1010 1171-ADMN-1011
1171-MANT-1279

REFERENCES:
1. FP 11982A/11986A Fielding Plan for the 600-Gallons per Minute (GPM) Pump Assemblies
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. SI 11982A-OI Warranty Procedures for the 600 Gallons per Minute Fuel Pump

Assembly and 600 Gallons per Minute Water Pump Assembly
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 11986A-OI/1 Operation and Maintenance Manual with Repair Parts List (RPL) for Pump Assembly, Water: Diesel-Engine-Driven (DED), 600 GPM, Model 600GPMWCPT
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty 600 GPM Water Pump [B2394] or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142) or a graduate of the Advanced Water Support Technician Course (CID: M03UAC2) may be required to fully diagnose any electrical system related malfunction.

1171-MANT-1382: Diagnose a TWPS malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: TWPS is 1,500 GPH Tactical Water Purification System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 416VAC 60Hz 3-Phase electrical power source, personnel, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify CHEMICAL HAZARD(S).
3. Identify FIRE/EXPLOSION HAZARD(S).
4. Identify CARBON MONOXIDE HAZARD(S).
5. Identify GRAYWATER HAZARD(S).

6. Review LTI.
7. Review equipment technical manuals.
8. Don Personal Protective Equipment (PPE).
9. Ensure equipment is grounded (or bonded to power source).
10. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
11. Check valves/switches/gauges for correct settings.
12. Isolate faulty component(s)/identify leaks.
13. Determine if component fault was caused by a defect elsewhere.
14. Determine echelon(s) of maintenance.
15. Document findings (complete LTI/update Service Request).
16. Order parts (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1171-MANT-1282		

REFERENCES:

1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
4. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
8. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
9. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
10. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty 1,500 GPH Tactical Water Purification System (TWPS) [B2605] or components

MATERIAL: NAVMC 10560 Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Three licensed Water Support Technicians (MOS 1171) are required to set up and operate the TWPS. An Electrician (MOS 1141) is required to hook up and operate the generator.

OTHER SUPPORT REQUIREMENTS: 416VAC 60Hz 3-Phase electrical power source (normally a 60kW Tactical Generator)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142) or a graduate of the Advanced Water Support Technician Course (CID: M03UAC2) may be required to fully diagnose any electrical system related malfunction.

1171-MANT-1431: Repair a Bare Base Shower Facility

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, a 120/208VAC 60Hz electrical power source, personnel, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 10006A-14&P1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1008	1171-ADMN-1011	1171-MANT-1331

RELATED EVENTS: 1171-MANT-1231

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base

5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined Shower Facility, Bare Base [B0055]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel for water heater

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

OTHER SUPPORT REQUIREMENTS: 120/208VAC 60Hz electrical power source (normally a 10kW Tactical Generator)

1171-MANT-1432: Repair a CBL

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: CBL is Containerized Batch Laundry Unit.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, personnel, a 120/208VAC 60Hz electrical power source, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 11413A-OI/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure equipment is grounded.

8. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
9. Remove faulty part(s).
10. Prepare area(s) for new part(s).
11. Attach new part(s), making necessary adjustments.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1008	1171-ADMN-1011	1171-MANT-1332

RELATED EVENTS: 1171-MANT-1232

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
6. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined Containerized Batch Laundry (CBL) Unit [B0066]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel for water heater

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment components, if movement (unpacking/packing) of equipment is necessary for this event.

OTHER SUPPORT REQUIREMENTS: 120/208VAC 60Hz electrical power source (normally a 100kW Tactical Generator)

1171-MANT-1433: Repair a LWPS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: LWPS is Lightweight Water Purification System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, personnel, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 11720A-OI and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify CHEMICAL HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review Service Request (SR).
5. Inventory parts from layette.
6. Review equipment technical manuals.
7. Don Personal Protective Equipment (PPE).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1008	1171-ADMN-1011	

RELATED EVENTS: 1171-MANT-1282

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SI 11720A-IN/1 Warranty Procedures for the Lightweight Tactical Water Purification System (LWPS)
4. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 11720A-OI Operator/Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Lightweight Water Purification System (LWPS)
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined Lightweight Water Purification System (LWPS) [B0071]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

Fuel

UNITS/PERSONNEL: Additional personnel (any MOS) will be required to safely move equipment modules, if movement (unpacking/packing) of equipment is necessary for this event.

1171-MANT-1441: Repair a 500 Gallon Capacity Collapsible Fabric Potable Water Drum

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 10-8110-202-13&P and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review Service Request (SR).
2. Inventory parts from layette.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Remove faulty part(s), if required.
6. Prepare area(s) for new part(s)/patch/plug.
7. Attach new part(s)/patch/plug, making necessary adjustments.
8. Test repairs.
9. Document repairs.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1008 1171-ADMN-1011
1171-MANT-1241

RELATED EVENTS:
1171-MANT-1478 1171-MANT-1484 1171-MANT-1485

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 10-8110-202-13&P Operator's, Organizational, and Direct Support Maintenance Manual and Repair Parts and Special Tools List for Drum, Fabric, Collapsible, Drinking Water, 500 Gallon Capacity
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 500 Gallon Capacity Collapsible Fabric Potable Water Drum [B0571]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1171-MANT-1448: Repair a FAWPSS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: FAWPSS is Forward Area Water Point Supply System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 08936A-13&P/1 or TM 10-4320-346-12&P and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review Service Request (SR).
2. Inventory parts from layette.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Remove faulty part(s).
6. Prepare area(s) for new part(s).
7. Attach new part(s), making necessary adjustments.
8. Test repairs.
9. Document repairs.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1008 1171-ADMN-1011
1171-MANT-1348

RELATED EVENTS: 1171-MANT-1248

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 08936A-13&P/1 Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Forward Area Water Point Supply System (FAWPSS)

4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 10-4320-346-12&P Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Forward Area Water Point Supply System
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined Forward Area Water Point Supply System (FAWPSS) [B0676]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1171-MANT-1471: Repair a Hypochlorination Unit

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 09476B-13/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify HYPOCHLORITE HAZARD(S).
2. Identify CHEMICAL BURN HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Remove faulty part(s).
8. Prepare area(s) for new part(s).
9. Attach new part(s), making necessary adjustments.
10. Test repairs.
11. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1006	1171-ADMN-1008
1171-ADMN-1011	1171-MANT-1371	

RELATED EVENTS: 1171-MANT-1271

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
4. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined Hypochlorination Unit [B1140]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1171-MANT-1472: Repair a 125/150 GPM Water Pump (Hatz)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 08922A-14/1, TM 09444A/08990A-15&P/1, or TM 4320-OI and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Remove faulty part(s).
8. Prepare area(s) for new part(s).
9. Attach new part(s), making necessary adjustments.
10. Test repairs.

11. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1006	1171-ADMN-1008
1171-ADMN-1011	1171-MANT-1372	

RELATED EVENTS: 1171-MANT-1272

REFERENCES:

1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SL-4-08922C Repair Parts List for Pump Unit MWP-200, 125 GPM
4. TM 08922A-14/1 Operator's Organizational, Direct Support and General Support Maintenance Manual for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
5. TM 08922A-24P/2 Unit, Intermediate Direct Support and Intermediate General Support Maintenance Repair Parts and Special Tools List for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
6. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
7. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module
8. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
9. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
10. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 125/150 GPM Water Pump (Hatz) [B1581]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1171-MANT-1474: Repair a 125 GPM Water Pump (Yanmar)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the

degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 10-4320-325-14, or TM 4320-14/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Remove faulty part(s).
8. Prepare area(s) for new part(s).
9. Attach new part(s), making necessary adjustments.
10. Test repairs.
11. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1006	1171-ADMN-1008
1171-ADMN-1011	1171-MANT-1374	

RELATED EVENTS: 1171-MANT-1274

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 10-4320-325-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
5. TM 10-4320-325-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
6. TM 4320-14/1 Operator, Unit, Direct Support, and General Support Maintenance for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Water, Class 3, Diesel-Driven
7. TM 4320-24P/2 Unit, Direct Support and General Support Repair Parts and Special Tools List for Pump Unit, Centrifugal, Self-Priming, Class 3, Diesel-Driven, Model PAD 125A
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 125 GPM Water Pump (Yanmar) [B1620]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

Fuel

1171-MANT-1477: Repair a SIXCON Water Tank Module
EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 09444A/08990A-15&P/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review Service Request (SR).
2. Inventory parts from layette.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Remove faulty part(s).
6. Prepare area(s) for new part(s).
7. Attach new part(s), making necessary adjustments.
8. Test repairs.
9. Document repairs.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1008 1171-ADMN-1011
1171-MANT-1277

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SL-4-08990A Repair Parts List for Tank, Water Module
4. TI 08990A-OD/1 Depot Level Repair and/or Rebuild of the Water Tank Module, SIXCON
5. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
6. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined SIXCON Water Tank Module [B2086]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1171-MANT-1478: Repair a 3,000 Gallon Capacity Collapsible Fabric Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With degraded/deadlined equipment, repair patches/plugs, tools, and references.

STANDARD: So equipment functions as specified in TM 01034E-12&P/1.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Don Personal Protective Equipment (PPE).
3. Prepare area(s) for patch/plug.
4. Attach patch/plug.
5. Test repairs.

PREREQUISITE EVENTS:

1171-ADMN-1006	1171-ADMN-1008	1171-MANT-1278

RELATED EVENTS:

1171-MANT-1441	1171-MANT-1484	1171-MANT-1485

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
4. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 3,000 Gallon Capacity Collapsible Fabric Water Tank [B2130]

MATERIAL:

SL-3 Components
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

~~**1171-MANT-1479:** Repair a 600 GPM Water Pump~~

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, personnel, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 11986A-OI/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review Service Request (SR).
4. Inventory parts from layette.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Remove faulty part(s).
9. Prepare area(s) for new part(s).
10. Attach new part(s), making necessary adjustments.
11. Test repairs.
12. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1008	1171-ADMN-1011	1171-MANT-1379

RELATED EVENTS: 1171-MANT-1279

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 11986A-OI/1 Operation and Maintenance Manual with Repair Parts List (RPL) for Pump Assembly, Water: Diesel-Engine-Driven (DED), 600 GPM, Model 600GPMWCPT
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 600 GPM Water Pump [B2394]
MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

1171-MANT-1482: Repair a TWPS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
TWPS is 1,500 GPH Tactical Water Purification System.
GPH is Gallons per Hour.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, a 416VAC 60Hz 3-Phase electrical power source, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 10802A-OI/1A Vol 1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify CHEMICAL HAZARD(S).
3. Identify FIRE/EXPLOSION HAZARD(S).
4. Identify CARBON MONOXIDE HAZARD(S).
5. Identify GRAYWATER HAZARD(S).
6. Review Service Request (SR).
7. Inventory parts from layette.
8. Review equipment technical manuals.
9. Don Personal Protective Equipment (PPE).
10. Ensure equipment is grounded.
11. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
12. Remove faulty part(s).
13. Prepare area(s) for new part(s).
14. Attach new part(s), making necessary adjustments.
15. Test repairs.
16. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1008	1171-ADMN-1011	1171-MANT-1382

RELATED EVENTS:
1142-MANT-2383 1171-MANT-1282 1171-MANT-2397

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
4. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
8. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
9. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
10. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 1,500 GPH Tactical Water Purification System (TWPS) [B2605]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Three licensed Water Support Technicians (MOS 1171) are required to set up and operate the TWPS. An Electrician (MOS 1141) is required to hook up and operate the generator.

OTHER SUPPORT REQUIREMENTS: 416VAC 60Hz 3-Phase electrical power source (normally a 60kW Tactical Generator)

1171-MANT-1484: Repair a 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and

references.

STANDARD: So equipment functions/operates as specified in TM 5-5430-211-13&P and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:

1. Review Service Request (SR).
2. Inventory parts from layette.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Remove faulty part(s), if required.
6. Prepare area(s) for new part(s)/patch/plug.
7. Attach new part(s)/patch/plug, making necessary adjustments.
8. Test repairs.
9. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1006	1171-ADMN-1008	1171-ADMN-1011
1171-MANT-1284		

RELATED EVENTS:

1171-MANT-1441	1171-MANT-1478	1171-MANT-1485

REFERENCES:

1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. TM 5-5430-211-13&P Operator's, Organizational and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List for Tank, Fabric, Collapsible, Pillow Type, 50,000 Gallons, Drinking Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2631]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1171-MANT-1485: Repair a 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 5-5430-216-13&P and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review Service Request (SR).
2. Inventory parts from layette.
3. Review equipment technical manuals.
4. Don Personal Protective Equipment (PPE).
5. Remove faulty part(s), if required.
6. Prepare area(s) for new part(s)/patch/plug.
7. Attach new part(s)/patch/plug, making necessary adjustments.
8. Test repairs.
9. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1006	1171-ADMN-1008	1171-ADMN-1011
1171-MANT-1285		

RELATED EVENTS:

1171-MANT-1441	1171-MANT-1478	1171-MANT-1484

REFERENCES:
1. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. SL-4-06999A Repair Parts List for Tank Assembly, Fabric, Collapsible: 20,000 Gallon Capacity
5. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1_ Ground Equipment Record Procedures
7. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2632]

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1171-XENG-1604: Establish a water purification site

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water reconnaissance report, water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: So unit's mission is supported per the commander's intent and water purification equipment is set up in accordance with equipment technical manuals.

PERFORMANCE STEPS:
1. Identify CHEMICAL HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Review water reconnaissance report.
4. Review water support plan and Course of Action (COA).
5. Review references.
6. Reassess operational risk.
7. Don Personal Protective Equipment (PPE).
8. Prepare site, making provisions for traffic.
9. Set up water purification equipment and accessories.
10. Camouflage equipment and accessories.
11. Develop waste water disposal system.
12. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:
1171-XENG-1733 1171-XENG-1782

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCRP 3-17.6A Camouflage, Concealment, and Decoys
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
6. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
7. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
8. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
9. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
10. TM 11720A-OI Operator/Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Lightweight Water Purification System (LWPS)
11. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control

and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Forklift (with capacity to lift designated water purification equipment)
Earthmoving equipment (if required to prepare site)
Electric power generation and distribution equipment (if required)
Water purification equipment as designated by the water support plan

MATERIAL:
DA Form 1712-R (Water Reconnaissance Report)
Water support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site and move water purification equipment
MOS 1141 (Electrician) to establish electrical power support (if required)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1171-XENG-1605: Install field waste water disposal devices

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With field waste water disposal plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent and waste water is disposed of in accordance with the references.

PERFORMANCE STEPS:
1. Review field waste water disposal plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site(s), making provisions for traffic.
6. Set up sanitation devices.
7. Install warning signs.
8. Camouflage sanitation devices.

9. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS: 1171-XENG-1805

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 4-11.1D Field Hygiene and Sanitation
5. MCRP 4-11B Environmental Considerations
6. TB MED 593 Guidelines for Field Waste Management

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (if required to prepare site)
Equipment designated by the field waste water disposal plan

MATERIAL: Field waste water disposal plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site
MOS 1371 (Combat Engineer) to construct sanitation devices

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in establishing and maintaining sanitary devices

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1171-XENG-1631: Establish a shower site

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With hygiene equipment support plan and established Course of Action (COA), equipment, personnel, 120/208VAC 60Hz electrical power source(s), area lighting, and references.

STANDARD: So unit's mission is supported per the commander's intent and Bare

Base Shower Facilities are set up in accordance with TM 10006A-14&P/1.

PERFORMANCE STEPS:
1. Review hygiene equipment support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site, making provisions for traffic.
6. Set up shower facilities and accessories.
7. Camouflage equipment and accessories.
8. Develop shower waste water disposal system.
9. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:
1171-XENG-1605 1171-XENG-1678 1171-XENG-1731

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys
2. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations
5. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
6. SL-3-10006A Components List for Bath Shower Unit, Expedition
7. TB MED 593 Guidelines for Field Waste Management
8. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
9. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
10. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
11. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift Bare Base Shower Facility)
Earthmoving equipment (if required to prepare site)
Shower Facility, Bare Base [B0055] (quantity as designated by the hygiene support plan)
3,000 Gallon Capacity Collapsible Fabric Water Tank [B2130] (quantity as designated by the hygiene support plan)

MATERIAL: Hygiene equipment support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site and move shower Facilities
MOS 1141 (Electrician) to establish electrical power support and area lighting

OTHER SUPPORT REQUIREMENTS:
115VAC 60Hz electrical power source (normally one 10kW Tactical Generator for one shower facility)
Area lighting (normally a floodlight set [B0640])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1171-XENG-1632: Establish a laundry site

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With hygiene equipment support plan and established Course of Action (COA), equipment, personnel, 120/208VAC 60Hz electrical power source(s), area lighting, and references.

STANDARD: So unit's mission is supported per the commander's intent and Containerized Batch Laundry (CBL) Units are set up in accordance with TM 11413A-OI/1.

PERFORMANCE STEPS:
1. Review hygiene equipment support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site, making provisions for traffic.
6. Set up laundry units and accessories.
7. Camouflage equipment and accessories.
8. Develop laundry waste water disposal system.
9. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:
1171-XENG-1605 1171-XENG-1678 1171-XENG-1732

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys

2. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations
5. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
6. TB MED 593 Guidelines for Field Waste Management
7. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
8. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
9. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
10. TM 10-8340-240-12&P Operator's and Unit Maintenance Manual, Including Repair Parts and Special Tools List for Modular General Purpose Tent System (MGPTS)
11. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
12. TM 55-8115-204-23&P Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for General Cargo Container
13. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift Containerized Batch Laundry (CBL) Unit)
Earthmoving equipment (if required to prepare site)
Containerized Batch Laundry (CBL) Unit [B0066] (quantity as designated by the hygiene support plan)
3,000 Gallon Capacity Collapsible Fabric Water Tank [B2130] (quantity as designated by the hygiene support plan)

MATERIAL: Hygiene equipment support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site and move laundry Units
MOS 1141 (Electrician) to establish electrical power support and area lighting

OTHER SUPPORT REQUIREMENTS:
120/208VAC 60Hz electrical power source (normally one 100kW MEP-807A Tactical Quiet Generator for one laundry unit)
Area lighting (normally a floodlight set [B0640])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site

development.

1171-XENG-1648: Establish a water supply point
EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So water supply point distribution will support unit's mission per the commander's intent and is set up in accordance with FM 10-52-1 and equipment technical manuals.

PERFORMANCE STEPS:
1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site, making provisions for traffic.
6. Set up water supply point equipment and accessories.
7. Camouflage equipment and accessories.
8. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:

1171-XENG-1604	1171-XENG-1677	1171-XENG-1678
1171-XENG-1680	1171-XENG-1684	1171-XENG-1685
1171-XENG-1733	1171-XENG-1748	1171-XENG-1771
1171-XENG-1772	1171-XENG-1774	1171-XENG-1779
1171-XENG-1782		

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCRP 3-17.6A Camouflage, Concealment, and Decoys
4. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
5. MCWP 4-11 Tactical-Level Logistics
6. MCWP 4-11.6 Petroleum and Water Logistics Operations
7. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
8. TM 08922A-14/1 Operator's Organizational, Direct Support and General Support Maintenance Manual for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
9. TM 08936A-13&P/1 Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Forward Area Water Point Supply System (FAWPSS)

10. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
11. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module
12. TM 10-4320-346-12&P Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Forward Area Water Point Supply System
13. TM 10-8110-202-10-HR Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL) for Drum, Fabric, Collapsible, Drinking Water, 500 Gallon Capacity
14. TM 10-8110-202-13&P Operator's, Organizational, and Direct Support Maintenance Manual and Repair Parts and Special Tools List for Drum, Fabric, Collapsible, Drinking Water, 500 Gallon Capacity
15. TM 4320-14/1 Operator, Unit, Direct Support, and General Support Maintenance for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Water, Class 3, Diesel-Driven
16. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift water supply point equipment)
Earthmoving equipment (if required to prepare site)
Water supply point equipment designated by the water support plan

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site and move water support equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1171-XENG-1677: Set up SIXCON Water Tank Modules

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So SIXCON Water Tank Modules will provide required support to unit's water supply mission per the commander's intent and are set up in accordance with TM 09444A/08990A-15&P/1.

PERFORMANCE STEPS:

1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site, making provisions for traffic.
6. Stage/assemble water tank modules and accessories.
7. Camouflage water tank modules and accessories.
8. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS: 1171-XENG-1648

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCRP 3-17.6A Camouflage, Concealment, and Decoys
4. MCWP 4-11 Tactical-Level Logistics
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. SL-3-08990A Components List for Module, Water Tank (SIXCON)
7. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
8. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift full water tank modules)
Earthmoving equipment (if required to prepare site)
SIXCON water tank modules [B2086] (quantity as designated by the water support plan)

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site and move water tank modules

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for setting up water tank modules.

1171-XENG-1678: Set up a 3,000 Gallon Capacity Collapsible Fabric Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician
GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent and water tank is set up in accordance with TM 01034E-12&P/1.

PERFORMANCE STEPS:
1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site.
6. Set up water tank and accessories.
7. Camouflage water tank and accessories.
8. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:

1171-XENG-1604	1171-XENG-1631	1171-XENG-1632
1171-XENG-1648	1171-XENG-1684	1171-XENG-1685

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys
2. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
3. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift water tank)
Earthmoving equipment (if required to prepare site)
3,000 Gallon Capacity Collapsible Fabric Water Tank [B2130]

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site and move water tank

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for setting up water tank.

~~1171-XENG-1680~~: ~~Set up a TWDS~~

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: A TWDS is a Tactical Water Distribution System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So water distribution system will support unit's mission per the commander's intent and is set up in accordance with equipment technical manuals.

PERFORMANCE STEPS:
1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare sites, making provisions for traffic.
6. Set up water pumping station(s).
7. Set up water storage area(s).
8. Connect pumping stations and storage tank(s) using hoses.
9. Connect distribution system to water purification site(s) and supply point(s).
10. Camouflage equipment and accessories.
11. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:

1171-XENG-1604	1171-XENG-1648	1171-XENG-1678
1171-XENG-1684	1171-XENG-1685	1171-XENG-1748
1171-XENG-1771	1171-XENG-1782	

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 4-11B Environmental Considerations
8. MCWP 4-11 Tactical-Level Logistics

9. MCWP 4-11.6 Petroleum and Water Logistics Operations
10. SL-3-00970D Components List for Pump Unit Set
11. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
12. SL-3-09481A Components List for Connection Set, Hose
13. SL-3-09483A Components List for Connection Kit, Hose Nozzle
14. SL-3-09484A Components List for Connection Kit, 125 GPM Pump
15. SL-3-09495A Components List for Connection Kit, Tank
16. SL-3-09496A Components List for Kit, Spare Parts, Tank
17. SL-3-09536A Components List for Distribution Point
18. SL-3-09537A Components List for Connection Kit, Bag
19. SL-3-09538A Components List for Storage Assembly
20. SL-3-09539A Components List for Pumping Station
21. SL-3-09563A Components List for Interconnection Kit
22. SL-3-09721A Components List for Connection Set, Hose
23. SL-3-09854A Components List for 10 Mile Segment Kit
24. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
25. TM 08922A-14/1 Operator's Organizational, Direct Support and General Support Maintenance Manual for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
26. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
27. TM 10-4320-303-13 Operator's, Unit and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System (TWDS) Set, 10-Mile Segment
28. TM 10-4320-317-13 Operator's, Unit, and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System, 10 Mile Segment
29. TM 10-4320-325-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
30. TM 11986A-OI/1 Operation and Maintenance Manual with Repair Parts List (RPL) for Pump Assembly, Water: Diesel-Engine-Driven (DED), 600 GPM, Model 600GPMWCPT
31. TM 4320-14/1 Operator, Unit, Direct Support, and General Support Maintenance for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Water, Class 3, Diesel-Driven
32. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
33. TM 5-5430-211-13&P Operator's, Organizational and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List for Tank, Fabric, Collapsible, Pillow Type, 50,000 Gallons, Drinking Water
34. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Truck(s) (to transport water distribution system components and hoses)
Forklift (with capacity to move water distribution system components)
Earthmoving equipment (if required to prepare system sites)

260CFM Air Compressor and Pneumatic Tool Outfit [B0395] (to evacuate and displace water/air from hoses during retrograde)
Water distribution system components/equipment designated by the water support plan

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare sites and move water distribution system components/equipment
MOS 3531 (Motor Vehicle Operator) or MOS 3533 (Logistics Vehicle System Operator) to transport components/hoses

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Tactical situation, ORA and other changes encountered at different sites may ultimately determine final COA for system development.
Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed to set up and operate a Tactical Water Distribution System (TWDS).

SPECIAL PERSONNEL CERTS: Operators must be licensed to set up and operate a Tactical Water Distribution System (TWDS).

1171-XENG-1684: Set up a 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent and water tank is set up in accordance with TM 5-5430-211-13&P.

PERFORMANCE STEPS:
1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).
5. Prepare site.
6. Set up water tank and accessories.
7. Camouflage water tank and accessories.
8. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:
1171-XENG-1678 1171-XENG-1680 1171-XENG-1685

REFERENCES:
1. MCRP 3-17.6A Camouflage, Concealment, and Decoys
2. SL-3-10761A Tank, Fabric, Collapsible w/Chest, Fuel, 50,000 Gallon Capacity
3. TM 5-5430-211-13&P Operator's, Organizational and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List for Tank, Fabric, Collapsible, Pillow Type, 50,000 Gallons, Drinking Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift water tank)
Earthmoving equipment (if required to prepare site)
50,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2631]

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site and move water tank

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for setting up water tank.

1171-XENG-1685: Set up a 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water support plan and established Course of Action (COA), equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent and water tank is set up in accordance with TM 5-5430-216-13&P.

PERFORMANCE STEPS:
1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don Personal Protective Equipment (PPE).

5. Prepare site.
6. Set up water tank and accessories.
7. Camouflage water tank and accessories.
8. Provide for security.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:
1171-XENG-1648 1171-XENG-1678 1171-XENG-1680
1171-XENG-1684

REFERENCES:
1. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift water tank)
Earthmoving equipment (if required to prepare site)
20,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2632]

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to prepare site and move water tank

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for setting up water tank.

1171-XENG-1702: Test water

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With water sample(s), water testing equipment, and references.

STANDARD: So water quality is determined per TM 10-6630-222-12&P and test results are recorded.

PERFORMANCE STEPS:
1. Identify CHEMICAL HAZARD(S).

2. Review references.
3. Don Personal Protective Equipment (PPE).
4. Inventory test kit.
5. Calibrate test equipment.
6. Perform Total Dissolved Solids (TDS) test.
7. Record water temperature.
8. Perform chlorine residual test.
9. Perform pH value test.
10. Perform turbidity test.
11. Document test results.

PREREQUISITE EVENTS: 1171-ADMN-1007

RELATED EVENTS:
1171-XENG-2501 1171-XENG-2651 1171-XENG-2752
1171-XENG-2753 1171-XENG-2754

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
5. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
6. TM 3-6665-319-10 Operator's Manual for Water Testing Kit, Chemical Agents: M272
7. ULSS 009091-15A User's Logistics Support Summary for Water Quality Analysis Set, Purification (WQAS-P)

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]

MATERIAL: Water sample(s)

UNITS/PERSONNEL: MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) will test water for NBC contamination.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) will test water for NBC contamination
Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630]

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1171-XENG-1731: Operate a Bare Base Shower Facility

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months
BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established shower site, with hygiene equipment support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 10006A-14&P/14, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Identify GRAYWATER HAZARD(S).
5. Review hygiene equipment support plan.
6. Review references.
7. Validate scheduled male/female hours, posting schedule at site.
8. Reassess operational risk, ensuring warning signs are posted.
9. Don Personal Protective Equipment (PPE).
10. Ensure equipment is grounded.
11. Check valves/switches/gauges for correct settings.
12. Perform before operation checks, including all hose and electrical power cable connections.
13. Ensure main water supply hose is connected to water source.
14. Ensure main drain hose is routed to established liquid disposal devices.
15. Start water supply pump, water heater (when heater tank is filled with water), and drain pump.
16. Re-check all hose connections, fixing any leaks.
17. Open all shower head control valves, flushing shower manifolds and hoses for at least two minutes.
18. Allow supported personnel to shower per the hygiene equipment support plan.
19. Enforce water conservation and use restrictions.
20. Perform during operation checks/services, adjusting water temperature when required.
21. Maintain equipment logs.
22. Shut down equipment.
23. Perform after operation checks.
24. Document equipment operation.
25. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1631

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1231

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation
2. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
3. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
4. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Shower Facility, Bare Base [B0055]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

UNITS/PERSONNEL: MOS 1141 (Electrician) to provide/ensure electrical power support and lighting.

OTHER SUPPORT REQUIREMENTS:
120/208VAC 60Hz electrical power source (normally a 10kW Tactical Generator)
Area lighting (normally a floodlight set [B0640])
Water source (normally provided through a 3,000 gallon capacity collapsible fabric water tank [B2130])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Shower Facility, Bare Base [B0055].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate the Shower Facility, Bare Base [B0055].

1171-XENG-1732: Operate a CBL

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: CBL is Containerized Batch Laundry Unit.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL
CONDITION: At an established laundry site, with hygiene equipment support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 11413A-OI/1, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Identify GRAYWATER HAZARD(S).
5. Review hygiene equipment support plan.
6. Review references.
7. Reassess operational risk, ensuring warning signs are posted.
8. Don Personal Protective Equipment (PPE).
9. Ensure equipment is grounded.
10. Check valves/switches/gauges for correct settings.
11. Perform before operation checks, including all hose and electrical power cable connections.
12. Ensure water supply hoses are connected to water sources.
13. Ensure drain hoses are routed to designated liquid disposal devices.
14. Start water supply pump, water heater (when heater tank is filled with water), sewage ejection pump, and exhaust fan.
15. Re-check all hose connections, fixing any leaks.
16. Wash laundry.
17. Dry laundry.
18. Enforce water conservation and use restrictions.
19. Perform during operation checks/services, adjusting water temperature when required.
20. Maintain equipment logs.
21. Shut down equipment.
22. Perform after operation checks.
23. Document equipment operation.
24. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1632

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1232

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation
2. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
3. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85

4. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
5. TM 10-8340-240-12&P Operator's and Unit Maintenance Manual, Including Repair Parts and Special Tools List for Modular General Purpose Tent System (MGPTS)
6. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. TM 55-8115-204-23&P Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for General Cargo Container

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Containerized Batch Laundry (CBL) Unit [B0066]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

UNITS/PERSONNEL: MOS 1141 (Electrician) to provide/ensure electrical power support and lighting

OTHER SUPPORT REQUIREMENTS:
120/208VAC 60Hz electrical power source (normally a 100kW MEP-807A Tactical Quiet Generator)
Area lighting (normally a floodlight set [B0640])
Water source (normally provided through a 3,000 gallon capacity collapsible fabric water tank [B2130])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Containerized Batch Laundry (CBL) Unit [B0066].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate the Containerized Batch Laundry (CBL) Unit [B0066].

1171-XENG-1733: Operate a LWPS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: LWPS is Lightweight Water Purification System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established water purification site, with water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 11720A-OI, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S), if cold weather module is being used.
2. Identify CHEMICAL HAZARD(S).
3. Identify FIRE/EXPLOSION HAZARD(S).
4. Identify CARBON MONOXIDE HAZARD(S).
5. Review water support plan.
6. Review references.
7. Reassess operational risk, ensuring warning signs are posted.
8. Don Personal Protective Equipment (PPE).
9. Ensure equipment is grounded (or bonded to power source), if cold weather module is being used.
10. Perform before operation checks.
11. Check valves/switches/gauges for correct settings.
12. Ensure product water discharge hose is disconnected from product water tank.
13. Start up raw water pump.
14. Vent air and drain debris from strainer/separator module.
15. Adjust water pressure at raw water pump.
16. Start up high pressure pump.
17. Adjust water pressure at the Reverse Osmosis (RO) module.
18. Adjust reject water flow at the RO module.
19. Mix chlorine solution slurry.
20. Establish chlorine injection.
21. Check quality of product water.
22. Connect product water discharge hose to product water tank.
23. Perform during operation checks/services.
24. Maintain equipment logs.
25. Shut down equipment per operational situation.
26. Perform after operation checks.
27. Document equipment operation.
28. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1604 1171-XENG-1702

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1233

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
5. TM 11720A-OI Operator/Maintenance Manual with Repair Parts and Special

Tools List (RPSTL) for Lightweight Water Purification System (LWPS)
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Lightweight Water Purification System (LWPS) [B0071]

MATERIAL:
LWPS Operation Log
Fuel
Calcium Hypochlorite
Chlorine reagent
Sodium Bisulfite
Antiscalant
High pH (Tergajet) cleaner
Low pH (Citric Acid) cleaner
Coagulant (Aluminum Chloride)

UNITS/PERSONNEL: MOS 1141 (Electrician) to provide/ensure electrical power support during cold weather operation and lighting during night operation.

OTHER SUPPORT REQUIREMENTS:
120VAC 60Hz Single-Phase electrical power source (normally a 3kW Tactical Generator)
Area lighting (normally a floodlight set [B0640])
Raw water source

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Lightweight Water Purification System (LWPS) [B0071].

SPECIAL PERSONNEL CERTS: Only Water Support Technicians (MOS 1171) will be licensed to operate a Lightweight Water Purification System (LWPS) [B0071].

1171-XENG-1748: Operate a FAWPSS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: FAWPSS is Forward Area Water Point Supply System.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established water supply point, with water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 08936A-13&P/1, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify WATER CONTAMINATION HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review water support plan.
5. Review references.
6. Reassess operational risk.
7. Don Personal Protective Equipment (PPE).
8. Check valves/switches for correct settings.
9. Perform before operation checks.
10. Ensure water supply hoses are connected to pump and drums.
11. Ensure dispensing hoses are routed to designated dispensing points.
12. Start pump.
13. Re-check all hose connections, fixing any leaks.
14. Flush the system.
15. Test the water at the dispensing point.
16. Dispense water in accordance with the water support plan.
17. Perform during operation checks/services.
18. Maintain equipment logs.
19. Shut down equipment.
20. Perform after operation checks.
21. Document equipment operation.
22. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1648

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1248 1171-XENG-1702

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. TM 08936A-13&P/1 Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Forward Area Water Point Supply System (FAWPSS)
4. TM 10-8110-202-13&P Operator's, Organizational, and Direct Support Maintenance Manual and Repair Parts and Special Tools List for Drum, Fabric, Collapsible, Drinking Water, 500 Gallon Capacity
5. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forward Area Water Point Supply System (FAWPSS) [B0676]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Forward Area Water Point Supply System (FAWPSS) [B0676].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate the Forward Area Water Point Supply System (FAWPSS) [B0676].

1171-XENG-1771: Operate a Hypochlorination Unit

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established water storage or distribution site, with water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 09476B-13/1, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify HYPOCHLORITE HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CHEMICAL BURN HAZARD(S).
4. Review water support plan.
5. Review references.
6. Reassess operational risk.
7. Don Personal Protective Equipment (PPE).
8. Check valves/switches for correct settings.
9. Perform before operation checks.
10. Ensure water hoses are connected.
11. Perform chlorine residual test on source water.
12. Determine chlorine dosage requirement.
13. Mix calcium hypochlorite solution, pouring it into hypoclorination unit reservoir.
14. Start system water flow.
15. Re-check all hose connections, fixing any Class III leaks.
16. Perform during operation checks/services.
17. Conduct chlorine residual test every 30 minutes, adjusting flow of calcium hypochlorite solution as required.

18. Maintain equipment logs.
19. Shut down equipment.
20. Perform after operation checks.
21. Document equipment operation.
22. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1271 1171-XENG-1648
1171-XENG-1680 1171-XENG-1702

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
4. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Hypochlorination Unit [B1140]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Hypochlorite

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Hypochlorination Unit [B1140].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate the Hypochlorination Unit [B1140].

1171-XENG-1772: Operate a 125/150 GPM Water Pump (Hatz)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established water support site, with water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per the pump's operation manual, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review water support plan.
4. Review references.
5. Reassess operational risk.
6. Don Personal Protective Equipment (PPE).
7. Check valves/switches for correct settings.
8. Perform before operation checks.
9. Ensure water suction and discharge hoses are connected per water support plan.
10. Prime engine.
11. Prime pump (if required).
12. Start engine.
13. Re-check hose connections, fixing any Class III leaks.
14. Adjust engine speed for required flow rate.
15. Perform during operation checks/services.
16. Maintain equipment logs.
17. Shut down equipment.
18. Perform after operation checks.
19. Document equipment operation.
20. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:

1171-ADMN-1009	1171-MANT-1272	1171-XENG-1648
1171-XENG-1677	1171-XENG-1680	1171-XENG-1748

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. TM 08922A-14/1 Operator's Organizational, Direct Support and General Support Maintenance Manual for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Class 3, Diesel Driven
4. TM 09444A/08990A-15&P/1 Operation and Maintenance Instructions with Repair Parts List and Components List for SIXCON Water Pump Module and SIXCON Water Tank Module
5. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)

General Mechanics Tool Kit (GMTK) [C7919]
125/150 GPM Water Pump (Hatz) - may be part of SIXCON Pump Module [B1581]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the 125/150 GPM Water Pump (Hatz) [B1581].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a 125/150 GPM Water Pump (Hatz) [B1581].

1171-XENG-1774: Operate a 125 GPM Water Pump (Yanmar)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established water support site, with water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 10-4320-325-14, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review water support plan.
4. Review references.
5. Reassess operational risk.
6. Don Personal Protective Equipment (PPE).
7. Check valves/switches for correct settings.
8. Perform before operation checks.
9. Ensure water suction and discharge hoses are connected per water support plan.
10. Prime engine.
11. Prime pump (if required).
12. Start engine.
13. Re-check hose connections, fixing any Class III leaks.
14. Adjust engine speed for required flow rate.
15. Perform during operation checks/services.
16. Maintain equipment logs.

17. Shut down equipment.
18. Perform after operation checks.
19. Document equipment operation.
20. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:

1171-ADMN-1009	1171-MANT-1274	1171-XENG-1648
1171-XENG-1680	1171-XENG-1748	

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. TM 10-4320-325-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Pump Unit, Centrifugal, Diesel-Driven, Self-Priming, 125 GPM, Water, Class III
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
125 GPM Water Pump (Yanmar) [B1620]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the 125 GPM Water Pump (Yanmar) [B1620].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a 125 GPM Water Pump (Yanmar) [B1620].

1171-XENG-1779: Operate a 600 GPM Water Pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established water storage/distribution site, with water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 11986A-OI/1, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review water support plan.
4. Review references.
5. Reassess operational risk.
6. Don Personal Protective Equipment (PPE).
7. Check valves/switches/gauges for correct settings.
8. Perform before operation checks.
9. Ensure water suction and discharge hoses are connected per water support plan.
10. Prime engine.
11. Prime pump.
12. Start engine.
13. Re-check hose connections, fixing any Class III leaks.
14. Adjust engine speed for required flow rate.
15. Perform during operation checks/services.
16. Maintain equipment logs.
17. Shut down equipment.
18. Perform after operation checks.
19. Document equipment operation.
20. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1680

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1279 1171-XENG-1648

REFERENCES:
1. TM 11986A-OI/1 Operation and Maintenance Manual with Repair Parts List (RPL) for Pump Assembly, Water: Diesel-Engine-Driven (DED), 600 GPM, Model 600GPMWCPT
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
600 GPM Water Pump [B2394]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the 600 GPM Water Pump [B2394].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a 600 GPM Water Pump [B2394].

1171-XENG-1782: Operate a TWPS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
TWPS is 1,500 GPH Tactical Water Purification System. NOTE: It requires three Water Support Technicians to operate one TWPS. Each technician must know all operational aspects of the TWPS for safe operation.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At an established water purification site, with water support plan and established Course of Action (COA), equipment, personnel, material, and references.

STANDARD: Per TM 10802A-OI/1A Vol 1 and Vol 2, documenting operation in accordance with TM 4700-15/1H and complying with unit's mission requirements.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify CHEMICAL HAZARD(S).
3. Identify FIRE/EXPLOSION HAZARD(S).
4. Identify CARBON MONOXIDE HAZARD(S).
5. Identify GRAYWATER HAZARD(S).
6. Review water support plan.
7. Review references.
8. Reassess operational risk, ensuring warning signs are posted.
9. Don Personal Protective Equipment (PPE).
10. Ensure equipment is grounded (or bonded to power source).
11. Ensure raw water supply hose intakes are submerged at raw water source.
12. Ensure product water distribution system is set up to sustain water support plan.
13. Ensure waste water hose is routed as designated by water support plan.
14. Perform before operation checks, including all electrical power cable connections.
15. Start up air compressor.
16. Make sure product water hose is disconnected from the product water distribution tanks.
17. Check valves/switches/gauges for correct settings.
18. Perform pre-operational diagnostic self-test.
19. Start up sodium bisulfite chemical system, if applicable.
20. Establish raw water flow.

21. Flush preservative/cleaning solution.
22. Start up Micro-Filtration (MF) system.
23. Start up Reverse Osmosis (RO) system.
24. Start up antiscalant and hypochlorite chemical systems.
25. Check quality of product water.
26. Connect product water hose to product water distribution tanks.
27. Re-check all hose connections, fixing any leaks.
28. Perform during operation checks/services.
29. Maintain equipment logs.
30. Shut down equipment per operational situation.
31. Perform after operation checks.
32. Document equipment operation.
33. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1604 1171-XENG-1702

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1282

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
5. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
6. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
1,500 GPH Tactical Water Purification System (TWPS) [B2605]

MATERIAL:
NAVMC 10523 (Engineer Equipment Operational Record)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
Operating Data Log
RO Element Performance Log
Fuel
Calcium Hypochlorite
Bisulfite
Antiscalant
High pH cleaner
Low pH cleaner
Sodium Hydroxide

UNITS/PERSONNEL: Three licensed Water Support Technicians (MOS 1171) are

required to set up and operate the TWPS. An Electrician (MOS 1141) is required to provide/ensure electrical power support and lighting.

OTHER SUPPORT REQUIREMENTS:
416VAC 60Hz 3-Phase electrical power source (normally a 60kW Tactical Generator)
Area lighting (normally a floodlight set [B0640])
Raw water source

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the 1,500 GPH Tactical Water Purification System (TWPS) [B2605].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a 1,500 GPH Tactical Water Purification System (TWPS) [B2605].

1171-XENG-1805: Recover/close field waste water disposal devices

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With camp waste water disposal plan and established Course of Action (COA), area map, equipment, personnel, and references.

STANDARD: So reusable devices are recovered and waste areas are covered, marked, and recorded.

PERFORMANCE STEPS:
1. Identify WASTEWATER HAZARD(S).
2. Review waste water disposal plan and Course of Action (COA).
3. Review references.
4. Don Personal Protective Equipment (PPE).
5. Recover sanitation devices/warning signs.
6. Close sanitation sites.
7. Mark closed sites using signs, etc.
8. Record closed sites on area map.
9. Forward marked map to those concerned.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1605

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations

5. TB MED 593 Guidelines for Field Waste Management
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (if required to cover sanitation pits)

MATERIAL:
Area map
Field waste water disposal plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) for earth moving requirements

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in recovery and closure of sanitation devices/pits

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site closure
A map/diagram of closed site(s) should be forwarded to higher headquarters per Installation's SOP

1171-XENG-1981: Identify plumbing materials

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure requiring plumbing work, with a plumbing plan, a Bill of Materials (BOM), and references.

STANDARD: So Bill of Materials (BOM) is inventoried and plumbing materials required for structure are matched to the plumbing plan.

PERFORMANCE STEPS:
1. Review Bill of Materials (BOM).
2. Review references.
3. Review plumbing plan.
4. Inventory items on Bill of Materials (BOM).
5. Record inventory results, identifying deficiencies/discrepancies.

RELATED EVENTS: 1171-ADMN-1007

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

MATERIAL: Bill of Materials (BOM)

1171-XENG-1982: Cut pipe

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure requiring plumbing work, with a plumbing plan, a Bill of Materials (BOM), tools, and references.

STANDARD: So new pipe length will fit designated place in structure's plumbing system per the plumbing plan.

PERFORMANCE STEPS:
1. Review Bill of Materials (BOM).
2. Review references.
3. Review plumbing plan.
4. Assess risks (ORM).
5. Don Personal Protective Equipment (PPE).
6. Select pipe from BOM.
7. Measure and mark pipe.
8. Secure pipe (in a vise or by other means).
9. Cut pipe to length.

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
3. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

1171-XENG-1984: Connect pipe

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure requiring plumbing work, with a plumbing plan, pipes that are cut to length, plumbing fittings, tools, and references.

STANDARD: So pipes are installed in structure's plumbing system at place designated by the plumbing plan and connection(s) will not leak.

PERFORMANCE STEPS:
1. Identify FIRE HAZARD(S).
2. Identify VAPOR HAZARD(S).
3. Review references.
4. Review plumbing plan.
5. Assess risks (ORM).
6. Don Personal Protective Equipment (PPE).
7. Clean pipes and fitting(s) where they will be joined.
8. Join pipes and fitting(s) using designated procedures.
9. Test connection.

PREREQUISITE EVENTS: 1171-XENG-1982

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. TB SIG 222 Solder and Soldering
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

1171-XENG-1985: Install plumbing fixtures in a permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure requiring plumbing work, with a plumbing plan, a

Bill of Materials (BOM), tools, and references.

STANDARD: So fixtures are placed/connected as designated by the plumbing plan and connection(s) will not leak.

PERFORMANCE STEPS:
1. Identify FIRE HAZARD(S).
2. Identify VAPOR HAZARD(S).
3. Review references.
4. Review plumbing plan.
5. Assess risks (ORM).
6. Don Personal Protective Equipment (PPE).
7. Prepare area of structure for plumbing fixture.
8. Connect fixture to supply pipe(s).
9. Connect fixture to drain pipe(s).
10. Test plumbing fixture and connection(s).

PREREQUISITE EVENTS:
1171-XENG-1981 1171-XENG-1982 1171-XENG-1984

RELATED EVENTS: 1171-XENG-2983

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. TB SIG 222 Solder and Soldering
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

1171-XENG-1986: Repair plumbing system of a permanent structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure with a faulty interior plumbing system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made per the Uniform Plumbing Code (UPC).

PERFORMANCE STEPS:
1. Identify FIRE HAZARD(S).
2. Identify VAPOR HAZARD(S).
3. Review repairs to be made.
4. Review references.
5. Determine code requirements.
6. Identify risks (ORM).
7. Don Personal Protective Equipment (PPE).
8. Isolate repair area (Lockout/Tagout).
9. Remove broken/damaged materials.
10. Make repairs.
11. Test repairs.

PREREQUISITE EVENTS: 1171-XENG-1981

RELATED EVENTS:
1171-XENG-1982 1171-XENG-1984 1171-XENG-1985

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. TB SIG 222 Solder and Soldering
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

12004. 2000-LEVEL EVENTS

1171-ADMN-2021: Apply safety programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place and enforced.

PERFORMANCE STEPS:
1. Review references.
2. Identify equipment safety requirements.

3. Identify personnel safety requirements.
4. Conduct Operational Risk Assessments.
5. Implement safety procedures.
6. Conduct safety awareness training.
7. Evaluate safety programs.
8. Enforce safety regulations.
9. Provide input for/submit required reports.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002

RELATED EVENTS:
1141-ADMN-2021 1142-ADMN-2021 1171-ADMN-2021

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO 5100.19_ Marine Corps Traffic Safety Program (Drivesafe)
4. MCO 5100.29_ Marine Corps Safety Program
5. MCO 5100.30_ Marine Corps Recreation and Off-Duty Safety (RODS) Program
6. MCO 5100.34_ Deadline Safety of Use Message Instructions to Suspend Operations of Marine Corps Ground Equipment and Weapons Systems and Safety of Use Alerts
7. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
8. MCO 5104.2_ Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program
9. MCO 5104.3_ Marine Corps Radiation Safety Program
10. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
11. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
12. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
13. UNIT SOP Unit's Standing Operating Procedures

1171-ADMN-2022: Apply environmental regulations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references.

STANDARD: So environmental policies and procedures will be adhered to.

PERFORMANCE STEPS:
1. Review references.
2. Verify section's compliance with applicable environmental regulations and restrictions.

3. Monitor platoon/section hazardous material disposal program.
4. Maintain hazardous materials storage areas.
5. Maintain Material Safety Data Sheets (MSDS).
6. Report any situations that require reporting.

PREREQUISITE EVENTS: 1171-ADMN-1004

RELATED EVENTS:
1141-ADMN-2022 1142-ADMN-2022 1161-ADMN-2022

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCO 4450.12_ Storage and Handling of Hazardous Materials
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 4-11B Environmental Considerations
5. OPNAVINST 5090.1_ Environmental Readiness Program Manual

1171-ADMN-2023: Conduct MOS training

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: MOS is Military Occupational Specialty.

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Identify individual training requirements (review T&R Manual and MOS Roadmaps).
3. Identify unit training requirements (review unit METL/Commander's intent).
4. Determine on the job and sustainment training requirements by grade and MOS.
5. Develop lesson plans.
6. Develop training methods/aids/materials (as required).
7. Conduct training.
8. Document training.
9. Encourage use of self-directed study and assist in providing resources.

RELATED EVENTS:
1141-ADMN-2023 1142-ADMN-2023 1161-ADMN-2023

REFERENCES:
1. MCO 1553.3_ Unit Training Management (UTM) Program
2. MCO 1553.4_ Professional Military Education (PME)
3. MCO 3500.26_ Universal Naval Task List (UNTL) Version 3.0

4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 1553.1_ Systems Approach to Training (SAT) Users Guide
7. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
8. OPNAVINST 1560.10_ Administration of the United Services Military Apprenticeship Program (USMAP)
9. UNIT SOP Unit's Standing Operating Procedures

1171-ADMN-2041: Initiate a PQDR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: PQDR is Product Quality Deficiency Report (SF 368).

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a defective item, blank forms, and references.

STANDARD: So deficiency can be identified.

PERFORMANCE STEPS:
1. Review references.
2. Collect data.
3. Verify deficiency requires a PQDR.
4. Determine if deficiency is Category I or Category II.
5. Establish exhibit controls using DD Forms 1575 and 2332 (if required).
6. Complete PQDR.
7. Submit PQDR per Unit SOP.

RELATED EVENTS:
1141-ADMN-2041 1142-ADMN-2041 1161-ADMN-2041

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
DD Form 1575 (Suspended Tag - Materiel)
DD Form 2332 (Product Quality Deficiency Report Exhibit)
SF 368 (Product Quality Deficiency Report [PQDR])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Additional information for this event can be

found at http//www.logcom.usmc.mil/pqdr.

1171-ADMN-2051: Establish equipment preventive maintenance schedule

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, forms, and references.

STANDARD: So operational readiness of equipment is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit equipment records.
4. Complete PMCS roster (NAVMC 10561).

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1011

RELATED EVENTS:
1141-ADMN-2051 1142-ADMN-2051 1161-ADMN-2051

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 4-11.4 Maintenance Operations
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)
Equipment records

1171-ADMN-2061: Maintain PEB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: PEB is Pre-Expended Bin.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With commander's pre-expended bin authorization and references.

STANDARD: So common, low-cost, high usage parts are continuously available for immediate maintenance/repair of equipment.

PERFORMANCE STEPS:
1. Review references.
2. Identify criteria for items placed in PEB.
3. Validate authorized PEB listing, ensuring it is signed annually by commander.
4. Identify accountability requirements.
5. Requisition replacement parts, as required.
6. Roll back/dispose excess items.

RELATED EVENTS:
1141-ADMN-2061 1142-ADMN-2061 1161-ADMN-2061
1171-ADMN-2062

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1171-ADMN-2062: Maintain equipment repair parts bins

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With forms and references.

STANDARD: So parts are kept in appropriate bin (layette) until maintenance/repair of specified equipment is accomplished.

PERFORMANCE STEPS:
1. Review references.
2. Receive repair parts, placing repair parts in appropriate bin.
3. Update Service Request (SR).
4. Take corrective action if repair parts do not match requisitions.
5. Inventory bin every 2 weeks.
6. Issue repair parts when all are received, updating SR per unit's SOP.
7. Debrief task in GCSS-MC.

RELATED EVENTS:
1141-ADMN-2062 1142-ADMN-2062 1161-ADMN-2062
1171-ADMN-2061

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL:
Storage bins
Forms

1171-ADMN-2071: Monitor maintenance management reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With access to Global Combat Support System-Marine Corps (GCSS-MC), maintenance management reports, supporting documentation, and references.

STANDARD: So accuracy of maintenance management reports is validated and unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Obtain current Maintenance Process Report (MPR).
2. Review references.
3. Review supporting documentation (equipment records).
4. Review MPR maintenance cycle times.
5. Validate daily maintenance reports.
6. Validate weekly maintenance reports.
7. Validate readiness reports.
8. Identify "exceptions."
9. Determine actions (if any) to correct "exceptions."
10. Make corrections (if any) to Service Requests (SR).
11. Debrief SRs.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1007 1171-ADMN-1008
1171-ADMN-1009 1171-ADMN-1010 1171-ADMN-1011

RELATED EVENTS:

1141-ADMN-2071	1142-ADMN-2071	1161-ADMN-2071
1171-ADMN-2061	1171-ADMN-2062	1171-ADMN-2072

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Maintenance Process Reports (MPR)

1171-ADMN-2072: Monitor maintenance related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment records, and references.

STANDARD: So unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Review references.
2. Determine unit's maintenance program requirements.
3. Inspect equipment.
4. Monitor Modification Control program.
5. Monitor Calibration Control program.
6. Monitor New Equipment Warranty program.
7. Monitor Quality Deficiency (QDR) program.
8. Monitor Recoverable Items (WIR) program.
9. Monitor Quality Control (QC) program.
10. Monitor Corrosion Prevention and Control (CPAC) program.
11. Ensure program and equipment records are maintained.

RELATED EVENTS:

1141-ADMN-2072	1142-ADMN-2072	1161-ADMN-2072
1169-ADMN-2072	1171-ADMN-2041	1171-ADMN-2051
1171-ADMN-2071	1171-ADMN-2073	

REFERENCES:
1. Appropriate Technical Manuals

2. MCO 4400.194_ Marine Corps Class VII Stock Rotation Policy
3. MCO 4733.1_ Marine Corps Test, Measurement, and Diagnostics Equipment (TMDE) Calibration and Maintenance Program (CAMP)
4. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
5. MCO P4400.150_ Consumer Level Supply Policy Manual
6. MCO P4400.82_ Regulated/Controlled Item Management Manual
7. MCO P4790.2_ MIMMS Field Procedures Manual
8. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
9. TM 4700-15/1_ Ground Equipment Record Procedures
10. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
11. Unit SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Some programs listed above may not be required at all units.

1171-ADMN-2073: Inspect maintenance actions (quality control)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Quality Control NCO, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With repaired equipment, equipment records and references.

STANDARD: So equipment repairs and documentation is certified complete.

PERFORMANCE STEPS:
1. Review references.
2. Review Service Request (SR).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1008

RELATED EVENTS:
1141-ADMN-2073 1142-ADMN-2073 1161-ADMN-2073
1171-ADMN-1009 1171-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. MCO P4790.2_ MIMMS Field Procedures Manual

5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

OTHER SUPPORT REQUIREMENTS: Access to Global Combat Support System-Marine Corps (GCSS-MC)

1171-MANT-2101: Operate a multimeter

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment having an electrical circuit(s).

STANDARD: So electrical outputs of the circuit are measured.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Determine correct setting (AC, DC, resistance or current).
3. Test circuit (voltage, resistance, current).
4. Record measurements/readings.
5. Analyze measurements/readings.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1141-MANT-1101 1142-MANT-1101 1161-MANT-1101

REFERENCES:
1. Appropriate Technical Manuals
2. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
3. SL-3-09869A Components List for Multimeter, Model 77-4BN
4. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
5. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
6. TM 2000-15/4 Power System Reference Manual

SUPPORT REQUIREMENTS:

EQUIPMENT:
Multimeter [H7030]
Anti-Static Wrist Strap (if required)
Equipment with an electrical circuit

1171-MANT-2191: Comply with a Modification Instruction (MI)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on effected equipment, the effected equipment, a Modification Instruction (MI), parts, tools, forms, and references.

STANDARD: Per the MI and TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review MI.
2. Review Service Request (SR).
3. Inventory parts from layette.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE) (if required).
6. Apply modification.
7. Test modification.
8. Document modification.

PREREQUISITE EVENTS: 1171-ADMN-1006

RELATED EVENTS:

1141-MANT-2191	1142-MANT-2191	1161-MANT-2191
1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Water support or hygiene equipment being modified

MATERIAL:
Modification Instruction (MI)
Parts (if required)
NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)

NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1171-MANT-2338: Diagnose an M26 JSTDS-SS water pump malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: JSTDS-SS is Joint Service Transportable Decontamination System-Small Scale.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify ELECTRIC SHOCK HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review LTI.
5. Review equipment technical manuals.
6. Don Personal Protective Equipment (PPE).
7. Ensure any stored/hazardous energy is dissipated/controlled.
8. Check valves/switches/gauges/meters for correct settings.
9. Isolate faulty component(s)/identify leaks.
10. Determine if component fault(s) was caused by a defect elsewhere.
11. Document findings (complete LTI/update Service Request).
12. Order parts (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006

RELATED EVENTS:

1142-MANT-2338	1171-ADMN-1008	1171-ADMN-1010
1171-ADMN-1011		

REFERENCES:
1. FP 12112A Fielding Plan for the Joint Service Transportable Decontamination System, Small Scale
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 12112A-OR Operator Manual for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26
6. TM 3-4230-238-23&P Field Maintenance Manual Including Repair Parts and Special Tools List for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26

7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Faulty M26 JSTDS-SS or components

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: MOS 5711 (Nuclear, Biological, and Chemical Defense Marine) to facilitate troubleshooting process

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1171-MANT-2395: Isolate an electrical malfunction on a Bare Base Shower Facility

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 120/208VAC 60Hz electrical power source, tools, forms, and references.

STANDARD: So equipment electrical faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify GRAYWATER HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals/wiring diagrams/schematics.
5. Don Personal Protective Equipment (PPE).
6. Ensure equipment is grounded.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Check valves/switches/gauges for correct settings.
9. Isolate faulty circuit(s).
10. Trace current/voltage paths in circuits.
11. Isolate faulty component(s).
12. Determine if component fault was caused by a defect elsewhere (repeating steps 8, 9, 10, and/or 11 as required).
13. Determine echelon(s) of maintenance.
14. Document findings (complete LTI/update Service Request (SR).
15. Order parts (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-MANT-2101		

RELATED EVENTS:

1142-MANT-1331	1142-MANT-2332	1171-ADMN-1008
1171-ADMN-1010	1171-ADMN-1011	1171-MANT-1231
1171-MANT-1331		

REFERENCES:

1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
4. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
5. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
6. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
7. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
8. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Faulty Shower Facility, Bare Base [B0055] or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 60Hz electrical power source (normally a 10kW Tactical Generator)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142) may be required to fully diagnose any electrical system related malfunction.

1171-MANT-2396: Diagnose a water pump fuel system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms, and references.

STANDARD: So equipment fuel system faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don Personal Protective Equipment (PPE).
6. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
7. Check valves/switches/gauges for correct settings.
8. Isolate faulty component(s).
9. Determine if component fault was caused by a defect elsewhere.
10. Determine echelon(s) of maintenance.
11. Document findings (complete LTI/update Service Request).
12. Order parts (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011

REFERENCES:
1. Appropriate Technical Manuals
2. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
3. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
4. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Water pump with a faulty fuel system

MATERIAL:
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Mechanic (MOS 1341) or a Fuel and Electrical Systems Mechanic (MOS 3524) may be required to fully diagnose any fuel system related malfunction.

1171-MANT-2397: Isolate a TWPS electrical malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION:
TWPS is 1,500 GPH Tactical Water Purification System.
GPH is Gallons per Hour.

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 416VAC 3-phase 60Hz electrical power source, tools, forms, and references.

STANDARD: So equipment electrical faults are identified and corrective actions initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify CHEMICAL HAZARD(S).
3. Identify FIRE/EXPLOSION HAZARD(S).
4. Identify CARBON MONOXIDE HAZARD(S).
5. Identify GRAYWATER HAZARD(S).
6. Review LTI.
7. Review equipment technical manuals/wiring diagrams/schematics.
8. Don Personal Protective Equipment (PPE).
9. Ensure equipment is grounded (or bonded to power source).
10. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
11. Check valves/switches/gauges for correct settings.
12. Isolate faulty circuit(s).
13. Trace current/voltage paths in circuits.
14. Isolate faulty component(s).
15. Determine if component fault was caused by a defect elsewhere (repeating steps 11, 12, 13, and/or 14 as required).
16. Determine echelon(s) of maintenance.
17. Document findings (complete LTI/update Service Request).
18. Order parts (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-MANT-2101		

RELATED EVENTS:

1142-MANT-1382	1171-ADMN-1008	1171-ADMN-1010
1171-ADMN-1011	1171-MANT-1282	1171-MANT-1382

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide

3. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
4. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
5. TB 385-4 Safety Requirements for Maintenance of Electrical and Electronic Equipment
6. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
7. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
8. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
9. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
10. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
11. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
12. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Multimeter [H7030]
General Mechanics Tool Kit (GMTK) [C7915]
Faulty 1,500 GPH Tactical Water Purification System (TWPS) [B2605] or components

MATERIAL: NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: Three licensed Water Support Technicians (MOS 1171) are required to set up and operate the TWPS. An Electrician (MOS 1141) is required to hook up and operate the generator.

OTHER SUPPORT REQUIREMENTS: 416VAC 3-phase 60Hz electrical power source (normally a 60kW Tactical Generator)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142) may be required to fully diagnose any electrical system related malfunction.

1171-MANT-2438: Repair an M26 JSTDS-SS water pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: JSTDS-SS is Joint Service Transportable Decontamination System-Small Scale.

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a Service Request (SR) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from layette, tools, forms, and references.

STANDARD: So equipment functions/operates as specified in TM 12112A-OR and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTRIC SHOCK HAZARD(S).
2. Identify FIRE/EXPLOSION HAZARD(S).
3. Identify CARBON MONOXIDE HAZARD(S).
4. Review Service Request (SR).
5. Inventory parts from layette.
6. Review equipment technical manuals.
7. Don Personal Protective Equipment (PPE).
8. Ensure equipment is grounded.
9. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
10. Remove faulty part(s).
11. Prepare area(s) for new part(s).
12. Attach new part(s), making necessary adjustments.
13. Test repairs.
14. Document repairs.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-ADMN-1002	1171-ADMN-1006
1171-ADMN-1008	1171-ADMN-1011	1171-MANT-2338

RELATED EVENTS: 1142-MANT-2438

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
4. TM 12112A-OR Operator Manual for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26
5. TM 3-4230-238-23&P Field Maintenance Manual Including Repair Parts and Special Tools List for Decontaminating Apparatus: Joint Service Transportable Small Scale, M26
6. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Degraded/deadlined M26 JSTDS-SS

MATERIAL:
Repair parts
NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
Fuel

UNITS/PERSONNEL: MOS 5711 (Nuclear, Biological, and Chemical Defense Marine) may be required to facilitate the repair process

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1171-XENG-2501: Conduct a water reconnaissance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order, personnel, transportation, area map, equipment, materials, forms, and references.

STANDARD: So water sources that will support designated equipment and personnel can be selected and developed.

PERFORMANCE STEPS:
1. Review warning order and references.
2. Select possible water source(s) from map.
3. Plan movement to possible water source(s).
4. Move to a possible water source.
5. Complete Identification Data on DA Form 1712-2 and Water Smartcard.
6. Test water, recording information on DA Form 1712-2.
7. Complete Water Quantity and Quality Data on DA Form 1712-2.
8. Record site conditions on DA Form 1712-2 and Water Smartcard.
9. Sketch proposed site layout on DA Form 1712-2.
10. Photograph site.
11. Verify completeness of reports and smartcards.
12. Move to next possible source (repeating steps 4 through 12 as required).
13. Return from reconnaissance.

PREREQUISITE EVENTS: 1171-XENG-1702

RELATED EVENTS:

1171-ADMN-2022	1171-XENG-2502	1171-XENG-2553
1171-XENG-2555	1171-XENG-2558	1171-XENG-2651
1171-XENG-2754		

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17B Engineer Forms and Reports
6. MCRP 4-11B Environmental Considerations
7. MCRP 5-12A Operational Terms and Graphics
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 4-11.6 Petroleum and Water Logistics Operations
10. MCWP 5-1 Marine Corps Planning Process (MCPP)
11. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary

Control and Surveillance of Field Water Supplies
12. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
13. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
14. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
15. TM 5-813-1 Water Supply, Sources and General Considerations
16. TM 5-813-3 Water Supply, Water Treatment
17. TM 5-813-4 Water Supply, Water Storage
18. TM 5-813-5 Water Supply, Water Distribution
19. TM 5-813-7 Water Supply for Special Projects
20. TM 5-813-8 Water Desalination
21. TM 5-813-9 Water Supply, Pumping Stations
22. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Compass [K4222]
Camera
Calculator
Tape measure

MATERIAL:
Area topographical map(s)
DA Form 1712-R (Water Reconnaissance Report)
Water Smartcard (Figure C-3 of MCWP 3-17.4)
Pens/pencils

UNITS/PERSONNEL:
Security may be required
MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) to test water for NBC contamination.

OTHER SUPPORT REQUIREMENTS: Transportation (by vehicle or aircraft) will be required for access to prospective water source(s).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
MOS 5711 (Nuclear Biological and Chemical Defense (NBCD) Specialist) will test water for NBC contamination.
Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630]

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1171-XENG-2502: Analyze water reconnaissance report(s)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With warning order, data from water reconnaissance, calculator, materials, and references.

STANDARD: So water sources are selected/prioritized to support water requirements identified in the warning order.

PERFORMANCE STEPS:
1. Review warning order, reconnaissance report(s) and references.
2. Determine amount of water required to support the operation.
3. Verify volume of water available from water source(s).
4. Identify quality of water available from water source(s).
5. Identify operational risks associated with each water source.
6. Identify environmental risks associated with each water source.
7. Determine requirements to develop water source(s).
8. Determine camouflage, concealment, and decoy requirements.
9. Determine security requirements/vulnerabilities.
10. Determine transportation routes/road networks.
11. Select/prioritize water source(s) to support operational requirements.

PREREQUISITE EVENTS:
1171-XENG-1702 1171-XENG-2501

RELATED EVENTS:
1171-XENG-1604 1171-XENG-2553 1171-XENG-2651
1171-XENG-2752

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCO 3500.27_ Operational Risk Management (ORM)
6. MCRP 3-17.6A Camouflage, Concealment, and Decoys
7. MCRP 3-17.7N Base Camps
8. MCRP 3-17B Engineer Forms and Reports
9. MCRP 4-11B Environmental Considerations
10. MCRP 5-12A Operational Terms and Graphics
11. MCWP 3-17 Engineering Operations
12. MCWP 3-17.4 Engineer Reconnaissance
13. MCWP 3-17.7 General Engineering
14. MCWP 3-41.1 Rear Area Operations
15. MCWP 4-11.6 Petroleum and Water Logistics Operations
16. MCWP 5-1 Marine Corps Planning Process (MCPP)
17. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary

Control and Surveillance of Field Water Supplies
18. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
19. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
20. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
21. TM 5-813-1 Water Supply, Sources and General Considerations
22. TM 5-813-3 Water Supply, Water Treatment
23. TM 5-813-4 Water Supply, Water Storage
24. TM 5-813-5 Water Supply, Water Distribution
25. TM 5-813-7 Water Supply for Special Projects
26. TM 5-813-8 Water Desalination
27. TM 5-813-9 Water Supply, Pumping Stations
28. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

EQUIPMENT: Calculator

MATERIAL:
Area topographical map(s)
Completed DA Form 1712-Rs (Water Reconnaissance Reports)
Completed Water Smartcards (if any)

1171-XENG-2553: Develop a water support plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), area map(s), area reconnaissance report(s), water reconnaissance report(s), any environmental impact report(s), camp layout(s), and references.

STANDARD: So requirements of warning order are supported; with water sites and distribution points drawn on camp layout(s) and a Course of Action (COA) established; and input provided for Appendix 2 to Annex D of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify equipment/personnel requiring water support.
3. Determine water purification/storage/distribution equipment requirements, selecting equipment sites.
4. Determine environmental impacts.
5. Plot equipment sites on camp layout(s).

6. Select water point location(s) making provision for traffic and drainage.
7. Plot water point(s) on camp layout(s).
8. Plot distribution methods on camp layout(s).
9. Identify potential impact of weather/climate on water purification, storage, and distribution operations.
10. Determine risks, conducting operational risk assessments.
11. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
12. Determine number and type of warning signs required.
13. Schedule Preventive Maintenance Checks and Services (PMCS).
14. Determine POL requirements.
15. Determine chemical requirements for purification/storage operations.
16. Determine camouflage, concealment, and decoy requirements.
17. Determine security requirements.
18. Estimate man-hour requirements, determining number of water support personnel required to support the mission.
19. Establish operator schedules.
20. Estimate logistical support (truck, forklift, etc.) required.
21. Establish Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
22. Generate work request(s) for any required construction.
23. Establish a Course of Action (COA).
24. Record requirements for input into Appendix 2 to Annex D of the Operation Order.
25. Brief water support plan (if required).

PREREQUISITE EVENTS:

1171-XENG-1702	1171-XENG-2501	1171-XENG-2502

RELATED EVENTS:

1171-XENG-1604	1171-XENG-1648	1171-XENG-2555
1171-XENG-2558	1171-XENG-2651	1171-XENG-2653
1171-XENG-2753	1171-XENG-2754	1171-XENG-2853

REFERENCES:

1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 10-52 Water Supply in Theaters of Operation
4. FM 10-52-1 Water Supply Point Equipment and Operations
5. FM 3-55 Information Collection
6. FMFM 7-29 Mountain Operations
7. JP 4-03 Joint Bulk Petroleum and Water Doctrine
8. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
9. MCO 3500.27_ Operational Risk Management (ORM)
10. MCRP 3-17.6A Camouflage, Concealment, and Decoys
11. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
12. MCRP 3-17.7F Project Management
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11B Environmental Considerations
17. MCRP 5-12A Operational Terms and Graphics
18. MCWP 3-17 Engineering Operations

19. MCWP 3-17.4 Engineer Reconnaissance
20. MCWP 3-17.7 General Engineering
21. MCWP 3-35.5 Jungle Operations
22. MCWP 3-35.6 Desert Operations
23. MCWP 3-41.1 Rear Area Operations
24. MCWP 4-1 Logistics Operations
25. MCWP 4-11 Tactical-Level Logistics
26. MCWP 4-11.5 Seabee Operations in the MAGTF
27. MCWP 4-11.6 Petroleum and Water Logistics Operations
28. MCWP 5-1 Marine Corps Planning Process (MCPP)
29. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
30. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
31. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
32. TM 5-813-1 Water Supply, Sources and General Considerations
33. TM 5-813-3 Water Supply, Water Treatment
34. TM 5-813-4 Water Supply, Water Storage
35. TM 5-813-5 Water Supply, Water Distribution
36. TM 5-813-7 Water Supply for Special Projects
37. TM 5-813-8 Water Desalination
38. TM 5-813-9 Water Supply, Pumping Stations
39. TM 5-820-4 Drainage for Areas Other Than Airfields
40. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
DA Form 1712-Rs (Water Reconnaissance Reports)
Water Smartcards (Figure C-3 of MCWP 3-17.4)
Area reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s)

1171-XENG-2555: Develop a hygiene equipment support plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), map(s), reconnaissance report(s), camp layout(s) with water source and distribution points indicated, any environmental impact report(s), known soil type(s), and references.

STANDARD: So requirements of warning order are supported; with hygiene

equipment site(s) drawn on the camp layout(s) and a Course of Action (COA) established; and input provided for Annex D and Appendix 6 to Annex Q of the Operation Order.

PERFORMANCE STEPS:

1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify personnel requiring hygiene support.
3. Determine hygiene equipment requirements, selecting equipment sites and making provisions for traffic and drainage.
4. Determine environmental impacts.
5. Plot equipment sites on camp layout(s).
6. Identify potential impact of weather/climate on hygiene equipment operations.
7. Determine risks, conducting operational risk assessments.
8. Identify "Off Limit" areas (i.e., generator sites, hazardous material sites, etc.).
9. Determine number and type of warning sign(s) required.
10. Schedule Preventive Maintenance Checks and Services (PMCS).
11. Determine POL requirements.
12. Determine chemical requirements for hygiene operations.
13. Determine camouflage, concealment, and decoy requirements.
14. Determine security requirements.
15. Determine laundry/shower schedules for supported units.
16. Estimate man-hour requirements, determining number of water support personnel required to support hygiene mission.
17. Establish operator schedules.
18. Estimate logistical support (truck, forklift, etc.) required.
19. Establish a Bill of Materials (BOM) including security, camouflage, environmental, and safety items.
20. Generate work request(s) for any required construction.
21. Establish a Course of Action (COA).
22. Record requirements for input into Annex D and Appendix 6 to Annex Q of the Operation Order.
23. Brief hygiene equipment support plan (if required).

PREREQUISITE EVENTS: 1171-XENG-2553

RELATED EVENTS:

1169-XENG-2555	1171-XENG-1631	1171-XENG-1632
1171-XENG-2558	1171-XENG-2655	1171-XENG-2755
1171-XENG-2855		

REFERENCES:

1. Appropriate Technical Manuals
2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 3-55 Information Collection
4. FMFM 7-29 Mountain Operations
5. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
6. MCO 3500.27_ Operational Risk Management (ORM)
7. MCRP 3-17.6A Camouflage, Concealment, and Decoys
8. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
9. MCRP 3-17.7F Project Management

10. MCRP 3-17.7N Base Camps
11. MCRP 3-17B Engineer Forms and Reports
12. MCRP 3-35.1D Cold Region Operations
13. MCRP 4-11.1D Field Hygiene and Sanitation
14. MCRP 4-11B Environmental Considerations
15. MCRP 5-12A Operational Terms and Graphics
16. MCWP 3-17 Engineering Operations
17. MCWP 3-17.4 Engineer Reconnaissance
18. MCWP 3-17.7 General Engineering
19. MCWP 3-35.5 Jungle Operations
20. MCWP 3-35.6 Desert Operations
21. MCWP 3-41.1 Rear Area Operations
22. MCWP 4-1 Logistics Operations
23. MCWP 4-11 Tactical-Level Logistics
24. MCWP 4-11.5 Seabee Operations in the MAGTF
25. MCWP 5-1 Marine Corps Planning Process (MCPP)
26. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
27. SL-3-10006A Components List for Bath Shower Unit, Expedition
28. TB MED 593 Guidelines for Field Waste Management
29. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
30. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
31. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
32. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
33. TM 10-8340-240-12&P Operator's and Unit Maintenance Manual, Including Repair Parts and Special Tools List for Modular General Purpose Tent System (MGPTS)
34. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
35. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
36. TM 55-8115-204-23&P Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for General Cargo Container
37. TM 5-820-4 Drainage for Areas Other Than Airfields
38. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s) with water source and distribution points indicated

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1171-XENG-2558: Develop a field sanitation plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a warning order requiring a base camp(s), map(s), reconnaissance report(s), camp layout(s), any environmental impact report(s), known soil type(s), and references.

STANDARD: So requirements of warning order are supported; with sanitation devices/sites drawn on the camp layout(s) and a Course of Action (COA) established; and input provided for Annex D and Appendix 6 to Annex Q of the Operation Order.

PERFORMANCE STEPS:
1. Review warning order, map(s), reconnaissance report(s), camp layout(s), and references.
2. Identify locations of equipment, devices and facilities to be supported/impacted by sanitation requirements.
3. Determine soil absorption rates.
4. Identify potential impact of weather/climate on sanitation devices.
5. Determine amount of waste water that will be generated.
6. Determine numbers of sanitation devices/facilities (grease traps, head/latrines, garbage pits, and soakage pits) required.
7. Determine environmental impacts.
8. Plot sanitation devices/facilities on camp layout(s), making provisions for traffic.
9. Determine risks, conducting operational risk assessments.
10. Determine number and type of warning signs required.
11. Determine camouflage, concealment, and decoy requirements.
12. Estimate man-hour requirements, determining number of water support personnel required to support sanitation mission.
13. Determine cleaning/inspection/maintenance schedule.
14. Estimate logistical support (truck, forklift, etc.) required.
15. Establish a Bill of Materials (BOM) including camouflage, environmental, and safety items.
16. Generate work request(s) for any required construction.
17. Establish a Course of Action (COA).
18. Record requirements for input into Annex D and Appendix 6 to Annex Q of the Operation Order.
19. Brief sanitation plan (if required).

PREREQUISITE EVENTS: 1171-XENG-2555

RELATED EVENTS:

1169-XENG-2558	1171-XENG-1605	1171-XENG-1631
1171-XENG-1632	1171-XENG-1805	1171-XENG-2658
1171-XENG-2858		

REFERENCES:
1. Appropriate Technical Manuals

2. ATTP 5-0.1 Commander and Staff Officer Guide
3. FM 3-55 Information Collection
4. FMFM 7-29 Mountain Operations
5. INSTALLATION SOP Installation's Standing Operating Procedures
6. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
7. MCO 3500.27_ Operational Risk Management (ORM)
8. MCO 5100.8_ Marine Corps Occupational Safety and Health (OSH) Policy Order
9. MCO P5090.2_ Environmental Compliance and Protection Manual
10. MCRP 3-17.6A Camouflage, Concealment, and Decoys
11. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
12. MCRP 3-17.7F Project Management
13. MCRP 3-17.7N Base Camps
14. MCRP 3-17B Engineer Forms and Reports
15. MCRP 3-35.1D Cold Region Operations
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCRP 4-11.8A Marine Corps Field Feeding Program
18. MCRP 4-11B Environmental Considerations
19. MCRP 5-12A Operational Terms and Graphics
20. MCWP 3-17 Engineering Operations
21. MCWP 3-17.4 Engineer Reconnaissance
22. MCWP 3-17.7 General Engineering
23. MCWP 3-35.5 Jungle Operations
24. MCWP 3-35.6 Desert Operations
25. MCWP 3-41.1 Rear Area Operations
26. MCWP 4-11.5 Seabee Operations in the MAGTF
27. MCWP 5-1 Marine Corps Planning Process (MCPP)
28. TB MED 593 Guidelines for Field Waste Management
29. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
30. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
31. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

MATERIAL:
Area topographical map(s)
Reconnaissance report(s)
Environmental impact report(s) (if any)
Camp layout(s) with equipment, devices and facilities indicated

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1171-XENG-2581: Design an interior plumbing system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With construction plans for a structure, a list of plumbing

fixtures to be installed, local code requirements, and references.

STANDARD: Per the Uniform Plumbing Code (UPC).

PERFORMANCE STEPS:
1. Review construction plans, local code, and references.
2. Review list of plumbing fixtures/appliances to be installed.
3. Identify plumbing symbols.
4. Determine code requirements.
5. Identify water supply requirements.
6. Identify sanitary drainage requirements.
7. Identify vent requirements.
8. Plot plumbing system/fixtures on construction plans.
9. Estimate man-hour requirements.
10. Determine risks, conducting operational risk assessments.
11. Establish a Bill of Materials (BOM), including safety items.
12. Establish a Course of Action (COA).

PREREQUISITE EVENTS: 1171-XENG-1981

RELATED EVENTS:

1169-XENG-2581	1171-XENG-1985	1171-XENG-1986
1171-XENG-2987	1171-XENG-2988	1171-XENG-2989

REFERENCES:
1. ATTP 5-0.1 Commander and Staff Officer Guide
2. FM 5-553 General Drafting
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7M Construction Estimating
6. MCWP 5-1 Marine Corps Planning Process (MCPP)
7. TM 5-704 Construction Print Reading in the Field
8. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans

1171-XENG-2651: Develop a water source

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a water source, with water reconnaissance report, water support plan and established Course of Action (COA) from an Operation Order, equipment, personnel, material, and references.

STANDARD: So unit's mission is supported with required volume of water.

PERFORMANCE STEPS:
1. Review COA, DA Form 1712-R and references.
2. Reassess operational risk.
3. Don Personal Protective Equipment (PPE).
4. Verify water depth and flow rate.
5. Develop site/source to enhance volume of water available.
6. Set up raw water pump(s).
7. Deploy raw water suction hose(s) and accessories.
8. Camouflage equipment and accessories.
9. Ensure site security.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-XENG-2501	1171-XENG-2502
1171-XENG-2553		

RELATED EVENTS:

1171-XENG-1604	1171-XENG-1648	1171-XENG-1702
1171-XENG-2653	1171-XENG-2752	

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 3-17.7F Project Management
8. MCRP 4-11B Environmental Considerations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 4-11.6 Petroleum and Water Logistics Operations
11. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
12. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Water Pump(s) (as designated by water support plan)
Earthmoving equipment (if required to develop site)
Strainer(s)
Intake screen(s)

MATERIAL:
Area topographical map
DA Form 1712-R (Water Reconnaissance Report)
Water Smartcard (see Figure C-3 of MCWP 3-17.4)
Area reconnaissance report
Course of Action (COA)
Anchor(s)

Rope
Sand bags

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to move earth (if required)
MOS 1171 (Water Support Technician) to install equipment

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given source may ultimately determine final COA for source development.

1171-XENG-2653: Direct field water purification/storage/distribution system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, water support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, water support plan, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Supervise water source development.
7. Supervise water purification equipment set up.
8. Supervise field water storage equipment set up.
9. Supervise field water distribution system installation.
10. Inspect installed field water purification/storage/distribution system.
11. Inspect equipment grounding.
12. Ensure inspection of installed system by preventive medicine personnel.
13. Correct discrepancies.

PREREQUISITE EVENTS: 1171-XENG-2553

RELATED EVENTS:

1171-XENG-1604	1171-XENG-1648	1171-XENG-1677
1171-XENG-1678	1171-XENG-1680	1171-XENG-1684
1171-XENG-1685	1171-XENG-1702	1171-XENG-2502

1171-XENG-2651	1171-XENG-2655	1171-XENG-2658
1171-XENG-2752	1171-XENG-2753	1171-XENG-2754
1171-XENG-2853		

REFERENCES:

1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.6A Camouflage, Concealment, and Decoys
6. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
7. MCRP 3-17.7F Project Management
8. MCRP 3-17.7N Base Camps
9. MCRP 4-11B Environmental Considerations
10. MCWP 4-11.6 Petroleum and Water Logistics Operations
11. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
12. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
13. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:

Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Water Quality Analysis Set, Purification (WQAS-P) [B2630]
Forklift (with capacity to lift designated water support equipment)
Earthmoving equipment (if required to prepare site(s))
Electric power generation and distribution equipment (if required)
Water support equipment as designated by the water support plan

MATERIAL:

DA Form 1712-R (Water Reconnaissance Report)
Water support plan with established Course of Action (COA)
DA Form 1712-R (Water Reconnaissance Report)
Water Smartcard (see Figure C-3 of MCWP 3-17.4)
Spill containment materials
Warning signs

UNITS/PERSONNEL:

MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move Equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1171 (Water Support Technician) (quantity designated by water support plan) to set up/install equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:

Only licensed Marines (MOS 1171) will install/operate water support Equipment

Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1171 water support technicians to install and operate water support equipment.

1171-XENG-2655: Direct field hygiene equipment set up

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, hygiene support plan and established Course of Action (COA), camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, hygiene support plan, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Review equipment technical manuals.
5. Brief installation crew.
6. Supervise set up of field shower facility (if required).
7. Supervise set up of laundry unit(s) (if required).
8. Supervise set up of M-80/M-85 water heater(s) (if required).
9. Inspect set up field hygiene equipment.
10. Inspect equipment grounding.
11. Ensure inspection of installed equipment by preventive medicine personnel.
12. Correct discrepancies.

PREREQUISITE EVENTS: 1171-XENG-2555

RELATED EVENTS:

1171-XENG-1631	1171-XENG-1632	1171-XENG-1678
1171-XENG-2653	1171-XENG-2658	1171-XENG-2755
1171-XENG-2855		

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7N Base Camps
6. MCRP 4-11.1D Field Hygiene and Sanitation
7. MCRP 4-11B Environmental Considerations
8. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary

Control and Surveillance of Field Water Supplies
9. TB MED 593 Guidelines for Field Waste Management
10. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift designated hygiene equipment)
Earthmoving equipment (if required to prepare site(s))
Electric power generation and distribution equipment (if required)
Hygiene equipment as designated by the hygiene support plan

MATERIAL:
Hygiene support plan with established Course of Action (COA)
Spill containment materials
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s) and move Equipment
MOS 1141 (Electrician) to establish electrical power support
MOS 1171 (Water Support Technician) (quantity designated by hygiene support plan) to set up equipment
Preventive Medicine Technician

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Only licensed Marines (MOS 1171) will install/operate hygiene equipment
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for system installation

SPECIAL PERSONNEL CERTS: Personnel must be licensed MOS 1171 water support technicians to install and operate hygiene equipment.

1171-XENG-2658: Direct camp sanitation system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, field sanitation plan and established Course of Action (COA), environmental impact report, area map, camp layout, equipment, personnel, material, and references.

STANDARD: So unit's mission is safely supported in accordance with the

Operation Order.

PERFORMANCE STEPS:
1. Review the Operation Order, field sanitation plan, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Supervise installation of grease traps (if required).
6. Supervise installation of head/latrines (if required).
7. Supervise installation of garbage pits (if required).
8. Supervise installation of soakage pits (if required).
9. Inspect installed sanitation system.
10. Ensure inspection of installed system by preventive medicine personnel.
11. Correct discrepancies.

PREREQUISITE EVENTS: 1171-XENG-2558

RELATED EVENTS:

1171-XENG-1605	1171-XENG-1631	1171-XENG-1632
1171-XENG-2653	1171-XENG-2655	1171-XENG-2858

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCRP 3-17.6A Camouflage, Concealment, and Decoys
5. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
6. MCRP 3-17.7F Project Management
7. MCRP 3-17.7N Base Camps
8. MCRP 4-11.1D Field Hygiene and Sanitation
9. MCRP 4-11B Environmental Considerations
10. MCWP 3-41.1 Rear Area Operations
11. TB MED 593 Guidelines for Field Waste Management
12. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (if required to prepare site(s))
Equipment designated by the sanitation plan

MATERIAL:
Sanitation plan with established Course of Action (COA)
Material designated by the sanitation plan
Warning signs

UNITS/PERSONNEL:
MOS 1345 (Engineer Equipment Operator) to prepare site(s)
MOS 1371 (Combat Engineer) to construct sanitation devices
MOS 1171 (Water Support Technician) (quantity designated by sanitation

plan) to install device(s)/develop site(s)
Preventive Medicine Technician

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in establishing and maintaining sanitary sites/devices

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site development.

1171-XENG-2752: Monitor water test equipment measurements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With water test measurement reports, equipment, and references.

STANDARD: So continuous safety of unit's potable water supply is maintained per NAVMED P-5010-10.

PERFORMANCE STEPS:
1. Review references.
2. Review test measurement reports.
3. Test water.
4. Ensure measurements are within standards.
5. Take necessary actions to improve product water quality, disabling any PMT in the area.

PREREQUISITE EVENTS: 1171-XENG-1702

RELATED EVENTS:

1171-XENG-1604	1171-XENG-1648	1171-XENG-1677
1171-XENG-1678	1171-XENG-1680	1171-XENG-1684
1171-XENG-1685	1171-XENG-1748	1171-XENG-1771
1171-XENG-2502	1171-XENG-2753	1171-XENG-2754

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. JP 4-03 Joint Bulk Petroleum and Water Doctrine
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
6. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
7. TM 5-813-3 Water Supply, Water Treatment

8. TM 5-813-4 Water Supply, Water Storage
9. TM 5-813-5 Water Supply, Water Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]

MATERIAL: Water test measurement reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630]

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1171-XENG-2753: Direct field water purification/storage/distribution system operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, water purification/storage/distribution system, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed water purification/storage/distribution system.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Supervise operation of water purification equipment.
8. Supervise the operation of water storage/distribution system.
9. Supervise operation of Forward Area Water Point Supply Systems.
10. Supervise operation of SIXCON module systems.
11. Supervise operation of water pump assemblies.
12. Supervise use of collapsible tanks and bladders.
13. Ensure water quantity and quality meet requirements.
14. Ensure all water production reports and logs are completed and submitted.
15. Supervise water purification/storage/distribution equipment operator

maintenance.
16. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:

1171-XENG-1702	1171-XENG-2651	1171-XENG-2653
1171-XENG-2752	1171-XENG-2754	

RELATED EVENTS:

1169-XENG-2753	1171-XENG-2553	1171-XENG-2755

REFERENCES:
1. Appropriate Technical Manuals
2. FM 10-52 Water Supply in Theaters of Operation
3. FM 10-52-1 Water Supply Point Equipment and Operations
4. JP 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 4-11.6 Petroleum and Water Logistics Operations
8. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
9. NAVMED P-5010-5 Manual of Naval Preventive Medicine, Chapter 5, Water Supply Ashore
10. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
11. TM 4700-15/1_ Ground Equipment Record Procedures
12. TM 5-813-1 Water Supply, Sources and General Considerations
13. TM 5-813-3 Water Supply, Water Treatment
14. TM 5-813-4 Water Supply, Water Storage
15. TM 5-813-5 Water Supply, Water Distribution
16. TM 5-813-7 Water Supply for Special Projects
17. TM 5-813-8 Water Desalination
18. TM 5-813-9 Water Supply, Pumping Stations
19. TM 5-820-4 Drainage for Areas Other Than Airfields

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain equipment and system

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1171-XENG-2754: Calculate chlorine demand

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a potable water source, with equipment, and references.

STANDARD: So post treatment of potable water is maintained at a safe level.

PERFORMANCE STEPS:
1. Ensure potable water is secure, disabling any PMT in the area.
2. Don Personal Protective Equipment (PPE).
3. Perform chlorine residual test.
4. Identify chlorine residual standards.
5. Determine chlorine requirements.

PREREQUISITE EVENTS:
1171-XENG-1604 1171-XENG-1648 1171-XENG-1702

RELATED EVENTS:
1171-XENG-2653 1171-XENG-2752 1171-XENG-2753

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. NAVMED P-5010-10 Manual of Naval Preventive Medicine, Chapter 10, Sanitary Control and Surveillance of Field Water Supplies
5. TM 10-6630-222-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Water Quality Analysis Set: Purification (WQAS-P)
6. TM 5-813-3 Water Supply, Water Treatment
7. TM 5-813-4 Water Supply, Water Storage
8. TM 5-813-5 Water Supply, Water Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Water Quality Analysis Set, Purification (WQAS-P) [B2630]

MATERIAL: Water sample(s) from water storage/supply point.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Water Support Technician Course (CID: M031102) are licensed operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630].

SPECIAL PERSONNEL CERTS: Operators of the Water Quality Analysis Set, Purification (WQAS-P) [B2630] must be licensed.

1171-XENG-2755: Direct field hygiene equipment operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, hygiene equipment, operators, and references.

STANDARD: So unit's mission is safely supported in accordance with the Operation Order.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed hygiene equipment.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Supervise operation of laundry units.
8. Supervise operation of shower facilities.
9. Supervise operation of water heaters.
10. Ensure drainage system is functioning properly.
11. Ensure daily sanitation standards are met.
12. Supervise hygiene equipment operator maintenance.
13. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:
1171-XENG-2655 1171-XENG-2658

RELATED EVENTS:
1169-XENG-2755 1171-XENG-2555 1171-XENG-2753

REFERENCES:
1. Appropriate Technical Manuals
2. INSTALLATION SOP Installation's Standing Operating Procedures
3. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
4. MCRP 4-11.1D Field Hygiene and Sanitation
5. MCRP 4-11B Environmental Considerations
6. TB MED 593 Guidelines for Field Waste Management
7. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. TM 9406-15_ Grounding Procedures for Electromagnetic Interference Control and Safety

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: MOS 1171 (Water Support Technicians) to operate/maintain equipment

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1171-XENG-2853: Direct field water purification/storage/distribution system recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review the Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise recovery of water purification equipment.
6. Supervise water storage equipment recovery.
7. Supervise water distribution equipment recovery.
8. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
9. Ensure SL-3/BII inventories are conducted/recorded.
10. Resolve discrepancies.

RELATED EVENTS:

1171-ADMN-1007	1171-ADMN-1008	1171-ADMN-1009
1171-ADMN-1011	1171-XENG-1604	1171-XENG-1648
1171-XENG-1677	1171-XENG-1678	1171-XENG-1680
1171-XENG-1684	1171-XENG-1685	1171-XENG-2653
1171-XENG-2753	1171-XENG-2855	1171-XENG-2858

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift water support equipment)

MATERIAL: Water support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1171 (Water Support Technician) (quantity designated by water support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1171-XENG-2855: Direct field hygiene equipment recovery

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So equipment is available for redeployment and equipment records are updated.

PERFORMANCE STEPS:
1. Review the Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise shower facility recovery.
6. Supervise laundry unit recovery.
7. Ensure Limited Technical Inspections (LTI) are conducted/recorded.
8. Ensure SL-3/BII inventories are conducted/recorded.
9. Resolve discrepancies.

RELATED EVENTS:

1171-ADMN-1007	1171-ADMN-1008	1171-ADMN-1009
1171-ADMN-1011	1171-XENG-1631	1171-XENG-1632
1171-XENG-1678	1171-XENG-2655	1171-XENG-2755
1171-XENG-2853	1171-XENG-2858	

REFERENCES:
1. MCRP 4-11.4A Recovery and Battle Damage Assessment and Repair
2. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
3. SL-3-10006A Components List for Bath Shower Unit, Expedition
4. TM 01034E-12&P/1 Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallons
5. TM 10006A-14&P/14 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
6. TM 10-4520-259-13&P Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel, Models M-80 and M-85
7. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
8. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Forklift (with capacity to lift hygiene equipment)

MATERIAL: Hygiene support plan with established Course of Action (COA)

UNITS/PERSONNEL:
MOS 1171 (Water Support Technician) (quantity designated by hygiene support plan)
MOS 1345 (Engineer Equipment Operator) to move equipment

1171-XENG-2858: Direct field waste water system recovery/closure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Section Head, Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, environmental impact report, area map, camp layout, equipment, personnel, and references.

STANDARD: So reusable devices are recovered and waste areas are covered, marked, and recorded.

PERFORMANCE STEPS:
1. Review the Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental impact report and area map.
4. Inspect sanitation system.
5. Brief recovery/closure crew.
6. Supervise recovery of sanitation devices/warning signs.
7. Supervise closure of sanitation pits.
8. Supervise marking of closed sanitation system.
9. Inspect closed/marked sanitation system.
10. Ensure inspection of closed/marked system by preventive medicine personnel.
11. Ensure closed latrine sites are recorded on area map.
12. Forward marked map to those concerned.

RELATED EVENTS:

1171-XENG-1605	1171-XENG-1805	1171-XENG-2658
1171-XENG-2853	1171-XENG-2855	

REFERENCES:
1. INSTALLATION SOP Installation's Standing Operating Procedures
2. MCRP 4-11.1D Field Hygiene and Sanitation
3. MCRP 4-11B Environmental Considerations
4. TB MED 593 Guidelines for Field Waste Management

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
General Mechanics Tool Kit (GMTK) [C7915]
Earthmoving equipment (to cover sanitation pits)

MATERIAL:
Area map
Environmental impact report
Field sanitation plan with established Course of Action (COA)

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) for earth moving requirements

OTHER SUPPORT REQUIREMENTS: Marines of any MOS can assist in recovery and closure of sanitation devices/pits

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS:
Tactical situation, ORA and other changes encountered at a given site may ultimately determine final COA for site closure
A map/diagram of closed site(s) should be forwarded to higher headquarters per Installation's SOP

1171-XENG-2983: Thread pipe

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring plumbing work, with a plumbing plan, a length of pipe, tools, and references.

STANDARD: So pipe will accept designated fittings for the structure's plumbing system per the plumbing plan.

PERFORMANCE STEPS:
1. Review references.
2. Review plumbing plan.
3. Assess risks (ORM).
4. Don Personal Protective Equipment (PPE).
5. Secure pipe (in a vise or by other means).
6. Thread the pipe to depth required and with tool and die designated by fitting/plumbing plan.
7. Test threads.

PREREQUISITE EVENTS:
1171-XENG-1981 1171-XENG-1982 1171-XENG-1984

RELATED EVENTS:
1171-XENG-1985 1171-XENG-1986

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage

2. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
3. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

1171-XENG-2987: Inspect an interior plumbing system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a structure with an installed interior plumbing system, with tools, personnel, and references.

STANDARD: So ability of plumbing system to meet code requirements is determined, safety concerns are addressed, and required repairs/upgrades identified.

PERFORMANCE STEPS:
1. Review code requirements.
2. Access operational risk.
3. Don Personal Protective Equipment (PPE).
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Identify and record type and serviceability of fixtures.
6. Determine capabilities/serviceability of water supply system.
7. Determine capabilities/serviceability of sanitary drainage system.
8. Determine serviceability of vent system.
9. Identify part(s) of plumbing system that fail to comply with code requirements.
10. List discrepancies identified, specifying corrective action(s) required.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-ADMN-1002

RELATED EVENTS:

1171-XENG-1981	1171-XENG-1985	1171-XENG-1986
1171-XENG-2581	1171-XENG-2988	1171-XENG-2989

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of

Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

UNITS/PERSONNEL: MOS 1171 (Water Support Technician)

1171-XENG-2988: Direct interior plumbing system installation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure requiring plumbing, with an interior plumbing system plan, Bill of Materials (BOM), personnel, tools, and references.

STANDARD: So structure has plumbing per the interior plumbing plan, in compliance with the Uniform Plumbing Code (UPC).

PERFORMANCE STEPS:
1. Review the blueprints, plumbing plan and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Brief installation crew.
4. Inventory BOM.
5. Supervise installation of water supply system.
6. Supervise installation of sanitary drainage system.
7. Supervise installation of vent system.
8. Supervise installation of fixtures.
9. Test the installed plumbing system.

RELATED EVENTS:

1171-XENG-1981	1171-XENG-1982	1171-XENG-1984
1171-XENG-1985	1171-XENG-1986	1171-XENG-2581
1171-XENG-2983	1171-XENG-2987	1171-XENG-2989

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. MCRP 3-17.7F Project Management
3. TM 5-704 Construction Print Reading in the Field
4. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)

Plumbing tools

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1171 (Water Support Technician)

1171-XENG-2989: Direct interior plumbing system repairs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a structure with a faulty plumbing system, a report detailing specific repairs to be made, a Bill of Materials (BOM), tools, and references.

STANDARD: So repairs detailed on the report are made and system is brought into compliance with the Uniform Plumbing Code (UPC).

PERFORMANCE STEPS:
1. Examine the plumbing system needing repairs.
2. Review references, determining safety/code requirements.
3. Assess risks (ORM).
4. Review blueprints, plumbing plan and Bill of Materials (BOM).
5. Brief repair crew.
6. Inventory BOM.
7. Supervise repairs to water supply system.
8. Supervise repairs to sanitary drainage system.
9. Supervise repairs to vent system.
10. Supervise replacement of fixtures.
11. Test the repaired plumbing system.

PREREQUISITE EVENTS: 1171-ADMN-1001

RELATED EVENTS:

1171-XENG-1981	1171-XENG-1982	1171-XENG-1984
1171-XENG-1985	1171-XENG-1986	1171-XENG-2581
1171-XENG-2983	1171-XENG-2987	1171-XENG-2988

REFERENCES:
1. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
2. MCRP 3-17.7F Project Management
3. TB SIG 222 Solder and Soldering
4. TM 5-704 Construction Print Reading in the Field
5. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

EQUIPMENT:
Personal Protective Equipment (PPE)
Plumbing tools

MATERIAL: Bill of Materials (BOM)

UNITS/PERSONNEL: MOS 1171 (Water Support Technician)

ENG & UTIL T&R MANUAL

CHAPTER 13

MOS 1302 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	13000	13-2
EVENT CODING	13001	13-2
INDEX OF INDIVIDUAL EVENTS	13002	13-2
1000-LEVEL EVENTS	13003	13-4
2000-LEVEL EVENTS	13004	13-42

CHAPTER 13

MOS 1302 INDIVIDUAL EVENTS

13000. PURPOSE. This chapter details the individual events that pertain to Combat Engineer Officer. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

13001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1302	Combat Engineer Officer

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
CMOB	Counter-mobility
DEMO	Demolitions
EOPS	Engineer Operations
FUEL	Bulk Fuel
HORZ	Horizontal Construction
MANT	Maintenance
MOBL	Mobility
PLAN	Planning
RECN	Engineer Reconnaissance
SURV	Survivability
VERT	Vertical Construction

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills
2000	Core Plus Skills

13002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		

1302-ADMN-1001	Manage unit training	13-4
1302-ADMN-1002	Deliver a military brief	13-5
1302-CMOB-1001	Plan the emplacement of an obstacle	13-5
1302-CMOB-1002	Plan construction of vehicle checkpoints as a part of an countermobility plan	13-6
1302-CMOB-1003	Prepare an obstacle plan	13-7
1302-DEMO-1001	Plan for demolition operations	13-7
1302-DEMO-1002	Detonate demolitions	13-8
1302-DEMO-1003	Engage targets with expedient demolitions	13-9
1302-DEMO-1004	Plan destruction of Captured Enemy Ammunition (CEA)	13-11
1302-EOPS-1001	Design concrete mix	13-11
1302-EOPS-1002	Design concrete structures	13-12
1302-EOPS-1003	Design concrete forms	13-13
1302-EOPS-1004	Plan airfield damage repair (ADR Operations)	13-13
1302-EOPS-1005	Develop mobile electric power distribution/redistribution plan	13-14
1302-EOPS-1006	Develop field water distribution system	13-15
1302-EOPS-1007	Arrange external support for engineer projects/operations	13-16
1302-EOPS-1008	Conduct range operations	13-16
1302-EOPS-1009	Establish project/operation schedules	13-17
1302-FUEL-1001	Plan fuel operations	13-18
1302-HORZ-1001	Plan a horizontal construction project	13-19
1302-HORZ-1002	Plan construction of drainage systems	13-20
1302-HORZ-1003	Conduct a field soil analysis	13-20
1302-MANT-1001	Manage a Consolidated Memorandum Receipt (CMR)	13-21
1302-MANT-1002	Manage an organizational maintenance program	13-21
1302-MOBL-1001	Plan a military road	13-23
1302-MOBL-1002	Plan dismounted route sweep operations	13-23
1302-MOBL-1003	Plan Route and Area Clearance (RAAC) operations	13-24
1302-MOBL-1004	Conduct mobility operations in an Improvised Explosive Device (IED) environment	13-25
1302-MOBL-1005	Plan breaching of a complex obstacle	13-26
1302-MOBL-1006	Conduct assault breaching into buildings	13-26
1302-MOBL-1007	Plan the reduction of strongpoints and structures	13-28
1302-MOBL-1008	Operate a robot	13-29
1302-MOBL-1009	Identify Explosive Hazards (EH)	13-30
1302-MOBL-1010	Reduce Explosive Hazards (EH)	13-30
1302-MOBL-1011	Design a ribbon bridge/raft	13-31
1302-MOBL-1012	Design a Medium Girder Bridge (MGB)	13-32
1302-MOBL-1013	Design a non-standard bridge	13-33
1302-MOBL-1014	Classify a bridge	13-33
1302-MOBL-1015	Plan engineer aspects of a gap crossing operation	13-34
1302-MOBL-1016	Plan construction of an expeditionary airfield/landing zone	13-34
1302-PLAN-1001	Participate in the Marine Corps Planning Process (MCPP)	13-35
1302-PLAN-1002	Plan a base camp	13-36
1302-RECN-1001	Conduct engineer reconnaissance operations	13-37
1302-SURV-1001	Design survivability positions	13-38
1302-SURV-1002	Plan construction of blast mitigation measures	13-38
1302-SURV-1003	Prepare a survivability plan	13-39
1302-SURV-1004	Plan construction of an entry access control point as a part of a protective barrier plan	13-40

1302-SURV-1005	Plan building hardening	13-40
1302-VERT-1001	Plan a vertical construction project	13-41
2000-LEVEL EVENTS		
1302-ADMN-2001	Produce an engineer estimate	13-42
1302-ADMN-2002	Manage supported unit engineer requirements	13-44
1302-ADMN-2003	Plan the integration of other service component engineer capabilities	13-45
1302-ADMN-2004	Integrate contracted support into engineer operations	13-46
1302-ADMN-2005	Assess an engineer unit's operational readiness	13-47
1302-ADMN-2006	Support the Marine Corps Force Development System (MCFDS) process	13-48
1302-DEMO-2001	Plan demolition operations	13-49
1302-DEMO-2002	Plan the integration of Explosive Ordnance Disposal (EOD) capabilities	13-50
1302-MOBL-2001	Plan engineer Aviation Ground Support (AGS) operations	13-50
1302-MOBL-2002	Determine design criteria for contingency construction operations	13-51
1302-RECN-2001	Provide engineer inputs to the intelligence cycle	13-52

13003. 1000-LEVEL EVENTS

1302-ADMN-1001: Manage unit training

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a unit training plan, time restraints, commander's intent, personnel, and equipment.

STANDARD: To meet requirements of the training plan and the commander's intent.

PERFORMANCE STEPS:

1. Determine mission requirements based on unit missions, Mission Essential Task Lists, Mission Performance Standards, Collective Training Events and Individual Training Events.
2. Determine current unit capabilities, both individual and unit proficiency.
3. Identify training shortfalls and strengths of unit.
4. Determine specific training objectives to correct shortfalls in accordance with T&R manual and METs.
5. Develop logical sequence for training individual skills and collective task events.
6. Brief commander on training plan, as required.
7. Prepare a training schedule utilizing backwards planning.
8. Issue the order for training.
9. Coordinate logistical support.
10. Conduct an after action (hotwash) as required.

REFERENCES:

1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCO 3501.1_ Marine Corps Combat Readiness and Evaluation System (MCCRES)
3. MCRP 3-0A Unit Training Management Guide
4. MCRP 3-0B How to Conduct Training
5. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual

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1302-ADMN-1002: Deliver a military brief

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission, commander's intent, and references.

STANDARD: To provide an oral description of the current engineer situation, proposed execution, and logistical support capabilities and limitations in accordance with MCWP 3-40.1 MAGTF Command and Control.

PERFORMANCE STEPS:
1. Review the operations order and commander's intent.
2. Review the engineer situation.
3. Develop a briefing outline for the engineer situation.
4. Brief engineer situation to the commander.

REFERENCES:
1. MCWP 3-17 Engineering Operations
2. MCWP 3-40.1 MAGTF Command and Control
3. MCWP 5-1 Marine Corps Planning Process (MCPP)

1302-CMOB-1001: Plan the emplacement of an obstacle

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, an obstacle plan overlay, and references.

STANDARD: To meet the requirements of the obstacle plan in accordance with MCWP 3-17.5 Combined Arms Obstacle Integration.

PERFORMANCE STEPS:
1. Analyze requirements outlined in the obstacle plan.
2. Conduct a site recon.
3. Task organize personnel and equipment.
4. Identify logistical requirements.
5. Coordinate security with supported maneuver elements as required.

6. Coordinate obstacle overwatch and coverage by fires with supported unit.
7. Verify the obstacle is effective based on the principles of obstacle employment.
8. Monitor construction/installation of the obstacle.
9. Submit required engineer reports.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCWP 3-1 Ground Combat Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.5 Combined Arms Obstacle Integration
8. MCWP 5-1 Marine Corps Planning Process (MCPP)

1302-CMOB-1002: Plan construction of vehicle checkpoints as a part of an countermobility plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, required personnel, equipment, and references.

STANDARD: To meet supported unit requirements outlined in the concept of operations of the operations order in accordance with MCWP 3-17.5 Combined Arms Obstacle Integration.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct a site reconnaissance.
3. Develop obstacle/barrier plan as required to prevent bypass of the checkpoint.
4. Design vehicle checkpoint to provide holding areas, personnel holding areas, search areas, active vehicle barriers, and overwatch positions.
5. Develop bill of materials.
6. Identify logistical requirements.
7. Task organize personnel and equipment.
8. Coordinate security with supported maneuver elements as required.
9. Estimate construction time.
10. Generate sketches as required.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-17.5 Combined Arms Obstacle Integration
5. MCWP 3-17.6 Survivability
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-CMOB-1003: Prepare an obstacle plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, and references.

STANDARD: That recommends types of obstacles; obstacle placement; the resources required to construct the obstacles; and an obstacle overlay, which support the scheme of maneuver by fixing, turning, blocking or disrupting enemy movement.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct fires analysis.
3. Determine obstacle intent integration with fires.
4. Determine obstacle priorities.
5. Determine mobility requirements.
6. Determine obstacle design and resourcing.
7. Prepare an overlay and obstacle plan appendix to operations order.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCDP 1 Warfighting
4. MCDP 1-3 Tactics
5. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-1 Ground Combat Operations
8. MCWP 3-17 Engineering Operations
9. MCWP 3-17.5 Combined Arms Obstacle Integration
10. MCWP 3-40.1 MAGTF Command and Control

1302-DEMO-1001: Plan for demolition operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: 2NDLT, 1STLT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, equipment, personnel, and references.

STANDARD: To execute a demolition mission in support of the commander's intent and concept of operations in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:

1. Conduct problem framing.
2. Conduct target analysis.
3. Determine the amount of explosives required to achieve the desired effect.
4. Direct demo recon, as required.
5. Analyze required information from the DA Form 2203-R.
6. Complete the demolition target folder.
7. Estimate the logistics required based on the demolition reconnaissance.
8. Determine task organization of personnel and equipment.
9. Prioritize targets based on commander's intent.
10. Complete Directed and/or Situational Obstacle matrices and overlays, as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. STANAG 2123 Obstacle Folder

SUPPORT REQUIREMENTS:

EQUIPMENT: MAP, DA Form 2203-R, NOTE TAKING GEAR

1302-DEMO-1002: Detonate demolitions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: 2NDLT, 1STLT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, appropriate Class V material, a demolition kit, target material, personal protective equipment (PPE) and references.

STANDARD: To ensure all charges are constructed according to the method of use and ensuring detonation while observing all safety procedures in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Review target folder.
2. Conduct target reconnaissance (to obtain critical dimensions necessary for charge calculations and firing point location).
3. Determine type of explosive to use.
4. Select formula calculation for single charge.
5. Determine number of charges/total amount of explosives and minimum safe distance.
6. Place the charge(s) on the target.
7. Prime the charge.
8. Tamp as required.
9. Detonate the explosive(s).
10. Conduct battle damage assessment.
11. Submit required engineer reports.

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	1 charges per Marine
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M030 Charge, Demolition Block TNT 1/4-Pou	1 charges per Marine
M032 Charge, Demolition Block TNT 1-Pound	1 charges per Marine
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	3 blasting caps per Marine
M131 Cap, Blasting Non-Electric M7	5 blasting caps per Marine
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	85 FT per Marine
M591 Dynamite, Military M1	2 charges per Marine
M670 Fuse, Blasting Time M700	40 FT per Marine
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M982 Charge, Demolition Sheet 0.161 Inch	1 FT per Marine
MM30 Charge, Flexible 20 Gram PETN MK140	4 charges per Team
MM44 Charge, Demolition Flexible Linear S	1 charges per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	5 igniters per Marine
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad Demolition Kit, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Ammunition vehicle, Communications (radio).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-DEMO-1003: Engage targets with expedient demolitions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: 2NDLT, 1STLT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, a designated area, personnel, demolition tools, explosives, improvised materials, and references.

STANDARD: To produce the desired effect on the target per the mission requirements in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Review the mission.
2. Construct a platter charge.
3. Construct an expedient claymore charge.
4. Construct a grape shot directional charge.
5. Construct an Omni (360 degree) charge.
6. Construct expedient shaped charge.
7. Construct expedient flame charge.
8. Construct a purpose built charge (based on mission requirements).
9. Engage the target.
10. Confirm target reduction.

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineering Field Data
5. SWO60-AA-MMA-010 Demolition Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	14 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	14 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	500 FT per Team
M670 Fuse, Blasting Time M700	50 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
ML03 Firing Device, Demolition Multi-Purp	2 detonators per Team
ML47 Cap, Blasting Non-Electric M11 with	3 blasting caps per Team
MN08 Igniter, Time Blasting Fuse with Sho	10 igniters per Team
MN52 MK154 Mod 0	5 detonators per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	3 blasting caps per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad Demolition Kit, PPE.

MATERIAL: Ammonium Nitrate (33% Nitrogen), JP-8 fuel.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Ammunition vehicle, Communications (radio).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-DEMO-1004: Plan destruction of Captured Enemy Ammunition (CEA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: 2NDLT, 1STLT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Without Explosive Ordnance Disposal (EOD) support readily available, given a tactical scenario, commander's intent, map, explosives, captured enemy ammunition (CEA), and references.

STANDARD: To successfully destroy the CEA in accordance with the commander's intent, mission requirements and MCRP 3-17.2D Explosive Hazard Operations.

PERFORMANCE STEPS:
1. Positively identify captured enemy ammunition (CEA).
2. Calculate minimum standoff distance to detonate CEA.
3. Coordinate with higher headquarters.
4. Destroy CEA.
5. Confirm target destruction.
6. Report results to higher headquarters.

REFERENCES:
1. CHB Country Handbooks
2. GTA 05-10-033 Demolition Card
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCWP 3-17 Engineering Operations
6. ORD ORDATA II (Software)

1302-EOPS-1001: Design concrete mix

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided construction drawings, blueprints, specifications, writing materials, a calculator, and the reference.

STANDARD: To meet strength specifications described in the concrete structure design and the construction standards in accordance with MCRP 3-17.7D Concrete and Masonry.

PERFORMANCE STEPS:
1. Determine the type of cement to be used.
2. Identify water and aggregate for suitability.
3. Determine desired slump.

4. Determine percentage of air entrainment, as required.
5. Determine amount of water.
6. Determine a water/cement ratio.
7. Determine amount of cement.
8. Determine loose volume of gravel.
9. Convert weights to absolute volumes.
10. Determine weight of sand.
11. Determine loose volume of sand.
12. List final proportions for a one cubic yard batch.
13. Perform field moisture test on the aggregates.
14. Adjust mix design to account for aggregate moisture.

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: Concrete and Masonry kit, Concrete Mixer, Pioneer kit.

MATERIAL: Portland cement, fine and coarse aggregates.

OTHER SUPPORT REQUIREMENTS: Fuel requirement.

1302-EOPS-1002: Design concrete structures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given construction standards, commander's intent, concept of operations, task organized personnel and equipment, and references.

STANDARD: To specify type of materials to be used, proper spacing of all components, and quantity and type of material required for finished structures capable of supporting all loads considered in accordance with the specifications and MCRP 3-17.7D Concrete and Masonry.

PERFORMANCE STEPS:
1. Review the specifications.
2. Design a concrete footing.
3. Design a concrete wall.
4. Design a reinforced concrete structure.
5. Design a concrete block structure.
6. Prepare construction drawing.
7. Generate a Bill of Materials for each type of design.
8. Obtain design approval (if required).

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry

2. MCRP 3-17A Engineering Field Data
3. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

SUPPORT REQUIREMENTS:

MATERIAL: Blueprints/drawings/specifications, calculation worksheets, calculator

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1302-EOPS-1003: Design concrete forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given construction standards and specifications, concrete structure design, commander's intent, concept of operations, task organized personnel and equipment, and references.

STANDARD: To support all dead loads and live loads and meet standards in accordance with MCRP 3-17.7D Concrete and Masonry.

PERFORMANCE STEPS:
1. Analyze the concrete structure design to determine the type of form.
2. Determine bill of materials.
3. Determine the proper spacing for all components of the form.
4. Illustrate final design.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7M Construction Estimating
4. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

SUPPORT REQUIREMENTS:

MATERIAL: Blue Prints/drawings/specifications, calculation worksheet, calculator

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1302-EOPS-1004: Plan airfield damage repair (ADR Operations)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, an airfield/landing zone requiring repair, and references.

STANDARD: To ensure the airfield is operationally capable in compliance with the concept of operations in accordance with MCRP 3-17.7B Design of Theater of Operations - Airfields and Helipads.

PERFORMANCE STEPS:
1. Provide recommendations to the Survival Recovery Staff for the task organization of personnel and equipment.
2. Determine the appropriate Foreign Object Debris (FOD) cover requirements.
3. Calculate the material requirements for crater repair.
4. Calculate the material requirements for spall repair.
5. Identify appropriate dispersal areas for equipment, materials, and personnel in the event of follow-on attacks.
6. Submit appropriate engineer reports.
7. Coordinate with supported commander, as required.
8. Coordinate logistical support, as required.
9. Incorporate safety measures.
10. Receive reports from damage assessment teams and damage assessment response teams.
11. Repair critical facilities.
12. Establish a sustainable facility/ site maintenance and repair plan.

REFERENCES:
1. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
2. MCRP 3-17A Engineering Field Data
3. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
4. NAVAIR 51-60A-1(_) AM2 Airfield Mat and Accessories
5. UFC 3-270-07 Airfield Damage Repair

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Airfield Damage Repair (ADR) kit, 260 CFM, engineer equipment (420 backhoe, multi-terrain loader).

MATERIAL: Fine/coarse aggregate, sand grid, pavement.

1302-EOPS-1005: Develop mobile electric power distribution/redistribution plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, specific number of personnel, equipment, and facilities, and references.

STANDARD: To meet or exceed requirements outlined in the concept of operations in accordance with MCRP 3-17.7K Theater of Operations Electrical

Systems.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Integrate utilities SME(s) into planning process.
3. Conduct site reconnaissance.
4. Identify existing electrical power sources.
5. Determine electrical power requirements based on personnel, equipment, and facilities.
6. Determine priorities for electric power.
7. Determine task organization of personnel and equipment.
8. Develop a distribution diagram.

REFERENCES:
1. MCRP 3-17.7K Theater of Operations Electrical Systems
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Utility Officer (1120) or Utilities Chief (1169) will assist.

1302-EOPS-1006: Develop field water distribution system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, specific number of personnel, equipment, and facilities, and references.

STANDARD: To meet or exceed requirements outlined in the concept of operations and in accordance with MCRP 4-11.6A Water Supply in Theaters of Operations.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Integrate utilities SME(s) into planning process.
3. Conduct site reconnaissance.
4. Identify existing water sources through water point reconnaissance.
5. Determine water consumption (i.e., based on numbers of personnel, equipment, facilities, and climate conditions.
6. Develop plan for production, purification, storage, and distribution of water.
7. Plan drainage system to prevent contamination of water source from storm runoff.
8. Plan construction or improvement main supply routes (MSR) from water point and/or well sites.
9. Determine task organization of equipment and personnel.

10. Develop a distribution diagram.
11. Coordinate with supported commander, as required.
12. Coordinate logistical support, as required.

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. MCWP 4-11.5 Seabee Operations in the MAGTF
3. MCWP 4-11.6 Bulk Liquid Operations

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Utility Officer (1120) or Utilities Chief (1169) will assist.

1302-EOPS-1007: Arrange external support for engineer projects/operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, specific number of personnel, equipment, facilities, and references.

STANDARD: To provide all required support for a project or operation per the concept of operations and the commander's intent.

PERFORMANCE STEPS:
1. Review the operations order.
2. Identify tasks/missions beyond organic capabilities.
3. Determine sources of support.
4. Coordinate with supporting elements to provide required support.

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-21.1 Aviation Ground Support
4. MCWP 3-40.1 MAGTF Command and Control
5. MCWP 4-1 Logistics Operations
6. MCWP 4-11.5 Seabee Operations in the MAGTF
7. MCWP 5-1 Marine Corps Planning Process (MCPP)

1302-EOPS-1008: Conduct range operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the requirement to conduct live fire training, approved

range, valid RSO card, Class V, target material, personal protective equipment (PPE), and references.

STANDARD: To complete required training without injury to personnel and equipment and in accordance with AR 385-63/DA PAM 385-63/MCO 3570.1B Range Safety.

PERFORMANCE STEPS:
1. Plan for training.
2. Conduct site reconnaissance, if required.
3. Build target folder(s), if required.
4. Submit logistical support requirements.
5. Calculate Class V requirements.
6. Review SDZs/range regulations, if required.
7. Conduct training.
8. Submit required reports.
9. Conduct accountability of personnel, weapons, and equipment.
10. Repair/restore range, as required.
11. Direct lineout.

REFERENCES:
1. AR 385-63/ DA PAM 385-63 / MCO 3570.1B Range Safety
2. AR 385-64 / DA PAM 385-64 Army Explosives Safety
3. MCO 3500.27_ Operational Risk Management (ORM)
4. MCRP 3-17.7L Explosives and Demolitions

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17502 Non-Standard Small Arms Range
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: M4, M16A4, M9, M249, M240G, M2, MK19, MK153, Squad demolitions kit, Shotgun, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman w/medical supplies, Ammo Tech, Armorer.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Ammunition vehicle, Communications (radio).

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Approved RSO/OIC card, Special permits (if applicable)

1302-EOPS-1009: Establish project/operation schedules

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, construction drawings/blueprints, specifications, a calculator, writing materials, activity estimate sheets, and the reference.

STANDARD: To detail all personnel, equipment, and materials necessary to accomplish the mission while establishing a defined duration for each subtask and the overall project/operation and graphically depict the schedule in accordance with MCRP 3-17.7F Project Management.

PERFORMANCE STEPS:
1. Review the mission.
2. Determine activities/tasks necessary to complete the project.
3. Arrange activities/tasks in logical sequence.
4. Complete activity estimate sheets.
5. Identify critical tasks.
6. Graphically depict schedule.
7. Update schedule throughout duration of project/operation.

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7I Earthmoving Operations
3. MCRP 3-17.7M Construction Estimating
4. NAVFAC P-405 Seabee Planner's and Estimator's Handbook

1302-FUEL-1001: Plan fuel operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, specific number of personnel, equipment, facilities, and references.

STANDARD: To meet requirements as outlined in the concept of operations in accordance with MCWP 4-11.6 Petroleum and Water Logistics Operation.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Integrate Bulk Fuel SME(s) into planning process.
3. Plan reconnaissance of selected sites.
4. Determine the fuel shortage requirements.
5. Determine distribution requirements.
6. Identify existing fuel sources and host nation support availability.
7. Coordinate with appropriate services with the delivery of fuel.
8. Select sites for fuel farms.
9. Plan horizontal construction operations.
10. Determine task organization of equipment and personnel.
11. Illustrate the layout of the fuel farm.
12. Illustrate fuel distribution plan.

13. Develop record(s) for fuel distribution.
14. Plan/coordinate firefighting support.
15. Develop spill contingency plan.

REFERENCES:
1. MCWP 3-17 Engineering Operations
2. MCWP 4-1 Logistics Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Bulk Fuel Officer (1390) or Bulk Fuel Specialist (1391) and Engineer Equipment Officer (1310) or Engineer Equipment Chief (1349) will assist.

1302-HORZ-1001: Plan a horizontal construction project

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, a map, construction standards, operations order, and references.

STANDARD: To meet requirements as outlined in the concept of operations and in accordance with MCRP 3-17.7(A&B) Design of Theater of Operations-Roads, Airfields and Helipads.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct site reconnaissance.
3. Perform hasty field identification of soils.
4. Determine drainage requirements.
5. Select appropriate configuration.
6. Determine matting requirements, if applicable.
7. Calculate earthwork production estimations.
8. Determine logistical requirements.
9. Employ construction management tool.
10. Establish quality control plan.
11. Develop maintenance/repair plan.
12. Issue the order.
13. Coordinate as required with supported commander.
14. Coordinate logistical support, as required.
15. Coordinate security, as required.

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design

4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7G Military Soils Engineering
6. MCRP 3-17.7H Materials Testing
7. MCRP 3-17.7I Earthmoving Operations
8. MCRP 3-17.7M Construction Estimating
9. MCWP 3-17 Engineering Operations
10. MCWP 3-17.7 General Engineering
11. MCWP 3-17.8 Combined Arms Mobility Operations
12. MCWP 3-21.1 Aviation Ground Support
13. MCWP 4-11.5 Seabee Operations in the MAGTF
14. MCWP 5-1 Marine Corps Planning Process (MCPP)

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Engineer Equipment Officer (1310) or Engineer Equipment Chief (1369) will assist.

1302-HORZ-1002: Plan construction of drainage systems

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission, commander's intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To intercept, collect, and remove surface water flowing toward a designated area from adjacent areas in accordance with MCRP 3-17.7A Design of Theater of Operations - Road Design.

PERFORMANCE STEPS:
1. Analyze the mission.
2. Review drainage specifications.
3. Review the terrain.
4. Calculate area of waterway/peak run off.
5. Determine type of drainage structure(s) required.
6. Calculate size/amount of culvert required (if applicable).
7. Design a drainage ditch.
8. Determine logistical requirements needed.
9. Complete a bill of materials (if required).
10. Submit required reports.

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7F Project Management
3. MCRP 3-17A Engineering Field Data

1302-HORZ-1003: Conduct a field soil analysis

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an unidentified soil sample, an SL-3 complete soil test kit and references.

STANDARD: To obtain a two-letter USCS classification, CBR, and moisture content in accordance with MCRP 3-17.7G Military Soils Engineering.

PERFORMANCE STEPS:
1. Obtain a soil sample.
2. Perform a visual examination of the soil.
3. Separate gravel.
4. Conduct field identification tests on the -40 material.
5. Determine the USCS classification.
6. Determine the CBR.
7. Determine the moisture content.
8. Record and report results.

REFERENCES:
1. MCRP 3-17.7G Military Soils Engineering
2. MCRP 3-17.7H Materials Testing
3. MCRP 3-17A Engineering Field Data

1302-MANT-1001: Manage a Consolidated Memorandum Receipt (CMR)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given itemized equipment.

STANDARD: To maintain accountability of itemized equipment and associated documentation in accordance with MCO 4400.150_, Consumer-Level Supply Policy Manual.

PERFORMANCE STEPS:
1. Receive assignment letter from Commanding Officer as Responsible Officer for CMR account.
2. Receive CMR from Supply Officer.
3. Inventory gear/materiel annotated on the CMR.
4. Compile discrepancies and submit a request for investigation/discrepancy letter, if applicable.
5. Sub-custody gear/material to responsible individual(s), if applicable.
6. Conduct quarterly reconciliation with Supply Officer; Initial, sign and date CMR.
7. Provide delegation of authority to receive/turn-in gear to Supply.
8. Maintain documentation of reconciliation and sub-custody for personal

reference.
9. Maintain records of receipt and disposal.

REFERENCES:
MCO 4400.150_ Consumer-Level Supply Policy Manual
Current GCSS-MC Procedural Notices (GPN)

1302-MANT-1002: Manage an organizational maintenance program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an engineer task organization of engineer equipment and personnel, technical manuals, appropriate maintenance reports and references.

STANDARD: To identify discrepancies and processing errors within the maintenance cycle; account for gear/materiel on CMR; track deadlined or readiness reportable.

PERFORMANCE STEPS:
1. Ensure proper manuals and forms are available.
2. Ensure required maintenance is performed and documented.
3. Review reports for discrepancies within the maintenance and supply cycle.
4. Review reports transaction for processing errors.
5. Inspect reports for compliance with references.
6. Review supply parts requisitions to identify any discrepancies.
7. Conduct reconciliation with MMO and supply.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 4700-15/1_ Ground Equipment Record Procedures
3. UM 4790-5 User’s Manual MIMMS
4. MCO 4400.150_ Consumer-Level Supply Policy Manual
5. Current GCSS-MC Procedural Notices (GPN)
6. MCBUL 3000 Marine Corps Readiness Reportable Ground Equipment

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS:
Will be required to complete the following GCSS-MC modules:
Module CS 101 - Getting Started in GCSS-MC
Module CS 102 - iSupport Requestors
Module CS 103 - Requestors (Field Service Request)
Module RPTS 101 - Reports Users (Discoverer & Standard)
Module RPTS 102 - Daily Business Intelligence
Optional:
Module AO 101 - Accountable Officers
Module RO 101 - Responsible Officers
To enroll in GCSS-MC online modules us the following link
(https://gcssmc.csd.disa.mil)

1302-MOBL-1001: Plan a military road

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, task organization of equipment and personnel, and references.

STANDARD: To meet or exceed traffic support requirements in the concept of operations.

PERFORMANCE STEPS:
1. Conduct reconnaissance of proposed road.
2. Determine number and type of vehicles that will use the road.
3. Recommend road design and requirements to commander.
4. Determine logistics requirements to support construction.
5. Prepare operations order to construct pioneer road.
6. Coordinate with supported unit.
7. Coordinate logistical support, as required.
8. Coordinate security, as required.
9. Ensure safety measures are observed.

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7H Materials Testing
3. MCRP 3-17.7I Earthmoving Operations
4. MCRP 3-17A Engineering Field Data
5. MCWP 3-17 Engineering Operations

1302-MOBL-1002: Plan dismounted route sweep operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a route to be swept, map, task organized personnel and equipment, an operations order, and references.

STANDARD: To ensure sufficient mobility is planned to support the concept of operations and the commander's intent in accordance with MCRP 3-17.2D Explosive Hazards Operations.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Determine the most likely areas to be mined, booby-trapped or have improvised explosive devices.
3. Identify common signs and markings that may be associated with the

location of mines, IEDs, and booby traps.
4. Determine type and extent of mines/obstacles/IEDs.
5. Determine task organization of personnel and equipment.
6. Determine material requirements.
7. Determine Explosive Ordnance Disposal (EOD) support.
8. Develop route sweep order.
9. Plan mission rehearsals.

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.4 Engineer Reconnaissance

1302-MOBL-1003: Plan Route and Area Clearance (RAAC) operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a route/area to be cleared, task organized personnel and clearance equipment, a map, an operation order, and references.

STANDARD: To assure mobility in support of the concept of operations in accordance with MCRP 3-17.2D Explosive Hazards Operations.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Develop a RAAC operation order.
3. Ensure employment concept is consistent with the tactical situation and scheme of maneuver.
4. Plan rehearsals and Immediate Action (IA) drills.
5. Ensure all obstacles are detected, identified and marked.
6. Plan for the reduction or bypass of obstacle.
7. Issue order.

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. GTA 5-2-5 Engineer Reconnaissance
3. MCO 3500.27_ Operational Risk Management (ORM)
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineering Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCRP 5-12A Operational Terms and Graphics
9. MCWP 3-17 Engineer Operations
10. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
11. MCWP 3-17.3 MAGTF Breaching Operations
12. MCWP 3-17.4 Engineer Reconnaissance

13. MCWP 3-17.8 Combined Arms Mobility Operations
14. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-MOBL-1004: Conduct mobility operations in an Improvised Explosive Device (IED) environment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, with Explosive Ordnance Disposal (EOD) support unavailable within mission parameters, given relevant combat engineer T/E, appropriate Class V items, and references.

STANDARD: To ensure mobility by reducing 100% of IEDs located with no injuries to personnel or equipment in accordance with MCIP 3-17.01 Combined Arms IED Defeat Operations.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Plan immediate actions for mobility operation.
3. Conduct immediate actions.
4. Conduct breaching actions.
5. Submit required reports.

REFERENCES:
1. GTA 90-01-001 Improvised Explosive Device and Vehicular Borne Improvised Explosive Device Smart Card
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance
9. MCWP 3-17.8 Combined Arms Mobility Operations
10. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17961 Combat In Cities Facility

MATERIAL: Inert Explosive Hazards.

UNITS/PERSONNEL: Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio).

1302-MOBL-1005: Plan breaching of a complex obstacle

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, task organized personnel and equipment, and references.

STANDARD: To establish a sufficient number of cleared lanes for assured mobility in accordance with the commander's intent and MCWP 3-17.3 MAGTF Breaching Operations.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Identify available bypasses.
3. Identify the type(s) of breaching operation required.
4. Identify number of lanes required.
5. Identify potential breach sites.
6. Determine number/type of explosive/nonexplosive breaching assets available.
7. Task organize engineer personnel and equipment within the breach force.
8. Determine proper sequencing of the breach force based on tactical situation.
9. Develop battle drills (individual/unit) to rehearse the breach of a complex obstacle.
10. Determine support requirements.
11. Plan, prioritize, and recommend fire support requirement.
12. Prepare appendix of the operations order.
13. Coordinate actions of support force and assault force before, during, and after, planned breaches.
14. Coordinate rehearsals with breach, support, and assault forces.

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

1302-MOBL-1006: Conduct assault breaching into buildings

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, a designated area, personnel, demolitions tools, explosives, improvised materials, and references.

STANDARD: To secure passage through the target while limiting the amount of collateral damage and ensuring that the assault force gains access.

PERFORMANCE STEPS:

1. Review the mission and reconnaissance reports.
2. Organize the breaching team.
3. Identify the location of the target.
4. Evaluate the target and surrounding areas.
5. Determine breaching method.
6. Select and construct appropriate explosives.
7. Determine possible effects of detonation on the target and surrounding structures.
8. Determine possible effects on the assault team.
9. Identify safety precautions required during detonation.
10. Compute Net Explosive Weight (NEW).
11. Determine standoff distance.
12. Brief team members on explosive effects and safe locations.
13. Position yourself and your team in a safe location during detonation.
14. Suppress enemy fire and set up security.
15. Obscure target from enemy observation.
16. Emplace the charge.
17. Detonate the charge.
18. Employ mechanical breaching as required.
19. Proof breach site.
20. Ensure adequacy of breach.
21. Pass assault force through the breach site.

REFERENCES:

1. MCRP 3-17.7L Explosives and Demolitions
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17.3 MAGTF Breaching Operations
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 3-17.8 Combined Arms Mobility Operations
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
7. NSWC DL TR-3714 Urban Building Characteristics
8. NSWC TR 79-224 Characteristics of Urban Terrain
9. SWO60-AA-MMA-010 Demolition Materials
10. SWO60-AA-MMA-020 DEMOLITION MATERIALS (Vol II)
11. TM 1003A/07172A/09081A-13P Operator and Maintenance Manual, Model 500, Mossberg 12-gauge shotgun
12. TM 1005A-303-14 SHOTGUN M1200 WINCHESTER
13. VOLUME I Guidebook for Assault Entry Techniques, Volume I
14. VOLUME II Guidebook for Assault Entry Techniques Volume II

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A011 Cartridge, 12 Gauge #00 Buckshot M16	10 rounds per Marine
A023 Cartridge, 12 Gauge 1 Ounce Slug Com	8 rounds per Marine
AA54- Cartridge, 12 Gauge, Breaching, M103	12 rounds per Marine
AX14 Primer, Percussion 12 Gauge W209	12 primers per Marine
M023 Charge, Demolition Block M112 1-1/4	10 charges per Marine
M130 Cap, Blasting Electric M6	8 blasting caps per Marine

M131 Cap, Blasting Non-Electric M7	6 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	200 FT per Marine
M670 Fuse, Blasting Time M700	24 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team
MN08 Igniter, Time Blasting Fuse with Sho	4 igniters per Marine
MN14 Firing Device, Dual Mode MK54	2 detonators per Team
MN52 MK154 Mod 0	6 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat in Cities Facility

EQUIPMENT: Assault Breacher's kit, Squad demolitions kit, Shotgun, PPE.

MATERIAL: Double sided tape, waterproof tape, duct tape, grease, prop stick, appropriate medium, B-mod target, backing material, 550 parachute cord, IV bags, electrical tape, rigger's tape, rubber conveyor belt, treble hook.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Ammunition vehicle, Communications (radio).

1302-MOBL-1007: Plan the reduction of strongpoints and structures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, a designated area, demolitions tools, explosives, improvised materials, heavy equipment, and references.

STANDARD: So that the strongpoint or structure is reduced with minimal/no damage to friendly equipment or personnel in accordance with MCWP 3-17.3 MAGTF Breaching Operations.

PERFORMANCE STEPS:
1. Review the mission and reconnaissance reports.
2. Organize demolition team.
3. Identify location of target.
4. Evaluate the target and surrounding areas.
5. Select and/or construct appropriate means of reduction.
6. Determine possible effects of reduction on target and surrounding structures.
7. Determine possible effects on the assault team and friendly forces.
8. Identify safety precautions required during reduction.
9. Brief team members on safe locations.
10. Position yourself and your team in a safe location during reduction.
11. Suppress enemy fire and setup site security.
12. Obscure target from enemy observation.
13. Mark areas for safe transit/ occupation by friendly forces.
14. Reduce strongpoint/structure.

15. Coordinate transfer of control of reduction site to follow-on/ designated force.
16. Submit required reports.

REFERENCES:
1. MCRP 3-17.7I Earthmoving Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-MOBL-1008: Operate a robot

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, suspected explosive hazards, combat engineer equipment, personal protective equipment and references.

STANDARD: To locate, confirm and mark the explosive hazard(s) per the operator's manual.

PERFORMANCE STEPS:
1. Visually assess the terrain.
2. Prepare the robot for operation.
3. Operate the robot and components.
4. Conduct robotic reconnaissance.
5. Retrieve the robot.
6. Conduct post-op preventive maintenance checks and services (PMCS).

REFERENCES:
1. Appropriate Manufacturer's Assembly Manual/Instructions
2. Appropriate Technical Manuals
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17961 Combat in Cities Facility

EQUIPMENT: PacBot 510 w/FASTAC kit, SUGV 310, SUGV 320.

UNITS/PERSONNEL: Range OIC, Range Safety Officer.

OTHER SUPPORT REQUIREMENTS: Obstacles to represent urban and rural conditions. Inert explosive hazards and mock-ups.

1302-MOBL-1009: Identify Explosive Hazards (EH)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, suspected explosive hazards, combat engineer equipment, field protective equipment and country handbooks/ORDATA II.

STANDARD: To identify category, country of origin, type of function, safeties and conditions.

PERFORMANCE STEPS:
1. Visually identify explosive hazard markers and indicators.
2. Identify components of Improvised Explosive Devices (IEDs).
3. Identify booby traps.
4. Identify thrown munitions.
5. Identify projected munitions.
6. Identify dropped munitions.
7. Identify placed munitions.
8. Record and report results.

REFERENCES:
1. Appropriate Reference Materials
2. CHB Country Handbooks
3. FM 3-34.210 Explosive Hazard Operations
4. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
5. MCRP 3-17.2D Explosive Hazard Operations
6. MCRP 3-17A Engineering Field Data
7. ORD ORDATA II (Software)
8. SWO 60-AA-MMA-010 Demolition Materials

1302-MOBL-1010: Reduce Explosive Hazards (EH)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, a positively identified explosive hazard, combat engineer equipment, Class V, personal protective equipment, commander's decision and references.

STANDARD: By calculating, placing and detonating an explosive charge that will result in the reduction of the explosive hazard and allow for assured

mobility.

PERFORMANCE STEPS:
1. Evaluate go/no go criteria per the explosive hazard decision matrix.
2. Employ protective measures.
3. Build a charge appropriate to reduce the explosive hazard.
4. Remotely place the charge.
5. Detonate the charge.
6. Conduct post-blast analysis.
7. Report results.

REFERENCES:
1. Appropriate Technical Manuals
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineering Field Data
6. MCRP 5-12.1C Risk Management - Cancelled w/o replacement
7. MCWP 3-1 Ground Combat Operations
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
10. MCWP 3-17.3 MAGTF Breaching Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 3-17.8 Combined Arms Mobility Operations
13. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	2 charges per Marine
M131 Cap, Blasting Non-Electric M7	4 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	10 FT per Marine
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	1 detonators per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad demolitions kit, robot, Pioneer kit, PPE.

MATERIAL: Electrical tape, duct tape, prop stick.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Ammunition vehicle, Communications (radio).

1302-MOBL-1011: Design a ribbon bridge/raft

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, task organization of equipment and personnel, and references.

STANDARD: To ensure design standards are met to support the concept of operations in accordance with TM 11518A-OR Improved Ribbon Bridge (IRB) Operators Manual.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct reconnaissance of ribbon bridge/raft site.
3. Determine site condition and layout.
4. Determine logistical support requirements.
5. Determine engineer estimate of supportability.
6. Determine configuration of the ribbon bridge/raft.
7. Review the ribbon bridge/raft design.
8. Coordinate suppression of enemy force overwatching the crossing area.
9. Establish safety plan.
10. Coordinate obscuration of the crossing site.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.8 Combined Arms Mobility Operations
4. TM 10020C-OI Bridge Erection Boat (MKIII) Operator's Manual
5. TM 11518A-OR Improved Ribbon Bridge (IRB) Operators Manual

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1302-MOBL-1012: Design a Medium Girder Bridge (MGB)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, military load classification requirements, and references.

STANDARD: To meet or exceed the military load classification required supporting the concept of operation's traffic in accordance with TM 5-5420-212-12 Medium Girder Bridge.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct a reconnaissance of the bridge site.
3. Determine configuration of Medium Girder Bridge (MGB) to be utilized.
4. Determine site condition and layout.
5. Develop engineer estimate of supportability.

REFERENCES:

1. MCRP 3-17A Engineering Field Data
2. TM 5-5420-212-12 Medium Girder Bridge
3. TM 5-5420-212-12-1 Link Reinforcement Set

1302-MOBL-1013: Design a non-standard bridge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, a wet or dry gap, military load requirements, and references.

STANDARD: To meet or exceed the military load classification required to support the concept of operations/traffic in accordance with MCRP 3-17.1B Military Non-Standard Bridging.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct site reconnaissance.
3. Determine bridge type.
4. Determine superstructure type.
5. Determine substructure type.
6. Determine bill of materials (BOM).
7. Coordinate support requirements.
8. Illustrate final design.
9. Submit design.

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCRP 3-17A Engineering Field Data

1302-MOBL-1014: Classify a bridge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, a bridge, and references.

STANDARD: To determine the military load classification with consideration to width and overhead clearance restrictions in accordance with MCRP 3-17.1B Military Non-Standard Bridging.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Coordinate support/security requirements with supported units.
3. Prepare bridge reconnaissance team. (Include all applicable forms and

reports).
4. Conduct bridge reconnaissance.
5. Make appropriate calculations.
6. Determine bridge classification/restrictions.
7. Submit reports.

REFERENCES:
1. GTA 05-07-013 Rapid Field Classification Booklet
2. MCRP 3-17.1B Military Non-Standard Fixed Bridging
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17.4 Engineer Reconnaissance

1302-MOBL-1015: Plan engineer aspects of a gap crossing operation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, operations order with annexes, and references.

STANDARD: To maintain maneuver force mobility in accordance with the concept of operations and MCWP 3-17.8 Combined Arms Mobility Operations.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Task organize personnel and equipment.
3. Coordinate with supported unit commander.
4. Issue orders to engineer personnel.
5. Establish tactical control measures.
6. Coordinate required logistics support.
7. Coordinate with supported unit.
8. Submit required engineer reports.
9. Coordinate with bridge force, support force, and assault force, as required.
10. Plan for follow-on actions.

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCRP 3-17A Engineering Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-1 Ground Combat Operations
5. MCWP 3-17.8 Combined Arms Mobility Operations
6. MCWP 5-1 Marine Corps Planning Process (MCPP)

1302-MOBL-1016: Plan construction of an expeditionary airfield/landing zone

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, airfield configuration (if required), aircraft type and density, and references.

STANDARD: To meet requirements of the concept of operations in accordance with MCRP 3-17.7B Design of Theater of Operations-Airfields and Helipads (Volume 2).

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct airfield/landing zone site reconnaissance.
3. Advise commander on site selection.
4. Develop construction plan.
5. Determine task organization of equipment and personnel.

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7I Earthmoving Operations
4. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual

1302-PLAN-1001: Participate in the Marine Corps Planning Process (MCPP)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, higher headquarters' order, commander's guidance and the reference, while implementing the orders process.

STANDARD: Produce plans and orders products which support the accomplishment of the mission and commander's intent and in accordance with MCWP 5-1 Marine Corps Planning Process.

PERFORMANCE STEPS:
1. Assist in problem framing.
2. Assist in the development of courses of action.
3. Assist in wargaming of courses of action.
4. Assist in comparison and recommendation of courses of action.
5. Assist in development of appropriate staff products, operations plans, orders, annexes, and appendices.
6. Assist in transition by compiling the components of an operations order for distribution to subordinate units.

REFERENCES:

1. MCWP 5-1 Marine Corps Planning Process (MCPP)
2. MSTP PAM 5-0.2 Operational Planning Team Guide
3. MSTP PAM 5-0.3 MAGTF Planner's Reference Manual

1302-PLAN-1002: Plan a base camp

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, size of the unit to occupy base camp(s), and references.

STANDARD: To meet unit requirements outlined in the concept of operations and in accordance with MCRP 3-17.7N Base Camps.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct a site reconnaissance.
3. Determine site requirements.
4. Determine camp layout.
5. Select a temporary facility, if available.
6. Determine logistical support requirements.
7. Determine bill of materials (BOM).
8. Determine utility requirements.
9. Determine drainage requirements.
10. Develop obstacle/barrier plan, as required.
11. Establish a survivability plan, as required.
12. Determine task organization of personnel and equipment.
13. Illustrate final design/design blueprints.
14. Coordinate with supported commander, as required.
15. Coordinate logistical support, as required.
16. Incorporate safety measures to be taken at the construction site(s).
17. Coordinate security measures as required.
18. Establish a waste disposal plan, as required.
19. Establish an ammunition storage/ distribution, transportation plan, as required.
20. Establish a bulk liquid storage plan.
21. Establish a facility/ site maintenance and repair plan.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7F Project Management
6. MCRP 3-17.7I Earthmoving Operations
7. MCRP 3-17.7K Theater of Operations Electrical Systems
8. MCRP 3-17.7M Construction Estimating

9. MCRP 3-17.7N Base Camps
10. MCRP 3-17A Engineer Field Data
11. MCWP 3-17 Engineering Operations
12. MCWP 3-17.4 Engineer Reconnaissance
13. MCWP 3-17.5 Combined Arms Obstacle Integration
14. MCWP 3-17.6 Survivability
15. MCWP 3-17.7 General Engineering
16. MCWP 3-43 Command and Control
17. MCWP 4-11.6 Petroleum and Water Logistics Operations
18. NAVMED P-5010-9 Manual of Naval Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Utility Officer (1120) or Utilities Chief (1169), Engineer Equipment Officer (1310) or Engineer Equipment Chief (1369), Bulk Fuel Officer (1390) or Bulk Fuel Chief (1391) will assist.

1302-RECN-1001: Conduct engineer reconnaissance operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, maps, an operations order, and references.

STANDARD: To ensure the completed reconnaissance mission meets requirements of the operations order in accordance with MCWP 3-17.4 Engineer Reconnaissance.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Plan engineer reconnaissance operations.
3. Determine reconnaissance requirements.
4. Issue the warning order.
5. Task organize personnel and equipment.
6. Coordinate security, fire support, and logistical support as required.
7. Issue the order.
8. Conduct rehearsals.
9. Inspect reconnaissance team.
10. Execute reconnaissance mission.
11. Submit reports.

REFERENCES:
1. GTA 05-02-012 Coordinated Scale and Protractor
2. GTA 05-07-013 Rapid Field Classification Booklet
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineering Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCRP 5-12A Operational Terms and Graphics

7. MCWP 3-17 Engineering Operations
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

1302-SURV-1001: Design survivability positions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a force protection requirement and references.

STANDARD: To counteract the known effects of enemy direct and indirect fire weapons in accordance with MCWP 3-17.6 Survivability.

PERFORMANCE STEPS:
1. Submit Requests for Information (RFI) to S/G-2.
2. Determine types of positions required.
3. Design positions.
4. Determine material requirements.
5. Determine personnel required for construction.
6. Determine equipment required.
7. Calculate the time required for construction.
8. Submit designs/work estimates.

REFERENCES:
1. GTA 05-08-001 Survivability Positions
2. GTA 07-06-001 Fighting Position Construction Infantry Leader's Reference Card
3. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
4. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
5. MCRP 3-17A Engineering Field Data
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.6 Survivability

1302-SURV-1002: Plan construction of blast mitigation measures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, and references.

STANDARD: To reduce damage to occupied structures while meeting unit

requirements outlined in the concept of operations in accordance with MCWP 3-17.6 Survivability.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Assess the level of protection from varying threats to force protection.
3. Estimate the specific effects on a structure with regard to enemy attack.
4. Recommend appropriate usage of structures depending on construction type and estimated threat.
5. Recommend protective measures to harden against blast effects.
6. Determine the required standoff to mitigate the effects of estimated threats.
7. Apply/recommend the elements of force protection to a proposed site.
8. Coordinate as required with supported commander.
9. Coordinate logistical support, as required.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-17 Engineering Operations
5. MCWP 3-17.5 Combined Arms Obstacle Integration
6. MCWP 3-17.6 Survivability
7. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-SURV-1003: Prepare a survivability plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, unit's survivability requirements, and references.

STANDARD: To utilize engineer assets consistent with the enemy threat identified the concept of operations and in accordance with MCWP 3-17.6 Survivability.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Identify location of survivability positions.
3. Coordinate with supported unit for coordinating instructions, security, and logistical support.
4. Identify and prioritize survivability requirements.
5. Plan for protective obstacle integration.
6. Task organize engineer equipment and personnel.
7. Plan inspections of survivability positions.
8. Prepare survivability appendix to operations order.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook

2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-1 Ground Combat Operations
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.5 Combined Arms Obstacle Integration
7. MCWP 3-17.6 Survivability
8. MCWP 5-1 Marine Corps Planning Process (MCPP)

1302-SURV-1004: Plan construction of an entry access control point as a part of a protective barrier plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, and references.

STANDARD: To regulate traffic and enhance survivability to a degree that meets the unit requirements outlined in the concept of operations and in accordance with MCWP 3-17.6 Survivability.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct a site reconnaissance.
3. Determine expected levels of damage to existing structures from enemy bomb blasts.
4. Develop obstacle/barrier plan (as required).
5. Design entry point (provide vehicle holding areas, personnel holding areas, active vehicle barriers, electric lighting, and over-watch fighting positions).
6. Develop Bill of Materials (BOM).
7. Determine task organization of personnel and equipment.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17.5 Combined Arms Obstacle Integration
5. MCWP 3-17.6 Survivability
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-SURV-1005: Plan building hardening

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, an occupied building and references.

STANDARD: To meet unit requirements outlined in the concept of operations in accordance with MCWP 3-17.6 Survivability.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Recommend appropriate structures for survivability positions (according to construction type, threat weapons, and available materials/time).
3. Estimate specific effects on a structure of enemy direct and indirect fire weapons.
4. Plan protective measures to harden buildings against weapon effects.
5. Plan for additional structural support (allow for additional load of protective materials to prevent progressive collapse of an existing structure).
6. Plan fighting positions within an existing structure (allow for employment of infantry weapons from within an enclosed space).
7. Plan above ground fighting positions and shelters.
8. Integrate supporting agencies into fire prevention and firefighting plan.
9. Plan coordination of survivability/ countermobility plan with supported unit.
10. Develop a countermobility plan that supports the commander's intent (disrupt, fix, turn, block).
11. Correct deficiencies.
12. Plan modification of positions/obstacles to provide better support to supported units as required.

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCWP 3-17.6 Survivability
4. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-VERT-1001: Plan a vertical construction project

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, construction standards, task organized personnel and equipment, and references.

STANDARD: To meet requirements outlined in the concept of operations and the construction standards in accordance with MCRP 3-17.7C Carpentry.

PERFORMANCE STEPS:
1. Conduct problem framing.
2. Conduct site reconnaissance.
3. Determine soil stabilization requirements.
4. Determine drainage requirements.

5. Develop bill of materials (BOM).
6. Determine logistical requirements.
7. Establish a safety plan.
8. Establish quality control program.
9. Coordinate as required with supported commander.
10. Illustrate final design/design blueprints.
11. Coordinate logistical support, as required.
12. Coordinate security measures, as required.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7M Construction Estimating
5. ModCarp 2008 Modern Carpentry, 11th Edition Wagner/Smith
6. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

SUPPORT REQUIREMENTS:

MATERIAL: Blueprints/drawings/specifications, map, calculation worksheets, calculator, engineer forms and reports.

13003. 2000-LEVEL EVENTS

1302-ADMN-2001: Produce an engineer estimate

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Company Commander and Staff Officer

GRADES: Capt, Maj, LtCol

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a supported unit’s higher headquarters CONOPS, IPB products, organic engineer forces as part of the supported unit’s Operational Planning Team (OPT) during MCPP.

STANDARD: That identifies critical engineer tasks, task organization, and command/support relationships.

PERFORMANCE STEPS:
1. Prepare engineer planning tools for participation in supported unit (OPT).
2. Analyze available IPB products from supported unit intelligence section.
3. Analyze supported commander’s estimate of the situations (METT-T).
4. Analyze higher headquarters CONOPS.
5. Conduct Engineer Battlespace Assessment (EBA).
6. Identify supported unit functional engineer requirements.
7. Identify available critical engineer resources (materiel, supplies, MOS personnel) for engineer Mission Essential Tasks.
8. Compare engineer assets against requirements.

9. Identify supported unit priorities of engineer effort.
10. Use standard planning factors and or known unit work rates to quantify total engineer unit capability available for each task.
11. Analyze logistics requirements across supported engineer missions.
12. Identify engineer capabilities short falls.
13. Allocate engineer forces to meet supported unit engineer functional requirements.
14. Identify critical engineer tasks (purpose/method/end state) for each phase of supported unit's concept of operations.
15. Coordinate critical engineer tasks integration with supported unit plan.
16. Develop engineer concept of operations that supports the supported unit's (SOM).
17. Task organize engineer forces.
18. Assign tasks.
19. Recommend command and support relationships.
20. Produce initial engineer staff estimate products.
21. Maintain running engineer staff estimate.

REFERENCES:

1. JP 3-15 Barriers, Obstacles, and Mine Warfare for Joint Operations
2. JP 3-34 Joint Engineer Operations
3. MCDP 1 Warfighting
4. MCDP 3 Expeditionary Operations
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.7 General Engineering
8. MCWP 3-17.8 Combined Arms Mobility Operations
9. MCWP 3-40.1 MAGTF Command and Control
10. MCWP 4-11 Tactical-Level Logistics
11. MCWP 4-12 Operational-Level Logistics
12. MCWP 5-1 Marine Corps Planning Process (MCPP)
13. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
14. MCRP 3-17B Engineer Forms and Reports
15. MCWP 3-17.7 General Engineering
16. MCRP 3-17.7F Project Management
17. MCRP 5-12A Operational Terms and Graphics
18. MCO P4790.2_ MIMMS Field Procedures Manual
19. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES)
20. FM 3-34.22 Engineer Operations - Brigade Combat Team and Below
21. FM 5-34 Engineer Field Data
22. FM 34-130 Intelligence Preparation of the Battlefield
23. ATTP 3-34.23 Engineer Operations–Echelons above Brigade Combat Team
24. TM 4700-15/1H Ground Equipment Records Procedures Manual
25. UM 4400-15 Marine Corps User Manual (Organic Property Control)

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Billet Assignment: Engineer Company Commander and Staff Officer functions.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Some performance steps are conducted concurrently.

1302-ADMN-2002: Manage supported unit engineer requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Battalion Commander, Company Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a MAGTF, given multiple supported unit engineer requirements, an engineer running estimate, command and control systems, supported unit commander's intent, concept of operations, and priorities of engineer effort.

STANDARD: So that engineer planning, coordination, and asset allocation, meets the supported commander's intent and concept of operations.

PERFORMANCE STEPS:
1. Design the supported units engineer requirements process.
2. Implement the supported units engineer requirements process.
3. Forecast requirements for future engineer missions.
4. Identify supported unit engineer requirements per the process.
5. Validate supported unit engineer requirements per the process.
6. Resource supported unit engineer requirements per the process.
7. Manage status of critical engineer assets and materials.

REFERENCES:
1. JP 3-34 Joint Engineer Operations
2. MCWP 3-17 Engineer Operations
3. MCWP 3-17.4 Engineer Reconnaissance
4. MCWP 3-17.5 Combined Arms Obstacle Integration
5. MCWP 3-17.7 General Engineering
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 4-1 Logistics Operations
8. MCWP 4-11 Tactical-Level Logistics
9. MCWP 4-11.3 Transportation Operations
10. MCWP 4-11.5 Seabee Operations in the MAGTF
11. MCWP 4-12 Operational Level Logistics
12. MCWP 5-1 Marine Corps Planning Process (MCPP)
13. MCRP 3-17B Engineer Forms and Reports
14. MCWP 3-17.7 General Engineering
15. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
16. MCRP 3-17.7F Project Management
17. MCRP 3-17.7M Construction Estimating
18. MCRP 3-17.7N Base Camps
19. MCRP 4-11E Contingency Contracting
20. MCRP 4-11.3F Convoy Operations Handbook
21. MCIP 3-17.02 MAGTF Counter-Improvised Explosive Device (C-IED) Operations
22. MCO 3000.13_ Marine Corps Readiness Reporting Standard Operating Procedures (SOP)
23. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual

24. MCO 3502.6 Marine Corps Force Generation Process
25. MCO P4790.2_ MIMMS Field Procedures Manual
26. MCO P4400.150_ Consumer Level Supply Policy Manual
27. FM 3-34 Engineer Operations
28. FM 3-34.22 Engineer Operations - Brigade Combat Team And Below
29. FM 5-34 Engineer Field Data
30. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
31. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations - Airfield and Heliport design
32. ATTP 3-34.23 Engineer Operations–Echelons above Brigade Combat Team
33. TM 4700-15/1H Ground Equipment Records Procedures Manual
34. UM 4400-15 Marine Corps User Manual (Organic Property Control)
35. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
36. JFOB Joint Forward Operations Base (Force Protection), Current Edition
37. Regulation Number 415-1 Construction and Base Camp Development in the USCENTCOM Area of Responsibility - "The Sand Book"
38. Regulation Number 415-1 Red Book – AEAEN Mar 31, 2004
39. MSTP Pamphlet 1-0.1

1302-ADMN-2003: Plan the integration of other service component engineer capabilities

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Company Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a higher commander's order, intent, and concept of operation, operating in a joint/coalition/interagency environment and facing functional engineer capability shortfalls.

STANDARD: To ensure that the engineer effort meets or exceeds the commander's intent and concept of operations.

PERFORMANCE STEPS:
1. Identify MAGTF functional engineer shortfalls.
2. Identify other service engineer capabilities.
3. Recommend a sourcing solution.
4. Recommend command and support relationships.
5. Arrange sustainment of other service engineers.
6. Arrange integration of other service engineers into plans and rehearsals.

REFERENCES:
1. 10 U.S.C. Title 10 U.S. Code
2. DoD Directive 5100.1 Functions of the Department of Defense and its Major Components
3. JP 3-34 Joint Engineer Operations
4. MCDP 3 Expeditionary Operations
5. MCDP 6 Command and Control

6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.7 General Engineering
8. MCWP 3-40.1 MAGTF Command and Control
9. MCWP 3-40.2 Information Management
10. MCWP 3-40.8 Marine Corps Componency
11. MCWP 4-11 Tactical-Level Logistics
12. MCWP 4-11.5 Seabee Operations in the MAGTF
13. MCWP 4-12 Operational-Level Logistics
14. MCWP 5-1 Marine Corps Planning Process (MCPP)
15. MCRP 3-17.7F Project Management
16. MCO 3000.13_ Marine Corps Readiness Reporting Standard Operating Procedures (SOP)
17. MCO 3000.18_ Marine Corps Force Deployment Planning and Execution (FDP&E) Manual
18. MCO 3500.26_ Universal Naval Task List (UNTL) Version 3.0
19. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
20. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
21. UM 4400-15 Marine Corps User Manual (Organic Property Control)
22. FM 3-34.22 Engineer Operations - Brigade Combat Team And Below
23. FM 5-34 Engineering Field Data
24. ATTP 3-34.23 Engineer Operations–Echelons above Brigade Combat Team
25. NAVFAC P-405 Seabee Planner's and Estimator's Handbook
26. JFOB Joint Forward Operations Base (Force Protection), Current Edition
27. Regulation Number 415-1 Construction and Base Camp Development in the USCENTCOM Area of Responsibility - "The Sand Book"
28. Regulation Number 415-1 Red Book – AEAEN Mar 31, 2004

1302-ADMN-2004: Integrate contracted support into engineer operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Company Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an engineer Statement of Work (SOW) that requires contracted support.

STANDARD: To ensure the contract supports meets or exceeds the expectations of the Commander's intent in accordance with the concept of operations.

PERFORMANCE STEPS:
1. Review Statement of Work (SOW).
2. Determine capability shortfalls and time constraints.
3. Identify contractor capabilities.
4. Submit contract support request through chain of command.
5. Establish process for tracking and reporting receipt of contracted support (services/materials).
6. Provide input to the contracting process.
7. Develop contingency plans if contractors are not able to complete the

task.
8. Supervise the construction execution.
9. Verify the construction is completed in accordance with contract.

REFERENCES:
1. JP 3-34 Joint Engineer Operations
2. JP 4-10 Operational Contract Support
3. MCWP 3-17.4 Engineer Reconnaissance
4. MCRP 3-17.7M Construction Estimating
5. MCRP 4-11E Contingency Contracting
6. FM 3-100.21 Contractors on the Battlefield
7. FM 5-412 Project Management
8. ATTP 4-10 Operational Contract Support Tactics, Techniques, and Procedures
9. MAAWS-A (Money as a Weapons System-Afghanistan)
10. TCMS (Automated) Theater Construction Management System

1302-ADMN-2005: Assess an engineer unit's operational readiness

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Battalion Commander, Company Commander

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given reporting requirements, the Training and Readiness Manual, unit standing operating procedures, Unit Training Management tools, higher assigned training requirements, unit commanders training guidance, unit training plan, higher headquarters' TEEP and TO&E.

STANDARD: To identify deficiencies, required resources, and providing plans to ensure unit is mission capable.

PERFORMANCE STEPS:
1. Coordinate with subordinate unit leaders to capture data for assessment.
2. Analyze personnel readiness and determine P-Level.
3. Analyze organic Principal End Item (PEI) equipment and determine S-Level (Supply).
4. Analyze organic Principal End Item (PEI) equipment and determine R-Level (equipment readiness).
5. Analyze unit proficiency against Mission Essential Tasks (METs) and determine T-Level (personnel trained).
6. Analyze CBRN capabilities and determine CBRN Overall Level.
7. Analyze the unit’s ability to conduct its Core Mission and determine C-Level.
8. Analyze the unit’s ability to conduct its Assigned Mission and determine Assigned Mission Level, as required.
9. Record data and input mandatory remarks into the Defense Readiness Reporting System (DRRS), as required.
10. Submit DRRS report to higher headquarters, as required.

REFERENCES:
1. MCO 1553.3A Unit Training Management (UTM)
2. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
3. MCO 3000.13_ Marine Corps Readiness Reporting Standard Operating Procedures (SOP)
4. MCO 3502.6 Marine Corps Force Generation Process
5. MCO 4105.2_ Marine Corps Warranty Program
6. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
7. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
8. MCO P3500.72A Marine Corps Ground Training and Readiness (T&R) Program
9. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
10. MCO P4790.2_ MIMMS Field Procedures Manual
11. MCO P4400.150_ Consumer Level Supply Policy Manual
12. MCO P4400.16_ Field Supply and Maintenance Analysis Office Program (FSMAO)
13. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
14. UM 4400-124 SASSY Using Unit Procedures
15. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
16. TM 4700-15/1_ Ground Equipment Record Procedures
17. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
18. Systems Approach to Training (SAT) Manual
19. Marine Corps Equipment Readiness Information Tool (MERIT)
20. Table of Organization (T/O) (TFSMS)
21. Table of Equipment (T/E) (TFSMS)
22. MDSS II (MAGTF Deployment Support System II)
23. CMR Consolidated Memorandum Receipt

1302-PLAN-2006: Support the Marine Corps Force Development System (MCFDS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Company Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement, while representing engineer operating forces.

STANDARD: To aid in the implementation of solutions and enhance the engineer capabilities across the MAGTF.

PERFORMANCE STEPS:
1. Have general knowledge of the Marine Corps Force Development System (MCFDS).
2. Provide input into the capabilities analysis phase, as required.
3. Provide input into the solutions analysis phase, as required.
4. Provide input into the program development phase, as required.

5. Provide input into the capabilities implementation and transition phase, as required.

REFERENCES:
1. SECNAVINST 5000.2_Implementation and Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System
2. CJCSI 3170.01_ Joint Capabilities Integration and Development System (JCIDS)
3. MCO 3900.15_ Marine Corps Expeditionary Force Development System (EFDS)
4. MCO 3900.17_ The Marine Corps Urgent Needs Process (UNP) and the Urgent Universal Need Statement (Urgent UNS)
5. USMC EOD Road Map 2025

1302-DEMO-2001: Plan demolition operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Company Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical scenario, an operation order from higher headquarters, multiple demolition tasks, problem framing products, a Class V allocation, and the references.

STANDARD: Develop a concept of operations that supports the demolition tasks and commander's intent.

PERFORMANCE STEPS:
1. Direct demo reconnaissance (as required).
2. Direct target analysis.
3. Prioritize targets based on commander's intent.
4. Develop a concept of operations.
5. Develop demolition plans for multiple sites.
6. Synchronize demolition order (control/ timing) with supported unit's concept of operation.
7. Conduct confirmation brief (as required).
8. Submit engineer reports (as required).

REFERENCES:
1. JP 3-34 Joint Engineer Operations
2. MCWP 3-17 Engineer Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-40.1 MAGTF Command and Control
5. MCWP 5-1 Marine Corps Planning Process (MCPP)
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17.2D Explosive Hazard Operations
8. MCRP 3-17.7L Explosives and Demolitions
9. MCO 3570.1B Range Safety (Jun 03)
10. FM 3-34.22 Engineer Operations - Brigade Combat Team And Below
11. DA PAM 385-63 Department of the Army Range Safety

12. AR 385-63/ DA PAM 385-63 / MCO 3570.1B Range Safety

1302-DEMO-2002: Plan the integration of Explosive Ordnance Disposal (EOD) capabilities

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Company Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a higher commander's order, intent, concept of operation, and an engineer estimate.

STANDARD: So that the engineer effort meets the MAGTF commander’s intent and concept of operations.

PERFORMANCE STEPS:
1. Identify required Explosive Ordnance Disposal capabilities.
2. Recommend task organization.
3. Integrate EOD's Concept of Operation.
4. Establish procedures to monitor EOD tasks, assets, and resources. (as required)

REFERENCES:
1. JP 3-34 Joint Engineer Operations
2. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
3. MCWP 3.21.1 Aviation Ground Support
4. MCWP 3-40.1 MAGTF Command and Control
5. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
6. MCO 3571.2_ Explosive Ordnance Disposal (EOD) Program
7. FM 3-34.22 Engineer Operations - Brigade Combat Team And Below

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1302-MOBL-2001: Plan engineer Aviation Ground Support (AGS) operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Company Commander, Squadron Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operation order, commander’s intent, TFSMS Mission Statement for MWSS, completed problem framing.

STANDARD: To facilitate air base and Forward Arming and Refueling Points (FARPs) operations, enabling the Air Combat Element (ACE) to conduct expeditionary operations.

PERFORMANCE STEPS:
1. Plan engineer support requirements for airfield operations.
2. Plan essential engineer services for airfield operations.
3. Coordinate Airbase Ground Defense (ABGD) requirements.
4. Coordinate Base Recovery After Attack (BRAAT) engineer requirements.
5. Plan for Airfield Damage Repair (ADR), as required.
6. Generate engineer AGS concept of operations for airfield operations.
7. Advise commander on most efficient use of engineer assets.
8. Coordinate with adjacent units to ensure essential engineer assets.

REFERENCES:
1. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
2. MCWP 3-17.4 Engineer Reconnaissance
3. MCWP 3.21.1 Aviation Ground Support
4. MCWP 5-1 Marine Corps Planning Process (MCPP)
5. MCRP 4-11.3E Multi-service Helicopter Sling Load: Vols I, II and III
6. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
7. FM 3-34.22 Engineer Operations - Brigade Combat Team And Below
8. FM 5-430-00-1 Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
9. FM 5-430-00-2 Volume 2 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations - Airfield and Heliport design
10. UFC 3-270-07 Airfield Damage Repair

1302-MOBL-2002: Determine design criteria for contingency construction operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Engineer Company/Squadron Commander and Staff Officer

GRADES: Capt, Maj, LtCol

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission, commander’s intent, Table of Organization and Table of Equipment, references, and terrain analysis.

STANDARD: In accordance with theater construction standards.

PERFORMANCE STEPS:
1. Identify the phase of construction (initial, temporary, or semi-permanent).
2. Research theater construction standard references. (Red/Blue/Sand books, Unified Facilities Criteria (UFC) and the current International Building Codes (IBC))
3. Review base camp planning considerations, as required.
4. Research Theater Construction Management System (TCMS) website to identify applicable or similar designs for project.
5. Modify design/plans, as required.
6. Determine aggregate requirements, as required.
7. Determine concrete requirements, as required.
8. Determine vertical/horizontal wood beam support requirements, as required.

9. Determine vertical/horizontal steel I-beam support requirement, as required.
10. Determine structural support connection requirements (i.e. bolts, brackets), as required.
11. Verify construction standards are in accordance with theatre standards (Red/Blue/Sand books, Unified Facilities Criteria (UFC) and the current International Building Codes (IBC)).
12. Utilize reach back capability such as SEABEES or United States Army Corps of Engineers (USACE), as required.
13. Submit design for approval as directed by chain of command.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7M Construction Estimating
4. MCRP 3-17.7N Base Camps
5. UFC 1-201-01 Unified Facilities Criteria (UFC) General Building Requirements
6. UFC 3-301-01 Structural Engineering
7. UFC 3-501-01 Electrical Engineering
8. 2013 International Building Code

1302-RECN-2001: Provide engineer inputs to the intelligence cycle

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Company Commander, Staff Officer

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, engineer reconnaissance data, reports, and references.

STANDARD: So that engineer equities are integrated.

PERFORMANCE STEPS:
1. Receive task/mission.
2. Identify engineer intelligence requirements to support the mission.
3. Identify engineer reconnaissance capabilities available to conduct collection.
4. Recommend engineer related Named Area of Interest (NAI)/Target Area of Interest (TAI).
5. Request Intelligence/Surveillance/Reconnaissance (ISR) support.
6. Conduct engineer reconnaissance, as required.
7. Integrate data from engineer forms and reports into intelligence products.
8. Update the Common Operational Picture (COP).
9. Disseminate engineer information.
10. Obtain feedback on the utilization of engineer information.

REFERENCES:

1. JP 2-01.3 Joint Tactics, Techniques, and Procedures for Joint Intelligence Preparation of the Battlespace
2. JP 3-34 Joint Engineer Operations
3. MCWP 2-1 Intelligence Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3.21.1 Aviation Ground Support
7. MCWP 3-40.1 MAGTF Command and Control
8. MCWP 3-40.2 Information Management
9. MCWP 5-1 Marine Corps Planning Process (MCPP)
10. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
11. FM 3-34.22 Engineer Operations - Brigade Combat Team And Below
12. FM 3-90 Tactics
13. FM 5-0 Army Planning and Orders Production
14. FM 34-130 Joint Pub Intelligence Preparation of the Battlefield
15. ATTP 3-34.23 Engineer Operations–Echelons above Brigade Combat Team
16. MSTP Pamphlet 3-0.2 MAGTF SWO Guide

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Billet Assignment: Engineer Company Commander and Staff Officer functions

CHAPTER 14

MOS 1310 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	14000	14-2
EVENT CODING	14001	14-2
INDEX OF INDIVIDUAL EVENTS	14002	14-2
2000-LEVEL EVENTS	14003	14-3

CHAPTER 14

MOS 1310 INDIVIDUAL EVENTS

14000. PURPOSE. This chapter details the individual events that pertain to Engineer Equipment Officer. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

14001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1310	Engineer Equipment Officer

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction
MANT	Maintenance

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
2000	Core Plus Skills

14002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
2000-LEVEL EVENTS		
1310-ADMN-2001	Manage publications program	14-3
1310-ADMN-2002	Manage engineer equipment records and forms	14-4
1310-ADMN-2003	Manage support and test equipment program	14-4
1310-ADMN-2004	Manage maintenance-related programs	14-5
1310-ADMN-2005	Manage engineer equipment section supply support program	14-6

1310-ADMN-2006	Manage engineer equipment licensing program	14-6
1310-ADMN-2007	Manage load test of engineer equipment	14-7
1310-ADMN-2008	Manage corrosion prevention and control program	14-8
1310-ADMN-2009	Manage engineer equipment MOS training program	14-8
1310-ADMN-2010	Conduct an operational risk assessment (ORA)	14-9
1310-HEOP-2001	Manage engineer equipment operations	14-10
1310-HORZ-2001	Manage horizontal construction	14-10
1310-HORZ-2002	Manage horizontal construction project production and logistical requirements	14-11
1310-HORZ-2003	Validate project/operation schedule	14-12
1310-MANT-2001	Manage engineer equipment maintenance shop operations	14-12
1310-MANT-2002	Manage engineer equipment availability	14-13

14003. 2000-LEVEL EVENTS

1310-ADMN-2001: Manage publications program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With unit's Publications Listing (PL) and Table of Organization and Equipment (T/O&E), access to publications websites and management systems, and references.

STANDARD: Ensuring required publications are available to maintain the section's operational capabilities and readiness.

PERFORMANCE STEPS:
1. Review the references.
2. Identify publication requirements based on mission and T/O&E.
3. Audit section's Individual Distribution Listing (IDL).
4. Validate on-hand publications inventory.
5. Inspect section's library for missing or outdated publications.
6. Verify that published changes are made to publications.
7. Evaluate control procedures.
8. Evaluate NAVMC 10772 procedures.
9. Correct deficiencies.

REFERENCES:
1. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes

2. MCO 5215.1_ Marine Corps Directives Management Program
3. MCO 5600.20_ Marine Corps Doctrinal Publications System
4. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
5. MCO P4400.82_ Regulated/Controlled Item Management Manual
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. MCO P5215.17_ The Marine Corps Technical Publications System
8. NAVMC 2761 Catalog of Publications
9. PLMS V3 UG Publication Library Management System Version 3 Users Guide
10. SECNAV M-5210.2_ Department of the Navy Standard Subject Identification Code (SSIC) Manual
11. UNIT SOP Unit's Standing Operating Procedures

1310-ADMN-2002: Manage engineer equipment records and forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided items of engineer equipment, appropriate records/forms, and references.

STANDARD: To support mission requirements.

PERFORMANCE STEPS:
1. Review the references.
2. Identify requirements for engineer equipment records/forms.
3. Ensure records for each item of engineer equipment are established as required.
4. Manage records and forms.
5. Manage Product Quality Deficiency Report (PQDR) program.

REFERENCES:
1. MCO 4105.2_ Marine Corps Warranty Program
2. MCO 4790.19 Depot Maintenance Policy
3. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UM 4790-5 Users Manual MIMMS

1310-ADMN-2003: Manage support and test equipment program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided support and test equipment and references.

STANDARD: To support mission requirements in accordance with MCO P4790.2_.

PERFORMANCE STEPS:
1. Review references.
2. Review support and test equipment assets and requirements.
3. Supervise support and test equipment inventory and control.

REFERENCES:
1. MCO P4400.150_ Consumer Level Supply Policy Manual
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures

1310-ADMN-2004: Manage maintenance-related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance resources, local maintenance directives, and the references.

STANDARD: To support mission requirements in accordance with MCO P4790.2_.

PERFORMANCE STEPS:
1. Review the references.
2. Provide input to the Maintenance Management SOP (MMSOP).
3. Validate modification control program.
4. Validate calibration control program.
5. Validate quality control program.
6. Monitor Corrective Maintenance (CM program.
7. Monitor Preventive Maintenance (PM) program.
8. Plan the use of maintenance resources.
9. Organize the use of maintenance resources.
10. Coordinate the use of maintenance resources.
11. Conduct internal inspections.

REFERENCES:
1. DLA Customer Assistance Handbook
2. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)

3. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
4. MCO P4400.150_ Consumer Level Supply Policy Manual
5. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
8. TM 4700-15/1_ Ground Equipment Record Procedures

1310-ADMN-2005: Manage engineer equipment section supply support program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance-related reports, appropriate equipment-related publications, and references.

STANDARD: To support unit mission in accordance with MCO P4400.150.

PERFORMANCE STEPS:
1. Review the references.
2. Review supply support request.
3. Submit input for budget requirements.
4. Monitor allocated funding.
5. Monitor pre-expended bin (PEB).
6. Monitor layette procedures.
7. Submit input for supply requirements.
8. Monitor validation/reconciliation procedures.

REFERENCES:
1. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
2. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
3. MCO P4400.150_ Consumer Level Supply Policy Manual
4. MCO P4400.82_ Regulated/Controlled Item Management Manual
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. MCO P7100.8_ Field Budget Guidance Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UM 4400-124 SASSY Using Unit Procedures
9. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1310-ADMN-2006: Manage engineer equipment licensing program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, equipment, documentation, licensing records, and references.

STANDARD: Ensuring equipment operators are licensed in accordance with TM 11275-15/4.

PERFORMANCE STEPS:
1. Review the references.
2. Determine operator licensing requirements.
3. Review equipment training and testing programs.
4. Review and approve/reject licensing applications (and renewals).
5. Review and approve completed OF 346.
6. Ensure any licensing action (issue/renewal/revocation) is documented and recorded.

REFERENCES:
1. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
2. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
4. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UNIT SOP Unit's Standing Operating Procedures
7. Unit T/O&E Unit's Table of Organization and Equipment

1310-ADMN-2007: Manage load test of engineer equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided appropriate load lifting equipment with current annual condition inspection (ACI), maintenance resources, and references.

STANDARD: To ensure load testing is conducted, certified, documented and maintained on a scheduled basis.

PERFORMANCE STEPS:
1. Review the references.

2. Identify load testing requirements.
3. Verify that a current (ACI) has been conducted.
4. Conduct a load test.
5. Document load test results.
6. Review documentation.
7. Certify documentation.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures

1310-ADMN-2008: Manage corrosion prevention and control program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an equipment section, required safety materials, appropriate tools, and the references.

STANDARD: To maintain equipment in an operational status.

PERFORMANCE STEPS:
1. Identify corrosion prevention and control requirements.
2. Establish corrosion prevention and control procedures.
3. Manage corrosion prevention and control procedures.

REFERENCES:
1. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
2. TM 3080-12 Corrosion Control for Marine Corps Ground Equipment
3. TM 3080-50 Corrosion Control Procedures

1310-ADMN-2009: Manage engineer equipment MOS training program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: With training resources, records and references.

STANDARD: Identifying engineer training requirements in accordance with unit SOP.

PERFORMANCE STEPS:
1. Review the references.
2. Review the annual training plan.
3. Review the section training plan.
4. Identify supervisor's responsibilities.
5. Monitor personnel conducting training.
6. Ensure training is documented correctly.

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO 1553.3_ Unit Training Management (UTM) Program
3. MCO 3500.27_ Operational Risk Management (ORM)
4. MCO P3500.72_ Marine Corps Ground Training and Readiness (T&R) Program
5. MCRP 3-0A Unit Training Management Guide
6. MCRP 3-0B How to Conduct Training
7. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
8. SOP Unit/Local Standard Operating Procedures
9. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual

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1310-ADMN-2010: Conduct an operational risk assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: Given the inherent dangers involved working around engineer equipment, effort must be made to ensure risks are reduced or eliminated by implementing controls.

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a task/mission, a Risk Management Worksheet, and references.

STANDARD: So that task/mission effectiveness is increased while loss of personnel and material is minimized through the use of risk management controls.

PERFORMANCE STEPS:
1. Review the task/mission.
2. Review the references.
3. Identify the hazards.

4. Assess hazards to identify severity and probability.
5. Develop controls.
6. Make risk decisions.
7. Implement controls.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCO 5100.29_ Marine Corps Safety Program
3. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
4. MCRP 5-12.1C Risk Management - Cancelled w/o replacement

1310-HEOP-2001: Manage engineer equipment operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, available resources, mission statement, and references.

STANDARD: To support mission statement and requirements.

PERFORMANCE STEPS:
1. Review the mission.
2. Identify engineer equipment assets required.
3. Conduct engineer equipment operations.
4. Manage Material Handling Equipment (MHE) employment.
5. Manage earth moving equipment employment.
6. Manage general support engineer equipment employment.
7. Manage equipment recovery operations, as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCRP 3-17.7I Earthmoving Operations
4. MCRP 3-17A Engineering Field Data
5. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

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1310-HORZ-2001: Manage horizontal construction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction project, a construction site, engineer equipment, resources, and references.

STANDARD: To meet milestones per the project specifications.

PERFORMANCE STEPS:
1. Create a construction plan.
2. Implement the construction plan.
3. Manage personnel.
4. Manage equipment employment.
5. Consolidate available resources.
6. Conduct quality assurance.

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7I Earthmoving Operations
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

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1310-HORZ-2002: Manage horizontal construction project production and logistical requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, resources, and references.

STANDARD: To develop project estimates in support of mission requirements.

PERFORMANCE STEPS:
1. Conduct site reconnaissance.
2. Identify construction requirements.
3. Identify logistical requirements.
4. Identify environmental controls and natural resources considerations.
5. Formulate a resource logistical estimation.
6. Formulate a resource production estimate.

REFERENCES:
1. Appropriate Technical Manuals

2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7G Military Soils Engineering
6. MCRP 3-17.7I Earthmoving Operations
7. MCRP 3-17A Engineering Field Data
8. MCRP 4-11.8A Marine Corps Field Feeding Program
9. MCRP 4-11A, Vol 1 CSS Field Reference Guide
10. MCWP 3-17 Engineering Operations
11. MCWP 5-1 Marine Corps Planning Process (MCPP)
12. TM 3-34.55 Construction Surveying

1310-HORZ-2003: Validate project/operation schedule

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, a completed project/operation schedule and references.

STANDARD: To confirm that the required engineer resources and personnel are identified, the timeline conforms to mission specifications, and the graphic depiction of the schedule is accurate.

PERFORMANCE STEPS:
1. Review the mission.
2. Verify activity estimate sheets.
3. Verify logical sequence of activities.
4. Verify critical path.
5. Review graphical depiction, if necessary.
6. Ensure schedule remains updated throughout the duration of the project/operation.

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7I Earthmoving Operations

1310-MANT-2001: Manage engineer equipment maintenance shop operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission statement, a maintenance facility, resources and references.

STANDARD: To ensure maintenance facilities and procedures are established per the mission statement.

PERFORMANCE STEPS:
1. Identify mission requirements.
2. Identify all maintenance resources.
3. Identify environmental and natural resource considerations.
4. Designate required maintenance shop areas.
5. Implement the maintenance production process.
6. Validate operational risk management procedures.
7. Implement shop safety programs.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 5-1 Marine Corps Planning Process (MCPP)
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. Unit T/O&E Unit's Table of Organization and Equipment

1310-MANT-2002: Manage engineer equipment availability

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission statement, maintenance facility, resources and the references.

STANDARD: To support the unit mission statement (TO/E) in accordance with MCO P4790.2_.

PERFORMANCE STEPS:
1. Review the references.
2. Validate urgency of need designator assignment codes.
3. Review maximum maintenance cycle time.
4. Develop plan to increase equipment availability.

REFERENCES:

1. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
2. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
3. MCO P4790.2_ MIMMS Field Procedures Manual

CHAPTER 15

MOS 1316 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE.	15000	15-2
EVENT CODING	15001	15-2
INDEX OF INDIVIDUAL EVENTS	15002	15-2
1000-LEVEL EVENTS.	15003	15-3
2000-LEVEL EVENTS.	15004	15-11

CHAPTER 15

MOS 1316 INDIVIDUAL EVENTS

15000. PURPOSE. This chapter details the individual events that pertain to the Metal Worker. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

15001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology.

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1316	Metal Worker

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
MANT	Maintenance
XENG	General Engineering

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills
2000	Core Plus Skills

15002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1316-ADMN-1001	Conduct safety inspection	15-3
1316-ADMN-1002	Complete records and forms	15-4
1316-ADMN-1003	Conduct inventory of tool sets, chests and kits	15-5
1316-MANT-1001	Perform identification tests on metal	15-5
1316-MANT-1002	Perform armor plate welding	15-6
1316-XENG-1001	Operate the Marine Corps tactical welding shop	15-7
1316-XENG-1002	Weld metal using Gas Tungsten Arc Welding (GTAW) equipment	15-7

1316-XENG-1003	Weld metal using Shielded Metal Arc Welding (SMAW) equipment	15-8
1316-XENG-1004	Weld metal using Gas Metal Arc Welding (GMAW) equipment	15-9
1316-XENG-1005	Perform metal cutting	15-10
2000-LEVEL-EVENTS		
1316-ADMN-2001	Supervise welding operations	15-11
1316-ADMN-2002	Supervise welding shop inventory	15-12
1316-ADMN-2003	Review Maintenance Production Report (MPR)	15-12
1316-ADMN-2004	Maintain layettes	15-13
1316-ADMN-2005	Maintain a section calibration control program	15-14
1316-ADMN-2006	Review service request and parts requirement	15-14
1316-ADMN-2007	Complete commodity manager's modification control record	15-15
1316-ADMN-2008	Maintain Pre-Expended Bins (PEB)	15-15
1316-ADMN-2009	Maintain publications library	15-16
1316-ADMN-2010	Maintain engineer equipment operator records and forms	15-16
1316-ADMN-2011	Administer engineer equipment licensing program	15-17
1316-XENG-2001	Forge metal objects with oxyacetylene	15-18
1316-XENG-2002	Fabricate metal objects	15-18
1316-XENG-2003	Weld metal using oxyacetylene equipment	15-19
1316-XENG-2004	Prepare estimations for project production and logistical requirements	15-20
1316-XENG-2005	Identify engineer equipment capabilities	15-20

15003. 1000-LEVEL EVENTS

1316-ADMN-1001: Conduct safety inspection

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided job site with working personnel and references.

STANDARD: To identify, annotate and correct deficiencies.

PERFORMANCE STEPS:
1. Review the reference.
2. Observe job site personnel and activities.
3. Identify personal protective equipment.
4. Identify discrepancies in safety procedures.
5. Apply operational risk management.
6. Implement corrective action.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
4. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay.

EQUIPMENT: Required equipment

MATERIAL: Required materials

1316-ADMN-1002: Complete records and forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided references, facilities, forms, personnel, tools and engineer equipment.

STANDARD: To meet mission requirements in accordance with job specifications.

PERFORMANCE STEPS:
1. Review the references.
2. Initiate records and forms.
3. Complete records and forms.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding Bay or office

EQUIPMENT: Required equipment

MATERIAL: Required equipment

1316-ADMN-1003: Conduct inventory of tool sets, chests and kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided references.

STANDARD: To reconcile the inventory list for accountability and serviceability.

PERFORMANCE STEPS:
1. Review references.
2. Conduct inventory.
3. Properly annotate inventory sheet.
4. Take corrective actions as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. SL-3-11668A Components List for General Mechanics Tool Kit (GMTK)
5. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, bay or equipment storage area

EQUIPMENT: Required equipment

1316-MANT-1001: Perform identification tests on metal

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided necessary tools, requirement and the references.

STANDARD: To ensure correct identification of material.

PERFORMANCE STEPS:

1. Set up test equipment.
2. Conduct visual test, as required.
3. Conduct spark test, as required.
4. Conduct torch test, as required.
5. Determine metal type.

REFERENCES:
1. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay

EQUIPMENT: Required equipment for metal identification

MATERIAL: Personnel protective equipment and required metals

1316-MANT-1002: Perform armor plate welding

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment, requirement and references.

STANDARD: To ensure equipment is operational.

PERFORMANCE STEPS:
1. Review job specifications.
2. Perform operations checks and services.
3. Prepare armor for welding/repair.
4. Perform appropriate welding process, as required.
5. Perform the required welds.
6. Perform after operation checks and services.
7. Secure the equipment.

PREREQUISITE EVENTS:
1316-XENG-1004 1316-XENG-1005 1316-XENG-1006

REFERENCES:
1. TC 9-237 Welding Theory
2. TM 08594A-25/1 Welding Procedures for Light Armored Vehicle

SUPPORT REQUIREMENTS:

EQUIPMENT: Gas Arc Welding Machine

MATERIAL: Personnel protective equipment, required object or metals and required consumables.

1316-XENG-1001: Operate the Marine Corps tactical welding shop

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 1 month

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment and references.

STANDARD: To ensure proper operation.

PERFORMANCE STEPS:
1. Initiate CONLOG (NAVMC 10524).
2. Perform operations checks and services.
3. Perform set up procedures as required.
4. Perform start up procedures, as required.
5. Operate equipment as required.
6. Perform shut down procedures, as required.
7. Perform stowing procedures, as required.
8. Perform after operational checks and services.
9. Complete operational records.

PREREQUISITE EVENTS: 1316-ADMN-1001

RELATED EVENTS:

1316-ADMN-1002	1316-ADMN-1003	1316-XENG-1002
1316-XENG-1004	1316-XENG-1005	1316-XENG-1006
1316-XENG-2003		

REFERENCES:
1. TM 04055D-OI/1 MARINE CORPS TACTICAL WELDING SHOP (MCTWS)
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay

EQUIPMENT: Welding Machine and other required equipment

MATERIAL: Personnel protective equipment, required consumables, metals and gases.

1316-XENG-1002: Weld metal using Gas Tungsten Arc Welding (GTAW) equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure equipment is operational.

PERFORMANCE STEPS:
1. Review reference.
2. Review service request.
3. Review job specification.
4. Set up GTAW equipment.
5. Perform operations checks and services.
6. Prepare aluminum for welding, as required.
7. Prepare stainless steel for welding, as required.
8. Prepare titanium for welding, as required.
9. Prepare carbon steel for welding, as required.
10. Prepare cast steel for welding, as required.
11. Prepare cast iron for welding, as required.
12. Perform the required welds.
13. Perform after operations checks.
14. Secure the equipment.
15. Update service request.

REFERENCES:
1. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay.

EQUIPMENT: Gas tungsten arc welding equipment

MATERIAL: Personnel protective equipment, required metals, gases and required consumables

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1316-XENG-1003: Weld metal using Shielded Metal Arc Welding (SMAW) equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure equipment is operational.

PERFORMANCE STEPS:
1. Review reference.
2. Review service request.
3. Review job specification.
4. Set up SMAW equipment.
5. Perform operations checks and services.
6. Prepare aluminum for welding, as required.
7. Prepare stainless steel for welding, as required.
8. Prepare carbon steel for welding, as required.
9. Prepare cast steel for welding, as required.
10. Perform the required welds.
11. Perform after operations check.
12. Secure the equipment.
13. Update service request.

REFERENCES:
1. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay

EQUIPMENT: Arc welding equipment

MATERIAL: Personnel protective equipment, required metals and required consumables

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1316-XENG-1004: Weld metal using Gas Metal Arc Welding (GMAW) equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure equipment is operational.

PERFORMANCE STEPS:
1. Review reference.
2. Review service request.
3. Review job specification.

4. Set up GMAW equipment.
5. Perform operations checks and services.
6. Prepare Aluminum for welding, as required.
7. Prepare carbon steel for welding, as required.
8. Perform the required welds.
9. Perform after operations checks.
10. Secure the equipment.
11. Update service request.

REFERENCES:
1. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay.

EQUIPMENT: Gas metal arc welding equipment.

MATERIAL: Personnel protective equipment, required object or metals and required consumables.

1316-XENG-1005: Perform metal cutting

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure equipment is operational.

PERFORMANCE STEPS:
1. Review reference.
2. Review service request.
3. Review job specifications.
4. Set up cutting equipment.
5. Perform operations checks and services.
6. Prepare shear for cutting, as required.
7. Prepare Plasma Arc for cutting, as required
8. Prepare oxyacetylene for cutting, as required.
9. Prepare exothermic for cutting, as required.
10. Perform the required cuts.
11. Perform after operation checks.
12. Secure the equipment.
13. Update service request.

REFERENCES:

1. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay.

EQUIPMENT: Oxyfuel Equipment

MATERIAL: Personnel protective equipment, required metal and required consumables

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15004. 2000-LEVEL EVENTS

1316-ADMN-2001: Supervise welding operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure safe working conditions, proper techniques and job completion.

PERFORMANCE STEPS:
1. Review reference.
2. Review service request.
3. Identify mission requirements.
4. Identify environmental and natural resource considerations.
5. Designate required maintenance shop areas.
6. Validate operational risk management procedures.
7. Implement the maintenance production process.
8. Implement shop safety programs.
9. Ensure product/process meets specifications.
10. Update service request(s), as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. TC 9-237 Welding Theory
4. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay/office

EQUIPMENT: Required equipment

MATERIAL: Required materials

1316-ADMN-2002: Supervise welding shop inventory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment, tools and references.

STANDARD: To reconcile inventory records for accountability and serviceability.

PERFORMANCE STEPS:
1. Review references.
2. Supervise inventories, as required.
3. Identify missing items.
4. Document missing items.
5. Order missing items.

REFERENCES:
1. Appropriate Reference Materials
2. Local Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay/office

EQUIPMENT: Required equipment

MATERIAL: Required material

1316-ADMN-2003: Review Maintenance Production Report (MPR)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided GCSS-MC account and the references.

STANDARD: To ensure accuracy.

PERFORMANCE STEPS:
1. Review references.
2. Review MPR.
3. Identify discrepancies.
4. Initiate corrective action as required.

REFERENCES:
1. DLA Customer Assistance Handbook
2. GCSS_MC Procedural Notice 3-11: Parts Requirement Task in Place of EROSL
3. GCSS-MC, User Productivity Kit (UPK)
4. GCSS-MC Handbook
5. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
6. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
7. MCO P4400.150_ Consumer Level Supply Policy Manual
8. MCO P4790.2_ MIMMS Field Procedures Manual
9. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay/office

EQUIPMENT: Required equipment

MATERIAL: Required materials

1316-ADMN-2004: Maintain layettes

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provide a service request, parts requirement, repair parts and the references.

STANDARD: To ensure repair parts are kept in the appropriate layettes bin.

PERFORMANCE STEPS:
1. Review the references.
2. Receive repair parts.
3. Annotate parts requirement.
4. Place repair parts in appropriate layette.
5. Take corrective action, as required.
6. Maintain parts requirement in appropriate layettes.
7. Issue repair parts.

REFERENCES:

1. DLA Customer Assistance Handbook
2. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
3. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
4. MCO P4400.150_ Consumer Level Supply Policy Manual
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. TM 4700-15/1_ Ground Equipment Record Procedures

1316-ADMN-2005: Maintain a section calibration control program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement, equipment, personnel and references.

STANDARD: To ensure equipment provides accurate test, measurement and diagnostic capabilities.

PERFORMANCE STEPS:
1. Identify unit TMDE.
2. Audit calibration control records.
3. Submit TMDE for calibration.
4. Conduct annual TMDE requirements.
5. Determine serviceability of TMDE.
6. Dispose of calibration records.

REFERENCES:
1. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. NAVMC 2761 Catalog of Publications
4. TM 4700-15/1_ Ground Equipment Record Procedures

1316-ADMN-2006: Review service request and parts requirement

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement, data and references.

STANDARD: Per the references.

PERFORMANCE STEPS:

1. Review the references.
2. Review equipment technical manual to obtain maintenance information.
3. Review required entries for service request.
4. Review tasks and parts requirements.

REFERENCES:
1. Appropriate Equipment Manual
2. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
3. TM 4700-15/1_ Ground Equipment Record Procedures

1316-ADMN-2007: Complete commodity manager's modification control record

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an item of engineer equipment, GGCSS-MC and the references.

STANDARD: To record equipment modifications.

PERFORMANCE STEPS:
1. Review the references.
2. Examine equipment for modifications.
3. Validate required modification.

REFERENCES:
1. Appropriate Equipment Manual
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
4. TM 4700-15/1_ Ground Equipment Record Procedures

1316-ADMN-2008: Maintain Pre-Expended Bins (PEB)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement and the references.

STANDARD: To ensure bins are stocked and maintained for timely maintenance.

PERFORMANCE STEPS:
1. Review the references.

2. Review PEB authorization letter.
3. Validate inventory.
4. Update records, as required.

REFERENCES:
1. MCO P4400.150_ Consumer Level Supply Policy Manual
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. UNIT SOP Unit's Standing Operating Procedures

1316-ADMN-2009: Maintain publications library

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided with Marine Corps approved software, technical publications, equipment related publications and the references.

STANDARD: To account for all publications in accordance with MCO P4790.2.

PERFORMANCE STEPS:
1. Review references.
2. Conduct inventory as required.
3. Annotate discrepancies.
4. Take corrective actions as necessary.

REFERENCES:
1. MCO 5215.1_ Marine Corps Directives Management Program
2. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. MCO P5215.17_ The Marine Corps Technical Publications System
5. NAVMC 2761 Catalog of Publications
6. PLMS V3 UG Publication Library Management System Version 3 Users Guide
7. SECNAV M-5210.2_ Department of the Navy Standard Subject Identification Code (SSIC) Manual
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. UM MCPDS Marine Corps Publications Distribution System Users Manual

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1316-ADMN-2010: Maintain engineer equipment operator records and forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, applicable forms and references.

STANDARD: To comply with record keeping procedures.

PERFORMANCE STEPS:
1. Review the references.
2. Determine records/forms required.
3. Prepare the proper records/forms.
4. Maintain records/forms on file and/or submit as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 4790.2_ MIMMS Field Procedures Manual
3. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1316-ADMN-2011: Administer engineer equipment licensing program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

BILLETS: License Examiner

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, documentation, licensing records and references.

STANDARD: Ensuring equipment operators are licensed.

PERFORMANCE STEPS:
1. Review the references.
2. Determine operator licensing requirements.
3. Review equipment training and testing programs.
4. Review and approve/reject licensing applications/renewals.
5. Administer licensing tests.
6. Review completed OF 346.
7. Document licensing action.

REFERENCES:
1. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
2. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

1316-XENG-2001: Forge metal objects with oxyacetylene

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure desired properties are achieved.

PERFORMANCE STEPS:
1. Review references.
2. Set up the equipment.
3. Perform before operation checks and services.
4. Prepare the material for forging.
5. Forge the material.
6. Ensure product/process meets specifications.
7. Perform after operations checks and services.
8. Secure the oxyacetylene equipment.
9. Update service request actions, as required.

REFERENCES:
1. TC 9-237 Welding Theory
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay

EQUIPMENT: Oxyfuel equipment

MATERIAL: Personnel protective equipment and required objects

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1316-XENG-2002: Fabricate metal objects

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure product meets requirements.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Set up the equipment.
4. Perform before operations checks and services.
5. Review the specification for the project.
6. Prepare the material for fabrication.
7. Perform the required fabrication.
8. Ensure product/process meets specifications.
9. Perform after operations checks.
10. Secure the equipment.
11. Update service request actions, as required.

REFERENCES:
1. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay

EQUIPMENT: Required welding and cutting equipment

MATERIAL: Personnel protective equipment, required metals and gases, required consumables, required drawing and/or blueprints.

1316-XENG-2003: Weld metal using oxyacetylene equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement, equipment and references.

STANDARD: To ensure equipment is operational.

PERFORMANCE STEPS:
1. Review reference.
2. Review service request.
3. Review job specifications.
4. Set up oxyacetylene equipment.
5. Perform operation checks and services.
6. Prepare sheet metal for welding, as required.
7. Prepare carbon steel for welding, as required.
8. Prepare cast steel for welding, as required.
9. Prepare cast iron for welding, as required.

10. Perform required welds.
11. Perform after operations checks and services.
12. Secure the equipment.
13. Update service request.

REFERENCES:
1. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay.

EQUIPMENT: Oxyfuel equipment

MATERIAL: Personnel protective equipment, required metals and required consumables

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1316-XENG-2004: Prepare estimations for project production and logistical requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1316

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, resources and references.

STANDARD: To support mission requirements.

PERFORMANCE STEPS:
1. Identify weight of a specified volume of soil.
2. Calculate the maximum load volume and weight.
3. Calculate required production rates.
4. Calculate the time requirement for mission completion.
5. Identify logistical requirements to support a mission.

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-434 Earthmoving Operations
3. TM 10629-10D Truck, Dump, 7-ton, MK29/ MK30
4. TM 11412A-OR Operator's Manual 624KR Loader
5. TM 11503A-OR 850 JR Crawler Dozer

1316-XENG-2005: Identify engineer equipment capabilities

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, available resources and references.

STANDARD: To support engineer operations per the references.

PERFORMANCE STEPS:
1. Identify Engineer Equipment assets.
2. Identify material handling equipment capabilities.
3. Identify earth moving equipment capabilities.
4. Identify general support engineer equipment capabilities.
5. Select engineer equipment assets required.

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-434 Earthmoving Operations
3. MCO 3500.27_ Operational Risk Management (ORM)
4. MCRP 3-17A Engineer Field Data
5. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
6. TM 5-3805-248-14&P-3 Technical Manual; Maintenance, Earth, Scraper

ENG & UTIL T&R MANUAL

CHAPTER 16

MOS 1341 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE.	16000	16-2
EVENT CODING	16001	16-2
INDEX OF INDIVIDUAL EVENTS	16002	16-2
1000-LEVEL EVENTS.	16003	16-3
2000-LEVEL EVENTS.	16004	16-10

CHAPTER 16

MOS 1341 INDIVIDUAL EVENTS

16000. PURPOSE. This chapter details the individual events that pertain to the Engineer Equipment Mechanic. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

16001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1341	Engineer Equipment Mechanic

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
MANT	Maintenance

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills
2000	Core Plus Skills

16002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1341-ADMN-1001	Conduct Shop Operations	16-3
1341-ADMN-1002	Conduct inventory of tool sets, chests, and kits	16-4
1341-MANT-1001	Use test measurement and diagnostic equipment	16-5
1341-MANT-1002	Perform corrective maintenance on engineer equipment	16-5
1341-MANT-1003	Repair equipment electrical system	16-5
1341-MANT-1004	Repair equipment intake/exhaust system	16-6
1341-MANT-1005	Repair equipment fuel system	16-7
1341-MANT-1006	Repair equipment coolant system	16-7

1341-MANT-1007	Repair equipment engine assembly	16-8
1341-MANT-1008	Repair equipment hydraulic system	16-8
1341-MANT-1009	Repair equipment brake system	16-9
1341-MANT-1010	Adjust equipment power train components	16-9
2000-LEVEL EVENTS		
1341-ADMN-2001	Maintain publications library	16-10
1341-ADMN-2002	Supervise inventory of tool sets, chests, and kits	16-10
1341-ADMN-2003	Complete engineer equipment records and forms	16-11
1341-ADMN-2004	Review service request and parts requirement	16-11
1341-ADMN-2005	Complete commodity manager's modification control record	16-12
1341-ADMN-2006	Maintain a section calibration control program	16-12
1341-ADMN-2007	Maintain Pre-Expended Bins (PEB)	16-13
1341-ADMN-2008	Maintain layettes	16-13
1341-MANT-2001	Perform advance use of test measurement and diagnostic equipment (TMDE)	16-14
1341-MANT-2002	Conduct advanced repair to equipment electrical system	16-15
1341-MANT-2003	Conduct advanced repair to equipment intake/exhaust system	16-15
1341-MANT-2004	Conduct advanced repair to equipment fuel system	16-16
1341-MANT-2005	Conduct advanced repair of coolant system	16-16
1341-MANT-2006	Repair a diesel engine	16-17
1341-MANT-2007	Conduct advanced repair to equipment hydraulic system	16-17
1341-MANT-2008	Perform advanced repair on a power train system	16-18
1341-MANT-2009	Repair an engineer equipment air conditioner malfunction	16-18
1341-MANT-2010	Perform preventive maintenance	16-19
1341-MANT-2011	Install protective armor kit on the engineer equipment	16-19
1341-MANT-2012	Perform installation/removal of Medium Crawler Tractor (MCT) attachments	16-20
1341-MANT-2013	Replace cutting edge/teeth on engineer equipment	16-20

16003. 1000-LEVEL EVENTS

1341-ADMN-1001: Conduct Shop Operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided references, maintenance facility, maintenance forms, personnel, tools, and engineer equipment.

STANDARD: To maintain unit readiness without injury to personnel or damage

to equipment.

PERFORMANCE STEPS:
1. Apply operational risk management.
2. Select appropriate technical manuals.
3. Complete tasks to be performed during the acceptance phase.
4. Complete tasks to be performed during induction phase.
5. Complete tasks to be performed during maintenance phase.
6. Complete tasks to be performed during closeout phase.

REFERENCES:
1. Appropriate Technical Manuals
2. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
3. MCO 3500.27_ Operational Risk Management (ORM)
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. NAVMC 10772 RECOMMENDED CHANGE TO TECHNICAL PUBLICATION
6. SL-3-11668A Components List for General Mechanics Tool Kit (GMTK)
7. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
8. TM 10510-OD/1_ General Purpose Test Measurement and Diagnostic Equipment (TMDE) Listing (Including Ancillary Support Items & Tool Kits)
9. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
10. TM 4700-15/1_ Ground Equipment Record Procedures

1341-ADMN-1002: Conduct inventory of tool sets, chests, and kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided references.

STANDARD: To reconcile inventory records for accountability and serviceability.

PERFORMANCE STEPS:
1. Review References
2. Conduct inventory
3. Properly annotate inventory sheet.
4. Take corrective actions as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. SL-3-11668A Components List for General Mechanics Tool Kit (GMTK)
4. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1001: Use test measurement and diagnostic equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided test measurement and diagnostic equipment (TMDE), appropriate tools, an item of equipment, and the references.

STANDARD: To diagnose engineer equipment faults.

PERFORMANCE STEPS:
1. Review the references.
2. Determine appropriate system checks.
3. Perform the system check.
4. Identify applicable preventive maintenance services.

REFERENCES:
1. Appropriate Technical Manuals

1341-MANT-1002: Perform corrective maintenance on engineer equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, appropriate tools, equipment records, and references.

STANDARD: To return equipment to serviceable condition.

PERFORMANCE STEPS:
1. Review the references.
2. Review service request.
3. Perform applicable corrective maintenance services.
4. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1003: Repair equipment electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning electrical system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1004: Repair equipment intake/exhaust system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning intake/exhaust system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review the service request.
2. Review the references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1005: Repair equipment fuel system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning fuel system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance action.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1006: Repair equipment coolant system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning coolant system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance action.

REFERENCES:

1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1007: Repair equipment engine assembly

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning engine assembly, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review References.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Adjust, or repair unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.
8. Test repaired system.
9. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1008: Repair equipment hydraulic system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning hydraulic system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review references.
3. Diagnose malfunction.

4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1009: Repair equipment brake system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, brake system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-1010: Adjust equipment power train components

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning power train system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review the service request.
2. Review references.
3. Diagnose malfunction.
4. Perform necessary repairs.
5. Test repaired system.
6. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

16004. 2000-LEVEL EVENTS

1341-ADMN-2001: Maintain publications library

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provide with Marine Corps currently approved computer based programs, technical publications, equipment related publications, and the references.

STANDARD: To account for all publications IAW MCO P4790.2_.

PERFORMANCE STEPS:
1. Review references.
2. Conduct inventory as required.
3. Annotate discrepancies.
4. Take corrective actions, as necessary.

REFERENCES:
1. MCO 5215.1_ Marine Corps Directives Management Program
2. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. MCO P5215.17_ The Marine Corps Technical Publications System
5. NAVMC 2761 Catalog of Publications
6. PLMS V3 UG Publication Library Management System Version 3 Users Guide
7. SECNAV M-5210.2_ Department of the Navy Standard Subject Identification Code (SSIC) Manual
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. UM MCPDS Marine Corps Publications Distribution System Users Manual

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1341-ADMN-2002: Supervise inventory of tool sets, chests, and kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the requirement and the references.

STANDARD: To reconcile inventory records for accountability and serviceability.

PERFORMANCE STEPS:
1. Review references.
2. Supervise inventories, as required.
3. Verify missing/unserviceable items are documented.
4. Ensure missing/unserviceable items are requisitioned.

REFERENCES:
1. Appropriate Reference Materials
2. Local Standard Operating Procedures (SOP)
3. MCO P4400.150_ Consumer Level Supply Policy Manual
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures

1341-ADMN-2003: Complete engineer equipment records and forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment and references.

STANDARD: To support mission requirements

PERFORMANCE STEPS:
1. Review the references.
2. Determine records/forms required.
3. Prepare the proper records/forms.
4. Maintain records/forms, as required.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 4700-15/1_ Ground Equipment Record Procedures
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1341-ADMN-2004: Review service request and parts requirement.

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement, data, and the references.

STANDARD: Per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review equipment technical manual to obtain maintenance information.
3. Review required entries for service request.
4. Review tasks and parts requirements.

REFERENCES:
1. Appropriate Equipment Manual
2. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
3. TM 4700-15/1_ Ground Equipment Record Procedures

1341-ADMN-2005: Complete commodity manager's modification control record

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an item of engineer equipment and the references.

STANDARD: To record equipment modifications.

PERFORMANCE STEPS:
1. Review the references.
2. Examine equipment for modifications.
3. Validate required modification.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
4. TM 4700-15/1_ Ground Equipment Record Procedures

1341-ADMN-2006: Maintain a section calibration control program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement, equipment, personnel, and references.

STANDARD: To ensure equipment provides accurate test, measurement, and diagnostic capabilities.

PERFORMANCE STEPS:
1. Identify unit TMDE.
2. Audit calibration control records.
3. Submit TMDE for calibration.
4. Conduct annual TMDE requirements.
5. Determine serviceability of TMDE.
6. Dispose of calibration records.

REFERENCES:
1. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. NAVMC 2761 Catalog of Publications
4. TM 4700-15/1_ Ground Equipment Record Procedures

1341-ADMN-2007: Maintain Pre-Expended Bins (PEB)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement and the references.

STANDARD: To ensure bins are stocked and maintained for timely maintenance.

PERFORMANCE STEPS:
1. Review the reference.
2. Review PEB authorization letter.
3. Validate inventory.
4. Update records, as required.

REFERENCES:
1. MCO P4400.150_ Consumer Level Supply Policy Manual
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. UNIT SOP Unit's Standing Operating Procedures

1341-ADMN-2008: Maintain layettes

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provide a service request, parts requirement, repair parts, and the references.

STANDARD: To ensure repair parts are kept in the appropriate layettes bin.

PERFORMANCE STEPS:
1. Review the references.
2. Receive repair parts, annotate parts requirement, and place repair parts in appropriate layette.
3. Take corrective action if repair part does not match parts requirement.
4. Maintain parts requirement in the appropriate layettes.
5. Issue repair parts, and annotate parts requirement.

REFERENCES:
1. DLA Customer Assistance Handbook
2. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
3. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
4. MCO P4400.150_ Consumer Level Supply Policy Manual
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. TM 4700-15/1_ Ground Equipment Record Procedures
7. UM 4400-124 SASSY Using Unit Procedures
8. UM 4790-5 Users Manual MIMMS

1341-MANT-2001: Perform advance use of test measurement and diagnostic equipment (TMDE)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement, appropriate tools, an item of equipment, and the references.

STANDARD: To diagnose advanced level engineer equipment faults.

PERFORMANCE STEPS:
1. Review the references.
2. Determine the appropriate system check.
3. Perform the system check.
4. Identify applicable preventive and corrective maintenance services.

REFERENCES:
1. Appropriate Equipment Manual
2. Applicable technical references

1341-MANT-2002: Conduct advanced repair to equipment electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning electrical system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2003: Conduct advanced repair to equipment intake/exhaust system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning intake/exhaust system, appropriate tools, and references.

STANDARD: To restore proper equipment function.

PERFORMANCE STEPS:
1. Review service request.
2. Review the references.
3. Diagnose the malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:

1. Applicable technical references
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2004: Conduct advanced repair to equipment fuel system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning fuel system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.
2. Review the references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance action.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2005: Conduct advanced repair of coolant system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning coolant system, appropriate tools/test equipment, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review the reference.
2. Diagnose the fault.
3. Initiate parts requirement, if necessary.
4. Service the system, as required.
5. Test the repairs.

6. Document the repairs.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2006: Repair a diesel engine

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, a malfunctioning diesel engine, appropriate tools and equipment, and the references.

STANDARD: To restore engine to proper function.

PERFORMANCE STEPS:
1. Review the references.
2. Review service request.
3. Disassemble/remove parts to be replaced.
4. Initiate parts requirement, if necessary.
5. Replace Parts.
6. Assemble engine.
7. Test repaired engine.
8. Document maintenance action.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2007: Conduct advanced repair to equipment hydraulic system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning hydraulic system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review service request.

2. Review references.
3. Diagnose malfunction.
4. Initiate parts requirement, if necessary.
5. Repair/replace unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2008: Perform advanced repair on a power train system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning power train system, appropriate tools, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Diagnose malfunction.
4. Disassemble/remove parts to be replaced.
5. Initiate parts requirement, if necessary.
6. Replace parts, as necessary.
7. Assemble system.
8. Test repaired equipment.
9. Adjust system.
10. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2009: Repair an engineer equipment air conditioner malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a service request, malfunctioning air conditioner, appropriate tools/test equipment, and references.

STANDARD: To restore system to proper function.

PERFORMANCE STEPS:
1. Review the reference.
2. Diagnose the fault.
3. Recover the refrigerant (if needed).
4. Initiate parts requirement, if necessary.
5. Service the system, as required.
6. Recharge the system (if needed).
7. Test the repairs.
8. Document the repairs.

REFERENCES:
1. Appropriate Technical Manuals
2. 124048 (Rev. D) SPX Robinair Operating Manual Model 17800B/17801B
3. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2010: Perform preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a service request, item of equipment, applicable tools, equipment records, and references.

STANDARD: To meet maintenance requirements.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Perform applicable preventive maintenance services.
4. Initiate parts requirement, if required.
5. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1341-MANT-2011: Install protective armor kit on the engineer equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a service request, protective armor kit for engineer equipment, appropriate tools, and references.

STANDARD: In order to accomplish mission, in support of commander's intent.

PERFORMANCE STEPS:
1. Review references.
2. Review the service request.
3. Identify locations of plates/assemblies on equipment
4. Install/uninstall plates/assemblies, as required
5. Check plates to ensure proper fit.

REFERENCES:
1. Appropriate Equipment Manual
2. Appropriate Technical Manuals

1341-MANT-2012: Perform installation/removal of Medium Crawler Tractor (MCT) attachments

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a MCT, attachments, tools, and the reference.

STANDARD: To ensure safe installation with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Prepare tractor for attachments.
3. Install/uninstall the attachments.
4. Perform operator checks and services, as necessary.

REFERENCES:
1. TM 11503A-OR 850 JR Crawler Dozer

1341-MANT-2013: Replace cutting edge/teeth on engineer equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1341

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an item of engineer equipment, cutting edges/teeth, appropriate tools, and the references.

STANDARD: To restore equipment to full operational condition.

PERFORMANCE STEPS:
1. Review service request.
2. Review references
3. Ensure old cutting edge/teeth is/are removed.
4. Ensure the new cutting edge/teeth is/are safely installed.
5. Document Maintenance action.

REFERENCES:
1. Appropriate Technical Manuals

ENG & UTIL T&R MANUAL

CHAPTER 17

MOS 1342 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	17000	17-2
EVENT CODING	17001	17-2
INDEX OF INDIVIDUAL EVENTS	17002	17-2
1000-LEVEL EVENTS	17003	17-3

CHAPTER 17

MOS 1342 INDIVIDUAL EVENTS

17000. PURPOSE. This chapter details the individual events that pertain to Engineer Small Craft Mechanic. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

17001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1342	Engineer Small Craft Mechanic

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
MANT	Maintenance

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills

17002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1342-MANT-1001	Perform outboard motor preventive maintenance	17-3
1342-MANT-1002	Perform small craft preventive maintenance	17-3
1342-MANT-1003	Perform bridge boat preventive maintenance	17-4
1342-MANT-1004	Perform small craft trailer preventive maintenance	17-5
1342-MANT-1005	Perform outboard motor corrective maintenance	17-5
1342-MANT-1006	Perform small craft corrective maintenance	17-6
1342-MANT-1007	Perform bridge boat corrective maintenance	17-7
1342-MANT-1008	Perform small craft trailer corrective maintenance	17-8
1342-MANT-1009	Operate Test Measurement and Diagnostic Equipment (TMDE) for small craft	17-9
1342-MANT-1010	Conduct Limited Technical Inspection (LTI)	17-9

17003. 1000-LEVEL EVENTS

1342-MANT-1001: Perform outboard motor preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, item of equipment, applicable tools, supplies, equipment records, and references.

STANDARD: To meet maintenance requirements established in appropriate technical manuals.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Perform applicable preventive maintenance services.
4. Initiate parts procurement, if required.
5. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Outboard Engine Maintenance Kit

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1002: Perform small craft preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, item of equipment, applicable tools,

supplies, equipment records, and references.

STANDARD: To meet maintenance requirements established in appropriate technical manuals.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Perform applicable preventive maintenance services.
4. Initiate parts procurement, if required.
5. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. TM 09665B-10A/1 Combat Rubber Reconnaissance Craft Field Service Manual
3. TM 09665B-13&P/2 Operation and maintenance of the Combat Rubber Reconnaissance Craft
4. TM 4700-15/1_ Ground Equipment Record Procedures

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1003: Perform bridge boat preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, item of equipment, applicable tools, supplies, equipment records, and references.

STANDARD: To meet maintenance requirements established in appropriate technical manuals.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Perform applicable preventive maintenance services.
4. Initiate parts procurement, if required.
5. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II

3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Fast Lube Oil Change System (FLOCS), Alignment tool

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1004: Perform small craft trailer preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, item of equipment, applicable tools, supplies, equipment records, and references.

STANDARD: To meet maintenance requirements established in appropriate technical manuals.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Perform applicable preventive maintenance services.
4. Initiate parts procurement, if necessary.
5. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. OEM Boat Master Aluminum Trailer Owner's Manual
3. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II
4. TM 4700-15/1_ Ground Equipment Record Procedures

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1005: Perform outboard motor corrective maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, appropriate tools, equipment records, and references.

STANDARD: To return equipment to serviceable condition.

PERFORMANCE STEPS:
1. Review the references.
2. Review service request.
3. Diagnose malfunctioning component.
4. Repair electrical System, if applicable.
5. Repair outboard motor fuel system, if applicable.
6. Repair power head, if applicable.
7. Repair gear case, if applicable.
8. Repair cooling system, if applicable.
9. Repair oiling system, if applicable.
10. Repair manual starter, if applicable.
11. Test equipment.
12. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. P/N 5007808 MFE Technical Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: Outboard Engine Maintenance Kit

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1006: Perform small craft corrective maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, appropriate tools, equipment records, and references.

STANDARD: To return equipment to serviceable condition.

PERFORMANCE STEPS:
1. Review references.
2. Review service request.
3. Perform leak test.
4. Repair/replace valves and rings, if required.
5. Repair hull fabric, if required.
6. Repair/replace carry handles, if required.
7. Apply latex to buoyancy and keel tubes, if required.
8. Repair/replace rub strake, if required.
9. Test equipment.
10. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. TM 09665B-10A/1 Combat Rubber Reconnaissance Craft Field Service Manual
3. TM 09665B-13&P/2 Operation and maintenance of the Combat Rubber Reconnaissance Craft
4. TM 4700-15/1_ Ground Equipment Record Procedures

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1007: Perform bridge boat corrective maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, appropriate tools, equipment records, and references.

STANDARD: To return equipment to serviceable condition.

PERFORMANCE STEPS:
1. Review the references.
2. Review service request.
3. Diagnose malfunctioning component.
4. Repair fuel system, if required.
5. Repair air intake/exhaust system, if required.
6. Repair cooling system, if required.

7. Repair electrical system, if required.
8. Repair propulsion and steering components, if required.
9. Test equipment.
10. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II
3. TM 4700-15/1_ Ground Equipment Record Procedures

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1008: Perform small craft trailer corrective maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided service request, appropriate tools, equipment records, and references.

STANDARD: To return equipment to serviceable condition.

PERFORMANCE STEPS:
1. Review the references.
2. Review service request.
3. Diagnose malfunctioning component.
4. Repair electrical components, if required.
5. Repair braking system, if required.
6. Replace trailer components, if required.
7. Replace wheel bearings and applicable components, if required.
8. Test equipment.
9. Document maintenance actions.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. OEM Boat Master Aluminum Trailer Owner's Manual
3. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II
4. TM 4700-15/1_ Ground Equipment Record Procedures

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (CID M03EAW2) graduate in order to perform this event.

1342-MANT-1009: Operate Test Measurement and Diagnostic Equipment (TMDE) for small craft

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Use of special tools and equipment to perform maintenance actions on equipment

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided TMDE, applicable tools, small craft equipment, and the reference.

STANDARD: To detect faults and prevent system damage or failure per the reference.

PERFORMANCE STEPS:
1. Identify appropriate TMDE.
2. Identify serviceability.
3. Troubleshoot electrical system.
4. Perform vacuum and pressure test.
5. Perform compression test.
6. Utilize Evinrude Diagnostic software
7. Maintain serviceability of TMDE.

REFERENCES:
1. P/N 5007808 MFE Technical Manual
2. SL-3-09847A Outboard Engine Maintenance Kit
3. TM 09665B-10A/1 Combat Rubber Reconnaissance Craft Field Service Manual
4. TM 09665B-13&P/2 Operation and maintenance of the Combat Rubber Reconnaissance Craft
5. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II

SUPPORT REQUIREMENTS:

EQUIPMENT: Outboard Engine Maintenance Kit

1342-MANT-1010: Conduct Limited Technical Inspection (LTI)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, small craft, applicable tools, LTI worksheet, and references.

STANDARD: To document missing and unserviceable components per the references.

PERFORMANCE STEPS:
1. Identify appropriate LTI sheet.
2. Perform all checks indicated on the LTI sheet.
3. Inspect for proper assembly, if applicable.

REFERENCES:
1. OEM Boat Master Aluminum Trailer Owner's Manual
2. P/N 5007808 MFE Technical Manual
3. TM 09665B-10A/1 Combat Rubber Reconnaissance Craft Field Service Manual
4. TM 09665B-13&P/2 Operation and maintenance of the Combat Rubber Reconnaissance Craft
5. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II
6. TM 4700-15/1_ Ground Equipment Record Procedures

ENG & UTIL T&R MANUAL

CHAPTER 18

MOS 1345 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE.	18000	18-2
EVENT CODING	18001	18-2
INDEX OF INDIVIDUAL EVENTS	18002	18-2
1000-LEVEL EVENTS.	18003	18-3
2000-LEVEL EVENTS.	18004	18-9

CHAPTER 18

MOS 1345 INDIVIDUAL EVENTS

18000. PURPOSE. This chapter details the individual events that pertain to Engineer Equipment Operator. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

18001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1345	Engineer Equipment Operator

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction
MANT	Maintenance

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills
2000	Core Plus Skills

18002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1345-ADMN-1001	Conduct inventory of tool sets, chests, and kits	18-3
1345-ADMN-1002	Complete records and forms	18-4
1345-HEOP-1001	Operate the Light Capability Rough Terrain Forklift (LCRTF)	18-4
1345-HEOP-1002	Operate the Military Millennia Vehicle (MMV) Extended Boom Forklift	18-5
1345-HEOP-1003	Operate the Tractor, Rubber-tired, Articulated	18-6

	steering, Multi-purpose (TRAM) 624KR	
1345-HEOP-1004	Operate the 420E IT backhoe	18-6
1345-HEOP-1005	Operate the MC1150E	18-7
1345-HEOP-1006	Operate the Medium Crawler Tractor (MCT)	18-8
1345-HEOP-1007	Operate the motorized road grader	18-8
1345-MANT-1001	Conduct engineer equipment preventive maintenance	18-9
2000-LEVEL EVENTS		
1345-ADMN-2001	Supervise inventory of tools sets, chests, and kits	18-9
1345-ADMN-2002	Maintain engineer equipment operator records and forms	18-10
1345-ADMN-2003	Administer engineer equipment licensing program	18-11
1345-HEOP-2001	Operate the Rough Terrain Container Handler	18-11
1345-HEOP-2002	Operate the LRT-110 Crane	18-12
1345-HEOP-2003	Operate the Marine All-Terrain Crane (MAC 50)	18-13
1345-HEOP-2004	Operate the 621G Scraper	18-13
1345-HEOP-2005	Operate the Hydraulic Excavator (HYEX)	18-14
1345-HEOP-2006	Operate equipment with a Grade Control System	18-14
1345-HEOP-2007	Operate the M9 Armored Combat Earthmover (ACE)	18-15
1345-HEOP-2008	Operate the CS-563E vibratory compactor	18-16
1345-HEOP-2009	Operate the Multi-Terrain Loader (MTL)	18-16
1345-HEOP-2010	Operate the Runway Sweeper	18-17
1345-HEOP-2011	Operate the 613C Water Distributor	18-18
1345-HEOP-2012	Camouflage positions, vehicles or equipment	18-18
1345-HORZ-2001	Prepare estimations for project production and logistical requirements	18-19
1345-MANT-2001	Perform engineer equipment Limited Technical Inspection (LTI)	18-19
1345-MANT-2002	Maintain Corrosion Prevention and Control (CPAC) Program	18-20
1345-MANT-2003	Install/remove Medium Crawler Tractor (MCT) attachments	18-20
1345-MANT-2004	Replace cutting edges/teeth on applicable engineer equipment	18-21

18003. 1000-LEVEL EVENTS

1345-ADMN-1001: Conduct inventory of tool sets, chests, and kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided references.

STANDARD: To reconcile inventory records for accountability and serviceability.

PERFORMANCE STEPS:

1. Review references.
2. Conduct inventory.
3. Properly annotate inventory sheet.
4. Take corrective actions, as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. SL-3-11668A Components List for General Mechanics Tool Kit (GMTK)
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-ADMN-1002: Complete records and forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: ~~FORMAL~~ MOJT

CONDITION: Provided references, facilities, forms, personnel, tools, and engineer equipment.

STANDARD: To maintain unit readiness without injury to personnel or damage to equipment.

PERFORMANCE STEPS:
1. Initiate records and forms.
2. Complete records and forms.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
3. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-1001: Operate the Light Capability Rough Terrain Forklift (LCRTF)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet operational requirements with no injury to

personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Operate forklift to perform material handling operations.
6. Load/unload the LCRTF onto Engineer Equipment Trailer (EET), as required.
7. Perform shut down operations.
8. Perform after operations checks and services.
9. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM-09135C-OR/A Forklift, Light Capability Rough Terrain (LCRTF)

1345-HEOP-1002: Operate the Military Millennia Vehicle (MMV) Extended Boom Forklift

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Change attachments on the MMV, as required.
6. Operate forklift to perform material handling operations.
7. Perform shut down procedures.
8. Perform after operations checks and services.
9. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 10794B-OR/A Forklift, Extendable Boom (EBFL) (MODEL: MMV [TIER 2])
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-1003: Operate the Tractor, Rubber-tired, Articulated steering, Multi-purpose (TRAM) 624KR

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Change attachments on the TRAM as required.
6. Operate tractor to perform bucket operations.
7. Operate tractor to perform material handling operations.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 11412A-OR Operator's Manual 624KR Loader
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-1004: Operate the 420E IT backhoe

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Operate tractor to perform front end loader operations.
6. Operate tractor to perform ditching/trenching operations.
7. Change attachments as required.
8. Operate attachments as required.
9. Load/unload the unarmored backhoe onto an Engineer Equipment Trailer (EET), as required.
10. Perform shut down procedures.
11. Perform after operations checks and services.
12. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 10996A-OR/A Backhoe Loader Caterpillar Model 420E IT
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-1005: Operate the MC1150E

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet the operational requirement with no injury to personnel or damage to equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Perform earthmoving operations.
6. Perform winching operations.
7. Perform shut down procedures.
8. Perform after operations checks and services.
9. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM-09062A-OR Tractor, Full Tracked, With Angle Blade and Rear-Mounted

Winch (Model: MC1150E)

1345-HEOP-1006: Operate the Medium Crawler Tractor (MCT)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Perform earthmoving operations.
6. Perform shut down procedures.
7. Perform after operations checks and services.
8. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 11503A-OR 850 JR Crawler Dozer
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-1007: Operate the motorized road grader

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate trip ticket.
2. Perform before operations checks.
3. Perform starting procedures.
4. Perform during operations checks.
5. Operate grader to perform area leveling.
6. Operate grader to perform ditching operations.
7. Operate grader to perform road improvement operations.
8. Operate grader to perform seven-step military road operations.
9. Perform shut down procedures.
10. Perform after operations checks.
11. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 11621A-OR MOTORIZED ROAD GRADER, MODEL 120M
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-MANT-1001: Conduct engineer equipment preventive maintenance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, tools, equipment records and references.

STANDARD: To prevent early breakdown or failure of equipment.

PERFORMANCE STEPS:
1. Review references.
2. Select appropriate materials and tools.
3. Perform applicable preventive maintenance services per LO/LI.
4. Document maintenance actions.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 10209-10/1_ Use and Care of Hand Tools and Measuring Tools
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
4. TM 4700-15/1_ Ground Equipment Record Procedures

18004. 2000-LEVEL EVENTS

1345-ADMN-2001: Supervise inventory of tools sets, chests, and kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided the references.

STANDARD: To reconcile inventory records for accountability and serviceability per the references.

PERFORMANCE STEPS:
1. Review references.
2. Supervise inventory.
3. Verify missing and unserviceable items.
4. Take corrective actions, as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. UNIT SOP Unit's Standing Operating Procedures

1345-ADMN-2002: Maintain engineer equipment operator records and forms.

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, applicable forms, and references.

STANDARD: To comply with record-keeping procedures.

PERFORMANCE STEPS:
1. Review the references.
2. Determine records/forms required.
3. Prepare the proper records/forms.
4. Maintain records/forms on file and submit, as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1345-ADMN-2003: Administer engineer equipment licensing program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, documentation, licensing records, and references.

STANDARD: Ensuring equipment operators are licensed.

PERFORMANCE STEPS:
1. Review the references.
2. Determine operator licensing requirements.
3. Review equipment training and testing programs.
4. Review and approve/reject licensing applications and renewals.
5. Administer licensing tests.
6. Review completed OF 346.
7. Document licensing action.

REFERENCES:
1. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
2. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UNIT SOP Unit's Standing Operating Procedures

1345-HEOP-2001: Operate the Rough Terrain Container Handler

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operational checks and services.
3. Perform starting procedures.

4. Operate container handler to perform material handling operations.
5. Install/remove container handling attachment, as required.
6. Prepare container handler for transportation.
7. Perform during operations checks and services.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 11078A-OR Rough Terrain Container Handler (RTCH) RT 240 V2; 53,000LB Capacity; 4X4
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2002: Operate the LRT-110 Crane

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Operate the crane.
5. Install/remove man basket, as required.
6. Perform during operations checks and services.
7. Perform shut down procedures.
8. Perform after operations checks and services.
9. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
3. TM 09166B-14&P Operation/maintenance manual with repair part list
4. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. TM 5-3810-305-10 Operators manual for crane, wheel mounted, hydraulic, light, 7 1/2 ton rough terrain crane

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1345-HEOP-2003: Operate the Marine All-Terrain Crane (MAC 50)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, attachments, tools, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operational checks and services.
3. Perform starting procedures.
4. Perform crane operations.
5. Install/remove attachments, as required.
6. Perform during operational checks and services.
7. Perform shut down procedures.
8. Perform after operational checks and services.
9. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
3. TM 11262A-OR/3 Operations and Operator/Crew Maintenance Manual for all-terrain crane
4. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2004: Operate the 621G Scraper

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform self-loading operations.
5. Perform external loading procedures.
6. Perform push loading operations.
7. Perform during operations checks and services.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 11503A-OR Operators Manual; 850JR MCT Crawler Dozer
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2005: Operate the Hydraulic Excavator (HYEX)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform general engineering operations.
5. Perform installation/removal of attachments.
6. Perform during operations checks and services.
7. Perform shut down procedures.
8. Perform after operations checks and services.
9. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2006: Operate equipment with a Grade Control System

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Install the laser system.
3. Install the GPS system.
4. Perform the measure up of the GPS system.
5. Perform valve calibration.
6. Perform sensor calibration.
7. Perform site set up of laser system.
8. Perform site set up of GPS system.
9. Perform leveling operations.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 11503A-OR 850 JR Crawler Dozer
3. TM 11621A-OR MOTORIZED ROAD GRADER, MODEL 120M
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2007: Operate the M9 Armored Combat Earthmover (ACE)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Conduct mobility and counter mobility earthmoving operations.
5. Perform during operations checks and services.

6. Perform shut down procedures.
7. Perform after operations checks and services.
8. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 5-2350-262-10 Operators Manual Armored Combat Earthmover (ACE), M9,

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1345-HEOP-2008: Operate the CS-563E vibratory compactor

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Perform vibratory compaction operations.
6. Perform roller operations.
7. Change drum pads, as required.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals
2. FM 21-60 Visual Signals
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2009: Operate the Multi-Terrain Loader (MTL)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345, 1371

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer equipment requirement, engineer equipment records, forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Perform general engineering operations.
6. Change attachments, as required.
7. Operate attachments, as required.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 11276A-0I/1 Multi-Terrain Loader (MTL)
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2010: Operate the Runway Sweeper

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer equipment requirement, engineer equipment records, forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Operate the sweeper to remove foreign object debris (FOD).
6. Perform shut down procedures.
7. Perform after operations checks and services.
8. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 09199B-OR Sweeper, Rotary, Vehicle Mounting
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2011: Operate the 613C Water Distributor

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer equipment requirement, engineer equipment records, forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Initiate trip ticket.
2. Perform before operation checks and services.
3. Perform starting procedures.
4. Perform during operation checks and services.
5. Operate the 613C Water Distributor.
6. Perform shut down procedures.
7. Perform after operation checks and services.
8. Complete operational records.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures
4. TM 5-3800-205-10-2 Distributor, Water, Tank Type, 2525 Gallon Capacity, Sectionalized Model 613CWD

1345-HEOP-2012: Camouflage positions, vehicles or equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a mission, an area, and lightweight camouflage screening system components.

STANDARD: To prevent detection from 200 meters in any direction.

PERFORMANCE STEPS:
1. Review size of positions, vehicles, or equipment to be camouflaged.
2. Determine required modules of lightweight screen needed.
3. Assemble modules into one net.
4. Place assembled modules over position, vehicles, or equipment to be camouflaged.
5. Ensure appropriate blend is showing.
6. Tie into existing, natural or other manmade camouflage.
7. Inspect area frequently and upgrade camouflage, as needed.

REFERENCES:
1. FM 20-3 Camouflage

1345-HORZ-2001: Prepare estimations for project production and logistical requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, resources, and references.

STANDARD: To support mission requirements.

PERFORMANCE STEPS:
1. Identify weight of a specified volume of soil.
2. Calculate the maximum load volume and weight.
3. Calculate required production rates.
4. Calculate the time requirement for mission completion.
5. Identify logistical requirements to support a mission.

REFERENCES:
1. Appropriate Technical Manuals
2. FM 5-434 Earthmoving Operations
3. TM 10629-10D Truck, Dump, 7-ton, MK29/ MK30
4. TM 11412A-OR Operator's Manual 624KR Loader
5. TM 11503A-OR 850 JR Crawler Dozer

1345-MANT-2001: Perform engineer equipment Limited Technical Inspection (LTI)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an item of equipment, a 1341 engineer equipment mechanic, a LTI Worksheet (NAVMC 10560), appropriate tools, and references.

STANDARD: To meet LTI requirements.

PERFORMANCE STEPS:
1. Review the references.
2. Perform operator preventive maintenance checks and services.
3. Assist the mechanic in inspecting the equipment per the technical manual.
4. Record inspection results.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1345-MANT-2002: Maintain Corrosion Prevention and Control (CPAC) Program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an item of equipment, required safety equipment, materials, appropriate tools, and references.

STANDARD: To maintain equipment in optimum operating condition.

PERFORMANCE STEPS:
1. Review the references.
2. Identify discrepancies.
3. Draw materials and tools.
4. Don Personal Protective Equipment (PPE).
5. Perform necessary corrective action.
6. Spot paint, as required.
7. Lubricate, as required.
8. Dispose of waste.

REFERENCES:
1. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
2. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
3. TM 3080-50 Corrosion Control Procedures for Depot Maintenance Activities

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1345-MANT-2003: Install/remove Medium Crawler Tractor (MCT) attachments

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: While assisting a 1341 Engineer Equipment Mechanic, with an MCT, MCT attachments, tools, and the reference.

STANDARD: To ensure safe installation/removal with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:
1. Review the references.
2. Prepare tractor for attachments.
3. Install or remove the attachments.
4. Perform operator checks and services as necessary.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 11503A-OR 850 JR Crawler Dozer

1345-MANT-2004: Replace cutting edges/teeth on applicable engineer equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a requirement, appropriate tools, and references.

STANDARD: To restore equipment to full operational condition.

PERFORMANCE STEPS:
1. Review the references.
2. Consult with mechanic as to the level of assistance required in replacing the cutting edges/teeth.
3. Remove old cutting edges/teeth.
4. Replace with new cutting edges/teeth.

PREREQUISITE EVENTS:
1341-MANT-2013 1345-MANT-2004

REFERENCES:
1. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: A 1341 Engineer Equipment Mechanic provides assistance to accomplish this event.

CHAPTER 19

MOS 1349 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	19000	19-2
EVENT CODING	19001	19-2
INDEX OF INDIVIDUAL EVENTS	19002	19-2
2000-LEVEL EVENTS	19003	19-3

CHAPTER 19

MOS 1349 INDIVIDUAL EVENTS

19000. PURPOSE. This chapter details the individual events that pertain to the Engineer Equipment Chief. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

19001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1349	Administrative Specialist

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction
MANT	Maintenance

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
2000	Core Plus Skills

19002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
2000-LEVEL EVENTS		
1349-ADMN-2001	Supervise publications program	19-3
1349-ADMN-2002	Supervise engineer equipment records and forms	19-4
1349-ADMN-2003	Supervise support and test equipment program	19-4
1349-ADMN-2004	Supervise maintenance-related programs	19-5
1349-ADMN-2005	Supervise engineer equipment section supply support program	19-6
1349-ADMN-2006	Supervise engineer equipment licensing program	19-6

1349-ADMN-2007	Supervise load test of engineer equipment	19-7
1349-ADMN-2008	Supervise corrosion prevention and control program	19-8
1349-ADMN-2009	Supervise engineer equipment MOS training program	19-8
1349-ADMN-2010	Conduct an Operational Risk Assessment (ORA)	19-9
1349-HEOP-2001	Supervise engineer equipment operations	19-10
1349-HORZ-2001	Supervise horizontal construction	19-10
1349-HORZ-2002	Supervise horizontal construction project production and logistical requirements	19-11
1349-HORZ-2003	Validate project/operation schedule	19-12
1349-MANT-2001	Supervise engineer equipment maintenance shop operations	19-12
1349-MANT-2002	Supervise engineer equipment availability	19-13

19003. 2000-LEVEL EVENTS

1349-ADMN-2001: Supervise publications program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With unit's Publications Listing (PL) and Table of Organization and Equipment (T/O&E), access to publications websites and management systems, and references.

STANDARD: Ensuring required publications are available to maintain the section's operational capabilities and readiness.

PERFORMANCE STEPS:
1. Review the references.
2. Identify publication requirements based on mission and T/O&E.
3. Audit section's Individual Distribution Listing (IDL).
4. Validate on-hand publications inventory.
5. Inspect section's library for missing or outdated publications.
6. Verify that published changes are made to publications.
7. Evaluate control procedures.
8. Evaluate NAVMC 10772 procedures.
9. Correct deficiencies.

REFERENCES:
1. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
2. MCO 5215.1_ Marine Corps Directives Management Program
3. MCO 5600.20_ Marine Corps Doctrinal Publications System

4. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
5. MCO P4400.82_ Regulated/Controlled Item Management Manual
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. MCO P5215.17_ The Marine Corps Technical Publications System
8. NAVMC 2761 Catalog of Publications
9. PLMS V3 UG Publication Library Management System Version 3 Users Guide
10. SECNAV M-5210.2_ Department of the Navy Standard Subject Identification Code (SSIC) Manual
11. UNIT SOP Unit's Standing Operating Procedures

1349-ADMN-2002: Supervise engineer equipment records and forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided items of engineer equipment, appropriate records/forms, and references.

STANDARD: To support mission requirements.

PERFORMANCE STEPS:
1. Review the references.
2. Identify requirements for engineer equipment records/forms.
3. Ensure records for each item of engineer equipment are established as required.
4. Maintain records and forms.
5. Supervise Product Quality Deficiency Report (PQDR) program.

REFERENCES:
1. MCO 4105.2_ Marine Corps Warranty Program
2. MCO 4790.19 Depot Maintenance Policy
3. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1349-ADMN-2003: Supervise support and test equipment program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided support and test equipment and references.

STANDARD: To support mission requirements in accordance with MCO P4790.2_.

PERFORMANCE STEPS:
1. Review the references.
2. Review support and test equipment assets and requirements.
3. Supervise support and test equipment inventory and control.

REFERENCES:
1. MCO P4400.150_ Consumer Level Supply Policy Manual
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. TM 4700-15/1_ Ground Equipment Record Procedures

1349-ADMN-2004: Supervise maintenance-related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance resources, local maintenance directives, and the reference.

STANDARD: To support mission requirements in accordance with MCO P4790.2_.

PERFORMANCE STEPS:
1. Review the references.
2. Provide input to the Maintenance Management SOP (MMSOP).
3. Validate modification control program.
4. Validate calibration control program.
5. Validate quality control program.
6. Monitor Corrective Maintenance (CM) program.
7. Monitor Preventive Maintenance (PM).
8. Plan the use of maintenance resources.
9. Organize the use of maintenance resources.
10. Coordinate the use of maintenance resources.
11. Conduct internal inspections.

REFERENCES:
1. DLA Customer Assistance Handbook
2. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
3. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
4. MCO P4400.150_ Consumer Level Supply Policy Manual

5. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
8. TM 4700-15/1_ Ground Equipment Record Procedures

1349-ADMN-2005: Supervise engineer equipment section supply support program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance-related reports, appropriate equipment-related publications, and references.

STANDARD: To support unit mission in accordance with MCO P4400.150.

PERFORMANCE STEPS:
1. Review the references.
2. Review supply support request.
3. Submit input for budget requirements.
4. Monitor allocated funding.
5. Monitor pre-expended bin (PEB).
6. Monitor layette procedures.
7. Submit input for supply requirements.
8. Monitor validation/reconciliation procedures.

REFERENCES:
1. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
2. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
3. MCO P4400.150_ Consumer Level Supply Policy Manual
4. MCO P4400.82_ Regulated/Controlled Item Management Manual
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. MCO P7100.8_ Field Budget Guidance Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UM 4400-124 SASSY Using Unit Procedures
9. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1349-ADMN-2006: Supervise engineer equipment licensing program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, equipment, documentation, licensing records, and references.

STANDARD: Ensuring equipment operators are licensed in accordance with TM 11275-15/4.

PERFORMANCE STEPS:
1. Review the references.
2. Determine operator licensing requirements.
3. Review equipment training and testing programs.
4. Review and approve/reject licensing applications (and renewals).
5. Review and approve completed OF 346.
6. Ensure any licensing action (issue/renewal/revocation) is documented and recorded.

REFERENCES:
1. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
2. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
4. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. UNIT SOP Unit's Standing Operating Procedures
7. Unit T/O&E Unit's Table of Organization and Equipment

1349-ADMN-2007: Supervise load test of engineer equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided appropriate load lifting equipment with current Annual Condition Inspection (ACI), maintenance resources, and references.

STANDARD: To ensure load testing is conducted, certified, documented and maintained on a scheduled basis.

PERFORMANCE STEPS:
1. Review the References.
2. Identify load testing requirements.
3. Verify that a current ACI has been conducted.

4. Conduct a load test
5. Document load test results.
6. Review documentation.
7. Certify documentation.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P11262.2 Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures

1349-ADMN-2008: Supervise corrosion prevention and control program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an equipment section, required safety materials, appropriate tools, and the references.

STANDARD: To maintain equipment in an operational status.

PERFORMANCE STEPS:
1. Identify corrosion prevention and control requirements.
2. Establish corrosion prevention and control procedures.
3. Supervise corrosion prevention and control procedures.

REFERENCES:
1. MCO 4790.18_ Corrosion Prevention and Control (CPAC) Program
2. TM 3080-12 Corrosion Control for Marine Corps Ground Equipment
3. TM 3080-50 Corrosion Control Procedures

1349-ADMN-2009: Supervise engineer equipment MOS training program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With training resources, records and references.

STANDARD: Identifying engineer training requirements in accordance with unit SOP.

PERFORMANCE STEPS:
1. Review the references.
2. Review the annual training plan.
3. Review the section training plan.
4. Identify supervisor's responsibilities.
5. Monitor personnel conducting training.
6. Ensure training is documented correctly.

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO 1553.3_ Unit Training Management (UTM) Program
3. MCO 3500.27_ Operational Risk Management (ORM)
4. MCO P3500.72_ Marine Corps Ground Training and Readiness (T&R) Program
5. MCRP 3-0A Unit Training Management Guide
6. MCRP 3-0B How to Conduct Training
7. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
8. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
9. Unit SOP Unit's Standing Operating Procedures

1349-ADMN-2010: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a task/mission, a Risk Management Worksheet, and references.

STANDARD: So that task/mission effectiveness is increased while loss of personnel and material is minimized through the use of risk management controls.

PERFORMANCE STEPS:
1. Review the task/mission.
2. Review the references.
3. Identify hazards.
4. Assess hazards to identify severity and probability.
5. Develop controls.
6. Make risk decisions.
7. Implement controls.

REFERENCES:

1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCO 5100.29_ Marine Corps Safety Program
3. MCO P5102.1_ Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
4. MCRP 5-12.1C Risk Management - Cancelled w/o replacement

1349-HEOP-2001: Supervise engineer equipment operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, available resources, mission statement and references.

STANDARD: To support mission statement and requirements.

PERFORMANCE STEPS:
1. Review the mission.
2. Identify engineer equipment assets required.
3. Conduct engineer equipment operations.
4. Supervise Material Handling Equipment (MHE) employment.
5. Supervise earth moving equipment employment.
6. Supervise general support engineer equipment employment.
7. Supervise equipment recovery operations, as required.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCRP 3-17.7I Earthmoving Operations
4. MCRP 3-17A Engineering Field Data
5. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

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1349-HORZ-2001: Supervise horizontal construction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction project, a construction site, engineer equipment, resources, and references.

STANDARD: To meet milestones per the project specifications.

PERFORMANCE STEPS:
1. Create a construction plan.
2. Implement the construction plan.
3. Supervise personnel.
4. Supervise equipment employment.
5. Consolidate available resources.
6. Conduct quality assurance.

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7I Earthmoving Operations
3. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment

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1349-HORZ-2002: Supervise horizontal construction project production and logistical requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, resources, and references.

STANDARD: To develop project estimates in support of mission requirements.

PERFORMANCE STEPS:
1. Conduct site reconnaissance.
2. Identify construction requirements.
3. Identify logistical requirements.
4. Identify environmental controls and natural resources considerations.
5. Formulate a resource logistical estimation.
6. Formulate a resource production estimation.

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. MCRP 3-17.7F Project Management
5. MCRP 3-17.7G Military Soils Engineering

6. MCRP 3-17.7I Earthmoving Operations
7. MCRP 3-17A Engineering Field Data
8. MCRP 4-11.8A Marine Corps Field Feeding Program
9. MCRP 4-11A, Vol 1 CSS Field Reference Guide
10. MCWP 3-17 Engineer Operations
11. MCWP 5-1 Marine Corps Planning Process (MCPP)
12. TM 3-34.55 Construction Surveying

1349-HORZ-2003: Validate project/operation schedule

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, a completed project/operation schedule and references.

STANDARD: To confirm that the required engineer resources and personnel are identified, the timeline conforms to mission specifications, and the graphic depiction of the schedule is accurate.

PERFORMANCE STEPS:
1. Review the mission.
2. Verify activity estimate sheets.
3. Verify logical sequence of activities.
4. Verify critical path.
5. Review graphical depiction, if necessary.
6. Ensure schedule remains updated throughout the duration of the project/operation.

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7I Earthmoving Operations

1349-MANT-2001: Supervise engineer equipment maintenance shop operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission statement, maintenance facility, resources and references.

STANDARD: To ensure maintenance facilities and procedures are established per the mission statement.

PERFORMANCE STEPS:
1. Identify the mission requirements.
2. Identify all maintenance resources.
3. Identify environmental and natural resource considerations.
4. Designate required maintenance shop areas.
5. Implement the maintenance production process.
6. Validate operational risk management procedures.
7. Implement shop safety programs.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 5-1 Marine Corps Planning Process (MCPP)
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. Unit T/O&E Unit's Table of Organization and Equipment

1349-MANT-2002: Supervise engineer equipment availability

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission statement, maintenance facility, resources and references.

STANDARD: To support the unit mission statement (TO/E) in accordance with MCO P4790.2_.

PERFORMANCE STEPS:
1. Review the references.
2. Validate urgency of need designator assignment codes.
3. Review maximum maintenance cycle time.
4. Develop plan to increase equipment availability.

REFERENCES:
1. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
2. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
3. MCO P4790.2_ MIMMS Field Procedures Manual

ENG & UTIL T&R MANUAL

CHAPTER 20

MOS 1361 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	20000	20-2
ADMINISTRATIVE NOTES	20001	20-2
INDEX OF INDIVIDUAL EVENTS	20002	20-2
1000-LEVEL EVENTS	20003	20-3
2000-LEVEL EVENTS	20003	20-15

CHAPTER 20

MOS 1361 INDIVIDUAL EVENTS

20000. PURPOSE. This chapter details the individual events that pertain to Engineer Assistant Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

20001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1361	Engineer Assistant

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
MANT	Maintenance
XENG	General Engineering
SRVY	Surveying

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills
2000	Core Plus Skills

20002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
	1000-LEVEL EVENTS	
1361-DRAF-1001	Perform basic drafting techniques	20-3
1361-DRAF-1002	Create computer-aided multi-view drawings	20-4
1361-DRAF-1003	Create computer-aided architectural drawings	20-4
1361-SRVY-1001	Complete a control traverse using optical equipment	20-5
1361-SRVY-1002	Establish project control points using Global Positioning System (GPS) equipment	20-6

1361-SRVY-1003	Conduct a radial survey using optical equipment	20-7
1361-SRVY-1004	Conduct a topographic survey with GPS equipment	20-8
1361-SRVY-1005	Conduct an integrated radial survey using optical and GPS equipment	20-8
1361-SRVY-1006	Adjust collected field data	20-9
1361-SRVY-1007	Create computer-aided civil drawings	20-10
1361-SRVY-1008	Layout a project using optical equipment	20-11
1361-SRVY-1009	Layout a project using GPS equipment	20-12
1361-SRVY-1010	Layout a project using integrated GPS and optical	20-13
1361-SRVY-1011	Perform differential elevation leveling using an autolevel/laser level	20-13
1361-SRVY-1012	Prepare Grade Control System (GCS)	20-14
	2000-LEVEL EVENTS	
1361-SRVY-2001	Design a horizontal construction project	20-15
1361-SRVY-2002	Prepare Grade Control System (GCS)	20-16
1361-SRVY-2003	Design a vertical construction project	20-17
1361-SRVY-2004	Compute a project bill of materials	20-18
1361-SRVY-2005	Implement project planning methods	20-19
1361-ADMN-2001	Control publications	20-19
1361-ADMN-2002	Initiate maintenance actions	20-20
1361-ADMN-2003	Manage maintenance related programs	20-21
1361-XENG-2001	Perform hasty soil analysis	20-21
1361-XENG-2002	Plan survey support for the construction of a base camp	20-22

20003. 1000-LEVEL EVENTS

1361-DRAF-1001: Perform basic drafting techniques

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided survey set (G.P.), and references.

STANDARD: That meets American National Standards Institute (ANSI) guidelines.

PERFORMANCE STEPS:
1. Start the computer-aided drafting program.
2. Establish drawing parameters.

3. Utilize drawing command functions.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 5-553 General Drafting

1361-DRAF-1002: Create computer-aided multi-view drawings

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided survey set (G.P.), written project specifications, design sketches, a printer or plotter, and references.

STANDARD: That conform to project specifications, design sketches, and American National Standards Institute (ANSI) guidelines.

PERFORMANCE STEPS:
1. Review written specifications and design sketches.
2. Perform basic drafting techniques.
3. Create a multi-view drawing.
4. Print or plot the multi-view drawing.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 5-553 General Drafting
3. OEM (AutoCAD User’s Manual) AutoCAD User’s Manual

1361-DRAF-1003: Create computer-aided architectural drawings

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided survey set (G.P.), written project specifications, design sketches, a printer or plotter, and references.

STANDARD: That conform to project specifications, design sketches, and American National Standards Institute (ANSI) guidelines.

PERFORMANCE STEPS:
1. Review written project specifications and design sketches.
2. Perform basic drafting techniques.
3. Create a foundation plan.
4. Create a floor plan with door and window schedules.
5. Create an electrical plan with lighting schedule.
6. Create a plumbing plan with fixture schedule.
7. Create elevation views.
8. Create section and detail drawings.
9. Print or plot the architectural drawings.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 5-426 Carpentry
3. FM 5-428 Concrete and Masonry
4. FM 5-553 General Drafting
5. MCRP 3-17.7K Theater of Operations Electrical Systems
6. NAVEDTRA 10696 Engineer Aid 3
7. OEM (AutoCAD User's Manual) AutoCAD User's Manual
8. TM 5-581B Construction Drafting
9. TM 5-704 Construction Print Reading in the Field

1361-SRVY-1001: Complete a control traverse using optical equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, survey set (G.P.), and references.

STANDARD: To guide horizontal and vertical construction project layouts to the third order of accuracy.

PERFORMANCE STEPS:
1. Review project specifications and design sketches.
2. Identify control station locations.
3. Assemble the total station instruments and reference targets.
4. Create a new control survey job file.
5. Perform station establishment.
6. Initialize total station for control survey traverse.
7. Measure and record angle sets and distances between traverse stations.
8. Export control survey points job file as *.CSV (comma delineated) file for

GPS site calibration, as required, when working with engineer earthmoving equipment using current Grade Control System (GCS).
9. Download/import control survey file into surveying software program.
10. Generate accuracy summary report.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. MCRP 4-11B Environmental Considerations
3. NAVEDTRA 10696 Engineer Aid 3
4. OEM Original Equipment Manufacturer Manuals
5. OEM (TRIMBLE S6 User's Manual) TRIMBLE S6 User's Manual
6. OEM Trimble Survey Controller User Guide
7. TM 3-34.55 Construction Surveying
8. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1002: Establish project control points using Global Positioning System (GPS) equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, a survey set (G.P.), and references.

STANDARD: To guide horizontal and vertical construction project layouts to the third order of accuracy.

PERFORMANCE STEPS:
1. Review project specifications and design sketches.
2. Identify control station locations.
3. Assemble the GPS base station and rovers.
4. Create a control survey job file in the data collector.
5. Start/initialize base station for Real Time Kinematics (RTK) survey.
6. Perform a here point with the GPS base station.
7. Start/initialize the GPS rover for Real Time Kinematics (RTK) survey.
8. Occupy/measure all control points with the GPS rover.
9. Finish the GNSS control survey.
10. Import/download control survey file into surveying software.
11. Post process data with the surveying software.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. MCRP 4-11B Environmental Considerations
3. NAVEDTRA 10696 Engineer Aid 3

4. OEM Original Equipment Manufacturer Manuals
5. OEM (TRIMBLE R-8 User's Manual) TRIMBLE R-8 User's Manual
6. OEM Trimble Survey Controller User Guide
7. TM 3-34.55 Construction Surveying
8. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1003: Conduct a radial survey using optical equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, a control traverse, a survey set (G.P.), and references.

STANDARD: Collecting planimetric and topographic field data to the third order of accuracy.

PERFORMANCE STEPS:
1. Review project specifications.
2. Assemble the total station instrument.
3. Create a new job file in the data collector.
4. Link previous control survey point coordinates to the new topographic survey file.
5. Perform station establishment.
6. Initialize for topographic data collection.
7. Measure and record topographic and planimetric data.
8. Assign properties to observations.
9. Perform surface scan.
10. Download/import topographic data into surveying software.
11. Draft linework to features collected.
12. Assign blocks to features collected.
13. Produce a contoured site plan per specifications.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. MCRP 4-11B Environmental Considerations
3. NAVEDTRA 10696 Engineer Aid 3
4. OEM (TRIMBLE S6 User's Manual) TRIMBLE S6 User's Manual
5. OEM Trimble Survey Controller User Guide
6. TM 3-34.55 Construction Surveying
7. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1004: Conduct a topographic survey with GPS equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, a control traverse, a survey set (G.P.), and references.

STANDARD: Collecting planimetric and topographic field data to the third order of accuracy.

PERFORMANCE STEPS:
1. Review project specifications.
2. Create a new job file in the data collector.
3. Link previous control survey point coordinates to the topographic survey file, as necessary.
4. Assemble the GPS surveying system.
5. Start/initialize the GPS base station over a known control point.
6. Start/initialize the GPS rovers for Real Time Kinematics (RTK) survey.
7. Measure/record topographic and plainmetric data.
8. Assign properties to observations.
9. Download/import topographic data into surveying software.
10. Draft linework to collected points.
11. Assign blocks to features collected.
12. Produce a contoured site plan drawing per specifications.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. MCRP 4-11B Environmental Considerations
3. NAVEDTRA 10696 Engineer Aid 3
4. OEM (TRIMBLE R-8 User’s Manual) TRIMBLE R-8 User’s Manual
5. OEM Trimble Survey Controller User Guide
6. TM 3-34.55 Construction Surveying
7. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1005: Conduct an integrated radial survey using optical and GPS equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, a control traverse, a survey set (G.P.), and references.

STANDARD: Collecting planimetric and topographic field data to the third order of accuracy.

PERFORMANCE STEPS:
1. Review project specifications.
2. Assemble the total station instrument.
3. Assemble the GPS equipment.
4. Attach a prism and a GPS rover to a range rod.
5. Verify rod height and prism to GPS rover distance offset.
6. Create a new job file in the data collector.
7. Link previous control survey point coordinates to the new topographic survey file.
8. Start/initialize the GPS base station over a known control point.
9. Start/initialize the GPS rover for RTK survey.
10. Perform station establishment with the optical instrument.
11. Verify that the data collector is in integrated survey mode.
12. Initialize for topographic data collection.
13. Measure/record topographic and plainmetric data.
14. Assign priorities to observations.
15. Perform surface scan with the optical instrument.
16. Download/import topographic data into the survey software.
17. Draft linework to collected points.
18. Assign blocks to features collected.
19. Produce a contoured site plan per specifications.
20. Print or plot finished project site plan.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. MCRP 4-11B Environmental Considerations
3. NAVEDTRA 10696 Engineer Aid 3
4. OEM (TRIMBLE R-8 User’s Manual) TRIMBLE R-8 User’s Manual
5. OEM (TRIMBLE S6 User’s Manual) TRIMBLE S6 User’s Manual
6. OEM Trimble Survey Controller User Guide
7. TM 3-34.55 Construction Surveying
8. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1006: Adjust collected field data

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a survey set (G.P.), collected survey field data, and references.

STANDARD: Accurately representing existing terrain features.

PERFORMANCE STEPS:
1. Connect the data collector device to the computer.
2. Run hardware synchronization.
3. Download the collected field data to the software program.
4. Edit keyed in data.
5. Run automatic drafting from points feature.
6. Edit drawing for errors or appearance using data editor.
7. Produce a contoured site plan per specifications.

REFERENCES:
1. MCRP 4-11B Environmental Considerations
2. OEM (Terra Model User's Manual) Terra Model User's Manual
3. OEM Trimble Survey Controller User Guide
4. TM 3-34.55 Construction Surveying
5. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1007: Create computer-aided civil drawings

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a survey set (G.P.), adjusted field data file, a completed site plan drawing, written project specifications, a printer or plotter, and references.

STANDARD: That conforms to project specifications, design sketches, and American National Standards Institute (ANSI) guidelines.

PERFORMANCE STEPS:
1. Review written project specifications and design sketches.
2. Open project site plan file.
3. Perform horizontal design per specifications.
4. Create cross section drawings.
5. Create a plan and profile drawing.
6. Create a contoured plot plan.

7. Print earthwork volume readouts.
8. Create a civil plan per specifications.
9. Print or plot the civil plan drawings.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 5-553 General Drafting
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 4-11B Environmental Considerations
6. NAVEDTRA 10696 Engineer Aid 3
7. OEM (Terra Model User's Manual) Terra Model User's Manual
8. TM 5-581B Construction Drafting
9. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1008: Layout project using optical equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project design specifications, a survey set (G.P.), a design coordinate file, class IV, and references.

STANDARD: To the third order of accuracy.

PERFORMANCE STEPS:
1. Connect the data collector device to computer.
2. Upload design data to the data collector device.
3. Verify design data file was uploaded to the data collector.
4. Link a control point coordinate listing to the layout job file, as necessary.
5. Assemble the total station instrument.
6. Open uploaded stakeout file.
7. Perform station establishment.
8. Stake-out project design points.
9. Mark alignment and grade stakes.
10. Check earthwork elevations from design elevations.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. MCRP 4-11B Environmental Considerations
3. NAVEDTRA 10696 Engineer Aid 3

4. OEM (TRIMBLE S6 User's Manual) TRIMBLE S6 User's Manual
5. OEM Trimble Survey Controller User Guide
6. TM 3-34.55 Construction Surveying
7. TM 5-581B Construction Drafting
8. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1009: Layout project using GPS equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project design specifications, survey set (G.P.), class IV, and references.

STANDARD: To the third order of accuracy.

PERFORMANCE STEPS:
1. Connect the data collector device to the computer.
2. Upload design data to the data collector device.
3. Verify design data file was uploaded to the data collector.
4. Link a control point coordinate listing to the stakeout job file, as necessary.
5. Assemble GPS surveying system.
6. Start/initialize the GPS base station over a known control point using RTK.
7. Start/initialize GPS rover RTK.
8. Open uploaded stakeout job file.
9. Stake-out project design points.
10. Mark alignment and grade stakes.
11. Check earthwork elevations from design elevations.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. FM 5-232 Elements of Surveying
3. MCRP 4-11B Environmental Considerations
4. NAVEDTRA 10696 Engineer Aid 3
5. OEM (TRIMBLE R-8 User's Manual) TRIMBLE R-8 User's Manual
6. OEM Trimble Survey Controller User Guide
7. TM 3-34.55 Construction Surveying
8. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1010: Layout a project using integrated GPS and optical equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project design specifications, survey set (G.P.), class IV, and references.

STANDARD: To the third order of accuracy.

PERFORMANCE STEPS:
1. Connect the data collector device to computer.
2. Upload design data to the data collector device.
3. Verify design data was uploaded to the data collector.
4. Link a control point coordinate listing to the stakeout job file, as necessary.
5. Assemble GPS surveying system.
6. Start/initialize the GPS base station over a known control point using RTK.
7. Start/initialize GPS rover in RTK.
8. Assemble the total station instrument.
9. Perform station establishment with the total station and backsight.
10. Verify that the data collector is in the integrated survey mode.
11. Initialize data collector for stakeout mode.
12. Stake-out project design points.
13. Mark alignment and grade stakes.
14. Check earthwork elevations from design elevations.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. MCRP 4-11B Environmental Considerations
3. NAVEDTRA 10696 Engineer Aid 3
4. OEM (TRIMBLE R-8 User’s Manual) TRIMBLE R-8 User’s Manual
5. OEM (TRIMBLE S6 User’s Manual) TRIMBLE S6 User’s Manual
6. OEM Trimble Survey Controller User Guide
7. TM 3-34.55 Construction Surveying
8. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1011: Perform differential elevation leveling using an autolevel/laser level

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, a project site, a survey set (G.P.), a survey data book, and references.

STANDARD: Setting project elevations to within 0.02' difference.

PERFORMANCE STEPS:
1. Review project plans and specifications.
2. Set up the autolevel.
3. Set up/initialize the laser level.
4. Assemble the laser level receiver to the grade rod.
5. Identify location for a backsight control station.
6. Measure the backsight rod reading.
7. Calculate/record the elevation of the backsight.
8. Measure the foresight rod readings.
9. Calculate/record elevations of the foresights.
10. Construct batter boards, as necessary.
11. Mark batter boards.
12. Run string lines to guide form placement, as necessary.
13. Provide differences in elevations of the project to project manager and heavy equipment operators.
14. Re-measure/record foresight rod readings, as necessary, during earthwork operations.
15. Re-mark batter boards, as necessary.
16. Re-run string lines to guide project, as necessary.

REFERENCES:
1. FM 3-34.331 Topographic Surveying
2. NAVEDTRA 10696 Engineer Aid 3
3. OEM Leica NA-24 User’s Manual
4. OEM Nikon User’s Manual
5. OEM Spectra Precision User’s Manual
6. TM 5-232 Elements of Construction Surveying

1361-SRVY-1012: Prepare Grade Control System (GCS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a survey set general purpose (G.P.), completed horizontal

construction design, data transfer device, corresponding heavy equipment and references.

STANDARD: Integrating design data into GCS to guide construction quality control.

PERFORMANCE STEPS:
1. Validate civil design of horizontal project.
2. Use applicable grade control software (Trimble SiteVision).
3. Import design data into grade control software.
4. Export/upload design data onto memory card.
5. Verify exported design data extension files in the memory card.
6. Provide control point coordinates (Lat/Long, Elevation) to heavy equipment.
7. Assist engineer equipment operator in GPS assembly/communication.
8. Assist engineer equipment operator in blade calibration.

REFERENCES:
1. MCRP 3-17.7I Earthmoving Operations
2. OEM Trimble TerraModel Users Guide
3. OEM (Grade Control System User's Manual) GCS User's Manual
4. OEM Trimble Survey Contoller User Guide
5. Trimble 43442-10-ENG SiteVision Office Getting Started Guide ver 7._
6. Trimble 5900-06-ENG GCS900 Operators Manual ver 11._
7. Trimble Navigation Ltd. Trimble Survey Controller Ver 12._ Help

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20004. 4000-LEVEL EVENTS

1361-SRVY-2001: Design a horizontal construction project

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, a scientific calculator, a survey set (G.P.), soil test set, a computer, software applications, and references.

STANDARD: That meets construction mission requirements.

PERFORMANCE STEPS:
1. Review the horizontal construction mission.
2. Perform a project site reconnaissance.
3. Perform hasty soil analysis.
4. Calculate drainage system requirements.
5. Identify structural dimensions.

6. Design the horizontal alignments for the project.
7. Design the vertical alignments for the project.
8. Balance earthwork volumes for the project.
9. Develop finished design sketches.
10. Create project design specifications.
11. Supervise the development of finished design drawings.
12. Supervise the layout of the project site.
13. Create as-built drawings.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 5-335 Drainage
3. FM 5-472 Materials Testing
4. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
5. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
6. MCRP 3-17A Engineer Field Data
7. OEM (AutoCAD User's Manual) AutoCAD User's Manual
8. OEM (Terra Model User's Manual) Terra Model User's Manual
9. TM 3-34.55 Construction Surveying
10. TM 5-820-4 Drainage for Areas Other Than Airfields

1361-SRVY-2002: Prepare Grade Control System (GCS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a survey set general purpose (G.P.), completed horizontal construction design, data transfer device, corresponding heavy equipment and references.

STANDARD: To integrating design data into GCS to guide construction quality control.

PERFORMANCE STEPS:
1. Complete a civil design project.
2. Provide alignment baseline for Laser Leveling operations as necessary.
3. Validate design slopes of the project for Laser Leveling operations as necessary.
4. Supervise the importing of design data into grade control software.
5. Supervise the uploading of design data unto a memory card.
6. Validate uploaded design data extension files needed by the engineer equipment operators.
7. Validate control point coordinates for GPS Base setup.

8. Assist Engineer Equipment Operator in GPS Base station coordinate (Latitude, Longitude, Elevation) input.
9. Assist in communication establishment between GPS Base and GPS rover attached to the engineer equipment.
10. Assist in laser level assembly and setup.
11. Supervise correct orientation of laser level equipment in relation to project.
12. Assist in communication establishment between laser transmitter and receiver attached to the engineer equipment.
13. Provide quality control between earthmoving progress and approved design slopes and elevations.

REFERENCES:
1. MCRP 3-17.7I Earthmoving Operations
2. OEM Trimble Terra Model Users Guide
3. OEM (Grade Control System User's Manual) GCS User's Manual
4. OEM Trimble Survey Controller User Guide
5. Trimble 43442-10-ENG Site Vision Office Getting Started Guide Ver 7._
6. Trimble 5900-06-ENG GCS900 Operators Manual Ver 11._
7. Trimble Navigation Ltd. Trimble Survey Controller Ver 12._ Help

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1361-SRVY-2003: Design a vertical construction project

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a vertical construction mission, a scientific calculator, a survey set (G.P.), soil test set, computer, software applications and references.

STANDARD: To safely support all calculated loads.

PERFORMANCE STEPS:
1. Review the vertical construction mission.
2. Perform a project site reconnaissance, as necessary.
3. Perform hasty soil analysis, as necessary.
4. Calculate the structure's live and dead loads.
5. Design the structural foundation requirements.
6. Design the structural framing requirements.
7. Identify finish construction material requirements.
8. Produce finished design plans.
9. Create project design specifications.

REFERENCES:
1. ANSI A-A-52034A Drafting

2. FM 5-553 General Drafting
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7E Plumbing, Pipe Fitting, and Sewerage
6. MCRP 3-17.7H Materials Testing
7. MCRP 3-17A Engineering Field Data
8. MCWP 3-17.7 General Engineering
9. NAVEDTRA 10696 Engineer Aid 3
10. TM 5-581B Construction Drafting
11. TM 5-704 Construction Print Reading in the Field

1361-SRVY-2004: Compute a project bill of materials

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a vertical construction mission, a scientific calculator, a computer, software applications, and references.

STANDARD: Accounting for all Class IV quantities.

PERFORMANCE STEPS:
1. Review project mission, project specifications, and design drawings.
2. Calculate concrete quantities.
3. Calculate concrete reinforcement quantities.
4. Calculate concrete form work quantities
5. Calculate masonry quantities.
6. Calculate board, lumber, and timber quantities.
7. Calculate fastener quantities.
8. Calculate hardware quantities.
9. Calculate finish material quantities.
10. Calculate electrical fixture quantities.
11. Calculate plumbing fixture quantities.
12. Produce a consolidated project bill of materials.
13. Research material costs.
14. Submit a completed bill of materials for procurement.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7F Project Management
4. NAVFAC P-405 Seabee Planner's and Estimator's Handbook
5. TM 5-581B Construction Drafting
6. TM 5-704 Construction Print Reading in the Field

1361-SRVY-2005: Implement project planning methods

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a project mission, written project specifications, finished design drawings, a completed bill of materials, a scientific calculator, a computer, software applications, a printer, and the references.

STANDARD: Detailing all personnel, equipment, and materials necessary to accomplish the mission while establishing a defined duration for each subtask and the overall project/operation and graphically depict the schedule.

PERFORMANCE STEPS:
1. Review project mission, written project specifications, and design drawings.
2. Perform a project site reconnaissance, as necessary.
3. Determine work activity.
4. Determine the logical sequence and inter-relationship of work activities.
5. Identify activity resource requirements.
6. Calculate activity durations.
7. Establish project schedule settings.
8. Input the project activities with precedence order.
9. Input activity durations.
10. Input activity resource requirements.
11. Adjust the project schedule as necessary.
12. Print a network diagram.
13. Print a project activity report.
14. Print a resource schedule.
15. Brief the project officer.
16. Supervise the work activities.

REFERENCES:
1. MCRP 3-17.7F Project Management
2. NAVFAC P-405 Seabee Planner's and Estimator's Handbook

1361-ADMN-2001: Control publications

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With unit Publications Listing (PL) and Table of Organization and Equipment (T/O&E), access to publications websites and management systems, and references.

STANDARD: Ensuring publications are available to maintain the section's operational capabilities and readiness.

PERFORMANCE STEPS:
1. Review the references.
2. Identify publication requirements based on mission and T/O&E.
3. Audit section publications library.
4. Validate on-hand publications inventory.
5. Inspect section library for missing or outdated publications.
6. Verify that published changes are made to publications.
7. Evaluate control procedures.
8. Evaluate NAVMC 10772 procedures.
9. Correct deficiencies.

REFERENCES:
1. MCO 5215.1_ Marine Corps Directives Management Program
2. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. MCO P5215.17_ The Marine Corps Technical Publications System
5. NAVMC 2761 Catalog of Publications
6. UNIT SOP Unit's Standing Operating Procedures

1361-ADMN-2002: Initiate maintenance actions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a requirement, data, and the references.

STANDARD: Per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review equipment technical manual to obtain maintenance information.
3. Initiate service request.
4. Review tasks and parts requirements.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual

2. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
3. TI 4733-OD/21_ Survey Instrument Calibration Program (SICP)
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UM 4790-5 User's Manual MIMMS
6. UNIT SOP Unit's Standing Operating Procedures

1361-ADMN-2003: Manage maintenance related programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided maintenance resources, local maintenance directives, and the reference.

STANDARD: To support mission requirements in accordance with MCO P4790.2_.

PERFORMANCE STEPS:
1. Review the references.
2. Provide input to the Maintenance Management SOP (MMSOP).
3. Validate modification control program.
4. Validate calibration control program.
5. Monitor Corrective Maintenance (CM) program.
6. Monitor Preventive Maintenance (PM) program.
7. Plan the use of maintenance resources.
8. Organize the use of maintenance resources.
9. Coordinate the use of maintenance resources.
10. Conduct internal inspections.

REFERENCES:
1. DLA Customer Assistance Handbook
2. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
3. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
4. MCO P4400.150_ Consumer Level Supply Policy Manual
5. MCO P4733.1_ Marine Corps TMDE Calibration and Maintenance Program
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TI 4733-OD/1_ Calibration Requirements Marine Corps Test, Measurement and Diagnostic Equipment Calibration and Maintenance Program
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. UNIT SOP Unit's Standing Operating Procedures

1361-XENG-2001: Perform hasty soil analysis

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

MOS PERFORMING: 1361, 1371

BILLETS: Engineer Assistant

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an unidentified soil sample, an SL-3 complete soil test kit and references.

STANDARD: To determine a two-letter USCS classification, CBR, and moisture content.

PERFORMANCE STEPS:
1. Obtain a soil sample.
2. Perform a visual examination of the soil.
3. Separate gravel.
4. Conduct field identification tests on the -40 material.
5. Determine the USCS classification.
6. Determine the CBR.
7. Determine the moisture content.
8. Record/report results.

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7F Project Management
4. MCRP 3-17.7G Military Soils Engineering
5. MCRP 3-17.7H Materials Testing
6. MCRP 3-17.7I Earthmoving Operations
7. MCRP 3-17A Engineering Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 3-17 Engineering Operations

1361-XENG-2002: Plan survey support for the construction of a base camp

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, commander's

intent, size of unit to occupy base camp, and references.

STANDARD: Providing the commander with precise GPS locations of all essential structures in support of the concept of operations and commander's intent.

PERFORMANCE STEPS:
1. Analyze METT-T.
2. Assist in site reconnaissance.
3. Recommend expected levels of damage to existing structures from enemy bomb blasts.
4. Recommend blast mitigation measures, as required.
5. Provide detailed base camp survey data, as required.
6. Stake out locations for obstacles and barriers based on minimum safe standoff distances.
7. Determine drainage requirements.
8. Provide finished base camp plan.
9. Stake out locations for bunkers and shelters.
10. Conduct base layout.
11. Recommend incremental improvements per METT-T.
12. Provide as-built plans.

REFERENCES:
1. MCRP 3-17A Engineering Field Data
2. MCWP 3-17 Engineering Operations
3. MCWP 3-17.5 Combined Arms Countermobility Operations
4. MCWP 3-17.6 Survivability
5. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

CHAPTER 21

MOS 1371 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE.	21000	21-2
EVENT CODING	21001	21-2
INDEX OF INDIVIDUAL EVENTS	21002	21-2
1000-LEVEL EVENTS.	21003	21-5
2000-LEVEL EVENTS.	21003	21-29

CHAPTER 21

MOS 1371 INDIVIDUAL EVENTS

21000. PURPOSE. This chapter details the individual events that pertain to Combat Engineers. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

21001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1371	Combat Engineers

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
CMOB	Countermobility
DEMO	Demolitions
EOPS	Engineer Operations
HORZ	Horizontal Construction
MANT	Maintenance
MOBL	Mobility
PLAN	Planning
RECN	Engineer Reconnaissance
SURV	Survivability
VERT	Vertical Construction

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills
2000	Core Plus Skills

21002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1371-CMOB-1001	Construct wire obstacles	21-5

1371-CMOB-1002	Construct field expedient obstacles	21-6
1371-CMOB-1003	Employ explosive obstacles	21-7
1371-DEMO-1001	Employ military explosives	21-8
1371-DEMO-1002	Create craters and ditches using explosives	21-9
1371-EOPS-1001	Construct concrete forms	21-10
1371-EOPS-1002	Operate a chainsaw	21-11
1371-EOPS-1003	Fell standing timber	21-12
1371-EOPS-1004	Operate the 260 CFM compressor	21-13
1371-EOPS-1005	Tie knots/lashings for rigging operations	21-13
1371-HORZ-1001	Mix concrete	21-14
1371-HORZ-1002	Pour concrete	21-15
1371-HORZ-1003	Finish concrete	21-16
1371-MANT-1001	Maintain combat engineer chests, sets and kits	21-16
1371-MOBL-1001	Breach non-explosive obstacles	21-17
1371-MOBL-1002	Operate handheld detectors	21-18
1371-MOBL-1003	Breach explosive obstacles/hazards	21-19
1371-MOBL-1004	Employ a Medium Girder Bridge (MGB)	21-20
1371-MOBL-1005	Employ the Improved Ribbon Bridge (IRB)/Raft	21-21
1371-MOBL-1006	Employ the MK 153 SMAW	21-22
~~1371-MOBL-1007~~	~~Operate a robot~~	~~21-23~~
1371-RECN-1001	Obtain critical information for engineer reconnaissance	21-24
1371-SURV-1001	Construct survivability positions	21-24
1371-VERT-1001	Cut lumber to dimension	21-25
1371-VERT-1002	Place lumber	21-26
1371-VERT-1003	Lay concrete block	21-27
1371-VERT-1004	Assemble prefabricated structures	21-28
1371-VERT-1005	Place timber	21-28
2000-LEVEL EVENTS		
1371-ADMN-2001	Manage unit training	21-29
1371-ADMN-2002	Deliver a military brief	21-30
1371-CMOB-2001	Recommend obstacle placement	21-30
1371-CMOB-2002	Prepare an obstacle plan	21-31
1371-CMOB-2003	Employ booby traps	21-31
1371-CMOB-2004	Destroy bridges using explosives	21-33
1371-DEMO-2001	Engage targets with expedient demolitions	21-33
1371-DEMO-2002	Use specialized explosives	21-35
1371-DEMO-2003	Maintain a Breacher's Logbook	21-36
1371-DEMO-2004	Compute the Net Explosive Weight (NEW)	21-36
1371-DEMO-2005	Take appropriate protective measures	21-37
1371-DEMO-2006	Identify building construction	21-37
1371-DEMO-2007	Employ a doughnut charge	21-38
1371-DEMO-2008	Employ a window charge	21-39
1371-DEMO-2009	Employ a water charge	21-40
1371-DEMO-2010	Employ an oval charge	21-41
1371-DEMO-2011	Employ a Uli knot slider charge	21-42
1371-DEMO-2012	Employ a detonating cord linear charge	21-43
1371-DEMO-2013	Employ a concrete charge	21-43
1371-DEMO-2014	Employ a fence charge	21-44
1371-DEMO-2015	Prepare demolition target folder	21-45
1371-EOPS-2001	Establish operations center	21-46
1371-EOPS-2002	Manage engineer forms/reports	21-46

1371-EOPS-2003	Analyze engineer form/report(s)	21-47
1371-EOPS-2004	Repair damaged airfields (ADR)	21-48
1371-EOPS-2005	Design concrete structures	21-48
1371-EOPS-2006	Employ construction equipment kits	21-49
1371-EOPS-2007	Estimate requirements for engineer projects	21-50
1371-EOPS-2008	Conduct chainsaw operations	21-50
1371-EOPS-2009	Conduct rigging	21-51
1371-EOPS-2010	Requisition required materials	21-52
1371-EOPS-2011	Establish project/operation schedules	21-52
1371-EOPS-2012	Arrange external support for engineer projects/operations	21-53
1371-EOPS-2013	Conduct range operations	21-53
1371-HORZ-2001	Perform hasty soil analysis	21-55
1371-HORZ-2002	Design expedient drainage structures	21-55
1371-HORZ-2003	Construct expedient drainage structures	21-56
1371-HORZ-2004	Design a concrete slab on grade	21-57
1371-HORZ-2005	Determine required concrete mixture	21-57
1371-MANT-2001	Maintain the unit’s engineer equipment, chests, sets and kits maintenance programs	21-58
1371-MANT-2002	Monitor the maintenance management of the unit’s combat engineer equipment, chests, sets and kits	21-59
1371-MOBL-2001	Design Tactical Landing Zones (TLZ)/Expeditionary Airfields (EAF)	21-59
1371-MOBL-2002	Manage employment of the Medium Girder Bridge (MGB)	21-60
1371-MOBL-2003	Operate Bridge Erection Boat (BEB)	21-61
1371-MOBL-2004	Manage the employment of the Improved Ribbon Bridge (IRB)	21-62
1371-MOBL-2005	Manage military rafting operations	21-63
1371-MOBL-2006	Determine raft size required for wet gap crossing	21-64
1371-MOBL-2007	Determine tactical bridging assets required to span a gap	21-64
1371-MOBL-2008	Plan engineer aspects of gap crossing operations	21-65
1371-MOBL-2009	Design a non-standard bridge	21-66
1371-MOBL-2010	Employ M58/M68 linear demolition charge	21-66
1371-MOBL-2011	Employ the APOBS	21-67
1371-MOBL-2012	Conduct obstacle breaching operations	21-68
1371-MOBL-2013	Engage stationary targets with the shotgun	21-70
1371-MOBL-2014	Perform select shot drills with the shotgun	21-71
1371-MOBL-2015	Qualify with the shotgun	21-72
1371-MOBL-2016	Conduct ballistic breach	21-73
1371-MOBL-2017	Plan breaching of a complex obstacle	21-73
1371-MOBL-2018	Lead a dismounted route sweep	21-74
1371-MOBL-2019	Perform manual breaching	21-75
1371-MOBL-2020	Direct explosive hazards reduction operations	21-76
1371-MOBL-2021	Lead Route and Area Clearance Operations	21-76
1371-MOBL-2022	Identify Explosive Hazards (EH)	21-77
1371-MOBL-2023	Reduce Explosive Hazards (EH)	21-78
1371-MOBL-2024	Operate the Route Clearance Medium Mine Protected Vehicle (MMPV)	21-79
1371-MOBL-2025	Operate the Route Clearance Mine Protected Clearance Vehicle (MPCV)	21-80
1371-MOBL-2026	Operate the Route Clearance Vehicle Mounted Mine	21-81

	Detector (VMMD) Vehicle	
1371-MOBL-2027	Operate the Route Clearance Vehicle's Government Furnished Equipment (GFE)	21-82
1371-MOBL-2028	Operate a Combat Rubber Reconnaissance Craft (CRRC)	21-83
1371-PLAN-2001	Participate in the Marine Corps Planning Process (MCPP)	21-84
1371-PLAN-2002	Plan a base camp	21-84
1371-RECN-2001	Conduct engineer reconnaissance	21-86
1371-RECN-2002	Conduct demolition reconnaissance	21-86
1371-SURV-2001	Design survivability positions	21-87
1371-SURV-2002	Prepare a survivability plan	21-88
1371-VERT-2001	Plan wood frame structure	21-89
1371-VERT-2002	Layout wood frame structure	21-89

1371-MOBL-1007 OPERATE A BOOT

21003. 1000-LEVEL EVENTS

1371-CMOB-1001: Construct wire obstacles

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given barbed wire, concertina wire, pickets, type of entanglement required, obstacle intent, tools, tie wire and personal protective equipment (PPE).

STANDARD: Ensuring obstacles are constructed to design specifications, tied into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted.

PERFORMANCE STEPS:
1. Ensure job site is secure.
2. Don PPE
3. Lay out pickets.
4. Install pickets.
5. Lay out wire.
6. Install wire.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCWP 3-17.5 Combined Arms Obstacle Integration
3. MCWP 3-17.5 MCWP 3-17.5 Combined Arms Obstacle Integration

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: Pioneer Kit

MATERIAL: Concertina wire, Barbed wire, U-Shaped pickets (small/large),

Tie wire

UNITS/PERSONNEL: Range OIC, Range RSO, Corpsman

1371-CMOB-1002: Construct field expedient obstacles

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a type of obstacle required, obstacle intent, engineer tools and equipment, Class IV, Class V, expedient obstacle material, personal protective equipment (PPE), and an area to construct the obstacle.

STANDARD: Ensuring obstacles are constructed to design specifications, tie into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted.

PERFORMANCE STEPS:
1. Prepare to construct field expedient obstacle(s)
2. Construct log obstacles if applicable
3. Construct an abatis if applicable
4. Construct improvised obstacles if applicable
5. Improve as necessary

REFERENCES:
1. FM 3-06 Urban Operations
2. FM 5-102 Countermobility
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17A Engineer Field Data
5. MCWP 3-17.6 Survivability

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
L495 Flare, Surface Trip M49 Series	1 flares per Marine
M023 Charge, Demolition Block M112 1-1/4	2 charges per Marine
M130 Cap, Blasting Electric M6	1 blasting caps per Marine
M131 Cap, Blasting Non-Electric M7	1 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	50 FT per Marine
M591 Dynamite, Military M1	1 charges per Marine
M670 Fuse, Blasting Time M700	25 FT per Marine
MN08 Igniter, Time Blasting Fuse with Sho	1 igniters per Marine

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17962 MOUT Collective Training Facility (Small)

EQUIPMENT: Combat engineer equipment, tools and kits.

1371-CMOB-1003: Employ explosive obstacles

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 3 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the proper authority, Class V, demolition tools and equipment, and personal protective equipment (PPE), and references.

STANDARD: So that obstacles are emplaced and concealed according to the method of operation, the type of environment in which the obstacle is to be laid, and the type of ground cover available for camouflage; and result in the fixing, turning, blocking, or disrupting of enemy movement.

PERFORMANCE STEPS:
1. Select the appropriate explosive obstacle
2. Select the appropriate initiating device
3. Construct an explosive obstacle (if applicable)
4. Select the location for emplacement
5. Prepare location for emplacement
6. Emplace the explosive obstacle
7. Test fire circuitry (if applicable)
8. Arm the explosive obstacle (if required)
9. Camouflage the explosive obstacle (if applicable)
10. Inventory tools, equipment and safeties
11. Recover safeties (if required)
12. Locate explosive obstacle
13. Disarm the explosive obstacle (if required)
14. Recover the explosive obstacle
15. Inventory all Class V and dispose of properly
16. Return area to natural state (if required)

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCWP 3-17.5 MCWP 3-17.5 Combined Arms Obstacle Integration

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J007 Mine, Antipersonnel M18A 1 with Non-	1 charges per Team
K143 Mine, Antipersonnel M18A1 with M57 F	1 charges per Team
M327 Coupling Base, Firing Device with Pr	1 detonators per Marine
M456 Cord, Detonating PETN Type I Class E	1 Roll per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17905 Mine Warfare Area

UNITS/PERSONNEL: Range OIC, Range RSO, Corpsman

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Range communications (radio)

1371-DEMO-1001: Employ military explosives

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given appropriate Class V material, a demolition kit, target material, personal protective equipment (PPE), and references.

STANDARD: To ensure all charges are constructed according to the method of use and ensuring detonation while observing all safety procedures.

PERFORMANCE STEPS:
1. Review requirements
2. Acquire the necessary tools from demolitions kit(s).
3. Determine the type of military explosive(s) needed.
4. Acquire additional demolition accessories, if required.
5. Calculate amount of explosives needed.
6. Build the explosive charge system.
7. Place the charge.
8. Detonate a charge using a non-electric initiation system.
9. Detonate a charge using an electric initiation system.
10. Detonate a demolition charge primed with a Det Cord firing system.
11. Confirm target reduction.

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	1 charges per Marine
M030 Charge, Demolition Block TNT 1/4-Pou	1 charges per Marine
M032 Charge, Demolition Block TNT 1-Pound	1 charges per Marine
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	1 blasting caps per Marine
M131 Cap, Blasting Non-Electric M7	1 blasting caps per Marine
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team
M456 Cord, Detonating PETN Type I Class E	35 FT per Marine
M591 Dynamite, Military M1	2 charges per Team
M670 Fuse, Blasting Time M700	10 FT per Marine
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
ML03 Firing Device, Demolition Multi-Purp	2 detonators per Team
ML47 Cap, Blasting Non-Electric M11 with	6 blasting caps per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Marine

MN52 MK154 Mod 0	4 detonators per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad Demolitions Kit

UNITS/PERSONNEL: Range OIC, Range RSO, Corpsman

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Range communications (radio)

1371-DEMO-1002: Create craters and ditches using explosives

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: PVT, PFC, LCPL, CPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V material, a demolition kit, personal protective equipment (PPE), and references.

STANDARD: Ensuring that craters/ditches are the proper depth and width to fix, turn, block or disrupt enemy movement. If explosives are utilized to create drainage-type ditches, finished ditches will slope at a rate of 2-4 feet of depth per 100 feet of run.

PERFORMANCE STEPS:
1. Determine whether a crater or ditch is required.
2. Determine number of boreholes required.
3. Create boreholes.
4. Select charge(s).
5. Prime charge(s).
6. Tamp charge(s).
7. Initiate demolitions.

REFERENCES:
1. FM 5-102 Countermobility
2. GTA 05-10-033 Demolition Card
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineer Field Data
5. MCWP 3-17.5 MCWP 3-17.5 Combined Arms Obstacle Integration

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M030 Charge, Demolition Block TNT 1/4-Pou	1 charges per Marine
M032 Charge, Demolition Block TNT 1-Pound	1 charges per Team
M039 Charge, Demolition Cratering 40-Poun	1 charges per Team
M130 Cap, Blasting Electric M6	4 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	12 blasting caps per Team
M420 Charge, Demolition Shaped M2 Series	1 charges per Team
M421 Charge, Demolition Shaped M3 Series	1 charges per Team

M456 Cord, Detonating PETN Type I Class E	350 FT per Team
M591 Dynamite, Military M1	1 charges per Marine
M670 Fuse, Blasting Time M700	350 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	1 igniters per Marine
MN14 Firing Device, Dual Mode MK54	3 detonators per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad Demolitions Kit, Pioneer Kit

UNITS/PERSONNEL: Range OIC, Range RSO, Corpsman

OTHER SUPPORT REQUIREMENTS: Safety Vehicle, Range communications (radio)

1371-EOPS-1001: Construct concrete forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Construct concrete forms to include; horizontal (slabs, walkways, and vertical (wingwalls, revetments, and above ground structures) construction as set forth in the specifications.

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, a construction site, engineer carpentry tools, portable power tools, a power source, lumber, fasteners, personal protective equipment (PPE), joints and anchors (as necessary), tie rods/tie wire (as necessary), and reinforcing material (as necessary).

STANDARD: To ensure constructed formwork conforms to the provided specifications, placing all joints, anchors, and reinforcement as required.

PERFORMANCE STEPS:
1. Review the construction drawings, blueprints, and/or specifications.
2. Perform earthwork (as required).
3. Construct footing/slab forms.
4. Construct wall forms (as required).
5. Place reinforcement material per design specifications.
6. Apply releasing agent on forms prior to placing concrete.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area

Facility Code 17413 Field Training Area

EQUIPMENT: Concrete Masonry kit, Carpenter's kit, Pioneer kit.

MATERIAL: Lumber, fasteners, reinforcement material.

UNITS/PERSONNEL: Corpsman.

OTHER SUPPORT REQUIREMENTS: Electrical power requirements.

1371-EOPS-1002: Operate a chainsaw

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL, CPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, chainsaw, appropriate tools, mixed fuel, bar oil, timber, and personal protective equipment (PPE).

STANDARD: To cut timber to specified dimensions per mission requirements while adhering to all safety requirements.

PERFORMANCE STEPS:
1. Perform pre-operation checks and services on the chainsaw.
2. Don all PPE.
3. Perform start up procedures.
4. Operate chainsaw to cut timber, as required.
5. Perform shutdown procedures.
6. Perform post operation checks and services on the chainsaw.

REFERENCES:
1. Appropriate TM/Manufacture's Manual for Chainsaw
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17 Engineer Operations
4. MCWP 3-17.5 MCWP 3-17.5 Combined Arms Obstacle Integration
5. MCWP 3-17.6 Survivability
6. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: Chainsaw kit, chaffs, PPE.

MATERIAL: Heavy timber or standing trees (3 inch or larger).

UNITS/PERSONNEL: Range OIC, Range Safety Officer, corpsman.

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Licensed operator per TM 11275-15/4 Engineer

Equipment Licensing Manual.

1371-EOPS-1003: Fell standing timber

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an area of standing timber, appropriate tools, supplies and equipment, and personal protective equipment (PPE).

STANDARD: Ensuring the timber is completely separated from the trunk, while adhering to all safety requirements.

PERFORMANCE STEPS:
1. Inspect pioneer hand tools to be used.
2. Perform pre-operation checks and services.
3. Evaluate the standing timber, the surrounding area, and environmental conditions present.
4. Determine direction of fall.
5. Establish a safe area and an escape path.
6. Don all PPE.
7. Ensure non-essential personnel are in the safe area.
8. Utilize tools, supplies and/or equipment to fell the timber.
9. If tree does not fall completely, cease operations until tree can be mechanically felled.
10. Limb tree (If applicable).
11. Buck tree (If applicable).
12. Perform post-operation checks and services.

PREREQUISITE EVENTS: 1371-EOPS-1002

REFERENCES:
1. Appropriate TM/Manufacture's Manual for Chainsaw
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17.5 MCWP 3-17.5 Combined Arms Obstacle Integration

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: Chainsaw kit, pioneer tool kit, mechanical equipment, rope, chain, wench, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Mechanical equipment (i.e. dozer).

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Licensed chainsaw operator per TM 11275-15/4

Engineer Equipment Licensing Manual.

1371-EOPS-1004: Operate the 260 CFM compressor

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a training area, an SL-3 complete 260 CFM compressor, fuel, a concrete slab, 3" or greater nominal timber, personal protective equipment (PPE), and reference.

STANDARD: Ensuring operation procedures are performed per the manufacturer's specifications.

PERFORMANCE STEPS:
1. Perform pre-operation checks and services.
2. Don all PPE.
3. Perform start up procedures.
4. Utilize SL-3 components.
5. Change SL-3 components.
6. Perform shut down procedures.
7. Perform post-operation checks and services.

REFERENCES:
1. TM 5-4310-256-15 Compressor Recip Air Hand, Truck Mounted

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: 260 CFM w/SL-3 complete, PPE.

MATERIAL: Timber (3 inches or larger), concrete/asphalt structures.

UNITS/PERSONNEL: Corpsman.

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Licensed operator per TM 11275-15/4 Engineer Equipment Licensing Manual.

1371-EOPS-1005: Tie knots/lashings for rigging operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided rope/wire cable, specifications, items to be constructed, personal protective equipment (PPE), and references.

STANDARD: To meet construction design specifications per mission requirements.

PERFORMANCE STEPS:
1. Review drawings or specifications.
2. Acquire necessary materials.
3. Tie appropriate knot to specification (if applicable).
4. Lash components together properly (if applicable).
5. Configure appropriate anchoring systems, as required.
6. Set up a block and tackle system, as required.

REFERENCES:
1. MCRP 3-17.7J Rigging Techniques, Procedures, and Applications
2. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17921 Armored Vehicle Launch Bridge, Raft, And Ford Area

EQUIPMENT: Marine Assault Climber's kit, rope, pulleys, wire cable.

MATERIAL: Poles (timber).

1371-HORZ-1001: Mix concrete

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, a construction site, a concrete and masonry tool kit, sand, gravel, cement, a concrete mixer, personal protective equipment (PPE), a water source, and concrete forms.

STANDARD: To ensure concrete mixture conforms to specifications to support the construction of concrete structures.

PERFORMANCE STEPS:
1. Batch dry materials per specifications.
2. Add water per specifications.
3. Mix concrete, either by hand or with the concrete mixer, depending on availability. If using the concrete mixer, perform pre/post operating checks and services.
4. Perform slump test.
5. Clean all tools and equipment.

RELATED EVENTS: 1371-EOPS-1001

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry
2. N/A Applicable operation and maintenance manual/guide

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Concrete and Masonry kit, concrete mixer, Pioneer kit, PPE.

MATERIAL: Portland cement, coarse and fine aggregate, ad-mixture.

UNITS/PERSONNEL: Corpsman.

OTHER SUPPORT REQUIREMENTS: Electrical and fuel requirements.

1371-HORZ-1002: Pour concrete

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, a construction site, a concrete and masonry tool kit, screed board(s), mixed concrete, and personal protective equipment (PPE).

STANDARD: To be placed evenly throughout the form, produce a tight bond between the paste and coarse aggregate, and fills the forms completely , while observing all safety requirements and in accordance with design specification.

PERFORMANCE STEPS:
1. Review the specifications.
2. Prepare the subgrade by moistening, as required.
3. Check forms.
4. Place concrete.
5. Consolidate the concrete.
6. Screed the concrete.
7. Clean all tools and equipment.

PREREQUISITE EVENTS:
1371-EOPS-1001 1371-HORZ-1001

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Concrete and Masonry kit, concrete mixer, Pioneer kit, PPE.

UNITS/PERSONNEL: Corpsman

OTHER SUPPORT REQUIREMENTS: Electrical and fuel requirements.

1371-HORZ-1003: Finish concrete

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, concrete and masonry tool kit, and freshly placed concrete.

STANDARD: To produce the desired finish per the specifications.

PERFORMANCE STEPS:
1. Review the specifications.
2. Float the concrete.
3. Trowel the concrete, if required in the specifications.
4. Broom the concrete, if required in the specifications.
5. Employ curing method(s).
6. Strip forms.

PREREQUISITE EVENTS: 1371-HORZ-1002

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Concrete and Masonry kit, broom.

1371-MANT-1001: Maintain combat engineer chests, sets and kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL, CPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an SL-3 inventory sheet, cleaning materials, personal

protective equipment (PPE), and references.

STANDARD: To ensure accountability/serviceability of all components and all unserviceable/missing items are identified for repair or replacement.

PERFORMANCE STEPS:
1. Review references.
2. Conduct inventory of all items and components.
3. Inspect all items for serviceability.
4. Clean items and components.
5. Complete all necessary forms and reports.

REFERENCES:
1. Appropriate Reference Materials
2. Appropriate Technical Manuals
3. MCO P4790.2_ MIMMS Field Procedures Manual

1371-MOBL-1001: Breach non-explosive obstacles

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: PVT, PFC, LCPL, CPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a designated area with obstacle(s), engineer tools, demolition tools, demolition tools and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To ensure friendly forces are not fixed, turned, blocked, nor disrupted by successfully reducing all non-explosive obstacles encountered.

PERFORMANCE STEPS:
1. Locate the obstacle(s).
2. Identify obstacle(s).
3. Formulate plan to reduce obstacle(s).
4. Reduce the obstacle.
5. Mark the lane as required.

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
G940 Grenade, Hand Green Smoke M18	1 grenades per Team
G945 Grenade, Hand Yellow Smoke M18	1 grenades per Team
G982 Grenade, Hand Practice Smoke TA M83	1 grenades per Team

M023 Charge, Demolition Block M112 1-1/4	1 charges per Marine
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M130 Cap, Blasting Electric M6	10 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	300 FT per Team
M670 Fuse, Blasting Time M700	200 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
ML47 Cap, Blasting Non-Electric M11 with	3 blasting caps per Team
MN08 Igniter, Time Blasting Fuse with Sho	12 igniters per Team
MN52 MK154 Mod 0	2 detonators per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad Demolitions Kit

UNITS/PERSONNEL: Range OIC, Range RSO, Corpsman

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Range communications (radio)

1371-MOBL-1002: Operate handheld detectors

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission, mine/metal detector, marking equipment, personal protective equipment (PPE), and references.

STANDARD: To ensure all explosive hazards in a lane, route, or area are located and marked for reduction with no injury to friendly personnel or damage to equipment.

PERFORMANCE STEPS:
1. Identify detector to be used.
2. Unpack the detector.
3. Inventory the detector.
4. Assemble the detector.
5. Phase in the detector.
6. Demonstrate proper sweeping techniques.
7. Locate and mark an object.
8. Identify the object as an explosive hazard.
9. Sweep for secondary explosive hazards.
10. Proof area after explosive hazard has been reduced.
11. Perform PMCS.
12. Disassemble and repack the detector.

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-17.2D Explosive Hazard Operations
3. N/A Applicable operation and maintenance manual/guide

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17820 Engineer Qualification Range, Non-Standardized

EQUIPMENT: Mine detectors, Metal detectors, Minefield marking kit.

UNITS/PERSONNEL: Range RSO, Corpsman

OTHER SUPPORT REQUIREMENTS: Communications (radio)

1371-MOBL-1003: Breach explosive obstacles/hazards

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

DESCRIPTION: Breach explosive obstacles/hazards to create lanes/safety corridors through explosive obstacles and hazards (mines, minefields, IEDs, UXO, and boobytraps) that impede the mobility of the Operating Force. This could include utilizing mechanical/remote controlled engineer assets during route and area clearance for mobility and the conduct of minefield breaching operations.

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, personnel, Class V, demolitions equipment, clearance assets, mine probes, handheld detectors, and personal protective equipment.

STANDARD: To ensure all explosive hazards in the lane are located, marked, and/or destroyed in place (or removed); and employing minefield marking system after successful breach in accordance with MCWP 3-17.3 MAGTF Breaching Operations.

PERFORMANCE STEPS:
1. Locate explosive obstacles/hazards.
2. Identify type and condition of explosive obstacles/hazards.
3. Create lane(s) through explosive obstacles (if applicable).
4. Reduce explosive hazards (if applicable).
5. Proof lane(s) for explosive obstacles (if applicable).
6. Verify reduction of explosive obstacles/hazards (if applicable).
7. Mark lane(s) for mobility through explosive obstacles (if applicable).

REFERENCES:
1. MCIP 3-17.02 MAGTF COUNTER-IMPROVISED EXPLOSIVE DEVICE (C-IED) OPERATIONS
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineer Field Data
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.3 MAGTF Breaching Operations
7. TM 013750-13&P Operators Manual MK-7 MOD. 1 Anti-Personnel Obstacle Breaching System (APOBS)

8. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
G940 Grenade, Hand Green Smoke M18	1 grenades per Team
G945 Grenade, Hand Yellow Smoke M18	1 grenades per Team
G982. Grenade, Hand Smoke TA M83	1 grenades per Team
M023 Charge, Demolition Block M112 1-1/4	1 charges per Marine
M130 Cap, Blasting Electric M6	3 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	1 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	350 FT per Team
M670 Fuse, Blasting Time M700	10 FT per Marine
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Marine
MN52 MK154 Mod 0	4 detonators per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	3 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	3 blasting caps per Team

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range
Facility Code 17905 Mine Warfare Area

EQUIPMENT: CAT III Buffalo, MICLIC Trailer, robots, handheld detectors, Squad demolition kit.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman

1371-MOBL-1004: Employ a Medium Girder Bridge (MGB)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, provided a completed MGB Pro Forma, a gap, Medium Girder Bridge set, tools, a launch vehicle, personnel and references.

STANDARD: To meet design specifications and intended bridge classification per the Pro Forma, while observing safety precautions and technical specifications during build, boom, launch and recovery in accordance with TM 08676A-10/1-1 Operators Manual Medium Girder Bridge.

PERFORMANCE STEPS:
1. Lay out the site based on critical pallet loads.
2. Install front roller beam.
3. Build end of bridge (EOB) + 1.
4. Install rear roller beam, if required.
5. Build and boom bridge, to include launching nose configuration.
6. Launch the bridge.
7. Set bridge on deck.

8. Dress the bridge.
9. Anchor as required.
10. Retrieve the MGB.

REFERENCES:
1. MCWP 3-17.8 Combined Arms Mobility Operations
2. TM 08676A-10/1-1 Operators Manual Medium Girder Bridge

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: MGB set, MGB Erection set, MGB Reinforcement set, 7-ton vehicle

UNITS/PERSONNEL: Range OIC, Range Safety Officer, corpsman

OTHER SUPPORT REQUIREMENTS: Communications (radio)

1371-MOBL-1005: Employ the Improved Ribbon Bridge (IRB)/Raft

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, provided a wet gap, an IRB set, Bridge Erection Boats with operators, tools and safety equipment.

STANDARD: To ensure proper assembly of a bridge/raft capable of supporting unit mobility requirements during wet gap crossings and proper disassembly/recovery in accordance with TM 11518A-OR Improve Ribbon Bridge Operator's Manual.

PERFORMANCE STEPS:
1. Identify major components.
2. Perform pre-operation checks.
3. Deploy the IRB.
4. Capture IRB components.
5. Connect bays.
6. Install rafting brackets as required.
7. Rig BEB to IRB for anchoring.
8. Rig BEB to IRB for rafting.
9. Operate ramp bays.
10. Disassemble bays.
11. Prepare bays for recovery.
12. Perform post-operation checks.

REFERENCES:
1. MCWP 3-17.8 Combined Arms Mobility Operations
2. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II
3. TM 11518A-OR Improved Ribbon Bridge (IRB) Operators Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: MK-48/18 LVSR, Bridge Erection Boat (BEB MKIII), Safety Boat (CRRC w/MFE).

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Safety Swimmer, Corpsman, MOS 1342 Boat Mechanic

OTHER SUPPORT REQUIREMENTS: Communications (radio)

1371-MOBL-1006: Employ the MK 153 SMAW

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical scenario which presents a series of realistic threats, at ranges 150 to 250 meters, wearing a fighting load, operating as a gunner, with an assistant gunner, firing from all positions, during daylight.

STANDARD: To attain a hit from a suitable position using spotting rounds and one rocket.

PERFORMANCE STEPS:
1. Load the SMAW.
2. Select a firing position.
3. Acquire the target in the sight.
4. Determine range to target.
5. Set the estimated range on the sight range selector drum (telescopic sight).
6. Place the SMAW in Condition 1.
7. Fire a spotting round and observe impact.
8. Make necessary adjustments until spotting rounds impact target or until the six (6) spotting rounds are expended.
9. Fire the SMAW.
10. Take immediate action if misfire occurs with either spotting rifle or launcher.
11. Move to alternate/supplemental position.
12. Maintain the SMAW.

REFERENCES:
1. TM 08673A-10/1 Launcher, Assault Rocket 83MM (SMAW) MK 153 MOD 0
2. TM 08673A-25&P/2A Launcher, Assault Rocket 83MM (SMAW)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX10 Cartridge, 9mm Spotting Rifle MK218	3 cartridges per Marine

AX11 Cartridge, 9mm Spotting Rifle MK212	6 rounds per Marine
HX05 Rocket, 83mm Assault MK3 Mod 0 (SMAW	1 rocket per Team
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	1 rocket per Team
LX21 Simulator, Noise Assault Rocket Trai	1 Simulator per Marine

RANGE/TRAINING AREA: Facility Code 17710 Multipurpose Training Range (MPTR)

EQUIPMENT: Safety vehicle, Assault rocket trainer MK27 Mod 0

UNITS/PERSONNEL: Range OIC, Range RSO, Corpsman

OTHER SUPPORT REQUIREMENTS: Communications (radio)

~~**1371-MOBL-1007:** Operate a robot~~

~~**EVALUATION-CODED:** NO~~ ~~**SUSTAINMENT INTERVAL:** 3 months~~

~~**GRADES:** PVT, PFC, LCPL, CPL, SGT~~

~~**INITIAL TRAINING SETTING:** FORMAL~~

~~**CONDITION:** Given an operating environment, suspected explosive hazards, a combat engineer robot, personal protective equipment and references.~~

~~**STANDARD:** To perform remote operations without injury to personnel or damage to equipment, per the operator's manual.~~

~~**PERFORMANCE STEPS:**~~
~~1. Identify hazard(s).~~
~~2. Prepare robot for operation.~~
~~3. Operate the robot~~
~~4. Conduct robotic reconnaissance.~~
~~5. Retrieve the robot.~~
~~6. Conduct post-op PMCS.~~

~~**REFERENCES:**~~
~~1. Appropriate Manufacturer's Assembly Manual/Instructions~~
~~2. Appropriate Technical Manuals~~
~~3. FM 3-06 Urban Operations~~
~~4. MCRP 3-17.2D Explosive Hazard Operations~~
~~5. MCRP 3-17.7L Explosives and Demolitions~~
~~6. MCWP 3-17.4 Engineer Reconnaissance~~
~~7. MCWP 3-17.8 Combined Arms Mobility Operations~~

~~**SUPPORT REQUIREMENTS:**~~

~~**RANGE/TRAINING AREA:** Facility Code 17413 Field Training Area~~

~~**EQUIPMENT:** PacBot 510 w/FASTAC Kit, SUGV 310, SUGV 320~~

~~**UNITS/PERSONNEL:** Range OIC, Range Safety Officer~~

~~OTHER SUPPORT REQUIREMENTS:~~ ~~Obstacles to represent urban and rural conditions. Inert explosive hazards or mock-ups.~~

1371-RECN-1001: Obtain critical information for engineer reconnaissance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of an engineer reconnaissance team, provided a mission, recon forms, equipment, and references.

STANDARD: To provide accurate measurements and essential engineer information required to assist in the completion of the appropriate form(s) and report(s).

PERFORMANCE STEPS:
1. Determine roadway/traveled way width.
2. Determine height of overhead obstructions.
3. Determine percent of slope.
4. Determine radius of a curve.
5. Determine stream velocity.
6. Determine gap width.
7. Identify possible engineer resources.
8. Identify obstacles by type and location (6-digit grid coordinate).

REFERENCES:
1. GTA 5-2-5 Engineer Reconnaissance
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

UNITS/PERSONNEL: Range OIC, Range Safety Officer

OTHER SUPPORT REQUIREMENTS: Communications (radio)

1371-SURV-1001: Construct survivability positions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: Construct survivability positions to provide structural integrity and ballistic protection, examples include; bunkers, shelters, blast 78 shields, revetments, and fighting positions.

GRADES: PVT, PFC, LCPL, CPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a defensive position location, construction directive, Class IV, engineer tools, equipment, personal protective equipment (PPE), and references.

STANDARD: To provide a position with the appropriate levels of structural integrity and ballistic protection based on threat weapons considered in accordance with MCWP 3-17.6 Survivability.

PERFORMANCE STEPS:
1. Prepare to construct survivability position(s).
2. Place structural materials (if applicable).
3. Place shielding materials.
4. Place HESCO concertina (if applicable).
5. Place revetment materials (if applicable).
6. Camouflage position (if applicable).

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCWP 3-17.6 Survivability

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: TRAMs, 420D backhoe, pioneer kit, 260 CFM, and PPE.

MATERIAL: Heavy and mid-size timber (3x6 - 12x12), HESCO, sandbags, natural material, nails, drift pins, etc.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, corpsman, MOS 1345 Heavy equipment operators.

OTHER SUPPORT REQUIREMENTS: Communications (radio)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: An environmentally approved area to excavate.

1371-VERT-1001: Cut lumber to dimension

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, a construction site, engineer carpentry tools, portable power tools, power source, personal protective equipment (PPE), and lumber.

STANDARD: Cut must be within +/- 1/16" of specified dimension, utilizing the

proper tools, while observing all safety precautions.

PERFORMANCE STEPS:
1. Select a measuring tool.
2. Measure lumber to dimension required.
3. Mark the lumber.
4. Select appropriate saw.
5. Verify all safety precautions are in place.
6. Cut lumber.

REFERENCES:
1. Appropriate TM/Manufacture's Manual for Power Tools
2. MCRP 3-17.7C Carpentry

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Carpenter's kit, PPE.

MATERIAL: Lumber, plywood

UNITS/PERSONNEL: Corpsman.

OTHER SUPPORT REQUIREMENTS: Electrical power requirements.

1371-VERT-1002: Place lumber

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided blueprints or specifications, construction site, engineer carpentry tools, lumber cut to specification, personal protective equipment (PPE), and fasteners.

STANDARD: To meet mission specifications, utilizing proper tools while observing safety precautions in accordance with MCRP 3-17.7C Carpentry.

PERFORMANCE STEPS:
1. Select appropriate tools
2. Select fastener.
3. Select appropriate fastening tool.
4. Place floor components.
5. Place exterior wall frame components.
6. Place wall components.
7. Place stair components (if applicable).
8. Place roof components.

PREREQUISITE EVENTS: 1371-VERT-1001

REFERENCES:
1. Appropriate Manufacturer's Assembly Manual/Instructions
2. MCRP 3-17.7C Carpentry
3. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Carpenter's kit, PPE.

MATERIAL: Lumber, plywood, fasteners.

UNITS/PERSONNEL: Corpsman.

OTHER SUPPORT REQUIREMENTS: Electrical power requirements.

1371-VERT-1003: Lay concrete block

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided blueprints or specifications, a construction site, concrete block, mortar mix, a water source, a concrete and masonry tool kit, mixing equipment, and personal protective equipment (PPE).

STANDARD: To ensure that finished head joints and bed joints are between 5/16" and 7/16"; corners are at 90 degree angles; and courses are level and plumb.

PERFORMANCE STEPS:
1. Select appropriate blocks per the specifications.
2. Prepare site for laying block.
3. Mix mortar.
4. Lay block to specifications.
5. Dress and strike mortar joints.
6. Install anchor bolts/fill cores, as required by specifications.
7. Clean, survey, and store tools and equipment.

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17330 Covered Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Concrete and Masonry kit, cement mixer.

MATERIAL: CMU blocks, clay bricks, cement, mortar, lime, sand.

UNITS/PERSONNEL: Corpsman.

OTHER SUPPORT REQUIREMENTS: Electrical and fuel requirements.

1371-VERT-1004: Assemble prefabricated structures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a building location, prefabricated materials or materials manufactured on site, manufacturer’s instructions, engineer tools, proprietary tools, personal protective equipment (PPE), and engineer heavy equipment support.

STANDARD: In accordance with the manufacturer's instructions.

PERFORMANCE STEPS:
1. Prepare site for construction.
2. Prepare to construct structure.
3. Assemble structure, as required.

REFERENCES:
1. Appropriate Manufacturer's Assembly Manual/Instructions

1371-VERT-1005: Place timber

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, construction site, specifications, and engineer carpentry tools, timber cut to specification, attaching hardware, personal protective equipment (PPE), and references.

STANDARD: To meet mission specifications, utilizing proper hand tools while observing safety precautions.

PERFORMANCE STEPS:
1. Place timber for bunker or structure construction (if applicable).
2. Place timber for non-standard bridge components (if applicable).

3. Place timber for shoring (hardening) positions in structures (if applicable).

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17.6 Survivability

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: 260 CFM, Multi-terrain Loader (MTL), Pioneer Kit.

MATERIAL: Timber (3 inch or larger), drift pins, fasteners.

UNITS/PERSONNEL: Corpsman.

OTHER SUPPORT REQUIREMENTS: Crane support for bridging.

21004. 2000-LEVEL EVENTS

1371-ADMN-2001: Manage unit training

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an engineer unit, training requirements and references.

STANDARD: To meet training requirements sustaining engineer operations in accordance with NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual.

PERFORMANCE STEPS:
1. Determine mission requirements.
2. Determine current unit capabilities.
3. Identify training shortfalls and strengths of unit.
4. Determine specific training objectives to correct shortfalls in accordance with the T&R Manual and METs.
5. Develop logical sequence for training.
6. Brief commander on training plan, as required.
7. Prepare a training schedule.
8. Issue order.
9. Coordinate logistical support.
10. Submit required reports.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCO 3501.1_ Marine Corps Combat Readiness and Evaluation System (MCCRES)
3. MCRP 3-0A Unit Training Management Guide

4. MCRP 3-0B How to Conduct Training
5. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual

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1371-ADMN-2002: Deliver a military brief

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission, commander's intent, and references.

STANDARD: To provide an oral description of the current engineer situation, proposed execution, and logistical support capabilities and limitations.

PERFORMANCE STEPS:
1. Review the operations order and commander's intent.
2. Review the engineer situation.
3. Develop a briefing outline for the engineer situation.
4. Brief engineer situation to the commander.

REFERENCES:
1. MCWP 3-17 Engineering Operations
2. MCWP 3-40.1 MAGTF Command and Control
3. MCWP 5-1 Marine Corps Planning Process (MCPP)

1371-CMOB-2001: Recommend obstacle placement

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order, an area map, reconnaissance reports, personnel, engineer equipment and references.

STANDARD: To tie into existing natural or other manmade obstacles so that enemy movement/maneuvers are fixed, turned, blocked, or disrupted in support of the concept of operations per the commander's intent.

PERFORMANCE STEPS:
1. Analyze the mission.
2. Analyze avenues of approach.
3. Analyze engagement areas, battle positions, and locations of weapons systems.
4. Determine possible obstacle locations and types.
5. Determine the commander's obstacle priorities.
6. Determine resources.
7. Determine work sequence.

8. Determine task organization.
9. Determine coordination required.

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.5 Combined Arms Obstacle Integration
7. MCWP 3-41.1 Rear Area Operations

1371-CMOB-2002: Prepare an obstacle plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, intelligence reports, map, operations order, and references.

STANDARD: To recommend obstacle types, placement, and resources required to fix, turn, block and disrupt enemy movement in accordance with MCWP 3-17.5 Combined Arms Obstacle Integration.

PERFORMANCE STEPS:
1. Analyze mission.
2. Conduct Intelligence Preparation of the Battlespace (IPB).
3. Identify Requests for Information (RFI).
4. Provide guidance for the location and intent of obstacles to the S-3.
5. Identify logistics requirements.
6. Identify and prioritize fire support requirements.
7. Prepare an overlay and an obstacle plan appendix to the operations order.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCWP 3-1 Ground Combat Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.5 Combined Arms Obstacle Integration
8. MCWP 5-1 Marine Corps Planning Process (MCPP)

1371-CMOB-2003: Employ booby traps

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the proper authority to set booby traps, Class V, demolition tools, a blank DA Form 1355 and personal protective equipment (PPE).

STANDARD: To slow the enemy's advance; deny the enemy use of facilities or material; warn of enemy approach; or deny the enemy use of terrain not covered by direct fire in accordance with MCRP 3-17.2D Explosive Hazard Operations.

PERFORMANCE STEPS:
1. Review the mission.
2. Perform area reconnaissance.
3. Determine location(s).
4. Determine type of trap (explosive/non-explosive).
5. Determine type of firing device(s).
6. Determine types and amount of Class V.
7. Complete the firing chain.
8. Arm booby trap(s).
9. Camouflage to its natural state.
10. Record the booby traps on DA Form 1355.
11. Turn in all safety pins and clips to the NCOIC.
12. Submit required report(s).

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineering Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
G940 Grenade, Hand Green Smoke M18	2 grenades per Team
G945 Grenade, Hand Yellow Smoke M18	2 grenades per Team
G982 Grenade, Hand Practice Smoke TA M83	2 grenades per Team
L495 Flare, Surface Trip M49 Series	2 flares per Team
L594 Simulator, Projectile Ground Burst M	2 Simulator per Team
L598 Simulator, Explosive Booby Trap Flas	2 Simulator per Team
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M327 Coupling Base, Firing Device with Pr	4 detonators per Team
M456 Cord, Detonating PETN Type I Class E	350 FT per Team
ML03 Firing Device, Demolition Multi-Purp	4 detonators per Team
MN52 MK154 Mod 0	4 detonators per Team

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area
Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad demolitions kit.

MATERIAL: Barbed wire roll, nails, coffee cans, glass shards, shrapnel, secondary projectiles.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: All explosive booby trap devices training will be constructed in accordance with MCRP 3-17.2D Explosive Hazards Operations and conducted on approved demolition ranges.

1371-CMOB-2004: Destroy bridges using explosives

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, a bridge reconnaissance report, personnel, Class V, a demolition kit, protective field equipment and references.

STANDARD: To ensure that the demolition results in either a gap that exceeds the enemy's assault bridging capability by 5 meters, or that leaves demolished components which are unable to provide sufficient bearing capacity for enemy assault breaching assets.

PERFORMANCE STEPS:
1. Review the mission/bridge reconnaissance report.
2. Determine bridge category.
3. Design collapse mechanism.
4. Select method of attack.
5. Establish security.
6. Calculate charges.
7. Place charges.
8. Initiate demolition.

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. MCRP 3-17.7L Explosives and Demolitions
3. MCRP 3-17A Engineer Field Data

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This tasks replicates training needed for wartime conditions to impede enemy mobility. Class V (W) explosives is not annotated due to different types of bridges and task standards for either destroying a span, intermediate support, or bridge abutment.

1371-DEMO-2001: Engage targets with expedient demolitions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a target, demolitions tools and equipment, Class V, improvised materials, and protective field equipment.

STANDARD: To produce the desired effect on the target equivalent to the effect of a similar conventional explosive or demolition charge.

PERFORMANCE STEPS:
1. Analyze target.
2. Construct a platter charge.
3. Construct an expedient claymore.
4. Construct a grape shot directional charge.
5. Construct an omni (360 degree) charge.
6. Construct an expedient shaped charge.
7. Construct an expedient flame charge.
8. Construct an expedient bangalore torpedo.
9. Engage target.

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineer Field Data
5. SWO 60-AA-MMA-010 Demolition Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	10 charges per Team
M032 Charge, Demolition Block TNT 1-Pound	10 charges per Team
M130 Cap, Blasting Electric M6	8 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	8 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	250 FT per Team
M670 Fuse, Blasting Time M700	50 FT per Team
ML03 Firing Device, Demolition Multi-Purp	5 detonators per Team
ML47 Cap, Blasting Non-Electric M11 with	3 blasting caps per Team
MN08 Igniter, Time Blasting Fuse with Sho	8 igniters per Team
MN52 MK154 Mod 0	5 detonators per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	3 blasting caps per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad demolitions kit, PPE.

MATERIAL: Ammonium Nitrate (33% Nitrogen), JP-8 fuel.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Ammunition vehicle, Communications (radio).

1371-DEMO-2002: Use specialized explosives

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission to destroy or disable a target, demolition tools and equipment, Class V material, protective field equipment and references.

STANDARD: To produce the desired effect on the target per mission requirements.

PERFORMANCE STEPS:
1. Review demo target reconnaissance information.
2. Choose proper explosive.
3. Calculate correct quantity of explosive.
4. Place the charge on the target.
5. Prime the explosive.
6. Detonate the explosive.

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. SWO 60-AA-MMA-010 Demolition Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	4 primers per Team
M023 Charge, Demolition Block M112 1-1/4	4 charges per Team
M130 Cap, Blasting Electric M6	10 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	10 blasting caps per Team
M670 Fuse, Blasting Time M700	50 FT per Team
M766 Igniter, M60 for Time Blasting Fuse	11 igniters per Team
M982 Charge, Demolition Sheet 0.161 Inch	1 FT per Team
ML47 Cap, Blasting Non-Electric M11 with	2 blasting caps per Team
MM45 Charge, Demolition Flexible Linear S	1 charges per Team
MM46 Charge, Demolition Flexible Linear S	1 charges per Team
MM47 Charge, Demolition Flexible Linear S	1 charges per Team
MM48 Charge, Demolition Flexible Linear S	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	6 igniters per Team
MN14 Firing Device, Dual Mode MK54	1 igniters per Team
MN52 MK154 Mod 0	4 detonators per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	1 blasting caps per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	1 blasting caps per Team

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad demolitions kit, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2003: Maintain a Breacher's Logbook

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a breaching mission, and breacher's logbook.

STANDARD: To compile useful data as a reference for follow on breaching missions making all required entries and verifying the logbook accuracy.

PERFORMANCE STEPS:
1. Compile all necessary information.
2. Complete pre-mission entries.
3. Complete post-mission entries.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. VOLUME I Guidebook for Assault Entry Techniques, Volume I

SUPPORT REQUIREMENTS:

MATERIAL: Breacher's Logbook

1371-DEMO-2004: Compute the Net Explosive Weight (NEW)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an explosive charge, a charge logbook, a calculator and references.

STANDARD: To determine safe blast and fragmentation distances for an explosive charge in accordance with MCRP 2-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Utilizing conversion factors, convert weights of all explosives used into Tri-Nitro-Toluene (TNT) equivalent.
2. Determine NEW in pounds.

3. Calculate safe-blast distance.
4. Calculate safe-fragmentation distance.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. SWO60-AA-MMA-020 DEMOLITION MATERIALS (Vol II)

1371-DEMO-2005: Take appropriate protective measures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an explosive charge, a designated target, assorted tools, and personal protective equipment (PPE).

STANDARD: To ensure personnel safety during detonation based on target type, location, and the explosive charge employed in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Evaluate the target and surrounding areas.
2. Evaluate the explosive charge.
3. Compute Net Explosive Weight (NEW).
4. Compute safe standoff distance.
5. Determine possible effects of detonation on the target and surrounding structures.
6. Explain protective measures taken for a given blast.
7. Brief team members on explosive effects and safe locations.
8. Position personnel in a safe location during detonation.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Knowledge of theory and operations of a shape charge and explosive theory and principles are key aspects to be covered during the training of this task.

1371-DEMO-2006: Identify building construction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a targeted structure, and references.

STANDARD: To determine an appropriate breaching technique in accordance with NSWC/DL TR-3714 Urban Building Characteristics.

PERFORMANCE STEPS:
1. Identify building construction composition.
2. Identify physical structural requirements for multi-level construction.
3. Identify standard construction methods and materials by region of the world.

REFERENCES:
1. NSWC TR 79-224 Characteristics of Urban Terrain
2. NSWC/DL TR-3714 Urban Building Characteristics

1371-DEMO-2007: Employ a doughnut charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and personal protective equipment (PPE).

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. SWO60-AA-MMA-020 DEMOLITION MATERIALS (Vol II)
4. VOLUME I Guidebook for Assault Entry Techniques, Volume I

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M130 Cap, Blasting Electric M6	1 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	5 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team

MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat in Cities Facility

EQUIPMENT: Marine Assault Breacher's kit, Squad demolitions kit, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2008: Employ a window charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and personal protective equipment (PPE).

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO60-AA-MMA-010 Demolition Materials
3. SWO60-AA-MMA-020 DEMOLITION MATERIALS (Vol II)
4. VOLUME I Guidebook for Assault Entry Techniques, Volume I

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M130 Cap, Blasting Electric M6	2 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	5 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat In Cities Facility

EQUIPMENT: Marine Assault Breacher's kit, squad demolitions kit, PPE.

MATERIAL: Appropriate medium, double sided tape, rubber conveyor belt material, waterproof tape.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2009: Employ a water charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and personal protective equipment (PPE).

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO60-AA-MMA-010 Demolition Materials
3. SWO60-AA-MMA-020 DEMOLITION MATERIALS (Vol II)
4. VOLUME I Guidebook for Assault Entry Techniques, Volume I
5. VOLUME II Guidebook for Assault Entry Techniques Volume II

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M456 Cord, Detonating PETN Type I Class E	12 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat In Cities Facility

EQUIPMENT: Assault Breacher's kit, squad demolitions kit, PPE.

MATERIAL: 550 Parachute Cord, Prop stick, double sided tape, backing material, electrical tape, IV bag(s), rigger's tape.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2010: Employ an oval charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and personal protective equipment (PPE).

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO60-AA-MMA-010 Demolition Materials
3. SWO60-AA-MMA-020 DEMOLITION MATERIALS (Vol II)
4. VOLUME I Guidebook for Assault Entry Techniques, Volume I

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M130 Cap, Blasting Electric M6	2 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	96 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat In Cities Facility

EQUIPMENT: Assault Breacher's kit, squad demolitions kit, PPE.

MATERIAL: Prop stick, backing material, grease, waterproof tape.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio)

1371-DEMO-2011: Employ a Uli knot slider charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and personal protective equipment (PPE).

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. VOLUME I Guidebook for Assault Entry Techniques, Volume I

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M130 Cap, Blasting Electric M6	2 blasting caps per Marine
M131 Cap, Blasting Non-Electric M7	2 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	18 FT per Marine
M670 Fuse, Blasting Time M700	12 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team
MM30 Charge, Flexible 20 Gram PETN MK140	2 charges per Marine
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Marine
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat in Cities Facility

EQUIPMENT: Assault Breacher's kit, Squad demolitions kit, PPE.

MATERIAL: Appropriate medium, double sided tape, waterproof tape.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2012: Employ a detonating cord linear charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and personal protective equipment (PPE).

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO60-AA-MMA-010 Demolition Materials
3. VOLUME I Guidebook for Assault Entry Techniques, Volume I

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M130 Cap, Blasting Electric M6	2 blasting caps per Marine
M131 Cap, Blasting Non-Electric M7	2 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	33 FT per Marine
M670 Fuse, Blasting Time M700	12 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Marine
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat in Cities Facility

EQUIPMENT: Assault Breacher's kit, Squad demolitions kit, PPE.

MATERIAL: Double sided tape, waterproof tape.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2013: Employ a concrete charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and personal protective equipment (PPE).

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO60-AA-MMA-010 Demolition Materials
3. VOLUME I Guidebook for Assault Entry Techniques, Volume I
4. VOLUME II Guidebook for Assault Entry Techniques Volume II

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M023 Charge, Demolition Block M112 1-1/4	6 charges per Marine
M130 Cap, Blasting Electric M6	2 blasting caps per Marine
M131 Cap, Blasting Non-Electric M7	2 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	32 FT per Marine
M670 Fuse, Blasting Time M700	12 FT per Marine
MM30 Charge, Flexible 20 Gram PETN MK140	3 charges per Marine
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Marine
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat In Cities Facility

EQUIPMENT: Assault Breacher's kit, Squad demolitions kit, PPE.

MATERIAL: Prop stick, double sided tape, grease, waterproof tape.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2014: Employ a fence charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Class V, breaching tools, non-explosive materials, a target to attack, and protective field equipment.

STANDARD: To execute a successful breach in accordance with MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Select the appropriate explosives for the target.
2. Construct the charge.
3. Prepare an initiating system.
4. Compute the Net Explosive Weight (NEW).
5. Position assault element.
6. Place the charge.
7. Detonate the charge.
8. Follow up with mechanical breaching as required.

REFERENCES:
1. MCRP 3-17.7L Explosives and Demolitions
2. SWO60-AA-MMA-010 Demolition Materials
3. VOLUME I Guidebook for Assault Entry Techniques, Volume I

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	2 primers per Marine
M023 Charge, Demolition Block M112 1-1/4	4 charges per Marine
M130 Cap, Blasting Electric M6	2 blasting caps per Marine
M131 Cap, Blasting Non-Electric M7	2 blasting caps per Marine
M456 Cord, Detonating PETN Type I Class E	15 FT per Marine
M670 Fuse, Blasting Time M700	12 FT per Marine
ML03 Firing Device, Demolition Multi-Purp	1 detonators per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Marine
MN52 MK154 Mod 0	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat in Cities Facility

EQUIPMENT: Assault Breacher's kit, Squad demolitions kit, PPE.

MATERIAL: Treble hook, electrical tape, duct tape.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio).

1371-DEMO-2015: Prepare demolition target folder

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided DA Form 2203-R, blank target folder, photograph of target, maps of target area, drawing paper, pen or pencil, and the references.

STANDARD: To meet mission requirements in accordance with STANAG 2123 ENGR (EDITION 2) Obstacle Folder.

PERFORMANCE STEPS:
1. Review DA Form 2203-R.
2. Complete required sections of the target folder in specific language(s).

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCRP 3-17.7L Explosives and Demolitions
3. STANAG 2123 Obstacle Folder

1371-EOPS-2001: Establish operations center

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, personnel, a tent or other type of elemental shelter, communications equipment, and a site for the operations center.

STANDARD: In accordance with MCWP 3-40.1 Command and Control.

PERFORMANCE STEPS:
1. Review the mission and commander's intent.
2. Determine personnel requirements.
3. Establish communication plan within the operations center.
4. Coordinate for physical security.
5. Assess cover and concealment requirements.
6. Establish security plan.
7. Ensure site isolation from major enemy avenues of approach.
8. Ensure set up of elemental shelter.

REFERENCES:
1. MCWP 3-17 Engineering Operations
2. MCWP 3-40.1 MAGTF Command and Control

1371-EOPS-2002: Manage engineer forms/reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided completed engineer form(s)/report(s), operations plan, map, unit SOP(s) and references.

STANDARD: To ensure all engineer form(s) and/or report(s) are received from the reporting unit, evaluated to identify any deficiencies, and distributed/forwarded as required per the unit SOP and references.

PERFORMANCE STEPS:
1. Receive form(s)/report(s).
2. Review the appropriate section(s) of the references.
3. Examine form(s)/report(s) for deficiencies.
4. List all deficiencies.
5. Return form(s)/report(s) to originator for corrections if necessary.
6. Prepare evaluation of form(s)/report(s) as required.
7. File and Submit form(s)/report(s) to higher headquarters as required.

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7F Project Management
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-17.5 Combined Arms Obstacle Integration
9. MCWP 3-17.6 Survivability
10. MCWP 3-17.8 Combined Arms Mobility Operations
11. MCWP 3-21.1 Aviation Ground Support
12. MCWP 3-40.2 Information Management

1371-EOPS-2003: Analyze engineer form/report(s)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided completed engineer form/report(s) and references.

STANDARD: To determine relevant information, describe the impact on operations, and act on the information as required.

PERFORMANCE STEPS:
1. Examine engineer form/report(s).
2. Determine impact on operations.
3. Prepare appropriate evaluation.
4. Report findings.

REFERENCES:
1. MCDP 6 Command and Control
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.5 Combined Arms Obstacle Integration
7. MCWP 3-17.6 Survivability
8. MCWP 3-17.8 Combined Arms Mobility Operations
9. MCWP 3-21.1 Aviation Ground Support
10. MCWP 3-40.2 Information Management
11. MCWP 5-1 Marine Corps Planning Process (MCPP)

1371-EOPS-2004: Repair damaged airfields (ADR)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a damaged airfield, SL-3 complete airfield damage repair (ADR) kit, heavy equipment support, a borrow pit, personnel, and communications equipment.

STANDARD: To meet surface roughness criteria in order to establish a functional Minimum Operating Strip (MOS) capable of launching and recovering aircraft in accordance with MCWP 3.21.1 Aviation Ground Support.

PERFORMANCE STEPS:
1. Brief damage assessment teams.
2. Conduct damage assessment.
3. Recommend MOS.
4. Coordinate UXO clearance (as required).
5. Repair spalls and craters to meet surface roughness criteria.
6. Install FOD cover on repaired crater(s) (as required).

REFERENCES:
1. MCWP 3.21.1 Aviation Ground Support
2. UFC 3-270-07 Airfield Damage Repair

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Airfield Damage repair (ADR) kit, 260 CFM, engineer equipment (420 backhoe, multi-terrain loader).

MATERIAL: Fine/course aggregate, sand grid, Pavemend.

1371-EOPS-2005: Design concrete structures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, writing/sketching materials, a calculator, and the reference.

STANDARD: To specify type of materials to be used, proper spacing of all components, and quantity and type of material required for finished structures capable of supporting all loads considered per the specifications and in accordance with MCRP 3-17.7D Concrete & Masonry.

PERFORMANCE STEPS:
1. Review the specifications.
2. Design a concrete footing.
3. Design a concrete wall.
4. Design a reinforced concrete structure.
5. Design a concrete block structure.
6. Generate a Bill of Materials for each type of design.

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry
2. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

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1371-EOPS-2006: Employ construction equipment kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a construction shop with live power outlets, and references.

STANDARD: To ensure operability of all required components in accordance with appropriate technical manuals.

PERFORMANCE STEPS:
1. Determine shop set electrical power requirements.
2. Assemble construction shop components set(s) (if required).
3. Select appropriate component(s).
4. Operate component(s).
5. Disassemble construction shop components set(s).

REFERENCES:
1. Appropriate Manufacturer's Assembly Manual/Instructions
2. TM 00425B-OR Tool Kit, Mason and Concrete Finisher
3. TM 08165B-OR Tool Kit, Shop Construction
4. TM 11441A-OR Tool Kit, Carpenter, Platoon

5. TM 11441AOR/1 Tool Kit, Carpenter, Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17330 Covered Training Area

EQUIPMENT: Family of Engineer Tool Construction Kits (FETCK).

OTHER SUPPORT REQUIREMENTS: Fuel and electrical requirements.

1371-EOPS-2007: Estimate requirements for engineer projects

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT, SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, construction drawings, blueprints, specifications, calculator, writing materials, appropriate form(s), and references.

STANDARD: To list all personnel and equipment resources necessary to accomplish mission requirements in accordance with MCRP 3-17.7F Project Management.

PERFORMANCE STEPS:
1. Review mission.
2. Prepare materials estimates/materials takeoff list.
3. Prepare a Bill of Materials (BOM).
4. Prepare manpower estimates.
5. Prepare equipment estimates.

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
3. MCRP 3-17.7C Carpentry
4. MCRP 3-17.7D Concrete and Masonry
5. MCRP 3-17.7F Project Management
6. MCRP 3-17.7I Earthmoving Operations
7. MCRP 3-17.7M Construction Estimating
8. MCRP 3-17A Engineer Field Data
9. MCWP 3-17 Engineer Operations
10. MCWP 5-1 Marine Corps Planning Process (MCPP)

1371-EOPS-2008: Conduct chainsaw operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: In an operating environment, given a mission, personnel, equipment, and references.

STANDARD: To safely fell, limb and buck standing timber without injury to personnel and equipment in accordance with OSHA standards.

PERFORMANCE STEPS:
1. Analyze the mission.
2. Conduct site survey.
3. Determine escape routes.
4. Establish safe areas.
5. Task organize cut team(s).
6. Task organize equipment.
7. Ensure safety equipment is donned (or on site).
8. Establish control procedures.
9. Perform mission.
10. Submit required reports.

REFERENCES:
1. DoDI 6055.1 DoD Safety and Occupational Health (SOH) Program
2. MCRP 3-17B Engineer Forms and Reports
3. TC 90-6 Mountain Operations
4. TM 11423A-OR Tool Kit, Pioneer Platoon
5. USDA Forest Service, 1998 Safe Timber Harvesting, Univ. New Hampshire

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: Platoon Pioneer kit, PPE.

UNITS/PERSONNEL: Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio).

1371-EOPS-2009: Conduct rigging

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a rigging task to be performed, appropriate timbers, lumber, fasteners, tools and equipment, suitable rope for the task, and references.

STANDARD: To meet the mission rigging requirements without incident in accordance with MCRP 3-17.7J Rigging Techniques (FM 5-125).

PERFORMANCE STEPS:

1. Review Mission.
2. Examine rigging assets available.
3. Examine resources as required.
4. Examine rigging for serviceability.
5. Tie appropriate knots and lashings.
6. Employ appropriate equipment to achieve required mechanical advantage.
7. Submit required reports.

REFERENCES:
1. MCRP 3-17.7J Rigging Techniques, Procedures, and Applications
2. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: Pioneer Kits (Squad, Platoon), Rope, Block and tackle, PPE.

UNITS/PERSONNEL: Safety Officer, Corpsman.

1371-EOPS-2010: Requisition required materials

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT, SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a mission and bill(s) of materials,

STANDARD: In accordance with the mission and accepted purchasing and accounting procedures.

PERFORMANCE STEPS:
1. Review the mission.
2. Review the bill(s) of materials.
3. Obtain required materials through accepted supply procedures.
4. Obtain required materials through accepted open purchase procedures.

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. UM 4400-124 SASSY Using Unit Procedures

1371-EOPS-2011: Establish project/operation schedules

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, construction drawings/blueprints,

specifications, a calculator, writing materials, activity estimate sheets, and the reference.

STANDARD: To detail all personnel, equipment, and materials necessary to accomplish the mission while establishing a defined duration for each subtask and the overall project/operation and graphically depict the schedule in accordance with MCRP 3-17.7F Construction Project Management.

PERFORMANCE STEPS:
1. Review the mission.
2. Determine activities/tasks necessary to complete the project.
3. Arrange activities/tasks in logical sequence.
4. Complete activity estimate sheets.
5. Identify critical tasks.
6. Graphically depict schedule.
7. Update schedule throughout duration of project/operation.

REFERENCES:
1. MCRP 3-17.7F Project Management
2. MCRP 3-17.7M Construction Estimating

1371-EOPS-2012: Arrange external support for engineer projects/operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, commander's intent and resources.

STANDARD: To provide all required support for a project or operation to meet the desired endstate.

PERFORMANCE STEPS:
1. Review the operations order.
2. Identify tasks/missions beyond organic capabilities.
3. Determine sources of support.
4. Ensure required support is coordinated/provided.

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineering Operations
3. MCWP 3-21.1 Aviation Ground Support
4. MCWP 3-40.1 MAGTF Command and Control
5. MCWP 4-1 Logistics Operations
6. MCWP 4-11.5 Seabee Operations in the MAGTF
7. MCWP 5-1 Marine Corps Planning Process (MCPP)

1371-EOPS-2013: Conduct range operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the requirement to conduct live fire training, approved range, valid RSO card, Class V, target material, personal protective equipment (PPE), communications equipment, and references.

STANDARD: To complete required training without injury to personnel and equipment in accordance with AR 385-63 Range Safety Operations.

PERFORMANCE STEPS:
1. Plan training.
2. Conduct site reconnaissance, if required.
3. Build target folders(s), if required.
4. Submit logistical support requirements.
5. Calculate Class V requirements.
6. Review SDZs/range regulations, if required.
7. Conduct training.
8. Submit required reports
9. Conduct accountability of personnel, weapons, and equipment.
10. Repair/restore range, as required.
11. Conduct line-out.

REFERENCES:
1. AR 385-63/ DA PAM 385-63 / MCO 3570.1B Range Safety
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO 3570.1C Range Safety
4. MCRP 3-17.7L Explosives and Demolitions
5. NAVMC 3500.12_ Marine Corps Engineer and Utilities Training and Readiness Manual
6. NAVMC 3500.3 Training and Readiness Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17502 Non-Standard Small Arms Range
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17830 Light Demolition Range

EQUIPMENT: M4, M16A4, M9, M249, M240G, M2, MK19, MK153, Military Demolitions, Shotgun, PPE, Range Folder.

UNITS/PERSONNEL: Corpsman w/medical supplies, Ammo Tech, Armorer.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio), Class V transport vehicle.

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Approved RSO/OIC card, Special permits (if applicable)

1371-HORZ-2001: Perform hasty soil analysis

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an unidentified soil sample, an SL-3 complete soil test kit and references.

STANDARD: To obtain a two-letter USCS classification, CBR, and moisture content in accordance with FM 3-410 Military Soils Engineering.

PERFORMANCE STEPS:
1. Obtain a soil sample.
2. Perform a visual examination of the soil.
3. Separate gravel.
4. Conduct field identification tests on the -40 material.
5. Determine the USCS classification.
6. Determine the CBR.
7. Determine the moisture content.
8. Record and report results.

REFERENCES:
1. MCRP 3-17.7G Military Soils Engineering
2. MCRP 3-17.7H Materials Testing
3. MCRP 3-17A Engineering Field Data

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: Soils Test kit, Pioneer kit.

1371-HORZ-2002: Design expedient drainage structures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a drainage structure requirement, a map, and references.

STANDARD: To intercept, collect, and remove surface water flowing toward a designated area from adjacent areas in accordance with MCRP 3-17.7A, Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations.

PERFORMANCE STEPS:
1. Review site specifications.
2. Calculate area of waterway/peak run off.
3. Determine type of drainage structure required.

4. Calculate size/amount of culvert required.
5. Design a drainage ditch.

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17A Engineering Field Data

1371-HORZ-2003: Construct expedient drainage structures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given design specifications, personnel, tools and equipment, and construction materials.

STANDARD: To ensure that ditch side slopes and longitudinal ditch slope; culverts; headwalls/wingwalls; and ditch lining all conform to the design specifications in accordance with MCRP 3-17.7A Planning and Design of Roads, Airbases, and Heliports in Theater of Operations.

PERFORMANCE STEPS:
1. Review site specifications.
2. Task organize personnel and equipment.
3. Cut drainage ditches.
4. Excavate for culverts as required.
5. Install culverts.
6. Construct headwalls/wingwalls as required.
7. Install check dams as required.
8. Line ditches as required.

REFERENCES:
1. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
2. MCRP 3-17.7D Concrete and Masonry
3. MCRP 3-17.7I Earthmoving Operations
4. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: 260 CFM, concrete mixer, pioneer kit, engineer equipment (420 backhoe, dozer, TRAM, etc.).

MATERIAL: Corrugated steel culvert, Portland cement, fine/course aggregates, concrete culverts, lumber, plywood, timber, fasteners, retention rock.

1371-HORZ-2004: Design a concrete slab on grade

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, writing materials, a calculator, and references.

STANDARD: To accommodate all dead and live loads considered and that design includes all reinforcement, joints and/or anchor bolts in accordance with the specifications and MCRP 3-17.7D Concrete & Masonry.

PERFORMANCE STEPS:
1. Review specifications.
2. Determine slab classification.
3. Determine minimum compressive strength.
4. Determine flexural tensile stress.
5. Determine equivalent static load and correct as necessary.
6. Determine slab thickness.
7. Determine minimum cement content.
8. Design form(s).
9. Generate a Bill of Materials.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7D Concrete and Masonry
3. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

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1371-HORZ-2005: Determine required concrete mixture

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided construction drawings, blueprints, specifications, writing materials, a calculator, and the reference.

STANDARD: To achieve proper PSI per the specifications in accordance with MCRP 3-17.7D Concrete & Masonry.

PERFORMANCE STEPS:
1. Determine the type of cement to be used.
2. Identify suitable water source.
3. Identify suitable aggregate.
4. Determine desired slump.
5. Determine percentage of air entrainment, as required.
6. Determine amount of water.

7. Determine a water:cement ratio.
8. Determine amount of cement.
9. Determine loose volume of gravel.
10. Convert weights to absolute volumes.
11. Determine weight of sand.
12. Determine loose volume of sand.
13. List final proportions for a one cubic yard batch.
14. Perform field moisture test on the aggregates.
15. Adjust mix design to account for aggregate moisture as required.

REFERENCES:
1. MCRP 3-17.7D Concrete and Masonry

1371-MANT-2001: Maintain the unit's engineer equipment, chests, sets and kits maintenance programs

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to Global Combat Support System–Marine Corps (GCSS-MC), combat engineer equipment, chests, sets and kits, equipment records, maintenance forms and references.

STANDARD: To ensure maintenance management functions, maintenance resources, production, and information conform to unit MMSOP requirements per the references.

PERFORMANCE STEPS:
1. Maintain a publications library.
2. Complete GCSS-MC entries or Consolidated Engineer Equipment Log and Service Record (NAVMC 10524), as required.
3. Complete a Service Request (SR), as required.
4. Document Parts Requirements, as required.
5. Complete GCSS-MC entries or Engineer Equipment Operational Records (NAVMC 10523), as required.
6. Complete GCSS-MC entries or a General Purpose Transaction Document (NAVMC 696), as required.
7. Analyze the Maintenance Production Report (MPR).
8. Reconcile outstanding supply requests.
9. Complete modification control records, as required.
10. Direct maintenance program related actions, as required.

REFERENCES:
1. Appropriate Technical Manuals
2. Applicable GCSS-MC Procedural Notices (GPN)
3. MCO P4400.150_ Consumer Level Supply Policy Manual
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TM 4700-15/1_ Ground Equipment Record Procedures
6. Unit Standing Operating Procedures (SOP)

1371-MANT-2002: Monitor the maintenance management of the unit's combat engineer equipment, chests, sets and kits

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With access to Global Combat Support System-Marine Corps (GCSS-MC), maintenance management reports, supporting documentation, combat engineer equipment, chests, sets and kits and references.

STANDARD: So accuracy of the combat engineer equipment, chests, sets and kits maintenance is validated and unit's readiness and equipment serviceability are enhanced.

PERFORMANCE STEPS:
1. Obtain current Maintenance Process Report (MPR).
2. Review references.
3. Review supporting documentation (equipment records).
4. Review MPR maintenance cycle times.
5. Validate maintenance reports (per unit's SOP).
6. Identify "exceptions."
7. Determine actions to correct "exceptions" (as required).

REFERENCES:
1. GCSS-MC Aid Global Combat Support System-Marine Corps Job Aid
2. GCSS-MC Guide Global Combat Support System-Marine Corps Guide
3. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
4. MCO 3000.11_ Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy
5. MCO 4400.16_ Uniform Material Movement and Issue Priority System (UMMIPS)
6. MCO P4790.2_ MIMMS Field Procedures Manual
7. TM 4700-15/1_ Ground Equipment Record Procedures
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: Maintenance Process Reports (MPR)

1371-MOBL-2001: Design Tactical Landing Zones (TLZ)/Expeditionary Airfields (EAF)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission specifying number and/or type(s) of aircraft, DA Form 1711-R, engineer tools and equipment, EAF support, materials, and

personnel.

STANDARD: To provide aircraft landing sites that meet structural and geometric design criteria for the type(s)/number(s) of aircraft anticipated for a TLZ, a surfaced EAF or an unsurfaced EAF per the mission specifications in accordance with MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations.

PERFORMANCE STEPS:
1. Analyze METT-T and reconnaissance forms, if provided.
2. Determine whether mission calls for a TLZ or a EAF.
3. Conduct site reconnaissance, keying on soil composition, drainage and obstructions.
4. Conduct area clearance as required.
5. Determine appropriate configuration.
6. Determine matting requirement (for EAF).
7. Calculate scope of engineer effort to prepare site.
8. Determine equipment requirements.
9. Estimate matting materials as required (for EAF).
10. Determine marking requirements.

REFERENCES:
1. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
2. MCRP 3-17B Engineer Forms and Reports
3. MCWP 3-17.4 Engineer Reconnaissance
4. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
5. NAVAIR 51-60A-1_ AM2 Airfield Mat and Accessories

1371-MOBL-2002: Manage employment of the Medium Girder Bridge (MGB)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a designated bridge master, provided a completed MGB Pro Forma, a gap, Medium Girder Bridge set, tools, a launch vehicle, personnel and references.

STANDARD: To meet design specifications and intended bridge classification per the Pro Forma, while observing safety precautions and technical specifications during build, boom and launch in accordance with TM 5-5420-212-12 Medium Girder Bridge.

PERFORMANCE STEPS:
1. Review the references and the Pro Forma.
2. Make crew assignments.
3. Brief crews.
4. Direct lay out the site based on critical pallet loads.
5. Direct installation of front roller beam.
6. Direct build end of bridge (EOB)+1 components.

7. Direct installation of rear roller beam.
8. Direct the building and booming of bridge (to include nose configuration).
9. Direct the launch of bridge.
10. Direct the setting of bridge on deck (near and far shore).
11. Direct dressing of bridge.
12. Direct anchoring as required.
13. Direct MGB retrieval (as required).

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. TM 5-5420-212-12 Medium Girder Bridge
3. TM 5-5420-212-12-1 Link Reinforcement Set

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: Medium Girder Bridge (MGB) set, MGB Erection set, MGB Link Reinforcement set, 7-ton MTVR.

UNITS/PERSONNEL: MGB Bridge Master, Corpsman.

OTHER SUPPORT REQUIREMENTS: Communications (radio), Safety vehicle.

1371-MOBL-2003: Operate Bridge Erection Boat (BEB)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a body of water, a bridge erection boat, tools, personnel, personal protective equipment (PPE), and the reference.

STANDARD: Using controls to maneuver 360 degrees around a stationary buoy while maintaining a 1 yard radius; perform a series of pier touches; and a pier side docking maneuver, all without damage to equipment while observing all safety and navigational precautions in accordance with TM 10020C-OI Operator's Manual Boat, Bridge Erection (MKIII).

PERFORMANCE STEPS:
1. Inspect the launch area.
2. Perform before/during/after operations checks on the boat/engine, as required.
3. Perform start up procedures.
4. Maneuver the boat using the buckets.
5. Maneuver the boat using the helm.

REFERENCES:
1. TM 10020C-OI Bridge Erection Boat (MKIII) Operator's Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: MKIII Bridge Erection Boat (BEB) SL-3 complete, 7-ton MTVR.

UNITS/PERSONNEL: Corpsman, Safety swimmer.

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: BEB licensed operators per TM 11275-15/4 Engineer Equipment Licensing Manual.

1371-MOBL-2004: Manage the employment of the Improved Ribbon Bridge (IRB)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a float bridge master, given a complete IRB design, a wet gap crossing site, IRB components, bridge erection boats, fuel, IRB tools and equipment, motor transport support, personnel, personal protective equipment (PPE), and references.

STANDARD: To provide force mobility, employing the IRB within the time frame listed in the design criteria, while observing safety precautions in accordance with TM 5-5420-278-10 Operators Manual Improved Ribbon Bridge (IRB).

PERFORMANCE STEPS:
1. Review the references and the design specifications.
2. Brief crew on assignments.
3. Don all PPE.
4. Perform pre-operation checks and services on boats and IRB bays.
5. Deploy BEBs.
6. Deploy IRB bays.
7. Capture IRB bays.
8. Connect IRB bays.
9. Position the bridge.
10. Anchor the bridge.
11. Provide up-stream, in water security measures.
12. Retrieve the bridge.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. TM 10020C-OI Bridge Erection Boat (MKIII) Operator's Manual
3. TM 11518A-OR Improved Ribbon Bridge (IRB) Operators Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: Improved Ribbon Bridge (IRB) set, MKIII Bridge Erection Boat

(BEB) SL-3 complete, MK48/18 LVSR, 7-ton MTVR.

UNITS/PERSONNEL: Float bridge master, Corpsman, Safety swimmer.

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Licensed MKIII BEB operators per TM 11275-15/4 Engineer Equipment Licensing Manual.

1371-MOBL-2005: Manage military rafting operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a designated raft commander, provided mission specifications, a wet gap crossing site, IRB components, bridge erection boats, fuel, IRB tools, motor transport support, personnel, personal protective equipment (PPE), and references.

STANDARD: To provide force mobility while maintaining proper speed and adhering to navigational and operational safety requirements in accordance with TM 5-5420-278-10 Operators Manual Improved Ribbon Bridge (IRB).

PERFORMANCE STEPS:
1. Review the references and specifications.
2. Brief/instruct the crew on the mission/assignment.
3. Inspect IRB components.
4. Don all PPE.
5. Conduct pre-operation checks and services on BEBs.
6. Launch BEBs.
7. Launch IRB components (ramp and interior bays as required in specifications).
8. Capture IRB components.
9. Maneuver IRB components into position.
10. Construct raft.
11. Re-position BEBs and rig to raft according to specifications.
12. Load raft.
13. Maneuver the raft.
14. Maintain rafting schedule.
15. Perform during-operation checks.
16. Perform post-operation checks and services.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCWP 3-17.8 Combined Arms Mobility Operations
3. TM 10020C-OI Bridge Erection Boat (MKIII) Operator's Manual
4. TM 11518A-OR Improved Ribbon Bridge (IRB) Operators Manual

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: Improved Ribbon Bridge (IRB) set, MKIII Bridge Erection Boat (BEB) SL-3 complete, MK48/18 LVSR, 7-ton MTVR.

UNITS/PERSONNEL: Raft Commander, Corpsman, Safety Swimmer.

OTHER SUPPORT REQUIREMENTS: Safety boat.

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Licensed MKIII BEB operators per TM 11275-15/4 Engineer Equipment Licensing Manual.

1371-MOBL-2006: Determine raft size required for wet gap crossing

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission specifying a military load class requirement, completed engineer reconnaissance reports with hydrographic information, and references.

STANDARD: To meet mission requirements based on available resources and to deliver the troops and equipment across the gap with a minimum number of trips in accordance with MCWP 3-17.8 Combined Arms Mobility Operations.

PERFORMANCE STEPS:
1. Review the reconnaissance reports.
2. Determine raft size based on MLC.
3. Determine rafting configuration based on current velocity.
4. Determine rafting cycle time.
5. Determine total force crossing time.
6. Determine logistical requirements.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCWP 3-17.4 Engineer Reconnaissance
3. MCWP 3-17.8 Combined Arms Mobility Operations
4. TM 10020C-OI Bridge Erection Boat (MKIII) Operator's Manual
5. TM 11518A-OR Improved Ribbon Bridge (IRB) Operators Manual

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1371-MOBL-2007: Determine tactical bridging assets required to span a gap

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission specifying a military load class requirement, a map, reconnaissance report(s), and references.

STANDARD: For a wet gap crossing, determine the length of bridge, number and type of IRB bays required, number of BEBs required, anchoring system to be employed, all logistical requirements, and calculate total time to construct the bridge in accordance with TM 5-5420-278-10 Operators Manual Improved Ribbon Bridge (IRB). For a dry gap crossing, determine the MGB configuration, calculate pallets required, determine all logistical requirements, and calculate total time to construct the bridge in accordance with TM 5-5420-212-12 Medium Girder Bridge (MGB).

PERFORMANCE STEPS:
1. Review the mission, reconnaissance reports, maps, and any other intelligence data available.
2. Evaluate potential crossing sites.
3. Select the best crossing means.
4. Select final bridge site.
5. Calculate required bridge length.
6. Fill out Pro Forma as necessary.
7. Determine bridging assets required, i.e., number of bays, number of boats, number of pallets.
8. Determine crew size.
9. Determine logistical support.
10. Calculate total time to construct the bridge.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCWP 3-17.4 Engineer Reconnaissance
3. MCWP 3-17.8 Combined Arms Mobility Operations
4. TM 5-5420-212-12 Medium Girder Bridge
5. TM 5-5420-212-12-1 Link Reinforcement Set

1371-MOBL-2008: Plan engineer aspects of gap crossing operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, completed engineer reconnaissance forms and references.

STANDARD: To ensure the crossing is supportable and consistent with the commander's intent, while accounting for all tactical control measures in accordance with MCWP 3-17.8 Combined Arms Mobility Operations.

PERFORMANCE STEPS:
1. Analyze the mission.
2. Conduct Intelligence Preparation of the Battlespace (IPB).
3. Identify Requests for Information (RFI).
4. Plan/conduct reconnaissance.

5. Determine support requirements.
6. Coordinate with supported unit commanders.
7. Complete an overlay with engineer related tactical control measures.
8. Prepare order/appropriate appendix to operations order.

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCRP 3-17B Engineer Forms and Reports
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. MCWP 5-1 Marine Corps Planning Process (MCPP)

1371-MOBL-2009: Design a non-standard bridge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement for non-standard gap crossing, completed engineer reconnaissance forms, a design MLC, and references.

STANDARD: Showing all calculations for abutments (if required), substructure (if required), and superstructure components that will meet or exceed required MLC in accordance with MCRP 3-17.1B Military Non-Standard Bridges.

PERFORMANCE STEPS:
1. Review engineer reconnaissance reports.
2. Conduct site reconnaissance.
3. Determine the bridge type based on gap size and MLC.
4. Design the superstructure.
5. Design the substructure, if required.
6. Design the abutments, if required.
7. Calculate the bill of materials.
8. Determine logistical support requirements.
9. Illustrate final design.

REFERENCES:
1. MCRP 3-17.1B Military Non-Standard Fixed Bridging
2. MCRP 3-17A Engineer Field Data

1371-MOBL-2010: Employ M58/M68 linear demolition charge

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an M58/M68 Linear Demolition Charge, MK 22 Rocket, MK 155 Trailer Mounted Launcher, towing vehicle, personal protective equipment, and an area to fire the charge,

STANDARD: To breach a lane through a minefield or other linear obstacles as directed to enable force mobility in accordance with TM 08982A-14&P/2B Operators Manual for MK 155 Mine Clearance System.

PERFORMANCE STEPS:
1. Inspect all equipment.
2. Set up M58/M68/M155 for employment.
3. Perform all circuit/pre-operational checks.
4. Move to firing area.
5. Ensure proper standoff distance.
6. Fire the rocket.
7. Fire the charge.
8. Perform immediate actions for misfire (if required).

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. MCWP 3-17.3 MAGTF Breaching Operations
3. MCWP 3-17.8 Combined Arms Mobility Operations
4. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	1 rocket per Team
M913 Charge, Demolition High Explosive Li	1 charges per Team
M914 Charge, Demolition Inert Linear M68A	1 charges per squad

RANGE/TRAINING AREA: Facility Code 17820 Engineer Qualification Range, Non-Standardized

EQUIPMENT: MCLIC Trailer (M353), PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Crane (loading/unloading, Ammunition vehicle, Safety vehicle, Communications (radio).

1371-MOBL-2011: Employ the APOBS

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an anti-personnel minefield or wire obstacle, Antipersonnel Obstacle Breaching System (APOBS), demolition tools, equipment, and personal protective equipment.

STANDARD: To clear a lane through the obstacle while observing all safety precautions in accordance with TM 013750-13&P Operators Manual MK-7 MOD 1 Anti-Personnel Obstacle Breaching System (ABOBS).

PERFORMANCE STEPS:
1. Inspect all equipment.
2. Set up APOBS.
3. Perform circuit/pre-deployment checks.
4. Move to firing area.
5. Ensure proper standoff.
6. Initiate the system.
7. Perform immediate action for misfire (if required).

REFERENCES:
1. MCRP 3-17.2D Explosive Hazard Operations
2. TM 013750-13&P Operators Manual MK-7 MOD. 1 Anti-Personnel Obstacle Breaching System (APOBS)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
MN79 Mine, Antipersonnel Obstacle Breachi	1 charges per Team

RANGE/TRAINING AREA: Facility Code 17820 Engineer Qualification Range, Non-Standardized

EQUIPMENT: PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Ammunition vehicle, Safety Vehicle, Communications (radio).

1371-MOBL-2012: Conduct obstacle breaching operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission specifying available supporting arms, personnel with full combat load per T/O weapon, demolitions tools, engineer equipment, and Class V.

STANDARD: To reduce linear obstacles or breach a lane through a minefield/explosive hazards in accordance with MCWP 3-17.3 MAGTF Breaching Operations.

PERFORMANCE STEPS:
1. Analyze METT-T and available reconnaissance reports.
2. Organize obstacle clearing detachment(s).

3. Proceed to final assembly area.
4. Verify obstacle location(s) and possible bypass route(s).
5. Move to obstacle while suppressing enemy fire.
6. Direct reduction of enemy positions.
7. Coordinate obscuration of entire obstacle with supporting arms.
8. Direct reduction of the obstacle(s).
9. Set up security on near side of obstacle.
10. Proof the lane.
11. Mark the lane.
12. Control movement through the breach.
13. Conduct turnover of breaching lane(s) to supporting units.
14. Consolidate and re-supply the breach force.

REFERENCES:

1. Applicable technical references
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineer Field Data
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.8 Combined Arms Mobility Operations
7. TM 013750-13&P Operators Manual MK-7 MOD. 1 Anti-Personnel Obstacle Breaching System (APOBS)
8. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
G940 Grenade, Hand Green Smoke M18	2 grenades per Team
G945 Grenade, Hand Yellow Smoke M18	2 grenades per Team
G982 Grenade, Hand Practice Smoke TA M83	2 grenades per Team
HX05 Rocket, 83mm Assault MK3 Mod 0 (SMAW	2 rockets per Team
J143 Rocket Motor, 5-inch MK22 Mod 4	1 rocket per Team
L312 Signal, Illumination Ground White St	2 signals per Team
L314 Signal, Illumination Ground Green St	2 signals per Team
M023 Charge, Demolition Block M112 1-1/4	2 charges per Marine
M028 Demolition Kit, Bangalore Torpedo M1	1 cases per Team
M130 Cap, Blasting Electric M6	6 blasting caps per Team
M131 Cap, Blasting Non-Electric M7	6 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	1500 FT per Team
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	1 cases per Team
M913 Charge, Demolition High Explosive Li	1 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	8 igniters per Team
MN14 Firing Device, Dual Mode MK54	1 detonators per Team
MN52 MK154 Mod 0	6 detonators per Team
MN88 Cap, Blasting, 500 ft mini-tube M21	2 blasting caps per Team

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17413 Field Training Area
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17820 Engineer Qualification Range, Non-Standardized
Facility Code 17830 Light Demolition Range

EQUIPMENT: MCLIC trailer, Squad demolitions kit, Minefield marking kit, MK153 SMAW, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: AAV vehicle, 7-ton MTVR, ACE, Ammunition vehicle, Safety vehicle.

1371-MOBL-2013: Engage stationary targets with the shotgun

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a shotgun, personal protective equipment, targets, and ammunition, while employing combat marksmanship techniques.

STANDARD: To assess ammunition effects on paper targets from 15 yards.

PERFORMANCE STEPS:
1. Perform weapons handling procedures with the shotgun.
2. Clear the shotgun.
3. Select the appropriate ammunition type.
4. Fill the magazine tube.
5. Place the weapon in Condition 1.
6. Effectively engage targets on command.
7. Place weapon in Condition 4.
8. Assess ammunition effects from 15 yards.
9. Repeat steps 1 through 7 with "weak" side from 15 yards.
10. Unload weapon and show clear.
11. Maintain the shotgun.

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-10 A Rifle Marksmanship
3. TM 1003A/07172A/09081A-13P Operator and Maintenance Manual, Model 500, Mossberg 12-gauge shotgun
4. TM 1005A-303-14 SHOTGUN M1200 WINCHESTER

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A011 Cartridge, 12 Gauge #00 Buckshot M16	6 rounds per Marine
A023 Cartridge, 12 Gauge 1 Ounce Slug Com	3 rounds per Marine

RANGE/TRAINING AREA: Facility Code 17502 Non-Standard Small Arms Range

EQUIPMENT: Shotgun, PPE.

MATERIAL: B Mod target.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio).

1371-MOBL-2014: Perform select shot drills with the shotgun

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a shotgun, personal protective equipment (PPE), targets and ammunition.

STANDARD: Without allowing the shotgun to cycle out of ammunition.

PERFORMANCE STEPS:
1. Clear the shotgun.
2. Assume the Ready Carry.
3. Fill the magazine tube with three rounds.
4. Place the weapon in Condition 1.
5. Engage paper targets while conducting magazine tube not fully filled procedures.
6. Place the weapon in Condition 4.
7. Fill the magazine tube completely.
8. Place the weapon in Condition 1.
9. Fill the magazine tube with one final round.
10. Engage paper targets while conducting magazine tube fully filled procedures.
11. Place the weapon in Condition 4.
12. Maintain the shotgun.

REFERENCES:
1. MCRP 3-10 A Rifle Marksmanship
2. TM 1003A/07172A/09081A-13P Operator and Maintenance Manual, Model 500, Mossberg 12-gauge shotgun
3. TM 1005A-303-14 SHOTGUN M1200 WINCHESTER

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A011 Cartridge, 12 Gauge #00 Buckshot M16	6 rounds per Marine
A023 Cartridge, 12 Gauge 1 Ounce Slug Com	3 rounds per Marine
AA54- Cartridge, 12 Gauge, Breaching, M103	3 rounds per Marine

RANGE/TRAINING AREA: Facility Code 17502 Non-Standard Small Arms Range

EQUIPMENT: Shotgun, PPE.

MATERIAL: B Mod target material.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio).

1371-MOBL-2015: Qualify with the shotgun

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a shotgun, personal protective equipment (PPE), targets, a scorecard, a verifier, and ammunition.

STANDARD: Scoring a minimum of 70% in total hits on a stationary target from 25 yards.

PERFORMANCE STEPS:
1. Clear the shotgun.
2. Fill magazine tube with appropriate ammunition.
3. Place the weapon in Condition One.
4. Engage targets on command.
5. Place the weapon in Condition Four.
6. Assess targets.
7. Fill magazine tube with appropriate ammunition.
8. Place the weapon in Condition One.
9. Engage targets on command.
10. Place the weapon in Condition Four.
11. Assess targets.
12. Maintain the shotgun.

REFERENCES:
1. Appropriate Technical Manuals
2. MCRP 3-10 A Rifle Marksmanship
3. TM 1003A/07172A/09081A-13P Operator and Maintenance Manual, Model 500, Mossberg 12-gauge shotgun
4. TM 1005A-303-14 SHOTGUN M1200 WINCHESTER

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A011 Cartridge, 12 Gauge #00 Buckshot M16	10 rounds per Marine

RANGE/TRAINING AREA: Facility Code 17502 Non-Standard Small Arms Range

EQUIPMENT: Shotgun, PPE.

MATERIAL: Target material to score hits.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio).

1371-MOBL-2016: Conduct ballistic breach

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a determined point of entry to breach, a shotgun, ammunition, personal protective equipment (PPE), and a door in frame with lockset.

STANDARD: To defeat the target in accordance with FM 3-06.11 Combined Arms Operations in Urban Terrain.

PERFORMANCE STEPS:
1. Select the appropriate ammunition.
2. Fill the magazine tube with suitable ammunition.
3. Place the weapon in Condition One.
4. Select attack point(s) on the target.
5. Position the muzzle.
6. Fire the shotgun.
7. Perform immediate action as required.
8. Perform remedial action as required.
9. Follow up with mechanical breaching as required.
10. Reload and prepare for follow-on actions.
11. Maintain the shotgun.

REFERENCES:
1. Appropriate Reference Materials
2. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
3. TM 1003A/07172A/09081A-13P Operator and Maintenance Manual, Model 500, Mossberg 12-gauge shotgun
4. TM 1005A-303-14 SHOTGUN M1200 WINCHESTER

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AA54-Cartridge, 12 Gauge, Breaching, M103	6 rounds per Marine

RANGE/TRAINING AREA: Facility Code 17961 Combat In Cities Facility

EQUIPMENT: Shotgun, Marine assault breacher's kit, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio).

1371-MOBL-2017: Plan breaching of a complex obstacle

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, current obstacle intelligence, and references.

STANDARD: That will result in a sufficient number of cleared lanes for assured mobility per the commander's intent in accordance with MCWP 3-17.3 MAGTF Breaching Operations.

PERFORMANCE STEPS:
1. Analyze the mission.
2. Identify possible bypasses.
3. Identify the type of breaching operation required.
4. Identify the number of lanes required.
5. Identify potential breach sites.
6. Identify Requests for Information (RFI).
7. Determine type of explosive/non-explosive breaching assets available.
8. Task organize engineer personnel and equipment within the assault breach force.
9. Determine proper sequencing of the breach force.
10. Develop battle drills.
11. Determine support requirements.
12. Plan, prioritize, and recommend fire support.
13. Prepare appendix for the operation order.

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
2. MCWP 3-1 Ground Combat Operations
3. MCWP 3-17 Engineering Operations
4. MCWP 3-17.3 MAGTF Breaching Operations
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-17.8 Combined Arms Mobility Operations

1371-MOBL-2018: Lead a dismounted route sweep

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a route to be swept, route sweeping equipment, a map, personnel, and a route sweep order.

STANDARD: To locate, mark, and/or reduce all explosive hazards/obstacles on the designated route in accordance with MCRP 3-17.2D Explosive Hazard Operations.

PERFORMANCE STEPS:

1. Analyze mission.
2. Task organize personnel and equipment.
3. Issue the order.
4. Conduct rehearsals.
5. Ensure all mines/obstacles are detected, marked, and reduced (as required).
6. Submit required reports.

REFERENCES:
1. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
2. MCRP 3-17.2D Explosive Hazard Operations
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineering Operations
6. MCWP 3-17.3 MAGTF Breaching Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Handheld detectors, Minefield marking kit.

1371-MOBL-2019: Perform manual breaching

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a designated target, breaching tools, and personal protective equipment (PPE).

STANDARD: To execute a successful breach utilizing the appropriate mechanical method in accordance with MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT).

PERFORMANCE STEPS:
1. Conduct target analysis.
2. Select appropriate tool.
3. Employ the tool.

RELATED EVENTS:

1371-DEMO-2007	1371-DEMO-2008	1371-DEMO-2009
1371-DEMO-2010	1371-DEMO-2011	1371-DEMO-2012
1371-DEMO-2013	1371-DEMO-2014	

REFERENCES:
1. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
2. VOLUME I Guidebook for Assault Entry Techniques, Volume I
3. VOLUME II Guidebook for Assault Entry Techniques Volume II

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17961 Combat in Cities Facility

EQUIPMENT: Marine Assault Breacher's kit, PPE.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Safety vehicle, Communications (radio).

1371-MOBL-2020: Direct explosive hazards reduction operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical scenario in an explosive hazard route or area.

STANDARD: To reduce explosive hazards safely for the assured mobility of operating forces.

PERFORMANCE STEPS:
1. Review mission.
2. Task organize personnel.
3. Task organize equipment.
4. Identify explosive hazards.
5. Conduct coordination with higher and adjacent units.
6. Plan for destruction of explosive hazards within capabilities
7. Report results to higher headquarters

REFERENCES:
1. GTA 05-10-033 Demolition Card
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Handheld detection equipment, R2C equipment, robots.

MATERIAL: Inert explosive hazards.

1371-MOBL-2021: Lead Route and Area Clearance Operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a route/area to be cleared, clearance equipment, a map, and an operation order.

STANDARD: To locate, identify, mark, and/or reduce all explosive/non-explosive obstacles on the designate route/area.

PERFORMANCE STEPS:
1. Analyze mission.
2. Task organize personnel and equipment.
3. Issue the order.
4. Conduct rehearsals.
5. Ensure all obstacles are detected, identified, and marked.
6. Reduce or by-pass obstacle per commander's intent.
7. Submit required reports.

REFERENCES:
1. Appropriate Equipment Manual
2. Supported Battalion SOP
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.3 MAGTF Breaching Operations
10. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Handheld detection equipment, R2C equipment, robots, PPE.

MATERIAL: Inert explosive hazards.

1371-MOBL-2022: Identify Explosive Hazards (EH)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: CPL, SGT, SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, suspected explosive hazards, combat engineer equipment, field protective equipment and publications/ORDATA II.

STANDARD: By category, country of origin, type of function, safeties and conditions.

PERFORMANCE STEPS:
1. Visually identify explosive hazard markers and indicators.
2. Identify components of Improvised Explosive Devices (IEDs).
3. Identify booby traps.
4. Identify thrown munitions.
5. Identify projected munitions.
6. Identify dropped munitions.
7. Identify placed munitions.
8. Record and report results.

REFERENCES:
1. Appropriate Reference Materials
2. CHB Country Handbooks
3. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCRP 3-17A Engineer Field Data
7. ORD ORDATA II (Software)
8. SWO 60-AA-MMA-010 Demolition Materials

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Ordata II, robots.

MATERIAL: Inert explosive hazards.

1371-MOBL-2023: Reduce Explosive Hazards (EH)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, a positively identified explosive hazard, combat engineer equipment, Class V, personal protective equipment, commander's decision and references.

STANDARD: By calculating, placing and detonating an explosive charge that will result in the reduction of the explosive hazard and allow for assured mobility in accordance with MCIP 3-17.1 Improvised Explosive Device (IED) Defeat.

PERFORMANCE STEPS:
1. Evaluate go/no go criteria per the explosive hazard decision matrix.
2. Employ protective measures.

3. Build a charge.
4. Remotely place the charge.
5. Detonate the charge.
6. Report results.

REFERENCES:
1. Appropriate Technical Manuals
2. MCIP 3-17.01 Combined Arms Improvised Explosive Device Defeat Operations
3. MCRP 3-17.2D Explosive Hazard Operations
4. MCRP 3-17.7L Explosives and Demolitions
5. MCRP 3-17A Engineer Field Data
6. MCRP 5-12.1C Risk Management - Cancelled w/o replacement
7. MCWP 3-1 Ground Combat Operations
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.2 MAGTF Explosive Ordnance Disposal
10. MCWP 3-17.3 MAGTF Breaching Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 3-17.8 Combined Arms Mobility Operations
13. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	2 charges per Marine
M131 Cap, Blasting Non-Electric M7	4 blasting caps per Team
M456 Cord, Detonating PETN Type I Class E	10 FT per Marine
M670 Fuse, Blasting Time M700	500 FT per Team
M757 Charge, Assembly Demolition M183 Com	2 charges per Team
MN08 Igniter, Time Blasting Fuse with Sho	2 igniters per Marine
MN88 Cap, Blasting, 500 ft mini-tube M21	1 detonators per Team
MN90 Cap, Blasting, 1000 ft mini-tube M23	1 detonators per Marine

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Squad demolitions kit, robot, PPE.

MATERIAL: Electrical tape, duct tape, prop stick.

UNITS/PERSONNEL: Range OIC, Range Safety Officer, Corpsman.

OTHER SUPPORT REQUIREMENTS: Ammunition vehicle, Safety vehicle, Communications (radio).

1371-MOBL-2024: Operate the Route Clearance Medium Mine Protected Vehicle (MMPV)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an operational MMPV, the applicable peculiar support equipment (PSE), operator forms/records, and a vehicle crew.

STANDARD: To safely complete the vehicle operation without injury to personnel, or damage to the vehicle in accordance with appropriate manufacture TM.

PERFORMANCE STEPS:
1. Perform before operational Preventative Maintenance Checks and Services (PMCS).
2. Prepare operator forms/records.
3. Perform applied government furnished equipment (GPE) initializations (as required).
4. Communicate using the vehicle's internal crew communications equipment (as required).
5. Operate the vehicle in prescribed tactical formation(s).
6. Operate the vehicle with the applied Mine Roller System (MRS) equipment (as required).
7. Operate the vehicle in varied terrains/surfaces.
8. Operate the vehicle in varied limited visibility conditions.
9. Perform vehicle egress procedures (as required).
10. Perform vehicle recovery procedures (as required).
11. Operate on-board MRAP winch (as required).
12. Perform during operational PMCS.
13. Perform post operational PMCS.
14. Complete operator forms/records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 10001620 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 4X4
3. TM 10001624 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 6X6
4. TM 4700-15/1_ Ground Equipment Record Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: In accordance with the current licensing manuals, MMPV operators must possess a valid OF-346 Incidental Operator's License for the Up-Armored HMMWV, and have either a CAT I/II MRAP license or a valid CAT I/II Learner's Permit until licensing standards have been met.

1371-MOBL-2025: Operate the Route Clearance Mine Protected Clearance Vehicle (MPCV)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As a member of a route clearance team, given an operational MPCV,

the applicable government furnished equipment (GFE), operator forms/records, a vehicle crew and references.

STANDARD: To safely complete the vehicle operation without injury to personnel, or damage to the vehicle in accordance with the appropriate manufacture TM.

PERFORMANCE STEPS:
1. Perform before operations Preventative Maintenance Checks and Services (PMCS).
2. Prepare operator forms/records.
3. Perform applied government furnished equipment (GFE) initializations (as required).
4. Perform Interrogation Arm/Camera initializations.
5. Communicate using the vehicle's internal crew communications equipment (as required).
6. Operate the vehicle in prescribed tactical formation(s).
7. Operate the vehicle in varied terrains/surfaces.
8. Operate the vehicle in varied limited visibility conditions.
9. Perform Interrogation Arm/Camera operations (as required).
10. Perform vehicle egress procedures (as required).
11. Perform vehicle recovery procedures (as required).
12. Perform during operations PMCS.
13. Perform post operations PMCS.
14. Complete operational forms/records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 11217A-OI/1 Operator's Manual for Buffalo Mine Protected Clearance Vehicle, MK1&MK2
3. TM 4700-15/1_ Ground Equipment Record Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: In accordance with the current licensing manuals, MPCV operators must possess a valid OF-346 Incidental Operator's License for the Up-Armored HMMWV and CAT I/II MRAP; and have either a CAT III license or a valid CAT III learners permit until the MPCV licensing standards have been met.

1371-MOBL-2026: Operate the Route Clearance Vehicle Mounted Mine Detector (VMMD) Vehicle

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 1 month

GRADES: PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As a member of a route clearance team, given an operational VMMD, Mine Detonation Trailer (MDT) set, and the operator forms/records and references.

STANDARD: To safely complete the vehicle operation without injury to personnel, or damage to the vehicle in accordance with the manufacture TM.

PERFORMANCE STEPS:
1. Perform before operations Preventative Maintenance Checks and Services (PMCS).
2. Prepare operator forms/records.
3. Perform Mine Detection System (MDS) system initializations.
4. Perform applied government furnished equipment (GFE) initializations (as required).
5. Operate the vehicle in prescribed tactical formation(s).
6. Operate the vehicle in varied terrains/surfaces.
7. Operate the vehicle in varied limited visibility conditions.
8. Perform detection operations PIR (as required).
9. Perform detection with the GPR.
10. Perform vehicle egress procedures (as required).
11. Perform vehicle recovery procedures (as required).
12. Perform during operations PMCS.
13. Perform post operations PMCS.
14. Complete operator forms/records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures
3. TM X-XXX-XXX-XX (Draft) Operator's Manual for Interim Vehicle Mounted Mine Detection (IVMMD) MK II System
4. User Guide Husky, MK III Vehicle Mounted Mine Detector (VMMD) Operator's Field User's Guide

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: In accordance with the current licensing manuals, VMMD operators must possess a valid OF-346 Operator's License for the VMMD.

1371-MOBL-2027: Operate the Route Clearance Vehicle's Government Furnished Equipment (GFE)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 1 month

GRADES: PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As a member of a route clearance team, given an operational route clearance vehicle, the GFE components, and references.

STANDARD: To safely operate the GFE during vehicle operations without injury to personnel, or damage to the GFE component(s) in accordance with the manufacture TM.

PERFORMANCE STEPS:
1. Perform before operations GFE Preventative Maintenance Checks and Services

(PMCS).
2. Prepare operator GFE forms/records.
3. Operate the vehicle's Driver Vision Enhancer (DVE) device (as required).
4. Operate the vehicle's Blue Force Tracker (BFT) (as required).
5. Operate the vehicle's crew intercom communications equipment (as required).
6. Operate the vehicle's radio communications equipment (as required).
7. Operate the vehicle's Counter Radio Controlled Improvised Explosive Device Electronic Warfare (CREW) device (as required).
8. Operate the vehicle's Air Digger device (as required).
9. Operate the vehicle's Tactical Operations Center Network (TOCNET) Inter-Communication System (as required).
10. Operate the vehicle's mounted sensor system (GYROCAM/VOSS) (as required).
11. Operate the Mine Roller System (MRS) (as required).
12. Perform during operations GFE PMCS.
13. Perform post operations GFE PMCS.
14. Complete operator GFE forms/records.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 10001620 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 4X4
3. TM 10001624 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 6X6
4. TM 11217A-OI/1 Operator's Manual for Buffalo Mine Protected Clearance Vehicle, MK1&MK2
5. TM X-XXX-XXX-XX (Draft) Operator's Manual for Interim Vehicle Mounted Mine Detection (IVMMD) MK II System
6. User Guide Husky, MK III Vehicle Mounted Mine Detector (VMMD) Operator's Field User's Guide

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1371-MOBL-2028: Operate a Combat Rubber Reconnaissance Craft (CRRC)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a combat rubber reconnaissance craft (CRRC), a littoral environment, appropriate tools, supplies and equipment, personal protective equipment (PPE), and under approved operating conditions.

STANDARD: To perform confined space and open water maneuvers without damage to equipment or injury to personnel, in accordance with TM 09665A-13&P/1-1 Operation and Maintenance of the Combat Rubber Reconnaissance Craft.

PERFORMANCE STEPS:
1. Inspect launch area.
2. Conduct pre-operations checks and services.
3. Perform confined space maneuvers.
4. Perform open water maneuvers.
5. Conduct post operations checks and services.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 09665A-13&P/1-1 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
3. TM 09665A-13&P/1-2 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
4. TM 09665B/10717A Small Craft Propulsion System, CRRC

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: (1) CRRC SL-3 Complete

OTHER SUPPORT REQUIREMENTS: Pre-operations checklist, Post operations checklist.

1371-PLAN-2001: Participate in the Marine Corps Planning Process (MCPP)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of an operations planning team in a operating environment, given a higher headquarters order, commander's guidance, and the reference.

STANDARD: Produce plans and orders products which support the accomplishments of the mission and commander's intent in accordance with MCWP 5-1 Marine Corps Planning Process.

PERFORMANCE STEPS:
1. Assist in problem framing.
2. Assist in course(s) of action development.
3. Assist in war gaming course(s) of action.
4. Assist in comparison and recommendation of course(s) of action.
5. Assist in development of appropriate staff products, operation plans, orders, annexes, and appendices.
6. Assist in transition by compiling the components of an operations order for distribution to subordinate units.

REFERENCES:
1. MCWP 5-1 Marine Corps Planning Process (MCPP)
2. MSTP PAM 5-0.2 Operational Planning Team Guide
3. MSTP PAM 5-0.3 MAGTF Planner's Reference Manual

1371-PLAN-2002: Plan a base camp

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, size and type of unit, and references.

STANDARD: To meet or exceed the unit requirements and the commander's intent, while accounting for future expansion, in accordance with MCRP 3-17.7N Base Camps.

PERFORMANCE STEPS:
1. Analyze mission.
2. Identify Requests for Information (RFI).
3. Conduct reconnaissance.
4. Determine location.
5. Plan road network.
6. Select facilities required to support the base camp.
7. Determine utility requirements.
8. Determine fuel requirements.
9. Determine drainage requirements.
10. Develop obstacle/barrier plan as required.
11. Develop survivability plan as required.
12. Determine bill of materials (BOM).
13. Determine camp layout.
14. Determine task organization of personnel and equipment.
15. Determine logistical support requirements.
16. Establish a project schedule.
17. Illustrate final design.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
4. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
5. MCRP 3-17.7F Project Management
6. MCRP 3-17.7I Earthmoving Operations
7. MCRP 3-17.7M Construction Estimating
8. MCRP 3-17.7N Base Camps
9. MCRP 3-17A Engineer Field Data
10. MCRP 4-11.1D Field Hygiene and Sanitation
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.5 Combined Arms Obstacle Integration
13. MCWP 3-17.6 Survivability
14. MCWP 3-43 Command and Control
15. MCWP 4-11.5 Seabee Operations in the MAGTF
16. MCWP 4-11.6 Bulk Liquid Operations
17. MCWP 4-11.6 Petroleum and Water Logistics Operations
18. MCWP 4-25.5 Bulk Liquids Operations
19. NAVMED P-5010-9 Manual of Naval Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces

1371-RECN-2001: Conduct engineer reconnaissance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, maps, personnel and equipment, appropriate reconnaissance reporting forms, overlay material, and references.

STANDARD: To classify roads, routes, and bridges; evaluate tunnels, fords, and ferry sites; identify obstacles; bypasses; and record relevant engineer information on the appropriate reconnaissance forms and transferred to a map overlay using engineer/tactical symbols.

PERFORMANCE STEPS:
1. Analyze mission.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Calculate route width (minimum and maximum).
5. Determine shoulder condition (if any).
6. Determine surface material.
7. Plot length of passable route.
8. List obstacles.
9. Indicate special weather conditions which may affect the route.
10. Identify constrictions.
11. Determine overhead clearance.
12. Classify road(s).
13. Record cover and concealment.
14. Identify underpasses.
15. Calculate tunnel specifications.
16. Classify bridge(s) (if any).
17. Determine wet gap fording/bridging/ferrying sites.
18. Identify suitable bypasses.
19. Classify the route.
20. Submit reconnaissance report(s) and overlays.

REFERENCES:
1. GTA 05-02-012 Coordinated Scale and Protractor
2. GTA 05-07-013 Rapid Field Classification Booklet
3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

1371-RECN-2002: Conduct demolition reconnaissance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission to conduct a reconnaissance of a target designated for demolition, map of area, compass, measuring tape, appropriate form(s), and references.

STANDARD: Complete all blocks of the appropriate form(s) to determine quantity of explosives required to produce the desired effect on the target(s); determine the time, labor, and logistics necessary to accomplish the mission; and capture a sketch of the proposed target(s) in accordance with the MCRP 3-17.7L Explosives and Demolitions.

PERFORMANCE STEPS:
1. Analyze mission.
2. Conduct map reconnaissance.
3. Proceed to assigned objective.
4. Estimate explosives and logistics required.
5. Estimate personnel and time required to complete mission.
6. Identify bypass requirements.
7. Sketch side views of target and cross sections of members to be cut.
8. Sketch a plan of the firing circuits and firing points.
9. Submit appropriate form(s).

REFERENCES:
1. GTA 05-07-013 Rapid Field Classification Booklet
2. GTA 05-10-033 Demolition Card
3. MCRP 3-17.7L Explosives and Demolitions
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineering Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

1371-SURV-2001: Design survivability positions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a force protection requirement and references.

STANDARD: To counteract the known effects of enemy direct and indirect fire weapons in accordance with MCWP 3-17.6 Survivability Operations.

PERFORMANCE STEPS:
1. Submit Requests for Information (RFI) to S/G-2.
2. Determine types of positions required.
3. Design positions.
4. Determine material requirements.
5. Calculate the time required for construction.
6. Submit designs/work estimates.

REFERENCES:
1. GTA 05-08-001 Survivability Positions
2. GTA 07-06-001 Fighting Position Construction Infantry Leader's Reference Card
3. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
4. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
5. MCRP 3-17A Engineer Field Data
6. MCWP 3-17.6 Survivability

1371-SURV-2002: Prepare a survivability plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, an operations order, the supported unit's T/O and T/E, and references.

STANDARD: That details the scope of engineer effort required to provide a level of force protection commensurate with enemy threat capabilities and the commander's intent and MCWP 3-17 Engineer Operations.

PERFORMANCE STEPS:
1. Analyze the mission.
2. Conduct Intelligence Preparation of the Battlespace (IPB).
3. Identify Requests for Information (RFI).
4. Identify location(s) of survivability positions.
5. Identify survivability requirements.
6. Prioritize survivability requirements.
7. Plan for protective obstacle integration.
8. Task organize engineer equipment and personnel.
9. Plan inspections of survivability positions for proper construction techniques.
10. Prepare survivability appendix to the operation order.

REFERENCES:
1. GTA 90-01-011 Joint Forward Operations Base (JFOB) Protection Handbook
2. GTA 90-01-018 Joint Entry Control Point & Escalation of Force Procedures
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-1 Ground Combat Operations
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.6 Survivability

7. MCWP 5-1 Marine Corps Planning Process (MCPP)

1371-VERT-2001: Plan wood frame structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided specifications, writing/sketching materials, a calculator, and references.

STANDARD: To conform to the construction drawings, blueprints, or specifications; and that identifies the type of materials and proper spacing; and support all loads considered in accordance with MCRP 3-17.7C Carpentry.

PERFORMANCE STEPS:
1. Review construction drawings, blueprints or specifications.
2. Prepare a materials takeoff sheet.
3. Prepare a bill of materials.
4. Submit required documents.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. MCRP 3-17.7M Construction Estimating
3. ModCarp 2008 Modern Carpentry, 11th Edition Wagner/Smith
4. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

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1371-VERT-2002: Layout wood frame structure

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 months

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a construction site, construction blueprints/drawings, design specifications, an engineer carpenter's kit, Class IV, and references.

STANDARD: To ensure that building corners are exactly 90 degrees; truss jigs are built to the specified pitch; the sum of stair stringer risers and treads is between 17 and 19 inches; and walls are level and plumb.

PERFORMANCE STEPS:
1. Lay out a rectangle.
2. Set batter board posts.
3. Drive corner stakes.
4. Install batter boards to finished heights.
5. Run building lines.
6. Square building lines.

7. Lay out wall components.
8. Lay out truss components.
9. Lay out stair components.

REFERENCES:
1. MCRP 3-17.7C Carpentry
2. ModCarp 2008 Modern Carpentry, 11th Edition Wagner/Smith
3. NAVPERS 0-486-20242-9 Basic Construction Techniques for Houses and Small Buildings

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17330 Covered Training Area

UNITS/PERSONNEL: 1361 Surveyor

1371-MOBL-2035: Operate a robot

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 3 months

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, suspected explosive hazards, a combat engineer robot, personal protective equipment and references.

STANDARD: To perform remote operations without injury to personnel or damage to equipment, per the operator's manual.

PERFORMANCE STEPS:
1. Identify hazard(s).
2. Prepare robot for operation.
3. Operate the robot
4. Conduct robotic reconnaissance.
5. Retrieve the robot.
6. Conduct post-op PMCS.

REFERENCES:
1. Appropriate Manufacturer's Assembly Manual/Instructions
2. Appropriate Technical Manuals
3. FM 3-06 Urban Operations
4. MCRP 3-17.2D Explosive Hazard Operations
5. MCRP 3-17.7L Explosives and Demolitions
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 3-17.8 Combined Arms Mobility Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17413 Field Training Area

EQUIPMENT: PacBot 510 w/FASTAC Kit, SUGV 310, SUGV 320

UNITS/PERSONNEL: Range OIC, Range Safety Officer

OTHER SUPPORT REQUIREMENTS: Obstacles to represent urban and rural conditions. Inert explosive hazards or mock-ups.

ENG & UTIL T&R MANUAL

CHAPTER 22

MOS 1372 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	22000	22-2
EVENT CODING	22001	22-2
INDEX OF INDIVIDUAL EVENTS	22002	22-2
1000-LEVEL EVENTS	22003	22-3

CHAPTER 22

MOS 1372 INDIVIDUAL EVENTS

22000. PURPOSE. This chapter details the individual events that pertain to the Assault Breacher Vehicle Crewman. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

22001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1372	Assault Breacher Vehicle Crewman.

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
ADMN	Administration
DEMO	Demolitions
MANT	Maintenance
MOBL	Mobility

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills

22002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1372-ADMN-1001	Communicate using visual signals for the ABV/AVLB	22-3
1372-ADMN-1002	Maintain Ordnance Vehicle Logbook for the ABV/AVLB	22-4
1372-ADMN-1003	Communicate using ABV/AVLB communication equipment	22-4
1372-DEMO-1001	Operate ABV Linear Demolition Charge System (LDCS)	22-5
1372-DEMO-1002	Mark breach lane using ABV Lane Marking System (LMS)	22-6

1372-MANT-1001	Perform ABV/AVLB Operator Preventive Maintenance Checks and Services (PMCS)	22-6
1372-MANT-1002	Conduct recovery operations for the ABV/ALVB	22-7
1372-MANT-1003	Perform track maintenance on the ABV/AVLB	22-7
1372-MANT-1004	Adjust Track Tension on M-60 AVLB	22-8
1372-MANT-1005	Slave Start a M-60 AVLB	22-9
1372-MANT-1006	Prepare a M-60 AVLB Bridge for Removal by Overhead Lift	22-9
1372-MANT-1007	Perform Hydraulic Slaving Operations	22-10
1372-MOBL-1001	Operate commander's station on ABV	22-10
1372-MOBL-1002	Operate ABV Driver's Station	22-11
1372-MOBL-1003	Navigate ABV using the Defense Advanced GPS Receiver (DAGR)	22-11
1372-MOBL-1004	Operate NBC System on ABV	22-12
1372-MOBL-1005	Drive the ABV/AVLB	22-12
1372-MOBL-1006	Employ ABV/AVLB Terrain Driving Techniques	22-13
1372-MOBL-1007	Operate ABV Front End Equipment	22-14
1372-MOBL-1008	Execute ABV emergency procedures	22-14
1372-MOBL-1009	Operate Vision systems for ABV/AVLB	22-15
1372-MOBL-1010	Operate M48 .50 cal heavy machinegun on the ABV	22-15
1372-MOBL-1011	Operate M240 machinegun on the ABV	22-16
1372-MOBL-1012	Operate M257 grenade launcher system on the ABV	22-17
1372-MOBL-1013	Navigate the AVLB	22-18
1372-MOBL-1014	Select a Launch Site	22-18
1372-MOBL-1015	Launch the Bridge Across a Gap	22-19
1372-MOBL-1016	Disconnect a Launched Bridge from the Launcher	22-19
1372-MOBL-1017	Reconnect a Launched Bridge to the Launcher	22-20
1372-MOBL-1018	Retrieve the Bridge onto the Launcher	22-20

22003. 1000-LEVEL EVENTS

1372-ADMN-1001: Communicate using visual signals for the ABV/AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV section, SL-3 equipment, chemical lights or flashlights.

STANDARD: Safely moving an ABV/AVLB or displaying its weapons status in accordance with FM 21-60 Visual Signals.

PERFORMANCE STEPS:
1. Control vehicles using hand and arm signals.
2. Control vehicles using flashlights/chemical lights.
3. Display weapons status using flags.

REFERENCES:
1. FM 21-60 Visual Signals

2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

SUPPORT REQUIREMENTS:

MATERIAL: Chemlights and Flashlights

1372-ADMN-1002: Maintain Ordnance Vehicle Logbook for the ABV/AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV/AVLB, an Ordnance Vehicle Logbook, and the references.

STANDARD: Ensuring proper documentation of the vehicle records per MCO P4790.2_ MIMMS Field Procedures Manual.

PERFORMANCE STEPS:
1. Inventory logbook to ensure that it is complete.
2. Verify that the inspector block has been properly signed on NAVMC 10392, Ordnance Vehicle Military Acceptance Record.
3. Ensure that NAVMC 10393, Ordnance Vehicle Daily Log contains appropriate entries and signatures.
4. Ensure that NAVMC 10394, Ordnance Vehicle Monthly Log contains appropriate entries and signatures.
5. Ensure that NAVMC 10398, Ordnance Vehicle Service Record contains appropriate entries and signatures.
6. Ensure that NAVMC 10401, Ordnance Vehicle Overhaul and Rebuild Record contain appropriate entries and signatures.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 4700-15/1_ Ground Equipment Record Procedures

1372-ADMN-1003: Communicate using ABV/AVLB communication equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV/AVLB, internal/external communications equipment and the references.

STANDARD: Ensuring all equipment is operable, ABV/AVLB crew can communicate internally and vehicle can communicate with other vehicles in the obstacle clearing detachment.

PERFORMANCE STEPS:
1. Install communications equipment, as required.
2. Prepare communications equipment for operation.
3. Operate Combat Vehicle Crewman (CVC) helmet.
4. Operate vehicle intercom system.
5. Operate the receiver/transmitters.
6. Operate communications equipment using proper radio procedures.
7. Secure communications equipment from operation.

REFERENCES:
1. PN 1015-0109-4100 HARRIS AN/PRC-117(V)(_) Manpack Radio Operation Manual
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-DEMO-1001: Operate ABV Linear Demolition Charge System (LDCS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with attached LDCS and the references.

STANDARD: Reducing obstacles in support of the commander's scheme of maneuver.

PERFORMANCE STEPS:
1. Install the LDCS.
2. Conduct system test procedures for the LDCS.
3. Conduct pre-fire procedures for the LDCS.
4. Fire the LDCS.
5. Conduct jettison procedures for the LDCS (EMERGENCY ONLY).

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System
3. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
4. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	Initial: 2
M913 Charge, Demolition High Explosive Li	Initial: 2
M914 Charge, Demolition Inert Linear M68A	Initial: 2

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, hearing protection, demolition kit, AN/PRC 119, firing device (M34, MK152 Remote Firing Device, CD450-4J Blasting Machine).

UNITS/PERSONNEL: Range Safety Officer, Corpsman

1372-DEMO-1002: Mark breach lane using ABV Lane Marking System (LMS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with LMS, a breached obstacle with mines, and the references.

STANDARD: Delineating the breach lane for the assault element per unit SOP.

PERFORMANCE STEPS:
1. Prepare LMS for operation.
2. Operate LMS.
3. Secure LMS.
4. Perform Preventive Maintenance Checks and Services (PMCS) on LMS.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCWP 3-17.3 MAGTF Breaching Operations
3. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
4. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: All LMS arrows must be recovered to be used again in a training atmosphere.

1372-MANT-1001: Perform ABV/AVLB Operator Preventive Maintenance Checks and Services (PMCS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV/AVLB, SL-3 equipment, tools, and technical manuals.

STANDARD: Ensuring equipment is checked and serviced per the maintenance schedule, and deficiencies are identified/corrected.

PERFORMANCE STEPS:
1. Locate appropriate maintenance instructions in TM or LO, as required.
2. Follow instructions in TM or LO to perform preventive maintenance checks and services or lubrication, as required.
3. Identify any maintenance deficiencies.
4. Correct maintenance deficiencies if within authorized maintenance level.

5. Report any deficiencies that cannot be corrected to operator/crew Level of Maintenance (LOM).

REFERENCES:
1. LO 5-5420-202-12 Lubrication Order for AVLB
2. MCO 3500.27_ Operational Risk Management (ORM)
3. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
4. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
5. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MANT-1002: Conduct recovery operations for the ABV/AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a disabled ABV/AVLB, SL-3 equipment, and the references.

STANDARD: Ensuring the ABV/AVLB is no longer mired, is rigged for towing, or a stalled ABV/AVLB is started.

PERFORMANCE STEPS:
1. Locate the disabled vehicle.
2. Establish security.
3. Conduct estimate of the situation to determine; situation of the vehicle (mired, disabled, overturned); the condition of the vehicle (can operate once recovered, can be repaired on site, must be towed to collection point); and most appropriate recovery method (self, like, other).
4. Prepare the disabled vehicle for recovery (self, like or other).
5. Conduct recovery (self, like or other).
6. Conduct operator repairs as appropriate.
7. Rig vehicle for towing to collection point if repairs can return the vehicle to operational status.

REFERENCES:
1. FM 21-60 Visual Signals
2. MCO 3500.27_ Operational Risk Management (ORM)
3. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
4. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
5. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MANT-1003: Perform track maintenance on the ABV/AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV/AVLB with unserviceable track or thrown track, SL-3

equipment, replacement parts, and the references.

STANDARD: Ensuring track is repaired, track tension is correctly adjusted, and all safety precautions are observed to maintain equipment in a mission capable status.

PERFORMANCE STEPS:
1. Disconnect track, as required.
2. Replace unserviceable track shoe, as required.
3. Install track, as required.
4. Replace track pad, as required.
5. Adjust track tension, as required.
6. Replace road wheel, as required.
7. Complete maintenance/administrative records and procedures.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
4. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MANT-1004: Adjust Track Tension on M-60 AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an AVLB parked on level ground, crew, SL-3, weights, a ten foot long string strong enough to hold weights, a ruler, and the references.

STANDARD: So that space between the string and end connector measures between 7/16 inch and 1/2 inch (12.7) while the engine is running.

PERFORMANCE STEPS:
1. Move vehicle rearward at least two tank lengths, then move vehicle forward and allow vehicle to coast to a stop without applying brakes.
2. Set shift lever to park (P) and shut off engine.
3. Remove dirt and mud from end connectors to near first and second support rollers.
4. Tie weights to each end of string and place string over center of end connectors.
5. Find center for string and mark nearest end connector.
6. Using ruler, measure distance between string and marked end connector.
7. Remove dirt and mud from locking screw and adjusting link.
8. Remove locking screw and lock washer.
9. Loosen or tighten track tension, as required by turning adjusting link.
10. Repeat steps 6 through 9, as necessary.
11. Install and tighten lock washer and screw.
12. Lubricate adjusting link.

REFERENCES:

1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MANT-1005: Slave Start a M-60 AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an AVLB with dead batteries, crew, NATO slave cable, available operational tank or recovery vehicle, and the references.

STANDARD: Ensuring the discharged vehicle is running without damage to equipment or personnel.

PERFORMANCE STEPS:
1. Position live vehicle along dead vehicle.
2. Set parking brakes on vehicles.
3. Ensure all electronic equipment is off.
4. Set MASTER BATTERY switch to OFF on disabled vehicle.
5. Inspect live vehicle battery charge.
6. Set live vehicle idle speed to 700-750 RPM.
7. Set live vehicle MASTER BATTERY switch to OFF.
8. Connect NATO slave cable between vehicles.
9. Charge dead vehicle batteries.
10. Attempt to start disabled vehicle.
11. Disconnect NATO slave cable.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MANT-1006: Prepare a M-60 AVLB Bridge for Removal by Overhead Lift

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an AVLB, crew, SL-3, a crane or unit's organic equipment, and the references.

STANDARD: Without damage to equipment or injury to personnel.

PERFORMANCE STEPS:
1. Release hold down cylinder.
2. Release locking pins.
3. Sling bridge.
4. Lift bridge using crane, if available.

5. If crane lift is not available, use two M88A2 recovery vehicles to lift bridge.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MANT-1007: Perform Hydraulic Slaving Operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a serviceable AVLB, nonfunctional AVLB with bridge, crew, SL-3 and the references.

STANDARD: To remove the bridge from a nonfunctional launcher without damage to equipment and injury to personnel.

PERFORMANCE STEPS:
1. Position live vehicle along nonfunctional vehicle.
2. Prepare vehicles for hydraulic slaving hookup.
3. Connect hydraulic slaving hoses to vehicles.
4. Hydraulically slave bridge.
5. Disconnect slave hoses.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1001: Operate commander's station on ABV

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, SL-3 equipment, and the references.

STANDARD: Ensuring all associated vehicle commander equipment is functional and the vehicle is prepared for operation.

PERFORMANCE STEPS:
1. Open commander's hatch.
2. Adjust commander's seat and platforms.
3. Power up UTCP, intercom, radio, DAGR, IVS (ABV).
4. Power down commander's station.

REFERENCES:

1. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

1372-MOBL-1002: Operate ABV Driver's Station

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, SL-3 equipment and the references.

STANDARD: Ensuring all associated driver station equipment is functional and the vehicle is prepared for operation.

PERFORMANCE STEPS:
1. Enter the driver's station.
2. Power up hull systems.
3. Operate dome light.
4. Operate intercom check.
5. Adjust seat.
6. Adjust periscopes.
7. Adjust hatch.
8. Adjust steer-throttle control.
9. Operate drain valve.
10. Check percent of power or mission capability power.
11. Shut down engine.
12. Power down hull systems.
13. Close driver's hatch.

REFERENCES:
1. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

1372-MOBL-1003: Navigate ABV using the Defense Advanced GPS Receiver (DAGR)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with crew, an operational area, a military map of the operational area, DAGR, known start point, destination, and the references.

STANDARD: Navigating the vehicle within 10 meters of the given point.

PERFORMANCE STEPS:
1. Install DAGR.
2. Turn on the DAGR.

3. Plan a route using way points.
4. Navigate ABV along planned route.
5. Clear way points at final destination.

REFERENCES:
1. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
3. TM 11-5820-1172-13 Operator and Maintenance Manual, Defense Advanced GPS Receiver (DAGR) Satellite Signals Navigation Set AN/PSN-13

1372-MOBL-1004: Operate NBC System on ABV

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, a field protective mask, tactical scenario involving an NBC threat, and the references.

STANDARD: To offer maximum protection for the crew, the mission is continued, communications are reestablished, and the system remains fully operational.

PERFORMANCE STEPS:
1. Turn on NBC main system.
2. Initiate NBC back-up system (Fresh air), is necessary.
3. Conduct NBC back-up filter change criteria, as required.
4. Don M42A1 Protective Mask, as required.
5. Operate ABC-M11 Decontaminating Apparatus, as required.
6. Operate the M88 Chemical detector, as required.
7. Operate Radiac, as required.
8. Decontaminate the ABV, as required.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

1372-MOBL-1005: Drive the ABV/AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Without the aid of references, given an ABV/AVLB with crew, varied terrain, various environmental conditions, and obstacles (natural and man-made).

STANDARD: Without injury to crew, damage to the vehicle, without losing control of the vehicle at any time while continuously observing the forward terrain.

PERFORMANCE STEPS:
1. Start the vehicle.
2. Operate the driver controls.
3. Move the vehicle.
4. Drive up and down hills, as required.
5. Drive over obstacles, as required.
6. Drive across ditches, as required.
7. Ford shallow water obstacles as required.
8. Ford deep water obstacles as required.
9. Conduct night driving with and without exterior lights/infrared lens and with and without night vision devices, as required.
10. Refuel vehicle.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
4. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1006: Employ ABV/AVLB Terrain Driving Techniques

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV/AVLB with a crew, in an operational environment, and the references.

STANDARD: While maintaining tactical control, avoiding explosive hazards, and accomplishing mission requirements in accordance with the commander's intent.

PERFORMANCE STEPS:
1. Use cover and concealed routes.
2. Minimize dust signature.
3. Maintain interval between vehicles.
4. Avoid silhouetting the vehicle, when practical.
5. Scan the ground for disturbed earth or out-of-place features that may indicate explosive hazards.
6. Select appropriate formation and movement technique.

REFERENCES:
1. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
3. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1007: Operate ABV Front End Equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with front end equipment, SL-3 equipment, and the references.

STANDARD: Reducing obstacles and proofing initial lanes in support of the commander's scheme of maneuver and intent.

PERFORMANCE STEPS:
1. Employ the High Lift Adapter (HLA), as required.
2. Employ the Full Width Mine Plow (FWMP), as required.
3. Employ the Surface Mine Plow (SMP), as required.
4. Employ the Rapid Ordnance Removal System (RORS), as required.
5. Employ the Combat Dozer Blade (CDB), as required.

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

1372-MOBL-1008: Execute ABV emergency procedures

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with a crew, set for normal mode of operation, SL-3 equipment, and technical manuals.

STANDARD: To continue performing mission and prevent loss of life, in accordance with TM 1098A/OR-1.

PERFORMANCE STEPS:
1. Perform immediate action for engine's failure to shut down, as required.
2. Unlock stuck parking brake, as required.
3. Perform immediate action for starter failure to disengage, as required.
4. Bypass primary fuel filters, as required.
5. Perform immediate action for vehicle master power failure to power down, as required.
6. Disconnect fuel quick-disconnect coupling, as required.
7. Perform emergency crew evacuation procedures, as required.
8. Execute an emergency stop, as required.
9. Perform immediate action for an engine compartment fire, as required.
10. Perform immediate action for loss of engine power, as required.
11. Perform immediate action for loss of steering, as required.

12. Perform immediate action for loss of service brakes, as required.
13. Remove injured crew member from vehicle, as required.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task will be downgraded at the Formal Learning Center (FLC).

1372-MOBL-1009: Operate Vision systems for ABV/AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: In an operational environment, while operating the ABV/AVLB, given SL-3 equipment and the references.

STANDARD: In order to accomplish the mission in accordance with the commander's intent.

PERFORMANCE STEPS:
1. Install the DVE.
2. Connect power cable, as required
3. Set DVE switch to on.
4. Perform function checks on vision systems.
5. Employ the DVE.
6. Operate IVS, as required.
7. Disconnect power cable, as required.
8. Remove the DVE.

REFERENCES:
1. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2
3. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1010: Operate M48 .50 cal heavy machinegun on the ABV

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with M48 .50 cal heavy machinegun, ammunition, cleaning equipment, firing range, targets, during day and night conditions

and the references.

STANDARD: Accurately engage targets.

PERFORMANCE STEPS:
1. Determine range using Laser Range Finder.
2. Prepare commander's weapon station.
3. Install weapons systems.
4. Assemble the M48 .50 cal heavy machinegun.
5. Set Headspace and Timing.
6. Bore sight CPS.
7. Operate Commander's Primary Sight (CPS).
8. Bore sight thermal sight.
9. Operate the Thermal Weapon Sight.
10. Load the ABV weapons systems.
11. Engage targets with M48 .50 caliber HB Machinegun.
12. Perform immediate actions for the weapon system.
13. Perform Preventive Maintenance Checks and Services (PMCS) on the weapon system.

REFERENCES:
1. FM 3-20.12 Tank Gunnery
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery
4. TM 11-5855-312-10 PAS-13B
5. TM 9-1005-213-10 Operator's Manual Machine Gun, Cal .50

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A518 Cartridge, Caliber .50 4 SLAP M903/1	Initial: 200
A576 Cartridge, Caliber .50 4 API M8/1 AP	Initial: 600

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17580 Machine Gun Transition Range

1372-MOBL-1011: Operate M240 machinegun on the ABV

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an ABV with M240_ machinegun, ammunition, references, cleaning equipment, firing range, targets, during day and night conditions, and the references.

STANDARD: Accurately engage targets.

PERFORMANCE STEPS:

1. Install M240_ machinegun.
2. Load machinegun.
3. Engage targets with M240_ machinegun.
4. Perform immediate actions.
5. Perform Preventive Maintenance Checks and Services (PMCS) on machinegun.
6. Remove machinegun.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery
3. TM 9-1005-313-23&P Machinegun 7.62mm M240 Series

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A131 Cartridge, 7.62mm 4 Ball M80/1 Trace	Initial: 740

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17580 Machine Gun Transition Range

1372-MOBL-1012: Operate M257 grenade launcher system on the ABV

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an ABV with a M257 grenade launcher system, ammunition, cleaning equipment, firing range, and targets, during day and night conditions, and the references.

STANDARD: In order to screen the ABVs movement to the greatest extent possible.

PERFORMANCE STEPS:
1. Orient the turret in the direction where smoke is needed.
2. Announce "grenade launcher".
3. The crew secures all hatches.
4. Turn the weapon power circuit breaker on.
5. Turn the grenade launcher switch(s) on.
6. Announce "fire".
7. Fire the grenade launcher(s).
8. Announce "grenades launched".
9. Perform immediate actions on M257 Grenade Launcher System.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 10984A-OR/1-1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1-2 Operators Manual, (ABV) Volume 2

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
G826 Grenade, Launcher Smoke Infrared Scr	Initial: 24

RANGE/TRAINING AREA: Facility Code 17430 Impact Area Dudded

1372-MOBL-1013: Navigate the AVLB

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an AVLB with crew, an operational area, a military map, known starting point, destination, and the references.

STANDARD: To within 100 meters of the given point.

PERFORMANCE STEPS:
1. Plan the route to move from terrain feature to terrain feature, considering the tactical aspects and ease of movement along the route.
2. Use terrain features as checkpoints as the vehicle moves along the route.
3. Follow terrain features.
4. Determine approximate directions of the various segments of the route.
5. Determine total distance and distance between checkpoints.
6. Make written or mental notes to remember terrain features as they are passed.

REFERENCES:
1. FM 21-26 Map Reading and Land Navigation
2. MCO 3500.27_ Operational Risk Management (ORM)
3. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1014: Select a Launch Site

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operation order, a tactical scenario requiring an attack across broken terrain with a wet or dry gap of 57 feet or less, specified threat, and the references.

STANDARD: That supports unit mobility requirements during gap crossing.

PERFORMANCE STEPS:
1. Determine the width of the gap.

2. Evaluate far shore and near shore banks.
3. Evaluate access and obstacles.
4. Evaluate slope and approach.
5. Determine best launch site based on evaluated criteria.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17.4 Engineer Reconnaissance
4. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1015: Launch the Bridge Across a Gap

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Assigned as an AVLB operator, given an AVLB, a wet or dry gap of 57 feet or less, and the references.

STANDARD: Within 5 minutes of arriving at the gap without allowing the far end of the bridge to rise over 36 inches above the far shore bank height.

PERFORMANCE STEPS:
1. Position AVLB.
2. Lock brakes.
3. Engage hydraulic pump.
4. Hold engine speed constant at 1800 RPM.
5. Unlock brakes.
6. Swing bridge up to vertical.
7. Open bridge.
8. Deploy bridge.
9. Disconnect bridge from launcher.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1016: Disconnect a Launched Bridge from the Launcher

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an AVLB with crew, a connected launch bridge, and the references.

STANDARD: Clearing away from the bridge within 5 minutes after bridge is

emplaced.

PERFORMANCE STEPS:
1. Unlock bridge.
2. Disengage launcher from bridge.
3. Retract launching mechanism.
4. Clear bridge for use.
5. Seek cover and concealment.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1017: Reconnect a Launched Bridge to the Launcher

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an AVLB, a disconnected launched bridge, and the references.

STANDARD: Within 5 minutes of receiving the order to retrieve the bridge.

PERFORMANCE STEPS:
1. Move launcher across bridge.
2. Align launcher with bridge.
3. Extend launcher/retrieving mechanism.
4. Extend tongue to align tongue pintle with sockets in bridge diaphragm.
5. Correct bridge launcher height, as required.
6. Prepare bridge for connection.
7. Connect launcher to bridge.

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

1372-MOBL-1018: Retrieve the Bridge onto the Launcher

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

GRADES: PVT, PFC, LCPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an AVLB, a reconnected launched bridge, and the references.

STANDARD: Without allowing far shore end of bridge to drag on far shore bank or rise over 36 inches above far shore bank height.

PERFORMANCE STEPS:

1. Engage hydraulic system.
2. Prepare bridge for retrieval.
3. Remove radio antenna.
4. Retract bridge from launch site.
5. Lower bridge to launcher.
6. Secure bridge to launcher.
7. Prepare AVLB for travel.

REFERENCES:

1. MCO 3500.27_ Operational Risk Management (ORM)
2. TM 5-5420-202-10 Operator's Manual for M-60 AVLB

CHAPTER 23

MOS 1390 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE	23000	23-2
EVENT CODING	23001	23-2
INDEX OF INDIVIDUAL EVENTS	23002	23-2
2000-LEVEL EVENTS	23003	23-3

CHAPTER 23

MOS 1390 INDIVIDUAL EVENTS

23000. PURPOSE. This chapter details the individual events that pertain to Bulk Fuel Officer. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

23001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1390	Bulk Fuel Officer

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
XENG	General Engineering

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
2000	Core Plus Skills

23002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
2000-LEVEL EVENTS		
1390-XENG-2001	Direct bulk fuel site construction	23-3
1390-XENG-2002	Report bulk fuel Prepositioned War Reserve Stock (PWRS) to the Combatant Commander (COCOM)	23-3
1390-XENG-2003	Create a spill contingency plan	23-4
1390-XENG-2004	Establish source of fuel supply	23-4
1390-XENG-2005	Review Product Quality Deficiency Report (PQDR) (SF 368)	23-5
1390-XENG-2006	Approve a fire contingency plan	23-5
1390-XENG-2007	Develop Tactical Fuel System (TFS) elastomeric shelf/use life program	23-6
1390-XENG-2008	Direct fuel operations at a Forward Arming and Refueling Point (FARP)	23-7

1390-XENG-2009	Validate bulk fuel hydraulics calculations	23-8
1390-XENG-2010	Manage daily accountability of bulk petroleum products	23-8
1390-XENG-2011	Coordinate joint service bulk petroleum operations	23-9
1390-XENG-2012	Establish Standard Operating Procedures (SOP)	23-9
1390-XENG-2013	Implement a Petroleum Quality Surveillance and Control Program for petroleum products	23-10
1390-XENG-2014	Calculate day of supply	23-10
1390-XENG-2015	Supervise the maintaining of records and forms	23-11

23003. 2000-LEVEL EVENTS

1390-XENG-2001: Direct bulk fuel site construction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a fuel distribution plan with a system layout, required equipment, engineer equipment, engineer equipment operators and references.

STANDARD: To ensure tactical fuel system site is constructed to meet mission requirements.

PERFORMANCE STEPS:
1. Identify site.
2. Provide logistical requirements.
3. Direct construction.
4. Develop bulk fuel site security plan.
5. Inspect site as related to mission requirements.

REFERENCES:
1. AR 200-1 Environmental Protection and Enhancement
2. MCO P5090.2_ Environmental Compliance and Protection Manual
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
5. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
6. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2002: Report bulk fuel Prepositioned War Reserve Stock (PWRS) to the Combatant Commander (COCOM)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an operations plan with time phased force deployment data and references.

STANDARD: To ensure petroleum mission requirements are met.

PERFORMANCE STEPS:
1. Determine fuel requirements.
2. Submit requirements to the appropriate Combatant Commander (COCOM) Joint Petroleum Officer (JPO).

REFERENCES:
1. DOD 4140.25 Management of Bulk Petroleum Products, Storage and Distribution Facilities
2. Joint Publication 4-03 Joint Bulk Petroleum Doctrine
3. MCWP 4-11.6 Petroleum and Water Logistics Operations

1390-XENG-2003: Create a spill contingency plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order, local environmental regulations, unit/base SOP and references.

STANDARD: To ensure appropriate first response action is documented and published.

PERFORMANCE STEPS:
1. Review local policies.
2. Draft contingency plan.
3. Staff contingency plan.
4. Publish contingency plan.

REFERENCES:
1. Local Standard Operating Procedures (SOP)

1390-XENG-2004: Establish source of fuel supply

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an operations plan, daily consumption requirements, local standard operating procedures (SOP) and references.

STANDARD: To ensure fuel supply is obtained through approved sources and sustainment requirements are met.

PERFORMANCE STEPS:
1. Determine source of supply.
2. Determine route/method by which fuel is to be received.
3. Determine fuel acquisition process.

REFERENCES:
1. DOD 4140.25 Management of Bulk Petroleum Products, Storage and Distribution Facilities
2. MCO 4400.170 Control and Accounting for Petroleum and Related Products
3. MCWP 4-11.6 Bulk Liquid Operations
4. Joint Publication 4-03 Joint Petroleum Doctrine" to the references

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1390-XENG-2005: Review Product Quality Deficiency Report (PQDR) (SF 368)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a completed form.

STANDARD: To ensure all inaccuracies are identified and submitted for correction.

PERFORMANCE STEPS:
1. Review references.
2. Review the Product Quality Deficiency Report (PQDR) for accuracy.
3. Submit as required.

REFERENCES:
1. TM 4700-15/1_ Ground Equipment Record Procedures

1390-XENG-2006: Approve a fire contingency plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided operation orders, a completed bulk fuel system layout, applicable fire suppression equipment and references.

STANDARD: To ensure 100% of bulk fuel equipment, personnel and product are protected.

PERFORMANCE STEPS:
1. Analyze a potential fire threat.
2. Verify the location of all fire suppression equipment.
3. Verify personnel to support fire suppression effort.
4. Verify external support available.
5. Sign and publish.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 07661_-14/1 Extinguisher, Fire, Dry Chemical and Aqueous Film Forming Foam, Self-Contained, Model D-4
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2007: Develop Tactical Fuel System (TFS) elastomeric shelf/use life program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: DoD Directive 4140.27 (Shelf-Life Management Manual) addresses life cycle management of shelf-life items while awaiting issue from depots in the supply chain. The elastomeric fabric tanks and hoses of the TFS are a Type II shelf-life item in the DoD Directive 4140.27.

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Tactical Fuel System (TFS) and references.

STANDARD: To maintain readiness of all fabric and rubberized components of tactical fuel systems.

PERFORMANCE STEPS:

1. Review the references.
2. Draft plan.
3. Staff plan.
4. Publish plan.

REFERENCES:
1. ASTM D380 Standard Test Method for Rubber Hose
2. DLAR 140.55 Reporting of Item and Packaging Discrepancies
3. DOD 4140.27-M Shelf-Life Item Management Manual
4. MCO 4030.36 Marine Corps Packing Manual
5. MCO 4450.13 Joint Reg for Safeguarding Sensitive Inventory Items,
6. MCO 4450.14 Joint Service Manual (JSM) for Storage and Materials Handling (Apr 94)
7. MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes
8. MIL-STD-109 Inspection Terms and Definitions
9. MIL-STD-129_ Department of Defense Standard Practice - Military Marking for Shipment and Storage
10. MIL-STD-2073-1_ Standard Practice for Military Packing
11. MIL-STD-2073-2_ Packaging Requirement Code
12. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
13. TM 4700-15/1_ Ground Equipment Record Procedures

1390-XENG-2008: Direct fuel operations at a Forward Arming and Refueling Point (FARP)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order and references.

STANDARD: To ensure fuel requirements are met.

PERFORMANCE STEPS:
1. Review references.
2. Verify fuel requirements with supported units.
3. Conduct terrain/map analysis.
4. Coordinate with external teams.
5. Solidify Table of Equipment (T/E).
6. Solidify Table of Organization (T/O).
7. Assign key billets.
8. Direct training.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 04486_-15 Drum, Collapsible Liquid Fuel 500 GAL
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

4. TM 5-6630-218-10 Aviation Fuel, Contaminant, Test Kit

1390-XENG-2009: Validate bulk fuel hydraulics calculations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a hose reel system and a terrain map.

STANDARD: To maximize the efficiency of fuel transfer.

PERFORMANCE STEPS:
1. Validate feet of head to pounds per square inch.
2. Validate speed of fuel.
3. Validate reynolds number.
4. Validate hydraulic gradient.
5. Validate design hydraulic gradient.
6. Validate head loss.
7. Validate abnormal variants in head pressure.
8. Make necessary adjustments as required.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2010: Manage daily accountability of bulk petroleum products

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a fuel system with product, local SOPs, access to established fuel pumping site, operations orders and references.

STANDARD: To ensure product tolerance meets loss/gain requirements in accordance with local SOP.

PERFORMANCE STEPS:
1. Review the references.
2. Establish opening inventory.
3. Verify all required documentation.

4. Establish closing inventory.
5. Validate documented and physical inventories.
6. Report discrepancies.

REFERENCES:
1. ASTM D-1250 Petroleum Measurement Table, Volume Correction Factors
2. DOD 4140.25 Management of Bulk Petroleum Products, Storage and Distribution Facilities
3. MCO 4400.170 Control and Accounting for Petroleum and Related Products
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
6. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2011: Coordinate joint service bulk petroleum operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Joint service bulk petroleum operations include DoD components and multinational agencies/services.

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operations order, personnel, equipment, fuel site and in a joint environment.

STANDARD: To ensure bulk petroleum support is sustained at all levels in accordance with the OPLAN.

PERFORMANCE STEPS:
1. Establish procedures for petroleum distribution.
2. Establish procedures for petroleum storage.
3. Plan for adjacent unit support for bulk petroleum products.
4. Prepare joint petroleum operations plan as required.
5. Plan for host nation support (HNS) for bulk petroleum as required.

REFERENCES:
1. Joint Publication 4-03 Joint Bulk Petroleum Doctrine
2. MCWP 4-11.6 Petroleum and Water Logistics Operations
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. Joint Publication 4-01.6 Joint logistics Over the Shore (JLOTS)" to the references.

1390-XENG-2012: Establish Standard Operating Procedures (SOP)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given Orders and Directives, administrative supplies, computer assets and personnel.

STANDARD: To ensure compliance with published orders and directives.

PERFORMANCE STEPS:
1. Analyze requirements.
2. Draft policies/procedures.
3. Staff policies/procedures.
4. Publish operating procedures.
5. Inspect adherence to operating procedures.
6. Identify changes.
7. Publish changes.

REFERENCES:
1. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
2. ASTM D-1250 Petroleum Measurement Table, Volume Correction Factors
3. DOD 4140.25 Management of Bulk Petroleum Products, Storage and Distribution Facilities
4. MCO 3500.27_ Operational Risk Management (ORM)
5. MCO 4400.170 Control and Accounting for Petroleum and Related Products
6. MCO 5100.19_ Marine Corps Traffic Safety Program (Drivesafe)
7. MCWP 4-11.6 Petroleum and Water Logistics Operations
8. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
9. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
10. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2013: Implement a Petroleum Quality Surveillance and Control Program for petroleum products

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided certified personnel, test requirements, test equipment and references.

STANDARD: To ensure petroleum products are received and maintained within applicable standards.

PERFORMANCE STEPS:

1. Prepare Quality Surveillance and Control SOP.
2. Ensure all sampling, test equipment, and materials are available for personnel doing quality surveillance.
3. Ensure personnel are trained in the preparation of sample tags and logs.
4. Ensure personnel comply with Quality Surveillance and Control SOP.
5. Inspect for adherence to quality control procedures.
6. Issue corrective orders.

REFERENCES:
1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
3. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2014: Calculate day of supply

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided operation orders, supported unit's T/E, supported unit estimates and references.

STANDARD: To ensure sufficient product is available to meet supported unit's fuel requirements.

PERFORMANCE STEPS:
1. Review the references.
2. List amount of equipment to be supported.
3. Determine day of supply (DOS) based on estimates.

REFERENCES:
1. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2015: Supervise the maintaining of records and forms

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided equipment, required records and forms and references.

STANDARD: To ensure all equipment status is documented.

PERFORMANCE STEPS:
1. Identify maintenance records and forms procedures.
2. Ensure accuracy is maintained in all records and forms.

REFERENCES:
1. MCO 5210.11_ Marine Corps Records Management Program
2. MCO 5600.31_ Marine Corps Printing and Publishing Regulations
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
6. UNIT SOP Unit's Standing Operating Procedures

CHAPTER 24

MOS 1391 INDIVIDUAL EVENTS

	PARAGRAPH	PAGE
PURPOSE.	24000	24-2
EVENT CODING	24001	24-2
INDEX OF INDIVIDUAL EVENTS	24002	24-2
1000-LEVEL EVENTS.	24003	24-3
2000-LEVEL EVENTS.	24003	24-13

CHAPTER 24

MOS 1391 INDIVIDUAL EVENTS

24000. PURPOSE. This chapter details the individual events that pertain to Bulk Fuel Specialist. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

24001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology

a. Field one. This field represents the community. This chapter contains the following community codes:

Code	Description
1391	Bulk Fuel Specialist

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

Code	Description
XENG	General Engineering

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

Code	Description
1000	Core Skills
2000	Core Plus Skills

24002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1391-XENG-1001	Operate the Six-Container (SIX-CON) fuel system	24-3
1391-XENG-1002	Operate a Tactical Fuel System (TFS)	24-4
1391-XENG-1003	Deploy a Hose Reel System (HRS) in support of Tactical Fuel Systems (TFS)	24-5
1391-XENG-1004	Operate a fuel pump assembly	24-5
1391-XENG-1005	Perform refueling operations	24-6
1391-XENG-1006	Execute a spill contingency plan	24-7
1391-XENG-1007	Operate fire extinguishing equipment	24-7
1391-XENG-1008	Obtain fuel sample	24-8
1391-XENG-1009	Test fuel	24-9

1391-XENG-1010	Gauge a fixed fuel storage tank	24-9
1391-XENG-1011	Perform collapsible tank repair	24-10
1391-XENG-1012	Administer first aid for fuel related injuries	24-11
1391-XENG-1013	Conduct a Limited Technical Inspection (LTI)	24-11
1391-XENG-1014	Document equipment usage history	24-12
1391-XENG-1015	Prepare bulk fuel equipment for embarkation	24-12
1391-XENG-1016	Operate the Ground Expedient Refueling System (GERS)	24-13
2000-LEVEL EVENTS		
1391-XENG-2001	Conduct operations utilizing a tactical fuel laboratory	24-13
1391-XENG-2002	Supervise bulk fuel equipment for embarkation	24-14
1391-XENG-2003	Evacuate hose line	24-15
1391-XENG-2004	Perform maintenance management NCO functions	24-15
1391-XENG-2005	Implement a fire contingency plan	24-16
1391-XENG-2006	Supervise Tactical Fuel System (TFS) operations	24-16
1391-XENG-2007	Supervise operations utilizing a tactical fuel laboratory	24-17
1391-XENG-2008	Supervise Tactical Fuel System (TFS) elastomeric program	24-18
1391-XENG-2009	Supervise bulk fuel site construction	24-18
1391-XENG-2010	Plan Tactical Fuel System (TFS) employment	24-19
1391-XENG-2011	Supervise a petroleum quality surveillance and control program	24-20
1391-XENG-2012	Supervise a maintenance management program	24-21
1391-XENG-2013	Monitor bulk fuel inventory	24-21
1391-XENG-2014	Prepare a fire contingency plan	24-22
1391-XENG-2015	Calculate bulk fuel hydraulics	24-23
1391-XENG-2016	Develop Petroleum, Oils and Lubricants (POL) appendix to Operation Order	24-23
1391-XENG-2017	Conduct joint service bulk petroleum operations	24-24
1391-XENG-2018	Execute Standard Operating Procedures (SOP)	24-25
1391-XENG-2019	Manage embarkation of tactical fuel equipment	24-25
1391-XENG-2020	Supervise bulk fuel operations at a Forward Arming And Refueling Point (FARP)	24-25

24003. 1000-LEVEL EVENTS

1391-XENG-1001: Operate the Six-Container (SIX-CON) fuel system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given required components, necessary tools and fuel.

STANDARD: To ensure Marine is capable of demonstrating refueling/defueling procedures and set up in accordance with TM 09003/09002-15&P.

PERFORMANCE STEPS:
1. Review references.
2. Perform before Preventive Maintenance Checks and Services (PMCS).
3. Connect pump modules to tank modules.
4. Dispense fuel.
5. Perform during Preventive Maintenance Checks and Services (PMCS).
6. Perform shut down procedures.
7. Perform after operations Preventive Maintenance Checks and Services (PMCS).

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 07387_/10802_-OI/3 Pump, Centrifugal, Fuel 150 GPM
3. TM 09003_/ 09002_-15&P/1w/Ch 1-5 Operation and Maintenance Instructions w/ Repair Parts List and Components (List SIXCON)
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1002: Operate a Tactical Fuel System (TFS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: The TFS includes: Expedient Refueling System (ERS), Helicopter Expedient Refueling System (HERS), Tactical Airfield Fuel Dispensing System (TAFDS) and Amphibious Assault Fuel System (AAFS).

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given required components, necessary tools, fuel source, administrative supplies and required personnel.

STANDARD: To ensure components are deployed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Determine type of fuel system.
2. Review references.
3. Draw a tactical fuel system layout.
4. Assemble system.
5. Perform before Preventive Maintenance Checks and Services (PMCS).
6. Conduct fuel operations.
7. Perform during Preventive Maintenance Checks and Services (PMCS).
8. Perform shut down procedures.
9. Perform after Preventive Maintenance Checks and Services (PMCS).

REFERENCES:
1. SL-3-03707F w/Ch 1 Pump Assembly, Expedient Refueler
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
3. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual

1391-XENG-1003: Deploy a Hose Reel System (HRS) in support of Tactical Fuel Systems (TFS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: The purpose of the HRS is to provide powered or manual deployment and retrieval of lightweight 6-inch hose. The hose reel can be used to connect assemblies within the AAFS and distribute fuel to other Marine Corps tactical fuel systems.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Hose Reel System (HRS), Tactical Fuel System (TFS), supporting vehicles and designated route.

STANDARD: To ensure components are deployed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review the reference.
2. Operate system.
3. Inspect equipment for retrieval.
4. Retrieve as required.

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. TM 10596_-13&P Marine Corps Hose Reel System
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1004: Operate a fuel pump assembly

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: There are two types of fuel pumps: 150 and 600 gallons per minute (GPM).

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a pump assembly, required Tactical Fuel System (TFS) and fuel.

STANDARD: To dispense fuel in support of a Tactical Fuel System (TFS).

PERFORMANCE STEPS:
1. Determine type of fuel pump.
2. Review references.
3. Perform before operational checks.
4. Start pump.
5. Dispense fuel.
6. Perform during operations checks.
7. Conduct shut down procedures.
8. Perform after operations checks.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 07387C/10802AOI/3 Pump, Centrifugal, Fuel, 150 GPM
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. TM 5-4320-303-10 600 GPM Pump

1391-XENG-1005: Perform refueling operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a tactical fuel system, trained personnel, required personal protective equipment and administrative supplies.

STANDARD: To ensure fuel is dispensed without safety mishaps.

PERFORMANCE STEPS:
1. Identify equipment type.
2. Review references.
3. Conduct all safety procedures.
4. Refuel equipment.
5. Complete proper paperwork.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
3. NAVAIR 06-5-502 Aircraft Refueling For Shore Activities
4. NAVAIRINST 10340.3_ Maintaining Quality and Limiting Contamination of Aircraft Fuels

5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
6. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-1006: Execute a spill contingency plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a requirement to operate a tactical fuel system, a spill contingency plan, required personal protective equipment and equipment.

STANDARD: To contain spills and immediately reduce or eliminate the risk of personnel injury and environmental impact.

PERFORMANCE STEPS:
1. Stop the flow of fuel.
2. Contain spill.
3. Notify immediate supervisor of incident.
4. Follow local SOP.
5. Commence clean-up.

REFERENCES:
1. Federal, State, and Local Environmental Regulations
2. Local Standard Operating Procedures (SOP)
3. AR 200-1 Environmental Protection and Enhancement
4. MCO 3500.27_ Operational Risk Management (ORM)
5. MCO P5090.2_ Environmental Compliance and Protection Manual
6. NAVFAC P-908 Oil Spill Control for Inland Waters and Harbors
7. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
8. OPNAVINST 5090.1_ Environmental Readiness Program Manual
9. TC 5-400 w/CH #1 Unit Leader's Handbook for Environmental Stewardship

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1391-XENG-1007: Operate fire extinguishing equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given fire extinguishing equipment, required firefighting agents and personal protective equipment.

STANDARD: To suppress or extinguish fuel fires.

PERFORMANCE STEPS:
1. Identify the types of fire extinguishing equipment.
2. Don personal protective equipment (PPE) as required.
3. Extinguish fire.
4. Perform post operational procedures.

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
3. TM 07661_-14/1 Extinguisher, Fire, Dry Chemical and Aqueous Film Forming Foam, Self-Contained, Model D-4
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

MATERIAL: Potassium Bicarbonate (Purple K Powder), Aqueous Film Forming Foam (AFFF), Nitrogen and Water

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1391-XENG-1008: Obtain fuel sample

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: All samples taken will be in accordance with standard procedures described in ASTM D-4057, ASTM D-270, and MIL-STD-3004. Precautions are necessary to ensure a representative sample.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a fuel tank, equipment, containers, administrative supplies and personal protective equipment (PPE).

STANDARD: To ensure sample is taken to perform testing.

PERFORMANCE STEPS:
1. Review references.
2. Determine type of sample needed.
3. Identify sampling equipment.
4. Obtain sample.
5. Complete administrative requirements.

REFERENCES:
1. ASTM D-4057 Standard Practice for Manual Sampling of Petroleum Products

2. FM 10-67-2 Petroleum Laboratory Testing and Operations
3. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
4. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
6. ASTM D-270 Standard Method of Sampling Petroleum and Petroleum Products

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1391-XENG-1009: Test fuel

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

DESCRIPTION: Fuel testing methods/equipment includes the following: Visual Test, API Specific Gravity, B-2 Anti-Icing Additive Test, Aviation Test kit, Combined Contaminated Fuel Detector (CCFD) and MARFLASH.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a fuel source and testing equipment.

STANDARD: To ensure the sample meets quality assurance and surveillance standards.

PERFORMANCE STEPS:
1. Identify type of test required.
2. Review the references.
3. Perform the test.
4. Record results.

REFERENCES:
1. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
2. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. TM 5-6630-218-10 Aviation Fuel, Contaminant, Test Kit
5. ASTM D-287 - 12b Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)
6. ASTM D-1250 Petroleum Measurement Table, Volume Correction Factors

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1391-XENG-1010: Gauge a fixed fuel storage tank

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a tank with fuel, gauging equipment, personal protective equipment and administrative supplies.

STANDARD: To determine on-hand inventory of fuel.

PERFORMANCE STEPS:
1. Review references.
2. Identify required equipment.
3. Identify reference point.
4. Identify fuel level.
5. Identify bottom, sediment and water.
6. Calculate amount of fuel corrected to 60 degrees F.

REFERENCES:
1. ASTM D-1250 Petroleum Measurement Table, Volume Correction Factors
2. ASTM D-270 Standard Method of Sampling Petroleum and Petroleum Products
3. ASTM D-4057 Standard Practice for Manual Sampling of Petroleum Products
4. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1011: Perform collapsible tank repair

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Two types of repair methods for collapsible fabric tanks are provided. One consists of mechanical patches and wooden plugs to repair small holes and cuts in collapsible fabric tanks. The other consists of a vulcanizing unit to apply patches to larger cuts in collapsible fabric tanks.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a damaged collapsible fuel tank and repair kit.

STANDARD: To ensure equipment is repaired to an operational state of readiness.

PERFORMANCE STEPS:
1. Review references.
2. Perform visual inspection.
3. Perform fuel tank repairs.
4. Document maintenance performed.

REFERENCES:

1. TM 04486_-15 Drum, Collapsible Liquid Fuel 500 GAL
2. TM 10-5430-242-12&P 3k thru 50K Collapsible Tanks
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel Tanks

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1391-XENG-1012: Administer first aid for fuel related injuries

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Health hazards are inherent in any fuel handling operations. Personnel must minimize the risk of fuel contact with eyes, skin, inhalation of vapors and ingestion.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a requirement.

STANDARD: To reduce or eliminate the risk of personal injury.

PERFORMANCE STEPS:
1. Identify type of injury.
2. Apply first aid.
3. Seek medical assistance immediately.

REFERENCES:
1. NAVMC DIR 5100.8_ Marine Corps Occupational Safety and Health (OSH) Program Manual
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1013: Conduct a Limited Technical Inspection (LTI)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given equipment records, equipment, tools and associated forms.

STANDARD: To inspect for operability and identify all discrepancies.

PERFORMANCE STEPS:

1. Review the references.
2. Conduct LTI.
3. Complete forms.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1391-XENG-1014: Document equipment usage history

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given equipment and associated forms.

STANDARD: To ensure the descriptive data and equipment operations are documented.

PERFORMANCE STEPS:
1. Review the reference.
2. Complete associated forms.

REFERENCES:
1. Appropriate Technical Manuals
2. TM 4700-15/1_ Ground Equipment Record Procedures

1391-XENG-1015: Prepare bulk fuel equipment for embarkation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an Equipment Density List (EDL), mission requirements and references.

STANDARD: To ensure movement of equipment without loss of Government assets.

PERFORMANCE STEPS:
1. Review EDL.

2. Pack equipment as directed.

REFERENCES:
1. Local Standard Operating Procedures (SOP)
2. DODD 4500.9E Transportation and Traffic Management September 11, 2007
3. MCO 4610.35 USMC Equipment Characteristics File

1391-XENG-1016: Operate the Ground Expedient Refueling System (GERS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given equipment, power source and fuel.

STANDARD: To dispense fuel.

PERFORMANCE STEPS:
1. Review references.
2. Assemble Ground Expedient Refueling System (GERS).
3. Perform before Preventive Maintenance Checks and Services (PMCS).
4. Dispense fuel.
5. Perform during Preventive Maintenance Checks and Services (PMCS).
6. Perform shut-down procedures.
7. Perform after Preventive Maintenance Checks and Services (PMCS).

REFERENCES:
1. TM 11219A/112120A-OI Ground Expedient Refueling System (GERS)

24004. 2000-LEVEL EVENTS

1391-XENG-2001: Conduct operations utilizing a tactical fuel laboratory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Currently (FY13), the Tactical Petroleum Laboratory Medium (TPLM) is used to provide an organic quality control capability for bulk fuel operations in the field. It provides the capability to test suspect deliveries for acceptability and suitability, and will permit captured fuels to be tested for suitability as well. However, in the future, Petroleum Quality Analysis System-Enhanced (PQAS-E) will be fielded to replace the Tactical Petroleum Laboratory Medium (TPLM).

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a generator, environmental control unit, water source and references.

STANDARD: To provide quality surveillance of Class III products.

PERFORMANCE STEPS:
1. Identify type of test required.
2. Review the reference.
3. Perform the test.
4. Record results.

REFERENCES:
1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
3. TM 10188_-14&P/1 Operator's Organizational & Intermediate Maintenance Manual with Parts List TPLM
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
5. TM 11932A-OI Operators Manual and Field Maintenance Manual

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1391-XENG-2002: Supervise bulk fuel equipment for embarkation

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Embark NCO

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Table of Equipment (T/E), mission requirements and references.

STANDARD: To ensure movement of required equipment without loss of Government assets.

PERFORMANCE STEPS:
1. Identify Equipment Density List (EDL) / Unit Density List (UDL).
2. Validate operational timeline with mission requirements.
3. Validate inventory.
4. Validate load plan with embarkation representatives.

REFERENCES:
1. MCO P4030.19_ Preparing Hazardous Materials for Military Air Shipments
2. MCRP 5-12D Organization of Marine Corps Forces
3. MCWP 4-1 Logistics Operations
4. MIL-STD-129_ Department of Defense Standard Practice - Military Marking

for Shipment and Storage
5. MIL-STD-2073-1_ Standard Practice for Military Packing
6. MIL-STD-2073-2_ Packaging Requirement Code
7. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
8. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-2003: Evacuate hose line

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a tactical situation, hose evacuation kit, 260 cubic feet per minute (CFM) compressor and references.

STANDARD: To reclaim residual fuel in hoses.

PERFORMANCE STEPS:
1. Check equipment for serviceability.
2. Assemble equipment.
3. Perform required operations.
4. Follow local unit SOP.

REFERENCES:
1. TM 05672_-12&P/1 Operation and Maintenance Manual with Repair Parts and Component List, Fuel Hose Evacuation Kits
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: The 260 CFM Compressor must be operated by a trained and licensed Marine.

1391-XENG-2004: Perform maintenance management NCO functions

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a Table of Equipment (T/E), forms, records, tools and

references.

STANDARD: To ensure all equipment is maintained in an operational state of readiness.

PERFORMANCE STEPS:
1. Follow desktop procedures.
2. Follow maintenance management policies and procedures.
3. Conduct required actions.
4. Conduct corrective actions.
5. Report to higher.

REFERENCES:
1. Appropriate Technical Manuals
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1391-XENG-2005: Implement a fire contingency plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Bulk Fuel Specialist

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided operation orders, a completed bulk fuel system layout, applicable fire suppression equipment and references.

STANDARD: To ensure the plan contains information regarding protection for 100% of bulk fuel equipment, personnel and product.

PERFORMANCE STEPS:
1. Review unit contingency plan.
2. Ensure personnel receive first aid and fire suppression training.
3. Complete Preventive Maintenance Checks and Services (PMCS).
4. Ensure applicable equipment is correctly placed in area.
5. Report incidents per local standard operating procedures.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 07661C-14/1 Extinguisher, Fire, Dry Chemical and Aqueous Film Forming Foam, Self-Contained, Model D-4
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2006: Supervise Tactical Fuel System (TFS) operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operation order, a fuel distribution system plan, equipment, materials, personnel and references

STANDARD: To ensure all fuel requirements can support the concept of operations.

PERFORMANCE STEPS:
1. Review bulk fuel plan.
2. Review SOP.
3. Operate Tactical Fuel System.
4. Maintain days of supply as required.
5. Supervise personnel.
6. Report to higher.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2007: Supervise operations utilizing a tactical fuel laboratory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided laboratory technician, tactical fuel laboratory and test results.

STANDARD: To ensure quality surveillance of Class III products.

PERFORMANCE STEPS:
1. Review references.
2. Review unit SOP.
3. Supervise petroleum product testing per mission requirements.
4. Supervise daily operations.

REFERENCES:
1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. TM 10188_-14&P/1 Operator's Organizational & Intermediate Maintenance Manual with Parts List TPLM
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. TM 11932A-OI Operators Manual and Field Maintenance Manual

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1391-XENG-2008: Supervise Tactical Fuel System (TFS) elastomeric program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical fuel system and references.

STANDARD: To maintain readiness of all fabric and rubberized components of tactical fuel systems.

PERFORMANCE STEPS:
1. Review references.
2. Determine status of on-hand elastomeric components.
3. Maintain tactical fuel system elastomeric shelf/use life records.
4. Establish a tactical fuel system elastomeric testing program.
5. Establish a tactical fuel system elastomeric inspection program
6. Submit required shelf-life reports.

REFERENCES:
1. ASTM D380 Standard Test Method for Rubber Hose
2. DLAR 140.55 Reporting of Item and Packaging Discrepancies
3. DOD 4140.25 Management of Bulk Petroleum Products, Storage and Distribution Facilities
4. MCO 4030.36 Marine Corps Packing Manual
5. MCO 4030.40_ Packaging of Hazardous Material
6. MCO 4140.5 USMC Shelf-Life Program
7. MCO 4450.13 Joint Reg for Safeguarding Sensitive Inventory Items,
8. MIL-STD-109 Inspection Terms and Definitions
9. MIL-STD-129_ Department of Defense Standard Practice - Military Marking for Shipment and Storage
10. MIL-STD-2073-1_ Standard Practice for Military Packing
11. MIL-STD-2073-2_ Packaging Requirement Code
12. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
13. TM 4700-15/1_ Ground Equipment Record Procedures

1391-XENG-2009: Supervise bulk fuel site construction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a fuel distribution plan with a system layout, bulk fuel equipment, engineer equipment, operators and references.

STANDARD: To ensure tactical fuel system site is constructed to meet mission requirements.

PERFORMANCE STEPS:
1. Manage timeline.
2. Guide engineers in performance of site construction.
3. Guide engineers in the prepositioning of bulk fuel equipment.
4. Observe assembly of tactical fuel system.

REFERENCES:
1. AR 200-1 Environmental Protection and Enhancement
2. MCO P5090.2_ Environmental Compliance and Protection Manual
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2010: Plan Tactical Fuel System (TFS) employment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operation order, a fuel distribution system plan, equipment, materials, personnel and references.

STANDARD: To ensure all fuel requirements can support the concept of operations.

PERFORMANCE STEPS:
1. Identify bulk fuel requirements.
2. Determine tactical fuel system requirements.
3. Design construction plan.
4. Implement bulk fuel site security plan.

REFERENCES:
1. AR 200-1 Environmental Protection and Enhancement
2. ASTM D 1298 Standard Test method for Density, Relative Density (Specific Gravity)
3. ASTM D-1250 Petroleum Measurement Table, Volume Correction Factors
4. ASTM D-287 Standard Test Method for API Gravity
5. ASTM D380 Standard Test Method for Rubber Hose
6. ASTM D-4057 Standard Practice for Manual Sampling of Petroleum Products
7. D2276-00 Standard Test Method for Particulate Contaminant in Aviation Fuel by Line Sampling

8. D5006-96 Standard Test Method for Measurement of Fuel System Icing Inhibitors (Ether Type) in Aviation Fuels.kym
9. FM 10-69 Petroleum Supply Point Equipment and Operations
10. FMFM 3-1 Command and Staff Action
11. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
12. MCO 4030.36 Marine Corps Packing Manual
13. MCO 4030.40_ Packaging of Hazardous Material
14. MCWP 4-11.6 Petroleum and Water Logistics Operations
15. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
16. TM 01034_-12/P1 3000 Gallon Tank
17. TM 04486_-15 Drum, Collapsible Liquid Fuel 500 GAL
18. TM 05684_/05685_-12 MEP-3 Generator Set
19. TM 07661_-14/1 Extinguisher, Fire, Dry Chemical and Aqueous Film Forming Foam, Self-Contained, Model D-4
20. TM 08990_-15&P/1 Sixcon Water Tank Module
21. TM 10188_-14&P/1 Operator's Organizational & Intermediate Maintenance Manual with Parts List TPLM
22. TM 10596_-13&P Marine Corps Hose Reel System
23. TM 10668_-13&P Compressed Air Foam System-Mobile
24. TM 11082A/11082B-OI Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Environmental Control Unit, 3 Ton, 36,000 BTU/hr (36K ECU)
25. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
26. TM 4700-15/1_ Ground Equipment Record Procedures
27. ULSS-00 3089-15 TPLM
28. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
29. UM 4790-5 Users Manual MIMMS
30. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-2011: Supervise a petroleum quality surveillance and control program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided certified personnel, test requirements, test equipment and references.

STANDARD: To ensure petroleum products are received and maintained within applicable standards.

PERFORMANCE STEPS:
1. Review a quality surveillance and control SOP.
2. Ensure all sampling, test equipment, and materials are available for

personnel doing quality surveillance.
3. Ensure personnel are trained in the preparation of sample tags and logs.
4. Ensure personnel comply with SOP.
5. Inspect for adherence to quality control procedures.
6. Issue corrective orders.

REFERENCES:
1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. MCO 4855.10_ Product Quality Deficiency Report (PQDR)
3. MIL-STD-3004 DOD standard practice Quality Surveillance for Fuels, Lubricants, and Related Products
4. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2012: Supervise a maintenance management program

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a Table of Equipment (T/E), forms, records, tools and references.

STANDARD: To ensure all equipment is maintained in an operational state of readiness.

PERFORMANCE STEPS:
1. Maintain desktop procedures.
2. Follow maintenance management policies and procedures.
3. Inspect required actions.
4. Identify corrective action.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. TM 4700-15/1_ Ground Equipment Record Procedures
5. UM 4400-15 Marine Corps User Manual (Organic Property Control)
6. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-2013: Monitor bulk fuel inventory

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a tactical fuel system, bulk fuel inventory and references.

STANDARD: To ensure accurate accountability of product.

PERFORMANCE STEPS:
1. Review references.
2. Validate physical inventory.
3. Validate documented inventory.
4. Compare physical and documented inventories.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TB 10-5430-253-13 Technical Bulletin for Collapsible Fabric Fuel tanks
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2014: Prepare a fire contingency plan

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided operation orders, a completed bulk fuel system layout, applicable fire suppression equipment and references.

STANDARD: To ensure the plan contains information regarding protection for 100% of bulk fuel equipment, personnel and product.

PERFORMANCE STEPS:
1. Analyze a potential fire threat.
2. Identify the location of all fire suppression equipment..
3. Assign personnel to support fire suppression effort.
4. Schedule inspections of fire suppression equipment and facilities.
5. List external support available..
6. Develop fire prevention plans.
7. Plan and schedule fire drills.

REFERENCES:
1. Federal, State, and Local Environmental Regulations
2. MCO 3500.27_ Operational Risk Management (ORM)

3. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
5. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-2015: Calculate bulk fuel hydraulics

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a hose reel system and a terrain map.

STANDARD: To maximize the efficiency of fuel transfer.

PERFORMANCE STEPS:
1. Calculate feet of head to pounds per square inch.
2. Calculate speed of fuel.
3. Calculate reynolds number.
4. Calculate hydraulic gradient.
5. Calculate design hydraulic gradient.
6. Calculate head loss.
7. Calculate abnormal variants in head pressure.
8. Apply to Hose Reel employment planning.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
3. TM 10596A 13&P Marine Corps Hose Reel System

1391-XENG-2016: Develop Petroleum, Oils and Lubricants (POL) appendix to Operation Order

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given commander's intent, concept of operations, warning order, fragmentary order, logistic requirements and references.

STANDARD: To ensure bulk fuel support is in accordance with the concept of

operations.

PERFORMANCE STEPS:
1. Participate in Operational Planning Team (OPT) meetings, as required.
2. Verify the mission.
3. Verify the concept of operations.
4. Verify the overall concept and priorities of logistical support.
5. Analyze the situation, mission, execution, administration and logistics and the command and control.
6. Validate fuel requirements.
7. Draft Annex 1 to Appendix D to the operation order.
8. Submit to higher authority.

REFERENCES:
1. Appendix 1 to Annex D Operations Order
2. FMFM 3-1 Command and Staff Action
3. Joint Publication 4-03 Joint Bulk Petroleum Doctrine
4. JP 5-021 JOPS
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
7. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
8. NAVAIRINST 10340.3_ Maintaining Quality and Limiting Contamination of Aircraft Fuels
9. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2017: Conduct joint service bulk petroleum operations

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operations order, personnel, equipment, fuel site and in a joint environment.

STANDARD: To ensure bulk petroleum support is continuous throughout operations, and at levels that sustain operational momentum in accordance with an operation order/operation plan (OPORD/OPLAN).

PERFORMANCE STEPS:
1. Conduct procedures for petroleum distribution.
2. Conduct procedures for petroleum storage.
3. Coordinate adjacent unit support for bulk fuel products.
4. Conduct joint bulk petroleum operations plan.

REFERENCES:
1. Joint Publication 4-03 Joint Bulk Petroleum Doctrine

2. MCWP 4-11.6 Petroleum and Water Logistics Operations
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. Joint Publication 4-01.6 Joint logistics Over the Shore (JLOTS)

1391-XENG-2018: Execute Standard Operating Procedures (SOP)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given orders, directives, administrative supplies and personnel.

STANDARD: To ensure bulk fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review SOP.
2. Inspect adherence to operating procedures.
3. Identify deficiencies.
4. Recommend changes.

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
3. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2019: Manage embarkation of tactical fuel equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 months

BILLETS: Bulk Fuel Specialist

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided tactical fuel equipment, application tools, embarkation order and references.

STANDARD: To ensure inventory control is conducted.

PERFORMANCE STEPS:
1. Review the references.
2. Review embarkation order.
3. Maintain equipment embarkation readiness per the references.
4. Maintain equipment inventory levels per the references.

REFERENCES:
1. MCO P4030.19_ Preparing Hazardous Materials for Military Air Shipments
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
3. TM 4700-15/1_ Ground Equipment Record Procedures

1391-XENG-2020: Supervise bulk fuel operations at a Forward Arming and Refueling Point (FARP)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order, equipment, personnel and references.

STANDARD: To ensure fuel requirements are met.

PERFORMANCE STEPS:
1. Review references.
2. Verify mission requirements with supported units.
3. Coordinate with external teams.

REFERENCES:
1. MCWP 3.21.1 Aviation Ground Support
2. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
3. TM 04486_-15 Drum, Collapsible Liquid Fuel 500 GAL
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
5. TM 5-4330-217-12 Operator and Organizational Maintenance Manual, Filter Separator, Liquid 100 GPM, Frame Mounted
6. TM 5-6630-218-10 Aviation Fuel, Contaminant, Test Kit

APPENDIX A

ACRONYMS AND ABBREVIATIONS

ADMIN	Administrative
CMOB	Counter-Mobility
DEMO	Demolitions
EOPS	Engineer Operations
FUEL	Bulk Fuel
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction
MANT	Maintenance
MOBL	Mobility
PINF	Provisional Infantry
PLAN	Planning
RECN	Engineer Reconnaissance
SRVY	Surveying
SURV	Survivability
UTIL	Utilities
VERT	Vertical Construction
XENG	General Engineering

APPENDIX B

TERMS AND DEFINITIONS

Terms in this glossary are subject to change as applicable orders and directives are revised. Terms established by Marine Corps orders or directives take precedence after definitions found in Joint Publication 1-02, DOD Dictionary of Military and Associated Terms.

A

After Action Review. A professional discussion of training events conducted after all training to promote learning among training participants. The formality and scope increase with the command level and size of the training evolution. For longer exercises, they should be planned for a predetermined times during an exercise. The results of the AAR shall be recorded on an after action report and forwarded to higher headquarters. The commander and higher headquarters use the results of an AAR to reallocate resources, reprioritize their training plan, and plan for future training.

Assessment. An informal judgment of the unit's proficiency and resources made by a commander or trainer to gain insight into the unit's overall condition. It serves as the basis for the midrange plan. Commanders make frequent use of these determinations during the course of the combat readiness cycle in order to adjust, prioritize or modify training events and plans.

C

Chaining. A process that enables unit leaders to effectively identify subordinate collective events and individual events that support a specific collective event. For example, collective training events at the 4000-level are directly supported by collective events at the 3000-level. When a higher-level event by its nature requires the completion of lower level events, they are "chained"; Sustainment credit is given for all lower level events chained to a higher event.

Collective Event. A clearly defined, discrete, and measurable activity, action, or event (i.e., task) that requires organized team or unit performance and leads to accomplishment of a mission or function. A collective task is derived from unit missions or higher-level collective tasks. Task accomplishment requires performance of procedures composed of supporting collective or individual tasks. A collective task describes the exact performance a group must perform in the field under actual operational conditions. The term "collective" does not necessarily infer that a unit accomplishes the event. A unit, such as a squad or platoon conducting an attack; may accomplish a collective event or, it may be accomplished by an individual to accomplish a unit mission, such as a battalion supply officer completing a reconciliation of the battalion's CMR. Thus, many collective events will have titles that are the same as individual events; however, the

standard and condition will be different because the scope of the collective event is broader.

Collective Training Standards (CTS). Criteria that specify mission and functional area unit proficiency standards for combat, combat support, and combat service support units. They include tasks, conditions, standards, evaluator instruction, and key indicators. CTS are found within collective training events in T&R Manuals.

Combat Readiness Cycle. The combat readiness cycle depicts the relationships within the building block approach to training. The combat readiness cycle progresses from T&R Manual individual core skills training, to the accomplishment of collective training events, and finally, to a unit's participation in a contingency or actual combat. The combat readiness cycle demonstrates the relationship of core capabilities to unit combat readiness. Individual core skills training and the training of collective events lead to unit proficiency and the ability to accomplish the unit's stated mission.

Combat Readiness Percentage (CRP). The CRP is a quantitative numerical value used in calculating collective training readiness based on the E-Coded events that support the unit METL. CRP is a concise measure of unit training accomplishments. This numerical value is only a snapshot of training readiness at a specific time. As training is conducted, unit CRP will continuously change.

Condition. The condition describes the training situation or environment under which the training event or task will take place. Expands on the information in the title by identifying when, where and why the event or task will occur and what materials, personnel, equipment, environmental provisions, and safety constraints must be present to perform the event or task in a real-world environment. Commanders can modify the conditions of the event to best prepare their Marines to accomplish the assigned mission (e.g. in a desert environment; in a mountain environment; etc.).

Core Competency. Core competency is the comprehensive measure of a unit's ability to accomplish its assigned MET. It serves as the foundation of the T&R Program. Core competencies are those unit core capabilities and individual core skills that support the commander's METL and T/O mission statement. Individual competency is exhibited through demonstration of proficiency in specified core tasks and core plus tasks. Unit proficiency is measured through collective tasks.

Core Capabilities. Core capabilities are the essential functions a unit must be capable of performing during extended contingency/combat operations. Core unit capabilities are based upon mission essential tasks derived from operational plans; doctrine and established tactics; techniques and procedures.

Core Plus Capabilities. Core plus capabilities are advanced capabilities that are environment, mission, or theater specific. Core plus capabilities may entail high-risk, high-cost training for missions that are less likely to be assigned in combat.

Core Plus Skills. Core plus skills are those advanced skills that are environment, mission, rank, or billet specific. 2000-level training is designed to make Marines proficient in core skills in a specific billet or at a specified rank at the Combat Ready level. 3000-8000-level training produces combat leaders and fully qualified section members at the Combat Qualified level. Marines trained at the Combat Qualified level are those the commanding officer feels are capable of accomplishing unit-level missions and of directing the actions of subordinates. Many core plus tasks are learned via MOJT, while others form the base for curriculum in career level MOS courses taught by the formal school.

D

Defense Readiness Reporting System (DRRS). A comprehensive readiness reporting system that evaluates readiness on the basis of the actual missions and capabilities assigned to the forces. It is a capabilities-based, adaptive, near real-time reporting system for the entire Department of Defense.

Deferred Event. A T&R event that a commanding officer may postpone when in his or her judgment, a lack of logistic support, ammo, ranges, or other training assets requires a temporary exemption. CRP cannot be accrued for deferred “E-Coded” events.

Delinquent Event. An event becomes delinquent when a unit exceeds the sustainment interval for that particular event. The individual or unit must update the delinquent event by first performing all prerequisite events. When the unit commander deems that performing all prerequisite is unattainable, then the delinquent event will be re-demonstrated under the supervision of the appropriate evaluation authority.

E

E-Coded Event. An “E-Coded” event is a collective T&R event that is a noted indicator of capability or, a noted Collective skill that contributes to the unit’s ability to perform the supported MET. As such, only “E-Coded” events are assigned a CRP value and used to calculate a unit’s CRP.

Evaluation. Evaluation is a continuous process that occurs at all echelons, during every phase of training and can be both formal and informal. Evaluations ensure that Marines and units are capable of conducting their combat mission. Evaluation results are used to reallocate resources, reprioritize the training plan, and plan for future training.

Event (Training). 1) An event is a significant training occurrence that is identified, expanded and used as a building block and potential milestone for a unit’s training. An event may include formal evaluations. 2) An event within the T&R Program can be an individual training evolution, a collective training evolution or both. Through T&R events, the unit commander ensures that individual Marines and the unit progress from a combat capable status to a Fully Combat Qualified (FCQ) status.

Event Component. The major procedures (i.e., actions) that must occur to perform a Collective Event to standard.

Exercise Commander (EC). The Commanding General, Marine Expeditionary Force or his appointee will fill this role, unless authority is delegated to the respective commander of the Division, Wing, or FSSG. Responsibilities and functions of the EC include: 1) designate unit(s) to be evaluated, 2) may designate an exercise director, 3) prescribe exercise objectives and T&R events to be evaluated, 4) coordinate with commands or agencies external to the Marine Corps and adjacent Marine Corps commands, when required.

Exercise Director (ED). Designated by the EC to prepare, conduct, and report all evaluation results. Responsibilities and functions of the ED include: 1) Publish a letter of instruction (LOI) that: delineates the T&R events to be evaluated, establishes timeframe of the exercise, lists responsibilities of various elements participating in the exercise, establishes safety requirements/guidelines, and lists coordinating instructions. 2) Designate the TEC and TECG to operate as the central control agency for the exercise. 3) Assign evaluators, to include the senior evaluator, and ensure that those evaluators are properly trained. 4) Develop the general exercise scenario taking into account any objectives/events prescribed by the EC. 5) Arrange for all resources to include: training areas, airspace, aggressor forces, and other required support.

M

Marine Corps Ground Training and Readiness (T&R) Program. The T&R Program is the Marine Corps' primary tool for planning and conducting training, for planning and conducting training evaluation, and for assessing training readiness. The program will provide the commander with standardized programs of instruction for units within the ground combat, combat support, and combat service support communities. It consolidates the ITS, CTS, METL and other individual and unit training management tools. T&R is a program of standards that systematizes commonly accepted skills, is open to innovative change, and above all, tailors the training effort to the unit's mission. Further, T&R serves as a training guide and provides commanders an immediate assessment of unit combat readiness by assigning a CRP to key training events. In short, the T&R Program is a building block approach to training that maximizes flexibility and produces the best-trained Marines possible.

Mission Essential Task(s) MET(s). A MET is a collective task in which an organization must be proficient in order to accomplish an appropriate portion of its wartime mission(s). MET listings are the foundation for the T&R manual; all events in the T&R manual support a MET.

Mission Essential Task List (METL). Descriptive training document that provides units a clear, war fighting focused description of collective actions necessary to achieve wartime mission proficiency. The service-level METL, that which is used as the foundation of the T&R manual, is developed using Marine Corps doctrine, operational plans, T/Os, UJTL, UNTL, and MCTL. For community based T&R manuals, an occupational field METL is developed to focus the community's collective training standards. Commanders develop their unit METL from the service-level METL, operational plans, contingency plans, and SOPs.

O

Operational Readiness (DOD, NATO). OR is the capability of a unit/formation, ship, weapon system, or equipment to perform the missions or functions for which it is organized or designed. May be used in a general sense or to express a level or degree of readiness.

P

Prerequisite Event. Prerequisites are the academic training and/or T&R events that must be completed prior to attempting the event.

R

Readiness (DOD). Readiness is the ability of U.S. military forces to fight and meet the demands of the national military strategy. Readiness is the synthesis of two distinct but interrelated levels: a) Unit readiness—The ability to provide capabilities required by combatant commanders to execute assigned missions. This is derived from the ability of each unit to deliver the outputs for which it was designed. b) Joint readiness--The combatant commander's ability to integrate and synchronize ready combat and support forces to execute assigned missions.

S

Section Skill Tasks. Section skills are those competencies directly related to unit functioning. They are group rather than individual in nature, and require participation by a section (S-1, S-2, S-3, etc).

Simulation Training. Simulators provide the additional capability to develop and hone core and core plus skills. Accordingly, the development of simulator training events for appropriate T&R syllabi can help maintain valuable combat resources while reducing training time and cost. Therefore, in cases where simulator fidelity and capabilities are such that simulator training closely matches that of actual training events, T&R Manual developers may include the option of using simulators to accomplish the training. CRP credit will be earned for E-Coded simulator events based on assessment of relative training event performance.

Standard. A standard is a statement that establishes criteria for how well a task or learning objective must be performed. The standard specifies how well, completely, or accurately a process must be performed or product produced. For higher-level collective events, it describes why the event is being done and the desired end-state of the event. Standards become more specific for lower-level events and outline the accuracy, time limits, sequencing, quality, product, process, restrictions, etc., that indicate the minimum acceptable level of performance required of the event. At a minimum, both collective and individual training standards consist of a task, the condition under which the task is to be performed, and the evaluation criteria that will be used to verify that the task has been performed to a satisfactory level.

Sustainment Training. Periodic retraining or demonstration of an event required maintaining the minimum acceptable level of proficiency or

capability required to accomplish a training objective. Sustainment training goes beyond the entry-level and is designed to maintain or further develop proficiency in a given set of skills.

Systems Approach to Training (SAT). An orderly process for analyzing, designing, developing, implementing, and evaluating a unit's training program to ensure the unit, and the Marines of that unit acquire the knowledge and skills essential for the successful conduct of the unit's wartime missions.

T

Training Task. This describes a direct training activity that pertains to an individual Marine. A task is composed of 3 major components: a description of what is to be done, a condition, and a standard.

Technical Exercise Controller (TEC). The TEC is appointed by the ED, and usually comes from his staff or a subordinate command. The TEC is the senior evaluator within the TECG and should be of equal or higher grade than the commander(s) of the unit(s) being evaluated. The TEC is responsible for ensuring that the evaluation is conducted following the instructions contained in this order and MCO 1553.3A. Specific T&R manuals are used as the source for evaluation criteria.

Tactical Exercise Control Group (TECG). A TECG is formed to provide subject matter experts in the functional areas being evaluated. The benefit of establishing a permanent TECG is to have resident, dedicated evaluation authority experience, and knowledgeable in evaluation technique. The responsibilities and functions of the TECG include: 1) developing a detailed exercise scenario to include the objectives and events prescribed by the EC/ED in the exercise LOI; 2) conducting detailed evaluator training prior to the exercise; 3) coordinating and controlling role players and aggressors; 4) compiling the evaluation data submitted by the evaluators and submitting required results to the ED; 5) preparing and conducting a detailed exercise debrief for the evaluated unit(s).

Training Plan. Training document that outlines the general plan for the conduct of individual and collective training in an organization for specified periods of time.

U

Unit CRP. Unit CRP is a percentage of the E-Coded collective events that support the unit METL accomplished by the unit. Unit CRP is the average of all MET CRP.

Unit Evaluation. All units in the Marine Corps must be evaluated, either formally or informally, to ensure they are capable of conducting their combat mission. Informal evaluations should take place during all training events. The timing of formal evaluations is critical and should, when appropriate, be directly related to the units' operational deployment cycle. Formal evaluations should take place after the unit has been staffed with the majority of its personnel, has had sufficient time to train to individual and collective standards, and early enough in the training cycle so there is sufficient time to correctly identified weaknesses prior to deployment. All

combat units and units' task organized for combat require formal evaluations prior to operational deployments.

Unit Training Management (UTM). Unit training management is the use of the SAT and Marine Corps training principles in a manner that maximizes training results and focuses the training priorities of the unit on its wartime mission. UTM governs the major peacetime training activity of the Marine Corps and applies to all echelons of the Total Force.

W

Waived Event. An event that is waived by a commanding officer when in his or her judgment, previous experience or related performance satisfies the requirement of a particular event.

APPENDIX C

CLASS V REQUIRED FOR ENGINEER TRAINING

The CLASS V Supplies listed in this appendix are required for individual and collective level training events.

Table C001 lists types of Class V supplies employed by Engineer personnel.

Table C002 contains allocations employed by Engineer personnel by MOS for sustainment/proficiency of individual events. **The quantities of ammunition, explosives and pyrotechnics are sufficient to conduct one training evolution.**

Table C003 contains the Course of Fire allocations, per crew served weapons system for sustainment/proficiency training.

Table C004 contains allocations, for Engineer units crew served weapons system sustainment/proficiency training.

Table C005 contains Combat Assault Battalion allocations for engineer personnel to accomplish unit sustainment/proficiency training.

Table C006 contains Combat Engineer Battalion allocations to accomplish unit sustainment/proficiency training.

Table C007 contains Direct Support Combat Logistics Battalion allocations for engineer personnel to accomplish unit sustainment/proficiency training.

Table C008 contains Engineer Support Battalion allocations to accomplish unit sustainment/proficiency training.

C001. CLASS V LISTING FOR ENGINEERS & CREW SERVED WEAPONS PERSONNEL	
DODIC	**NOMENCLATURE**
A011	Cartridge, 12 Gauge #00 Buckshot M162
A023	Cartridge, 12 Gauge 1 Ounce Slug Commercial
A024	Cartridge, 12 Gauge Lockbuster
A064	Cartridge, 5.56mm 4 Ball M855/1 Tracer M856 Linked
A131	Cartridge, 7.62mm 4 Ball M80/1 Tracer M62 Linked
A135	Cartridge, 7.62mm Dummy M63
A555	Cartridge, Cal .50 Ball M33 Linked (M2 Links)
A560	Cartridge, Cal .50 Dummy M2
A576	Cartridge, Cal .50 4 API M8/1 API-T M20 Linked
AA54	Cartridge, 12 Gauge, Breaching, M1030
AX10	Cartridge, 9mm Dummy MK218
AX11	Cartridge, 9mm Spotting Rifle MK217 Mod 0
AX14	Primer, Percussion 12 Gauge W209
B472	Cartridge, 40mm Dummy M922
B542	Cartridge, 40mm HEDP M430/M430A1 Linked
BA21	Cartridge, 40mm Practice (Day/Night) MK281 Mod 1 Linked
G940	Grenade, Hand Green Smoke M18

G945	Grenade, Hand Yellow Smoke M18
G982	Grenade, Hand Practice Smoke TA M83
HX05	Rocket, 83mm HE Dual mode (SMAW)
HX07	Rocket, 83mm HEAA Practice MK7 Mod 0
J007	Mine, Antipersonnel M18A1 with Non-Electric Mini Shock Tube
J143	Rocket Motor, 5-inch MK22 Mod 4
K143	Mine, APERS (Claymore)
L312	Signal, Illumination Ground White Star Parachute M127A1
L314	Signal, Illumination Ground Green Star Cluster M125A1
L495	Flare, Surface Trip M49/A1 Series
L594	Simulator, Projectile Ground Burst M115A2
L598	Simulator, Explosive Booby Trap Flash M117
LX21	Simulator, Noise Cartridge SMAW
M023	Charge, Demo Block M112 1-1/4 pound C-4
M028	Demo Kit, Bangalore Torpedo M1A2
M030	Charge, Demo Block TNT 1/4-Pound
M032	Charge, Demo Block TNT 1-Pound
M039	Charge, Demo Cratering 40-Pound
M130	Cap, Blasting Electric M6
M131	Cap, Blasting Non-Electric M7
M327	Coupling Base, Firing Device with Primer
M420	Charge, Demo Shaped M2 Series 15-Pound
M421	Charge, Demo Shaped M3 Series 40-Pound
M456	Cord, Detonating PETN Type I Class E
M591	Dynamite, Military M1
M670	Fuse, Blasting Time M700
M757	Charge, Assembly Demo M183 Comp C-4
M766	Igniter, Time Fuse Blasting M60
M913	Charge, Demo High Explosive Linear M58A4
M914	Charge, Demo Inert Linear M68A2
M982	Charge, Demo Sheet 0.166 Inch Thick
ML03	Firing Device, Demo Multi-Purpose M142
ML47	Cap, Blasting Non-Electric XM/M11
MM30	Charge, Flexible 20 Gram PETN MK140 Mod 0
MM44	Charge, Demo FLSC 75 Gr/Ft
MM45	Charge, Demo FLSC 125 Gr/Ft
MM46	Charge, Demo FLSC 225 Gr/Ft
MM47	Charge, Demo FLSC 400 Gr/Ft
MM48	Charge, Demo FLSC 600 Gr/Ft
MM56	Det, Percussion 175ms Delay
MN08	Igniter, Time Blasting Fuse with Shock Tube Capability M81
MN14	Firing Device, Dual Mode MK54
MN52	Detonator, Percussion, Non-Electric MK154 Mod 0
MN79	Mine, Antipersonnel Obstacle Breaching System MK7 Mod 1
MN88	Cap, Blasting, Non-Electric, M21 w/ 500 ft. Mini tube
MN90	Cap, Blasting, Non-Electric, M23 w/ 1000 ft. Mini tube

C002. ENGINEER INDIVIDUAL EVENT CLASS V ALLOCATIONS

MOS	DODIC	EVENT	QTY	SUSTAINMENT INTERVAL	ANNUAL TOTAL	DODIC TOTAL
1302	**A011**	1302-MOBL-1006	10	SA	20	
1371	**A011**	1371-MOBL-2013	6	SA	12	

		1371-MOBL-2014	6	SA	12	
		1371-MOBL-2015	10	A	10	
	A011					**54**
1302	**A023**	1302-MOBL-1006	8	SA	16	
1371	**A023**	1371-MOBL-2013	3	SA	6	
		1371-MOBL-2014	3	SA	6	
	A023					**28**
1302	**AA54**	1302-MOBL-1006	12	SA	24	
1371	**AA54**	1371-MOBL-2014	3	SA	6	
		1371-MOBL-2016	6	SA	12	
	AA54					**42**
1371	**AX10**	1371-MOBL-1006	3	SA	6	**6**
1371	**AX11**	1371-MOBL-1006	6	SA	12	**12**
1302	**AX14**	1302-MOBL-1006	12	SA	24	
1371	**AX14**	1371-DEMO-2002	4	Q	16	
		1371-DEMO-2007	2	SA	4	
		1371-DEMO-2008	2	SA	4	
		1371-DEMO-2009	2	SA	4	
		1371-DEMO-2010	2	SA	4	
		1371-DEMO-2011	2	SA	4	
		1371-DEMO-2012	2	SA	4	
		1371-DEMO-2013	2	SA	4	
		1371-DEMO-2014	2	A	2	
	AX14					**70**
1371	**G940**	1371-MOBL-1001	1	Q	4	
		1371-MOBL-1003	1	SA	2	
		1371-CMOB-2003	2	SA	4	
		1371-MOBL-2012	2	SA	4	
	G940					**14**
1371	**G945**	1371-MOBL-1001	1	Q	4	
		1371-MOBL-1003	1	SA	2	
		1371-CMOB-2003	2	SA	4	
		1371-MOBL-2012	2	SA	4	
	G945					**14**
1371	**G982**	1371-MOBL-1001	1	Q	4	
		1371-MOBL-1003	1	SA	2	
		1371-MOBL-2012	2	SA	4	
	G982					**10**
1371	**HX05**	1371-MOBL-1006	1	SA	2	
		1371-MOBL-2012	2	SA	4	
	HX05					**6**
1371	**HX07**	1371-MOBL-1006	1	SA	2	**2**

1371	**J007**	1371-CMOB-1003	1	Q	4	**4**
1371	**J143**	1371-MOBL-2010	1	Q	4	
		1371-MOBL-2012	1	SA	2	
	J143					**6**
1371	**K143**	1371-CMOB-1003	1	Q	4	**4**
1371	**L312**	1371-MOBL-2012	2	SA	4	**4**
1371	**L314**	1371-MOBL-2012	2	SA	4	**4**
1371	**L495**	1371-CMOB-1002	1	SA	2	
		1371-CMOB-2003	2	SA	4	
	L495					**6**
1371	**L594**	1371-CMOB-2003	2	SA	4	**4**
1371	**L598**	1371-CMOB-2003	2	SA	4	**4**
1371	**LX21**	1371-MOBL-1006	1	SA	2	**2**
1302	**M023**	1302-DEMO-1002	1	Q	4	
1371	**M023**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-2001	10	Q	40	
		1371-MOBL-1001	1	Q	4	
	M023					**52**
1302	**M028**	1302-DEMO-1002	1	Q	4	
1371	**M028**	1371-MOBL-1001	1	Q	4	
		1371-MOBL-2012	1	SA	2	
	M028					**10**
1302	**M030**	1302-DEMO-1002	1	Q	4	
1371	**M030**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	1	Q	4	
	M030					**12**
1302	**M032**	1302-DEMO-1002	1	Q	4	
		1302-DEMO-1003	10	Q	40	
1371	**M032**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	1	Q	4	
		1371-DEMO-2001	10	Q	40	
	M032					**92**
1302	**M039**	1302-DEMO-1002	1	Q	4	
1371	**M039**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	1	Q	4	
	M039					**12**
1302	**M130**	1302-DEMO-1002	3	Q	12	

		1302-DEMO-1003	14	Q	56	
		1302-MOBL-1006	8	SA	16	
1371	**M130**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	4	Q	16	
		1371-MOBL-1001	10	Q	40	
		1371-MOBL-1003	3	SA	6	
		1371-CMOB-1002	1	SA	2	
		1371-DEMO-2001	8	Q	32	
		1371-DEMO-2002	10	Q	40	
		1371-DEMO-2007	1	SA	2	
		1371-DEMO-2008	2	SA	4	
		1371-DEMO-2010	2	SA	4	
		1371-DEMO-2011	2	SA	4	
		1371-DEMO-2012	2	SA	4	
		1371-MOBL-2012	6	SA	12	
		1371-DEMO-2013	2	SA	4	
		1371-DEMO-2014	2	A	2	
	M130					**260**
1302	**M131**	1302-DEMO-1002	5	Q	20	
		1302-DEMO-1003	14	Q	56	
		1302-MOBL-1006	6	SA	12	
		1302-MOBL-1010	4	SA	8	
1371	**M131**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	12	Q	48	
		1371-MOBL-1001	10	Q	40	
		1371-MOBL-1003	1	SA	2	
		1371-CMOB-1002	1	SA	2	
		1371-DEMO-2001	8	Q	32	
		1371-DEMO-2002	10	Q	40	
		1371-DEMO-2011	2	SA	4	
		1371-DEMO-2012	2	SA	4	
		1371-MOBL-2012	6	SA	12	
		1371-DEMO-2013	2	SA	4	
		1371-DEMO-2014	2	A	2	
		1371-MOBL-2023	4	SA	8	
	M131					**298**
1371	**M327**	1371-CMOB-1003	1	Q	4	
		1371-CMOB-2003	4	SA	8	
	M327					**12**
1302	**M420**	1302-DEMO-1002	1	Q	4	
1371	**M420**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	1	Q	4	
	M420					**12**
1302	**M421**	1302-DEMO-1002	1	Q	4	
1371	**M421**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	1	Q	4	
	M421					**12**

1302	**M456**	1302-DEMO-1002	85	Q	340	
		1302-DEMO-1003	500	Q	2000	
		1302-MOBL-1006	200	SA	400	
		1302-MOBL-1010	10	SA	20	
1371	**M456**	1371-DEMO-1001	35	Q	105	
		1371-DEMO-1002	350	Q	1400	
		1371-MOBL-1001	300	Q	1200	
		1371-CMOB-1002	50	SA	100	
		1371-CMOB-1003	500	Q	2000	
		1371-MOBL-1003	350	SA	700	
		1371-DEMO-2001	250	Q	1000	
		1371-CMOB-2003	350	SA	700	
		1371-DEMO-2007	5	SA	10	
		1371-DEMO-2008	5	SA	10	
		1371-DEMO-2009	12	SA	24	
		1371-DEMO-2010	96	SA	192	
		1371-DEMO-2011	18	SA	36	
		1371-DEMO-2012	33	SA	66	
		1371-MOBL-2012	1500	SA	3000	
		1371-DEMO-2013	32	SA	34	
		1371-DEMO-2014	15	A	15	
		1371-MOBL-2023	10	SA	20	
	M456					**13372**
1302	**M591**	1302-DEMO-1002	2	Q	8	
1371	**M591**	1371-DEMO-1001	2	Q	8	
		1371-DEMO-1002	1	Q	4	
		1371-CMOB-1002	1	SA	2	
	M591					**22**
1302	**M670**	1302-DEMO-1002	40	Q	160	
		1302-DEMO-1003	50	Q	200	
		1302-MOBL-1006	24	SA	48	
		1302-MOBL-1010	500	SA	1000	
1371	**M670**	1371-DEMO-1001	10	Q	40	
		1371-DEMO-1002	350	Q	1400	
		1371-MOBL-1001	200	Q	800	
		1371-MOBL-1003	10	SA	20	
		1371-CMOB-1002	25	SA	50	
		1371-DEMO-2001	50	Q	200	
		1371-DEMO-2002	50	Q	200	
		1371-DEMO-2011	12	SA	24	
		1371-DEMO-2012	12	SA	24	
		1371-DEMO-2013	12	SA	24	
		1371-DEMO-2014	12	A	12	
		1371-MOBL-2012	500	SA	1000	
		1371-MOBL-2023	500	SA	1000	
	M670					**6202**
1302	**M757**	1302-DEMO-1002	1	Q	4	
		1302-DEMO-1003	1	Q	4	
		1302-MOBL-1010	2	SA	4	

1371	**M757**	1371-DEMO-1001	1	Q	4	
		1371-DEMO-1002	1	Q	4	
		1371-MOBL-1001	1	Q	4	
		1371-MOBL-1003	2	SA	4	
		1371-CMOB-1003	1	Q	4	
		1371-MOBL-2012	1	SA	2	
	M757					**34**
1371	**M766**	1371-DEMO-2002	11	Q	44	**44**
1371	**M913**	1371-MOBL-2010	1	Q	4	
		1371-MOBL-2012	1	SA	2	
	M913					**6**
1371	**M914**	1371-MOBL-2010	1	Q	4	**4**
1302	**M982**	1302-DEMO-1002	1	Q	4	
1371	**M982**	1371-DEMO-2002	1	Q	4	
	M982					**8**
1302	**ML03**	1302-DEMO-1003	2	Q	8	
		1302-MOBL-1006	1	SA	2	
1371	**ML03**	1371-DEMO-1001	2	Q	8	
		1371-CMOB-1003	1	Q	4	
		1371-DEMO-2001	5	Q	20	
		1371-DEMO-2007	1	SA	2	
		1371-DEMO-2008	1	SA	2	
		1371-DEMO-2009	1	SA	2	
		1371-DEMO-2010	1	SA	2	
		1371-DEMO-2011	1	SA	2	
		1371-DEMO-2012	1	SA	2	
		1371-DEMO-2014	1	A	1	
		1371-CMOB-2003	4	SA	8	
	ML03					**63**
1302	**ML47**	1302-DEMO-1003	3	Q	12	
1371	**ML47**	1371-DEMO-1001	6	Q	24	
		1371-MOBL-1001	3	Q	12	
		1371-DEMO-2001	3	Q	12	
		1371-DEMO-2002	2	Q	8	
	ML47					**68**
1302	**MN08**	1302-DEMO-1002	5	Q	20	
		1302-DEMO-1003	10	Q	40	
		1302-MOBL-1006	4	SA	8	
		1302-MOBL-1010	2	SA	4	
1371	**MN08**	1371-DEMO-1001	2	Q	8	
		1371-DEMO-1002	1	Q	4	
		1371-MOBL-1001	12	Q	48	
		1371-MOBL-1003	2	SA	4	
		1371-CMOB-1002	1	SA	2	
		1371-DEMO-2001	8	Q	32	

		1371-DEMO-2002	6	Q	24	
		1371-DEMO-2011	2	SA	4	
		1371-DEMO-2012	2	SA	4	
		1371-DEMO-2013	2	SA	4	
		1371-DEMO-2014	2	A	2	
		1371-MOBL-2012	8	SA	16	
		1371-MOBL-2023	2	SA	4	
	MN08					**228**
1302	**MM30**	1302-DEMO-1002	4	Q	16	
1371	**MM30**	1371-DEMO-2011	2	SA	4	
		1371-DEMO-2013	3	SA	6	
	MM30					**26**
1302	**MM44**	1302-DEMO-1002	1	Q	4	**4**
1302	**MM45**	1302-DEMO-1002	1	Q	4	
1371	**MM45**	1371-DEMO-2002	1	Q	4	
	MM45					**8**
1371	**MM46**	1371-DEMO-2002	1	Q	4	**4**
1302	**MM47**	1302-DEMO-1002	1	Q	4	
1371	**MM47**	1371-DEMO-2002	1	Q	4	
	MM47					**8**
1302	**MM48**	1302-DEMO-1002	1	Q	4	
1371	**MM48**	1371-DEMO-2002	1	Q	4	
	MM48					**8**
1302	**MN14**	1302-MOBL-1006	2	SA	4	
1371	**MN14**	1371-DEMO-1002	3	Q	12	
		1371-DEMO-2002	1	Q	4	
		1371-MOBL-2012	1	SA	2	
	MN14					**22**
1302	**MN52**	1302-DEMO-1002	1	Q	4	
		1302-DEMO-1003	5	Q	20	
		1302-MOBL-1006	6	SA	12	
1371	**MN52**	1371-DEMO-1001	4	Q	16	
		1371-MOBL-1001	2	Q	8	
		1371-MOBL-1003	4	SA	8	
		1371-DEMO-2001	5	Q	20	
		1371-DEMO-2002	4	Q	16	
		1371-DEMO-2007	1	SA	2	
		1371-DEMO-2008	1	SA	2	
		1371-DEMO-2009	1	SA	2	
		1371-DEMO-2010	1	SA	2	
		1371-DEMO-2011	1	SA	2	
		1371-DEMO-2012	1	SA	2	
		1371-DEMO-2013	1	SA	2	
		1371-DEMO-2014	1	A	1	

		1371-CMOB-2003	4	SA	8	
		1371-MOBL-2012	6	SA	12	
	MN52					**139**
1371	**MN79**	1371-MOBL-2011	1	SA	2	**2**
1302	**MN88**	1302-DEMO-1003	3	Q	12	
		1302-MOBL-1010	1	SA	2	
1371	**MN88**	1371-MOBL-1003	3	SA	6	
		1371-DEMO-2001	3	Q	12	
		1371-DEMO-2002	1	Q	4	
		1371-MOBL-2012	2	SA	4	
		1371-MOBL-2023	1	SA	2	
	MN88					**42**
1302	**MN90**	1302-MOBL-1010	1	SA	2	
1371	**MN90**	1371-MOBL-1003	3	SA	6	
		1371-DEMO-2002	1	Q	4	
		1371-MOBL-2023	1	SA	2	
	MN90					

C003. COURSE OF FIRE ALLOCATIONS FOR CREW SERVED WEAPON SYSTEMS SUSTAINMENT/PROFICIENCY				
M249		**DODIC**		
	Course of Fire:	**A064**		
	Basic	192		
	Table I	168		
	Bi-Pod	36		
	Zero Optics	30		
	Zero Optics	30		
TOTAL		**456**		
M240		**DODIC**		
		A135	**A131**	
	Load	6		
	Remedial/Immediate			
	Actions	6		
	Zero		30	
	Table I		168	
	Basic Course		192	
	Table II		252	
	Night Vision		144	
	Zero Optics		30	
	Zero Optics		30	
	Bipod		36	
TOTAL		**12**	**882**	
M2		**A576**	**A560**	
	Load		10	
	Remedial/Immediate Actions			
			10	
	Zero	28		

	10m Basic TI	210		
	Table II	168		
	Ring Mount (T IV)	168		
	Zero Optics	30		
TOTAL		**604**	**20**	
MK-19		**DODIC**		
		B472	**B542**	**BA21**
	Load	10		
	Remedial/Immediate Actions			
		10		
	Zero		32	
	Table I		128	
	R6 Card (Table III)		64	
	Ring Mount		30	
	Zero Optics			32
TOTAL		**20**	**254**	**32**
SMAW		**DODIC**		
		AX11	**HX07**	**HX05**
	TS Spot Rifle	6		
	Zero Day	12		
	Engage Day		2	1
	Zero Night	12		
	Engage Night		2	1
TOTAL		**30**	**4**	**2**

C004. CREW SERVED WEAPON SUSTAINMENT/PROFICIENCY ALLOCATIONS

DODIC	EVENT	QTY	# OF WEAPONS TEAMS	SUSTAINMENT INTERVAL	ANNUAL TOTAL	DODIC TOTAL
COMBAT ASSAULT BATTALION						
A064	CAB-MOBL-3008	456	15	Q	27360	**27360**
A131	CAB-MOBL-3008	882	15	Q	52920	**52920**
A135	CAB-MOBL-3008	12	15	Q	720	**720**
A560	CAB-MOBL-3009	20	14	SA	560	**560**
A576	CAB-MOBL-3009	604	14	SA	16912	**16912**
AX11	CAB-MOBL-3001	30	9	A	270	**270**
B472	CAB-MOBL-3009	20	14	SA	560	**560**
B542	CAB-MOBL-3009	254	14	SA	7112	**7112**
BA21	CAB-MOBL-3009	32	14	SA	896	**896**
HX05	CAB-MOBL-3001	2	9	A	18	**18**
HX07	CAB-MOBL-3001	4	9	A	36	**36**
COMBAT ENGINEER BATTALION						
A011	CEB-MOBL-3003	10	48	SA	960	**960**
A023	CEB-MOBL-3003	10	48	SA	960	**960**
A064	CEB-MOBL-3009	456	43	Q	78432	**78432**
A131	CEB-MOBL-3009	882	49	Q	172872	**172872**
A135	CEB-MOBL-3009	12	49	Q	2352	**2352**
A560	CEB-MOBL-3010	20	16	SA	640	**640**
A576	CEB-MOBL-3010	604	16	SA	19328	**19328**
AA54	CEB-MOBL-3003	10	48	SA	960	**960**

A555	CEB-MOBL-3002	20	5	A	100	**100**
AX11	CEB-MOBL-3001	30	36	A	1080	**1080**
B472	CEB-MOBL-3010	20	8	SA	320	**320**
B542	CEB-MOBL-3010	254	8	SA	4064	**4064**
BA21	CEB-MOBL-3010	32	8	SA	512	**512**
HX05	CEB-MOBL-3001	2	36	A	72	**72**
HX07	CEB-MOBL-3001	4	36	A	144	**144**
COMBAT LOGISTICS BATTALION						
A111	CLB-MOBL-3002	100	6	SA	1200	**1200**
A131	CLB-MOBL-3002	900	6	SA	10800	**10800**
A576	CLB-MOBL-3003	650	6	Q	15600	**15600**
ENGINEER SUPPORT BATTALION						
A064	ESB-MOBL-3002	456	4	SA	3648	**3648**
A131	ESB-MOBL-3002	882	6	SA	10584	**10584**
A135	ESB-MOBL-3002	12	6	SA	144	**144**
A560	ESB-MOBL-3003	20	2	Q	160	**160**
A576	ESB-MOBL-3003	604	2	Q	4832	**4832**
B472	ESB-MOBL-3003	20	16	Q	1280	**1280**
B542	ESB-MOBL-3003	254	16	Q	16256	**16256**
BA21	ESB-MOBL-3003	32	16	Q	2048	**2048**

C005. COMBAT ASSAULT BATTALION, ENGINEER SUSTAINMENT/PROFICIENCY ALLOCATIONS

DODIC	EVENT	QTY	# OF TEAMS, SQUADS OR PLTS	SUSTAINMENT INTERVAL	ANNUAL TOTAL	DODIC TOTAL
A011	CAB-MOBL-3002	10	9	SA	180	**180**
A023	CAB-MOBL-3002	10	9	SA	180	**180**
A024	CAB-MOBL-3002	10	9	SA	180	**180**
AX11	CAB-MOBL-4001	24	3	SA	144	
	CAB-MOBL-4002	24	3	SA	144	
	CAB-MOBL-4003	24	3	SA	144	
AX11						**432**
HX05	CAB-MOBL-4001	4	3	SA	24	
	CAB-MOBL-4002	4	3	SA	24	
	CAB-MOBL-4003	4	3	SA	24	
HX05						**72**
J143	CAB-MOBL-4001	4	3	SA	24	
	CAB-MOBL-4002	4	3	SA	24	
	CAB-MOBL-4003	4	3	SA	24	
	CAB-MOBL-4008	3	3	A	9	
	CAB-MOBL-3003	4	9	A	36	
	CAB-MOBL-3005	4	3	A	12	
	CAB-MOBL-3013	3	3	A	9	
J143						**138**

L495	CAB-CMOB-4001	4	3	SA	24	
	CAB-CMOB-4002	6	3	SA	36	
	CAB-RECN-4004	4	3	SA	24	
	CAB-CMOB-3002	2	9	SA	36	
L495						**120**
L598	CAB-CMOB-4001	4	3	SA	24	
	CAB-RECN-4004	4	3	SA	24	
L598						**48**
M023	CAB-CMOB-4003	20	3	SA	120	
	CAB-MOBL-4011	30	3	SA	180	
	CAB-MOBL-3010	10	1	A	10	
M023						**310**
M028	CAB-MOBL-4001	1	3	SA	6	
	CAB-MOBL-4002	1	3	SA	6	
	CAB-MOBL-4003	1	3	SA	6	
	CAB-MOBL-4004	1	3	A	3	
	CAB-MOBL-4008	1	1	A	1	
	CAB-DEMO-3001	1	9	A	9	
	CAB-DEMO-3002	1	9	A	9	
	CAB-DEMO-3003	1	9	A	9	
	CAB-DEMO-3004	1	9	A	9	
	CAB-MOBL-3003	1	9	A	9	
	CAB-MOBL-3013	1	1	A	1	
M028						**68**
M032	CAB-CMOB-4001	10	3	SA	60	
	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-4003	10	3	SA	60	
	CAB-MOBL-4001	10	3	SA	60	
	CAB-MOBL-4002	10	3	SA	60	
	CAB-MOBL-4003	10	3	SA	60	
	CAB-MOBL-4004	10	3	A	30	
	CAB-MOBL-4005	10	3	Q	120	
	CAB-MOBL-4008	10	3	A	30	
	CAB-MOBL-4011	30	3	SA	180	
	CAB-RECN-4004	10	3	SA	60	
	CAB-SURV-4006	20	3	A	60	
	CAB-CMOB-3001	20	9	SA	360	
	CAB-CMOB-3002	4	9	SA	36	
	CAB-CMOB-3003	20	9	SA	180	
	CAB-DEMO-3001	3	9	A	27	
	CAB-DEMO-3002	3	9	A	27	
	CAB-DEMO-3003	3	9	A	27	
	CAB-DEMO-3004	3	9	A	27	
	CAB-MOBL-3003	20	9	A	180	
	CAB-MOBL-3004	20	9	A	180	
	CAB-MOBL-3010	10	9	A	90	
	CAB-MOBL-3012	10	9	A	90	
	CAB-MOBL-3013	7	9	A	63	

	CAB-RECN-3003	20	9	Q	720	
M032						**2769**
M039	CAB-CMOB-4001	1	3	SA	6	
	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-4003	10	3	SA	60	
	CAB-RECN-4004	1	3	SA	6	
	CAB-CMOB-3001	1	9	SA	18	
	CAB-CMOB-3002	4	9	SA	36	
	CAB-CMOB-3003	1	9	SA	9	
	CAB-DEMO-3001	3	9	A	27	
	CAB-DEMO-3002	3	9	A	27	
	CAB-DEMO-3003	3	9	A	27	
	CAB-DEMO-3004	3	9	A	27	
	CAB-RECN-3003	1	9	Q	36	
M039						**351**
M130	CAB-CMOB-4001	10	3	SA	60	
	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-4003	6	3	SA	36	
	CAB-MOBL-4001	10	3	SA	60	
	CAB-MOBL-4002	10	3	SA	60	
	CAB-MOBL-4003	10	3	SA	60	
	CAB-MOBL-4004	10	3	A	30	
	CAB-MOBL-4005	30	3	Q	360	
	CAB-MOBL-4008	10	3	A	30	
	CAB-MOBL-4011	10	3	SA	60	
	CAB-RECN-4004	10	3	SA	60	
	CAB-SURV-4006	10	3	A	30	
	CAB-CMOB-3001	20	9	SA	360	
	CAB-CMOB-3002	6	9	SA	54	
	CAB-CMOB-3003	20	9	SA	360	
	CAB-DEMO-3001	5	9	A	45	
	CAB-DEMO-3002	5	9	A	45	
	CAB-DEMO-3003	5	9	A	45	
	CAB-DEMO-3004	5	9	A	45	
	CAB-MOBL-3002	20	9	SA	360	
	CAB-MOBL-3003	60	9	A	540	
	CAB-MOBL-3004	60	9	A	540	
	CAB-MOBL-3010	6	9	A	54	
	CAB-MOBL-3012	30	9	A	270	
	CAB-MOBL-3013	10	9	A	90	
	CAB-RECN-3003	20	9	Q	720	
M130						**4446**
M131	CAB-CMOB-4001	20	3	SA	120	
	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-4003	6	3	SA	36	
	CAB-MOBL-4001	20	3	SA	120	
	CAB-MOBL-4002	20	3	SA	120	
	CAB-MOBL-4003	20	3	SA	120	
	CAB-MOBL-4004	20	3	A	60	

	CAB-MOBL-4008	20	3	A	60	
	CAB-MOBL-4011	20	3	SA	120	
	CAB-RECN-4004	20	3	SA	120	
	CAB-SURV-4006	20	3	A	60	
	CAB-CMOB-3001	20	9	SA	360	
	CAB-CMOB-3002	6	9	SA	108	
	CAB-CMOB-3003	10	9	SA	180	
	CAB-DEMO-3001	5	9	A	45	
	CAB-DEMO-3002	5	9	A	45	
	CAB-DEMO-3003	5	9	A	45	
	CAB-DEMO-3004	5	9	A	45	
	CAB-MOBL-3010	6	9	A	54	
	CAB-MOBL-3013	10	9	A	90	
	CAB-RECN-3003	10	9	Q	360	
M131						**2518**
M327	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-3002	6	9	SA	108	
M327						**180**
M420	CAB-CMOB-4001	1	3	SA	6	
	CAB-CMOB-4003	5	3	SA	30	
	CAB-RECN-4004	1	3	SA	6	
	CAB-CMOB-3001	1	9	SA	18	
	CAB-CMOB-3003	1	9	SA	18	
	CAB-DEMO-3001	1	9	A	9	
	CAB-DEMO-3002	1	9	A	9	
	CAB-DEMO-3003	1	9	A	9	
	CAB-DEMO-3004	1	9	A	9	
	CAB-RECN-3003	1	9	Q	36	
M420						**150**
M421	CAB-CMOB-4001	1	3	SA	6	
	CAB-CMOB-4002	8	3	SA	48	
	CAB-CMOB-4003	10	3	SA	60	
	CAB-RECN-4004	1	3	SA	6	
	CAB-CMOB-3001	1	9	SA	18	
	CAB-CMOB-3002	4	9	SA	72	
	CAB-CMOB-3003	1	9	SA	18	
	CAB-RECN-3003	1	9	Q	36	
M421						**264**
M456	CAB-CMOB-4001	1500	3	SA	9000	
	CAB-CMOB-4002	1000	3	SA	6000	
	CAB-CMOB-4003	1000	3	SA	6000	
	CAB-MOBL-4001	1500	3	SA	9000	
	CAB-MOBL-4002	1500	3	SA	9000	
	CAB-MOBL-4003	1500	3	SA	9000	
	CAB-MOBL-4004	1500	3	A	4500	
	CAB-MOBL-4005	2000	3	Q	24000	
	CAB-MOBL-4008	1500	3	A	4500	
	CAB-MOBL-4011	2000	3	SA	12000	

	CAB-RECN-4004	1500	3	SA	9000	
	CAB-SURV-4006	2000	3	A	6000	
	CAB-CMOB-3001	1000	9	SA	18000	
	CAB-CMOB-3002	1000	9	SA	18000	
	CAB-CMOB-3003	1000	9	SA	18000	
	CAB-DEMO-3001	250	9	A	2250	
	CAB-DEMO-3002	250	9	A	2250	
	CAB-DEMO-3003	250	9	A	2250	
	CAB-DEMO-3004	250	9	A	2250	
	CAB-MOBL-3002	1000	9	SA	9000	
	CAB-MOBL-3003	1500	9	A	13500	
	CAB-MOBL-3004	1000	9	A	9000	
	CAB-MOBL-3010	1000	9	A	9000	
	CAB-MOBL-3012	2000	9	A	18000	
	CAB-MOBL-3013	1500	3	A	4500	
	CAB-RECN-3003	1000	9	A	9000	
M456						**246000**
M591	CAB-CMOB-4001	10	3	SA	60	
	CAB-CMOB-4002	10	3	SA	60	
	CAB-CMOB-4003	10	3	SA	60	
	CAB-MOBL-4011	20	3	SA	120	
	CAB-RECN-4004	10	3	SA	60	
	CAB-SURV-4006	30	3	A	90	
	CAB-CMOB-3001	10	9	SA	180	
	CAB-CMOB-3002	6	9	SA	54	
	CAB-CMOB-3003	10	9	SA	180	
	CAB-DEMO-3001	6	9	A	54	
	CAB-DEMO-3002	6	9	A	54	
	CAB-DEMO-3003	6	9	A	54	
	CAB-DEMO-3004	6	9	A	54	
	CAB-MOBL-3010	20	9	A	180	
	CAB-RECN-3003	10	9	Q	360	
M591						**1980**
M670	CAB-CMOB-4001	500	3	SA	3000	
	CAB-CMOB-4002	500	3	SA	3000	
	CAB-CMOB-4003	500	3	SA	3000	
	CAB-MOBL-4001	500	3	SA	3000	
	CAB-MOBL-4002	500	3	SA	3000	
	CAB-MOBL-4003	500	3	SA	3000	
	CAB-MOBL-4004	500	3	A	1500	
	CAB-MOBL-4005	250	3	Q	3000	
	CAB-MOBL-4008	500	3	A	1500	
	CAB-MOBL-4011	1000	3	SA	6000	
	CAB-RECN-4004	500	3	SA	3000	
	CAB-SURV-4006	500	3	A	1500	
	CAB-CMOB-3001	500	9	SA	9000	
	CAB-CMOB-3002	125	9	SA	2250	
	CAB-CMOB-3003	500	9	SA	4500	
	CAB-DEMO-3001	150	9	A	1350	
	CAB-DEMO-3002	150	9	A	1350	

	CAB-DEMO-3003	150	9	A	1350	
	CAB-DEMO-3004	150	9	A	1350	
	CAB-MOBL-3002	500	9	SA	9000	
	CAB-MOBL-3003	500	9	A	4500	
	CAB-MOBL-3004	500	9	A	4500	
	CAB-MOBL-3007	1500	9	A	13500	
	CAB-MOBL-3010	500	9	A	4500	
	CAB-MOBL-3012	250	9	A	2250	
	CAB-MOBL-3013	500	3	A	1500	
	CAB-RECN-3003	500	9	Q	18000	
M670						**114900**
M757	CAB-CMOB-4001	2	3	SA	12	
	CAB-CMOB-4002	6	3	SA	18	
	CAB-MOBL-4001	2	3	SA	12	
	CAB-MOBL-4002	2	3	SA	12	
	CAB-MOBL-4003	2	3	SA	12	
	CAB-MOBL-4004	2	3	A	6	
	CAB-MOBL-4005	2	3	Q	24	
	CAB-MOBL-4008	2	3	A	6	
	CAB-RECN-4004	2	3	SA	12	
	CAB-CMOB-3001	1	9	SA	18	
	CAB-CMOB-3002	2	9	SA	36	
	CAB-CMOB-3003	1	9	SA	9	
	CAB-DEMO-3001	1	9	A	9	
	CAB-DEMO-3002	1	9	A	9	
	CAB-DEMO-3003	1	9	A	9	
	CAB-DEMO-3004	1	9	A	9	
	CAB-MOBL-3002	1	9	SA	18	
	CAB-MOBL-3003	2	9	A	18	
	CAB-MOBL-3004	2	9	A	18	
	CAB-MOBL-3007	1	9	A	9	
	CAB-MOBL-3012	2	9	A	18	
	CAB-MOBL-3013	2	3	A	6	
	CAB-RECN-3003	1	9	Q	36	
M757						**345**
M913	CAB-MOBL-4001	1	3	SA	6	
	CAB-MOBL-4002	1	3	SA	6	
	CAB-MOBL-4003	1	3	SA	6	
	CAB-MOBL-4008	2	3	A	6	
	CAB-MOBL-3003	1	9	A	9	
	CAB-MOBL-3005	1	3	A	3	
	CAB-MOBL-3013	6	3	A	18	
M913						**54**
M914	CAB-MOBL-4001	2	3	SA	12	
	CAB-MOBL-4002	2	3	SA	12	
	CAB-MOBL-4003	2	3	SA	12	
	CAB-MOBL-4008	1	3	A	3	
	CAB-MOBL-3003	2	9	A	18	
	CAB-MOBL-3005	2	3	A	6	

	CAB-MOBL-3013	3	3	A	9	
M914						**72**
M982	CAB-DEMO-3001	6	9	A	54	
	CAB-DEMO-3002	6	9	A	54	
	CAB-DEMO-3003	6	9	A	54	
	CAB-DEMO-3004	6	9	A	54	
	CAB-MOBL-3002	1	9	SA	18	
M982						**234**
ML03	CAB-CMOB-4001	2	3	SA	12	
	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-4003	6	3	SA	36	
	CAB-MOBL-4001	2	3	SA	12	
	CAB-MOBL-4002	2	3	SA	12	
	CAB-MOBL-4003	2	3	SA	12	
	CAB-MOBL-4004	2	3	A	6	
	CAB-MOBL-4008	2	3	A	6	
	CAB-MOBL-4011	10	3	SA	60	
	CAB-RECN-4004	2	3	SA	12	
	CAB-SURV-4006	10	3	A	30	
	CAB-CMOB-3002	4	9	SA	72	
	CAB-MOBL-3013	2	3	A	6	
Ml03						**348**
MM30	CAB-DEMO-3001	4	9	A	36	
	CAB-DEMO-3002	4	9	A	36	
	CAB-DEMO-3003	4	9	A	36	
	CAB-DEMO-3004	4	9	A	36	
						144
MM44	CAB-DEMO-3001	1	9	A	9	
	CAB-DEMO-3002	1	9	A	9	
	CAB-DEMO-3003	1	9	A	9	
	CAB-DEMO-3004	1	9	A	9	
MM44						**36**
MM45	CAB-DEMO-3001	1	9	A	9	
	CAB-DEMO-3002	1	9	A	9	
	CAB-DEMO-3003	1	9	A	9	
	CAB-DEMO-3004	1	9	A	9	
MM45						**36**
MM47	CAB-DEMO-3001	1	9	A	9	
	CAB-DEMO-3002	1	9	A	9	
	CAB-DEMO-3003	1	9	A	9	
	CAB-DEMO-3004	1	9	A	9	
	CAB-MOBL-3002	5	9	SA	90	
MM47						**126**
MM48	CAB-DEMO-3001	1	9	A	9	
	CAB-DEMO-3002	1	9	A	9	

	CAB-DEMO-3003	1	9	A	9	
	CAB-DEMO-3004	1	9	A	9	
MM48						**36**
MM56	CAB-MOBL-3002	10	9	SA	180	**180**
MN08	CAB-CMOB-4001	35	3	SA	210	
	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-4003	6	3	SA	36	
	CAB-MOBL-4001	35	3	SA	210	
	CAB-MOBL-4002	35	3	SA	210	
	CAB-MOBL-4003	35	3	SA	210	
	CAB-MOBL-4004	35	3	A	105	
	CAB-MOBL-4005	25	3	Q	300	
	CAB-MOBL-4008	35	3	A	105	
	CAB-MOBL-4011	30	3	SA	180	
	CAB-RECN-4004	35	3	SA	210	
	CAB-SURV-4006	20	3	A	60	
	CAB-CMOB-3001	20	9	SA	360	
	CAB-CMOB-3002	6	9	SA	54	
	CAB-CMOB-3003	20	9	SA	360	
	CAB-DEMO-3001	15	9	A	135	
	CAB-DEMO-3002	15	9	A	135	
	CAB-DEMO-3003	15	9	A	135	
	CAB-DEMO-3004	15	9	A	135	
	CAB-MOBL-3002	40	9	SA	720	
	CAB-MOBL-3003	100	9	A	900	
	CAB-MOBL-3004	100	9	A	900	
	CAB-MOBL-3007	40	9	A	360	
	CAB-MOBL-3010	10	9	A	90	
	CAB-MOBL-3012	2	9	A	18	
	CAB-MOBL-3013	20	3	A	60	
	CAB-RECN-3003	20	9	Q	720	
MN08						**7160**
MN14	CAB-CMOB-4002	12	3	SA	72	
	CAB-CMOB-3002	4	9	SA	72	
	CAB-MOBL-3002	2	9	SA	36	
MN14						**180**
MN52	CAB-CMOB-4002	8	3	SA	48	
	CAB-CMOB-4003	8	3	SA	48	
	CAB-MOBL-4008	10	3	A	30	
	CAB-MOBL-4011	10	3	SA	60	
	CAB-SURV-4006	10	3	A	30	
	CAB-CMOB-3002	4	9	SA	108	
	CAB-MOBL-3010	10	9	A	90	
	CAB-MOBL-3013	10	9	A	90	
MN52						**504**
MN79	CAB-MOBL-4001	1	3	SA	6	
	CAB-MOBL-4002	1	3	SA	6	

	CAB-MOBL-4003	1	3	SA	6	
	CAB-MOBL-4008	1	3	A	3	
	CAB-MOBL-3003	1	3	A	9	
	CAB-MOBL-3013	1	9	A	9	
MN79						**36**
MN88	CAB-MOBL-4005	5	3	Q	60	
	CAB-MOBL-3003	10	9	A	90	
	CAB-MOBL-3004	10	9	A	90	
	CAB-MOBL-3007	2	9	A	18	
	CAB-MOBL-3012	5	9	A	45	
MN88						**303**
MN90	CAB-MOBL-4005	10	3	Q	120	
	CAB-MOBL-3003	10	9	A	90	
	CAB-MOBL-3004	10	9	A	90	
	CAB-MOBL-3007	15	9	A	135	
	CAB-MOBL-3012	10	9	A	90	
MN90						**525**

C006. COMBAT ENGINEER BATTALION, SUSTAINMENT/PROFICIENCY ALLOCATIONS						
DODIC	**EVENT**	**QTY**	**# OF TEAMS, SQUADS, OR PLTS**	**SUSTAINMENT INTERVAL**	**ANNUAL TOTAL**	**DODIC TOTAL**
J007	CEB-CMOB-4001	1	33	SA	66	**66**
J143	CEB-MOBL-4001	4	33	SA	264	
	CEB-MOBL-4002	4	33	SA	264	
	CEB-MOBL-4003	4	33	SA	264	
	CEB-MOBL-4008	3	33	A	99	
	CEB-MOBL-3002	4	66	A	264	
	CEB-MOBL-3004	3	66	A	198	
	CEB-MOBL-3015	1	66	A	66	
J143						**1419**
L495	CEB-CMOB-4001	4	33	SA	264	
	CEB-CMOB-4002	6	33	SA	396	
	CEB-RECN-4004	4	33	Q	528	
	CEB-CMOB-3002	2	66	SA	264	
L495						**1452**
L598	CEB-CMOB-4001	4	33	SA	264	
	CEB-RECN-4004	4	33	Q	528	
L598						**792**
M023	CEB-CMOB-4003	20	33	SA	1320	
	CEB-MOBL-4011	30	33	SA	1980	
	CEB-RECN-4004	24	33	Q	3168	
	CEB-SURV-4006	20	33	A	660	
	CEB-MOBL-3011	10	33	Q	1320	
M023						**8448**

M028	CEB-MOBL-4001	1	33	SA	66	
	CEB-MOBL-4002	1	33	SA	66	
	CEB-MOBL-4003	1	33	SA	66	
	CEB-MOBL-4004	1	33	A	33	
	CEB-MOBL-4008	1	33	A	33	
	CEB-DEMO-3001	1	66	A	66	
	CEB-DEMO-3002	1	66	A	66	
	CEB-DEMO-3003	1	66	A	66	
	CEB-DEMO-3004	1	66	A	66	
	CEB-MOBL-3004	1	66	A	66	
	CEB-MOBL-3015	1	66	A	66	
M028						**660**
M032	CEB-CMOB-4001	10	33	SA	660	
	CEB-CMOB-4002	12	33	SA	792	
	CEB-CMOB-4003	10	33	SA	660	
	CEB-MOBL-4001	10	33	SA	660	
	CEB-MOBL-4002	10	33	SA	660	
	CEB-MOBL-4003	10	33	SA	660	
	CEB-MOBL-4004	10	33	A	330	
	CEB-MOBL-4005	10	33	Q	1320	
	CEB-MOBL-4008	10	33	A	330	
	CEB-MOBL-4011	30	33	SA	1980	
	CEB-RECN-4004	20	33	Q	3036	
	CEB-SURV-4006	20	33	A	660	
	CEB-CMOB-3001	20	66	SA	2640	
	CEB-CMOB-3002	4	66	SA	528	
	CEB-CMOB-3003	20	66	SA	2640	
	CEB-DEMO-3001	3	66	A	198	
	CEB-DEMO-3002	3	66	A	198	
	CEB-DEMO-3003	3	66	A	198	
	CEB-DEMO-3004	3	66	A	198	
	CEB-MOBL-3004	20	66	A	1320	
	CEB-MOBL-3005	20	66	A	1320	
	CEB-MOBL-3011	10	66	Q	2640	
	CEB-MOBL-3014	10	66	A	660	
	CEB-MOBL-3015	7	66	A	462	
	CEB-RECN-3003	20	66	Q	5280	
M032						**29470**
M039	CEB-CMOB-4001	1	33	SA	66	
	CEB-CMOB-4002	12	33	SA	792	
	CEB-CMOB-4003	10	33	SA	660	
	CEB-RECN-4004	1	33	Q	132	
	CEB-CMOB-3001	1	66	SA	132	
	CEB-CMOB-3002	4	66	SA	528	
	CEB-CMOB-3003	1	66	SA	132	
	CEB-DEMO-3001	3	66	A	198	
	CEB-DEMO-3002	3	66	A	198	
	CEB-DEMO-	3	66	A	198	

	3003					
	CEB-DEMO-3004	3	66	A	198	
	CEB-RECN-3003	1	66	A	66	
M039						**3300**
M130	CEB-CMOB-4001	10	33	SA	660	
	CEB-CMOB-4002	12	33	SA	792	
	CEB-CMOB-4003	6	33	SA	396	
	CEB-MOBL-4001	10	33	SA	660	
	CEB-MOBL-4002	10	33	SA	660	
	CEB-MOBL-4003	10	33	SA	660	
	CEB-MOBL-4004	10	33	A	330	
	CEB-MOBL-4005	30	33	Q	3960	
	CEB-MOBL-4008	10	33	A	330	
	CEB-MOBL-4011	10	33	SA	660	
	CEB-RECN-4004	10	33	Q	1320	
	CEB-SURV-4006	10	33	A	330	
	CEB-CMOB-3001	20	66	SA	2640	
	CEB-CMOB-3002	6	66	SA	792	
	CEB-CMOB-3003	20	66	SA	2640	
	CEB-DEMO-3001	5	66	A	330	
	CEB-DEMO-3002	5	66	A	330	
	CEB-DEMO-3003	5	66	A	330	
	CEB-DEMO-3004	5	66	A	330	
	CEB-MOBL-3003	20	66	SA	2640	
	CEB-MOBL-3004	60	66	A	3960	
	CEB-MOBL-3005	60	66	A	3960	
	CEB-MOBL-3011	6	66	Q	1584	
	CEB-MOBL-3014	30	66	A	1980	
	CEB-MOBL-3015	7	66	A	462	
	CEB-RECN-3003	20	66	Q	5280	
M130						**35288**
M131	CEB-CMOB-4001	20	33	SA	1320	
	CEB-CMOB-4002	12	33	SA	792	
	CEB-CMOB-4003	6	33	SA	396	
	CEB-MOBL-4001	20	33	SA	1320	
	CEB-MOBL-4002	20	33	SA	1320	
	CEB-MOBL-4003	20	33	SA	1320	
	CEB-MOBL-4004	20	33	A	660	
	CEB-MOBL-4008	20	33	A	660	
	CEB-MOBL-4011	20	33	SA	660	
	CEB-RECN-4004	20	33	Q	2640	
	CEB-SURV-4006	20	33	A	660	
	CEB-CMOB-3001	20	66	SA	2640	
	CEB-CMOB-3002	6	66	SA	792	
	CEB-CMOB-3003	10	66	SA	1320	
	CEB-DEMO-3001	5	66	A	330	
	CEB-DEMO-3002	5	66	A	330	
	CEB-DEMO-3003	5	66	A	330	
	CEB-DEMO-3004	5	66	A	330	
	CEB-MOBL-3011	6	66	Q	1584	

	CEB-MOBL-3015	3	66	A	198	
	CEB-RECN-3003	4	66	Q	1056	
M131						**20658**
M327	CEB-CMOB-4002	12	33	SA	792	
	CEB-CMOB-3002	6	66	SA	792	
M327						**1584**
M420	CEB-CMOB-4001	1	33	SA	66	
	CEB-CMOB-4003	5	33	SA	330	
	CEB-RECN-4004	1	33	Q	132	
	CEB-CMOB-3001	1	66	SA	132	
	CEB-CMOB-3003	1	66	SA	132	
	CEB-RECN-3003	1	66	Q	264	
	CEB-DEMO-3001	1	66	A	66	
	CEB-DEMO-3002	1	66	A	66	
	CEB-DEMO-3003	1	66	A	66	
	CEB-DEMO-3004	1	66	A	66	
M420						**1320**
M421	CEB-CMOB-4001	1	33	SA	66	
	CEB-CMOB-4002	8	33	SA	528	
	CEB-CMOB-4003	10	33	SA	660	
	CEB-RECN-4004	1	33	Q	132	
	CEB-CMOB-3001	1	66	SA	132	
	CEB-CMOB-3002	4	66	SA	528	
	CEB-CMOB-3003	1	66	SA	132	
	CEB-RECN-3003	1	66	Q	264	
M421						**2178**
M456	CEB-CMOB-4001	1500	33	SA	99000	
	CEB-CMOB-4002	1000	33	SA	66000	
	CEB-CMOB-4003	1000	33	SA	66000	
	CEB-MOBL-4001	1500	33	SA	99000	
	CEB-MOBL-4002	1500	33	SA	99000	
	CEB-MOBL-4003	1500	33	SA	99000	
	CEB-MOBL-4004	1500	33	A	49500	
	CEB-MOBL-4005	2000	33	Q	264000	
	CEB-MOBL-4008	1500	33	A	49500	
	CEB-MOBL-4011	2000	33	SA	132000	
	CEB-RECN-4004	1500	33	Q	198000	
	CEB-SURV-4006	2000	33	A	66000	
	CEB-CMOB-3001	1000	66	SA	132000	
	CEB-CMOB-3002	250	66	SA	33000	
	CEB-CMOB-3003	1000	66	SA	132000	
	CEB-DEMO-3001	250	66	A	16500	
	CEB-DEMO-3002	250	66	A	16500	
	CEB-DEMO-3003	250	66	A	16500	
	CEB-DEMO-3004	250	66	A	16500	
	CEB-MOBL-3003	1000	66	SA	132000	
	CEB-MOBL-3004	1500	66	A	99000	
	CEB-MOBL-3005	1000	66	A	66000	

	CEB-MOBL-3011	1000	66	Q	264000	
	CEB-MOBL-3014	2000	66	A	132000	
	CEB-MOBL-3015	1000	66	A	66000	
	CEB-RECN-3003	1000	66	Q	264000	
M456						**2387000**
M591	CEB-CMOB-4001	10	33	SA	660	
	CEB-CMOB-4002	10	33	SA	660	
	CEB-CMOB-4003	10	33	SA	660	
	CEB-MOBL-4011	20	33	SA	1320	
	CEB-RECN-4004	10	33	Q	1320	
	CEB-SURV-4006	30	33	A	990	
	CEB-CMOB-3001	10	66	SA	1320	
	CEB-CMOB-3002	6	66	SA	792	
	CEB-CMOB-3003	10	66	SA	1320	
	CEB-DEMO-3001	6	66	A	396	
	CEB-DEMO-3002	6	66	A	396	
	CEB-DEMO-3003	6	66	A	396	
	CEB-DEMO-3004	6	66	A	396	
	CEB-MOBL-3011	20	66	Q	5280	
	CEB-RECN-3003	10	66	Q	2640	
M591						**17326**
M670	CEB-CMOB-4001	500	33	SA	33000	
	CEB-CMOB-4002	500	33	SA	33000	
	CEB-CMOB-4003	500	33	SA	33000	
	CEB-MOBL-4001	500	33	SA	33000	
	CEB-MOBL-4002	500	33	SA	33000	
	CEB-MOBL-4003	500	33	SA	33000	
	CEB-MOBL-4004	500	33	A	16500	
	CEB-MOBL-4005	250	33	Q	33000	
	CEB-MOBL-4008	500	33	A	16500	
	CEB-MOBL-4011	1000	33	SA	66000	
	CEB-RECN-4004	500	33	Q	66000	
	CEB-SURV-4006	500	33	A	16500	
	CEB-CMOB-3001	500	33	SA	33000	
	CEB-CMOB-3002	125	66	SA	16500	
	CEB-CMOB-3003	500	66	SA	66000	
	CEB-DEMO-3001	150	66	A	9900	
	CEB-DEMO-3002	150	66	A	9900	
	CEB-DEMO-3003	150	66	A	9900	
	CEB-DEMO-3004	150	66	A	9900	
	CEB-MOBL-3003	500	66	SA	66000	
	CEB-MOBL-3004	500	66	A	33000	
	CEB-MOBL-3005	500	66	A	33000	
	CEB-MOBL-3008	250	66	A	16500	
	CEB-MOBL-3011	500	66	Q	132000	
	CEB-MOBL-3014	250	66	A	16500	
	CEB-MOBL-3015	250	66	A	16500	
	CEB-RECN-3003	250	66	Q	132000	
M670						**1013100**

M757	CEB-CMOB-4001	2	33	SA	132	
	CEB-CMOB-4002	6	33	SA	396	
	CEB-MOBL-4001	2	33	SA	132	
	CEB-MOBL-4002	2	33	SA	132	
	CEB-MOBL-4003	2	33	SA	132	
	CEB-MOBL-4004	2	33	A	66	
	CEB-MOBL-4005	2	33	Q	264	
	CEB-MOBL-4008	2	33	A	66	
	CEB-RECN-4004	2	33	Q	264	
	CEB-CMOB-3001	1	66	SA	132	
	CEB-CMOB-3002	2	66	SA	264	
	CEB-CMOB-3003	1	66	SA	132	
	CEB-DEMO-3001	1	66	A	66	
	CEB-DEMO-3002	1	66	A	66	
	CEB-DEMO-3003	1	66	A	66	
	CEB-DEMO-3004	1	66	A	66	
	CEB-MOBL-3003	1	66	SA	132	
	CEB-MOBL-3004	2	66	A	132	
	CEB-MOBL-3005	2	66	A	132	
	CEB-MOBL-3008	1	66	A	66	
	CEB-MOBL-3014	2	66	A	132	
	CEB-MOBL-3015	2	66	A	132	
	CEB-RECN-3003	1	66	A	66	
M757						**3150**
M913	CEB-MOBL-4001	1	33	SA	66	
	CEB-MOBL-4002	1	33	SA	66	
	CEB-MOBL-4003	1	33	SA	66	
	CEB-MOBL-4008	2	33	A	66	
	CEB-MOBL-3002	2	66	A	132	
	CEB-MOBL-3004	1	66	A	66	
	CEB-MOBL-3015	2	66	A	132	
M913						**594**
M914	CEB-MOBL-4001	2	33	SA	132	
	CEB-MOBL-4002	2	33	SA	132	
	CEB-MOBL-4003	2	33	SA	132	
	CEB-MOBL-4008	1	33	A	33	
	CEB-MOBL-3002	2	66	A	132	
	CEB-MOBL-3004	2	66	A	132	
M914						**693**
M982	CEB-DEMO-3001	6	66	A	396	
	CEB-DEMO-3002	6	66	A	396	
	CEB-DEMO-3003	6	66	A	396	
	CEB-DEMO-3004	6	66	A	396	
	CEB-MOBL-3003	1	66	SA	132	
M982						**1716**
ML03	CEB-CMOB-4001	2	33	SA	132	
	CEB-CMOB-4002	12	33	SA	792	

	CEB-CMOB-4003	6	33	SA	396	
	CEB-MOBL-4001	2	33	SA	132	
	CEB-MOBL-4002	2	33	SA	132	
	CEB-MOBL-4003	2	33	SA	132	
	CEB-MOBL-4004	2	33	A	66	
	CEB-MOBL-4008	2	33	A	66	
	CEB-MOBL-4011	10	33	SA	660	
	CEB-RECN-4004	2	66	Q	528	
	CEB-SURV-4006	10	33	A	330	
	CEB-CMOB-3002	4	66	SA	528	
	CEB-MOBL-3015	2	66	A	132	
ML03						**4026**
MM30	CEB-DEMO-3001	4	66	A	264	
	CEB-DEMO-3002	4	66	A	264	
	CEB-DEMO-3003	4	66	A	264	
	CEB-DEMO-3004	4	66	A	264	
MM30						**1056**
MM44	CEB-DEMO-3001	1	66	A	66	
	CEB-DEMO-3002	1	66	A	66	
	CEB-DEMO-3003	1	66	A	66	
	CEB-DEMO-3004	1	66	A	66	
MM44						**264**
MM45	CEB-DEMO-3001	1	66	A	66	
	CEB-DEMO-3002	1	66	A	66	
	CEB-DEMO-3003	1	66	A	66	
	CEB-DEMO-3004	1	66	A	66	
MM45						**264**
MM47	CEB-DEMO-3001	1	66	A	66	
	CEB-DEMO-3002	1	66	A	66	
	CEB-DEMO-3003	1	66	A	66	
	CEB-DEMO-3004	1	66	A	66	
	CEB-MOBL-3003	5	66	SA	660	
						924
MM48	CEB-DEMO-3001	1	66	A	66	
	CEB-DEMO-3002	1	66	A	66	
	CEB-DEMO-3003	1	66	A	66	
	CEB-DEMO-3004	1	66	A	66	
MM48						**264**
MM56	CEB-MOBL-3003	10	66	SA	1320	**1320**
MN08	CEB-CMOB-4001	35	33	SA	2310	
	CEB-CMOB-4002	12	33	SA	792	
	CEB-CMOB-4003	6	33	SA	396	
	CEB-MOBL-4001	35	33	SA	2310	
	CEB-MOBL-4002	35	33	SA	2310	
	CEB-MOBL-4003	35	33	SA	2310	

	CEB-MOBL-4004	35	33	A	1155	
	CEB-MOBL-4005	25	33	Q	3300	
	CEB-MOBL-4008	35	33	A	1155	
	CEB-MOBL-4011	30	33	SA	1980	
	CEB-RECN-4004	35	33	Q	4620	
	CEB-SURV-4006	20	33	A	660	
	CEB-CMOB-3001	20	66	SA	2640	
	CEB-CMOB-3002	6	66	SA	792	
	CEB-CMOB-3003	20	66	SA	2640	
	CEB-DEMO-3001	15	66	A	990	
	CEB-DEMO-3002	15	66	A	990	
	CEB-DEMO-3003	15	66	A	990	
	CEB-DEMO-3004	15	66	A	990	
	CEB-MOBL-3003	40	66	SA	5280	
	CEB-MOBL-3004	100	66	A	6600	
	CEB-MOBL-3005	100	66	A	6600	
	CEB-MOBL-3008	5	66	A	330	
	CEB-MOBL-3011	10	66	Q	2640	
	CEB-MOBL-3014	2	66	A	132	
	CEB-MOBL-3015	17	66	A	1122	
	CEB-RECN-3003	20	66	Q	5280	
MN08						**61394**
MN14	CEB-CMOB-4002	12	33	SA	792	
	CEB-CMOB-3002	4	66	SA	528	
	CEB-MOBL-3003	2	66	SA	264	
MN14						**1584**
MN52	CEB-CMOB-4002	8	33	SA	528	
	CEB-MOBL-4008	10	33	A	330	
	CEB-MOBL-4011	10	33	SA	660	
	CEB-SURV-4006	10	33	A	330	
	CEB-CMOB-3002	4	66	SA	528	
	CEB-MOBL-3008	6	66	A	396	
	CEB-MOBL-3011	10	66	Q	2640	
	CEB-MOBL-3015	10	66	A	660	
MN52						**6402**
MN79	CEB-MOBL-4001	1	33	SA	66	
	CEB-MOBL-4002	1	33	SA	66	
	CEB-MOBL-4003	1	33	SA	66	
	CEB-MOBL-4008	1	33	A	33	
	CEB-MOBL-3004	1	66	A	66	
	CEB-MOBL-3015	1	66	A	66	
MN79						**363**
MN88	CEB-MOBL-4005	5	33	Q	660	
	CEB-MOBL-3004	5	66	A	330	
	CEB-MOBL-3005	10	66	A	660	
	CEB-MOBL-3008	5	66	A	330	
	CEB-MOBL-3014	5	66	A	330	
MN88						**2310**

MN90	CEB-MOBL-4005	10	33	Q	1320	
	CEB-MOBL-3004	10	66	A	660	
	CEB-MOBL-3005	10	66	A	660	
	CEB-MOBL-3008	10	66	A	660	
	CEB-MOBL-3014	10	66	A	660	
MN90						**3960**

C007. DIRECT SUPPORT COMBAT LOGISTICS BATTALION, SUSTAINMENT/PROFICIENCY ALLOCATIONS

DODIC	EVENT	QTY	# OF TEAMS, SQUADS, OR PLTS	SUSTAINMENT INTERVAL	ANNUAL TOTAL	DODIC TOTAL
J007	CLB-CMOB-3001	2	3	SA	12	**12**
J143	CLB-MOBL-4003	3	3	A	9	
	CLB-MOBL-4005	4	3	A	12	
J143						**21**
L495	CLB-CMOB-4001	4	3	SA	24	
	CLB-CMOB-4002	6	3	SA	36	
	CLB-RECN-4002	4	3	A	12	
	CLB-CMOB-3002	2	10	Q	80	
L495						**152**
L598	CLB-CMOB-4001	4	3	SA	24	
	CLB-RECN-4002	4	3	A	12	
	CLB-CMOB-3002	10	10	SA	200	
L598						**236**
M023	CLB-CMOB-4003	20	3	SA	120	
	CLB-MOBL-4011	30	3	SA	180	
	CLB-SURV-4006	20	3	A	60	
	CLB-CMOB-3001	20	10	SA	400	
	CLB-CMOB-3003	10	10	Q	400	
	CLB-MOBL-3001	10	10	A	100	
M023						**1260**
M028	CLB-MOBL-4003	1	3	A	3	
	CLB-DEMO-3001	1	10	A	10	
	CLB-DEMO-3002	1	10	A	10	
	CLB-DEMO-3003	1	10	A	10	
	CLB-DEMO-3004	1	10	A	10	
M028						**43**
M030	CLB-CMOB-3003	4	10	Q	160	**160**
M032	CLB-CMOB-4001	10	3	SA	60	
	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-4003	10	3	SA	60	
	CLB-MOBL-4003	10	3	A	30	

	CLB-MOBL-4004	10	3	Q	120	
	CLB-MOBL-4011	30	3	SA	180	
	CLB-RECN-4002	10	3	A	30	
	CLB-SURV-4006	20	3	A	60	
	CLB-CMOB-3001	6	10	SA	120	
	CLB-CMOB-3002	4	10	Q	160	
	CLB-DEMO-3001	3	10	A	30	
	CLB-DEMO-3002	3	10	A	30	
	CLB-DEMO-3003	3	10	A	30	
	CLB-DEMO-3004	3	10	A	30	
	CLB-MOBL-3001	10	10	A	100	
	CLB-RECN-3002	20	10	Q	800	
M032						**1912**
M039	CLB-CMOB-4001	1	3	SA	6	
	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-4003	10	3	SA	60	
	CLB-RECN-4002	1	3	A	3	
	CLB-CMOB-3002	4	10	Q	160	
	CLB-DEMO-3001	3	10	A	30	
	CLB-DEMO-3002	3	10	A	30	
	CLB-DEMO-3003	3	10	A	30	
	CLB-DEMO-3004	3	10	A	30	
	CLB-RECN-3002	1	3	A	3	
M039						**421**
M130	CLB-CMOB-4001	10	3	SA	60	
	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-4003	6	3	SA	36	
	CLB-MOBL-4003	10	3	A	30	
	CLB-MOBL-4004	30	3	Q	360	
	CLB-MOBL-4011	10	3	SA	60	
	CLB-RECN-4002	10	3	A	30	
	CLB-SURV-4006	10	3	A	30	
	CLB-CMOB-3002	6	10	Q	240	
	CLB-CMOB-3003	4	10	Q	160	
	CLB-DEMO-3001	5	10	A	50	
	CLB-DEMO-3002	5	10	A	50	
	CLB-DEMO-3003	5	10	A	50	
	CLB-DEMO-3004	5	10	A	50	
	CLB-MOBL-3001	6	10	A	60	
	CLB-RECN-3002	20	10	Q	800	
M130						**2138**
M131	CLB-CMOB-4001	20	3	SA	120	
	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-4003	6	3	SA	36	
	CLB-MOBL-4003	20	3	A	60	
	CLB-MOBL-4011	20	3	SA	120	
	CLB-RECN-4002	20	3	A	60	
	CLB-SURV-4006	20	3	A	60	

	CLB-CMOB-3002	6	10	Q	240	
	CLB-CMOB-3003	4	10	Q	160	
	CLB-DEMO-3001	5	10	A	50	
	CLB-DEMO-3002	5	10	A	50	
	CLB-DEMO-3003	5	10	A	50	
	CLB-DEMO-3004	5	10	A	50	
	CLB-MOBL-3001	6	10	A	60	
	CLB-RECN-3002	10	10	Q	400	
M131						**1258**
M327	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-3001	10	10	SA	200	
	CLB-CMOB-3002	6	10	Q	240	
M327						**512**
M420	CLB-CMOB-4001	1	3	SA	6	
	CLB-CMOB-4003	5	3	SA	30	
	CLB-RECN-4002	1	3	A	3	
	CLB-DEMO-3001	1	10	A	10	
	CLB-DEMO-3002	1	10	A	10	
	CLB-DEMO-3003	1	10	A	10	
	CLB-DEMO-3004	1	10	A	10	
	CLB-RECN-3002	1	10	Q	40	
M420						**119**
M421	CLB-CMOB-4001	1	3	SA	6	
	CLB-CMOB-4002	8	3	SA	48	
	CLB-CMOB-4003	10	3	SA	60	
	CLB-RECN-4002	1	3	A	3	
	CLB-CMOB-3002	4	10	Q	160	
	CLB-RECN-3002	1	10	Q	40	
M421						**317**
M456	CLB-CMOB-4001	1500	3	SA	9000	
	CLB-CMOB-4002	1000	3	SA	6000	
	CLB-CMOB-4003	1000	3	SA	6000	
	CLB-MOBL-4003	1500	3	A	4500	
	CLB-MOBL-4004	2000	3	Q	24000	
	CLB-MOBL-4011	2000	3	SA	12000	
	CLB-RECN-4002	1500	3	A	4500	
	CLB-SURV-4006	2000	3	A	6000	
	CLB-CMOB-3001	1000	10	SA	20000	
	CLB-CMOB-3002	250	10	Q	10000	
	CLB-CMOB-3003	1000	10	Q	40000	
	CLB-DEMO-3001	1000	10	A	10000	
	CLB-DEMO-3002	2000	10	A	20000	
	CLB-DEMO-3003	500	10	A	5000	
	CLB-DEMO-3004	5000	10	A	50000	
	CLB-MOBL-3001	1000	10	A	10000	
	CLB-RECN-3002	1000	10	Q	40000	
M456						**277000**

M591	CLB-CMOB-4001	10	3	SA	60	
	CLB-CMOB-4002	10	3	SA	60	
	CLB-CMOB-4003	10	3	SA	60	
	CLB-MOBL-4011	20	3	SA	120	
	CLB-RECN-4002	10	3	A	30	
	CLB-SURV-4006	20	3	A	60	
	CLB-CMOB-3002	6	10	Q	240	
	CLB-DEMO-3001	6	10	A	60	
	CLB-DEMO-3002	6	10	A	60	
	CLB-DEMO-3003	6	10	A	60	
	CLB-DEMO-3004	6	10	A	60	
	CLB-MOBL-3001	20	10	A	200	
	CLB-RECN-3002	10	10	Q	400	
M591						**1470**
M670	CLB-CMOB-4001	500	3	SA	3000	
	CLB-CMOB-4002	500	3	SA	3000	
	CLB-CMOB-4003	500	3	SA	3000	
	CLB-MOBL-4003	500	3	A	1500	
	CLB-MOBL-4004	250	3	Q	3000	
	CLB-MOBL-4011	1000	3	SA	6000	
	CLB-RECN-4002	500	3	A	1500	
	CLB-SURV-4006	500	3	A	1500	
	CLB-CMOB-3002	125	10	Q	5000	
	CLB-DEMO-3001	150	10	A	1500	
	CLB-DEMO-3002	150	10	A	1500	
	CLB-DEMO-3003	150	10	A	1500	
	CLB-DEMO-3004	150	10	A	1500	
	CLB-MOBL-3001	500	10	A	5000	
	CLB-RECN-3002	500	10	Q	20000	
M670						**63500**
M757	CLB-CMOB-4001	2	3	SA	12	
	CLB-CMOB-4002	6	3	SA	36	
	CLB-MOBL-4003	2	3	A	6	
	CLB-MOBL-4004	2	3	Q	24	
	CLB-RECN-4002	2	3	A	6	
	CLB-CMOB-3002	2	10	Q	80	
	CLB-DEMO-3001	1	10	A	10	
	CLB-DEMO-3002	1	10	A	10	
	CLB-DEMO-3003	1	10	A	10	
	CLB-DEMO-3004	1	10	A	10	
M757						**180**
M913	CLB-MOBL-4003	2	3	A	6	
	CLB-MOBL-4005	1	3	A	3	
M913						**9**
M914	CLB-MOBL-4003	1	3	A	3	
	CLB-MOBL-4005	2	3	A	6	
M914						**9**

M982	CLB-DEMO-3001	6	10	A	60	
	CLB-DEMO-3002	6	10	A	60	
	CLB-DEMO-3003	6	10	A	60	
	CLB-DEMO-3004	6	10	A	60	
M982						**240**
ML03	CLB-CMOB-4001	2	3	SA	12	
	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-4003	6	3	SA	36	
	CLB-MOBL-4003	2	3	A	6	
	CLB-MOBL-4011	10	3	SA	60	
	CLB-RECN-4002	2	10	A	20	
	CLB-SURV-4006	10	3	A	30	
	CLB-CMOB-3001	10	3	SA	60	
	CLB-CMOB-3002	4	10	Q	160	
	CLB-CMOB-3003	4	10	Q	160	
ML03						**616**
MM30	CLB-DEMO-3001	4	10	A	40	
	CLB-DEMO-3002	4	10	A	40	
	CLB-DEMO-3003	4	10	A	40	
	CLB-DEMO-3004	4	10	A	40	
MM30						**160**
MM44	CLB-DEMO-3001	1	10	A	10	
	CLB-DEMO-3002	1	10	A	10	
	CLB-DEMO-3003	1	10	A	10	
	CLB-DEMO-3004	1	10	A	10	
MM44						**40**
MM45	CLB-DEMO-3001	1	10	A	10	
	CLB-DEMO-3002	1	10	A	10	
	CLB-DEMO-3003	1	10	A	10	
	CLB-DEMO-3004	1	10	A	10	
MM45						**40**
MM47	CLB-DEMO-3001	1	10	A	10	
	CLB-DEMO-3002	1	10	A	10	
	CLB-DEMO-3003	1	10	A	10	
	CLB-DEMO-3004	1	10	A	10	
MM47						**40**
MM48	CLB-DEMO-3001	1	10	A	10	
	CLB-DEMO-3002	1	10	A	10	
	CLB-DEMO-3003	1	10	A	10	
	CLB-DEMO-3004	1	10	A	10	
MM48						**40**
MN08	CLB-CMOB-4001	35	3	SA	210	
	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-4003	6	3	SA	36	
	CLB-MOBL-4003	35	3	A	105	

	CLB-MOBL-4004	25	3	Q	300	
	CLB-MOBL-4011	30	3	SA	180	
	CLB-RECN-4002	12	3	A	105	
	CLB-SURV-4006	20	3	A	60	
	CLB-CMOB-3002	6	10	Q	240	
	CLB-DEMO-3001	15	10	A	150	
	CLB-DEMO-3002	15	10	A	150	
	CLB-DEMO-3003	15	10	A	150	
	CLB-DEMO-3004	15	10	A	150	
	CLB-MOBL-3001	10	10	A	100	
	CLB-RECN-3002	20	10	Q	800	
MN08						**2808**
MN14	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-3002	4	10	Q	160	
MN14						**232**
MN52	CLB-CMOB-4002	12	3	SA	72	
	CLB-CMOB-3002	4	10	Q	160	
MN52						**232**
MN79	CLB-MOBL-4005	1	3	A	3	**3**
MN88	CLB-MOBL-4004	5	3	Q	60	**60**
MN90	CLB-MOBL-4004	10	3	Q	120	**120**

C008. ENGINEER SUPPORT BATTALION, SUSTAINMENT/PROFICIENCY ALLOCATIONS						
DODIC	**EVENT**	**QTY**	**# OF TEAMS, SQUADS, OR PLTS**	**SUSTAINMENT INTERVAL**	**ANNUAL TOTAL**	**DODIC TOTAL**
J007	ESB-CMOB-4001	2	12	SA	48	
	ESB-CMOB-3001	2	48	SA	192	
J007						**240**
J143	ESB-MOBL-4003	3	12	A	36	
	ESB-MOBL-4005	4	12	A	48	
	ESB-MOBL-3005	4	48	A	192	
J143						**276**
L495	ESB-CMOB-4001	4	12	SA	96	
	ESB-CMOB-4002	6	12	SA	144	
	ESB-RECN-4002	4	12	A	48	
	ESB-CMOB-3002	2	48	Q	192	
L495						**480**
L598	ESB-CMOB-4001	4	12	SA	96	
	ESB-RECN-4002	4	12	A	48	
	ESB-CMOB-3001	10	48	SA	960	
L598						**1104**

M023	ESB-CMOB-4003	20	12	SA	480	
	ESB-MOBL-4010	30	12	SA	720	
	ESB-SURV-4006	20	12	A	240	
	ESB-CMOB-3001	20	48	SA	1920	
	ESB-CMOB-3003	10	48	Q	1920	
	ESB-MOBL-3004	10	48	Q	1920	
M023						**7200**
M028	ESB-MOBL-4003	1	12	A	12	
	ESB-DEMO-3001	1	48	A	48	
	ESB-DEMO-3002	1	48	A	48	
	ESB-DEMO-3003	1	48	A	48	
	ESB-DEMO-3004	1	48	A	48	
	ESB-MOBL-3005	1	48	A	48	
M028						**252**
M030	ESB-CMOB-3003	4	48	Q	768	**768**
M032	ESB-CMOB-4001	10	12	SA	240	
	ESB-CMOB-4002	12	12	SA	288	
	ESB-CMOB-4003	10	12	SA	240	
	ESB-MOBL-4003	10	12	A	120	
	ESB-MOBL-4004	10	12	Q	480	
	ESB-MOBL-4010	30	12	SA	720	
	ESB-RECN-4002	10	12	A	120	
	ESB-SURV-4006	20	12	A	240	
	ESB-CMOB-3001	6	48	SA	576	
	ESB-CMOB-3002	4	48	Q	768	
	ESB-DEMO-3001	3	48	A	144	
	ESB-DEMO-3002	3	48	A	144	
	ESB-DEMO-3003	3	48	A	144	
	ESB-DEMO-3004	3	48	A	144	
	ESB-MOBL-3004	10	48	Q	1920	
	ESB-MOBL-3005	20	48	A	960	
	ESB-MOBL-3006	20	48	A	960	
	ESB-RECN-3002	20	48	A	960	
M032						**9168**
M039	ESB-CMOB-4001	1	12	SA	24	
	ESB-CMOB-4002	12	12	SA	288	
	ESB-CMOB-4003	10	12	SA	240	
	ESB-RECN-4002	1	12	A	12	
	ESB-CMOB-3002	4	48	Q	768	
	ESB-DEMO-3001	3	48	A	144	
	ESB-DEMO-3002	3	48	A	144	
	ESB-DEMO-3003	3	48	A	144	
	ESB-DEMO-3004	3	48	A	144	
	ESB-RECN-3002	1	48	A	48	
M039						**1912**
M130	ESB-CMOB-4001	10	12	SA	240	
	ESB-CMOB-4002	12	12	SA	288	

	ESB-CMOB-4003	6	12	SA	144	
	ESB-MOBL-4003	10	12	A	120	
	ESB-MOBL-4004	30	12	Q	1440	
	ESB-MOBL-4010	10	12	SA	240	
	ESB-RECN-4002	10	12	A	120	
	ESB-SURV-4006	10	12	A	120	
	ESB-CMOB-3002	6	48	Q	1152	
	ESB-CMOB-3003	4	48	Q	768	
	ESB-DEMO-3001	5	48	A	240	
	ESB-DEMO-3002	5	48	A	240	
	ESB-DEMO-3003	5	48	A	240	
	ESB-DEMO-3004	5	48	A	240	
	ESB-MOBL-3004	6	48	Q	1152	
	ESB-MOBL-3005	60	48	A	2880	
	ESB-MOBL-3006	60	48	A	2880	
	ESB-RECN-3002	20	48	Q	3840	
M130						**16224**
M131	ESB-CMOB-4001	20	12	SA	480	
	ESB-CMOB-4002	12	12	SA	288	
	ESB-CMOB-4003	6	12	SA	144	
	ESB-MOBL-4003	20	12	A	240	
	ESB-MOBL-4010	20	12	SA	480	
	ESB-RECN-4002	20	12	A	240	
	ESB-SURV-4006	20	12	A	240	
	ESB-CMOB-3002	6	48	Q	1152	
	ESB-CMOB-3003	4	48	Q	768	
	ESB-DEMO-3001	5	48	A	240	
	ESB-DEMO-3002	5	48	A	240	
	ESB-DEMO-3003	5	48	A	240	
	ESB-DEMO-3004	5	48	A	240	
	ESB-MOBL-3004	6	48	Q	1152	
	ESB-RECN-3002	10	48	Q	1920	
M131						**7884**
M327	ESB-CMOB-4002	12	12	SA	288	
	ESB-CMOB-3001	10	48	SA	960	
	ESB-CMOB-3002	6	48	Q	1152	
M327						**2400**
M420	ESB-CMOB-4001	1	12	SA	24	
	ESB-CMOB-4003	5	12	SA	120	
	ESB-RECN-4002	1	12	SA	24	
	ESB-DEMO-3001	1	48	A	48	
	ESB-DEMO-3002	1	48	A	48	
	ESB-DEMO-3003	1	48	A	48	
	ESB-DEMO-3004	1	48	A	48	
	ESB-RECN-3002	1	48	Q	192	
M420						**552**
M421	ESB-CMOB-4001	1	12	SA	24	
	ESB-CMOB-4002	8	12	SA	192	

	ESB-CMOB-4003	10	12	SA	240	
	ESB-RECN-4002	1	12	A	12	
	ESB-CMOB-3002	4	48	Q	768	
	ESB-RECN-3002	1	12	Q	48	
M421						**1284**
M456	ESB-CMOB-4001	1500	12	SA	36000	
	ESB-CMOB-4002	1000	12	SA	24000	
	ESB-CMOB-4003	1000	12	SA	24000	
	ESB-MOBL-4003	1500	12	A	18000	
	ESB-MOBL-4004	2000	12	Q	96000	
	ESB-MOBL-4010	2000	12	SA	48000	
	ESB-RECN-4002	1500	12	A	18000	
	ESB-SURV-4006	2000	12	A	24000	
	ESB-CMOB-3001	1000	48	SA	96000	
	ESB-CMOB-3002	250	48	Q	48000	
	ESB-CMOB-3003	1000	48	Q	192000	
	ESB-DEMO-3001	250	48	A	12000	
	ESB-DEMO-3002	250	48	A	12000	
	ESB-DEMO-3003	250	48	A	12000	
	ESB-DEMO-3004	250	48	A	12000	
	ESB-MOBL-3004	1000	48	Q	192000	
	ESB-MOBL-3005	1500	48	A	72000	
	ESB-MOBL-3006	1000	48	A	48000	
	ESB-RECN-3002	500	48	Q	96000	
M456						**1080000**
M591	ESB-CMOB-4001	10	12	SA	240	
	ESB-CMOB-4002	10	12	SA	240	
	ESB-CMOB-4003	10	12	SA	240	
	ESB-MOBL-4010	20	12	SA	480	
	ESB-RECN-4002	10	12	SA	240	
	ESB-SURV-4006	20	12	A	360	
	ESB-CMOB-3002	6	48	Q	1152	
	ESB-DEMO-3001	6	48	A	288	
	ESB-DEMO-3002	6	48	A	288	
	ESB-DEMO-3003	6	48	A	288	
	ESB-DEMO-3004	6	48	A	288	
	ESB-MOBL-3004	20	48	Q	240	
	ESB-RECN-3002	10	48	Q	1920	
M591						**6264**
M670	ESB-CMOB-4001	500	12	SA	12000	
	ESB-CMOB-4002	500	12	SA	12000	
	ESB-CMOB-4003	500	12	SA	12000	
	ESB-MOBL-4003	500	12	A	6000	
	ESB-MOBL-4004	250	12	Q	12000	
	ESB-MOBL-4010	1000	12	SA	24000	
	ESB-RECN-4002	500	12	A	6000	
	ESB-SURV-4006	500	12	A	6000	
	ESB-CMOB-3002	125	48	Q	24000	
	ESB-DEMO-3001	150	48	A	7200	

	ESB-DEMO-3002	150	48	A	7200	
	ESB-DEMO-3003	150	48	A	7200	
	ESB-DEMO-3004	150	48	A	7200	
	ESB-MOBL-3004	500	48	Q	48000	
	ESB-MOBL-3005	500	48	A	24000	
	ESB-MOBL-3006	500	48	A	24000	
	ESB-RECN-3002	500	48	Q	24000	
M670						**262800**
M757	ESB-CMOB-4001	2	12	SA	48	
	ESB-CMOB-4002	6	12	SA	144	
	ESB-MOBL-4003	2	12	A	24	
	ESB-MOBL-4004	2	12	Q	96	
	ESB-RECN-4002	2	12	A	24	
	ESB-CMOB-3002	2	48	Q	384	
	ESB-DEMO-3001	1	48	A	48	
	ESB-DEMO-3002	1	48	A	48	
	ESB-DEMO-3003	1	48	A	48	
	ESB-DEMO-3004	1	48	A	48	
	ESB-MOBL-3005	2	48	A	96	
	ESB-MOBL-3006	2	48	A	96	
	ESB-RECN-3002	1	48	Q	192	
M757						**1296**
M913	ESB-MOBL-4003	2	12	A	24	
	ESB-MOBL-4005	1	12	A	12	
	ESB-MOBL-3005	1	48	A	48	
M913						**84**
M914	ESB-MOBL-4003	1	12	A	12	
	ESB-MOBL-4005	2	12	A	24	
	ESB-MOBL-3005	2	48	A	96	
M914						**132**
M982	ESB-DEMO-3001	6	48	A	288	
	ESB-DEMO-3002	6	48	A	288	
	ESB-DEMO-3003	6	48	A	288	
	ESB-DEMO-3004	6	48	A	288	
M982						**1152**
ML03	ESB-CMOB-4001	2	12	SA	48	
	ESB-CMOB-4002	12	12	SA	288	
	ESB-CMOB-4003	6	12	SA	144	
	ESB-MOBL-4003	2	12	A	24	
	ESB-MOBL-4010	10	12	SA	240	
	ESB-RECN-4002	2	12	A	24	
	ESB-SURV-4006	10	12	A	120	
	ESB-CMOB-3001	10	48	SA	960	
	ESB-CMOB-3002	4	48	Q	768	
	ESB-CMOB-3003	4	48	Q	768	
ML03						**3384**

MM30	ESB-DEMO-3001	4	48	A	192	
	ESB-DEMO-3002	4	48	A	192	
	ESB-DEMO-3003	4	48	A	192	
	ESB-DEMO-3004	4	48	A	192	
MM30						**768**
MM44	ESB-DEMO-3001	1	48	A	48	
	ESB-DEMO-3002	1	48	A	48	
	ESB-DEMO-3003	1	48	A	48	
	ESB-DEMO-3004	1	48	A	48	
MM44						**192**
MM45	ESB-DEMO-3001	1	48	A	48	
	ESB-DEMO-3002	1	48	A	48	
	ESB-DEMO-3003	1	48	A	48	
	ESB-DEMO-3004	1	48	A	48	
MM45						**192**
MM47	ESB-DEMO-3001	1	48	A	48	
	ESB-DEMO-3002	1	48	A	48	
	ESB-DEMO-3003	1	48	A	48	
	ESB-DEMO-3004	1	48	A	48	
MM47						**192**
	ESB-DEMO-3004	1	48	A	48	
MM48	ESB-DEMO-3001	1	48	A	48	
	ESB-DEMO-3002	1	48	A	48	
	ESB-DEMO-3003	1	48	A	48	
	ESB-DEMO-3004	1	48	A	48	
MM48						**192**
MN08	ESB-CMOB-4001	35	12	SA	840	
	ESB-CMOB-4002	12	12	SA	288	
	ESB-CMOB-4003	6	12	SA	144	
	ESB-MOBL-4003	35	12	A	420	
	ESB-MOBL-4004	25	12	Q	1200	
	ESB-MOBL-4010	30	12	SA	720	
	ESB-RECN-4002	35	12	A	420	
	ESB-SURV-4006	20	12	A	240	
	ESB-CMOB-3002	6	48	Q	1152	
	ESB-DEMO-3001	15	48	A	720	
	ESB-DEMO-3002	15	48	A	720	
	ESB-DEMO-3003	15	48	A	720	
	ESB-DEMO-3004	15	48	A	720	
	ESB-MOBL-3004	10	48	Q	1920	
	ESB-MOBL-3005	100	48	A	4800	
	ESB-MOBL-3006	100	48	A	4800	
	ESB-RECN-3002	20	48	Q	8192	
MN08						**28016**
MN14	ESB-CMOB-4002	12	12	SA	288	
	ESB-CMOB-3002	4	48	Q	768	

MN14						**1056**
MN52	ESB-CMOB-4002	8	12	SA	96	
	ESB-MOBL-4003	10	12	A	120	
	ESB-MOBL-4010	20	12	SA	480	
	ESB-SURV-4006	10	12	A	120	
	ESB-CMOB-3002	4	48	Q	768	
MN52						**1584**
MN79	ESB-MOBL-4003	1	12	A	12	
	ESB-MOBL-3005	1	48	A	48	
MN79						**60**
MN88	ESB-MOBL-4004	5	12	Q	240	
	ESB-MOBL-3005	10	48	A	480	
	ESB-MOBL-3006	10	48	A	480	
MN88						**1200**
MN90	ESB-MOBL-4004	10	12	Q	480	
	ESB-MOBL-3005	10	48	A	480	
	ESB-MOBL-3006	10	48	A	480	
MN90						**1140**