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From: Commandant of the Marine Corps
To: Distribution List

Subj: MARINE CORPS ENGINEER AND UTILITIES TRAINING AND READINESS MANUAL, (SHORT TITLE: ENG & UTIL T&R 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 1553.2A

1. Purpose. Per reference (a), this T&R Manual establishes Core Capability Mission Essential Tasks (MET) for readiness reporting and required events for standardization training of Marine personnel assigned to the Marine Corps Combat Engineer battalions, Engineer Support battalions, and Marine Wing Support groups. Additionally, it provides tasking for formal schools preparing personnel for service in the Marine Corps Engineer and Utilities community. This NAVMC supersedes NAVMC 3500.12.

2. Scope

a. The Core Capability Mission Essential Task List (METL) in this manual is used in Defense Readiness Reporting System (DRRS) by all Engineer Support battalions, Combat Engineer battalions, and Marine Wing Support groups for the 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. Commanders are to report the training readiness of their units based on the percentage of core METs trained to standard in accordance with this Training and Readiness Manual.

b. Per reference (b), commanders will conduct an internal assessment of the unit’s ability to execute each MET, and develop long-, mid-, and short-range training plans to sustain proficiency in each MET. 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.

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References (e) and (f) provide amplifying information for effective planning and management of training within the unit.

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.

3. Information. CG, TECOM will update this T&R Manual as necessary to provide current and relevant training standards to commanders, and to ensure a current Core Capabilities METL is available for use in DRRS by the Marine Corps Combat Engineer Battalion and Engineer Support Battalion. All questions pertaining to the Marine Corps Ground T&R Program and Unit Training Management should be directed to: Commanding General, TECOM (Ground Training Branch C 469), 1019 Elliot Road, Quantico, VA 22134.

4. Command. This Directive is applicable to the Marine Corps Total Force.

5. Certification. Reviewed and approved this date.

M. G. SPIESE
By direction

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CHAPTER 1

OVERVIEW

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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 Lists (METLs) for ground communities derived from the Marine Corps Task List (MCTL). T&R Manuals are built around these METLs and all events contained in T&R Manuals relate directly to this METL. 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).

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 capabilities METL. However, commanders will adjust their training focus to support METLs associated with a major OPLAN/CONPLAN or named operation as designated by their higher commander and reported accordingly in the Defense Readiness Reporting System (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 (a) through (g).

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

1. T&R Manuals are organized in one of two methods: unit-based or community-based. Unit-based T&R Manuals are written to support a type of unit (Infantry, Artillery, Tanks, etc.) and contain both collective and individual training standards. Community-based are written to support an Occupational Field, a group of related Military Occupational Specialties (MOSs), or billets within an organization (EOD, NBC, Intel, etc.), and usually only contain individual training standards. T&R Manuals are comprised of chapters that contain unit METs, collective training standards (CTS), and individual training standards (ITS) for each MOS, billet, etc.

2. The Engineer and Utilities T&R Manual is a unit-based manual comprised of 19 chapters. Chapter 2 lists the Core Capability METs and their related Battalion and Company-level events. Chapter 3 contain collective events. Chapters 4 through 22 contain individual events.

1005. T&R EVENT CODING

1. T&R events are coded for ease of reference. Each event has a 4-4-4-digit identifier. The first four digits represent the MOS or occupational field (e.g. 1141, 1361, etc.).

2. The second four digits represent the functional or duty area (e.g. ADMN = ADMINISTRATION, MANT = MAINTENANCE, XENG = GENERAL ENGINEERING). The last four digits represent the Individual or Collective event level and sequencing number of the event. Every event has a sequence number from 001 to 999. For

Collective Events in this manual, the hundreds column identifies E-Coded responsibilities. E-Coded Collective Events sequenced in 9xx range are E-Coded for both CEB and ESB units. E-Coded Collective Events sequenced in 8xx range are E-Coded for CEB units. E-Coded Collective Events sequenced in 7xx range are E-Coded for ESB units. E-Coded Collective Events sequenced in 6xx range are E-Coded for MWSG units. E-Coded Collective Events sequenced in 5xx range are E-Coded for both MWSG and ESB units. E-Coded Collective Events sequenced in 4xx range are E-Coded for all engineer units. See Sect 1008 for more information on E-Coded events.

The T&R levels are shown in Figure (1). An example of the T&R coding used in this manual is shown in Figure (2).

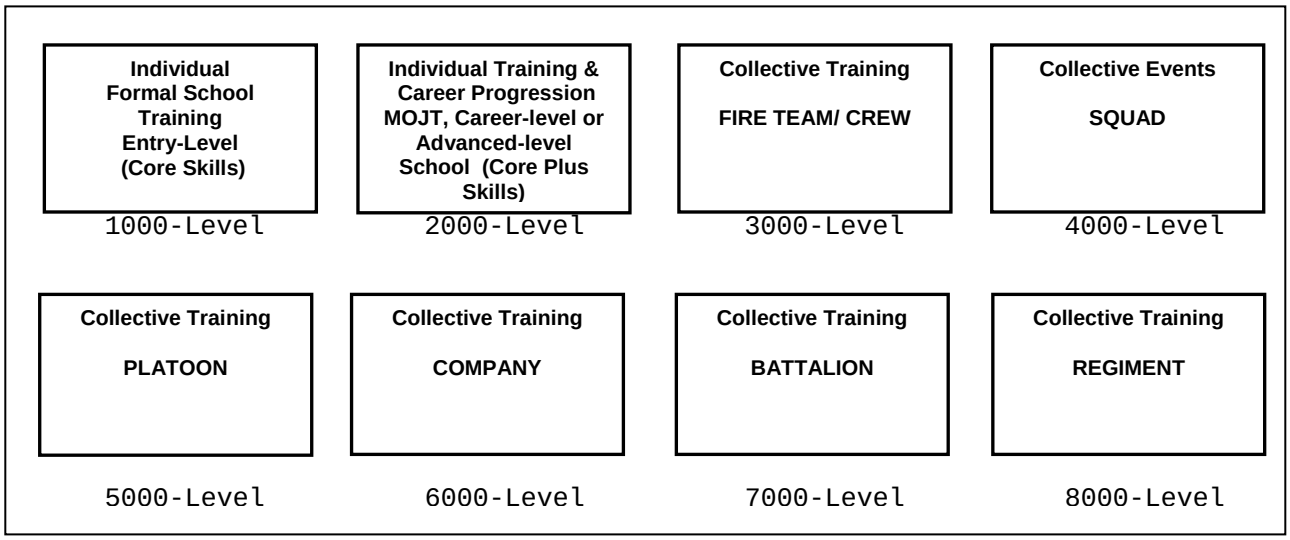

Figure 1: T&R Event Levels

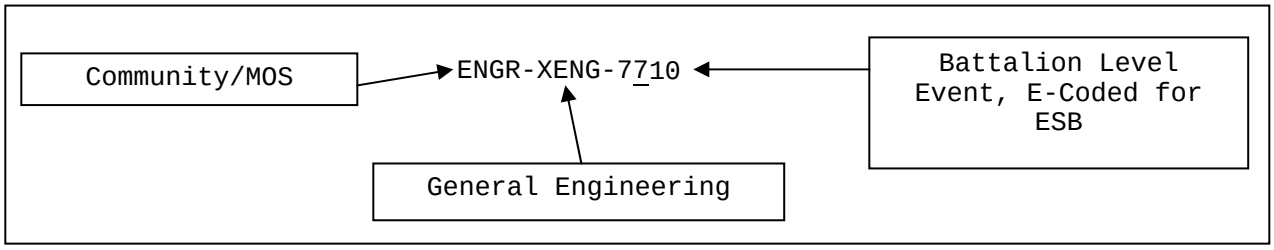

Figure 2: T&R Event Coding

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. In unit-based T&R Manuals, 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, in both unit-based and community-based T&R Manuals, 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 (or billet) 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. EVALUATION-CODED (E-CODED) EVENTS

1. Unit-type T&R Manuals can contain numerous unit events, some for the whole unit and others for integral parts that serve as building blocks for training. To simplify training management and readiness assessment, only collective events that are critical components of a mission essential task (MET), or key indicators of a unit’s readiness, are used to generate CRP for a MET. These critical or key events are designated in the T&R Manual as Evaluation-Coded (E-Coded) events. Formal evaluation of unit performance in these events is recommended because of their value in assessing combat readiness. Only E-Coded events are used to calculate CRP for each MET.

2. The use of a METL-based training program allows the commander discretion in training. This makes the T&R Manual a training tool rather than a prescriptive checklist.

1008. 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. Using the battalion-based (unit) model, the battalion (7000-level) has collective events that directly support a MET on the METL. These collective events are E-Coded and 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 4 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%

1009 T&R EVENT COMPOSITION

1. This section explains each of the components of a T&R event. These items are included in all events in each T&R manual.

a. Event Code (see Sect 1005). The event code is a 4-4-4 character set. For individual training events, the first 4 characters indicate the occupational function. The second 4 characters indicate functional area (TAC, CBTS, VOPS, etc.). The third 4 characters are simply a numerical designator for the event.

b. Event Title. The event title is the name of the event.

c. E-Coded. This is a “yes/no” category to indicate whether or not the event is E-Coded. If yes, the event contributes toward the CRP of the associated MET. The value of each E-Coded event is based on number of E-Coded events for that MET. Refer to paragraph 1007 for detailed explanation of E-Coded events.

d. Supported MET(s). List all METs that are supported by the training event.

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

f. Billet. Individual training events may contain a list of billets within the community that are responsible for performing that event. This ensures that the billet's expected tasks are clearly articulated and a Marine's readiness to perform in that billet is measured.

g. Grade. Each individual training event will list the rank(s) at which Marines are required to learn and sustain the training event.

h. Initial Training Setting. For Individual T&R Events only, this specifies the location for initial instruction of the training event in one of three categories (formal school, managed on-the-job training, distance learning). Regardless of the specified Initial Training Setting, any T&R event may be introduced and evaluated during managed on-the-job training.

(1) "FORMAL" – When the Initial Training Setting of an event is identified as "FORMAL" (formal school), the appropriate formal school or training detachment is required to provide initial training in the event. Conversely, formal schools and training detachments are not authorized to provide training in events designated as Initial Training Setting "MOJT" or "DL." Since the duration of formal school training must be constrained to optimize Operating Forces' manning, this element provides the mechanism for Operating Forces' prioritization of training requirements for both entry-level (1000-level) and career-level (2000-level) T&R Events. For formal schools and training detachments, this element defines the requirements for content of courses.

(2) "DL" – Identifies the training event as a candidate for initial training via a Distance Learning product (correspondence course or MarineNet course).

(3) "MOJT" – Events specified for Managed On-the-Job Training are to be introduced to Marines, and evaluated, as part of training within a unit by supervisory personnel.

i. Event Description. Provide a description of the event purpose, objectives, goals, and requirements. It is a general description of an action requiring learned skills and knowledge (e.g. Camouflage the M1A1 Tank).

j. Condition. Describe the condition(s), under which tasks are performed. Conditions are based on a "real world" operational environment. They indicate what is provided (equipment, materials, manuals, aids, etc.), environmental constraints, conditions under which the task is performed, and any specific cues or indicators to which the performer must respond. When resources or safety requirements limit the conditions, this is stated.

k. Standard. The standard indicates the basis for judging 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 is strictly adhered to. The standard for collective events is general, describing the desired end-state or purpose of the event. While the standard for individual events specifically describe to what proficiency level in terms of accuracy, speed, sequencing, quality of performance, adherence to procedural guidelines, etc., the event is accomplished.

l. Event Components. Describe the actions composing the event and help the user determine what must be accomplished and to properly plan for the event.

m. 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.

n. 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.

o. Related Events. Provide a list of all Individual Training Standards that support the event.

p. References. The training references are utilized to determine task performance steps, grading criteria, and ensure standardization of training procedures. They assist the trainee in satisfying the performance standards, or the trainer in evaluating the effectiveness of task completion. References are also important to the development of detailed training plans.

q. Distance Learning Products (IMI, CBT, MCI, etc.). Include this component when the event can be taught via one of these media methods vice attending a formal course of instruction or receiving MOJT.

r. Support Requirements. This is a list of the external and internal support the unit and Marines will need to complete the event. The list includes, but is not limited to:

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

s. Miscellaneous. Provide any additional information that assists in the planning and execution of the event. Miscellaneous information may include, but is not limited to:

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

2. Community-based T&R manuals have several additional components not found in unit-based T&R manuals. These additions do not apply to this T&R Manual.

1010. CBRNE TRAINING

1. All personnel assigned to the operating force must be trained in chemical, biological, radiological, nuclear, and explosive incident defense (CBRNE), 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 CBRNE attacks. Basic operating standards are those that the individual, and collectively the unit, must perform to continue operations in a CBRNE environment.

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

1011. 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 individual, crew, and unit proficiency.

1012. 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).

1013. APPLICATION OF SIMULATION

1. Simulations/Simulators and other training devices shall be used when they are capable of effectively and economically supplementing training on the identified training task. Particular emphasis shall be placed on simulators that provide training that might be limited by safety considerations or constraints on training space, time, or other resources. When deciding on simulation issues, the primary consideration shall be improving the quality of training and consequently the state of readiness. Potential savings in operating and support costs normally shall be an important secondary consideration.

2. Each training event contains information relating to the applicability of simulation. If simulator training applies to the event, then the applicable simulator(s) is/are listed in the “Simulation” section and the CRP for simulation training is given. This simulation training can either be used in place of live training, at the reduced CRP indicated; or can be used as a precursor training for the live event, i.e., weapons simulators, convoy trainers, observed fire trainers, etc. It is recommended that tasks be performed by simulation prior to being performed in a live-fire environment. However, in the case where simulation is used as a precursor for the live event, then the unit will receive credit for the live event CRP only. If a tactical situation develops that precludes performing the live event, the unit would then receive credit for the simulation CRP.

1014. 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 Marine Corps Task List (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

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CHAPTER 2

MISSION ESSENTIAL TASKS MATRIX

2000. COMBAT ENGINEER BATTALION CORE MISSION ESSENTIAL TASK LIST. The Combat Engineer Battalion Mission Essential Task List (METL) Table lists the Standardized Core Mission Essential Task list, derived from the Marine Corps Task List, for the Combat Engineer Battalion. This METL is used for readiness reporting in the Defense Readiness Reporting System (DRRS) and is reflected in the T&R METL.

CEB CORE MISSION ESSENTIAL TASK

MARINE CORPS TASK LIST 2.0B DRAFT	CEB CORE METL
MCT 1.1	Provide Forces
MCT 1.4.1	Conduct Mobility Operations
MCT 1.5	Conduct Counter-Mobility Operations
MCT 2.2.2	Conduct Engineer Reconnaissance
MCT 4.4.2	Conduct Horizontal/Vertical Construction
MCT 4.4.9	Conduct Tactical Electric Supply
MCT 6.1.4	Conduct Survivability Operations

2001. ENGINEER SUPPORT BATTALION CORE MISSION ESSENTIAL TASK LIST. The Engineer Support Battalion Mission Essential Task List (METL) Table lists the Standardized Core Mission Essential Task list, derived from the Marine Corps Task List, for the Engineer Support Battalion. This METL is used for readiness reporting in the Defense Readiness Reporting System (DRRS) and is reflected in the T&R METL.

ESB CORE MISSION ESSENTIAL TASK

MARINE CORPS TASK LIST 2.0B DRAFT	ESB CORE METL
MCT 1.1.2	Provide Forces
MCT 1.4.1	Conduct Mobility Operations
MCT 4.4	Conduct General Engineering Operations
MCT 4.4.7	Conduct Tactical Water and/or Hygiene Service
MCT 4.4.8	Conduct Tactical Bulk Fuel Storage
MCT 4.4.9	Conduct Tactical Electrical Supply
MCT 6.1.4	Conduct Survivability Operations
MCT 6.3.4	Render safe, neutralize and destroy explosive ordnance, Improvised Explosive Devices (IED), & Chemical, Biological, Radiological / Nuclear (CBRN) devices

2002. MARINE WING SUPPORT GROUP CORE MISSION ESSENTIAL TASK LIST. The Marine Wing Support Group Mission Essential Task List (METL) Table lists the Standardized Core Mission Essential Task list, derived from the Marine Corps

Task List, for the Marine Wing Support Group. This METL is used for readiness reporting in the Defense Readiness Reporting System (DRRS) and is reflected in the T&R METL.

MWSG CORE MISSION ESSENTIAL TASK LIST

MARINE CORPS TASK LIST 2.0B DRAFT	MWSG CORE METL (DRAFT)
MCT 1.1	Provide Forces
MCT 1.4.1	Conduct Mobility Operations
MCT 4.4	Conduct General Engineering Operations
MCT 4.4.7	Conduct Tactical Water and/or Hygiene Service
MCT 4.4.8	Conduct Tactical Bulk Fuel Storage
MCT 4.4.9	Conduct Tactical Electrical Supply
MCT 6.1.4	Conduct Survivability Operations
MCT 6.3.4	Render safe, neutralize and destroy explosive ordnance, Improvised Explosive Devices (IED), & Chemical, Biological, Radiological / Nuclear (CBRN) devices

2003. ENGINEER AND UTILITIES MISSION ESSENTIAL TASKS MATRIX. The Engineer and Utilities T&R Mission Essential Task List (METL) reflect the tasks in the ESB and CEB Core METL. The Engineer and Utilities METL Table includes the designated MET number. The following event codes are the linked evaluation coded (E- Coded) events that support the MET.

MET#/MISSION ESSENTIAL TASK

MET 1. PROVIDE FORCES	
ENGR-ADMN-7901	Command and control engineer forces
ENGR-EOPS-7901	Plan engineer operations
ENGR-EOPS-7902	Train engineer forces
ENGR-PINF-6401	Fight as provisional infantry
ENGR-EOPS-6402	Command and control engineer forces
ENGR-EOPS-6403	Train engineer forces
ENGR-PINF-5401	Fight as provisional infantry
ENGR-PINF-4401	Fight as provisional infantry
MET 2. CONDUCT MOBILITY OPERATIONS	
ENGR-MOBL-6801	Conduct mobility operations
ENGR-MOBL-6701	Conduct mobility operations
ENGR-MOBL-6601	Conduct mobility operations
ENGR-MOBL-5801	Conduct obstacle breaching operations
ENGR-MOBL-5802	Conduct route clearance operations
ENGR-MOBL-5701	Conduct obstacle breaching operations
ENGR-MOBL-5702	Conduct breach lane improvement operations
ENGR-MOBL-5703	Conduct route clearance operations
ENGR-MOBL-5704	Install a Medium Girder Bridge
ENGR-MOBL-5705	Conduct rafting operations
ENGR-MOBL-5706	Install Ribbon Bridge
ENGR-MOBL-5707	Construct a non-standard bridge
ENGR-MOBL-5708	Repair a non-standard bridge

ENGR-MOBL-5709	Construct combat roads
ENGR-MOBL-5601	Conduct route clearance operations
ENGR-MOBL-5602	Conduct Airfield Damage Repair
ENGR-MOBL-5501	Construct Tactical Landing Zones
ENGR-MOBL-5502	Conduct area clearance operations
ENGR-MOBL-5401	Construct expedient HLZ
ENGR-MOBL-4901	Conduct security for route clearance/sweep operations
ENGR-MOBL-4902	Detect obstacles for route clearance/sweep operations
ENGR-MOBL-4903	Breach obstacles for route clearance/sweep operations
ENGR-MOBL-4801	Conduct deliberate breach
ENGR-MOBL-4802	Conduct hasty/ in-stride breach
ENGR-MOBL-4803	Conduct covert breach
ENGR-MOBL-4804	Conduct assault breach
ENGR-MOBL-4805	Conduct dismounted route sweep operations
ENGR-MOBL-4806	Conduct route improvement
ENGR-MOBL-4807	Install rope bridge
ENGR-MOBL-4701	Maneuver a standard military ribbon raft
ENGR-MOBL-4702	Assemble Medium Girder Bridge
ENGR-MOBL-4703	Assemble ribbon bridge
ENGR-MOBL-4704	Assemble ribbon raft
ENGR-MOBL-4705	Conduct deliberate breach
ENGR-MOBL-4706	Conduct route improvement
ENGR-MOBL-4707	Repair runway crater
ENGR-MOBL-4708	Repair spall(s)
ENGR-MOBL-4709	Repair a road crater
ENGR-MOBL-4601	Conduct security for route clearance/ sweep operations
ENGR-MOBL-4602	Detect obstacles for route clearance/ sweep operations
ENGR-MOBL-4603	Breach obstacles for route clearance/ sweep operations
ENGR-MOBL-4604	Conduct route improvement
ENGR-MOBL-4605	Repair runway crater
ENGR-MOBL-4606	Repair spall(s)
ENGR-MOBL-4501	Conduct dismounted route sweep
ENGR-MOBL-3901	Create a lane through an obstacle
ENGR-MOBL-3902	Proof a lane through an obstacle
ENGR-MOBL-3903	Mark a lane through obstacle
ENGR-MOBL-3904	Remotely detect explosive hazards
ENGR-MOBL-3905	Remotely reduce explosive hazards
ENGR-MOBL-3906	Operate a Combat Rubber Reconnaissance Craft (CRRC)
ENGR-MOBL-3907	Employ a medium machinegun team
ENGR-MOBL-3908	Employ a heavy machinegun team
ENGR-MOBL-3801	Engage targets with Mk153 SMAW
ENGR-MOBL-3802	Conduct area clearance operations
ENGR-MOBL-3803	Breach obstacle with the (ABV)
ENGR-MOBL-3804	Conduct an urban breach
ENGR-MOBL-3805	Conduct route clearance operations
ENGR-MOBL-3806	Employ the JAB
ENGR-MOBL-3601	Employ a medium machinegun team
ENGR-MOBL-3602	Employ a heavy machinegun team
MET 3. CONDUCT COUNTER-MOBILITY OPERATIONS	
ENGR-CMOB-6801	Conduct counter-mobility operations
ENGR-CMOB-5701	Conduct counter-mobility operations
ENGR-CMOB-6601	Conduct counter-mobility operations

ENGR-CMOB-5801	Create obstacle groups
ENGR-CMOB-5701	Create obstacle groups
ENGR-CMOB-4901	Create an explosive obstacle
ENGR-CMOB-4902	Construct a non-explosive obstacle
ENGR-CMOB-4902	Create an explosive obstacle
ENGR-CMOB-4902	Create a non-explosive obstacle
ENGR-CMOB-4903	Construct a non-explosive obstacle
ENGR-CMOB-3901	Construct demolition obstacles
ENGR-CMOB-3801	Construct field expedient obstacle
ENGR-CMOB-3601	Construct demolition obstacles
ENGR-CMOB-3501	Construct field expedient obstacle
ENGR-CMOB-3401	Emplace explosive obstacles
ENGR-CMOB-3402	Build explosive obstacles
MET 4. CONDUCT GENERAL ENGINEERING OPERATIONS	
ENGR-XENG-6801	Conduct general engineering operations
ENGR-XENG-6701	Conduct general engineering operations
ENGR-XENG-6601	Conduct general engineering operations
ENGR-XENG-5801	Conduct horizontal construction
ENGR-XENG-5802	Conduct vertical construction
ENGR-XENG-5701	Conduct vertical construction
ENGR-XENG-5601	Conduct vertical construction
ENGR-XENG-5501	Conduct horizontal construction
ENGR-XENG-5401	Provide engineer equipment support
ENGR-MANT-5401	Maintain engineer equipment
ENGR-XENG-5402	Prepare site for construction
ENGR-XENG-4901	Rig expedient lifting devices
ENGR-XENG-4801	Conduct vertical construction
ENGR-XENG-4802	Construct wood frame structure
ENGR-XENG-4803	Construct timber structure
ENGR-XENG-4804	Repair existing structures
ENGR-XENG-4701	Construct wood frame structure
ENGR-XENG-4702	Construct concrete block structure
ENGR-XENG-4703	Construct timber structure
ENGR-XENG-4704	Repair existing structures
ENGR-XENG-4705	Construct concrete structure
ENGR-XENG-4706	Construct expedient drainage structure
ENGR-XENG-4501	Conduct vertical construction
ENGR-XENG-4502	Construct manufacture-steel structure
ENGR-XENG-4503	Conduct horizontal construction
ENGR-XENG-4401	Conduct material handling equipment operations
ENGR-MANT-3801	Provide cleaning and lubrication service to (JAB)
ENGR-MANT-3701	Employ maintenance team
ENGR-XENG-3501	Conduct dust abatement
ENGR-XENG-3401	Provide crane support
ENGR-XENG-3402	Provide material handling equipment support
ENGR-XENG-3403	Provide earth moving equipment support
ENGR-XENG-3404	Fell standing timber
MET 5. PROVIDE AND MAINTAIN ENGINEERING RECONNAISSANCE OPERATIONS	
ENGR-RECN-5901	Conduct cache sweep operations
ENGR-RECN-5401	Conduct engineer reconnaissance
ENGR-RECN-4901	Conduct zone reconnaissance

ENGR-RECN-4902	Conduct route reconnaissance
ENGR-RECN-4903	Conduct area reconnaissance
ENGR-RECN-4904	Conduct engineer reconnaissance
ENGR-RECN-4905	Conduct cache sweep
ENGR-RECN-4601	Conduct cache sweep
ENGR-RECN-4401	Conduct site survey
ENGR-RECN-3901	Conduct gap reconnaissance
ENGR-RECN-3902	Conduct ferry reconnaissance
ENGR-RECN-3903	Conduct tunnel reconnaissance
ENGR-RECN-3801	Survey site for construction
ENGR-RECN-3701	Assess damage to airfield surfaces
ENGR-RECN-3601	Assess damage to airfield surfaces
ENGR-RECN-3501	Assess damage to airfield surfaces
ENGR-RECN-3502	Survey site for construction
ENGR-RECN-3401	Conduct cache sweep
ENGR-RECN-3402	Conduct obstacle reconnaissance
ENGR-RECN-3403	Conduct bridge reconnaissance
ENGR-RECN-3404	Conduct road reconnaissance
MET 6. CONDUCT TACTICAL WATER AND/OR HYGIENE SERVICE	
UTIL-XENG-5401	Provide utilities support
UTIL-XENG-4701	Provide potable water
UTIL-XENG-4501	Provide tactical hygiene support
UTIL-XENG-3701	Provide environmental control unit (ECU) support
UTIL-XENG-3702	Provide refrigeration support
UTIL-XENG-3703	Produce potable water
UTIL-XENG-3704	Store potable water
UTIL-XENG-3705	Establish water distribution site
UTIL-XENG-3501	Provide laundry service
UTIL-MANT-3501	Maintain Tactical Water Purification Systems (TWPS)
UTIL-XENG-3502	Provide shower services
UTIL-MANT-3502	Maintain hygiene equipment
UTIL-MANT-3503	Maintain Environmental Control Units (ECU)
UTIL-MANT-3504	Maintain refrigeration systems
UTIL-XENG-3404	Install plumbing in a structure
MET 7. CONDUCT TACTICAL BULK FUEL STORAGE	
FUEL-XENG-6701	Conduct bulk petroleum operations
FUEL-XENG-5501	Construct bulk petroleum site
FUEL-XENG-5502	Conduct tactical bulk petroleum operations
FUEL-XENG-4701	Coordinate bulk petroleum operations
FUEL-XENG-4702	Construct bulk petroleum site
FUEL-XENG-3701	Maintain bulk fuel petroleum distribution site
FUEL-XENG-3702	Store petroleum, oil and lubricants (POL)
FUEL-XENG-3703	Provide tactical bulk petroleum storage
MET 8. CONDUCT TACTICAL ELECTRICAL SUPPLY	
UTIL-XENG-4401	Provide tactical electrical power
UTIL-XENG-3901	Establish tactical power distribution system
UTIL-XENG-3401	Provide floodlight support
UTIL-XENG-3402	Establish mobile electric power sites
UTIL-XENG-3403	Wire a structure for electricity
UTIL-XENG-3405	Maintain tactical power distribution system(s)

MET 9. CONDUCT SURVIVABILITY OPERATIONS	
ENGR-SURV-6801	Conduct Survivability Operations
ENGR-SURV-6701	Conduct Survivability Operations
ENGR-SURV-6601	Conduct Survivability Operations
ENGR-SURV-5401	Construct Survivability Positions
ENGR-SURV-5402	Harden existing structures
ENGR-SURV-5403	Construct field fortifications
ENGR-SURV-4401	Harden existing structure
ENGR-SURV-4402	Construct field fortification
ENGR-SURV-4403	Construct vehicle control point
ENGR-SURV-4404	Construct entry control point
ENGR-SURV-4405	Construct earth filled barrier/ structure
ENGR-SURV-3401	Construct vehicle fighting position
ENGR-SURV-3402	Construct vehicle survivability position
ENGR-SURV-3403	Construct vehicle survivability position/revetment
ENGR-SURV-3404	Construct crew served weapons position
ENGR-SURV-3405	Construct overhead cover
ENGR-SURV-3406	Construct shelter/bunkers
MET 10. RENDER SAFE, NEUTRALIZE AND DESTROY EXPLOSIVE ORDNANCE, IMPROVISED EXPLOSIVE DEVICES (IED), & CHEMICAL, BIOLOGICAL, RADIOLOGICAL / NUCLEAR (CBRN) DEVICES	
ENGR-DEMO-5401	Conduct demolition operations
ENGR-DEMO-4801	Employ demolitions in support of counter mobility operations
ENGR-DEMO-4501	Employ demolitions in support of counter mobility operations
ENGR-DEMO-4401	Employ demolitions in support of mobility operations
ENGR-DEMO-4402	Employ demolitions in support of survivability operations
ENGR-DEMO-4403	Employ demolitions in support of expeditionary operations
ENGR-DEMO-3901	Destroy captured arms and ammunition with demolitions
ENGR-DEMO-3902	Destroy bridge with demolitions
ENGR-DEMO-3801	Destroy tunnel with demolitions
ENGR-DEMO-3802	Destroy building with demolitions

ENG & UTIL T&R MANUAL

CHAPTER 3

COLLECTIVE EVENTS

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CHAPTER 3

COLLECTIVE EVENTS

3000. PURPOSE. This chapter includes all collective training events for Engineer and Utilities. A collective event is an event that a trained Engineer Unit would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of a collective event title, event description, condition, and standard. Accomplishment and proficiency level required is determined by the event standard.

3001. EVENT CODING. Collective T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier.

a. The first four characters represent the community:

ENGR – Engineer
UTIL – Utilities
FUEL – Bulk Fuel

b. The second four characters represent the functional or duty area. This chapter contains the duty areas listed below. See Appendix A for a complete list of functional areas.

ADMN - Administration
CMOB – Counter-mobility
DEMO – Demolitions
EOPS – Engineer Operations
MANT – Maintenance
MOBL – Mobility
PINF – Provisional Infantry
RECN – Engineer Reconnaissance
SURV – Survivability
XENG – General Engineering

c. The first of the last four characters represent the level (7000 or 5000) and the last three characters the sequence (7001, 5002) of the event with the hundreds column (9xx, 8xx, 7xx) identifying the unit to which an E-Coded event applies (see Sect 1006). The Engineer and Utilities collective training events are captured in the 7000 (Battalion) through 3000 (Team) Level.

3002. INDEX OF COLLECTIVE EVENTS

EVENT	E-CODE	DESCRIPTION	PAGE
		7000–Level Events	
ENGR-ADMN-7901	YES	Command and control engineer forces	3-8
ENGR-EOPS-7901	YES	Plan engineer operations	3-9
ENGR-EOPS-7902	YES	Train engineer forces	3-9
		6000–Level Events	
ENGR-MOBL-6801	YES	Conduct mobility operations	3-11
ENGR-XENG-6801	NO	Conduct general engineering operations	3-12
ENGR-CMOB-6801	YES	Conduct counter-mobility operations	3-13
ENGR-SURV-6801	YES	Conduct survivability operations	3-13
ENGR-MOBL-6701	YES	Conduct mobility operations	3-14
ENGR-CMOB-6701	NO	Conduct counter-mobility operations	3-15
ENGR-XENG-6701	YES	Conduct general engineering operations	3-16
ENGR-SURV-6701	YES	Conduct survivability operations	3-18
FUEL-XENG-6701	YES	Conduct Bulk petroleum operations	3-19
ENGR-XENG-6601	YES	Conduct general engineering operations	3-19
ENGR-SURV-6601	YES	Conduct survivability operations	3-21
ENGR-CMOB-6601	NO	Conduct counter-mobility operations	3-21
ENGR-EOPS-6401	YES	Plan engineer operations	3-22
ENGR-EOPS-6402	YES	Command and control engineer forces	3-23
ENGR-EOPS-6403	YES	Train engineer forces	3-24
ENGR-PINF-6401	YES	Fight as provisional infantry	3-25
		5000–Level Events	
ENGR-RECN-5901	NO	Conduct cache sweep operations	3-26
ENGR-MOBL-5801	YES	Conduct obstacle breaching operations	3-27
ENGR-MOBL-5802	YES	Conduct route clearance operations	3-28
ENGR-MOBL-5803	NO	Construct combat roads	3-29
ENGR-XENG-5801	NO	Conduct horizontal construction	3-30
ENGR-XENG-5802	NO	Conduct vertical construction	3-32
ENGR-MOBL-5701	NO	Conduct obstacle breaching operations	3-33
ENGR-MOBL-5702	NO	Conduct breach lane improvement operations	3-34
ENGR-MOBL-5703	YES	Conduct route clearance operations	3-35
ENGR-MOBL-5704	YES	Install Medium Girder Bridge	3-36
ENGR-MOBL-5705	YES	Conduct rafting operations	3-37
ENGR-MOBL-5706	YES	Install Ribbon Bridge	3-38
ENGR-MOBL-5707	NO	Construct non-standard bridge	3-39
ENGR-MOBL-5708	NO	Repair non-standard bridge	3-40
ENGR-MOBL-5709	YES	Construct combat roads	3-41
ENGR-CMOB-5701	NO	Create obstacle groups	3-42
ENGR-XENG-5701	YES	Conduct vertical construction	3-43
ENGR-MOBL-5601	NO	Conduct route clearance operations	3-45
ENGR-MOBL-5602	YES	Conduct Airfield Damage Repair	3-45
ENGR-XENG-5601	YES	Conduct vertical construction	3-46
ENGR-MOBL-5501	YES	Construct tactical landing zones	3-48
ENGR-MOBL-5502	YES	Conduct area clearance operations	3-49
ENGR-XENG-5501	YES	Conduct horizontal construction	3-50
FUEL-XENG-5501	YES	Construct bulk Petroleum Site	3-51

FUEL-XENG-5502	YES	Conduct tactical bulk petroleum operations	3-52
ENGR-MOBL-5401	YES	Construct expedient HLZ	3-53
ENGR-XENG-5401	YES	Provide Engineer Equipment Support	3-54
ENGR-XENG-5402	NO	Prepare Site for Construction	3-55
UTIL-XENG-5401	YES	Provide Utilities Support	3-56
ENGR-RECN-5401	YES	Conduct engineer reconnaissance	3-57
ENGR-DEMO-5401	YES	Conduct demolition operations	3-58
ENGR-SURV-5401	YES	Construct survivability positions	3-58
ENGR-SURV-5402	YES	Harden Existing Structure	3-60
ENGR-SURV-5403	YES	Construct field fortifications	3-61
ENGR-MANT-5401	YES	Maintain Engineer Equipment	3-62
ENGR-PINF-5401	NO	Fight as provisional infantry	3-63
		4000–Level Events	
ENGR-MOBL-4901	YES	Conduct security for route clearance/sweep operations	3-64
ENGR-MOBL-4902	YES	Detect obstacles for route clearance/sweep operations	3-65
ENGR-MOBL-4903	YES	Breach obstacles for route clearance/sweep operations	3-66
ENGR-CMOB-4901	YES	Create an explosive obstacle	3-67
ENGR-CMOB-4902	YES	Create a non-explosive obstacle	3-69
ENGR-RECN-4901	YES	Conduct zone reconnaissance	3-70
ENGR-RECN-4902	YES	Conduct route reconnaissance	3-71
ENGR-RECN-4903	YES	Conduct area reconnaissance	3-72
ENGR-RECN-4904	YES	Conduct engineer reconnaissance	3-73
ENGR-RECN-4905	YES	Conduct cache sweep	3-74
ENGR-XENG-4901	NO	Rig expedient lifting devices	3-75
ENGR-MOBL-4801	YES	Conduct deliberate breach	3-76
ENGR-MOBL-4802	YES	Conduct hasty/ in-stride breach	3-77
ENGR-MOBL-4803	NO	Conduct covert breach	3-79
ENGR-MOBL-4804	YES	Conduct assault breach	3-80
ENGR-MOBL-4805	YES	Conduct dismounted route sweep operations	3-81
ENGR-MOBL-4806	NO	Conduct route improvement	3-82
ENGR-MOBL-4807	NO	Install rope bridge	3-83
ENGR-XENG-4801	NO	Conduct vertical construction	3-84
ENGR-XENG-4802	NO	Construct wood frame structure	3-85
ENGR-XENG-4803	NO	Construct timber structure	3-86
ENGR-XENG-4804	NO	Repair existing structures	3-87
ENGR-DEMO-4801	YES	Employ demolitions in support of counter-mobility operations	3-88
ENGR-MOBL-4701	YES	Maneuver a standard military ribbon raft	3-89
ENGR-MOBL-4702	YES	Assemble Medium Girder Bridge	3-90
ENGR-MOBL-4703	YES	Assemble ribbon bridge	3-91
ENGR-MOBL-4704	NO	Assemble ribbon raft	3-92
ENGR-MOBL-4705	NO	Conduct deliberate breach	3-93
ENGR-MOBL-4706	YES	Conduct route improvement	3-94
ENGR-MOBL-4707	NO	Repair runway crater	3-95
ENGR-MOBL-4708	NO	Repair spall(s)	3-96
ENGR-MOBL-4709	YES	Repair road crater	3-97
ENGR-XENG-4701	YES	Construct wood frame structure	3-98
ENGR-XENG-4702	YES	Construct concrete block structure	3-99
ENGR-XENG-4703	YES	Construct timber structure	3-100

ENGR-XENG-4704	YES	Repair existing structures	3-101
ENGR-XENG-4705	NO	Construct concrete structure	3-102
ENGR-XENG-4706	NO	Construct expedient drainage structure	3-102
UTIL-XENG-4701	YES	Provide potable water	3-103
FUEL-XENG-4701	NO	Coordinate bulk petroleum operations	3-104
FUEL-XENG-4701	NO	Construct bulk petroleum site	3-105
ENGR-MOBL-4601	NO	Conduct security for route clearance/ sweep operations	3-105
ENGR-MOBL-4602	NO	Detect obstacles for route clearance/ sweep operations	3-107
ENGR-MOBL-4603	NO	Breach obstacles for route clearance/ sweep operations	3-108
ENGR-MOBL-4604	NO	Conduct route improvement	3-109
ENGR-MOBL-4605	YES	Repair road crater	3-110
ENGR-MOBL-4606	YES	Repair spall(s)	3-111
ENGR-CMOB-4601	NO	Create an Explosive Obstacle	3-112
ENGR-CMOB-4602	NO	Create a Non-Explosive Obstacle	3-114
ENGR-CMOB-4603	NO	Construct Non-Explosive Obstacle	3-115
ENGR-RECN-4601	NO	Conduct Cache Sweep	3-116
ENGR-MOBL-4501	YES	Conduct Dismounted Route Sweep	3-118
ENGR-XENG-4501	YES	Conduct vertical construction	3-119
ENGR-XENG-4502	YES	Construct manufactured-steel structure	3-120
ENGR-XENG-4503	YES	Conduct horizontal construction	3-121
UTIL-XENG-4501	NO	Provide Tactical Hygiene Support	3-123
ENGR-DEMO-4501	NO	Employ demolitions in support of counter mobility operations	3-123
ENGR-PINF-4401	YES	Fight as provisional infantry	3-124
ENGR-XENG-4401	YES	Conduct MHE Operations	3-125
ENGR-SURV-4401	YES	Harden Existing Structure	3-126
ENGR-SURV-4402	YES	Construct field fortifications	3-127
ENGR-SURV-4403	YES	Construct Vehicle Control Point	3-128
ENGR-SURV-4404	YES	Construct Entry Control Point	3-130
ENGR-SURV-4405	YES	Construct earth filled barrier/structure	3-131
ENGR-DEMO-4401	YES	Employ Demolitions in Support of Mobility Operations	3-131
ENGR-DEMO-4402	YES	Employ Demolitions in Support of Survivability Operations	3-133
ENGR-DEMO-4403	YES	Employ Demolitions in Support of Expeditionary Operations	3-134
UTIL-XENG-4401	YES	Provide Tactical Electrical Power	3-135
ENGR-RECN-4401	YES	Conduct Site Survey	3-136
		3000–Level Events	
ENGR-MOBL-3901	YES	Create a lane through an obstacle	3-137
ENGR-MOBL-3902	YES	Proof a lane through an obstacle	3-137
ENGR-MOBL-3903	YES	Mark a lane through an obstacle	3-138
ENGR-MOBL-3904	YES	Remotely detect explosive hazards	3-140
ENGR-MOBL-3905	YES	Remotely reduce explosive hazards	3-140
ENGR-MOBL-3906	NO	Operate small craft	3-141
ENGR-MOBL-3907	YES	Employ a medium machinegun team	3-142
ENGR-MOBL-3908	YES	Employ a heavy machinegun team	3-143
ENGR-CMOB-3901	NO	Construct demolition obstacles	3-144
ENGR-RECN-3901	YES	Conduct gap reconnaissance	3-145

ENGR-RECN-3902	NO	Conduct tunnel reconnaissance	3-146
ENGR-RECN-3903	YES	Conduct ferry reconnaissance	3-147
ENGR-SURV-3901	YES	Construct vehicle survivability position	3-147
ENGR-SURV-3902	NO	Construct trenches	3-148
ENGR-DEMO-3901	NO	Destroy captured arms and ammunition with demolitions	3-150
ENGR-DEMO-3902	NO	Destroy bridge with demolitions	3-151
UTIL-XENG-3901	YES	Establish tactical power distribution system	3-152
ENGR-MOBL-3801	YES	Engage targets with Mk153 SMAW	3-153
ENGR-MOBL-3802	NO	Conduct area clearance operations	3-154
ENGR-MOBL-3803	YES	Breach obstacle with the (ABV)	3-154
ENGR-MOBL-3804	YES	Conduct an urban breach	3-156
ENGR-MOBL-3805	YES	Conduct route clearance operations	3-157
ENGR-DEMO-3801	NO	Destroy tunnel with demolitions	3-158
ENGR-DEMO-3802	NO	Destroy building with demolitions	3-159
ENGR-CMOB-3801	YES	construct field expedient obstacles	3-160
ENGR-SURV-3801	YES	construct vehicle fighting positions	3-161
ENGR-SURV-3802	YES	Construct shelter/bunkers	3-162
ENGR-RECN-3801	NO	Survey site for construction	3-163
ENGR-MANT-3801	NO	Provide cleaning and lubrication service to	3-164
UTIL-XENG-3701	NO	Provide environmental control unit (ECU) support	3-164
UTIL-XENG-3702	NO	Provide refrigeration support	3-165
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3003. 7000-LEVEL EVENTS

ENGR-ADMN-7901: Command and control engineer forces

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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

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 the accomplishment of the mission.

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: ENGR-EOPS-6402

REFERENCES:
1. MCDP 6, Marine Corps Doctrine Publication, Command and Control
2. MCWP 3-17, Marine Corps Warfighting Publication, Engineer Operations
3. MCWP 5-1, Marine Corps Warfighting Publication, Marine Corps Planning Process
4. MCWP 3-40.1 MAGTF Command and Control
5. JP 3-34 Joint Engineer Operations

SUPPORT REQUIREMENTS:
1. Fire and Maneuver Training Area
2. Material Handling Equipment
3. C4I Assets

ENGR-EOPS-7901: Plan engineer operations

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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

DESCRIPTION: Conduct planning with focus on mobility, countermobility, survivability, and general engineering 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 mission analysis, commander’s intent, and concept of operations.

EVENT COMPONENTS:
1. Perform mission analysis to include Intelligence preparation of the Battlefield (IPB) and preparation of the engineer battlefield assessment.
2. Develop courses of action to include a scheme of engineer operations for each.
3. War game courses of action.
4. Compare courses of action, then present for commander’s decision.
5. Develop orders to include engineer annexes and task organization.
6. Transition to produce operations plan or order.
7. Develop branches and sequels, if applicable.

CHAINED EVENTS: ENGR-EOPS-6401

REFERENCES:
1. MCWP 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
2. FM 34-130 Intelligence Preparation of the Battle Field (IPB)
3. MCWP 3-17, Marine Corps Warfighting Publication, Engineer Operations
4. JP 3-34 Joint Engineer Operations
5. FM 5-101 Mobility

ENGR-EOPS-7902: Train engineer forces

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, counter-mobility, survivability, and general engineering.

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 in accordance with the references.

EVENT COMPONENTS:
1. Conduct mission analysis.
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: ENGR-EOPS-6403

RELATED EVENTS: ENGR-EOPS-7901

REFERENCES:
1. MCWP 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
2. MCWP 3-17 Engineer Operations
3. MCO P3500.72a
4. MCO 1553.2a
5. MCO 1553.3a
6. MCRP 3.0A
7. MCRP 3.0B
8. FM 5-101 Mobility

SUPPORT REQUIREMENTS:
1. Fire and Maneuver Training Area

3004. 6000-LEVEL EVENTS

ENGR-MOBL-6801: Conduct mobility operations

SUPPORTED MET(S): 1, 2, 4, 5, 10

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

DESCRIPTION: Conduct mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of GCE requirements.

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 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 for maneuver forces (routes, breach lanes, ect.).
10. Submit reports as required.

CHAINED EVENTS: ENGR-MOBL-5801, ENGR-MOBL-4801, ENGR-MOBL-3801, 1371-XENG-2011, 1302-MOBL-1002

RELATED EVENTS: ENGR-MOBL-5802, ENGR-MOBL-4802, ENGR-MOBL-4804, ENGR-MOBL0-4805, ENGR-MOBL-3803, ENGR-MOBL-3804, ENGR-MOBL-3805, ENGR-MOBL-3806

REFERENCES:
1. MCWP 3-17 Engineer Operations
2. MCWP 3-17.4 Engineer Reconnaissance
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17.3 MAGTF Breaching Operations
5. (MCWP) 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
6. FM 34-130 Intelligence Preparation of the Battle Field (IPB)
7. (MCWP) 3-17, Marine Corps Warfighting Publication, Engineer Operations
8. JP 3-34 Joint Engineer Operations
9. FM 5-101 Mobility

ENGR-XENG-6801: Conduct General Engineering Operations

SUPPORTED MET(S): 1, 4, 5, 8

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

DESCRIPTION: Conduct general engineering operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of GCE operations.

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 and limited survey.
2. Plan, organize and construct obstacle systems.
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.

RELATED EVENTS: ENGR-XENG-5801, ENGR-XENG-5802

REFERENCES:
1. MCRP 3-17 Engineer Operations
2. MCWP 3-17.4 Engineer Reconnaissance
3. FM 90-7 Combined Arms Obstacle Integration
4. FM 5-412 Project Management
5. FM 5-424 Theater of Operations Electrical Systems
6. FM 5-33 Terrain Analysis
7. FM 5-410 Military Soils Engineering
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 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
10. FM 5-434 Earthmoving Operations
11. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
12. NAVAIR 51-60-A-1 Installation, Maintenance, Repackaging and Illustrated
13. Parts Breakdown, AM-2 Airfield Mat and Accessories

SUPPORT REQUIREMENTS: MHE & Earth moving Engineer Equipment

ENGR-CMOB-6801: Conduct counter-mobility operations

SUPPORTED MET(S): 1, 3, 9

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

DESCRIPTION: Conduct counter-mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of GCE requirements.

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 counter-mobility planning.
2. Integrate counter-mobility plan with the concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct and maintain obstacles and barriers.
8. Submit reports as required.

CHAINED EVENTS: ENGR-CMOB-3801

RELATED EVENTS: ENGR-CMOB-5801

REFERENCES:
1. MCRP 3-17 Engineer Operations
2. FM 5-103 Countermobility Operations
3. FM 90-7 Combined Arms Obstacle Integration

ENGR-SURV-6801: Conduct survivability operations

SUPPORTED MET(S): 1,4,5,9

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

DESCRIPTION: Conduct survivability operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in the construction of mutually supporting bunkers, fighting positions, hardening of existing structures, non-explosive and explosive obstacles, vehicle defilades, ECP/VCP, berms/barriers, HN support, communications, warning systems, etc., in support of GCE requirements.

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. 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.
8. Construct and maintain survivability positions as required.
9. Maintain oversight of survivability construction efforts.
10. Receive and submit reports as required.

CHAINED EVENTS: ENGR-SURV-5401, ENGR-SURV-4401, ENGR-SURV-3401, 1345-XENG-1005

RELATED EVENTS: ENGR-SURV-3801, ENGR-SURV-3802, ENGR-SURV-4902, ENGR-SURV-4903, ENGR-SURV-4904, ENGR-SURV-3903, ENGR-SURV-3402, ENGR-SURV-3403, ENGR-SURV-3404

REFERENCES:
1. MCRP 3-17 Engineer Operations
2. FM 5- 103 Survivability
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
5. FM 34-130 Intelligence Preparation of the Battle Field (IPB)
6. MCWP 3-17, Marine Corps Warfighting Publication, Engineer Operations
7. JP 3-34 Joint Engineer Operations

ENGR-MOBL-6701: Conduct mobility operations

SUPPORTED MET(S): 1, 2, 4, 5, 10

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

DESCRIPTION: Conduct mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of MAGTF requirements.

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 commanders' 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, ect.).
10. Submit reports as required.

CHAINED EVENTS: ENGR-MOBL-5703, ENGR-MOBL-4701

RELATED EVENTS: ENGR-MOBL-5704, ENGR-MOBL-5705, ENGR-MOBL-5706, ENGR-MOBL-5709, ENGR-MOBL-4702, ENGR-MOBL-4703, ENGR-MOBL-4706, ENGR-MOBL-4709

REFERENCES:
1. FM 5-101 Mobility
2. JP 3-34 Engineer Doctrine for Joint Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

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

ENGR-CMOB-6701: Conduct counter-mobility operations

SUPPORTED MET(S): 1, 3, 9

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

DESCRIPTION: Conduct counter-mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of MAGTF requirements.

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 turn, block, fix, or disrupt enemy forces in accordance with the commanders' intent and concept of operations.

EVENT COMPONENTS:
1. Conduct counter-mobility planning.
2. Integrate counter-mobility plan with the concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct and maintain obstacles and barriers.
8. Submit reports as required.

CHAINED EVENTS: ENGR-XENG-3402

REFERENCES:
1. FM 5-102 Countermobility
2. FM 90-7 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

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

ENGR-XENG-6701: Conduct general engineering operations

SUPPORTED MET(S): 1, 4, 6, 8, 10

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

DESCRIPTION: Conduct general engineering operations; 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: To provide general engineering in accordance with commanders' 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 (mobile electric power, water, potable water production, bath and laundry facilities, and refrigeration services).
8. Provide bulk petroleum handling, storing, and dispensing services.
9. Develop, improve, and maintain drainage systems.
10. Provide technical assistance to support camouflage requirements.
11. Provide expeditionary vertical and horizontal construction.
12. Provide material handling equipment support.
13. Provide EOD support.

CHAINED EVENTS: ENGR-XENG-5701, ENGR-XENG-4701, ENGR-XENG-4401, ENGR-XENG-3404, 1371-MANT-1001, 1345-XENG-1005

RELATED EVENTS: ENGR-XENG-5401, ENGR-XENG-4702, ENGR-XENG-4703, ENGR-XENG-4704, ENGR-XENG-4401, ENGR-XENG-3404, 1341-MANT-1002, 1341-MANT-1003, 1341-MANT-1004

REFERENCES:
1. FM 5-33 Terrain Analysis
2. FM 5-410 Military Soils Engineering
3. FM 5-412 Project Management
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
6. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
7. FM 5-434 Earthmoving Operations
8. FM 90-7 Combined Arms Obstacle Integration
9. MCWP 3-17 Engineer Operations
10. MCWP 3-17.4 Engineer Reconnaissance
11. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
12. 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

UNITS/PERSONNEL: EOD support Logistical support

ENGR-SURV-6701: Conduct survivability operations

SUPPORTED MET(S): 1, 4, 5, 9

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

DESCRIPTION: Conduct survivability operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in the construction of mutually supporting bunkers, fighting positions, hardening of existing structures, non-explosive and explosive obstacles, vehicle defilades, ECP/VCP, berms/barriers, HN support, communications, warning systems, etc., in support of MAGTF requirements.

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 survivability planning and positions for supported units in accordance with the commanders' 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 and maintain survivability positions as required.
8. Maintain oversight of survivability construction efforts.
9. Receive and submit reports as required.

CHAINED EVENTS: ENGR-SURV-5401, ENGR-SURV-4401, ENGR-XENG-4401, ENGR-SURV-3402

RELATED EVENTS: ENGR-SURV-5402, ENGR-SURV-5403, ENGR-SURV-4402, ENGR-SURV-4403, ENGR-SURV-4405, ENGR-SURV-3402, ENGR-SURV-3403

REFERENCES:
1. FM 5-103 Survivability
2. JP 3-34 Engineer Doctrine for Joint Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineer Operations
5. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer equipment

FUEL-XENG-6701: Conduct bulk petroleum operations

SUPPORTED MET(S): 7

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

DESCRIPTION: Conduct Bulk Petroleum Operations in support of the Marine logistics Group. The engineer support battalion (ESB) is responsible for providing general bulk fuel support to the MEF to include receipt, storage, distribution, and quality surveillance. The ESB has one bulk fuel company to provide this support. When supporting MAGTF airfields, the ESB is responsible for fuel distribution to the airfield. The bulk fuel company of the ESB provides coordination and control with the MAW for transfer of bulk fuel to the airfields.

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. Review mission.
2. Determine type of setup 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. Receipt for supplies.
6. Establish fuel systems communications plan.

7. Develop safety plan for storage and distribution.
8. Plan fuel distribution site for operations.
9. Establish a Petroleum Laboratory Quality Surveillance and Control Program.
10. Submit required reports

REFERENCES:
1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. FM 10-68 Aircraft Refueling
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. MCWP 4-11.6 Bulk Liquid Operations
5. MIL HDBK 200 Quality Surveillance Handbook for Fuels, Lubricants, and Related Products
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A 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

ENGR-XENG-6601: Conduct general engineering operations

SUPPORTED MET(S): 1, 2, 4, 5, 10

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

DESCRIPTION: Conduct general engineering operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of aviation ground support (AGS), cantonment, FARP construction, food service support, medical support, and general engineer services.

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: To provide general engineering in accordance with commanders' intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:
1. Providing engineer reconnaissance and survey.
2. Repairing, improving, and maintaining existing road networks for the ACE.
3. Constructing and maintaining expedient roads.
4. Constructing, maintaining, and improving vertical or short takeoff and landing sites.
5. Construct and maintain essential base camp requirements (i.e., bunkers, aircraft revetments, and expeditionary structures).
6. Provide technical and equipment assistance for erection of pre-engineered buildings.
7. Provide utilities support (mobile electric power, water, potable water production, bath and laundry facilities, and refrigeration services).
8. Develop, improve, and maintaining drainage systems.

9. Provide technical assistance to support camouflage requirements.
10. Assessing bomb damage and provide airfield damage repair (ADR).
11. Provide material handling equipment support.
12. Provide bulk petroleum handling, storing, and dispensing services.
13. Provide for EOD support.

CHAINED EVENTS: ENGR-XENG-5601, ENGR-XENG-5401, ENGR-XENG-4401, ENGR-XENG-3404, 1341-MANT-1001, 1345-XENG-1005

RELATED EVENTS: 1341-MANT-1002, 1341-MANT-1003, 1341-MANT-1004

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: Engineer Earthmoving equipment, Engineer support equipment, Engineer Material Handling equipment, Bulk Fuel equipment, Utilities equipment

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ENGR-SURV-6601: Conduct survivability operations

SUPPORTED MET(S): 1, 4, 5, 9

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 1 month

DESCRIPTION: Conduct survivability operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in the construction of mutually supporting bunkers, fighting positions, hardening of existing structures, vehicle defilades, ECP/VCP, berms/barriers, HN support, communications, warning systems, etc., in support of ACE requirements.

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 survivability planning and positions for supported units in accordance with the commanders' 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. Maintain oversight of survivability construction efforts.
8. Construct and maintain survivability position/structures.
9. Receive and submit reports as required.

CHAINED EVENTS: ENGR-SURV-5401, ENGR-SURV-4401, ENGR-XENG-4401, ENGR-SURV-3402

RELATED EVENTS: ENGR-SURV-5402, ENGR-SURV-5403, ENGR-SURV-4402, ENGR-SURV-4403, ENGR-SURV-4405, ENGR-SURV-3402, ENGR-SURV-3403

REFERENCES:
1. FM 5-103 Survivability
2. MCWP 3-17 Engineer Operations

ENGR-CMOB-6601: Conduct counter-mobility operations

SUPPORTED MET(S): 1, 3, 9

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

DESCRIPTION: Conduct counter-mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of ACE requirements.

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 turn, block, fix, or disrupt enemy forces in accordance with the commanders' intent and concept of operations.

EVENT COMPONENTS:
1. Conduct counter-mobility planning.
2. Integrate counter-mobility plan with the concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct and maintain obstacles and barriers.
8. Submit reports as required.

CHAINED EVENTS: ENGR-XENG-3402

REFERENCES:
1. FM 5-102 Countermobility
2. FM 90-7 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineer Operations

ENGR-EOPS-6401: Plan engineer operations

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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

DESCRIPTION: Conduct planning with focus on mobility, countermobility, survivability, and general engineering in accordance with the Marine Corps Planning Process (MCPP)

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 mission analysis, commanders' intent, and concept of operations.

EVENT COMPONENTS:
1. Perform mission analysis to include IPB and preparation of the engineer battlefield assessment.
2. Develop courses of action to include a scheme of engineer operations for each.
3. War game courses of action.
4. Compare courses of action, then present for commanders decision.
5. Develop orders to include engineer annexes and task organization.
6. Transition to produce operations plan or order.
7. Develop branches and sequels, if applicable.

REFERENCES:
1. MCWP 5-1 Marine Corps Planning Process

ENGR-EOPS-6402: Command and control engineer forces

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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

DESCRIPTION: 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.

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 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 commanders CCIRs
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.

REFERENCES:
1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineer Operations
3. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer Material handling equipment

MATERIAL: C4I Assets

ENGR-EOPS-6403: Train engineer forces

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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

DESCRIPTION: Train engineer forces in order to sustain proficiency in mobility, counter-mobility, survivability, and general engineering.

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 mission analysis.
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.

REFERENCES:
1. FM 5-101 Mobility
2. MCO 1553.2A Management of Marine Corps Formal Schools and Training

Detachments (Nov 03)
3. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. MCWP 3-17 Engineer Operations
7. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

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

ENGR-PINF-6401: Provide provisional infantry

SUPPORTED MET(S): 1

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

DESCRIPTION: Offensive operations including attacks, raids, movement to contact, etc. Defensive operations (including withdrawal), patrolling (including checkpoint ops), mobility (including screening, convoy ops), and employment of organic weapons. Operations other than war (civil disturbance, TRAP, cordon and search), MOUT (attack, defend, patrol, clear a building, vehicle check point). Participate in amphibious assault and raid operations. ISO Infantry

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.

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

SUPPORT REQUIREMENTS:

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

3005. 5000-LEVEL EVENTS

ENGR-RECN-5901: Conduct cache sweep operations

SUPPORTED MET(S): 2, 5, 9, 10

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

DESCRIPTION: Items in a cache may include (but is not limited to): 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: in order to detect, identify, and secure materials discovered during the course of the search in accordance with the commanders intent.

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. Reduce captured enemy ammunition as required.
9. Verify cache reduction.
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. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
5. MCRP 3-17A Engineer Field Data
6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M131 Cap, Blasting Non-Electric M7	
MN08 Igniter, Time Blasting Fuse with Sho	
M670 Fuse, Blasting Time M700	

M456 Cord, Detonating PETN Type I Class E
M130 Cap, Blasting Electric M6

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

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ENGR-MOBL-5801: Conduct obstacle breaching operations

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: Breaching operations are conducted to allow maneuver despite the presence of obstacles. Obstacle breaching is the employment of a combination of tactics and techniques to advance an attacking force to the far side of an obstacle that is covered by fire.

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

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

EVENT COMPONENTS:
1. Analyze obstacle intelligence.
2. Gather obstacle intelligence as required.
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. Submit required reports.
12. Turnover lane(s) to designated forces.
13. Reconstitute the breach force.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. MCRP 3-17A Engineer Field Data
9. MCRP 3-17B Engineer Forms and Reports
10. MCWP 3-17 Engineer Operations

11. MCWP 3-17.3 Breaching Operations
12. MCWP 3-17.3 MAGTF Breaching Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	
M914 Charge, Demolition Inert Linear M68A	
M913 Charge, Demolition High Explosive Li	

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

EQUIPMENT: Combat Engineer Breaching equipment, Engineer Earthmoving equiment, Engineer Material Handling equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-5802: Conduct route clearance operations

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: 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 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 (friendly forces are not fixed, turned, blocked, not 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. GTA 5-2-5 Engineer Reconnaissance
9. GTA 5-7-13 Bridge Classification Booklet
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.3 MAGTF Breaching Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
MN08 Igniter, Time Blasting Fuse with Sho	
MN90 Cap, Blasting, 1000 ft mini-tube M23	
MN88 Cap, Blasting, 500 ft mini-tube M21	
MN89 Dual instantaneous shock tube	
M757 Charge, Assembly Demolition M183 Com	

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

EQUIPMENT: Combat Engineer demolition equipment Route Clearance equipment

UNITS/PERSONNEL: Corpsman, Range Safety officer

ENGR-MOBL-5803: Construct combat roads

SUPPORTED MET(S): 2, 4, 9

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

DESCRIPTION: To create hasty expedient roads and trails.

CONDITION: Provided a mission order, commanders intent, a tactical situation, task organization of engineer equipment and personnel

STANDARD: To create hasty expedient roads and trails that meet the minimum traffic support requirements in accordance with the commanders' intent and the mobility plan.

EVENT COMPONENTS:
1. Review mission.
2. Conduct engineer reconnaissance and survey.
3. Task organize.
4. Coordinate with supporting units.
5. Issue order.
6. Conduct site preparations as required.
7. Clear the road.
8. Construct drainage structures as required.
9. Conduct expedient soil stabilization as required.
10. Construct road foundation.
11. Crown road.
12. Conduct expedient dust abatement as required.
13. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-170 Engineer Reconnaissance
4. FM 5-250 Explosives and Demolitions
5. FM 5-335 Drainage
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 5-412 Project Management
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 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
10. FM 5-434 Earthmoving Operations
11. GTA 5-2-5 Engineer Reconnaissance
12. MCWP 3-17 Engineer Operations
13. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

ENGR-XENG-5801: Conduct Horizontal construction

SUPPORTED MET(S): 2, 3, 4, 5, 9

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

DESCRIPTION: To 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, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and references

STANDARD: To build the assigned project that will meet or exceed the requirements listed in the design specifications and the commanders' intent.

EVENT COMPONENTS:
1. Plan horizontal construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate horizontal construction.
4. Construct a hasty expedient road.
5. Conduct site preparation.
6. Construct an expeditionary HLZ.
7. Conduct dust abatement as required.
8. Conduct non-explosive obstacles as required.
9. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-103 Survivability
4. FM 5-170 Engineer Reconnaissance
5. FM 5-335 Drainage
6. FM 5-34 Engineering Field Data
7. FM 5-412 Project Management
8. FM 5-428 Concrete Masonry
9. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
10. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
11. FM 5-434 Earthmoving Operations
12. JP 3-34 Engineer Doctrine for Joint Operations
13. MCWP 3-17 Engineer Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Earthmoving equipment, Material Handling equipment, Utilities equipment

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ENGR-XENG-5802: Conduct Vertical construction

SUPPORTED MET(S): 2, 3, 4, 5, 9

EVALUATION-CODED: NO **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 GCE.

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

STANDARD: To build/improve facilities that meet minimum requirements listed in the design specifications in accordance with the commanders' intent.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Repair facility as required.
6. Erect prefabricated structure as required.
7. Construct wood frame structure as required.
8. Construct timber structure as required.
9. Construct expedient drainage structure as required.
10. Wire structure for electricity as required.
11. Submit required reports.

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-163 Sewerage
7. FM 5-335 Drainage
8. FM 5-34 Engineering Field Data
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-553 General Drafting
16. GTA 5-7-13 Bridge Classification Booklet
17. GTA 5-7-6 Bridge Design Card
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 4-11 Combat Service Support
22. TM 5-232 Elements of Construction Surveying
23. TM 5-760 Interior Wiring

SUPPORT REQUIREMENTS:

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

ENGR-MOBL-5701: Conduct obstacle breaching operations

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: Breaching operations are conducted to allow maneuver despite the presence of obstacles. Obstacle breaching is the employment of a combination of tactics and techniques to advance an attacking force to the far side of an obstacle that is covered by fire.

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

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

EVENT COMPONENTS:
1. Analyze obstacle intelligence.
2. Gather obstacle intelligence as required.
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. Submit required reports.
12. Turnover lane(s) to designated forces.
13. Reconstitute the breach force.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. MCRP 3-17A Engineer Field Data
9. MCRP 3-17B Engineer Forms and Reports
10. MCWP 3-17 Engineer Operations
11. MCWP 3-17.3 Breaching Operations
12. MCWP 3-17.3 MAGTF Breaching Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
J143 Rocket Motor, 5-inch MK22 Mod 4	
M914 Charge, Demolition Inert Linear M68A	
M913 Charge, Demolition High Explosive Li	

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

ENGR-MOBL-5702: Conduct breach lane improvement operations

SUPPORTED MET(S): 2, 5

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, commanders 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 commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 5-101 Mobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-34 Engineer Field Data - Field Expedient Charges
5. FM 90-13-1 Combined Arms Breaching Operations
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 4-11 Combat Service Support

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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ENGR-MOBL-5703: Conduct route clearance operations

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: 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 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 (friendly forces are not fixed, turned, blocked, not 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. GTA 5-2-5 Engineer Reconnaissance
9. GTA 5-7-13 Bridge Classification Booklet
10. MCRP 3-17A Engineer Field Data

11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.3 MAGTF Breaching Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
MN08 Igniter, Time Blasting Fuse with Sho	
MN90 Cap, Blasting, 1000 ft mini-tube M23	
MN88 Cap, Blasting, 500 ft mini-tube M21	
MN89 Dual instantaneous shock tube	
M757 Charge, Assembly Demolition M183 Com	

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

EQUIPMENT: Combat Engineer demolition equipment, Route Clearance equipment, Engineer equipment, Motor transportation equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-5704: Install a medium girder bridge

SUPPORTED MET(S): 2, 3

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 5-7 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 per the mission, while observing safety precautions during erection and launch per the references.

EVENT COMPONENTS:
1. Analyze gap intelligence.
2. Gather gap intelligence as required.
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.

REFERENCES:
1. FM 5-101 Mobility
2. MCRP 3-17A Engineer Field Data
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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ENGR-MOBL-5705: Conduct rafting operations

SUPPORTED MET(S): 2, 3

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 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 per the mission, while observing safety precautions during rafting and boat operations to ensure mobility per the concept of operations.

EVENT COMPONENTS:
1. Analyze gap intelligence.
2. Gather gap 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 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.

REFERENCES:
1. FM 5-101 Mobility
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17 Engineer Operations
4. MCWP 3-17.1 River-Crossing Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17922 Floating Bridge Site

EQUIPMENT: Motor Transportation Vehicles

ENGR-MOBL-5706: Install Ribbon Bridge

SUPPORTED MET(S): 2, 3

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 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 per the mission, while observing safety precautions during bridging and boat operations to ensure mobility per the concept of operations.

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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
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

ENGR-MOBL-5707: Construct non-standard bridge

SUPPORTED MET(S): 2, 3

EVALUATION-CODED: NO **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 per the mission, while observing safety precautions during construction to ensure mobility per the references.

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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor transportation equipment, Material Handling equipment

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ENGR-MOBL-5708: Repair non-standard bridge

SUPPORTED MET(S): 2, 3

EVALUATION-CODED: NO **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 and intended bridge classification per the mission, while observing safety precautions to ensure mobility per the references.

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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17920 Panel Bridge Area

EQUIPMENT: Motor transportation equipment, Material Handling equipment

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ENGR-MOBL-5709: Construct combat roads

SUPPORTED MET(S): 2, 3

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

DESCRIPTION: To create hasty expedient roads and trails.

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

STANDARD: To create/repair/maintain expeditionary military roads (unimproved surface, Class C or D) that meets or exceeds the traffic support requirements in accordance with the commanders intent and the mobility plan.

EVENT COMPONENTS:
1. Review mission directives to determine class of road.
2. Determine geometric criteria.
3. Determine structural criteria.
4. Determine construction criteria.
5. Conduct engineer reconnaissance and survey.
6. Task organize.
7. Coordinate with supporting units.
8. Issue order.
9. Conduct site preparations as required.
10. Conduct rough grading as required.
11. Cut and fill as required.
12. Conduct soil stabilization as required.
13. Construct drainage structures as required.
14. Shape road.
15. Conduct dust abatement as required.
16. Surface road as required.
17. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-170 Engineer Reconnaissance
4. FM 5-250 Explosives and Demolitions
5. FM 5-335 Drainage
6. FM 5-34 Engineer Field Data - Field Expedient Charges

7. FM 5-412 Project Management
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 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
10. FM 5-434 Earthmoving Operations
11. GTA 5-2-5 Engineer Reconnaissance
12. MCWP 3-17 Engineer Operations
13. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer earthmoving equipment, Combat engineer equipment

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ENGR-CMOB-5701: Create obstacle groups

SUPPORTED MET(S): 3

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

DESCRIPTION: Obstacles can be explosive or non-explosive in nature.

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, routes, rules of engagement, supporting arms, an equipment density list and available personnel.

STANDARD: to turn, block, fix, or disrupt the enemy and supports the commanders intent.

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 commanders’ 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.
15. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 5-100 Engineers in Combat Operations
4. FM 5-102 Countermobility
5. FM 5-103 Survivability
6. FM 5-170 Engineer Reconnaissance
7. FM 5-34 Engineer Field Data - Field Expedient Charges
8. FM 90-1 Countermobility
9. FM 90-7 Combined Arms Obstacle Integration
10. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
11. JP 3-34 Engineer Doctrine for Joint Operations
12. MCRP 3-17A Engineer Field Data
13. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer Material Handling equipment, Combat Engineer equipment

UNITS/PERSONNEL: Range Safety Officer, Corpsman

ENGR-XENG-5701: Conduct Vertical Construction

SUPPORTED MET(S): 2, 3, 4, 5, 6, 9

EVALUATION-CODED: NO **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, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To build/improve facilities that meet the requirement listed in the design specification and in accordance with the commanders' intent.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Construct concrete block structure as required
6. Repair facility as required.
7. Erect prefabricated structure as required.
8. Construct manufactured steel structure as required.
9. Construct wood frame structure as required.
10. Construct timber structure as required.
11. Construct concrete structure as required.
12. Construct drainage structure as required.

13. Wire structure for electricity as required.
14. Plumb structure as required.
15. Submit required reports.

REFERENCES:

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-163 Sewerage
7. FM 5-335 Drainage
8. FM 5-34 Engineering Field Data
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-553 General Drafting
16. GTA 5-7-13 Bridge Classification Booklet
17. GTA 5-7-6 Bridge Design Card
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 4-11 Combat Service Support
22. TM 5-232 Elements of Construction Surveying
23. TM 5-760 Interior Wiring

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, Material Handling equipment, Motor Transportation equipment

MATERIAL: Vertical construction building materials

ENGR-MOBL-5601: Conduct route clearance operations

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: 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 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 (friendly forces are not fixed, turned, blocked, not 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment

ENGR-MOBL-5602: Conduct airfield damage repair

SUPPORTED MET(S): 2, 4

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. 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 air field/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

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
7. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
8. FM 5-434 Earthmoving Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat Engineer equipment

ENGR-XENG-5601: Conduct Vertical Construction

SUPPORTED MET(S): 2, 4, 5, 9

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

DESCRIPTION: To conduct vertical construction in order to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the ACE.

CONDITION: Given a mission, commanders intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and appropriate references

STANDARD: To build/improve facilities to meet the requirements listed in the design specifications in accordance with the commanders' intent.

EVENT COMPONENTS:
1. Plan vertical construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Construct concrete block structure as required
6. Repair facility as required.
7. Erect prefabricated structure as required.
8. Construct manufactured steel structure as required.

9. Construct wood frame structure as required.
10. Construct timber structure as required.
11. Construct concrete structure as required.
12. Construct drainage structure as required.
13. Wire structure for electricity as required.
14. Plumb structure as required.
15. Submit required reports.

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-163 Sewerage
7. FM 5-335 Drainage
8. FM 5-34 Engineering Field Data
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-553 General Drafting
16. GTA 5-7-13 Bridge Classification Booklet
17. GTA 5-7-6 Bridge Design Card
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 4-11 Combat Service Support
22. TM 5-232 Elements of Construction Surveying
23. TM 5-760 Interior Wiring

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, Material Handling equipment, Motor Transportation equipment, Combat engineer tools and kits

MATERIAL: Vertical construction building materials

ENGR-MOBL-5501: Construct tactical landing zones

SUPPORTED MET(S): 1, 2, 4, 5, 7

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 per the size, type, and number of aircraft.

EVENT COMPONENTS:
1. Task organize.
2. Conduct engineer reconnaissance and survey.
3. Estimate engineer equipment requirements.
4. Coordinate necessary support.
5. Finalize construction plan.
6. Issue the order.
7. Construct/repair airfield, landing zone, or other facilities as required.
8. Maintain and improve airfield, landing zone, or other facilities as required.
9. Submit required reports.

REFERENCES:
1. FM 5-100 Engineers in Combat Operations
2. FM 5-101 Mobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-250 Explosives and Demolitions
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. FM 5-36 Route Reconnaissance and Classification
7. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
8. FMFM 13 MAGTF Engineer Operations
9. FMFM 4-4 Engineer Operations
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCRP 4-11.3E Multi-service Helicopter Sling Load: Vols I, II and III
13. MCWP 3-17 Engineer 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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ENGR-MOBL-5502: Conduct area clearance operations

SUPPORTED MET(S): 2, 4, 9, 10

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

CONDITION: Provided a mission, permissive environment, hours of daylight, 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 commanders' 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.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 3-34.119 Improvised Explosive Device (IED) Defeat
5. FM 3-34.210 Explosive Hazard Operations
6. FM 3-34.214 Explosives and Demolitions
7. FM 5-100 Engineers in Combat Operations
8. FM 5-101 Mobility
9. FM 5-101-5-1 Operational Terrain and Symbols
10. FM 5-170 Engineer Reconnaissance
11. FM 90-13-1 Combined Arms Breaching Operations
12. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
13. MCRP 3-17A Engineer Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. 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: Combat engineer equipment

ENGR-XENG-5501: Conduct Horizontal Construction

SUPPORTED MET(S): 2, 3, 4, 5, 9

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

DESCRIPTION: In order to meet operational requirements of the MAGTF horizontal construction is conducted to shape the terrain for various projects such as but not limited to MSR construction and/or maintenance, expeditionary airfields, site preparation for bed down facilities, and ordnance storage facilities.

CONDITION: Given a mission, commanders intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and references

STANDARD: To create the assigned project that meets or exceed the requirements listed in the design specifications and the commanders' intent.

EVENT COMPONENTS:
1. Plan horizontal construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate horizontal construction.
4. Conduct site preparation.
5. Construct road(s) as required.
6. Construct tactical landing zones as required.
7. Conduct dust abatement as required.
8. Conduct beachhead improvement as required.
9. Construct drainage structures as required.
10. Construct expedient HLZ as required.
11. Construct expeditionary airfield as required.
12. Construct non-explosive obstacles as required.
13. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-103 Survivability
4. FM 5-170 Engineer Reconnaissance
5. FM 5-335 Drainage
6. FM 5-34 Engineering Field Data
7. FM 5-412 Project Management
8. FM 5-428 Concrete Masonry
9. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
10. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
11. FM 5-434 Earthmoving Operations
12. JP 3-34 Engineer Doctrine for Joint Operations
13. MCWP 3-17 Engineer Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Utilities equipment

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FUEL-XENG-5501: Construct Bulk Petroleum site

SUPPORTED MET(S): 7

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

DESCRIPTION: This task implies the conduct of construction and setup of fuel storage and distribution systems to accommodate multiple fuel requirements in support of the MAGTF

CONDITION: Provided a bulk fuel plan with a systems layout, a location, task-organized personnel, and engineer equipment.

STANDARD: To meet fuel support requirements in accordance with the commanders' 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 system components.
10. Conduct dust abatement as required.
11. Construct access road(s) as required.
12. Submit required reports.

REFERENCES:
1. FM 5-335 Drainage
2. FM 5-412 Project Management
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-434 Earthmoving Operations
5. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 4-11.6 Bulk Liquid Operations
8. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
9. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17933 POL Training Area
Facility Code 17413 Field Training Area

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Utilities equipment, Bulk Fuel equipment

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FUEL-XENG-5502: Conduct Tactical Bulk Fuel operations

SUPPORTED MET(S): 7

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

DESCRIPTION: Conduct Tactical Bulk fuel Operations.

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. Change Product Types as required.
8. Test fuel quality as required.
9. Coordinate for fuel distribution.
10. Dispense fuel as required.

REFERENCES:
1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. FM 10-68 Aircraft Refueling
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. MCWP 4-25.5 Bulk Liquids Operations
5. MIL HDBK 200 Quality Surveillance Handbook for Fuels, Lubricants, and Related Products
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17933 POL Training Area

EQUIPMENT: Material Handling equipment, Bulk fuel equipment, Utilities equipment

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ENGR-MOBL-5401: Construct expedient HLZ

SUPPORTED MET(S): 2, 4, 5

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 3 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, medvac 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 commanders' intent, concept of operations and supported unit requirements.

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

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-170 Engineer Reconnaissance
3. FM 5-412 Project Management
4. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
5. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
6. MCWP 3-17 Engineer 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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ENGR-XENG-5401: Provide engineer equipment support

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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 support and IAW unit SOPs or guidance to support the concept of operations and in accordance with 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 required.
6. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
7. Coordinate with supporting units (logistics, etc).
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.

REFERENCES:
1. FM 100-10 Combat Service Support
2. FM 5-412 Project Management
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
5. FM 5-434 Earthmoving Operations
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. Appropriate Equipment Manual

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer equipment, Motor Transport equipment, Utilities equipment

UNITS/PERSONNEL: Engineer equipment maintainers, Utilities equipment maintainers

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ENGR-XENG-5402: Prepare Site for Construction

SUPPORTED MET(S): 2, 4, 5, 9

EVALUATION-CODED: NO **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, commanders’ intent, task organized personnel and equipment, and references.

STANDARD: To prepare a site for construction IAW unit capabilities, SOPs or guidance to support the concept of operations and in accordance with 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 earthmoving operations as required.
7. Conduct demolition operations as required.
8. Conduct material handling operations as required.
9. Conduct vertical construction operations as required.
10. Provide utilities support as required.
11. Submit required reports.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-33 Terrain Analysis
3. FM 5-335 Drainage
4. FM 5-412 Project Management
5. FM 5-434 Earthmoving Operations
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Motor Transportation equipment, Utilities equipment

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UTIL-XENG-5401: Provide Utilities Support

SUPPORTED MET(S): 6, 8

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

DESCRIPTION: Provide tactical electrical supply and distribution; tactical water supply and hygiene service; heating, ventilation, air conditioning and refrigeration service; and maintenance capabilities for all utilities equipment in accordance with the units mission statement.

CONDITION: Given a mission, a support plan, equipment availability, personnel and 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 potable water as required
5. Provide tactical electrical support as required
6. Provide tactical hygiene support as required

7. Provide non-tactical utilities support as required
8. Maintain Utilities Equipment
9. Recover utilities equipment as required.
10. Submit required reports.

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. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
5. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
6. FM 10-52 Water Supply in Theaters of Operation
7. FM 10-52-1 Water Supply Point Equipment and Operations
8. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
9. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
10. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons (Oct 89)
11. MCRP 3-17B Engineer Forms and Reports
12. MCRP 4-11.1D Field Hygiene and Sanitation
13. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
14. MCWP 3-17 Engineer Operations
15. MCWP 3-17.4 Engineer Reconnaissance
16. MCWP 4-11 Tactical Level Logistics
17. MCWP 4-11.4 Maintenance Operations
18. MCWP 4-11.6 Petroleum and Water Logistics Operations
19. MCWP 5-1 Marine Corps Planning Process
20. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
21. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
22. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
23. TB MED 593 Guidelines for Field Waste Management
24. TC 3-34.489 The Soldier and the Environment
25. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
26. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)
27. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment, Engineer Material Handling equipment

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ENGR-RECN-5401: Conduct engineer reconnaissance

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: To conduct a directed effort to obtain detailed engineer information within/ along designated routes, zones, and/or areas.

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

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with 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. Submit required reports.

ENGR-DEMO-5401: Conduct demolition operations

SUPPORTED MET(S): 2, 3, 4, 10

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

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

STANDARD: To achieve desired effects in accordance with commander's intent.

EVENT COMPONENTS:
1. Coordinate demolition operations.
2. Plan demolition operations.
3. Conduct engineer reconnaissance.
4. Destroy captured arms and ammunition as required.
5. Employ demolitions in support of mobility operations as required.
6. Employ demolitions in support of expeditionary operations as required.
7. Employ demolitions in support of survivability position construction.
8. Employ demolitions in support of countermobility operations.
9. Employ demolitions in support of horizontal construction as required.
10. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

ENGR-SURV-5401: Construct survivability positions

SUPPORTED MET(S): 3, 8

EVALUATION-CODED: YES **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 and supports the concept of operations in accordance with the commanders' 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-serve 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.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier

2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-34 Engineering Field Data
10. FM 5-426 Carpentry
11. FM 90-3 Desert Operations
12. FM 90-5 Jungle Operations
13. FMFM 13 MAGTF Engineer Operations
14. FMFRP 12-51 Engineer Operations
15. JP 3-34 Engineer Doctrine for Joint Operations
16. MCRP 3-17A Engineer Field Data
17. MCWP 3-17 Engineer Operations
18. MCWP 3-41.1 Rear Area Operations
19. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat Engineer equipment, Engineer Earthmoving equipment, Material Handling equipment, Utilities equipment

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-5402: Harden existing structure

SUPPORTED MET(S): 3, 9

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, 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 commanders’ 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.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. MCRP 3-17A Engineer Field Data
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer earthmoving equipment, Combat engineer tools & kits, Utilities equipment

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ENGR-SURV-5403: Construct field fortifications

SUPPORTED MET(S): 3, 9

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, commanders intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: that meets the mission requirements and supports the concept of operations in accordance with the commanders' 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.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-101 Mobility
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. MCRP 3-17A Engineer Field Data
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Combat engineer tools & kits

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ENGR-MANT-5401: Maintain engineer equipment

SUPPORTED MET(S): 2, 3, 4, 5, 6, 7, 8, 9, 10

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 12 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 water support equipment as required
5. Maintain electrical equipment as required.
6. Maintain MHE/earthmoving equipment as required.
7. Maintain other organic tactical engineer equipment as required.
8. Manage Maintenance Programs.
9. Submit required reports.

REFERENCES:
1. DODI 6055.1 DoD Safety and Occupational Health (SOH) Program (Aug 98)
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. MCBUL 3000 Table of Marine Corps Ground Equipment Resources Reporting
4. MCO 4731.1A Oil Analysis Program for Ground Equipment (Nov 90)
5. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
6. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
7. MCO 5100.29A Marine Corps Safety Program (Jul 04)
8. MCO P4790.2_ MIMMS Field Procedures Manual

9. Appropriate Equipment Manual
10. Local Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer tools, sets, kits

ENGR-INF-5401: Fight as Provisional Infantry

SUPPORTED MET(S): 1

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

DESCRIPTION: Offensive operations including attacks, raids, movement to contact, ect... Defensive operations (including withdrawal), patrolling (including check point ops), mobility (including screening, convoy ops), and employment of organic weapons. Operations other than war (civil disturbance, TRAP, cordon and search), MOUT (attack, defend, patrol, clear a building, vehicle check point). Participate in amphibious assault and raid operations.

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.

REFERENCES:
1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
4. MCRP 3-02G First Aid (Dec 02)
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

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

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3006. 4000-LEVEL EVENTS

ENGR-MOBL-4901: Conduct Security for Route Clearance/ Sweep operations

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, booby-traps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders 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. 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.

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. FM 5-101 Mobility
3. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat engineer equipment, Squad & Fire team weapons

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-MOBL-4902: Detect Obstacles for Route Clearance/ Sweep operations

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: The mission of the detection element is to scan the medians and shoulders of a route and sweep them for EH, using visual, metallic, and electronic detection capabilities. The element pinpoints the location and remotely investigates suspected EH, marks and reports UXO, and secures and reports IEDs. Trained personnel use robotics or other means to conduct standoff neutralization, when required, to provide assured mobility to the maneuver commander.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, booby traps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders 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, booby-traps, and unexploded ordnance within area if possible.
8. Operate dismounted mine detectors as required.
9. Operate mounted mine detectors as required.
10. Operated other detection equipment as required.
11. Conduct earthmoving operations to detect obstacles as required.
12. Alternate detector operators as required to prevent fatigue.
13. Mark obstacles for reduction as required.
14. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 5-101 Mobility
4. FM 5-101-5-1 Operational Terrain and Symbols
5. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports

8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Motor Transportation, Material Handling, Engineer equipment and lifting capability

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ENGR-MOBL-4903: Breach Obstacles for Route Clearance/ Sweep Operations

SUPPORTED MET(S): 2, 3, 4, 5, 9

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

DESCRIPTION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, booby-traps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders 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. Visually identify all non-explosive obstacles within area.
6. Visually detect mines, booby-traps, and unexploded ordnance within area if
7. Operate dismounted mine detectors as required.
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. Reduce obstacles (explosively and non-explosively) as required.
14. Proof obstacles as required.
15. Submit required reports.

RELATED EVENTS: 1371-MOBL-1003

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations

3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
MN90	Cap, Blasting, 1000 ft mini-tube M23	
MN89	Dual instantaneous shock tube	
MN88	Cap, Blasting, 500 ft mini-tube M21	
M456	Cord, Detonating PETN Type I Class E	
G982	Grenade, Hand Practice Smoke TA M83	
M670	Fuse, Blasting Time M700	
MN08	Igniter, Time Blasting Fuse with Sho	
J143	Rocket Motor, 5-inch MK22 Mod 4	
M913	Charge, Demolition High Explosive Li	
M914	Charge, Demolition Inert Linear M68A	

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

EQUIPMENT: Kevlar helmet, flak vest, hearing protection, demolition kit, AN/PRC 119, firing device (M34, MK152 remote firing device, CD450-4J blasting machine

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

UNITS/PERSONNEL: Range safety officer, corpsman

ENGR-CMOB-4901: Create an Explosive Obstacle

SUPPORTED MET(S): 3

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

DESCRIPTION: Explosive obstacles include minefields, booby-traps, and improvised anti-personnel and anti-tank mines.

CONDITION: Given a mission, commanders 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.

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 minefield controls/ marking.
8. Emplace hasty protective row minefield as required.
9. Emplace hasty row minefield as required.
10. Emplace booby-traps as required.
11. Emplace improvised anti-personnel and/or anti-tank mines as required.
12. Account for all personnel and equipment prior to returning to friendly lines.
13. Coordinate lane closure plan with supported unit as required.
14. Submit required reports.

REFERENCES:

1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.119 Improvised Explosive Device (IED) Defeat
4. FM 3-34.210 Explosive Hazard Operations
5. FM 3-34.214 Explosives and Demolitions
6. FM 5-102 Countermobility
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-34 Engineer Field Data - Field Expedient Charges
10. FM 5-36 Route Reconnaissance and Classification
11. FM 90-7 Combined Arms Obstacle Integration
12. FMFM 13 MAGTF Engineer Operations
13. FMFM 4-4 Engineer Operations
14. MCRP 3-17A Engineer Field Data
15. MCWP 3-17 Engineer Operations
16. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17830 Light Demolition Range
Facility Code 17730 Fire And Movement Range

EQUIPMENT: Combat engineer equipment, Material Handling equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-CMOB-4902: Create an Non- Explosive Obstacle

SUPPORTED MET(S): 3

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

DESCRIPTION: Non-explosive obstacles include constructed and field expedient obstacles that support countermobility operations for offensive and defensive missions.

CONDITION: Given a mission, commanders 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, intended to turn, block, fix, or disrupts enemy personnel or equipment.

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. Move to obstacle site.
8. Tie obstacles into natural/existing obstacles as required
9. Emplace mobility obstacles (barriers, hedgehogs, ect.) as required.
10. Emplace wire obstacles as required.
11. Emplace field expedient obstacles (logs, abatis, rubble, ect.) as required.
12. Create craters as required.
13. Emplace phony obstacles as required.
14. Emplace tank ditches as required.
15. Account for all personnel and equipment prior to returning to friendly lines.
16. Coordinate lane closure plan with supported unit as required.
17. Submit required reports.

REFERENCES:
1. FM 3-06 Urban Operations
2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-36 Route Reconnaissance and Classification
5. FM 90-7 Combined Arms Obstacle Integration
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCRP 3-17A Engineer Field Data
9. MCWP 3-17 Engineer Operations
10. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

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

EQUIPMENT: Combat engineer equipment, Material Handling equipment, Earthmoving Equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-RECN-4901: Conduct Zone Reconnaissance

SUPPORTED MET(S): 2, 3, 4, 5, 9

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, and CBRN.

CONDITION: Given a mission, commanders’ intent, task organization of personnel and equipment, and references.

STANDARD: In order to gather all relevant engineer data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with 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 CBRN as required.
10. Reconnoiter for obstacles as required.
11. Submit required reports.

REFERENCES:
1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-101 Mobility
3. FM 5-102 Countermobility
4. FM 5-170 Engineer Reconnaissance
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. GTA 5-2-5 Engineer Reconnaissance
7. GTA 5-7-13 Bridge Classification Booklet
8. JP 3-34 Engineer Doctrine for Joint Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

ENGR-RECN-4902: Conduct Route Reconnaissance

SUPPORTED MET(S): 2, 3, 4, 5, 9

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, and CBRN.

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

STANDARD: In order to, gather all relevant data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with 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,
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.

REFERENCES:
1. FM 5-102 Countermobility
2. FM 5-170 Engineer Reconnaissance
3. FM 5-34 Engineer Field Data - Field Expedient Charges
4. GTA 5-2-5 Engineer Reconnaissance
5. GTA 5-7-13 Bridge Classification Booklet
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Combat engineer equipment

ENGR-RECN-4903: Conduct Area Reconnaissance

SUPPORTED MET(S): 2, 3, 4, 5, 9

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, and CBRN in established lateral boundaries.

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

STANDARD: In order to, gather all relevant data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with 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 facilities in specified area as required.
9. Reconnoiter obstacles in specified area as required.
10. Reconnoiter structures in specified as required.
11. Reconnoiter CBRN existing\capabilities in specified area as required.
12. Submit required reports.

REFERENCES:
1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-101 Mobility
3. FM 5-102 Countermobility
4. FM 5-170 Engineer Reconnaissance
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. GTA 5-2-5 Engineer Reconnaissance

7. GTA 5-7-13 Bridge Classification Booklet
8. JP 3-34 Engineer Doctrine for Joint Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
12. MCWP 3-17 Engineer 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

EQUIPMENT: Combat engineer equipment

ENGR-RECN-4904: Conduct Engineer Reconnaissance

SUPPORTED MET(S): 2, 3, 4, 5, 9

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

DESCRIPTION: Specific mission to compile pertinent engineer information on all aspect 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, commanders' intent, task organization of personnel and equipment, and references.

STANDARD: In order to, gather all relevant engineer data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with 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.

REFERENCES:
1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-101 Mobility
3. FM 5-102 Countermobility
4. FM 5-170 Engineer Reconnaissance
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. GTA 5-2-5 Engineer Reconnaissance
7. GTA 5-7-13 Bridge Classification Booklet
8. JP 3-34 Engineer Doctrine for Joint Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat Engineer equipment

ENGR-RECN-4905: Conduct Cache Sweep

SUPPORTED MET(S): 4, 5, 10

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

DESCRIPTION: Employ engineer assets to detect for suspected caches of ordnance, to include: munitions, mines, ammunition, weapons, and explosives.

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

STANDARD: To locate and mark undiscovered ordnance, munitions, mines ammunition, weapons, and explosives per commanders intent and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit.
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment for operation.
5. Move to site.
6. Detect primary/secondary markers.
7. Conduct cache sweep.
8. Locate and mark cache.
9. Identify the component(s) of cache.
10. Sweep area for secondary/other ordnance caches.
11. Reconstitute sweep force.
12. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCWP 3-1 Ground Combat Operations
5. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
MN08 Igniter, Time Blasting Fuse with Sho	
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	

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

EQUIPMENT: Combat Engineer detection equipment

UNITS/PERSONNEL: Explosive Ordinance Personnel, Weapons Intelligence team, Corpsman

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ENGR-XENG-4901: Rig Expedient Lifting Devices

SUPPORTED MET(S): 2, 3, 4, 9

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

DESCRIPTION: Task involves techniques and procedures used 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.). Object of rigging devices support 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 and in accordance with 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 3-17A Engineer Field Data
2. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

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

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ENGR-MOBL-4801: Conduct Deliberate Breach

SUPPORTED MET(S): 2

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

DESCRIPTION: This task describes both mounted and dismounted deliberate breaches. A breach force (also might be called an Obstacle Clearance Detachment (OCD)) may be task organized with Assault Breacher Vehicles, M9 Armored Combat Excavators, Joint Assault Bridges, Amphibious Assault Vehicles (with or without towed or internal linear demolition charges), and other vehicles equipment as the situation may dictate. The assault force and the support force are also part of the breaching task force.

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 mission, commander's intent, while observing safety precautions.

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 Joint Assault Bridge 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. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

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

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

ENGR-MOBL-4802: Conduct Hasty/In-stride Breach

SUPPORTED MET(S): 2, 4

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

DESCRIPTION: This task describes both mounted and dismounted hasty/ in-stride breaches. This is a battle-drill against weakly defended obstacles using organic task organization, in order to maintain momentum of maneuver forces. The element designated as the breach force (also might be called an Obstacle Clearance Detachment (OCD)) may be task organized with Assault Breacher Vehicles, M9 Armored Combat Excavators, Joint Assault Bridges, Amphibious Assault Vehicles (with or without towed or internal linear demolition charges), and other vehicles equipment as the situation may dictate. A hasty breach may need to transition to a deliberate breach if initial attempts are unsuccessful due to enemy action.

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, commander's intent, while observing safety precautions.

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 Joint Assault Bridge 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. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

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

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

ENGR-MOBL-4803: Conduct Covert Breach

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: This task describes both mounted and dismounted non-explosive breaches that are conducted under cover of darkness/ periods of limited visibility that do not alert enemy forces. If the breach attempt is discovered by enemy forces, it will rapidly transition to either a deliberate or a hasty breach.

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, without alerting enemy forces in accordance with the mission, commander's intent, while observing safety precautions.

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.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

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

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

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

ENGR-MOBL-4804: Conduct Assault Breach

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: This task describes both mounted and dismounted assault breaches through the final protective obstacles of an enemy position in order to continue.

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. Verify suppression/obscuration effects.
2. Coordinate with supporting elements as required.
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.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M913 Charge, Demolition High Explosive Li	

M914 Charge, Demolition Inert Linear M68A
J143 Rocket Motor, 5-inch MK22 Mod 4

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

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

ENGR-MOBL-4805: Conduct Dismounted Route Sweep operations

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: A sweep team consists of a command element, detection team(s) (the ear), marking team(s) (the finger), and a demolition team(s).

CONDITION: Given a mission, commanders' intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel and equipment, and references.

STANDARD: To ensure all mines, booby-traps, obstacles, and unexploded ordnance are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commanders intent.

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 weapons intelligence team activities as required.
13. Coordinate with other specialist personnel as required.
14. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations

2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. FM 5-34 Engineering Field Data
7. FMFM 13 MAGTF Engineer Operations
8. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, AN/PRC 119, AN/PSS 14/12 mine detector, probe, T-tool, compass, protractor, 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: ORM

ENGR-MOBL-4806: Conduct Route Improvement

SUPPORTED MET(S): 2, 4

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

DESCRIPTION: Route improvement supports route clearance operations and may be required 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 route clearance operations and the 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. Operate engineer equipment as required.
8. Remove rubble/ debris as required.
9. Remove vegetation as required.
10. Remove trash as required.
11. Remove upheaval to required specifications.
12. Remove berms as required.
13. Fill holes/ trenches/ depressions as required.
14. Place additional fill/ stabilization/ reinforcement materials as required.
15. Identify surface repairs as required.
16. Identify drainage structure repairs as required.
17. Conduct culvert denial activities as required.
18. Conduct immediate actions as required.
19. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment, Combat engineer equipment

ENGR-MOBL-4807: Install Rope Bridge

SUPPORTED MET(S): 2, 4, 5

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

DESCRIPTION: There are two types of rope bridges, a one rope and a two rope bridge. To construct a one-rope bridge using a 36 1/2-meter rope; however do not bridge obstacles that exceed 20 meters with that rope length. Anchor the rope with an anchor knot (round turn with two half hitches) on the far side of the obstacle, and tie it off at the near end with a tightening system. You can build a one-rope bridge in many ways, depending on the tactical situation and area you are to cross. Regardless, all one-rope bridges require similar elements for you to emplace safely: Two suitable anchors, Good loading and unloading platforms, one rope about 1-meter high for loading and unloading, a tightening system, and a rope tight enough for ease of crossing. Construct a two-rope bridge the same as a one-rope bridge except use two ropes. Space the ropes about 1 1/2 meters apart at the anchor points. The two-rope bridge is ideal for a platoon-size element. This bridge, however, does requires more time and equipment to construct than the

one-rope bridge: Two climbing ropes, two snaplinks, seven marines for construction, one sling rope and two snaplinks for those using the bridge. NOTE: Construct the top rope using any transport-tightening system technique.

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 commanders intent, while observing safety precautions during assembly and installation per the references.

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.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCRP 3-17B Engineer Forms and Reports
3. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
4. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

ENGR-XENG-4801: Conduct Vertical Construction

SUPPORTED MET(S): 2, 4, 5, 8

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

DESCRIPTION: To conduct vertical construction (limited) is to build or provide improvements to existing structures or construction of strong backs, sea huts, command posts, and facilities for use by the GCE.

CONDITION: Given a mission, commanders intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and appropriate references

STANDARD: To build/improve structures that meet the requirements listed in the design specification and in accordance with the commanders' intent.

EVENT COMPONENTS:
1. Review vertical construction requirements.
2. Review engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Operate tools and equipment as required.
6. Repair structures as required.

7. Construct wood frame structures as required.
8. Assist in erecting prefabricated structure as required.
9. Assist in construction manufactured steel structure as required.
10. Construct timber structure(s) as required.
11. Provide electrical power and lighting as required.
12. Submit required reports.

REFERENCES:

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-103 Field Fortifications
7. FM 5-163 Sewerage
8. FM 5-250 Explosives and Demolitions
9. FM 5-335 Drainage
10. FM 5-34 Engineering Field Data
11. FM 5-412 Project Management
12. FM 5-426 Carpentry
13. FM 5-428 Concrete Masonry
14. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
15. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
16. FM 5-434 Earthmoving Operations
17. FM 5-446 Military Non-Standard Fixed Bridges
18. FM 5-553 General Drafting
19. FMFM 13 MAGTF Engineer Operations
20. GTA 5-7-13 Bridge Classification Booklet
21. GTA 5-7-6 Bridge Design Card
22. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
23. JP 3-34 Engineer Doctrine for Joint Operations
24. MCWP 3-17 Engineer Operations
25. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
26. MCWP 3-41.1 Rear Area Operations
27. MCWP 4-11 Combat Service Support
28. TM 5-232 Elements of Construction Surveying
29. TM 5-760 Interior Wiring

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Combat engineer equipment, Utilities equipment, Engineer Material Handling equipment

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ENGR-XENG-4802: Construct Wood Frame Structure

SUPPORTED MET(S): 4, 5, 9

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

DESCRIPTION: Construction of 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, commanders 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 commanders' 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.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-412 Project Management
5. FM 5-426 Carpentry

ENGR-XENG-4803: Construct Timber Structure

SUPPORTED MET(S): 3, 4, 5, 8

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

DESCRIPTION: 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 in support of the GCE.

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

STANDARD: To meet the survivability requirements and in accordance with the commanders 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.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment Combat Engineer tools and kits

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ENGR-XENG-4804: Repair existing structures

SUPPORTED MET(S): 4, 5, 9

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

DESCRIPTION: Any type of structure (wood, concrete, steel, bridges, etc.) or facilities that has been damaged from military operations or due to structural integrity being flawed/incorrect per design specifications in support of the GCE. Repairing structures that can be conducted within capabilities of unit performing the task.

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

STANDARD: To meet the original design requirements/specifications of the structures or facilities and in accordance with the commanders' 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.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry

SUPPORT REQUIREMENTS:

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

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ENGR-DEMO-4801: Employ Demolitions In support of Counter-Mobility Operations

SUPPORTED MET(S): 3, 5

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 counter-mobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data

6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

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

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

ENGR-MOBL-4701: Maneuver a Standard Military Ribbon Raft

SUPPORTED MET(S): 2, 3

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 meet the mission requirements while observing safety precautions during all rafting operations in accordance with the mission and commanders intent.

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.

REFERENCES:
1. FM 5-101 Mobility
2. FMFM 13 MAGTF Engineer Operations
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.1 River-Crossing Operations
7. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
8. 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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ENGR-MOBL-4702: Assemble Medium Girder Bridge

SUPPORTED MET(S): 2, 3

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 per the mission, while observing safety precautions during erection and launch per the references.

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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges

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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ENGR-MOBL-4703: Assemble Ribbon Bridge

SUPPORTED MET(S): 2, 3

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 per the references.

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. Off load bridge erection boats.
6. Off load 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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
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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ENGR-MOBL-4704: Assemble ribbon raft

SUPPORTED MET(S): 2, 3

EVALUATION-CODED: NO **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 per the references.

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. Off load bridge erection boats.
6. Off load 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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
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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ENGR-MOBL-4705: Conduct Deliberate Breach

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: This task describes both mounted and dismounted deliberate breaches. A breach force (also might be called an Obstacle Clearance Detachment (OCD)) may be task organized with linear demolition charges, M9 Armored Combat Excavators (or other earthmoving equipment), Amphibious Assault Vehicles (with or without towed or internal linear demolition charges), and other vehicles equipment as the situation may dictate. The assault force and the support force are also part of the breaching task force.

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, commander's intent, while observing safety precautions.

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 Joint Assault Bridge 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. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

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

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

ENGR-MOBL-4706: Conduct Route Improvement

SUPPORTED MET(S): 2, 4

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

DESCRIPTION: Route improvement supports route clearance operations and may be required 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 improve the route in support of route clearance operations and the 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. Operate engineer equipment as required.
8. Remove rubble/debris as required.
9. Remove vegetation as required.
10. Remove trash as required.
11. Remove upheaval to required specifications.
12. Remove berms as required.

13. Fill holes/trenches/depressions as required.
14. Place additional fill/stabilization/reinforcement materials as required.
15. Identify surface repairs as required.
16. Identify drainage structure repairs as required.
17. Conduct culvert denial activities as required.
18. Conduct immediate actions as required.
19. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Combat Engineer equipment

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ENGR-MOBL-4707: Repair Runway Crater

SUPPORTED MET(S): 2, 4

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 upheaval to required specifications.
8. Remove ejecta from operating surfaces.
9. Fill hole.
10. Compact fill materials required.
11. Square hole as required.
12. Place geotextile layer(s) as required.
13. Place additional fill/stabilization/reinforcement materials as required.
14. Surface repair with foreign object debris cover as required.
15. Reconstitute crater repair team.
16. Submit required reports

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

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

ENGR-MOBL-4708: Repair Spall(s)

SUPPORTED MET(S): 2, 4

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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

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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ENGR-MOBL-4709: Repair Road Crater

SUPPORTED MET(S): 2, 4

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 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

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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ENGR-XENG-4701: Construct Wood Frame Structure

SUPPORTED MET(S): 4

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

DESCRIPTION: Construction of wood frame structures for use in all operations conducted to include but not limited to strong backs, sheds, facilities, sea huts, ect. or may be specified in mission directives.

CONDITION: Given a mission, commanders 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 commanders’ 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.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-412 Project Management
5. FM 5-426 Carpentry

ENGR-XENG-4702: Construct Concrete Block Structure

SUPPORTED MET(S): 4

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, ect.).

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

STANDARD: Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

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.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-412 Project Management
5. FM 5-426 Carpentry

ENGR-XENG-4703: Construct Timber Structure

SUPPORTED MET(S): 3, 4, 5, 8

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

DESCRIPTION: 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 in support of the GCE.

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

STANDARD: To meet the survivability requirements and in accordance with the commanders 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.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry

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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ENGR-XENG-4704: Repair Existing Structures

SUPPORTED MET(S): 4

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

DESCRIPTION: This task is for any type of structure (wood, concrete, steel, bridges, etc.) or facilities that has been damaged from military operations or due to structural integrity being flawed/incorrect per design specifications.

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

STANDARD: To meet the original design requirements/specifications to restore structure or facilities and in accordance with the commanders 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. Repair/replace plumbing as required.
10. Submit required reports.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 5-100 Engineers in Combat Operations
4. FM 5-103 Field Fortifications
5. FM 5-103 Survivability
6. FM 5-412 Project Management
7. FM 5-426 Carpentry

SUPPORT REQUIREMENTS:

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

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ENGR-XENG-4705: Construct Concrete Structure

SUPPORTED MET(S): 4

EVALUATION-CODED: NO **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, ect., or may be specified in mission directives in support of the MAGTF.

CONDITION: Given a mission, commanders 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 commanders' 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 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.

REFERENCES:
1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry
7. FM 5-428 Concrete Masonry

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment Combat Engineer tools and kits

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ENGR-XENG-4706: Construct expedient drainage structure

SUPPORTED MET(S): None

EVALUATION-CODED: NO **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, commanders 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 commanders' 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.

REFERENCES:
1. FM 5-335 Drainage
2. FM 5-412 Project Management
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
5. MCRP 3-17A Engineer 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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UTIL-XENG-4701: Provide potable water

SUPPORTED MET(S): 6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 1 month

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

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
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
6. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, PPE

FUEL-XENG-4701: Coordinate Bulk Petroleum Operations

SUPPORTED MET(S): 7

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

DESCRIPTION: Given a mission order, location of the operation, estimated fuel requirements, personnel, and required equipment coordinate bulk petroleum operations, to support mission requirements per concept of operations and commanders intent.

CONDITION: Given a mission order, location of the operation, estimated fuel requirements, personnel, and required equipment.

STANDARD: To support mission requirements per concept of operations and commanders intent.

EVENT COMPONENTS:
1. Review mission.
2. Determine type of setup 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 operations.
9. Establish a Petroleum Laboratory Quality Surveillance and Control Program.
10. Submit required reports.

REFERENCES:
1. FM 10-67-2 Petroleum Laboratory Testing and Operations

2. FM 10-68 Aircraft Refueling
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. MCWP 4-11.6 Bulk Liquid Operations
5. MIL HDBK 200 Quality Surveillance Handbook for Fuels, Lubricants, and Related Products
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17933 POL Training Area

FUEL-XENG-4702: Construct Bulk Petroleum Site

SUPPORTED MET(S): 7

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

DESCRIPTION: This task implies the conduct of construction and setup of fuel storage and distribution systems to accommodate multiple fuel requirements in support of the MAGTF.

CONDITION: Provided a fuel distribution plan with a system layout, tasked organized personnel and equipment, and references.

STANDARD: To ensure proper set-up for bulk petroleum operations per the concept of operations and commanders 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 components 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.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17933 POL Training Area

ENGR-MOBL-4601: Conduct Security for Route Clearance/ Sweep operations

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: The security element consists of the forward, flank, and rear sections. The mission of the security element is to provide traffic control, crew-served weapons support, and protection and can dismount as necessary. The mission of the forward security section is to observe oncoming traffic for threats, identify hazards or obstructions in the route, and cordon suspect vehicles identified by other elements. The mission of the flank security section is to protect the main body from threats on the shoulder or traffic traveling in the opposite direction and observe vehicles passing through the work area for threats and provide traffic control within the work area. The mission of the rear security section is to observe approaching traffic for threats, provide a visual warning to traffic that the RRC team is ahead on the route, contain suspect vehicles, and provide limited traffic control. The three security teams must be integrated and centrally controlled.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, boobytraps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders 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 dismounted mine detectors as required.
9. Operate mounted mine detectors as required.
10. Operated other detection equipment as required.
11. Conduct earthmoving operations to detect obstacles as required.
12. Alternate detector operators as required to prevent fatigue.
13. Mark obstacles for reduction as required.
14. Submit required reports.

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. FM 3-34.214 Explosives and Demolitions
3. FM 5-101 Mobility
4. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-MOBL-4602: Detect Obstacles for Route Clearance/ Sweep operations

SUPPORTED MET(S): 2, 4, 10

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

DESCRIPTION: The mission of the detection element is to scan the medians and shoulders of a route and sweep them for EH, using visual, metallic, and electronic detection capabilities. The element pinpoints the location and remotely investigates suspected EH, marks and reports UXO, and secures and reports IEDs. Trained personnel use robotics or other means to conduct standoff neutralization, when required, to provide assured mobility to the maneuver commander.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, boobytraps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders 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, booby-traps, and unexploded ordnance within area if possible.
8. Operate dismounted mine detectors as required.
9. Operate mounted mine detectors as required.
10. Operated other detection equipment as required.
11. Conduct earthmoving operations to detect obstacles as required.
12. Alternate detector operators as required to prevent fatigue.
13. Mark obstacles for reduction as required.
14. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 5-101 Mobility

4. FM 5-101-5-1 Operational Terrain and Symbols
5. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Motor Transportation, Material Handling, Engineer equipment and lifting capability

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ENGR-MOBL-4603: Breach Obstacles for Route Clearance/ Sweep Operations

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: The purpose of breaching is to project combat power to the far side of an obstacle, and breaching usually occurs under enemy fire. Route-clearance operations focus on opening and maintaining LOC to ensure the safe passage of combat, CS, and CSS organizations. Like breaching, route-clearance operations require extensive coordination. Planning considerations should be used by the Task force when planning route-clearance operations. The obstacle template produced from this process determines which method and type of route clearance is required.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, boobytraps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders 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. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M023	Charge, Demolition Block M112 1-1/4	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M670	Fuse, Blasting Time M700	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	
MN88	Cap, Blasting, 500 ft mini-tube M21	
MN89	Dual instantaneous shock tube	
MN90	Cap, Blasting, 1000 ft mini-tube M23	
M456	Cord, Detonating PETN Type I Class E	

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

ENGR-MOBL-4604: Conduct Route Improvement

SUPPORTED MET(S): 2, 4

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

DESCRIPTION: Route improvement supports route clearance operations and may be required 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 improve the route in support of route clearance operations and the 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. Operate engineer equipment as required.
8. Remove rubble/debris as required.
9. Remove vegetation as required.
10. Remove trash as required.
11. Remove upheaval to required specifications.
12. Remove berms as required.
13. Fill holes/trenches/depressions as required.
14. Place additional fill/stabilization/ reinforcement materials as required.
15. Identify surface repairs as required.
16. Identify drainage structure repairs as required.
17. Conduct culvert denial activities as required.
18. Conduct immediate actions as required.
19. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment

ENGR-MOBL-4605: Repair Road Crater

SUPPORTED MET(S): 2, 4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 3 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 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 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 upheaval to required specifications.
8. Remove ejecta from operating surfaces.
9. Fill hole.
10. Compact fill materials required.
11. Square hole as required.
12. Place geotextile layer(s) as required.
13. Place additional fill/ stabilization/ reinforcement materials as required.
14. Surface repair with foreign object debris cover as required.
15. Reconstitute crater repair team.
16. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

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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ENGR-MOBL-4606: Repair Spall(s)

SUPPORTED MET(S): 2, 4

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 3 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). 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
7. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
8. GTA 5-2-5 Engineer Reconnaissance
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

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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ENGR-CMOB-4601: Create an Explosive Obstacle

SUPPORTED MET(S): 3

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

DESCRIPTION: Explosive obstacles include minefields, boobytraps, and improvised anti-personnel and anti-tank mines.

CONDITION: Given a mission, commanders 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.

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 minefield controls/marking.
8. Emplace hasty protective row minefield as required.
9. Emplace hasty row minefield as required.
10. Emplace booby-traps as required.
11. Emplace improvised anti-personnel and/or anti-tank mines as required.
12. Account for all personnel and equipment prior to returning to friendly lines.
13. Coordinate lane closure plan with supported unit as required.
14. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.119 Improvised Explosive Device (IED) Defeat
4. FM 3-34.210 Explosive Hazard Operations
5. FM 3-34.214 Explosives and Demolitions
6. FM 5-102 Countermobility
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-34 Engineer Field Data - Field Expedient Charges
10. FM 5-36 Route Reconnaissance and Classification
11. FM 90-7 Combined Arms Obstacle Integration
12. FMFM 13 MAGTF Engineer Operations
13. FMFM 4-4 Engineer Operations
14. MCRP 3-17A Engineer Field Data
15. MCWP 3-17 Engineer Operations
16. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	

K143 Mine, Antipersonnel M18A1 with M57 F
K180 Mine, Antitank Heavy M15
K181 Mine, Antitank Heavy M21
ML03 Firing Device, Demolition Multi-Purp

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

EQUIPMENT: Combat engineer equipment, Material Handling equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-CMOB-4602: Create a Non-Explosive Obstacle

SUPPORTED MET(S): 3

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

DESCRIPTION: Non-explosive obstacles include constructed and field expedient obstacles that support countermobility operations for offensive and defensive missions.

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

STANDARD: That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment.

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 mobility 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 phony obstacles as required.
13. Emplace 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.

REFERENCES:
1. FM 3-06 Urban Operations

2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-36 Route Reconnaissance and Classification
5. FM 90-7 Combined Arms Obstacle Integration
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCRP 3-17A Engineer Field Data
9. MCWP 3-17 Engineer Operations
10. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

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

EQUIPMENT: Combat engineer equipment, Material Handling equipment, Earthmoving Equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-CMOB-4603: Construct an Non- Explosive Obstacle

SUPPORTED MET(S): 3

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

DESCRIPTION: Constructed obstacles are those reinforcing obstacles that are built by marines and machinery, generally without the use of explosives. Typical examples are: Wire, Tank ditches, Log cribs, Steel H beam post obstacles, falling or tumble blocks, Dragons teeth, hedgehogs, and tetrahedrons and non-explosive abatis.

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

STANDARD: To construct or create an obstacle that is part of an obstacle plan intended to turn, block, fix, or disrupts enemy personnel or equipment.

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. Create craters as required
11. Construct/create phony obstacles as required.
12. Construct tank ditches as required
13. Submit required reports.

REFERENCES:
1. FM 3-06 Urban Operations
2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-36 Route Reconnaissance and Classification
5. FM 90-7 Combined Arms Obstacle Integration
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCRP 3-17A Engineer Field Data
9. MCWP 3-17 Engineer Operations
10. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

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

EQUIPMENT: Combat engineer equipment, Material Handling equipment, Earthmoving Equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-RECN-4601: Conduct Cache Sweep

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: Employ engineer assets to detect for suspected caches of ordnance, to include: munitions, mines, ammunition, weapons, and explosives.

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

STANDARD: To locate and mark undiscovered ordnance, munitions, mines ammunition, weapons, and explosives per commanders intent and mission requirement.

EVENT COMPONENTS:
1. Review the mission.
2. Coordinate with supporting unit.
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment for operation.
5. Move to site.
6. Detect primary/secondary markers.
7. Conduct cache sweep.
8. Locate and mark cache.
9. Identify the component(s) of cache.
10. Sweep area for secondary/other ordnance caches.
11. Reconstitute sweep force.
12. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCWP 3-1 Ground Combat Operations
5. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
MN08 Igniter, Time Blasting Fuse with Sho	

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

EQUIPMENT: Combat Engineer detection equipment

UNITS/PERSONNEL: Explosive Ordinance Disposal personnel Weapons Intelligence team Corpsman

ENGR-MOBL-4501: Conduct Dismounted Route Sweep operations

SUPPORTED MET(S): 2, 4

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

DESCRIPTION: A sweep team consists of a command element, detection team(s) (the ear), marking team(s) (the finger), and a demolition team(s).

CONDITION: Given a mission, commanders' intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel and equipment, and references.

STANDARD: To ensure all mines, boobytraps, obstacles, and unexploded ordnance are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commanders intent.

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 weapons intelligence team activities as required.
13. Coordinate with other specialist personnel as required.
14. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. FM 5-34 Engineering Field Data
7. FMFM 13 MAGTF Engineer Operations
8. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, AN/PRC 119, AN/PSS 14/12 mine detector, probe, T-tool, compass, protractor, 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: ORM

ENGR-XENG-4501: Conduct Vertical Construction

SUPPORTED MET(S): 2, 4, 5, 8

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

DESCRIPTION: Vertical construction consists of building or providing improvements to existing structures, constructing base camps, command posts, and maintenance facilities for use by the MAGTF.

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

STANDARD: In order to build or repair facilities that meet the requirements listed in the design specifications and in accordance with the commanders' 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 concrete structure as required.
7. Construct concrete block structure as required
8. Repair facility as required.
9. Erect prefabricated structure as required.
10. Construct manufactured steel structure as required.
11. Construct wood frame structure as required.
12. Construct timber structure as required.
13. Construct drainage structure as required.
14. Wire structure for electricity as required.
15. Plumb structure as required.
16. Submit required reports.

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-103 Field Fortifications
7. FM 5-163 Sewerage
8. FM 5-250 Explosives and Demolitions

9. FM 5-335 Drainage
10. FM 5-412 Project Management
11. FM 5-426 Carpentry
12. FM 5-428 Concrete Masonry
13. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
14. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
15. FM 5-434 Earthmoving Operations
16. FM 5-553 General Drafting
17. FMFM 13 MAGTF Engineer Operations
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
22. MCWP 3-41.1 Rear Area Operations
23. MCWP 4-11 Combat Service Support
24. TM 5-232 Elements of Construction Surveying
25. TM 5-760 Interior Wiring

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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ENGR-XENG-4502: Construct Manufactured Steel Structure

SUPPORTED MET(S): 2, 4

EVALUATION-CODED: YES **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, ect.

CONDITION: Given a mission, commanders 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 and in accordance with the commanders' 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 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.

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-103 Field Fortifications
7. FM 5-163 Sewerage
8. FM 5-250 Explosives and Demolitions
9. FM 5-335 Drainage
10. FM 5-412 Project Management
11. FM 5-426 Carpentry
12. FM 5-428 Concrete Masonry
13. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
14. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
15. FM 5-434 Earthmoving Operations
16. FM 5-553 General Drafting
17. FMFM 13 MAGTF Engineer Operations
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
22. MCWP 3-41.1 Rear Area Operations
23. MCWP 4-11 Combat Service Support
24. TM 5-232 Elements of Construction Surveying
25. TM 5-760 Interior Wiring

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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ENGR-XENG-4503: Conduct horizontal construction

SUPPORTED MET(S): 2, 4, 5, 8

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, commanders 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 and the commanders' intent.

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 tactical landing zones 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.

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 5-163 Sewerage
6. FM 5-250 Explosives and Demolitions
7. FM 5-335 Drainage
8. FM 5-412 Project Management
9. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
10. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
11. FM 5-434 Earthmoving Operations
12. FMFM 13 MAGTF Engineer Operations
13. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
14. JP 3-34 Engineer Doctrine for Joint Operations
15. MCWP 3-17 Engineer Operations
16. MCWP 3-17.4 Engineer Reconnaissance
17. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
18. MCWP 3-41.1 Rear Area Operations
19. MCWP 4-11 Combat Service Support
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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UTIL-XENG-4501: Provide Tactical Hygiene Support

SUPPORTED MET(S): 6

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

CONDITION: With a Utilities plan, required equipment and personnel

STANDARD: To meet planning requirements and IAW commanders' intent.

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

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

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, Material Handling equipment

ENGR-DEMO-4501: Employ Demolitions In support of Counter-Mobility Operations

SUPPORTED MET(S): 3, 5

EVALUATION-CODED: NO **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 counter-mobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

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

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

ENGR-PINF-4401: Fight as Provisional Infantry

SUPPORTED MET(S): 1

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

DESCRIPTION: Offensive operations including attacks, raids, movement to contact, ect. Defensive operations (including withdrawal), patrolling (including checkpoint ops), mobility (including screening, convoy ops), and employment of organic weapons. Operations other than war (civil disturbance,

TRAP, cordon and search), MOUT (attack, defend, patrol, clear a building, vehicle check point). Participate in amphibious assault and raid operations.

CONDITION: Given a requirement, task organized personnel and equipment, commanders' 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.

REFERENCES:
1. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
2. MCWP 3-11.2 Marine Rifle Squad
3. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

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

ENGR-XENG-4401: Conduct MHE Operations

SUPPORTED MET(S): 2, 3, 4, 6, 7, 8, 9

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

REFERENCES:
1. MCRP 3-17B Engineer Forms and Reports
2. MCWP 3-41.1 Rear Area Operations
3. MCWP 4-11 Combat Service Support
4. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment, Engineer support equipment

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ENGR-SURV-4401: Harden Existing Structure

SUPPORTED MET(S): 3, 4, 9

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL:** 6 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, survivability plan, a task organization of personnel and equipment, and references.

STANDARD: That meets the mission requirements and supports the concept of operations in accordance with the commanders' 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. Wire position for electricity as required.
17. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 5-102 Countermobility
3. FM 5-103 Field Fortifications

4. FM 5-103 Survivability
5. FM 5-170 Engineer Reconnaissance
6. FM 5-250 Explosives and Demolitions
7. FM 5-335 Drainage
8. FM 5-34 Engineer Field Data - Field Expedient Charges
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-446 Military Non-Standard Fixed Bridges
16. FM 5-553 General Drafting
17. FM 90-7 Combined Arms Obstacle Integration
18. FMFM 13 MAGTF Engineer Operations
19. FMFM 3-1 Command and Staff Action
20. FMFM 4-4 Engineer Operations
21. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
22. JP 3-34 Engineer Doctrine for Joint Operations
23. MCRP 3-17A Engineer Field Data
24. MCRP 3-17B Engineer Forms and Reports
25. MCWP 4-11 Combat Service Support

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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ENGR-SURV-4402: Construct Field Fortifications

SUPPORTED MET(S): 3, 9

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, commanders intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: That meets the mission requirements and supports the concept of operations in accordance with the commanders' 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 electrical power as required.
13. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-170 Engineer Reconnaissance
8. FM 5-426 Carpentry
9. FMFM 13 MAGTF Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

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, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-4403: Construct Vehicle Control Point

SUPPORTED MET(S): 3, 8

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

DESCRIPTION: To construct a mechanism 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, in an urban/rural environment, commanders intent, intelligence reports, task organization of personnel and equipment, Class IV, and references.

STANDARD: To enable forces to gain information and maintain control of vehicles, pedestrians, and materials per mission requirement and commanders intent.

EVENT COMPONENTS:
1. 1.Review mission.
2. 2.Review intelligence reports.
3. 3.Coordinate with supported unit for specific position requirements.
4. 4.Coordinate resources for project.
5. 5.Coordinate security as required.
6. 6.Conduct site preparation and layout.
7. 7.Construct survivability positions as required.
8. 8.Emplace prefabricated barrier(s) as required.
9. 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 electrical support as required.
18. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-170 Engineer Reconnaissance
8. FM 5-426 Carpentry
9. FMFM 13 MAGTF Engineer Operations
10. FMFRP 12-51 Engineer Operations
11. JP 3-34 Engineer Doctrine for Joint Operations
12. MCRP 3-17A Engineer Field Data
13. MCWP 3-17 Engineer Operations
14. MCWP 3-41.1 Rear Area Operations
15. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment , Combat engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-4404: Construct Entry Control Point

SUPPORTED MET(S): 3, 9

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

DESCRIPTION: To construct a mechanism to prevent unauthorized personnel and vehicle access and with limited impediment to vehicular traffic flow into military facilities.

CONDITION: Provided a mission, commanders intent, intelligence reports, task organization of personnel and equipment, Class IV, and references.

STANDARD: To enable forces to control and monitor access of vehicles, pedestrians, and materials onto military facilities per concept of operations and commanders 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 vehicle search lanes as required.
15. Construct personnel search area(s) as required.
16. Construct/emplace signs as required.
17. Provide electrical support as required.
18. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:
1. FM 100-10 Combat Service Support
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-07 Stability Operations (2008)
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-103 Field Fortifications
6. FM 5-103 Survivability
7. FM 90-7 Combined Arms Obstacle Integration
8. MCRP 3-17A Engineer Field Data
9. MCRP 3-17B Engineer Forms and Reports

10. MCWP 3-17 Engineer Operations
11. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-4405: Construct Earth Filled Barrier/Structure

SUPPORTED MET(S): 3, 9

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

DESCRIPTION: To construct earth filled barriers/structures in support of military operations.

CONDITION: Provided a mission, commanders 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 commanders' 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.

REFERENCES:
1. FM 100-10 Combat Service Support
2. FM 3-07 Stability Operations (2008)
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-434 Earthmoving Operations
6. MCRP 3-17A Engineer Field Data
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment

ENGR-DEMO-4401: Employ Demolitions in Support of Mobility Operations

SUPPORTED MET(S): 2, 3, 4, 9

EVALUATION-CODED: YES **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 per commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

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

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

ENGR-DEMO-4402: Employ Demolitions in Support of Survivability Operations

SUPPORTED MET(S): 2, 3, 4, 9

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

DESCRIPTION: Employ Class V munitions to support survivability operations such as explosive booby traps in 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 commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	
M420 Charge, Demolition Shaped M2 Series	
M039 Charge, Demolition Cratering 40-Poun	
M456 Cord, Detonating PETN Type I Class E	

M670 Fuse, Blasting Time M700
ML03 Firing Device, Demolition Multi-Purp
M023 Charge, Demolition Block M112 1-1/4
M591 Dynamite, Military M1
M421 Charge, Demolition Shaped M3 Series
M130 Cap, Blasting Electric M6
M131 Cap, Blasting Non-Electric M7
MN08 Igniter, Time Blasting Fuse with Sho

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

ENGR-DEMO-4403: Employ Demolitions in Support of Expeditionary Operations

SUPPORTED MET(S): 2, 3, 4, 9

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

DESCRIPTION: Employ Class V munitions to reduce/destroy obstacles (explosive and non-explosive) or to create obstacles such as craters, ditches, expedient booby traps in support of expeditionary units.

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

STANDARD: To provide demolition support that is offensive and defensive in nature per commanders' 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. Create obstacle(s) as required.
6. Reduce obstacle(s) as required.
7. Employ demolitions to support missions as required
8. Employ engineer equipment as required.
9. Reconstitute force.
10. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

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

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

UTIL-XENG-4401: Provide Tactical Electrical Power

SUPPORTED MET(S): 8

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

CONDITION: With a Utilities plan, required equipment and personnel

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

EVENT COMPONENTS:
1. Establish generator site(s)
2. Establish electrical power grid(s)
3. Supply mobile electric power

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment

ENGR-RECN-4401: Conduct Site Survey

SUPPORTED MET(S): 4, 5, 6, 7, 8, 9

EVALUATION-CODED: YES **SUSTAINMENT INTERVAL**: 3 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 per the concept of operations and commanders 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.

REFERENCES:
1. FM 5-412 Project Management
2. GTA 5-2-5 Engineer Reconnaissance
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer survey equipment

UNITS/PERSONNEL: Engineer surveyor 1361

3007. 3000-LEVEL EVENTS

ENGR-MOBL-3901: Create a Lane through an Obstacle

SUPPORTED MET(S): 2, 3

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

DESCRIPTION: A lane is a route through, over, or around an enemy or friendly 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: Per the commander's intent and the references.

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 to allow passage of the maneuver element.
6. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M913 Charge, Demolition High Explosive Li	

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

EQUIPMENT: Combat Engineer breaching assets

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-3902: Proof a lane through an obstacle

SUPPORTED MET(S): 2, 10

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

DESCRIPTION: Proofing verifies that a lane is free of mines 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. Some mines are resistant to some reduction assets; for example, magnetically fused mines may be resistant to a mine-clearing line charge (MICLIC). Proofing is vitally important, considering the vast variety of mines in use. It should always be planned for a breaching operation; however, the time available, the threat, or the mission may dictate that proofing not be done.

CONDITION: Given a breached lane, task organized equipment and personnel, and references.

STANDARD: To clear a lane of all remnants of explosive and non-explosive obstacles and to allow for rapid passage of assault force per commander's intent.

EVENT COMPONENTS:
1. Receive the mission.
2. Conduct proof of breached lane.
3. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M913 Charge, Demolition High Explosive Li	

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

EQUIPMENT: Combat Engineer breaching assets

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-3903: Mark a Lane through an Obstacle

SUPPORTED MET(S): 2, 10

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

DESCRIPTION: There are three levels of lane marking initial, intermediate, and full. Each lane-marking level provides an increase in lane signature and capability. Lane requirements change as a breaching operation matures from the passage of the assault force to the passage of larger follow-on forces. Initial lane-marking requirements are driven by the nature of the fight through the obstacle. Marking must be rapid, providing only the bare minimum signature needed to safely pass small units (company teams, platoons) that make up the assault force. This contrasts with lane requirements during later phases of an attack where larger units (battalion and above) are passed to subsequent objectives and mark improvements to be made. Two-way traffic becomes a priority for the simultaneous forward passage of combat units and return traffic (ambulances, empty supply vehicles) necessary to sustain the force. With the increase in traffic volume comes more diverse forces and levels of driver experience. Lane-marking limits must be clear to the most inexperienced driver or crewman; do not assume he has a knowledge of the units SOP. A fully developed lane must support two-way traffic and be completely marked.

CONDITION: Given a proofed lane, task organized equipment and personnel, and references.

STANDARD: To identify a breached lane for rapid passage of assault force per commander's intent.

EVENT COMPONENTS:
1. Receive the mission.
2. Mark the breached lane.
3. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M913 Charge, Demolition High Explosive Li	

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

EQUIPMENT: Combat Engineer breaching assets

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-3904: Remotely Detect Explosive Hazards

SUPPORTED MET(S): 2, 10

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

DESCRIPTION: Employ engineer robotics systems to detect explosive hazards to positive identify and mark explosive hazards within engineer scope/capabilities.

CONDITION: Given a tactical situation, an order, combat engineer equipment, field protective equipment, a suspected explosive hazard, commanders decision and references.

STANDARD: To positively identify and mark the explosive hazard.

EVENT COMPONENTS:
1. Visually assess the terrain.
2. Prepare robot for operation.
3. Operate the robot.
4. Conduct robotic reconnaissance.
5. Mark explosive hazard as required.
6. Submit report as required.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat engineer Robot

ENGR-MOBL-3905: Remotely Reduce Explosive Hazards

SUPPORTED MET(S): 2, 10

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

DESCRIPTION: Employing 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, 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
MM56 Detonator, Non-Electric MK123 Mod 0	
MN88 Cap, Blasting, 500 ft mini-tube M21	
MN90 Cap, Blasting, 1000 ft mini-tube M23	

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

EQUIPMENT: Combat engineer robot

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-3906: Operate Small craft

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: Employ Small craft to reconnoiter littoral areas in support of mobility requirements.

CONDITION: Given a mission, commanders' 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 to support the concept of operations and in accordance with commanders' 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.

REFERENCES:
1. FM 5-101 Mobility
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 Over-the-Horizon Configuration
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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ENGR-MOBL-3907: Employ a medium machinegun team

SUPPORTED MET(S): 1, 2

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

DESCRIPTION: Employ a medium machinegun in a mounted position in support of mobility requirements.

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.

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-10/1 Launcher, Assault Rocket 83MM (SMAW) MK 153 MOD 0

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
A131 Cartridge, 7.62mm 4 Ball M80/1 Trace	
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	

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

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.

ENGR-MOBL-3908: Employ a Heavy Machinegun team

SUPPORTED MET(S): 1, 2

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

DESCRIPTION: Employ a heavy machinegun in a mounted position in support of mobility requirements.

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
A576 Cartridge, Caliber .50 4 API M8/1 AP	
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	

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.

ENGR-CMOB-3901: Construct demolition obstacles

SUPPORTED MET(S): 3

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

DESCRIPTION: Employ improvised anti-personnel and anti-tank mines 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.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-100 Engineers in Combat Operations
6. FM 5-102 Countermobility
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-36 Route Reconnaissance and Classification
10. FM 90-1 Countermobility
11. FM 90-7 Combined Arms Obstacle Integration
12. FMFM 13 MAGTF Engineer Operations
13. MCRP 3-17A Engineer Field Data
14. MCWP 3-17 Engineer Operations
15. UNIT SOP Unit's Standing Operating Procedures
16. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M030 Charge, Demolition Block TNT 1/4-Pou	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M023 Charge, Demolition Block M112 1-1/4	

M130 Cap, Blasting Electric M6
ML03 Firing Device, Demolition Multi-Purp

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-RECN-3901: Conduct Gap Reconnaissance

SUPPORTED MET(S): 3, 5

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

DESCRIPTION: To identify wet or dry areas to be used to cross. Evaluate gaps, fords, and ferry sites. Identify obstacles, 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.

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/ferrying sites as required.
6. Identify suitable bypasses.
7. Submit required reports.

REFERENCES:
1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. GTA 5-2-5 Engineer Reconnaissance
5. GTA 5-7-13 Bridge Classification Booklet
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
10. MCWP 3-1 Ground Combat Operations
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.3 MAGTF Breaching Operations
13. 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

ENGR-RECN-3902: Conduct Tunnel Reconnaissance

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: Overhead clearances less than 4.3 meters are classified as obstructions. Reconnaissance is conducted to identify appropriate information in relation to commanders' intent.

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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-102 Countermobility
3. FM 5-34 Engineer Field Data - Field Expedient Charges
4. GTA 5-2-5 Engineer Reconnaissance
5. GTA 5-7-13 Bridge Classification Booklet
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
10. MCWP 3-17 Engineer Operations
11. MCWP 3-17.3 Breaching Operations
12. MCWP 3-17.3 MAGTF Breaching Operations
13. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

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ENGR-RECN-3903: Conduct Ferry Reconnaissance

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: 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 per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols

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. Proceed to assigned objective.
4. Reconnoiter ferrying site as required.
5. Determine ferrying sites as required.
6. Identify suitable bypasses.
7. Submit required reports.

REFERENCES:
1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-102 Countermobility
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. JP 3-34 Engineer Doctrine for Joint Operations
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.1 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

ENGR-SURV-3901: Construct vehicle survivability position

SUPPORTED MET(S): 3

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

DESCRIPTION: Employ organic earth moving assets, to include: Medium Crawler Tractor (MTC), M9 ACE, 1150E, 1155, and 644E and 624 TRAMs.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: That meets or exceeds the mission requirement and supports the concept of operation in accordance with the commanders' 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 emplacement as required.
9. Displace equipment as required.
10. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-3902: Construct trenches

SUPPORTED MET(S): 2, 3

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

DESCRIPTION: Employ organic hand tools and/or earth moving assets, to include: 420D IT Backhoe, 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 obliques, meets or exceeds the mission requirement and supports the concept of operation in accordance with the commanders' 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: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FMFM 13 MAGTF Engineer Operations
8. FMFRP 12-51 Engineer Operations
9. JP 3-34 Engineer Doctrine for Joint Operations
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-DEMO-3901: Destroy captured arms and ammunition with demolitions

SUPPORTED MET(S): 2, 10

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

DESCRIPTION: All ammunition products and components produced for or used by a foreign force that is hostile to the United States (that is or was engaged in combat against the United States) in the custody of a U.S. military force or under the control of a Department of Defense component. The term includes 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. Captured enemy ammunition can also include North Atlantic Treaty Organization or U.S.-manufactured munitions that may not have been under U.S. custody or control.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M032	Charge, Demolition Block TNT 1-Pound	
M670	Fuse, Blasting Time M700	
M456	Cord, Detonating PETN Type I Class E	
M757	Charge, Assembly Demolition M183 Com	
M766	Igniter, M60 for Time Blasting Fuse	
MM56	Detonator, Non-Electric MK123 Mod 0	
M028	Demolition Kit, Bangalore Torpedo M1	
MN08	Igniter, Time Blasting Fuse with Sho	

M982 Charge, Demolition Sheet 0.161 Inch
MM30 Charge, Flexible 20 Gram PETN MK140
MM45 Charge, Demolition Flexible Linear S
MM44 Charge, Demolition Flexible Linear S
MM47 Charge, Demolition Flexible Linear S
MM48 Charge, Demolition Flexible Linear S
M130 Cap, Blasting Electric M6
M039 Charge, Demolition Cratering 40-Poun
M420 Charge, Demolition Shaped M2 Series
M591 Dynamite, Military M1
M131 Cap, Blasting Non-Electric M7

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-DEMO-3902: Destroy bridge with demolitions

SUPPORTED MET(S): 2, 4

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

DESCRIPTION: 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.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data

6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M032	Charge, Demolition Block TNT 1-Pound	
M670	Fuse, Blasting Time M700	
M456	Cord, Detonating PETN Type I Class E	
M757	Charge, Assembly Demolition M183 Com	
M766	Igniter, M60 for Time Blasting Fuse	
MM56	Detonator, Non-Electric MK123 Mod 0	
M028	Demolition Kit, Bangalore Torpedo M1	
MN08	Igniter, Time Blasting Fuse with Sho	
M982	Charge, Demolition Sheet 0.161 Inch	
MM30	Charge, Flexible 20 Gram PETN MK140	
MM45	Charge, Demolition Flexible Linear S	
MM44	Charge, Demolition Flexible Linear S	
MM47	Charge, Demolition Flexible Linear S	
MM48	Charge, Demolition Flexible Linear S	
M130	Cap, Blasting Electric M6	
M039	Charge, Demolition Cratering 40-Poun	
M420	Charge, Demolition Shaped M2 Series	
M591	Dynamite, Military M1	
M131	Cap, Blasting Non-Electric M7	

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

UTIL-XENG-3901: Establish Tactical Power Distribution System

SUPPORTED MET(S): 8

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

DESCRIPTION: With a Utilities Plan, required equipment and personnel establish tactical power distribution system, to ensure operational requirements are met.

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. 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).

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment, PPE

ENGR-MOBL-3801: Engage targets with MK153 SMAW

SUPPORTED MET(S): 2

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

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. Targets will be engaged in accordance with commander's intent and the target attack guidance matrix. Backblast safety area will not be violated by friendly personnel or equipment.

REFERENCES:
1. TM 08673A-10/1 Launcher, Assault Rocket 83MM (SMAW) MK 153 MOD 0

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	

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.

ENGR-MOBL-3802: Conduct area clearance operations

SUPPORTED MET(S): 2, 5

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

DESCRIPTION: Engineers conduct area clearance to provide lodgment areas and to prepare field sites that the Army, Air Force, and Marine Corps aviation assets use for stability operations.

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 an area to provide a secure environment for operations in accordance with the commanders 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.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 3-34.119 Improvised Explosive Device (IED) Defeat
5. FM 3-34.210 Explosive Hazard Operations
6. FM 3-34.214 Explosives and Demolitions
7. FM 5-100 Engineers in Combat Operations
8. FM 5-101 Mobility
9. FM 5-101-5-1 Operational Terrain and Symbols
10. FM 5-170 Engineer Reconnaissance
11. FM 5-250 Explosives and Demolitions
12. FM 90-13-1 Combined Arms Breaching Operations
13. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
14. MCRP 3-17A Engineer Field Data
15. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat engineer equipment, Engineer equipment

ENGR-MOBL-3803: Breach obstacle with the Assault Breacher Vehicle (ABV)

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: Employ ABV to mechanically breach 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, commanders decision and references.

STANDARD: To create a breached lane per the commander's intent.

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.

REFERENCES:
1. FM 5-100 Engineers in Combat Operations
2. FM 5-101 Mobility
3. FM 90-13-1 Combined Arms Breaching Operations
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.3 Breaching Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. TM 10984A-OI/3 Maintenance Manual (ABV)
10. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
11. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M913 Charge, Demolition High Explosive Li	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M914 Charge, Demolition Inert Linear M68A	

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

ENGR-MOBL-3804: Conduct an urban breach

SUPPORTED MET(S): 2, 5, 10

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

DESCRIPTION: Employ manual breaching techniques to physically, ballistically, or explosively breach structures in support of GCE mobility requirements.

CONDITION: Given a mission, commanders' 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 commanders intent.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Reconnoiter target, situation permitting.
3. Issue Breachers 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.

REFERENCES:
1. 590 MILS M590 Shotgun Owner's Manual
2. FM 3-06 Urban Operations
3. FM 3-34.119 Improvised Explosive Device (IED) Defeat
4. FM 3-34.210 Explosive Hazard Operations
5. FM 3-34.214 Explosives and Demolitions
6. FM 5-101 Mobility
7. MCDP 1-3 Tactics
8. MCRP 3-02G First Aid (Dec 02)
9. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.3 MAGTF Breaching Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-35.3 Military Operations on Urban Terrain
16. SWO 60-AA-MMA-010 Demolition Materials
17. TM 9-1300-206 Explosive Standards
18. TM 9-1300-214 Military Explosives
19. Guidebook for Assault Entry Techniques
20. Urban Mobility Engineer Guidebook

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M456 Cord, Detonating PETN Type I Class E	
MM47 Charge, Demolition Flexible Linear S	
MM56 Detonator, Non-Electric MK123 Mod 0	
MN08 Igniter, Time Blasting Fuse with Sho	

A023 Cartridge, 12 Gauge 1 Ounce Slug Com
M023 Charge, Demolition Block M112 1-1/4
A024 Cartridge, 12 Gauge Door Breaching M
A011 Cartridge, 12 Gauge #00 Buckshot M16
MN14 Firing Device, Dual Mode MK54

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer urban breaching equipment, PPE

UNITS/PERSONNEL: Range safety officer, Corpsman

ENGR-MOBL-3805: Conduct route clearance operations

SUPPORTED MET(S): 2, 4, 5, 10

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

DESCRIPTION: 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 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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-170 Engineer Reconnaissance
3. FM 5-250 Explosives and Demolitions
4. FM 5-34 Engineer Field Data - Field Expedient Charges
5. FM 90-13-1 Combined Arms Breaching Operations
6. FM 90-3 Desert Operations
7. FM 90-5 Jungle Operations
8. GTA 5-2-5 Engineer Reconnaissance
9. GTA 5-7-13 Bridge Classification Booklet
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports

ENGR-DEMO-3801: Destroy tunnel with demolitions

SUPPORTED MET(S): 2

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

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M032	Charge, Demolition Block TNT 1-Pound	
M670	Fuse, Blasting Time M700	
M456	Cord, Detonating PETN Type I Class E	
M757	Charge, Assembly Demolition M183 Com	
M766	Igniter, M60 for Time Blasting Fuse	
MM56	Detonator, Non-Electric MK123 Mod 0	
M028	Demolition Kit, Bangalore Torpedo M1	
MN08	Igniter, Time Blasting Fuse with Sho	
M982	Charge, Demolition Sheet 0.161 Inch	
MM30	Charge, Flexible 20 Gram PETN MK140	
MM45	Charge, Demolition Flexible Linear S	
MM44	Charge, Demolition Flexible Linear S	
MM47	Charge, Demolition Flexible Linear S	
MM48	Charge, Demolition Flexible Linear S	
M130	Cap, Blasting Electric M6	
M039	Charge, Demolition Cratering 40-Poun	
M420	Charge, Demolition Shaped M2 Series	
M591	Dynamite, Military M1	
M131	Cap, Blasting Non-Electric M7	

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-DEMO-3802: Destroy building with demolitions

SUPPORTED MET(S): 2, 10

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

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commanders' 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.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M032 Charge, Demolition Block TNT 1-Pound	
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M757 Charge, Assembly Demolition M183 Com	
M766 Igniter, M60 for Time Blasting Fuse	
MM56 Detonator, Non-Electric MK123 Mod 0	
M028 Demolition Kit, Bangalore Torpedo M1	
MN08 Igniter, Time Blasting Fuse with Sho	
M982 Charge, Demolition Sheet 0.161 Inch	
MM30 Charge, Flexible 20 Gram PETN MK140	
MM45 Charge, Demolition Flexible Linear S	
MM44 Charge, Demolition Flexible Linear S	
MM47 Charge, Demolition Flexible Linear S	
MM48 Charge, Demolition Flexible Linear S	
M130 Cap, Blasting Electric M6	
M039 Charge, Demolition Cratering 40-Poun	
M420 Charge, Demolition Shaped M2 Series	

M591 Dynamite, Military M1
M131 Cap, Blasting Non-Electric M7

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-CMOB-3801: Construct field expedient obstacles

SUPPORTED MET(S): 3

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

DESCRIPTION: The potential of expedient obstacles is almost unlimited. They place a great premium on imagination and ingenuity in the use of available materials and other resources, thus avoiding the logistic burden associated with all other types of obstacles.

CONDITION: Given a tactical situation, 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: To tie into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted.

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.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 5-100 Engineers in Combat Operations
4. FM 5-102 Countermobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-250 Explosives and Demolitions
7. FM 5-34 Engineer Field Data - Field Expedient Charges
8. FM 5-36 Route Reconnaissance and Classification
9. FM 90-1 Countermobility
10. FM 90-3 Desert Operations
11. FM 90-5 Jungle Operations
12. FM 90-7 Combined Arms Obstacle Integration
13. FMFM 13 MAGTF Engineer Operations
14. FMFM 4-4 Engineer Operations
15. MCRP 3-17A Engineer Field Data
16. MCWP 3-17 Engineer Operations
17. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)

18. UNIT SOP Unit's Standing Operating Procedures
19. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat Engineer equipment, tools and kits, Earthmoving equipment

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ENGR-SURV-3801: Construct vehicle fighting position

SUPPORTED MET(S): 2, 4, 5

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

DESCRIPTION: Vehicles use the natural cover and concealment in hide positions to increase survivability. As time, assets, and situation permit, positions are prepared using organic excavation equipment or engineer support. Priority is given to those vehicles containing essential mission-oriented equipment or supplies. Drivers and crews should use these fighting positions for individual protection also. Employ organic earth moving assets, to include: D7G, Medium Crawler Tractor (MTC), M9 ACE, 1150E, 1155, and 644E and 624 TRAMs in order to construct positions.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: That meets or exceeds the mission requirement and supports the concept of operation in accordance with the commanders' 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: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations

11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment, Combat engineer tools and kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-3802: Construct shelter/bunkers

SUPPORTED MET(S): 3, 4, 9

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

DESCRIPTION: Employ organic engineer tools and/or earth moving assets, to include: 420D IT Backhoe in the construction of shelters and bunker structures.

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 support the concept of operation in accordance with the commanders' 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.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability

7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-RECN-3801: Survey Site for Construction

SUPPORTED MET(S): 5

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

CONDITION: Provided a construction mission, a map, a scientific calculator, task organized personnel, equipment, and references.

STANDARD: To support commanders' 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.

REFERENCES:
1. FM 5-426 Carpentry
2. FM 5-428 Concrete Masonry
3. MCRP 3-17A Engineer 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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ENGR-MANT-3801: Provide cleaning and lubrication service to (ABV)

SUPPORTED MET(S): 2

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

DESCRIPTION: Clean JAB and ABV in accordance with the cleaning guidelines and procedures within the TM 11374A-IN/2, Maintenance Manual, TM 10984A-O1/3 (ABV), TM 10984A-OR/1(ABV), TM 10984A-OR/1V2 (ABV) and perform after cleaning lubrication and painting services.

CONDITION: Given a mission capable ABV, personnel, and equipment.

STANDARD: to ensure ABV is cleaned properly and no damage is incurred to any of the systems or components of the vehicle.

EVENT COMPONENTS:
1. Ensure vehicle is running when cleaning exterior of vehicle.
2. Clean exterior of vehicle with water as required.
3. Clean exterior of vehicle with steam as required.
4. Clean exterior of vehicle with air under pressure as required.
5. Ensure vehicle is running for 15 minutes after exterior of vehicle has been
6. Paint unprotected metal surfaces where necessary after cleaning.
7. Apply Coating compound, non-slip in a matching color to shaded areas as required. Apply Coating, phosphate to support as required.
8. Clean interior of the vehicle with a brush and a bucket of soapy water.
9. Rinse with clear water from bucket using sponge.
10. Open drain valves so water will drain out of hull as required.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

SUPPORT REQUIREMENTS:

EQUIPMENT: Wash rack with the necessary tools and equipment, PPE

UTIL-XENG-3701: Provide Environmental Control Unit (ECU) support

SUPPORTED MET(S): 6, 8

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

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).

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 (Oct 89)
4. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)

SUPPORT REQUIREMENTS:

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

EQUIPMENT: PPE, Utilities equipment

UTIL-XENG-3702: Provide refrigeration support

SUPPORTED MET(S): 6, 8

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

CONDITION: With an operational order, required equipment and personnel

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Coordinate with supporting unit(s) (Preventive Med Techs).
3. Setup refrigeration unit(s).

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 (Oct 89)
4. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)

SUPPORT REQUIREMENTS:

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

UNITS/PERSONNEL: Navy Medical tech support

UTIL-XENG-3703: Produce Potable Water

SUPPORTED MET(S): 6

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 1 month

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

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. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, PPE

UTIL-XENG-3704: Store Potable Water

SUPPORTED MET(S): 6

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

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.

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. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, PPE

UTIL-XENG-3705: Establish water distribution site

SUPPORTED MET(S): 6

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

CONDITION: With a Utilities Plan, required equipment and personnel

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:
1. Determine Requirements.
2. Set up Distribution System(s).
3. Inspect System(s).
4. Test Water for Potability.
5. Distribute Potable Water.

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. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, PPE

FUEL-XENG-3701: Maintain Bulk Fuel Petroleum Distribution site

SUPPORTED MET(S): 7

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

DESCRIPTION: Employ bulk fuel systems, to include: SixCon Pump and tank module, Expedient Refueling System (ERS), Helicopter Expedient Refueling System (HERS), Tactical Airfield Fuel Dispensing System (TAFDS), Amphibious Assault Refueling System (AAFS), Hose Reel System (HRS) to establish a bulk petroleum site.

CONDITION: With a bulk petroleum distribution plan, bulk petroleum 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. Determine personnel, tools, and equipment requirement(s).
3. Construct fuel storage site with required components (mission dependent).
4. Survey proposed area and prepare the site.

5. Construct fuel dispensing assembly (mission dependent).
6. Construct fuel receiving assembly (mission dependent).
7. Ensure environmental control devices are properly placed.
8. Ensure repair devices are properly placed.
9. Ensure interface devices are properly placed.
10. Ensure firefighting equipment is properly placed.
11. Ensure quality control measures are in compliance.
12. Ensure grounding rods/cables are properly installed.
13. Set-up inventory control procedures.
14. Dispense fuel as required.
15. Receive fuel resupply as required.
16. Produce reports as required.
17. Recover system as required.

REFERENCES:
1. FM 10-69 Petroleum Supply Point Equipment and Operations
2. MCWP 4-11 Combat Service Support
3. MCWP 4-11.6 Bulk Liquid Operations
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. MIL HDBK 200 Quality Surveillance Handbook for Fuels, Lubricants, and Related Products
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17933 POL Training Area

EQUIPMENT: Bulk Petroleum equipment, PPE

FUEL-XENG-3702: Store Petroleum, Oil and Lubricants (POL)

SUPPORTED MET(S): 7

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

DESCRIPTION: A broad term that includes all petroleum and associated products used by the U. S. Armed Forces. Storage in a warehouse of supplies and equipment in large quantities, usually in original containers, as distinguished from bin storage. Storage of liquids, such as petroleum products in tanks, as distinguished from drum or packaged storage.

CONDITION: Given commander's intent, concept of operations, warning order, fragmentary order, logistic requirements, POLs, equipment, personnel, and references,

STANDARD: to ensure appropriate Petroleum, Oils and Lubrication (POL) support, in accordance with the concept of operations.

EVENT COMPONENTS:
1. Provide POL Consumption Estimates to Higher Headquarters
2. Collate POL Requirements
3. Prepare Preliminary Environmental Assessments
4. Analyze POL Factors Affecting Operations and Exercise

REFERENCES:
1. FM 10-69 Petroleum Supply Point Equipment and Operations
2. MCWP 4-11.6 Bulk Liquid Operations
3. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
4. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
5. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17933 POL Training Area

EQUIPMENT: Bulk Fuel equipment, PPE

FUEL-XENG-3703: Provide Tactical Bulk Petroleum storage

SUPPORTED MET(S): 7

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

DESCRIPTION: Provide Tactical Bulk Fuel Storage.

CONDITION: Provided an operations order, petroleum products, bulk petroleum storage equipment, personnel, safety equipment, and references.

STANDARD: To ensure the physical inventory falls within allowances in local SOPs (product losses to not exceed allowable limits) and losses to be properly documented.

EVENT COMPONENTS:
1. Inventory stored fuel as required.
2. Test stored fuel for quality control measures as required.
3. Measure fuel by metering or estimate gauging.
4. Submit reports as required.

REFERENCES:
1. DOD 4140.25 Management of Bulk Petroleum Products, Storage and Distribution Facilities
2. FM 10-67-2 Petroleum Laboratory Testing and Operations
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. MCO 4400.170 Control and Accounting for Petroleum and Related Products
5. MCWP 4-11.6 Bulk Liquid Operations
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17933 POL Training Area

EQUIPMENT: Bulk Fuel equipment, PPE

ENGR-MANT-3701: Employ maintenance team

SUPPORTED MET(S): 2

EVALUATION-CODED: NO **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.

REFERENCES:
1. MCO 3000.11_ Marine Corps Ground Equipment Resources Reporting
2. MCO 4610.35 USMC Equipment Characteristics File
3. MCO 4731.1A Oil Analysis Program for Ground Equipment (Nov 90)
4. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
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

ENGR-RECN-3701: Assess damage to airfield surfaces

SUPPORTED MET(S): 2, 4

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

DESCRIPTION: Surface defects can usually be attributed to excessive loads, inferior surfacing material, poor sub-grade 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 establish a functional Minimum Operating Strip (MOS) capable of launching and recovering aircraft.

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. Once airfield commander has selected an MOS, have EOD clear UXO.
8. Determine material required to complete the repair.
9. Issue the repair order.
10. Inspect completed repair.
11. Submit appropriate engineer reports.

REFERENCES:
1. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
2. FM 5-430-00-2 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

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, PPE

UNITS/PERSONNEL: EOD personnel

ENGR-MOBL-3601: Employ a medium machinegun team

SUPPORTED MET(S): 2

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

DESCRIPTION: Employ a medium machinegun in a mounted position in support of mobility requirements.

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.

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
A111 Cartridge, 7.62mm Blank M82 Linked	
A151 Cartridge, 7.62mm 4 Ball/1 Tracer Li	

RANGE/TRAINING AREA:
Facility Code 17580 Machine Gun Transition Range
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-3602: Employ a heavy machinegun team

SUPPORTED MET(S): 2

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

DESCRIPTION: Employ a heavy machinegun in a mounted position in support of mobility requirements.

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:

RANGE/TRAINING AREA:
Facility Code 17580 Machine Gun Transition Range
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-CMOB-3601: Construct demolition obstacles

SUPPORTED MET(S): 3

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

DESCRIPTION: Employ improvised anti-personnel and anti-tank mines 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.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-100 Engineers in Combat Operations
6. FM 5-102 Countermobility
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-36 Route Reconnaissance and Classification
10. FM 90-1 Countermobility
11. FM 90-7 Combined Arms Obstacle Integration
12. FMFM 13 MAGTF Engineer Operations
13. MCRP 3-17A Engineer Field Data
14. MCWP 3-17 Engineer Operations
15. UNIT SOP Unit's Standing Operating Procedures
16. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M030 Charge, Demolition Block TNT 1/4-Pou	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
ML03 Firing Device, Demolition Multi-Purp	

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-RECN-3601: Assess damage to airfield surfaces

SUPPORTED MET(S): 5

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

DESCRIPTION: Surface defects can usually be attributed to excessive loads, inferior surfacing material, poor sub-grade 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 establish a functional Minimum Operating Strip (MOS) capable of launching and recovering aircraft.

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. Once airfield commander has selected an MOS, have EOD clear UXO.
8. Determine material required to complete the repair.
9. Issue the repair order.
10. Inspect completed repair.
11. Submit appropriate engineer reports.

REFERENCES:
1. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
2. FM 5-430-00-2 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

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, PPE

UNITS/PERSONNEL: EOD personnel

ENGR-SURV-3601: Construct Vehicle Survivability Position/Revetment

SUPPORTED MET(S): 3, 4

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

DESCRIPTION: Employ organic earth moving assets, to include: Medium Crawler Tractor (MTC), M9 ACE, 1150E, 1155, and 644E and 624 TRAMs.

CONDITION: Given an operations order, personnel, engineer equipment, and materials.

STANDARD: To build vehicle survivability position(s) (Revetment) that meet or exceed the mission requirement and support the concept of operation in accordance with the commanders' 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: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-XENG-3501: Conduct Dust Abatement

SUPPORTED MET(S): 4

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

DESCRIPTION: Employ a dust palliative with the assistance of organic engineer assets. to include: Medium Crawler Tractor (MTC), M9 ACE, 621B Scraper, Road Grader, Compactor, 1150E, 1155, 420D Backhoe, and 644E and 624 TRAMs.

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 commanders' intent and support 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.

REFERENCES:
1. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
2. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
3. FM 5-434 Earthmoving Operations
4. MCWP 3-17 Engineer 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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ENGR-CMOB-3501: Construct field expedient obstacles

SUPPORTED MET(S): 3

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

DESCRIPTION: The potential of expedient obstacles is almost unlimited. They place a great premium on imagination and ingenuity in the use of available materials and other resources, thus avoiding the logistic burden associated with all other types of obstacles.

CONDITION: Given a tactical situation, 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: To tie into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted.

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.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 5-100 Engineers in Combat Operations
4. FM 5-102 Countermobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-250 Explosives and Demolitions
7. FM 5-34 Engineer Field Data - Field Expedient Charges
8. FM 5-36 Route Reconnaissance and Classification
9. FM 90-1 Countermobility
10. FM 90-3 Desert Operations
11. FM 90-5 Jungle Operations
12. FM 90-7 Combined Arms Obstacle Integration
13. FMFM 13 MAGTF Engineer Operations
14. FMFM 4-4 Engineer Operations
15. MCRP 3-17A Engineer Field Data
16. MCWP 3-17 Engineer Operations
17. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
18. UNIT SOP Unit's Standing Operating Procedures
19. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat Engineer equipment, tools and kits, Earthmoving equipment

UTIL-XENG-3501: Provide Laundry Services

SUPPORTED MET(S): 6, 8

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

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.

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

UTIL-XENG-3502: Provide Shower Services

SUPPORTED MET(S): 6

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

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

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation

SUPPORT REQUIREMENTS:

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

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UTIL-MANT-3501: Maintain Water support equipment

SUPPORTED MET(S): 6, 8

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

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 Equipment Repair Order (ERO).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete maintenance administrative requirements.
9. Return equipment to service.

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: Engineer Material Handling equipment and Utilities equipment

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UTIL-MANT-3502: Maintain Hygiene Equipment

SUPPORTED MET(S): 6, 8

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

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 Equipment Repair Order (ERO).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete maintenance administrative requirements.
9. Return equipment to service.

REFERENCES:
1. MCRP 4-11.1D Field Hygiene and Sanitation
2. MCWP 4-11.4 Maintenance Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17924 Water Supply Training Area

EQUIPMENT: Engineer Material Handling equipment and Utilities equipment

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UTIL-MANT-3503: Maintain Environmental Control Units

SUPPORTED MET(S): 6, 8

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

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 Equipment Repair Order (ERO).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete maintenance administrative requirements.
9. Return equipment to service.

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 (Oct 89)
4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)

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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UTIL-MANT-3504: Maintain Refrigeration System(s)

SUPPORTED MET(S): 6, 8

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

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 Equipment Repair Order (ERO).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete maintenance administrative requirements.
9. Return equipment to service.

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 (Oct 89)
4. MCWP 4-11.4 Maintenance Operations
5. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)

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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ENGR-RECN-3501: Survey Site for Construction

SUPPORTED MET(S): 5

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

CONDITION: Provided a construction mission, a map, a scientific calculator, task organized personnel, equipment, and references.

STANDARD: To support commanders' 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.

REFERENCES:
1. FM 5-426 Carpentry
2. FM 5-428 Concrete Masonry
3. MCRP 3-17A Engineer 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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ENGR-RECN-3502: Assess damage to airfield surfaces

SUPPORTED MET(S): 5

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

DESCRIPTION: Surface defects can usually be attributed to excessive loads, inferior surfacing material, poor sub-grade 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 an operations order, an airfield facilities and structures to be repaired, personnel, resources, equipment, and references.

STANDARD: To restore airfield facilities and structures to operating conditions per commanders' intent and support mission requirements.

EVENT COMPONENTS:
1. Coordinate with supported unit.
2. Determine personnel, tool, and equipment requirement(s).
3. Proceed to assigned objective.
4. Reconnoiter damaged airfield surface as required.
5. Determine the type and extent of repair required.
6. Determine material required to complete the repair.
7. Issue the repair order.
8. Inspect completed repair.
9. Submit appropriate engineer reports.

REFERENCES:
1. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
2. FM 5-430-00-2 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

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17918 Road/Airfield Construction Training Site

EQUIPMENT: Engineer equipment, PPE

UNITS/PERSONNEL: EOD personnel

ENGR-SURV-3401: Construct Individual Fighting Position

SUPPORTED MET(S): 9

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

DESCRIPTION: Employ organic hand tools and/or earth moving assets, to include: 420D IT Backhoe, tools and equipment.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows a single combatant the ability to engage targets from front and obliques, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commanders' 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: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-3402: Construct Crew Served Weapons Position

SUPPORTED MET(S): 3, 9

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

DESCRIPTION: Employ organic hand tools and/or earth moving assets, to include: 420D IT Backhoe, tools and equipment.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows a weapons team the capability to engage targets from front and obliques, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commanders' 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: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-3403: Construct Overhead Cover

SUPPORTED MET(S): 3, 9

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

DESCRIPTION: Employ organic engineer tools and/or earth moving assets, to include: 420D IT Backhoe in the construction of fighting positions with overhead protection.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows a weapons team the capability to engage targets from front and obliques, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commanders' 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 overhead cover as required.
9. Displace equipment as required.
10. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations

11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-SURV-3404: Construct Triggering Screen

SUPPORTED MET(S): 9

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

DESCRIPTION: Employ organic engineer tools and/or earth moving assets, to include: 420D IT Backhoe in the construction of obstacles that affords rocket propelled grenade blast protection.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That provides combatant(s) and/or combat equipment cover from direct-fired rocket assisted grenade weapons, while permitting combatants the capability to engage targets from front and obliques, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commanders' 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 blast screen as required.
9. Displace equipment as required.
10. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)

4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Engineer equipment, Combat engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

ENGR-RECN-3401: Conduct Cache sweep

SUPPORTED MET(S): 5

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

DESCRIPTION: Employ engineer assets to detect for suspected caches of ordnance, to include: munitions, 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. Calculate time required for construction.
4. Prepare equipment for operation.
5. Move to site.
6. Establish safety zone.
7. Conduct area sweep.
8. Locate and mark the object.
9. Identify the object.
10. Neutralize mine(s).
11. Proof area to ensure explosive object has been properly neutralized.
12. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M131 Cap, Blasting Non-Electric M7	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
MN08 Igniter, Time Blasting Fuse with Sho	
M670 Fuse, Blasting Time M700	

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

ENGR-RECN-3402: Conduct Obstacle Reconnaissance

SUPPORTED MET(S): 5

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

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. Reconnoiter obstacle as required.
5. Locate and mark the object.
6. Identify the object.
7. Identify suitable bypasses.
8. Submit required reports.

REFERENCES:
1. FM 5-102 Countermobility
2. GTA 5-2-5 Engineer Reconnaissance
3. JP 3-34 Engineer Doctrine for Joint Operations
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
7. MCWP 3-1 Ground Combat Operations
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.3 MAGTF Breaching 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

ENGR-RECN-3403: Conduct Bridge Reconnaissance

SUPPORTED MET(S): 5

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

DESCRIPTION: To identify wet or dry areas to be used to cross. Evaluate gaps, fords, and ferry sites. Identify obstacles, 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.

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.

REFERENCES:
1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. GTA 5-2-5 Engineer Reconnaissance
5. GTA 5-7-13 Bridge Classification Booklet
6. JP 3-34 Engineer Doctrine for Joint Operations

7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
10. MCWP 3-1 Ground Combat Operations
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.3 MAGTF Breaching Operations
13. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17920 Panel Bridge Area
Facility Code 17410 Maneuver/Training Area, Light Forces

ENGR-RECN-3404: Conduct Road Reconnaissance

SUPPORTED MET(S): 5

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

DESCRIPTION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references

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.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-102 Countermobility
3. FM 5-34 Engineer Field Data - Field Expedient Charges
4. GTA 5-2-5 Engineer Reconnaissance
5. JP 3-34 Engineer Doctrine for Joint Operations
6. MCRP 3-17A Engineer 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 Engineer Operations
10. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

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

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ENGR-CMOB-3401: Emplace explosive obstacles

SUPPORTED MET(S): 3

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

DESCRIPTION: Employ improvised anti-personnel and anti-tank mines 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. Locate obstacle site.
3. Prepare site.
4. Emplace minefield controls.
5. Place row markers.
6. Record mine placement.
7. Arm mines.
8. Submit required reports.
9. Recover mines as required.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-100 Engineers in Combat Operations
6. FM 5-102 Countermobility
7. FM 5-250 Explosives and Demolitions
8. FM 5-36 Route Reconnaissance and Classification
9. FM 90-1 Countermobility
10. FM 90-7 Combined Arms Obstacle Integration
11. FMFM 13 MAGTF Engineer Operations
12. MCRP 3-17A Engineer Field Data
13. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
14. MCWP 3-17 Engineer Operations
15. MCWP 3-17.4 Engineer Reconnaissance
16. UNIT SOP Unit's Standing Operating Procedures
17. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M030 Charge, Demolition Block TNT 1/4-Pou	

M131 Cap, Blasting Non-Electric M7
M456 Cord, Detonating PETN Type I Class E
M023 Charge, Demolition Block M112 1-1/4
M130 Cap, Blasting Electric M6
ML03 Firing Device, Demolition Multi-Purp

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range
Facility Code 17905 Mine Warfare Area

EQUIPMENT: PPE, Combat engineer equipment, tools and kits

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-CMOB-3402: Build constructed obstacles

SUPPORTED MET(S): 3

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

DESCRIPTION: Constructed obstacles are those reinforcing obstacles that are built by marines and machinery, generally without the use of explosives. Typical examples are: Wire, Tank ditches, Log cribs, Steel H beam post obstacles, Falling or tumble blocks, Dragons teeth, hedgehogs, and tetrahedrons and non-explosive abatis.

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

STANDARD: that will turn, block, fix, or disrupt the enemy and supports commanders' 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 phony obstacles as required.
11. Construct tank ditches as required.
12. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 5-102 Countermobility
4. FM 5-250 Explosives and Demolitions

5. FM 5-36 Route Reconnaissance and Classification
6. FM 90-1 Countermobility
7. FM 90-7 Combined Arms Obstacle Integration
8. MCRP 3-17A Engineer Field Data
9. MCRP 3-17B Engineer Forms and Reports
10. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
11. MCWP 3-1 Ground Combat Operations
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.1a Combined Arms, Gap Crossing Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. UNIT SOP Unit's Standing Operating Procedures
16. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat engineer equipment, tools and kits, Material Handling equipment, Earthmoving equipment

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ENGR-XENG-3401: Provide Crane Support

SUPPORTED MET(S): 4

EVALUATION-CODED: NO **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.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. Local Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

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

ENGR-XENG-3402: Provide Material Handling Equipment (MHE) Support

SUPPORTED MET(S): 4

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

DESCRIPTION: Employ organic material handling equipment assets, to include: KALMAR RTCH, 644E and 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.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. Local Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

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

ENGR-XENG-3403: Provide Earth Moving Equipment Support

SUPPORTED MET(S): 4

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

DESCRIPTION: Employ organic earth moving assets, to include: Medium Crawler Tractor (MTC), M9 ACE, 621B Scraper, Road Grader, Compactor, 1150E, 1155, 420D Backhoe, and 644E and 624 TRAMs.

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.

REFERENCES:
1. Applicable Technical Publications/Manuals
2. Local Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

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

ENGR-XENG-3404: Fell Standing Timber

SUPPORTED MET(S): 4

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

CONDITION: Given a 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 and satisfy the commanders' 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.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCRP 3-17B Engineer Forms and Reports
3. Appropriate TM/Manufacture's Manual for Chainsaw

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Combat engineer tools and kits, PPE

OTHER SUPPORT REQUIREMENTS: ORM

UTIL-XENG-3401: Provide Floodlight Support

SUPPORTED MET(S): 8

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

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.

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, PPE

UTIL-XENG-3402: Establish Mobile Electric Power Sites

SUPPORTED MET(S): 8

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

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.

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, PPE

UTIL-XENG-3403: Wire a Structure for Electricity

SUPPORTED MET(S): 4, 8

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

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish operational power per commanders' intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with Supported unit(s).
2. Coordinate with supporting units.
3. Estimate materials required.
4. Calculate time required to wire structure.
5. Gather tools and materials.
6. Move to site.
7. Install electrical wire in structure.
8. Set safety zone.
9. Inspect wire installation.
10. Submit required reports.

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 (Jun 97)
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: Utilities equipment, PPE

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.

UTIL-XENG-3404: Install Plumbing in a Structure

SUPPORTED MET(S): 6

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

CONDITION: Provided a mission, resources, required equipment, and personnel.

STANDARD: To establish water a sewer services per commanders intent to support mission requirements.

EVENT COMPONENTS:
1. Coordinate with Supported unit(s).
2. Coordinate with supporting units.
3. Estimate materials required.
4. Calculate time required to plumb structure.
5. Gather tools and materials.
6. Move to site.
7. Set safety zone.
8. Install plumbing in structure.
9. Inspect piping installation.
10. Submit required reports.

REFERENCES:
1. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

SUPPORT REQUIREMENTS:

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

EQUIPMENT: Utilities equipment, PPE

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.

UTIL-MANT-3501: Maintain Tactical Water Purification Systems

SUPPORTED MET(S): 6

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

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 Equipment Repair Order (ERO).
4. Order Repair Parts.
5. Install Repair Parts.
6. Complete Modifications as required.
7. Perform Operational Checks.
8. Complete maintenance administrative requirements.
9. Return equipment to service.

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: Engineer Material Handling equipment and Utilities equipment

CHAPTER 4

MOS 1120 INDIVIDUAL EVENTS

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CHAPTER 4

MOS 1120 INDIVIDUAL EVENTS

4000. PURPOSE. This chapter details the individual events that pertain to the Utilities Officer. These events are linked to a service-level Mission Essential Task (MET). This linkage tailor's individual training for the selected MET. 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.

4001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4 digit identifier. The first four digits represent the occupational field or military occupational field (Utilities Officer, or 1120).

2. The second four digits represent the functional or duty area. For example:

ADMN - Administration
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2001) of the event. The Utilities Officer individual training events are separated into two levels:

2000 – Core Plus Skills

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1120-XENG-2721	Manage field electrical power generation/distribution system operation	4-52
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1120-XENG-2971	Manage interior heating, ventilation and air conditioning (HVAC) system installation	4-60
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4003. 2000-LEVEL EVENTS

1120-ADMN-2001: Manage Operational Risk (ORM)

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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 per the references.

PERFORMANCE STEPS:
1. Review task/mission.
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 1171-ADMN-1001 1161-ADMN-1001
1142-ADMN-1001

REFERENCES:
1. DODI 6055.1 DoD Safety and Occupational Health (SOH) Program (Aug 98)
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
3. MCRP 5-12.1C Risk Management (Feb 01)

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:** 6 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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 1171-ADMN-1002 1161-ADMN-1002
1142-ADMN-1002

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. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

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:

CONDITION: Without references.

STANDARD: So danger to personnel is eliminated and victim is cared for per the references.

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	1171-ADMN-1003
1169-ADMN-2003	1161-ADMN-1003	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 3-02G First Aid (Dec 02)
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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:

CONDITION: Without references.

STANDARD: So spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Contain spill.
3. Report spill.
4. Remove uncontaminated material.
5. Dispose of hazardous material.

RELATED EVENTS:

1141-ADMN-1004	1142-ADMN-1004	1171-ADMN-1004
1169-ADMN-2004	1161-ADMN-1004	

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: 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:

CONDITION: Using Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and the reference.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (PPE) (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 1171-ADMN-1005
1169-ADMN-2005 1161-ADMN-1005

REFERENCES:
1. MCRP 3-02G First Aid (Dec 02)

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL: Material Safety Data Sheet (MSDS) file.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: 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:** 3 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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: So required publications are available to maintain section's operational capabilities and readiness per the references.

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 4400.120A Joint Regulation Governing the Use and Application of

Uniform Source Maintenance and Recoverability Codes (Mar 03)
2. MCO 5215.1K Marine Corps Directives Management Program
3. MCO 5600.20P Marine Corps Doctrinal Publications System (Nov 06)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
6. MCO P5600.31G Marine Corps Publications and Printing Regulations (Sep 93)
7. SECNAV M-5210.2 Standard Subject Identification Code (SSIC) Manual
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

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/BII inventories

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 1 month

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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 the references.

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 1171-ADMN-1007 1161-ADMN-1007
1142-ADMN-1007

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)

2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4400-124 FMF SASSY Using Unit Procedures
5. 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-2012: Validate a Recommended Change to Technical Publications/Logistics-Maintenance Data Coding (NAVMC 10772)

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With a completed NAVMC 10772 and references.

STANDARD: So corrections/improvements to publications are affected per the references.

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. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website used will be https://pubs.logcom.usmc.mil.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: 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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place per the references.

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-2002 1120-ADMN-2001 1169-ADMN-2021

REFERENCES:
1. DOD 6055.1 DOD Occupational Safety and Health (OSH) Program
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
3. MCO 5100.19E Marine Corps Traffic Safety Program (Drivesafe) (Dec 00)
4. MCO 5100.29A Marine Corps Safety Program (Jul 04)
5. MCO 5100.30A Marine Corps Off-Duty and Recreation Safety Program (Oct 01)
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 (Jan 07)
7. MCO 5100.8 Marine Corps Occupational Safety and Health (OSH) Policy Order (May 06)
8. MCO 5104.2 Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program (Apr 95)
9. MCO 5104.3A Marine Corps Radiation Safety Program (Jun 03)
10. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
11. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
12. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
13. OPNAVINST 5100.23G Navy Safety and Occupational Health (SOH) Program

Manual (Dec 05)
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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With references.

STANDARD: So environmental policies and procedures are adhered to per the references.

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. Maintain 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:
1169-ADMN-2022 1120-ADMN-2004

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. OPNAVINST 5090.1C Environmental Readiness Program Manual (Oct 07)
5. 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-2023: Manage Military Occupational Specialty (MOS) training program

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With training resources, records, and references.

STANDARD: Ensuring MOS proficiency is maintained per the references.

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 (Sep 04)
2. MCO 1553.1B The Marine Corps Training and Education System
3. MCO 1553.2A Management of Marine Corps Formal Schools and Training Centers
4. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
5. MCO 3500.26A Universal Naval Task List (UNTL) Version 3.0 (Jan 07)
6. MCO P1553.4_ Professional Military Education (PME)
7. MCO P1560.25C Marine Corps Lifelong Learning Program (Dec 99)
8. MCO P3500.72A Marine Corps Ground Training and Readiness (T&R) Program (Apr 05)
9. MCRP 3-0A Unit Training Management Guide
10. MCRP 3-0B How to Conduct Training
11. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
12. OPNAVINST 1560.10C Administration of the United Services Military Apprenticeship Program (USMAP) (Apr 07)
13. SAT MANUAL Systems Approach to Training (SAT) Manual (Jun 04)
14. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: MOS Roadmaps are located at http://www.tecom.usmc.mil/g3/roadmap.htm.

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With a field electrical power generation and distribution system plan, sample warning signs, and references.

STANDARD: So "Off Limit" areas, meaning of warning signs, prohibited electrical equipment and reasons, prohibited practices, emergency procedures, and unsafe conditions are identified and addressed per the references.

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. Monitor electrical safety compliance.

PREREQUISITE EVENTS:
1169-ADMN-2031 1120-ADMN-2001

RELATED EVENTS:
1120-ADMN-2003 1120-ADMN-2002 1120-ADMN-2021

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. DODI 6055.1 DoD Safety and Occupational Health (SOH) Program (Aug 98)
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. MCO 3500.27B Operational Risk Management (ORM) (May 04)

6. MCO 5100.29A Marine Corps Safety Program (Jul 04)
7. MCRP 5-12.1C Risk Management (Feb 01)
8. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
9. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
10. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
11. Appropriate Technical Manuals

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 Product Quality Deficiency Report (PQDR) (SF 368)

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With a completed Product Quality Deficiency Report (PQDR), access to the defective item and references.

STANDARD: So deficiency is reported per the references.

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. MCO 4400.120A Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes (Mar 03)
2. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
3. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
4. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
5. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)

6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
7. UM 4400-124 FMF SASSY Using Unit Procedures
8. UNIT SOP Unit's Standing Operating Procedures
9. Appropriate Technical Manuals

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 www.logcom.usmc.mil/pqdr.

1120-ADMN-2042: Submit a Beneficial Suggestion

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With internet access and Common Access Card (CAC), or OPNAV 5305/1 (Department of the Navy Suggestion Form), and references.

STANDARD: So a suggested improvement to equipment, forms, or Tactics, Techniques, and Procedures (TTP) is documented for decision and action by higher authority per the Marine Corps Military Incentive Awards Program.

PERFORMANCE STEPS:
1. Review references.
2. Identify problem, difficulty or circumstance.
3. Develop suggested change.
4. Determine if benefits are tangible/intangible.
5. Quantify savings if change has tangible benefits.
6. Document suggestion, electronically or in writing by completing OPNAV 5305/1.
7. Identify benefit/savings to Marine Corps/U.S. Government.
8. Forward suggestion per Unit's SOP (on line if applicable).
9. Ensure confirmation of receipt.

PREREQUISITE EVENTS:
1169-ADMN-2042

REFERENCES:
1. MCO 1650.17F Marine Corps Military Incentive Award Program
2. OPNAVINST 1650.8D Cash Awards for Military Personnel for Suggestions,

Inventions, Scientific Achievements and Disclosures (Apr 07)
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: OPNAV 5305/1 (Department of the Navy Suggestion Form)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website used will be www.logcom.usmc.mil/benesugg.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-ADMN-2043: Initiate a Universal Need Statement (UNS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

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.

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.

REFERENCES:
1. CJCSI 3470.01 Rapid Validation and Resourcing of Joint Urgent Operational Needs (JUONS) in the Year of Execution (Jul 05)
2. MCO 3900.15B Marine Corps Expeditionary Force Development System (EFDS)
3. MCO 3900.17 Marine Corps Urgent Need Process and Urgent Needs Statement

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With equipment records, maintenance management reports, forms and references.

STANDARD: So equipment will be available to support unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Audit NAVMC 10561.
3. Audit maintenance management reports.
4. Determine maintenance priorities.
5. Validate support and test equipment assets and requirements.
6. Ensure PMCS schedule is followed.
7. Ensure PMCS actions are documented.

PREREQUISITE EVENTS:
1169-ADMN-2051

REFERENCES:
1. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UNIT SOP Unit's Standing Operating Procedures
6. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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 Daily Process Report (DPR) 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

REFERENCES:
1. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UNIT SOP Unit's Standing Operating Procedures
6. Appropriate Technical Manuals

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: 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 field budget requirements.
5. Manage execution of allocated funding.
6. Determine maintenance requirements.
7. Determine supply requirements.
8. Determine fuel requirements.
9. Manage shop/section 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 4105.2 Marine Corps Warranty Program (Nov 87)
2. MCO 4340.1_ Reporting of Missing, Lost, Stolen, or Recovered (MLSR) Government Property (Aug 94)
3. MCO 4400.120A Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes (Mar 03)
4. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
5. MCO 4410.9G Assignment of Local Stock Numbers and Criteria for Determining Assignment of National Stock Numbers (Aug 93)
6. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
7. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
8. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
9. MCO 7510.5A Marine Corps Fraud, Waste, and Abuse (FWA) Oversight, Awareness, Prevention, and Remedies (Aug 86)
10. MCO P4050.38C Personal Effects and Baggage Manual (Apr 01)
11. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
12. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
13. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
14. MCO P7100.8K Field Budget Guidance Manual
15. MCO P7300.21 Marine Corps Financial Execution Standard Operating Procedure Manual
16. NAVMC 2664 Financial Guidebook for Commanders
17. SECNAVINST 4355.18A Reporting of Supply Discrepancies (Jan 99)
18. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
19. TM 4795-12/1 Organizational Corrosion Prevention and Control Procedures
20. UM 4400-124 FMF SASSY Using Unit Procedures
21. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
22. UNIT SOP Unit's Standing Operating Procedures

1120-ADMN-2062: Place new equipment in service

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With equipment, Users Logistics Support Summary (ULSS) or Fielding Plan (FP), and references.

STANDARD: So unit's mission is supported per the references.

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.

PREREQUISITE EVENTS:
1169-ADMN-2062

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. 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-2063: Validate unit Table of Organization and Equipment (T/O&E)

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

BILLETS: 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 Mission Essential Task List (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. MCO 5311.1C Total Force Structure Process (TFSP) (Jan 99)
2. MCO 5320.12E Precedence Levels for Manning and Staffing (Aug 03)
3. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. UNIT SOP Unit's Standing Operating Procedures
6. UNIT T/O&E Unit's Table of Organization and Equipment
7. Appropriate Technical Manuals

1120-ADMN-2064: Reconcile section's Consolidated Memorandum Receipt (CMR)

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

BILLETS: 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: Ensuring assets are accounted for and available to support unit's mission per the references.

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, EROs, etc.).
6. Verify equipment quantities.
7. Identify deficiencies/discrepancies.
8. Initiate MLSR (if required).

RELATED EVENTS:
1120-ADMN-2007

REFERENCES:
1. MCO 4340.1_ Reporting of Missing, Lost, Stolen, or Recovered (MLSR) Government Property (Aug 94)
2. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
3. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
4. UM 4400-124 FMF SASSY Using Unit Procedures
5. UNIT SOP Unit's Standing Operating Procedures
6. 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: 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: To support the mission per the references.

PERFORMANCE STEPS:
1. Identify shortages/excesses.
2. Review readiness.
3. Review priority designator assignments.
4. Review maintenance cycle time.
5. Develop a plan to increase equipment availability.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
5. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
6. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
7. UNIT SOP Unit's Standing Operating Procedures

1120-ADMN-2071: Validate maintenance management reports

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With maintenance management reports, supporting documentation, and references.

STANDARD: Ensuring accuracy of the maintenance effort per the references.

PERFORMANCE STEPS:
1. Monitor Daily Process Report (DPR).
2. Monitor Daily Transaction Listing (DTL).
3. Monitor Daily SASSY transactions.
4. Monitor Daily LM2 Report.

5. Monitor Weekly TAM Report.
6. Monitor Weekly Maintenance Exceptions Report.
7. Monitor Weekly LM2 Report.
8. Monitor Weekly Material Report
9. Monitor Weekly Shop Summary Report.
10. Monitor Class II Reports.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM 4400-124 FMF SASSY Using Unit Procedures
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
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-2072: Manage maintenance related programs

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With equipment 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 Joint Oil Analysis Program (JOAP).
8. Manage Replacement Evacuation (R&E) program.
9. Manage Quality Deficiency (QDR) program.
10. Manage Recoverable Items (WIR) program.
11. Manage Quality Control (QC) program.
12. Manage Corrosion Prevention and Control (CPAC) program.
13. Ensure program and equipment records are maintained.

PREREQUISITE EVENTS:
1169-ADMN-2072

RELATED EVENTS:
1120-ADMN-2051 1120-ADMN-2052 1120-ADMN-2041
1120-ADMN-2071 1120-ADMN-2065

REFERENCES:
1. MCO 4400.194 Class VII Stock Rotation Program
2. MCO 4731.1A Oil Analysis Program for Ground Equipment (Nov 90)
3. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
4. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
5. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
6. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
7. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
8. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
9. TI-4731-14/1C MC Joint Oil Analysis Program
10. TM 4700-15/1H Ground Equipment Record Procedures
11. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
12. UNIT SOP Unit's Standing Operating Procedures
13. Appropriate Technical Manuals

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With equipment, records, forms, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review references.
2. Identify records requirements.
3. Ensure records are established for each piece of equipment.
4. Manage records.

PREREQUISITE EVENTS:
1169-ADMN-2073

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
4. MCO 5210.11E Marine Corps Records Management Program (Apr 06)
5. MCO 5213.7C Marine Corps Forms Management Program (May 90)
6. MCO P3000.13 Marine Corps Status of Resources and Training System (SORTS)
7. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
8. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
9. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
10. UM 4400-124 FMF SASSY Using Unit Procedures
11. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
12. 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-2074: Validate Maintenance Shop procedures

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

BILLETS: 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.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. 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: 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 per the references.

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. Manage field maintenance facility set up.
7. Recover field maintenance facility.

RELATED EVENTS:

1120-ADMN-2073	1120-ADMN-2074	1120-ADMN-2065
1120-ADMN-2052	1120-ADMN-2021	1120-ADMN-2022
1120-ADMN-2051	1120-ADMN-2071	

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
4. UNIT SOP Unit's Standing Operating Procedures

1120-ADMN-2081: Monitor equipment embarkation requirements

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 equipment, personnel, unit MAGTF Deployment Support System II (MDSS II)/Marine Air Ground Task Force II (MAGTF II) Logistics Automated Information System (LOGAIS) and/or Joint Operational Planning and Execution System (JOPES) reports, Logistics Automated Marking and Reading Symbols

(LOGMARS) labeling support, and references.

STANDARD: So unit's readiness/movement will be supported per the references.

PERFORMANCE STEPS:
1. Review MDSS II, MAGTF II LOGAIS, and/or JOPES reports.
2. Inspect assigned equipment.
3. Identify Remain Behind Equipment (RBE).
4. Identify Leave Behind Equipment (LBE).
5. Determine safety/environmental considerations.
6. Brief personnel.
7. Ensure equipment is marked for transportation/embarkation to include LOGMARS labels.
8. Ensure equipment is disassembled, stowed, packed, and/or prepared for transportation/embarkation.
9. Coordinate with unit embark chief to ensure discrepancies with MDSS II, MAGTF II LOGAIS, and/or JOPES reports are corrected.

REFERENCES:
1. DODD 4500.9 Transportation and Traffic Management
2. FM 101-10-1_ Organizational, Technical and Logistical Data
3. FM 55-15 Transportation Reference Data
4. FM 55-9 Unit Air Movement Planning
5. FMFM 3-1 Command and Staff Action
6. FMFM 4-6 Movement of Units in Air Force Aircraft
7. JOINT PUB 3-02 Joint Doctrine for Amphibious Operations
8. MCO 4610.35 USMC Equipment Characteristics File
9. MCO P4030.19_ Preparing Hazardous Materials for Military Air Shipments
10. MCO P4600.7_ USMC Transportation Manual
11. MCWP 3-31.5 Ship-to-Shore Movement
12. MCWP 4-11.3 Transportation Operations
13. MCWP 5-1 Marine Corps Planning Process
14. NAVMC DIR 3000.18 Marine Corps Force Deployment Planning and Execution Process Manual
15. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
16. TM 55-2200-001-12 Application of Blocking, Bracing, and Tie Down Material

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1120-ADMN-2082: Manage equipment operator licensing program

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With personnel, documentation, licensing records, and references.

STANDARD: Ensuring equipment operators are licensed per the references.

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).

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO 6260.1E Marine Corps Hearing Conservation Program (Apr 00)
3. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
4. TM 11240-15/3F Motor Vehicle Licensing Official's Manual
5. TM 11275-15/4 Tactical Engineer Equipment Licensing Examiner's Manual (Jun 83)
6. 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: 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: Ensuring all functional areas are mission capable.

PERFORMANCE STEPS:
1. Review references.
2. Review inspection checklists.
3. Inspect shop functions.
4. Identify discrepancies.
5. Administer corrective actions.

REFERENCES:
1. FM 55-15 Transportation Reference Data
2. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
3. MCO 3501.7A Marine Corps Combat Readiness Evaluation System (MCCRES);

Volume VI, Combat Service Support Units (Apr 91)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. MCRP 4-11.4A Battle Damage Assessment and Repair
6. MCWP 4-11.3 Transportation Operations
7. TM 11240-15/3F Motor Vehicle Licensing Official's Manual
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

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:

CONDITION: With an Operation Order, site survey, cantonment plan, and references.

STANDARD: So command staff is aware of utilities support capabilities in accordance with commander's intent.

PERFORMANCE STEPS:
1. Determine briefing requirements.
2. Gather briefing materials.
3. Present information.
4. Answer questions (as required).

REFERENCES:
1. FM 101-5 Staff Organization and Operations
2. MCWP 5-1 Marine Corps Planning Process

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: Ensuring section's capabilities/priorities are understood.

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-2071	1120-ADMN-2065	1120-ADMN-2063
1120-ADMN-2064		

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 101-5 Staff Organization and Operations
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
6. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
7. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
8. MCO 5311.1C Total Force Structure Process (TFSP) (Jan 99)
9. MCO 5320.12E Precedence Levels for Manning and Staffing (Aug 03)
10. MCO 5600.20P Marine Corps Doctrinal Publications System (Nov 06)
11. MCO 7510.5A Marine Corps Fraud, Waste, and Abuse (FWA) Oversight, Awareness, Prevention, and Remedies (Aug 86)
12. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
13. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
14. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
15. MCO P7100.8K Field Budget Guidance Manual
16. MCRP 4-11.1D Field Hygiene and Sanitation
17. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
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
21. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
22. NAVMC DIR 3000.18 Marine Corps Force Deployment Planning and Execution Process Manual
23. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
24. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
25. UNIT SOP Unit's Standing Operating Procedures
26. 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: 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, commander's intent, and references.

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 generator sites.
11. Develop RFIs on electrical power distribution requirements.
12. Prioritize RFIs.

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. MCO 3500.27B Operational Risk Management (ORM) (May 04)
6. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
7. MCRP 4-11.1D Field Hygiene and Sanitation
8. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
9. MCRP 5-12.1C Risk Management (Feb 01)
10. MCRP 5-2A Operational Terms and Graphics
11. MCWP 3-17 Engineer Operations
12. MCWP 4-11.4 Maintenance Operations
13. MCWP 4-11.6 Petroleum and Water Logistics Operations
14. MCWP 5-1 Marine Corps Planning Process
15. NAVMC DIR 3000.18 Marine Corps Force Deployment Planning and Execution Process Manual
16. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
17. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
18. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
19. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
20. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
21. UNIT T/O&E Unit's Table of Organization and Equipment

1120-XENG-2502: Conduct utilities site survey

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With a map, warning order, grid coordinates, compass, personnel, blank Water Reconnaissance Reports (DA 1712R), and the references.

STANDARD: So unit's mission is supported per the warning order and references.

PERFORMANCE STEPS:
1. Review map, warning order, and references.
2. Brief personnel.
3. Conduct survey.
4. Evaluate site for safety concerns.
5. Evaluate site for environmental concerns.
6. Ensure site conditions are evaluated and recorded on Water Reconnaissance Reports (DA 1712R).
7. Evaluate alternate water sources.
8. Evaluate site for camouflage, concealment, and decoys.
9. Evaluate site for Rear Area Security concerns.
10. Develop Site Survey report.
11. Brief Site Survey to those concerned.
12. Provide input for camp layout.
13. Provide input for engineer portions of operation orders.

PREREQUISITE EVENTS:
1169-XENG-2502 1120-XENG-2501

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 20-3 Camouflage
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. FM 5-553 General Drafting
6. MCRP 3-17B Engineer Forms and Reports
7. MCRP 4-11.1D Field Hygiene and Sanitation
8. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-1 Logistics Operations
12. MCWP 4-11 Tactical Level Logistics
13. MCWP 4-11.6 Petroleum and Water Logistics Operations
14. MCWP 5-1 Marine Corps Planning Process

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2503: Conduct a Disaster Relief/Humanitarian Assistance (DR/HA) assessment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With commander's intent, available intelligence reports/surveys and references.

STANDARD: So a comprehensive Operation Order can be developed.

PERFORMANCE STEPS:
1. Review demographics (people, infrastructure, security).
2. Develop Pre-Deployment Site Survey (PDSS) checklist.
3. Assess potable water requirements.
4. Identify water sources.
5. Assess hygiene requirements.
6. Determine electrical power requirements.

RELATED EVENTS:
1120-XENG-2501

REFERENCES:
1. DODD 2205.2 Humanitarian and Civic Assistance (HCA) Provided in Conjunction with Military Operations (Oct 94)
2. DODD 5100.46 Foreign Disaster Relief (Dec 75)
3. DODI 2205.3 Implementing Procedures for the Humanitarian and Civic Assistance (HCA) Program (Jan 95)
4. FM 10-52 Water Supply in Theaters of Operation
5. FM 10-52-1 Water Supply Point Equipment and Operations
6. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
7. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
8. MCO 3500.27B Operational Risk Management (ORM) (May 04)
9. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
10. MCRP 4-11.1D Field Hygiene and Sanitation
11. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
12. MCRP 5-12.1C Risk Management (Feb 01)
13. MCWP 3-33.1 MAGTF Civil Military Operations
14. MCWP 3-33.4 Domestic Support Operations
15. MCWP 4-11.6 Petroleum and Water Logistics Operations
16. MCWP 5-1 Marine Corps Planning Process
17. NAVMC DIR 3000.18 Marine Corps Force Deployment Planning and Execution Process Manual
18. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
19. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)

20. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
21. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
22. TB MED 593 Guidelines for Field Waste Management
23. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
24. UNIT T/O&E Unit's Table of Organization and Equipment
25. USAID FOG U.S. Agency for International Development (USAID) Field Operations Guide (FOG) for Disaster Assessment and Response - Version 4.0 (Sep 05)

1120-XENG-2521: Plan a field electrical power generation/distribution system

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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-2521 1120-ADMN-2001

REFERENCES:
1. FM 20-3 Camouflage
2. FM 5-412 Project Management
3. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
4. MCRP 3-17B Engineer Forms and Reports
5. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-35.6 Desert Operations
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical Level Logistics
11. MCWP 4-11.5 SeaBee Operations in the MAGTF
12. MCWP 5-1 Marine Corps Planning Process
13. TC 3-34.489 The Soldier and the Environment
14. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 08)
15. Appropriate Technical Manuals

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With a known requirement for uninterrupted electrical power, a list of available materials and the 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-XENG-2522 1120-ADMN-2031 1120-ADMN-2002
1120-ADMN-2001

RELATED EVENTS:
1120-XENG-2521 1120-ADMN-2003

REFERENCES:
1. 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
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. MCO 3500.27B Operational Risk Management (ORM) (May 04)
4. MCRP 5-12.1C Risk Management (Feb 01)
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
6. TC 11-6 Grounding Techniques (Mar 89)
7. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities (Feb 02)
8. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
9. Appropriate Technical Manuals

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/air conditioning equipment support

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With an Operation Order, a site survey, a camp layout, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order, site survey, and camp layout.
2. Determine safety requirements.
3. Determine environmental requirements.
4. Develop camp layout of refrigeration/air conditioning equipment.
5. Design a plan for the installation and operation of field refrigeration/air conditioning equipment.
6. Determine logistical/materiel requirements.
7. Analyze plan for changes.
8. Draw plan over camp layout.
9. Brief plan to those concerned.

PREREQUISITE EVENTS:
1169-XENG-2541

REFERENCES:
1. FM 5-412 Project Management
2. MCO 10110.34E USMC Food Service and Subsistence Program
3. NAVMED P-5010 Navy Sanitation
4. NAVSUP P-421 Navy Food Service SOP
5. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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 (see Joint Pub 4-03).
25. Brief water support plan (if required).

PREREQUISITE EVENTS:

1169-XENG-2553 1120-ADMN-2001

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 20-3 Camouflage
4. FM 5-412 Project Management
5. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
6. MCRP 3-17B Engineer Forms and Reports
7. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-41.1 Rear Area Operations
11. MCWP 4-11 Tactical Level Logistics
12. MCWP 4-11.5 SeaBee Operations in the MAGTF
13. MCWP 4-11.6 Petroleum and Water Logistics Operations
14. MCWP 5-1 Marine Corps Planning Process
15. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
16. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
17. TC 3-34.489 The Soldier and the Environment
18. Appropriate Technical Manuals

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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-ADMN-2001 1169-XENG-2555 1120-XENG-2553

REFERENCES:

1. FM 20-3 Camouflage
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 5-412 Project Management
4. MCRP 3-17B Engineer Forms and Reports
5. MCRP 4-11.1D Field Hygiene and Sanitation
6. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
7. MCWP 3-17 Engineer Operations
8. MCWP 5-1 Marine Corps Planning Process
9. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
10. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
11. TC 3-34.489 The Soldier and the Environment

12. Appropriate Technical Manuals

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

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-ADMN-2001 1120-XENG-2555 1120-XENG-2553
1169-XENG-2558

REFERENCES:
1. FM 20-3 Camouflage
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 4-25.12 Unit Field Sanitation Team
4. FM 5-412 Project Management
5. MCRP 3-17B Engineer Forms and Reports
6. MCRP 4-11.1D Field Hygiene and Sanitation
7. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
8. MCWP 3-17 Engineer Operations
9. MCWP 5-1 Marine Corps Planning Process
10. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
11. TB MED 593 Guidelines for Field Waste Management
12. TC 3-34.489 The Soldier and the Environment
13. Appropriate Technical Manuals

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: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With construction plans for a building, a list of electrical

fixtures/appliances to be installed, local code requirements, and references.

STANDARD: Per 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 1120-ADMN-2001

RELATED EVENTS:
1120-XENG-2962 1120-XENG-2961

REFERENCES:
1. FM 5-412 Project Management
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. FM 5-553 General Drafting
4. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
5. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2571: Plan an interior heating, ventilation and air conditioning (HVAC) system

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 construction plans for a building, a list of heating,

ventilation and air conditioning criteria for the building, local code requirements, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review construction plans, local code, and references.
2. Review HVAC criteria.
3. Calculate volume of air to be conditioned.
4. Determine insulation characteristics.
5. Identify tons of air to be conditioned per hour.
6. Determine code requirements.
7. Determine vent and ducting requirements.
8. Plot HVAC system on construction plans.
9. Ensure HVAC system plan conforms to references and building's requirements.
10. Determine number of personnel required to install system.
11. Establish a Bill of Materials (BOM), including safety items.
12. Establish a Course of Action (COA).

PREREQUISITE EVENTS:
1169-XENG-2571

REFERENCES:
1. FM 5-412 Project Management
2. FM 5-553 General Drafting
3. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
4. TM 5-704 Construction Print Reading in the Field
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2581: Plan an interior plumbing system

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With construction plans for a building, a list of plumbing fixtures to be installed, local code requirements, and references.

STANDARD: Per 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 1120-ADMN-2001

RELATED EVENTS:
1120-XENG-2988 1120-XENG-2987

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-412 Project Management
3. FM 5-553 General Drafting
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:

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: 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 unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Monitor electrical power generation/distribution system installation.

6. Inspect installed field electrical power generation/distribution system.

PREREQUISITE EVENTS:
1120-XENG-2522

REFERENCES:
1. FM 5-422 Engineer Prime Power Operations
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2622: Validate ground test set measurements

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With ground test set measurements and references.

STANDARD: To ensure safety of equipment and personnel per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review test measurement reports.
3. Ensure measurements are within standards.

PREREQUISITE EVENTS:
1169-XENG-2622

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. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. TC 11-6 Grounding Techniques (Mar 89)
4. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities (Feb 02)
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2641: Manage field refrigeration/air conditioning equipment

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: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Monitor field refrigeration/air conditioning equipment installation.
6. Inspect installed field refrigeration/air conditioning equipment.
7. Ensure inspection of installed equipment by preventive medicine personnel.

PREREQUISITE EVENTS:
1120-XENG-2541

REFERENCES:
1. MCO 10110.34E USMC Food Service and Subsistence Program
2. NAVMED P-5010 Navy Sanitation
3. NAVSUP P-421 Navy Food Service SOP
4. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2652: Validate water test equipment measurements

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

BILLETS: Utilities Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING:

CONDITION: With water test measurement reports and references.

STANDARD: To ensure product water is potable per the references.

PERFORMANCE STEPS:
1. Review references.

2. Review test measurement reports.
3. Ensure measurements are within standards.

PREREQUISITE EVENTS:
1169-XENG-2652

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. TB MED 577 Occupational and Environmental Health 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)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Initial training for this event is received in the Utilities Chief course (CID: M0311E2).

1120-XENG-2653: Manage field water purification/storage/distribution 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: With an Operation Order, completed Water Reconnaissance Reports (DA-1712R), camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Manage field water purification/storage/distribution system installation.
6. Inspect installed field water purification/storage/distribution system.
7. Ensure inspection of installed system by preventive medicine personnel.

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

6. Appropriate Technical Manuals

1120-XENG-2655: Manage field hygiene equipment 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: With an Operation Order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Monitor field hygiene equipment installation.
6. Inspect installed field hygiene equipment.
7. Ensure inspection of installed equipment by preventive medicine personnel.

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-10-1 Unit Field Sanitation
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. NAVMED P-5010 Navy Sanitation
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2658: Manage camp sanitation 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: With an Operation Order, environmental impact report, area map, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order, environmental impact report, and camp layout.

2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Manage installation of sanitation system components.
6. Inspect installed sanitation system.
7. Ensure inspection of installed system by preventive medicine personnel.

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-10-1 Unit Field Sanitation
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. NAVMED P-5010 Navy Sanitation

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 supported per the references.

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 dummy loads.
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-2522 1120-XENG-2622 1120-XENG-2621

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 4700-15/1H Ground Equipment Record Procedures
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

4. UNIT SOP Unit's Standing Operating Procedures

1120-XENG-2741: Manage field refrigeration/air conditioning 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/air conditioning equipment, operators, and references.

STANDARD: So unit's mission is supported per the references.

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 operator schedule.
6. Brief personnel.
7. Monitor operation of air conditioning equipment.
8. Monitor operation of ice cream plants.
9. Monitor operation of ice making machines.
10. Monitor operation of refrigeration units.
11. Manage refrigeration/air conditioning equipment operator maintenance.
12. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:
1120-XENG-2971 1120-XENG-2571

REFERENCES:
1. MCO 10110.34E USMC Food Service and Subsistence Program
2. NAVMED P-5010 Navy Sanitation
3. NAVSUP P-421 Navy Food Service SOP
4. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
5. TM 4700-15/1H Ground Equipment Record Procedures
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
7. UNIT SOP Unit's Standing Operating Procedures

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, completed Water Reconnaissance Reports (DA-1712R), camp layout, water purification/storage/distribution system, operators, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order, Water Reconnaissance Reports, 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/storage/distribution system.
8. Monitor operation of water purification equipment.
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 operation of water chillers.
13. Monitor use of collapsible tanks and bladders.
14. Ensure water quantity and quality meet requirements.
15. Ensure all water production reports and logs are completed and submitted.
16. Manage water purification/storage/distribution equipment operator maintenance.
17. Ensure records/reports are updated/completed.

PREREQUISITE EVENTS:
1120-XENG-2652 1120-XENG-2653

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. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

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 supported per the references.

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 bare base laundry facilities.
8. Monitor operation of bare base 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

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-10-1 Unit Field Sanitation
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. NAVMED P-5010 Navy Sanitation
5. TM 4700-15/1H Ground Equipment Record Procedures
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
7. UNIT SOP Unit's Standing Operating Procedures

1120-XENG-2758: Manage camp sanitation 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, camp sanitation system, personnel, and references.

STANDARD: So unit's mission is supported per the references.

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

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-10-1 Unit Field Sanitation
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. NAVMED P-5010 Navy Sanitation
5. UNIT SOP Unit's Standing Operating Procedures

1120-XENG-2821: Manage field electrical power generation/distribution system recovery

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, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect installed field electrical power generation/distribution system.
5. Brief recovery crew.
6. Ensure electrical power generation/distribution system recovery.

PREREQUISITE EVENTS:
1120-XENG-2621 1120-XENG-2522

REFERENCES:
1. FM 5-422 Engineer Prime Power Operations
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2841: Manage field refrigeration/air conditioning equipment recovery

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, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect installed field refrigeration/air conditioning equipment.
5. Brief recovery crew.
6. Ensure field refrigeration/air conditioning equipment recovery.

PREREQUISITE EVENTS:
1120-XENG-2641 1120-XENG-2541

REFERENCES:
1. MCO 10110.34E USMC Food Service and Subsistence Program
2. NAVMED P-5010 Navy Sanitation
3. NAVSUP P-421 Navy Food Service SOP
4. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2853: Manage field water purification/storage/distribution system recovery

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, completed Water Reconnaissance Reports (DA-1712R), camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.

3. Review environmental requirements.
4. Inspect installed field water purification/storage/distribution system.
5. Brief recovery crew.
6. Ensure field water purification/storage/distribution system recovery.

PREREQUISITE EVENTS:
1120-XENG-2653

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

1120-XENG-2855: Manage field hygiene equipment recovery

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, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect installed field hygiene equipment.
5. Brief recovery crew.
6. Ensure field hygiene equipment recovery.

PREREQUISITE EVENTS:
1120-XENG-2655

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-10-1 Unit Field Sanitation
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. FM 5-163 Sewerage
5. NAVMED P-5010 Navy Sanitation
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2858: Manage camp sanitation system recovery/closure

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, environmental impact report, area map, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review Operation Order, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect sanitation system.
5. Brief recovery/closure crew.
6. Ensure sanitation system recovery/closure.
7. Ensure marking of closed sanitation system.
8. Inspect closed/marked sanitation system.
9. Ensure inspection of closed/marked system by preventive medicine personnel.
10. Ensure closed latrine sites are recorded on area map.
11. Forward marked map to those concerned.

PREREQUISITE EVENTS:
1120-XENG-2758 1120-XENG-2658

REFERENCES:
1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-10-1 Unit Field Sanitation
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. NAVMED P-5010 Navy Sanitation

1120-XENG-2961: 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: With a structure, blueprints, electrical plan, personnel, tools, Bill of Materials (BOM), materials, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review blueprints, electrical plan, and Bill of Materials (BOM).
2. Determine safety/code requirements.

3. Inventory BOM.
4. Brief installation crew.
5. Manage installation crew.
6. Conduct final inspection of installed wiring system.

REFERENCES:
1. FM 5-553 General Drafting
2. TM 5-704 Construction Print Reading in the Field
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. National Electrical Code

1120-XENG-2962: 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: With a structure requiring interior electrical wiring system repairs, personnel, tools, materials, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Examine interior electrical wiring system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Manage repairs.
6. Conduct inspection of repaired wiring system.

PREREQUISITE EVENTS:
1120-XENG-2961

REFERENCES:
1. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
2. National Electrical Code

1120-XENG-2971: Manage interior heating, ventilation and air conditioning (HVAC) 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: With a structure, blueprints, HVAC plan, personnel, tools, Bill of Materials (BOM), materials, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review blueprints, HVAC plan, and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Inventory BOM.
4. Brief installation crew.
5. Manage installation crew.
6. Conduct final inspection of installed HVAC system.

PREREQUISITE EVENTS:
1120-XENG-2571

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-553 General Drafting
3. TM 5-704 Construction Print Reading in the Field
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2972: Manage interior heating, ventilation and air conditioning (HVAC) 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: With a structure requiring HVAC system repairs, personnel, tools, materials, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Examine HVAC system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Manage repairs.
6. Conduct inspection of repaired HVAC system.

PREREQUISITE EVENTS:
1120-XENG-2971 1120-XENG-2571

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1120-XENG-2987: 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: With a structure, blueprints, plumbing plan, personnel, tools, Bill of Materials (BOM), materials, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:
1. Review blueprints, plumbing plan, and Bill of Materials (BOM).
2. Determine safety/code requirements.
3. Inventory BOM.
4. Brief installation crew.
5. Manage installation crew.
6. Conduct final inspection of installed plumbing system.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-163 Sewerage
3. FM 5-553 General Drafting
4. TM 5-704 Construction Print Reading in the Field
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
6. National Plumbing Code

1120-XENG-2988: 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: With a structure requiring interior plumbing system repairs, personnel, tools, materials, and references.

STANDARD: So unit's mission is supported per the references.

PERFORMANCE STEPS:

1. Examine plumbing system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Manage repairs.
6. Conduct inspection of repaired plumbing system.

PREREQUISITE EVENTS:

1120-XENG-2987

REFERENCES:

1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-163 Sewerage
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. National Plumbing Code

ENG & UTIL T&R MANUAL

CHAPTER 5

MOS 1141 INDIVIDUAL EVENTS

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CHAPTER 5

MOS 1141 INDIVIDUAL EVENTS

5000. PURPOSE. This chapter includes all individual training events for the Electrician. An individual event is an event that a trained Electrician would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

5001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4 character identifier. The first four characters represent the MOS (1141).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Electrician individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

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5003. 1000-LEVEL EVENTS

1141-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 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 per the references.

PERFORMANCE STEPS:
1. Review task/mission.
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 1171-ADMN-1001 1161-ADMN-1001

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCRP 5-12.1C Risk Management (Feb 01)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1141-ADMN-1002: Control (Lockout/Tagout) hazardous energy

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment manuals, PPE, 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. Shut down equipment/turn off circuit.
6. Dissipate or restrain any stored energy.
7. Apply Lockout/Tagout devices.
8. Verify energy is isolated/dissipated (test circuit).
9. Effect required service, maintenance, repairs or modifications to equipment/circuit.
10. Remove Lockout/Tagout devices.
11. Restore equipment/circuit to normal operation.
12. Return Lockout/Tagout devices to program coordinator.

RELATED EVENTS:
1142-ADMN-1002 1171-ADMN-1002 1161-ADMN-1002

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. UNIT SOP Unit's Standing Operating Procedures
3. Appropriate Technical Manuals

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: Without references.

STANDARD: So danger to personnel is eliminated and victim is cared for per the references.

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:

1142-ADMN-1003	1161-ADMN-1003	1120-ADMN-2003
1171-ADMN-1003	1169-ADMN-2003	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 3-02G First Aid (Dec 02)
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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: Without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Contain spill.
3. Report spill.
4. Remove uncontaminated material.
5. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1142-ADMN-1004	1171-ADMN-1004
1169-ADMN-2004	1161-ADMN-1004	

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)

3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. UNIT SOP Unit's Standing Operating Procedures

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: Using Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and the reference.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (PPE) (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	1171-ADMN-1005
1169-ADMN-2005	1161-ADMN-1005	

REFERENCES:
1. MCRP 3-02G First Aid (Dec 02)

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL: Material Safety Data Sheet (MSDS) file.

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 information will be available for accurate completion of work.

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 1171-ADMN-1006 1161-ADMN-1006

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
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 0416 - 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:** 1 month

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 the references.

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 1171-ADMN-1007 1161-ADMN-1007

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

1141-ADMN-1008: Conduct a Limited Technical Inspection (LTI)

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

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 (PPE) (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-1006 1141-ADMN-1002 1141-ADMN-1007

RELATED EVENTS:
1161-ADMN-1008 1171-ADMN-1008 1142-ADMN-1008

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCRP 4-11.4A Battle Damage Assessment and Repair
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. TM 9-6115-624-BD Battlefield Damage Assessment and Repair for Generators (Sep 90)
5. UNIT SOP Unit's Standing Operating Procedures
6. Appropriate Technical Manuals

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])

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 per the references.

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).

RELATED EVENTS:
1142-ADMN-1009 1171-ADMN-1009 1161-ADMN-1009

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL:
- NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service
` Record)

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 forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: So valid requisitions will be created per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Complete NAVMC 10925 header information.
4. Annotate repair part/component information on the NAVMC 10925.
5. Submit NAVMC 10925 for input.
6. Follow up/reconcile requisitions (as needed/required).

PREREQUISITE EVENTS:
1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1011 1171-ADMN-1010 1161-ADMN-1010
1142-ADMN-1010

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP.

1141-ADMN-1011: Document equipment service/repair history

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With forms and references.

STANDARD: So Equipment Repair Order (NAVMC 10245) is complete with descriptive data and service/repair actions for equipment indicated per the references.

PERFORMANCE STEPS:
1. Review references.

2. Fill out equipment descriptive data on NAVMC 10245.
3. Annotate NAVMC 10245 with service/repair actions taken.
4. Submit NAVMC 10245 for input.

RELATED EVENTS:

1141-ADMN-1006	1141-ADMN-1008	1141-ADMN-1009
1171-ADMN-1011	1142-ADMN-1011	1161-ADMN-1011
1141-ADMN-1010		

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10245 (Equipment Repair Order [ERO])

1141-ADMN-1012: Initiate a Recommended Change to Technical Publications/Logistics-Maintenance Data Coding (NAVMC 10772)

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

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 the references.

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 per unit's SOP.

PREREQUISITE EVENTS:
1141-ADMN-1006

RELATED EVENTS:

1142-ADMN-1012	1171-ADMN-1012	1161-ADMN-1012

REFERENCES:
1. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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 used will be https://pubs.logcom.usmc.mil.

1141-MANT-1101: Operate a multimeter

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

RELATED EVENTS:

1141-ADMN-1001	1141-ADMN-1002	1171-MANT-2101
1161-MANT-1101	1142-MANT-1101	

REFERENCES:
1. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
4. TM 2000-15/4 Power System Reference Manual (Jul 68)
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Multimeter
- Equipment with an electrical circuit

1141-MANT-1142: Load test generator set(s)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 6 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 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-1006

RELATED EVENTS:
1141-ADMN-1008 1142-MANT-1142 1141-ADMN-1011
1141-ADMN-1009

REFERENCES:
1. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 Preventive Maintenance Checks and Services (PMCS) on a Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R)

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment, 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 ERO.
4. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. FP 11183A Fielding Plan for Mobile Electric Power Distribution System Replacement (MEPDIS-R)

2. SI 6110-OI/1 Warranty Procedures for Mobile Electric Power Distribution System Replacement
3. SL-3-6110 Components List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. TM 6110-OI/1 Operation/Maintenance Manual with Repair Parts List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
6. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1141-MANT-1244: Perform Preventive Maintenance Checks and Services (PMCS) on a Power Distribution Panel, Power Distribution System (MEPDIS)

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment, 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 ERO.
4. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

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. TM 09124A/09125A/09127A-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models PD-100, PD-030, & PD-015
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Power Distribution Panel, Power Distribution System (MEPDIS):
  - 15kW PD-015 [B0595]
  - 30kW PD-030 [B0600] - and/or –
  - 100kW PD-100 [B0605]
- Generator

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1141-MANT-1246: Perform Preventive Maintenance Checks and Services (PMCS) on a Model MLK-0000 Field Wiring Harness

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 equipment is checked and serviced per TM 09049A-12&P/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.

2. Inspect equipment.
3. Service equipment.
4. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1011 1141-ADMN-1010

REFERENCES:
1. SL-3-09049A Components List for Field Wiring Harness, Model MLK-0000 (Jan 92)
2. TM 09049A-12&P/1 Operation and Maintenance Including Components List and Repair Parts List for Field Wiring Harness, Model MLK-0000, for Mobile Electrical Power Distribution System (MEPDIS)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT: Model MLK-0000 Field Wiring Harness [B0608]

MATERIAL: SL-3 Inventory Sheet

1141-MANT-1247: Perform Preventive Maintenance Checks and Services (PMCS) on a MLT5060MIT Floodlight Set

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

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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

REFERENCES:
1. FP 11120A Fielding Plan for Floodlight Set, MLT5060MIT
2. MI 11120A-OI/1 Installation of Safety Modification Kit for the USMC Floodlight Set (FLS)(Model MLT5060MIT)
3. MI 11120A-OI/2 Modifications of the USMC Floodlight Set, Model MLT5060MIT
4. SI 11120A-OI/1 Warranty Procedures for B0640 Floodlight Set
5. TM 11120A-OI Operation/Maintenance Manual with Repair Parts List for Floodlight Set (Model MLT5060MIT)
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- MLT5060MIT Floodlight Set [B0640]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1251: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-831A 3kW, 60Hz Tactical Quiet Generator Set

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

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 10155A-OI/1 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 ERO.

6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. MI 10155A-OR/1 Installation of Pulse Solar Charger (PSC) on Tactical Quiet Generators (TQG), 3 Kilowatt 60 Hertz (MEP-831A)
2. MI 6115-OI/25C Trailer Mounting of 3kW, MEP-831A Generators on M116A2/3 Series Trailer
3. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
4. TM 10155A-OI/1 Operator, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for 3kW Tactical Quiet Generator Set
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. 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, Multi-Capable Maintainer [C7036]
- MEP-831A 3kW, 60Hz Tactical Quiet Generator Set [B0730]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1252: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-803A 10kW, 60Hz Tactical Quiet Generator Set

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

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 09247A/09248A-10/1 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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

REFERENCES:
1. LI 09247A/09248A-12 Lubrication Instruction for Generator Set, Skid Mounted, Tactical Quiet, 10kw, MEP-803A/MEP-813A (Oct 96)
2. 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)
3. MI 6115-24/24D Trailer Mounting of 10kW, MEP-003A, MEP-112A, MEP-803A, MEP-813A Generators on M116A2/3 Series Trailer
4. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series (May 01)
5. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
6. TB 9-6115-642-13 Operator, Unit and Direct Support Maintenance Manual for Winterization Kit Installed on Generator Set, Skid Mounted, Tactical Quiet, 10kW, 60 and 400 Hz, MEP-803A/MEP-813A
7. TI 08857A-20/1 Installation of Tactical Quiet MEP-803 10kw 60Hz Generator on Floodlight Set, Model SM-4A3-0 (Jul 00)
8. TM 09247A/09248A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
9. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
10. 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, Multi-Capable Maintainer [C7036]
- MEP-803A 10kW, 60Hz Tactical Quiet Generator Set [B0891]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])

- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1253: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-813A 10kW, 400Hz Tactical Quiet Generator Set

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

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 09247A/09248A-10/1 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. LI 09247A/09248A-12 Lubrication Instruction for Generator Set, Skid Mounted, Tactical Quiet, 10kw, MEP-803A/MEP-813A (Oct 96)
2. 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)
3. MI 6115-24/24D Trailer Mounting of 10kW, MEP-003A, MEP-112A, MEP-803A, MEP-813A Generators on M116A2/3 Series Trailer
4. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series (May 01)
5. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
6. TB 9-6115-642-13 Operator, Unit and Direct Support Maintenance Manual for Winterization Kit Installed on Generator Set, Skid Mounted, Tactical

Quiet, 10kW, 60 and 400 Hz, MEP-803A/MEP-813A
7. TM 09247A/09248A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. 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, Multi-Capable Maintainer [C7036]
- MEP-813A 10kW, 400Hz Tactical Quiet Generator Set [B0921]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1255: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-805A 30kW, 50/60Hz Tactical Quiet Generator Set

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

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 09249A/09246A-10/1 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. LI 09249A/09246A-12 Lubrication Instruction for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805A and MEP-815A
2. MI 6115-25/28 In Line Fuse Addition to Tactical Quiet Generator, Models MEP-805A, 806A, 815A and 816A
3. 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
4. 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)
5. SI 09249A/09246A-24 Warranty Program for Generator Set, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805A and MEP-815A
6. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series (May 01)
7. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
8. TB 9-6115-644-13 Operator, Unit and Direct Support Maintenance Manual for Winterization Kit Installed on Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805A/MEP-815A
9. TM 09249A/09246A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805A/MEP-815A
10. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
11. 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, Multi-Capable Maintainer [C7036]
- MEP-805A 30kW, 50/60Hz Tactical Quiet Generator Set [B0953]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1256: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-805B 30kW, 50/60Hz Tactical Quiet Generator Set

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

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 09249B/09246B-14 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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

REFERENCES:
1. 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
2. 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
3. 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)
4. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
5. TB 9-6115-671-24 Warranty Program for Generator Set, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805B and MEP-815B
6. TM 09249B/09246B-14 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805B/MEP-815B
7. 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
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. 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, Multi-Capable Maintainer [C7036]
- MEP-805B 30kW, 50/60Hz Tactical Quiet Generator Set [B0953]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1257: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-815A 30kW, 400Hz Tactical Quiet Generator Set

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

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 09249A/09246A-10/1 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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

REFERENCES:
1. LI 09249A/09246A-12 Lubrication Instruction for Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805A and MEP-815A
2. MI 6115-25/28 In Line Fuse Addition to Tactical Quiet Generator, Models MEP-805A, 806A, 815A and 816A
3. 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
4. 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)

5. SI 09249A/09246A-24 Warranty Program for Generator Set, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805A and MEP-815A
6. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series (May 01)
7. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
8. TB 9-6115-644-13 Operator, Unit and Direct Support Maintenance Manual for Winterization Kit Installed on Generator Set, Skid Mounted, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805A/MEP-815A
9. TM 09249A/09246A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805A/MEP-815A
10. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
11. 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, Multi-Capable Maintainer [C7036]
- MEP-815A 30kW, 400Hz Tactical Quiet Generator Set [B0971]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1262: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-806A 60kW, 50/60Hz Tactical Quiet Generator Set

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

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 09244A/09245A-10/1 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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

REFERENCES:
1. LI 09244A/09245A-12 Lubrication Instruction for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806A and MEP-816A
2. MI 6115-25/28 In Line Fuse Addition to Tactical Quiet Generator, Models MEP-805A, 806A, 815A and 816A
3. 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
4. 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)
5. SI 09244A/09245A-24 Warranty Program for Generator Set, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806A and MEP-816A
6. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series (May 01)
7. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
8. TB 9-6115-645-13 Operator, Unit and Direct Support Maintenance Manual for Winterization Kit Installed on Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806A/MEP-816A
9. TM 09244A/09245A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, MEP-806A/MEP-816A
10. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
11. 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, Multi-Capable Maintainer [C7036]
- MEP-806A 60kW, 50/60Hz Tactical Quiet Generator Set [B1021]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1263: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-806B 60kW, 50/60Hz Tactical Quiet Generator Set

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

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 09244B/09245B-14/1 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. 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
2. 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
3. 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)
4. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
5. TB 9-6115-672-24 Warranty Program for Generator Set, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806B and MEP-816B
6. 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
7. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
8. 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, Multi-Capable Maintainer [C7036]
- MEP-806B 60kW, 50/60Hz Tactical Quiet Generator Set [B1021]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1265: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-807A 100kW, 50/60Hz Tactical Quiet Generator Set

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

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 07464C-10/1 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. FP 07464C Fielding Plan for B1045 MEP-807A 100kW Tactical Quiet Generator (TQG)
2. SI 07464C-OI/1 Warranty Procedures for MEP-807A 100kW Tactical Quiet Generator
3. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid

Mounted
4. TM 07464C-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
5. TM 07464C-24/2 Field and Sustainment Maintenance for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
6. TM 07464C-24P/3 Field and Sustainment Level Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
7. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
8. 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, Multi-Capable Maintainer [C7036]
- MEP-807A 100kW, 50/60Hz Tactical Quiet Generator Set [B1045]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-1324: Diagnose a Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R) malfunction

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

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 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/initiate ERO).
12. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-MANT-1224 1141-ADMN-1011
1141-ADMN-1010

REFERENCES:
1. SI 6110-OI/1 Warranty Procedures for Mobile Electric Power Distribution System Replacement
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. TM 6110-OI/1 Operation/Maintenance Manual with Repair Parts List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1141-MANT-1344: Diagnose a Power Distribution Panel, Power Distribution System (MEPDIS) malfunction

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

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 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/initiate ERO).
12. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-MANT-1244 1141-ADMN-1011
1141-ADMN-1010

REFERENCES:
1. SL-4-09124A/09125A/09127A Repair Parts for Power Distribution System, Models PD-100, PD-030, and PD-015
2. TM 09124A/09125A/09127A-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models PD-100, PD-030, & PD-015
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Power Distribution Panel, Power Distribution System (MEPDIS):
  - 15kW PD-015 [B0595]
  - 30kW PD-030 [B0600] - and/or –
  - 100kW PD-100 [B0605]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1141-MANT-1346: Diagnose a Model MLK-0000 Field Wiring Harness malfunction

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With 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 equipment technical manuals.
3. Don PPE.
4. Ensure equipment is grounded.
5. Ensure any hazardous energy is controlled (Lockout/Tagout).
6. Check switches for correct settings.
7. Isolate faulty component(s).
8. Determine if component fault was caused by a defect elsewhere.
9. Determine echelon(s) of maintenance.
10. Document findings.
11. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-MANT-1246 1141-ADMN-1011
1141-ADMN-1010

REFERENCES:
1. TM 09049A-12&P/1 Operation and Maintenance Including Components List and Repair Parts List for Field Wiring Harness, Model MLK-0000, for Mobile Electrical Power Distribution System (MEPDIS)
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Model MLK-0000 Field Wiring Harness [B0608] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])

1141-MANT-1424: Repair a Power Distribution Panel, Mobile Electric Power Distribution System Replacement (MEPDIS-R)

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don 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-MANT-1324 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1006 1141-MANT-1224 1141-ADMN-1011
1141-ADMN-1008

REFERENCES:
1. FP 11183A Fielding Plan for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
2. SI 6110-OI/1 Warranty Procedures for Mobile Electric Power Distribution System Replacement
3. SL-3-6110 Components List for Mobile Electric Power Distribution System Replacement (MEPDIS-R)
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. 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, Multi-Capable Maintainer [C7036]
- 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 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1141-MANT-1444: Repair a Power Distribution Panel, Power Distribution System (MEPDIS)

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don 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-MANT-1344 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1006 1141-MANT-1244 1141-ADMN-1011
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. TM 09124A/09125A/09127A-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models PD-100, PD-030, & PD-015
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1141-XENG-1601: Establish a field grounding system

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with electrical support plan and established Course of Action (COA), equipment, tools 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 FM 5-424, 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 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-XENG-1703 1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1141-XENG-2699 1141-XENG-1624
1141-XENG-1618

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TC 11-6 Grounding Techniques (Mar 89)
3. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities (Feb 02)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Ground Rod(s), GP-16 [H7213] - and/or –
- Grounding Kit, MK-2551A/U [H7255]
- 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: As part of a team, with electrical support plan and established Course of Action (COA), equipment, tools and references.

STANDARD: So unit's mission is supported per the commander's intent and generators are set up in accordance with FM 5-424 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 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-XENG-2699

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 power distribution system (MEPDIS/MEPDIS-R/Busbar)

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

DESCRIPTION: Due to the hazards involved, to both personnel and equipment, MEPDIS/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: As part of a team, with electrical support plan and established Course of Action (COA), equipment, tools and references.

STANDARD: So unit's mission is supported per the commander's intent and distribution system is set up in accordance with FM 5-424 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 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-XENG-1618 1141-XENG-2699

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
3. TM 09124A/09125A/09127A-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models PD-100, PD-030, & PD-015
4. 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]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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]
` - and/or –
- Power Distribution Panel, Power Distribution System (MEPDIS):
` - 15kW PD-015 [B0595]
` - 30kW PD-030 [B0600] - and/or –
` - 100kW PD-100 [B0605]

(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 both MEPDIS and MEPDIS-R [B0027, B0028, B0029, B0030, B0031, B0032, B0595, B0600 & B0605]. They are also taught how to install (but not how to construct) a busbar.
- Only licensed Marines (MOS 1141) will install/operate MEPDIS or 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 both MEPDIS and MEPDIS-R [B0027, B0028, B0029, B0030, B0031, B0032, B0595, B0600 & B0605].

1141-XENG-1646: Install a field wiring harness

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: At a temporary field structure(s), with electrical support plan and established Course of Action (COA), equipment, tools and references.

STANDARD: So unit's mission is supported per the commander's intent and wiring harness is installed in accordance with FM 5-424 and TM 09049A-12&P/1.

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 PPE.
6. Prepare structure(s) for wiring harness.
7. Ensure hazardous energy is controlled (Lockout/Tagout).
8. Install cable assemblies.
9. Install light bulbs.
10. Test installation.

PREREQUISITE EVENTS:
1141-ADMN-1002 1141-ADMN-1001

RELATED EVENTS:
1141-XENG-1624

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. SL-3-09049A Components List for Field Wiring Harness, Model MLK-0000 (Jan 92)
3. TM 09049A-12&P/1 Operation and Maintenance Including Components List and Repair Parts List for Field Wiring Harness, Model MLK-0000, for Mobile Electrical Power Distribution System (MEPDIS)

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Temporary field structure(s) (normally General Purpose, Command Post and/or Maintenance Tents)

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]
- Model MLK-0000 Field Wiring Harness [B0608]

MATERIAL: Electrical support plan with established Course of Action (COA)

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 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-1002 1141-ADMN-1006 1141-MANT-1101

RELATED EVENTS:
1142-MANT-1493 1141-XENG-1693

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 2000-15/4 Power System Reference Manual (Jul 68)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
7. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 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-1002	1141-ADMN-1006	1141-MANT-1101

RELATED EVENTS:

1141-XENG-1692	1142-MANT-1493

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 2000-15/4 Power System Reference Manual (Jul 68)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
7. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Equipment with an electric motor
- Electric motor control

MATERIAL:
- Parts
- Wire
- Connector(s)

OTHER SUPPORT REQUIREMENTS: Electrical power source.

1141-XENG-1703: Operate a clamp-on ground resistance tester

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a grounding system, 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-3-10096B Components List for Ohmmeter, Model 3711M
2. SL-3-11509A Components List for Tool Kit, Lineman's Electrician (TK-1141)
3. TC 11-6 Grounding Techniques (Mar 89)
4. TM 10096B-10/1 User Manual for Clamp-On Ground Resistance Tester, Models 3711 and 3731
5. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities (Feb 02)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
7. ULSS 007391-15 User's Logistics Support Summary for Ohmeter (Clamp-on Meter AEMC 3711M)

SUPPORT REQUIREMENTS:

EQUIPMENT: Ohmmeter, Clamp-on, AEMC 3711M [A7057]

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, equipment, forms, and references.

STANDARD: Per TM 11120A-OI, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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-MANT-1247 1141-ADMN-1009

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 11120A-OI Operation/Maintenance Manual with Repair Parts List for Floodlight Set (Model MLT5060MIT)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- 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 MEP-831A 3kW 60Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 10155A-OI/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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-MANT-1251 1141-ADMN-1009

REFERENCES:
1. TM 10155A-OI/1 Operator, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for 3kW Tactical Quiet Generator Set
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- 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 MEP-803A 10kW 60Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 09247A/09248A-10/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-1252 1141-ADMN-1009

REFERENCES:
1. TM 09247A/09248A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- MEP-803A 10kW 60Hz Tactical Quiet Generator Set [B0891]

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]. 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].

1141-XENG-1753: Operate a MEP-813A 10kW 400Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 09247A/09248A-10/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-1253 1141-ADMN-1009

REFERENCES:
1. TM 09247A/09248A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 10kW, MEP-803A/MEP-813A
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- MEP-813A 10kW 400Hz Tactical Quiet 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-813A 10kW 400Hz Tactical

Quiet 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-813A 10kW 400Hz Tactical Quiet Generator Set [B0921].

1141-XENG-1755: Operate a MEP-805A 30kW 50/60Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 09249A/09246A-10/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-1255 1141-ADMN-1009

REFERENCES:
1. TM 09249A/09246A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805A/MEP-815A
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- MEP-805A 30kW 50/60Hz Tactical Quiet Generator Set [B0953]

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-805A 30kW 50/60Hz Tactical Quiet Generator Set [B0953].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-805A 30kW 50/60Hz Tactical Quiet Generator Set [B0953].

1141-XENG-1756: Operate a MEP-805B 30kW 50/60Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 09249B/09246B-14, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-1256 1141-ADMN-1009

REFERENCES:
1. TM 09249B/09246B-14 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805B/MEP-815B
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- MEP-805B 30kW 50/60Hz Tactical Quiet Generator Set [B0953]

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 50/60Hz Tactical Quiet Generator Set [B0953].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-805B 30kW 50/60Hz Tactical Quiet Generator Set [B0953].

1141-XENG-1757: Operate a MEP-815A 30kW 400Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 09249A/09246A-10/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:

1141-MANT-1257 1141-ADMN-1009

REFERENCES:

1. TM 09249A/09246A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805A/MEP-815A
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- MEP-815A 30kW 400Hz Tactical Quiet 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-815A 30kW 400Hz Tactical Quiet Generator Set [B0971].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-815A 30kW 400Hz Tactical Quiet Generator Set [B0971].

1141-XENG-1762: Operate a MEP-806A 60kW 50/60Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 09244A/09245A-10/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-1262 1141-ADMN-1009

REFERENCES:
1. TM 09244A/09245A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, MEP-806A/MEP-816A
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- MEP-806A 60kW 50/60Hz Tactical Quiet Generator Set [B1021]

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-806A 60kW 50/60Hz Tactical Quiet Generator Set [B1021].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-806A 60kW 50/60Hz Tactical Quiet Generator Set [B1021].

1141-XENG-1763: Operate a MEP-806B 60kW 50/60Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 09244B/09245B-14/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-1263 1141-ADMN-1009

REFERENCES:
1. 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
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- MEP-806B 60kW 50/60Hz Tactical Quiet Generator Set [B1021]

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 50/60Hz Tactical Quiet Generator Set [B1021].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-806B 60kW 50/60Hz Tactical Quiet Generator Set [B1021].

1141-XENG-1765: Operate a MEP-807A 100kW 50/60Hz Tactical Quiet 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, forms, and references.

STANDARD: Per TM 07464C-10/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-1265 1141-ADMN-1009

REFERENCES:
1. TM 07464C-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60Hz, MEP-807A
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- 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].

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-807A 100kW 50/60Hz Tactical Quiet Generator Set [B1045].

1141-XENG-1795: Parallel tactical generator sets

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, tools, paralleling cable, conductors, overcurrent protection and references.

STANDARD: So generators are synchronized and sharing the electrical load per the references, in support of unit's mission and commander's intent.
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.

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 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-XENG-1755	1141-XENG-1756
1141-XENG-1762	1141-XENG-1763	1141-XENG-1765
1141-XENG-1757		

RELATED EVENTS:

1141-XENG-2758	1141-XENG-2760	1142-MANT-1195
1141-XENG-2764	1141-XENG-2761	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Tactical generator sets (sizes designated by electrical support plan)

MATERIAL:
- Electrical support plan
- Paralleling cable
- Conductors
- Overcurrent protection (MEPDIS/MEPDIS-R preferred if available)
- 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 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-2603
1141-XENG-1692	1141-XENG-1693	1141-XENG-1646

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
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

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 PPE.
7. Isolate repair area (Lockout/Tagout).
8. Remove broken/damaged materials.
9. Make repairs.
10. Test repairs.

PREREQUISITE EVENTS:

1141-ADMN-1001	1141-MANT-1101	1141-ADMN-1002

RELATED EVENTS:

1141-XENG-1692 1141-MANT-1346 1141-XENG-2603
1141-XENG-1693

REFERENCES:

1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
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)

5004. 2000-LEVEL EVENTS

1141-ADMN-2021: Apply safety programs

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place per the references.

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-1002 1141-ADMN-1001

RELATED EVENTS:
1142-ADMN-1002 1171-ADMN-1002 1161-ADMN-1002

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCO 5100.19E Marine Corps Traffic Safety Program (Drivesafe) (Dec 00)
3. MCO 5100.29A Marine Corps Safety Program (Jul 04)
4. MCO 5100.30A Marine Corps Off-Duty and Recreation Safety Program (Oct 01)
5. 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 (Jan 07)
6. MCO 5100.8 Marine Corps Occupational Safety and Health (OSH) Policy Order (May 06)
7. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
8. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
9. UNIT SOP Unit's Standing Operating Procedures
10. Appropriate Technical Manuals

1141-ADMN-2022: Apply environmental regulations

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references.

STANDARD: So environmental policies and procedures will be adhered to per the references.

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 1171-ADMN-2022 1161-ADMN-2022

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. OPNAVINST 5090.1C Environmental Readiness Program Manual (Oct 07)
5. UNIT SOP Unit's Standing Operating Procedures

1141-ADMN-2023: Conduct Military Occupational Specialty (MOS) training

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained per the references.

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 1171-ADMN-2023 1161-ADMN-2023

REFERENCES:
1. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
2. MCO 1553.4B Professional Military Education (PME) (Jan 08)
3. MCO 3500.26A Universal Naval Task List (UNTL) Version 3.0 (Jan 07)
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
7. OPNAVINST 1560.10C Administration of the United Services Military Apprenticeship Program (USMAP) (Apr 07)
8. SAT MANUAL Systems Approach to Training (SAT) Manual (Jun 04)
9. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: MOS Roadmaps are located at http://www.tecom.usmc.mil/g3/roadmap.htm.

1141-ADMN-2031: Brief electrical safety to end users

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

BILLETS: Electrician

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 per the references.

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-1003 1169-ADMN-2031 1141-ADMN-1002

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. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
4. MCO 3500.27B Operational Risk Management (ORM) (May 04)
5. MCRP 5-12.1C Risk Management (Feb 01)
6. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
7. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
8. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
9. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: Sample warning signs.

1141-ADMN-2032: Conduct a pole top rescue

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

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-XENG-2694

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCRP 3-02G First Aid (Dec 02)
3. MCRP 5-12.1C Risk Management (Feb 01)

1141-ADMN-2041: Initiate a Product Quality Deficiency Report (PQDR) (SF 368)

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a defective item, blank forms, and references.

STANDARD: So deficiency can be corrected per the references.

PERFORMANCE STEPS:
1. Review references.
2. Verify deficiency requires a PQDR.
3. Determine if deficiency is Category I or Category II.
4. Collect data.
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 1171-ADMN-2041 1161-ADMN-2041

REFERENCES:
1. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

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 www.logcom.usmc.mil/pqdr.

1141-ADMN-2042: Submit a Beneficial Suggestion

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With internet access and Common Access Card (CAC), or OPNAV 5305/1 (Department of the Navy Suggestion Form), and references.

STANDARD: So a suggested improvement to equipment, forms, or Tactics, Techniques, and Procedures (TTP) is documented for decision and action by higher authority per the Marine Corps Military Incentive Awards Program.

PERFORMANCE STEPS:
1. Review references.
2. Identify problem, difficulty or circumstance.
3. Develop suggested change.
4. Determine if benefits are tangible/intangible.
5. Quantify savings if change has tangible benefits.
6. Document suggestion, electronically or in writing by completing OPNAV 5305/1.
7. Identify benefit/savings to Marine Corps/U.S. Government.
8. Forward suggestion per unit's SOP (on line if applicable).
9. Ensure confirmation of receipt.

RELATED EVENTS:
1142-ADMN-2042 1171-ADMN-2042 1161-ADMN-2042

REFERENCES:
1. MCO 1650.17F Marine Corps Military Incentive Award Program
2. OPNAVINST 1650.8D Cash Awards for Military Personnel for Suggestions, Inventions, Scientific Achievements and Disclosures (Apr 07)
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: OPNAV 5305/1 (Department of the Navy Suggestion Form)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP. The website used will be www.logcom.usmc.mil/benesugg.

1141-ADMN-2051: Establish equipment preventive maintenance schedule

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, forms and references.

STANDARD: So preventive maintenance is scheduled per the references.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit equipment records.
4. Complete NAVMC 10561.

PREREQUISITE EVENTS:
1141-ADMN-1011

RELATED EVENTS:
1142-ADMN-2051 1171-ADMN-2051 1161-ADMN-2051

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCWP 4-11.4 Maintenance Operations
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UNIT SOP Unit's Standing Operating Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)

1141-ADMN-2061: Maintain Pre-Expended Bin (PEB)

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

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 per the references.

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:
1142-ADMN-2061 1171-ADMN-2061 1161-ADMN-2061

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1141-ADMN-2062: Maintain Equipment Repair Order (ERO) 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 per the references.

PERFORMANCE STEPS:
1. Review references.
2. Receive repair parts, annotating EROSL, and placing repair parts in appropriate bin.
3. Take corrective action if repair parts do not match EROSL.
4. Maintain EROSL in appropriate bin, inventorying the bin every 2 weeks.
5. Issue repair parts, when all are received, annotating EROSL and ERO per unit's SOP.

RELATED EVENTS:
1142-ADMN-2062 1141-ADMN-2061 1171-ADMN-2062
1161-ADMN-2062

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With maintenance management reports, supporting documentation, and references.

STANDARD: Ensuring accuracy of the reports per the references.

PERFORMANCE STEPS:
1. Monitor daily maintenance reports.
2. Monitor weekly maintenance reports.
3. Monitor readiness reports.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM 4400-124 FMF SASSY Using Unit Procedures
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
8. UNIT SOP Unit's Standing Operating Procedures

1141-ADMN-2072: Monitor maintenance related programs

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment 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 Replacement Evacuation (R&E) program.
8. Monitor Quality Deficiency (QDR) program.
9. Monitor Recoverable Items (WIR) program.
10. Monitor Quality Control (QC) program.
11. Monitor Corrosion Prevention and Control (CPAC) program.
12. Ensure program and equipment records are maintained.

RELATED EVENTS:

1141-ADMN-2041	1141-ADMN-2051	1141-ADMN-2071
1171-ADMN-2072	1142-ADMN-2072	1161-ADMN-2072
1169-ADMN-2072	1141-ADMN-2073	

REFERENCES:

1. MCO 4400.194 Class VII Stock Rotation Program
2. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
3. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
4. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
5. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
6. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
7. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
10. UNIT SOP Unit's Standing Operating Procedures
11. Appropriate Technical Manuals

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With repaired equipment, maintenance forms and references.

STANDARD: So equipment repairs and documentation are certified complete.

PERFORMANCE STEPS:
1. Review references.
2. Review Equipment Repair Order (ERO).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS:
1141-ADMN-1008

RELATED EVENTS:

1141-ADMN-1011	1142-ADMN-2073	1141-ADMN-1009
1171-ADMN-2073	1161-ADMN-2073	

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1141-MANT-2191: Comply with a Modification Instruction (MI)

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Equipment Repair Order (ERO) 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 ERO.
3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don 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	1171-MANT-2191
1142-MANT-2191	1161-MANT-1191	1141-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Electrical equipment being modified

MATERIAL:
- Modification Instruction (MI)
- Parts (if required)
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service ` Record)
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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, forklift or crane, tools, and references.

STANDARD: Properly on/from the trailer per the references.

PERFORMANCE STEPS:
1. Review references.
2. Lift generator set on to trailer.
3. Fasten generator set to trailer.
4. Reverse procedure to dismount generator set.

REFERENCES:
1. MI 6115-24/24C Trailer Mounting of 10kw Generators on M116A2/3 Series Trailer (Jul 04)
2. MI-6115-34/18 MI-6115-34/18

1141-MANT-2218: Perform Preventive Maintenance Checks and Services (PMCS) on an Integrated Trailer/ECU/Generator (ITEG)

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with equipment, tools, parts for scheduled services, forms 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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1011 1141-ADMN-1010
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. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])

- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

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-2236: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-802A 5kW 60Hz Tactical Quiet 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, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 9-6115-641-10 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. TM 9-6115-641-10 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 5 kW, 60 and 400 Hz, MEP-802A and MEP-812A

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- MEP-802A 5kW 60Hz Tactical Quiet Generator Set [B0077]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2237: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-809A 200kW 50/60Hz Tactical Quiet 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, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 11589A-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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

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, 200 kW, 50/60 Hz, MEP-809A
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- MEP-809A 200kW 50/60Hz Tactical Quiet Generator Set [B0083]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2254: Perform Preventive Maintenance Checks and Services (PMCS) on a MMG-25 20kW, 60Hz Tactical Quiet 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, 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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1010 1141-ADMN-1011
1141-ADMN-1008

REFERENCES:
1. MI 11125A-OI/2 Relocation of Ether Bottle for the Generator Set, 20kW MMG-25
2. MI 11125A-OI/3 Drilling of the Oil Drain Access Hole for the Generator Set, 20kW MMG-25
3. MI 11125A-OR Installation of Pulse Solar Charger (PSC) on Generator Set, 20kW MMG25
4. SI 11125A-OI/1 Warranty Procedures for Generator Set, 20kW MMG-25
5. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
6. TM 11125A-OI Generator Set, Diesel Engine (Model MMG25)
7. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- MMG-25 20kW, 60Hz Tactical Quiet Generator Set [B0930]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2258: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-815B 30kW, 400Hz Tactical Quiet Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

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 09249B/09246B-14 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. 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
2. 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
3. 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)
4. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
5. TB 9-6115-671-24 Warranty Program for Generator Set, Tactical Quiet, 30kW, 50/60 and 400 Hz, MEP-805B and MEP-815B
6. TM 09249B/09246B-14 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805B/MEP-815B
7. 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
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. 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, Multi-Capable Maintainer [C7036]
- MEP-815B 30kW, 400Hz Tactical Quiet Generator Set [B0971]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2259: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-531A 2kW 60Hz Tactical Quiet 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, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 9-6115-673-13&P 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. SI 11101A-OI/1 Warranty Procedures for MEP-531A 2kW Military Tactical Generator
2. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. TM 9-6115-673-13&P Operater's Unit and Direct Support Maintenance Manual Including Repair Parts and Special Tools List for 2kw Military Tactical Generator Sets, 120VAC, 60 Hz, MEP-531A and 28VDC, MEP-501A (Sep 02)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- MEP-531A 2kW 60Hz Tactical Quiet Generator Set [B0980]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2260: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-816A 60kW, 400Hz Tactical Quiet Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

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 09244A/09245A-10/1 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. LI 09244A/09245A-12 Lubrication Instruction for Generator Set, Skid Mounted, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806A and MEP-816A
2. MI 6115-25/28 In Line Fuse Addition to Tactical Quiet Generator, Models MEP-805A, 806A, 815A and 816A
3. 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
4. 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)
5. SI 09244A/09245A-24 Warranty Program for Generator Set, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806A and MEP-816A
6. SI 6115-12/4 Warranty Procedures for Tactical Quiet Generator Series (May 01)
7. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
8. TB 9-6115-645-13 Operator, Unit and Direct Support Maintenance Manual for Winterization Kit Installed on Generator Set, Skid Mounted, Tactical

Quiet, 60kW, 50/60 and 400 Hz, MEP-806A/MEP-816A
9. TM 09244A/09245A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, MEP-806A/MEP-816A
10. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
11. 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, Multi-Capable Maintainer [C7036]
- MEP-816A 60kW, 400Hz Tactical Quiet Generator Set [B1016]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2261: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-816B 60kW, 400Hz Tactical Quiet Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

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 09244B/09245B-14/1 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 ERO.
6. Don 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-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1007

REFERENCES:
1. 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
2. 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
3. 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)
4. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
5. TB 9-6115-672-24 Warranty Program for Generator Set, Tactical Quiet, 60kW, 50/60 and 400 Hz, MEP-806B and MEP-816B
6. 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
7. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
8. 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, Multi-Capable Maintainer [C7036]
- MEP-816B 60kW, 400Hz Tactical Quiet Generator Set [B1016]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2264: Perform Preventive Maintenance Checks and Services (PMCS) on a MEP-007B 100kW, 50/60Hz Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

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 07464B-12 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 ERO.
6. Don 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-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1007 1141-ADMN-1010
1141-ADMN-1011

REFERENCES:
1. LO 5-6115-600-12 Lubrication Order for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 100kW, 50/60 Hz, MEP-007B
2. SL-3-07464 Components List for Generator Set, Diesel Engine Driven, Skid Mounted, MEP-007A and MEP-007B
3. SL-4-07464B Organizational, Intermediate (Field), (Direct Support and General Support), and Depot Maintenance Repair Parts and Special Tools List for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 100 kW, MEP-007A w/ Ch 4 & Erratum
4. TM 07464B-12 Operator and Organizational Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 100 kW, MEP-007B
5. TM 07464B-35 Intermediate (Field)(Direct and General Support) and Depot Level Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 100kW, 50/60 Hz, MEP-007B
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- MEP-007B 100kW, 50/60Hz Generator Set [B1045]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2293: Perform Preventive Maintenance Checks and Services (PMCS) on a Panel, Power Bus, Circuit Breaker, for the Field Food Service System

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with equipment, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 10879A-12 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 ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1010 1141-ADMN-1011
1141-ADMN-1007

REFERENCES:
1. SL-3-10879A SL-3 For Field Food Service System
2. TM 10879A-12 Field Food Service System Technical Manual (Commercial)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. ULSS 001302-15 User's Logistics Support Summary for Field Food Service System (FFSS)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Panel, Power Bus, Circuit Breaker, for the Field Food Service System [C0200]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1141-MANT-2294: Perform Preventive Maintenance Checks and Services (PMCS) on a Field Food Service System (FFSS) electrical system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with equipment, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 10879A-12 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 ERO.
4. Don PPE.
5. Inspect equipment.
6. Service equipment.
7. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1141-ADMN-1002 1141-ADMN-1006

RELATED EVENTS:
1141-ADMN-1007 1141-ADMN-1011 1141-ADMN-1010
1141-ADMN-1008

REFERENCES:
1. SL-3-10879A SL-3 For Field Food Service System
2. TM 10879A-12 Field Food Service System Technical Manual (Commercial)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. ULSS 001302-15 User's Logistics Support Summary for Field Food Service System (FFSS)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Field Food Service System (FFSS) [C5810]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1141-MANT-2332: Diagnose a Containerized Batch Laundry (CBL) Unit electrical malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

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 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).
10. Determine if component fault was caused by a defect elsewhere.
11. Determine echelon(s) of maintenance.
12. Document findings (complete LTI/initiate ERO).
13. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-ADMN-1011 1141-ADMN-1010

REFERENCES:
1. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Containerized Batch Laundry (CBL) Unit [B0066] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])

- 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.

1141-MANT-2394: Diagnose a Field Food Service System (FFSS) electrical malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 120/208VAC 50/60Hz electrical power source, tools, forms and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Review LTI.
2. Review equipment technical manuals.
3. Don PPE.
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Check valves/switches/gauges for correct settings.
6. Isolate faulty component(s).
7. Determine if component fault was caused by a defect elsewhere.
8. Determine echelon(s) of maintenance.
9. Document findings (complete LTI/initiate ERO).
10. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1141-ADMN-1006 1141-ADMN-1002

RELATED EVENTS:
1141-ADMN-1008 1141-MANT-2294 1141-ADMN-1011
1141-ADMN-1010

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 10879A-12 Field Food Service System Technical Manual (Commercial)

3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Field Food Service System (FFSS) [C5810] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 50/60Hz electrical power source (normally two 100kW MEP-807A or three 60kW MEP-806A or MEP-806B Tactical Quiet Generators)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Engineer Equipment Electrical Systems Technician (MOS 1142), Water Support Technician (MOS 1171) and/or Food Service Specialist (MOS 3381) may be required to fully diagnose any electrical malfunction.

1141-MANT-2402: 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 Equipment Repair Order (ERO) (NAVMC 10245), Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (LTI) (NAVMC 10560), Equipment Repair Order Shopping/Transaction List (EROSL) (NAVMC 10925), Personal Protective Equipment (PPE), Test Measurement and Diagnostic Equipment (TMDE), repair parts from ERO layette, tools, and references.

STANDARD: So equipment functions/operates as specified in the equipment technical manuals.

PERFORMANCE STEPS:
1. Review LTI/ERO.
2. Inventory parts in ERO layette.
3. Review equipment technical manuals.
4. Don PPE.
5. Remove faulty part(s).
6. Clean area for new part(s).
7. Attach new part(s).

8. Determine if system fault was caused by a defect elsewhere.
9. Test repairs.
10. Document repairs.

PREREQUISITE EVENTS:
1142-ADMN-1002

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE); Test Measurement and Diagnostic Equipment (TMDE); General Mechanic's Tool Set; Electrical Equipment Repair Tool Set; piece of general supply equipment requiring electrical system repair

MATERIAL: Equipment Repair Order (ERO) (NAVMC 10245); Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (LTI) (NAVMC 10560); Equipment Repair Order Shopping/Transaction List (EROSL) (NAVMC 10925); repair parts

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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 per the references.

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-XENG-2623 1141-ADMN-2031

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 3-17B Engineer Forms and Reports
3. MCWP 3-17.4 Engineer Reconnaissance
4. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
5. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
6. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 08)
7. TM 2000-15/4 Power System Reference Manual (Jul 68)
8. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Camera
- Calculator
- Multimeter
- 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-2502: Identify electric motor/controller requirements

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references and a requirement to convert electrical energy into mechanical energy.

STANDARD: So positive control of energy will be established and equipment will function as application dictates.

PERFORMANCE STEPS:
1. Determine torque requirements.

2. Determine speed requirements.
3. Determine horse power requirements.
4. Identify motor type required (single-phase, three-phase, split phase, capacitor start).
5. Determine controls needed for application.
6. Identify type of controller(s) required.
7. Identify overcurrent protection requirements.
8. Document determinations and findings.

RELATED EVENTS:

1141-ADMN-1001	1141-XENG-1692	1141-XENG-2623
1141-XENG-2561	1141-XENG-1693	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
5. Appropriate Technical Manuals

1141-XENG-2521: Develop a field electrical support plan

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

BILLETS: Electrician

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-ADMN-1006 1141-XENG-2699 1141-XENG-1618
1141-XENG-1601

REFERENCES:
1. FM 20-3 Camouflage
2. FM 5-412 Project Management
3. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
4. MCRP 3-17B Engineer Forms and Reports
5. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-35.6 Desert Operations
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical Level Logistics
11. MCWP 4-11.5 SeaBee Operations in the MAGTF
12. MCWP 5-1 Marine Corps Planning Process
13. TC 3-34.489 The Soldier and the Environment
14. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 08)
15. Appropriate Technical Manuals

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With construction plans for a building, a list of electrical fixtures/appliances to be installed, local code requirements, and references.

STANDARD: Per 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).

REFERENCES:
1. FM 5-412 Project Management
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. FM 5-553 General Drafting
4. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
5. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans.

1141-XENG-2602: Construct a field expedient electrical distribution panel

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 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: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a field electrical support plan, a field expedient electrical distribution panel design approved by the commander, Bill of Materials (BOM), tools 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 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:

1141-MANT-1101	1141-XENG-1601	1141-XENG-1618
1141-ADMN-1001	1141-XENG-1703	1120-XENG-2522
1169-XENG-2522		

RELATED EVENTS:
1141-XENG-1624

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 5-12.1C Risk Management (Feb 01)
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 5-704 Construction Print Reading in the Field

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]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 (graduates of the Advanced Electrician Course [CID: M0311K2]) 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 wire, tools and reference.

STANDARD: Ensuring a strong connection per FM 5-424.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review references.
3. Determine type of splice required.
4. Don PPE.
5. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
6. Strip wire.
7. Construct splice.
8. Insulate bare wires.
9. Test splice.

PREREQUISITE EVENTS:
1141-ADMN-1002

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TB SIG 222 Solder and Soldering

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Lineman's Electrician (TK-1141) [B0062]

MATERIAL: Wire

1141-XENG-2621: Direct field electrical power generation/distribution system installation

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and reference.

STANDARD: To support unit mission per the reference.

PERFORMANCE STEPS:
1. Determine/review operation order and camp layout.
2. Determine/review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Supervise electrical power generation/distribution system installation.
6. Inspect field electrical power generation/distribution system.
7. Correct discrepancies.
8. Brief recovery crew.
9. Supervise electrical power generation/distribution system recovery.

REFERENCES:
1. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1141-XENG-2622: Monitor ground test set measurements

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a working ground test set, a grounding system, and references.

STANDARD: To ensure a safe ground is maintained per the references.

PERFORMANCE STEPS:
1. Review references.
2. Determine grounding electrode/system resistance (ohms) to ground requirements for electrical equipment/system.
3. Review ground test set measurements.
4. Identify potential impact of weather (humidity/temperature) on grounding system.
5. Direct improvements/upgrades to grounding system as necessary.

REFERENCES:
1. FM 20-31 Electric Power Generation in the Field
2. National Electrical Code

1141-XENG-2623: Balance an electrical load

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

BILLETS: Electrician

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 measure 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.

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
3. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 08)

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, a lineman's tool kit, and safety equipment.

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.

RELATED EVENTS:
1141-ADMN-2032 1141-XENG-2695

REFERENCES:
1. FM 20-31 Electric Power Generation in the Field
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. SL-3-01204A Components List for Tool Kit, Lineman's (Mar 98), w/Ch 1 (Apr99)

1141-XENG-2695: Construct an overhead electric 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 overhead electric power distribution system plan, equipment, materials, Lineman's Tool Kit, and references.

STANDARD: So electric power is safely distributed in accordance with the system plan, per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review field electrical distribution plan.
3. Assist in the installation of the distribution system.
4. Examine field electrical distribution system to identify problem areas.
5. Ensure all safety rules are observed, violations corrected, and unsafe situations identified and corrected.
6. Post safety/warning signs.
7. Test system.

PREREQUISITE EVENTS:
1141-XENG-2694

RELATED EVENTS:
1141-XENG-2696 1141-XENG-2602 1141-XENG-2603

REFERENCES:
1. FM 20-31 Electric Power Generation in the Field
2. FM 5-422 Engineer Prime Power Operations
3. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
4. TM 5-765 Electric Power Transmission and Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT: Generators; Lineman's Tool Kit

MATERIAL: Poles; Wire

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 underground field electric power distribution system plan, equipment, materials, Lineman's Tool Kit, and references.

STANDARD: So electric power is safely distributed in accordance with the system plan, per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review field electrical distribution plan.
3. Assist in installation of the distribution system.
4. Examine field electrical distribution system to identify problem areas.
5. Ensure all safety rules are observed, violations corrected, and unsafe situations identified and corrected.
6. Post safety/warning signs.
7. Test system.

REFERENCES:
1. FM 20-31 Electric Power Generation in the Field
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. TM 5-765 Electric Power Transmission and Distribution

SUPPORT REQUIREMENTS:

EQUIPMENT: Backhoe

1141-XENG-2699: Camouflage equipment

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a remote site with equipment.

STANDARD: So site detection is avoided by routine enemy surveillance.

PERFORMANCE STEPS:
1. Determine threats.
2. Identify critical equipment.
3. Identify availability of natural cover and concealment.
4. Select camouflage materials and techniques.
5. Install decoys.
6. Space equipment irregularly (in length and depth).
7. Cover equipment with nets and other materials that blend with background.
8. Inspect camouflaging, from different angles, for ease of detection.

REFERENCES:
1. FM 20-3 Camouflage

1141-XENG-2718: Operate an Integrated Trailer/ECU/Generator (ITEG)

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, forms, 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 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-MANT-2218 1141-ADMN-1009

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Operation Order, camp layout, electrical power generation/distribution system, operators, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Inspect installed electrical power generation/distribution system.
3. Review environmental concerns.
4. Review safety concerns.
5. Establish operator schedule.
6. Brief personnel.

7. Monitor operation of equipment.
8. Brief personnel.
9. Monitor operation of equipment.
10. Ensure records/reports are undated/completed.

REFERENCES:
1. FM 5-422 Engineer Prime Power Operations
2. SL-3-09124a/09125A/09127A Components List for Power Distribution System, Models PD-100, PD-30, & PD-015 (Dec 95), w/Ch 1 (Jul 99)
3. SL-4-09124a/09125A/09127A Repair Parts for the Distribution System, Models 100kw, 030kw, & 015kw (Dec 94), w/Ch 1 (Jan96) & Ch 2 (Aug 96)
4. TM 09124a/09125a/09127-14/1 Operation and Maintenance for the Power Distribution System (PDIS), Models 100kw, 030kw, & 15kw (Mar00) Supersedes TM 08712A-14/1 (May98)
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
6. UNIT SOP Unit's Standing Operating Procedures

1141-XENG-2754: 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: Provided a generator set, mechanic's tool box, and reference.

STANDARD: So it will apply voltage to appropriate equipment per the reference.

PERFORMANCE STEPS:
1. Review appropriate section of the reference.
2. Place applicable environmental materials in place.
3. Set up generator set.
4. Perform before operations checks.
5. Ensure all power cables are properly installed.
6. Start generator set.
7. Perform generator set operator maintenance.
8. Shut down generator set.
9. Perform after operation inspection.

REFERENCES:
1. SL-3-07464A Components List for Generator Set, Diesel Engine Driven, Skid Mounted, MEP-007A/MEP-007B (Sep 91), w/Ch 1 (Aug 94), Ch 2 (Oct 97), & Ch 3 (Jan 98)
2. SL-4-07464A Organizational, Intermediate (Field), (Direct Support and General Support), and Depot Maintenance Repair Parts and Special Tools List for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 100 kW, MEP-007B w/ Ch 4 & Erratum
3. TM 07464A-12 Operator and Organizational Maintenance Manual for Gnerator Set, Diesel Engine Driven, Tactical, 100kW, 50/60Hz, MEP-007A

4. TM 9-6115-646-14&P Operator, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Power Unit, PU-495A/G or PU-495B/G with MEP-007a or MEP-007B (May 90), w/ Ch 1 (May 97)

1141-XENG-2758: Operate a MEP-815B 30kW 400Hz Tactical Quiet Generator Set

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At an established generator site, with electrical support plan, forms, and references.

STANDARD: Per TM 09249B/09246B-14, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the electrical support plan.

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 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

RELATED EVENTS:
1141-MANT-2258 1141-ADMN-1009

REFERENCES:
1. TM 09249B/09246B-14 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 30kW, MEP-805B/MEP-815B
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- MEP-815B 30kW 400Hz Tactical Quiet 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 NOT licensed operators of the MEP-815B 30kW 400Hz Tactical Quiet Generator Set [B0971]. If required, they will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Only Electricians (MOS 1141) will be licensed to operate a MEP-815B 30kW 400Hz Tactical Quiet Generator Set [B0971].

1141-XENG-2759: Operate a MEP-531A 2kW 60Hz Generator Set

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With tools and reference.

STANDARD: Per the generator's operator manual.

PERFORMANCE STEPS:
1. Review equipment technical manual.
2. Set up generator set.
3. Perform before operation checks.
4. Ensure all power cables are installed.
5. Start generator set.
6. Perform during operations checks.
7. Shut down generator set.
8. Perform after operations checks.

REFERENCES:
1. TM 9-6115-662-13&P Operator, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Power Plant, Diesel Engine Driven, Trailer Mounted, 30kw (Oct 93), w/Ch 1 (Nov 93), Ch 2 (Sep 94), Ch 3 (Dec 95) & Ch 4 (May 96)

SUPPORT REQUIREMENTS:

EQUIPMENT: MEP-531A 2kW 60Hz Generator Set

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-531A 2kW 60Hz Generator Set. All other operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operator must be licensed to operate the MEP-531A 2kW 60Hz Generator Set.

1141-XENG-2760: Operate a MEP-816A 60kW 400Hz Generator Set

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With tools and reference.

STANDARD: Per TM 09244A/09245A-10/1.

PERFORMANCE STEPS:
1. Review reference.
2. Set up generator set.
3. Perform before operation checks.
4. Ensure all power cables are installed.
5. Start generator set.
6. Perform generator during operations checks.
7. Shut down generator set.
8. Perform after operation inspection.

REFERENCES:
1. TM 09244A/09245A-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kW, MEP-806A/MEP-816A

SUPPORT REQUIREMENTS:

EQUIPMENT: MEP-816A 60kW 400Hz Generator Set; General Mechanic's Tool Box

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-816A 60kW 400Hz Generator Set. All other operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operator must be licensed to operate the MEP-816A 60kW 400Hz Generator Set.

1141-XENG-2761: Operate a MEP-816B 60kW 400Hz Generator Set.

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With tools and reference.

STANDARD: Per TM 09244B/09245B-14/1.

PERFORMANCE STEPS:
1. Review reference.
2. Set up generator set.
3. Perform before operations checks.
4. Ensure all power cables are installed.
5. Start generator set.
6. Perform generator during operations checks.
7. Shut down generator set.
8. Perform after operation inspection.

REFERENCES:
1. TM 09244B/09245B-14-1 Operator, Unit, Direct Support and General Support Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet, 60kw, MEP-806B/MEP-816B (Jul 00)

SUPPORT REQUIREMENTS:

EQUIPMENT: MEP-816B 60kW 400Hz Generator Set; General Mechanic's Tool Box

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-816B 60kW 400Hz Generator Set. All other operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operator must be licensed to operate the MEP-816B 60kW 400Hz Generator Set.

1141-XENG-2764: Operate a MEP-007B 100kW 60Hz Generator Set

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

BILLETS: Electrician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With tools and reference.

STANDARD: Per TM 07464B-12.

PERFORMANCE STEPS:
1. Review reference.
2. Set up generator set.
3. Perform before operations checks.
4. Ensure all power cables are installed.
5. Start generator set.
6. Perform generator during operations checks.
7. Shut down generator set.
8. Perform after operation inspection.

REFERENCES:
1. TM 07464B-12 Operator and Organizational Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 100 kW, MEP-007B

SUPPORT REQUIREMENTS:

EQUIPMENT: MEP-007B 100kW 60Hz Generator Set; General Mechanic's Tool Box

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Electrician Course (CID: M0311B2) are licensed operators of the MEP-007B 100kW 60Hz Generator Set. All other operators will need to be licensed through an authorized licensing program in the Total Force.

SPECIAL PERSONNEL CERTS: Operator must be licensed to operate the MEP-007B 100kW 60Hz Generator Set.

1141-XENG-2821: Direct field electrical power generator/distribution system recovery

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and reference.

STANDARD: To support unit mission per the reference.

PERFORMANCE STEPS:
1. Determine/review operation order and camp layout.
2. Determine/review safety requirements.
3. Review environmental requirements.

4. Brief installation crew.
5. Supervise electrical power generation/distribution system installation.
6. Inspect field electrical power generation/distribution system.
7. Correct discrepancies.
8. Brief recovery crew.
9. Supervise electrical power generation/distribution system recovery.

REFERENCES:
1. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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 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 PPE.
8. Bend conduit.
9. Place conduit in structure.
10. Inspect installation.

PREREQUISITE EVENTS:
1141-ADMN-1001

RELATED EVENTS:
1141-ADMN-1002 1141-XENG-1962 1141-XENG-1961
1141-MANT-1101

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
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: Direct interior electrical wiring system installation

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a structure, construction blueprints, a lineman's tool set, a bill of materials (BOM), all materials listed on the BOM, and the reference.

STANDARD: So structure will be wired per the construction blueprints and the installation will be completed safely and on time per the reference.

PERFORMANCE STEPS:
1. Review electrical blueprints.
2. Review applicable section(s) of the reference.
3. Run wiring.
4. Inspect wiring.

REFERENCES:
1. National Electrical Code

1141-XENG-2965: Direct interior electrical wiring system repairs

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

BILLETS: Electrician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a structure, construction blueprints, a lineman's tool set, a bill of materials (BOM), all materials listed on the BOM, and the reference.

STANDARD: So structure will be wired per the construction blueprints and the installation will be completed safely and on time per the reference.

PERFORMANCE STEPS:
1. Review electrical blueprints.

2. Review applicable section(s) of the reference.
3. Run wiring.
4. Inspect wiring.

REFERENCES:
1. National Electrical Code

1141-XENG-2966: 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 the reference.

STANDARD: To certify electrical wiring system is in compliance with the NEC (NFPA 70).

PERFORMANCE STEPS:
1. Review applicable section(s) of the reference.
2. Inspect wiring.
3. Inspect devices/fixtures.
4. Inspect service equipment.
5. Record/report discrepancies (if any).

RELATED EVENTS:
1141-XENG-1962 1141-XENG-1961

REFERENCES:
1. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association

SUPPORT REQUIREMENTS:

EQUIPMENT: Tool Kit, Intermediate Level Electrician's (TK-1141/1) [B7900]

ENG & UTIL T&R MANUAL

CHAPTER 6

MOS 1142 INDIVIDUAL EVENTS

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CHAPTER 6

MOS 1142 INDIVIDUAL EVENTS

6000. PURPOSE. This chapter includes all individual training events for the Engineer Equipment Electrical Systems Technician. An individual event is an event that a trained Engineer Equipment Electrical Systems Technician would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

6001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4 character identifier. The first four characters represent the MOS (1142).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer Equipment Electrical Systems Technician individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

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6003. 1000-LEVEL EVENTS

1142-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a task/mission, a Risk Management Worksheet, and references.

STANDARD: To ensure safety mishaps are mitigated through the use of risk management controls per the references.

PERFORMANCE STEPS:
1. Review task/mission.
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 1171-ADMN-1001 1161-ADMN-1001

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (MAY 2004)
2. MCRP 5-12.1C Risk Management (Feb 01)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1142-ADMN-1002: Control (Lockout/Tagout) hazardous energy

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment, equipment manuals, PPE, Lockout/Tagout devices, forms, and references.

STANDARD: To ensure safety procedures are performed to prevent electrical mishaps per the references.

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. Shut down equipment/turn off circuit.
6. Dissipate or restrain any stored energy.
7. Apply Lockout/Tagout devices.
8. Verify energy is isolated/dissipated (test circuit).
9. Effect required service, maintenance, repairs or modifications to equipment/circuit.
10. Remove Lockout/Tagout devices.
11. Restore equipment/circuit to normal operation.
12. Return Lockout/Tagout devices to program coordinator.

RELATED EVENTS:
1141-ADMN-1002 1171-ADMN-1002 1161-ADMN-1002

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. UNIT SOP Unit's Standing Operating Procedures
3. Appropriate Technical Manuals

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 an electrical mishap involving a potential casualty.

STANDARD: To ensure the performance of proper safety procedures to prevent further injury to personnel.

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	1171-ADMN-1003
1169-ADMN-2003	1161-ADMN-1003	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 3-02G First Aid (Dec 02)
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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 hazardous material mishap involving potential environmental damage.

STANDARD: To ensure the performance of proper containment procedures to prevent further environmental damage.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Contain spill.
3. Report spill.
4. Remove uncontaminated material.
5. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1161-ADMN-1004	1141-ADMN-1004
1171-ADMN-1004	1169-ADMN-2004	

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)

3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. UNIT SOP Unit's Standing Operating Procedures

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 chemical mishap involving a potential casualty, Material Safety Data Sheets (MSDS).

STANDARD: To ensure the performance of proper safety procedures to prevent further injury to personnel.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (PPE) (if required).
5. Give first aid.
6. Remain with victim until medical help arrives.
7. Report incident.

RELATED EVENTS:

1120-ADMN-2005	1161-ADMN-1005	1141-ADMN-1005
1171-ADMN-1005	1169-ADMN-2005	

REFERENCES:
1. MCRP 3-02G First Aid (Dec 02)

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL: Material Safety Data Sheet (MSDS) file.

1142-ADMN-1007: Conduct an SL-3 Components List/Basic Issue Items (BII) inventory

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment and references.

STANDARD: To ensure accountability of all equipment components per the SL-3/BII list and the references.

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:
1161-ADMN-1007 1141-ADMN-1007 1171-ADMN-1007

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

1142-ADMN-1008: Conduct a Limited Technical Inspection (LTI)

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: Provided equipment requiring inspection and the equipment's records, forms, tools, and references.

STANDARD: To document missing and unserviceable equipment components per the references.

PERFORMANCE STEPS:
1. Review references.
2. Lockout/Tagout equipment (if required).
3. Provide for personal protection (PPE) (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-1002 1142-ADMN-1007 1142-ADMN-1006
1142-MANT-1101

RELATED EVENTS:
1161-ADMN-1008 1141-ADMN-1008 1171-ADMN-1008

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. MCRP 4-11.4A Battle Damage Assessment and Repair
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. TM 9-6115-624-BD Battlefield Damage Assessment and Repair for Generators (Sep 90)
5. UNIT SOP Unit's Standing Operating Procedures
6. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter

MATERIAL:
- NAVMC 1018 (Inspection/Repair Tag)
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection of Engineer Equipment [LTI])

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: Provided equipment, equipment's records, forms, and references.

STANDARD: To ensure equipment hours of operation are correctly documented per the references.

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).

RELATED EVENTS:
1141-ADMN-1009 1171-ADMN-1009 1161-ADMN-1009

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL:
- NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)

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: Provided forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: To ensure essential repair parts have been properly ordered per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Complete NAVMC 10925 header information.
4. Annotate repair part/component information on the NAVMC 10925.
5. Submit NAVMC 10925 for input.
6. Follow up/reconcile requisitions (as needed/required).

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:
1141-ADMN-1010 1142-ADMN-1011 1171-ADMN-1010
1161-ADMN-1010

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP.

1142-ADMN-1011: Document equipment service/repair history

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided forms and references.

STANDARD: To ensure a completed Equipment Repair Order (NAVMC 10245) is accurate per equipment indicated, and the references.

PERFORMANCE STEPS:
1. Review references.
2. Fill out equipment descriptive data on NAVMC 10245.
3. Annotate NAVMC 10245 with service/repair actions taken.
4. Submit NAVMC 10245 for input.

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1009	1142-ADMN-1010
1142-ADMN-1006	1161-ADMN-1011	1171-ADMN-1011
1141-ADMN-1011		

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10245 (Equipment Repair Order [ERO])

1142-ADMN-1012: Initiate a Recommended Change to Technical Publications/Logistics-Maintenance Data Coding (NAVMC 10772)

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: Provided an identified error/deficiency to a technical publication and references.

STANDARD: To ensure corrections/improvements to technical publication(s) is submitted per the references.

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 per unit's SOP.

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:
1141-ADMN-1012 1171-ADMN-1012 1161-ADMN-1012

REFERENCES:
1. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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 used will be https://pubs.logcom.usmc.mil.

1142-MANT-1101: Operate a multimeter

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment having an electrical circuit(s), multimeter, and references.

STANDARD: To ensure electrical circuit outputs are within standards.

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.

RELATED EVENTS:
1142-ADMN-1002 1141-MANT-1101 1171-MANT-2101
1161-MANT-1101 1142-ADMN-1001

REFERENCES:
1. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
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 (Jul 68)
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Multimeter
- Equipment with an electrical circuit

1142-MANT-1106: Operate a Semiconductor Test Device

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided solid state device(s), equipment and references.

STANDARD: To ensure serviceability of solid state device(s) is determined per the references.

PERFORMANCE STEPS:
1. Review references.
2. Determine correct settings for test device.
3. Test solid state device.
4. Record measurements/readings.
5. Analyze measurements/readings.

RELATED EVENTS: 1142-MANT-1101

REFERENCES:
1. TC 9-60 COMMUNICATIONS-ELECTRONICS FUNDAMENTALS, BASIC PRINCIPLES OF ALTERNATING CURRENT AND DIRECT CURRENT
2. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Test Set, Semiconductor Device [H7020]
- Multimeter
- Solid state devices

1142-MANT-1108: Splice a wire connection on equipment

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment, tools, material and references.

STANDARD: To ensure 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 required.
4. Don 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.
9. Test splice.
10. Insulate bare wires.

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1101	1142-ADMN-1006

RELATED EVENTS:

1161-MANT-1108	1142-MANT-1109

REFERENCES:
1. TC 9-60 COMMUNICATIONS-ELECTRONICS FUNDAMENTALS, BASIC PRINCIPLES OF ALTERNATING CURRENT AND DIRECT CURRENT
2. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Multimeter
- 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:** 6 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment, tools, material and references.

STANDARD: To ensure electrical continuity is established with tensile strength required by the references 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 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. Dispose of excess used solder (it is hazardous material).
13. Test connection.
14. Insulate bare wires.

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1101	1142-ADMN-1006

RELATED EVENTS:

1142-MANT-1108	1142-ADMN-1004	1161-MANT-1109

REFERENCES:
1. TB SIG 222 Solder and Soldering
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 10209-10/1 Use and Care of Hand Tools & Measuring Tools
5. TM 2000-15/4 Power System Reference Manual (Jul 68)
6. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Shop Equipment, Shop Maintenance Vehicle [C7033]
- Multimeter
- 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**: 6 months

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment, tools, forms and references.

STANDARD: To ensure electrical power generation equipment performs to specifications per the references.

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 PPE.
6. Ground equipment.
7. Connect load bank to generator(s) (using over current 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-1006

RELATED EVENTS:
1142-ADMN-1008 1141-MANT-1142 1142-ADMN-1011
1142-ADMN-1009

REFERENCES:
1. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided multiple generator sets, equipment, tools, paralleling cable, conductors, over current protection and references.

STANDARD: To ensure technician can properly synchronize power equipment in order to share electrical load per the references.

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 PPE.
7. Ensure generators are grounded.
8. Connect generators with paralleling cable and conductors through over current protection.
9. Ensure all load/voltage requirements are observed.
10. Synchronize generators.
11. Contact load.
12. Make necessary adjustments.
13. Perform during operation checks/services.

PREREQUISITE EVENTS:
1142-MANT-1142 1142-ADMN-1001

RELATED EVENTS: 1141-XENG-1795

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Tactical generator sets

MATERIAL:
- Paralleling cable
- Conductors
- Over current protection (MEPDIS/MEPDIS-R preferred if available)
- 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 Preventive Maintenance Checks and Services (PMCS) on a 100kW Electrical Load Bank

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: Provided equipment, tools, parts for scheduled services, forms and references.

STANDARD: To ensure electrical power equipment is maintained in an operational condition per TM 07500C-OI or TM 07500B-14.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manuals.
3. Review ERO.
4. Don 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-1002 1142-MANT-1142 1142-ADMN-1006

RELATED EVENTS:
1142-ADMN-1007 1142-ADMN-1011 1142-ADMN-1010
1142-ADMN-1008

REFERENCES:
1. SL-4-07500B Repair Parts List for Dummy Load, Generator, Electrical, Model DE1-0001, 100kw (Apr 94), w/Ch 1 (Feb 95)
2. TM 07500B-14 Operation and Maintenance Instructions for Dummy Load, Electrical Model DE1-0001, 100kw (Apr 94), w/ch 1 (Feb 95)
3. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 100kW Load Bank, Electrical [B0579]
- Generator set

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms and references.

STANDARD: To ensure electrical power equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don 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/initiate ERO).
13. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1006	1142-MANT-1142	1142-MANT-1101

RELATED EVENTS:

1142-ADMN-1008	1142-MANT-1242	1142-ADMN-1011
1142-ADMN-1010		

REFERENCES:
1. TM 07500C-OI Operation/Maintenance Manual with Repair Parts List for Load Bank, Electrical, 100kW, Model LSH100D42423
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM-4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 100kW Load Bank, Electrical [B0579] or components
- Generator set

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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-1347: 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: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms and references.

STANDARD: To ensure electrical power equipment faults are identified in order to initiate corrective action(s).

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 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/initiate ERO).
15. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1142-MANT-1101 1142-ADMN-1006

RELATED EVENTS:
1142-ADMN-1008 1141-MANT-1247 1142-ADMN-1011
1142-ADMN-1010

REFERENCES:
1. MI 11120A-OI/1 Installation of Safety Modification Kit for the USMC Floodlight Set (FLS) (Model MLT5060MIT)
2. MI 11120A-OI/2 Modifications of the USMC Floodlight Set, Model MLT5060MIT
3. SI 11120A-OI/1 Warranty Procedures for B0640 Floodlight Set
4. TM 11120A-OI Operation/Maintenance Manual with Repair Parts List for Floodlight Set (Model MLT5060MIT)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM-4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)

- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Floodlight Set [B0640] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Engineer Equipment Electrical Systems Technician Course (CID: M03UAA2) ARE NOT licensed as floodlight set operators.

1142-MANT-1351: Diagnose a generator set malfunction

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms and references.

STANDARD: To ensure electrical power equipment faults are identified in order to initiate corrective action(s).

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 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/initiate ERO).
16. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1006	1142-MANT-1106	1142-MANT-1101
1142-ADMN-1002		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1141-MANT-1251	1141-MANT-1252	1141-MANT-1265
1141-MANT-1255	1141-MANT-1256	1141-MANT-1257
1141-MANT-1262	1141-MANT-1263	1141-MANT-1253

REFERENCES:

1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Anti-Static Wrist Strap
- Faulty generator set or components

MATERIAL:

- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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: Diagnose a tactical water purification 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: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms and references.

STANDARD: To ensure electrical power equipment faults are identified in order to initiate corrective action(s).

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 PPE.
9. Ensure equipment is grounded.
10. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout) (if required).
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/initiate ERO).
18. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1006	1142-ADMN-1002	1142-MANT-1101
1142-MANT-1106		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1171-MANT-1382	1171-MANT-1332	1171-MANT-1379
1171-MANT-1331		

REFERENCES:

1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty tactical water purification/storage/distribution equipment or components

MATERIAL:

- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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.

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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, tools, forms and references.

STANDARD: To ensure electrical power equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don 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/initiate ERO).
15. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1101	1142-ADMN-1006

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1142-MANT-1493	1141-XENG-1693	1141-XENG-2502
1141-XENG-1692		

REFERENCES:
1. TM 2000-15/4 Power System Reference Manual (Jul 68)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Equipment with faulty electric motor or the faulty electric motor

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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.

1142-MANT-1451: Repair a tactical generator set electrical system

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with equipment technical manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts in ERO layette.
4. Review equipment technical manuals.
5. Don 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. Determine if electrical system fault was caused by a defect elsewhere.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1142-MANT-1101	1142-MANT-1108	1142-MANT-1142
1142-MANT-1351	1142-ADMN-1002	1142-MANT-1109

RELATED EVENTS:

1141-MANT-1142	1142-ADMN-1006	1142-ADMN-1008
1142-ADMN-1011	1142-MANT-1195	1142-MANT-1467
1142-MANT-1468	1142-MANT-1469	1142-MANT-1466

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 100kW Electrical Load Bank [B0579]
- Anti-Static Wrist Strap
- Degraded/deadlined generator set

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with equipment technical manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts in ERO layette.
4. Review equipment technical manuals.
5. Don 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. Determine if air intake/exhaust system fault was caused by a defect elsewhere.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1351

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1011
1142-MANT-1469	1142-MANT-1451	1142-MANT-1467
1142-MANT-1468	1142-MANT-1142	

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 100kW Electrical Load Bank [B0579]
- Degraded/deadlined generator set

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with equipment technical manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts in ERO layette.
4. Review equipment technical manuals.
5. Don 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. Determine if cooling system fault was caused by a defect elsewhere.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1351

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1011
1142-MANT-1469	1142-MANT-1451	1142-MANT-1466
1142-MANT-1468	1142-MANT-1142	

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 100kW Electrical Load Bank [B0579]
- Degraded/deadlined generator set

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with equipment technical manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts in ERO layette.
4. Review equipment technical manuals.
5. Don 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. Determine if fuel system fault was caused by a defect elsewhere.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1351

RELATED EVENTS:

1142-ADMN-1006	1142-ADMN-1008	1142-ADMN-1011
1142-MANT-1469	1142-MANT-1451	1142-MANT-1466
1142-MANT-1467	1142-MANT-1142	

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 100kW Electrical Load Bank [B0579]
- Degraded/deadlined generator set

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with equipment technical manual(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts in ERO layette.
4. Review equipment technical manuals.
5. Don 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. Determine if lubrication system fault was caused by a defect elsewhere.
12. Test repairs.
13. Document repairs.

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1351

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1011	1142-MANT-1142
1142-MANT-1468	1142-MANT-1451	1142-MANT-1466
1142-MANT-1467	1142-ADMN-1006	

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 100kW Electrical Load Bank [B0579]
- Degraded/deadlined generator set

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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: Provided equipment containing an electric motor, electrical power source, tools, parts and references.

STANDARD: To ensure 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 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-1002	1142-ADMN-1006	1142-MANT-1101

RELATED EVENTS:

1142-ADMN-1011	1142-MANT-1108	1142-MANT-1109
1141-XENG-2502	1141-XENG-1692	1141-XENG-1693
1142-ADMN-1008	1142-MANT-1392	

REFERENCES:
1. TC 9-60 COMMUNICATIONS-ELECTRONICS FUNDAMENTALS, BASIC PRINCIPLES OF ALTERNATING CURRENT AND DIRECT CURRENT
2. TC 9-62 Communications-Electronics Fundamentals, Solid State Devices and Solid State Power Supplies and Amplifiers
3. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
4. TM 2000-15/4 Power System Reference Manual (Jul 68)

5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
6. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Equipment with an electric motor
- Electric motor controls

MATERIAL:
- Parts
- Wire
- Connector(s)

OTHER SUPPORT REQUIREMENTS: Electrical power source.

6004. 2000-LEVEL EVENTS

1142-ADMN-2021: Apply safety programs

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided resources and references.

STANDARD: To ensure applicable safety measures are established per the references.

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-1002 1142-ADMN-1001

RELATED EVENTS:
1141-ADMN-2021 1171-ADMN-2021 1161-ADMN-2021

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (MAY 2004)
2. MCO 5100.19E Marine Corps Traffic Safety Program (Drive safe) (Dec 00)
3. MCO 5100.29A Marine Corps Safety Program (Jul 04)
4. MCO 5100.30A Marine Corps Off-Duty and Recreation Safety Program (Oct 01)
5. 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 (Jan 07)
6. MCO 5100.8 Marine Corps Occupational Safety and Health (OSH) Policy Order (May 06)
7. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
8. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
9. UNIT SOP Unit's Standing Operating Procedures
10. Appropriate Technical Manuals

1142-ADMN-2022: Apply environmental regulations

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided environmental guidelines, and references.

STANDARD: To ensure adherence to policies in accordance to references.

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:
1171-ADMN-2022 1141-ADMN-2022 1161-ADMN-2022

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. OPNAVINST 5090.1C Environmental Readiness Program Manual (Oct 07)
5. UNIT SOP Unit's Standing Operating Procedures

1142-ADMN-2023: Conduct Military Occupational Specialty (MOS) training

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided training resources, records, and references.

STANDARD: To ensure MOS proficiency is maintained per the references.

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 1171-ADMN-2023 1161-ADMN-2023

REFERENCES:
1. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
2. MCO 1553.4B Professional Military Education (PME) (Jan 08)
3. MCO 3500.26A Marine Corps Task List (MCTL-2.0)
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 3500.12 Marine Corps Engineer and Utilities Training and Readiness Manual
7. OPNAVINST 1560.10C Administration of the United Services Military Apprenticeship Program (USMAP) (Apr 07)
8. SAT MANUAL Systems Approach to Training (SAT) Manual (Jun 04)
9. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: MOS Roadmaps are located at http://www.tecom.usmc.mil/g3/roadmap.htm.

1142-ADMN-2041: Initiate a Product Quality Deficiency Report (PQDR) (SF 368)

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a defective item, blank forms, and references.

STANDARD: To ensure deficiency is identified to effect corrections per the references.

PERFORMANCE STEPS:
1. Review references.
2. Verify deficiency requires a PQDR.
3. Determine if deficiency is Category I or Category II.
4. Collect data.
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 1171-ADMN-2041 1161-ADMN-2041

REFERENCES:
1. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

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 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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided equipment records, forms and references.

STANDARD: To ensure preventive maintenance is scheduled per the references.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit equipment records.
4. Complete NAVMC 10561.

PREREQUISITE EVENTS: 1142-ADMN-1011

RELATED EVENTS:
1161-ADMN-2051 1141-ADMN-2051 1171-ADMN-2051

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. MCWP 4-11.4 Maintenance Operations
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UNIT SOP Unit's Standing Operating Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)

1142-ADMN-2061: Maintain Pre-Expended Bin (PEB)

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided commander's pre-expended bin, (PEB) authorization and references.

STANDARD: To ensure common, low-cost, high usage parts are continuously available for immediate maintenance/repair of equipment per the references.

PERFORMANCE STEPS:
1. Review the 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. Account for parts when issued, ensuring advice code PB is used in documentation for items over $50 in value.
6. Requisition replacement parts, as required.
7. Roll back/dispose any excess items.

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1142-ADMN-2062: Maintain Equipment Repair Order (ERO) 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: Provided forms, parts storage bins, and references.

STANDARD: To ensure repair parts are available to effect repairs on organic equipment per the references.

PERFORMANCE STEPS:
1. Review references.
2. Receive repair parts, annotating EROSL, and placing repair parts in appropriate bin.
3. Take corrective action if repair parts do not match EROSL.
4. Maintain EROSL in appropriate bin, inventorying the bin every 2 weeks.
5. Issue repair parts, when all are received, annotating EROSL and ERO per unit's SOP.

RELATED EVENTS:
1142-ADMN-2061 1171-ADMN-2062 1161-ADMN-2062
1141-ADMN-2062

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided MIMMS (AIS) reports, supporting documentation, and references.

STANDARD: To ensure accuracy of essential reports per the references.

PERFORMANCE STEPS:
1. Monitor Daily Process Report (DPR).
2. Monitor Daily Transaction Listing (DTL).
3. Monitor Daily SASSY Transactions.
4. Monitor Daily LM2 Report.
5. Monitor Weekly TAM Report.
6. Monitor Weekly Maintenance Exceptions Report.
7. Monitor Weekly Material Report.
8. Monitor Weekly LM2 Report.
9. Monitor Weekly Shop Summary Report.
10. Monitor Class II Reports.

REFERENCES:
1. MCBUL 3000 Table of Marine Corps Ground Equipment Resources Reporting

2. MCO 3000.11_ Marine Corps Ground Equipment Resources Reporting
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
5. TM 4700-15/1H Ground Equipment Record Procedures
6. UM 4400-124 FMF SASSY Using Unit Procedures
7. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
8. UNIT SOP Unit's Standing Operating Procedures

1142-ADMN-2072: Monitor maintenance related programs

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided equipment and references.

STANDARD: To ensure equipment readiness is maintained to support unit operations.

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 Joint Oil Analysis Program (JOAP).
8. Monitor Replacement Evacuation (R&E) program.
9. Monitor Quality Deficiency (QDR) program.
10. Monitor Recoverable Items (WIR) program.
11. Monitor Quality Control (QC) program.
12. Monitor Corrosion Prevention and Control (CPAC) program.
13. Ensure program and equipment records are maintained.

RELATED EVENTS:

1141-ADMN-2072	1142-ADMN-2041	1142-ADMN-2051
1171-ADMN-2072	1142-ADMN-2073	1161-ADMN-2072
1169-ADMN-2072	1142-ADMN-2071	

REFERENCES:
1. MCO 4400.194 Class VII Stock Rotation Program
2. MCO 4731.1A Oil Analysis Program for Ground Equipment (Nov 90)
3. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
4. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
5. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
6. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
7. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
8. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program

9. TI-4731-14/1C MC Joint Oil Analysis Program
10. TM 4700-15/1H Ground Equipment Record Procedures
11. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
12. UNIT SOP Unit's Standing Operating Procedures
13. Appropriate Technical Manuals

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided repaired equipment, maintenance forms and references.

STANDARD: To ensure equipment repairs have been completed in accordance with references.

PERFORMANCE STEPS:
1. Review references.
2. Review Equipment Repair Order (ERO).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS: 1142-ADMN-1008

RELATED EVENTS:

1141-ADMN-2073	1142-ADMN-1009	1171-ADMN-2073
1161-ADMN-2073	1142-ADMN-1011	

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1142-ADMN-2081: Prepare equipment for embarkation

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: Provided a mission, equipment, and references.

STANDARD: To ensure the unit's ability to rapidly deploy in accordance with references.

PERFORMANCE STEPS:
1. Review the MDSS II, MAFTG II LOGAIS, and/or JOPES reports.
2. Inspect assigned equipment.
3. Identify Remain Behind Equipment (RBE).
4. Identify Leave Behind Equipment (LBE).
5. Determine safety/environmental considerations.
6. Mark equipment for transportation/embarkation to include LOGMARS labels.
7. Disassemble, stow, pack, and/or prepare equipment for transportation/embarkation.
8. Coordinate with unit embark personnel to ensure that discrepancies with MDSS II, MAGTF II LOGAIS, and or JOPES reports are corrected.

REFERENCES:
1. DODD 4500.9 Transportation and Traffic Management
2. FM 101-10-1_ Organizational, Technical and Logistical Data
3. FM 55-15 Transportation Reference Data
4. FM 55-9 Unit Air Movement Planning
5. FMFM 3-1 Command and Staff Action
6. FMFM 4-6 Movement of Units in Air Force Aircraft
7. JOINT PUB 3-02 Joint Doctrine for Amphibious Operations
8. MCO 4610.35 USMC Equipment Characteristics File
9. MCO P4030.19_ Preparing Hazardous Materials for Military Air Shipments
10. MCO P4600.7_ USMC Transportation Manual
11. MCWP 3-31.5 Ship-to-Shore Movement
12. MCWP 4-11.3 Transportation Operations
13. NAVMC/MCO 3000.18 Marine Corps Planner's Manual
14. TM 4700-15/1H Ground Equipment Record Procedures
15. TM 4750-15/2 Painting and Registration Marking for Marine Corps Combat and
16. TM 55-2200-001-12 Application of Blocking, Bracing, and Tie Down Material

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1142-MANT-2191: Comply with a Modification Instruction (MI)

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: Provided an Equipment Repair Order (ERO) on effected equipment, the effected equipment, a Modification Instruction (MI), parts, tools, forms and references.

STANDARD: To ensure required corrective maintenance action(s) have been performed to restore equipment to operational condition.

PERFORMANCE STEPS:
1. Review MI.
2. Review ERO.
3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don PPE (if required).
6. Apply modification.
7. Test modification.
8. Document modification.

PREREQUISITE EVENTS: 1142-ADMN-1006

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1171-MANT-2191
1141-MANT-2191	1161-MANT-1191	1142-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Equipment being modified

MATERIAL:
- Modification Instruction (MI)
- Parts (if required)
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service Record)
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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: Provided a generator set, trailer, forklift or crane, tools, and references.

STANDARD: To ensure electrical power equipment is properly installed on trailer assets per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Lift generator set on to trailer.
3. Fasten generator set to trailer.
4. Reverse procedure to dismount generator set.

REFERENCES:
1. MI 6115-24/24C Trailer Mounting of 10kw Generators on M116A2/3 Series Trailer (Jul 04)
2. MI-6115-34/18 MI-6115-34/18

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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals.
4. Don PPE.
5. Identify faulty component(s).
6. Determine if component fault was caused by a defect elsewhere.
7. Document findings (complete LTI/initiate ERO).
8. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1142-MANT-1101 1142-ADMN-1006

RELATED EVENTS:
1142-ADMN-1008 1142-ADMN-1011 1142-ADMN-1010

REFERENCES:
1. TM 2000-15/4 Power System Reference Manual (Jul 68)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

3. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty electrical starter

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals.
4. Don PPE.
5. Identify faulty component(s).
6. Determine if component fault was caused by a defect elsewhere.
7. Document findings (complete LTI/initiate ERO).
8. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1142-ADMN-1006 1142-MANT-1101

RELATED EVENTS:
1142-ADMN-1010 1142-ADMN-1011 1142-ADMN-1008

REFERENCES:
1. TM 2000-15/4 Power System Reference Manual (Jul 68)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Special tool(s) (if required)
- Faulty alternator

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

1142-MANT-2311: Diagnose an Environmental Control Unit (ECU) electrical system malfunction

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

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 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/initiate ERO).
15. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1101	1142-ADMN-1006

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1161-MANT-1334	1161-MANT-1314	1161-MANT-1315
1161-MANT-1316	1161-MANT-1311	

REFERENCES:

1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Multimeter
- Anti-Static Wrist Strap
- Faulty ECU or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 Integrated Trailer/ECU/Generator (ITEG) electrical system malfunction

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s) per the references.

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 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/initiate ERO).
19. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-ADMN-1006	1142-MANT-1142
1142-MANT-1106	1142-MANT-1101	

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011
1161-MANT-2318	1142-MANT-2311	1141-MANT-2218
1161-MANT-2218	1142-MANT-1351	

REFERENCES:
1. FP 11490A 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. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM-4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]

- Multimeter
- Anti-Static Wrist Strap
- Faulty Integrated Trailer/ECU/Generator (ITEG) [B0018] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

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 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/initiate ERO).
15. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1142-ADMN-1002 1142-ADMN-1006 1142-MANT-1101

RELATED EVENTS:
1142-ADMN-1008 1161-MANT-1375 1142-ADMN-1011
1142-ADMN-1010

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Multimeter
- Anti-Static Wrist Strap
- Faulty refrigeration equipment or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 a Marine Corps Formal School) by the Environmental Protection Agency (EPA) to handle refrigerants.

1142-MANT-2331: 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: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

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 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/initiate ERO).
16. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1101	1142-ADMN-1006

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-MANT-2332
1171-MANT-1331	1171-MANT-1332	1142-ADMN-1011

REFERENCES:
1. 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
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM-4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty M-80 or M-85 Water Heater

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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.

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-2332: Diagnose a Containerized Batch Laundry (CBL) Unit washer/dryer electrical malfunction

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

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 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/initiate ERO).
15. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1142-ADMN-1002 1142-MANT-1106 1142-MANT-1101
1142-ADMN-1006

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-MANT-2331
1171-MANT-1331	1171-MANT-1332	1142-ADMN-1011

REFERENCES:
1. SI 11413A Warranty Procedures for the Containerized Batch Laundry
2. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty washer or dryer

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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.

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: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Review the LTI/ERO.
2. Review equipment technical manuals/wiring diagrams/schematics.
3. Don PPE.
4. Ensure equipment is grounded.

5. Ensure any stored/hazardous energy is dissipated/controlled.
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.
13. Initiate EROSL (if required).

PREREQUISITE EVENTS: 1142-ADMN-1002

RELATED EVENTS: 1142-MANT-1106

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures
4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE); Test Measurement and Diagnostic Equipment (TMDE) [Multimeter]; General Mechanic's Tool Set; Electrical Equipment Repair Tool Set

MATERIAL: Equipment Repair Order (ERO) (NAVMC 10245); Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (LTI) (NAVMC 10560); Equipment Repair Order Shopping/Transaction List (EROSL) (NAVMC 10925)

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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

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 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/initiate ERO).
17. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1002	1142-MANT-1101	1142-ADMN-1006

RELATED EVENTS:

1141-MANT-1265	1142-ADMN-1008	1142-ADMN-1010
1142-ADMN-1011	1142-MANT-1469	1142-MANT-1451
1142-MANT-1466	1142-MANT-1467	1142-MANT-1468
1142-MANT-1351		

REFERENCES:

1. FP 07464C B1045 MEP-807A 100kW Tactical Quiet Generator (TQG)
2. SI 07464C-OI/1 Warranty Procedures for MEP-807A 100kW Tactical Quiet Generator
3. SL-3-6115 Components List for Generator Set, Diesel Engine Driven, Skid Mounted
4. TM 07464C-10/1 Operator's Manual for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60 Hz, MEP-807A
5. TM 07464C-24/2 Field and Sustainment Maintenance for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60 Hz, MEP-807A
6. TM 07464C-24P/3 Field and Sustainment Level Repair Parts and Special Tools List for Generator Set, Skid Mounted, Tactical Quiet, 100kW, 50/60 Hz, MEP-807A
7. TM 07464C-35 Systems Operation Testing and Adjusting for Caterpillar Generator Sets (Feb 00)
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. UM-4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don 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/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1006	1142-ADMN-1002	1142-MANT-1106
1142-MANT-1101		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1011	1142-ADMN-1010

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

2. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Anti-Static Wrist Strap (if required)
- Equipment with faulty hydraulic/pneumatic system

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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-2396: Diagnose a Marine Corps Tactical Welding Shop (MCTWS) electrical malfunction

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don 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/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1001	1142-ADMN-1002	1142-ADMN-1003
1142-MANT-1109	1142-MANT-1101	1142-MANT-1106
1142-MANT-1108	1142-ADMN-1006	

RELATED EVENTS:

1142-ADMN-1010	1142-ADMN-1008	1142-MANT-1351
1142-ADMN-1011		

REFERENCES:
1. SI 11413A Warranty Procedures for the Containerized Batch Laundry
2. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Anti-Static Wrist Strap
- Faulty Marine Corps Tactical Welding Shop (MCTWS) [B2685] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

UNITS/PERSONNEL: MOS 1316 (Welder) to facilitate troubleshooting process.

OTHER SUPPORT REQUIREMENTS: Electrical power source may be required.

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: Provided a Limited Technical Inspection (LTI) on inoperable equipment, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: To ensure equipment faults are identified in order to initiate corrective action(s).

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review LTI.
3. Review equipment technical manuals/wiring diagrams/schematics.
4. Don 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/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1142-ADMN-1006	1142-MANT-1101	1142-MANT-1106
1142-ADMN-1002	1142-MANT-1108	1142-MANT-1109
1142-ADMN-1001		

RELATED EVENTS:

1142-ADMN-1008	1142-ADMN-1010	1142-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Anti-Static Wrist Strap (if required)
- Faulty tactical engineer equipment or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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: Service 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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with references.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts in ERO layette.
4. Review equipment technical manuals.
5. Don PPE.
6. Remove faulty part(s).
7. Prepare area(s) for new part(s).
8. Attach new part(s), making necessary adjustments.
9. Determine if fault was caused by a defect elsewhere.
10. Test repairs.
11. Document repairs.

PREREQUISITE EVENTS:

1142-MANT-1101	1142-MANT-1109	1142-MANT-1108

RELATED EVENTS:

1142-ADMN-1006	1142-MANT-1451	1142-ADMN-1011
1142-ADMN-1008		

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Inoperable starter

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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: Service an alternator

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with references.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts in ERO layette.
4. Review equipment technical manuals.
5. Don PPE.
6. Remove faulty part(s).
7. Prepare area(s) for new part(s).
8. Attach new part(s), making necessary adjustments.
9. Determine if fault was caused by a defect elsewhere.
10. Test repairs.
11. Document repairs.

PREREQUISITE EVENTS:
1142-MANT-1101 1142-MANT-1108 1142-MANT-1109

RELATED EVENTS:
1142-ADMN-1006 1142-ADMN-1008 1142-ADMN-1011
1142-MANT-1451

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Set, Electrical Equipment Repair [B2365]
- Tool Kit, Multi-Capable Maintainer [C7036]
- Inoperable alternator

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-2442: Repair a 100kW Electrical Load Bank

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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with references.

PERFORMANCE STEPS:
1. Review the LTI/ERO.
2. Inventory parts in ERO layette.

3. Review equipment technical manuals.
4. Don PPE.
5. Remove faulty part(s).
6. Clean area for new part(s).
7. Attach new part(s).
8. Determine if system fault was caused by a defect elsewhere.
9. Test repairs.
10. Document repairs.

PREREQUISITE EVENTS:
1142-ADMN-1002

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE); Test Measurement and Diagnostic Equipment (TMDE); General Mechanic's Tool Set; Electrical Equipment Repair Tool Set; piece of engineer equipment requiring electrical system repair

MATERIAL: Equipment Repair Order (ERO) (NAVMC 10245); Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (LTI) (NAVMC 10560); Equipment Repair Order Shopping/Transaction List (EROSL) (NAVMC 10925); repair parts

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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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with references.

PERFORMANCE STEPS:
1. Review the LTI/ERO.
2. Inventory parts in ERO layette.
3. Review equipment technical manuals.
4. Don PPE.
5. Remove faulty part(s).

6. Clean area for new part(s).
7. Attach new part(s).
8. Determine if system fault was caused by a defect elsewhere.
9. Test repairs.
10. Document repairs.

PREREQUISITE EVENTS:
1142-ADMN-1002

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE); Test Measurement and Diagnostic Equipment (TMDE); General Mechanic's Tool Set; Electrical Equipment Repair Tool Set; piece of engineer equipment requiring electrical system repair

MATERIAL: Equipment Repair Order (ERO) (NAVMC 10245); Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (LTI) (NAVMC 10560); Equipment Repair Order Shopping/Transaction List (EROSL) (NAVMC 10925); repair parts

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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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with references.

PERFORMANCE STEPS:
1. Review the LTI/ERO.
2. Inventory parts in ERO layette.
3. Review equipment technical manuals.
4. Don PPE.
5. Remove faulty part(s).
6. Clean area for new part(s).
7. Attach new part(s).
8. Determine if system fault was caused by a defect elsewhere.

9. Test repairs.
10. Document repairs.

PREREQUISITE EVENTS: 1142-ADMN-1002

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE); Test Measurement and Diagnostic Equipment (TMDE); General Mechanic's Tool Set; Electrical Equipment Repair Tool Set; piece of engineer equipment requiring electrical system repair

MATERIAL: Equipment Repair Order (ERO) (NAVMC 10245); Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (LTI) (NAVMC 10560); Equipment Repair Order Shopping/Transaction List (EROSL) (NAVMC 10925); repair parts

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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: Provided an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: To ensure equipment is returned to a functional state to support unit operations in accordance with references.

PERFORMANCE STEPS:
1. Review the LTI/ERO.
2. Inventory parts in ERO layette.
3. Review equipment technical manuals.
4. Don PPE.
5. Remove faulty part(s).
6. Clean area for new part(s).
7. Attach new part(s).
8. Determine if system fault was caused by a defect elsewhere.
9. Test repairs.
10. Document repairs.

PREREQUISITE EVENTS: 1142-ADMN-1002

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 10209-10/1 Use and Care of Hand Tools & Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

4. UM-4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE); Test Measurement and Diagnostic Equipment (TMDE); General Mechanic's Tool Set; Electrical Equipment Repair Tool Set; piece of engineer equipment requiring electrical system repair

MATERIAL: Equipment Repair Order (ERO) (NAVMC 10245); Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (LTI) (NAVMC 10560); Equipment Repair Order Shopping/Transaction List (EROSL) (NAVMC 10925); repair parts

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1142-XENG-2598: Determine maintenance contact team Engineer Equipment Electrical System Technician support requirements

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

BILLETS: Engineer Equipment Electrical Systems Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a requirement to provide maintenance/repairs of engineer/general supply equipment electrical systems at a forward location.

STANDARD: To ensure an effective maintenance plan is established to support mission requirements.

PERFORMANCE STEPS:
1. Review the requirements.
2. Determine numbers of equipment requiring maintenance/repair.
3. Determine numbers of personnel required to support the quantity of equipment.
4. Review equipment technical manual to determine repair parts requirements.
5. Assemble parts block.
6. Assign personnel.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (JUL 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

ENG & UTIL T&R MANUAL

CHAPTER 7

MOS 1161 INDIVIDUAL EVENTS

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CHAPTER 7

MOS 1161 INDIVIDUAL EVENTS

7000. PURPOSE. This chapter includes all individual training events for the Refrigeration and Air Conditioning Technician. An individual event is an event that a trained Refrigeration and Air Conditioning Technician would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

7001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1161).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Refrigeration and Air Conditioning Technician individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

7002. INDEX OF INDIVIDUAL EVENTS

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7003. 1000-LEVEL EVENTS

1161-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 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 per the references.

PERFORMANCE STEPS:
1. Review task/mission.
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 1171-ADMN-1001 1141-ADMN-1001

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCRP 5-12.1C Risk Management (Feb 01)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1161-ADMN-1002: Control (Lockout/Tagout) hazardous energy

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment manuals, PPE, 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. Shut down equipment/turn off circuit.
6. Dissipate or restrain any stored energy.
7. Apply Lockout/Tagout devices.
8. Verify energy is isolated/dissipated (test circuit).
9. Effect required service, maintenance, repairs or modifications to equipment/circuit.
10. Remove Lockout/Tagout devices.
11. Restore equipment/circuit to normal operation.
12. Return Lockout/Tagout devices to program coordinator.

RELATED EVENTS:
1141-ADMN-1002 1171-ADMN-1002 1142-ADMN-1002

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. UNIT SOP Unit's Standing Operating Procedures
3. Appropriate Technical Manuals

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: Without references.

STANDARD: So danger to personnel is eliminated and victim is cared for per the references.

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	1171-ADMN-1003
1169-ADMN-2003	1142-ADMN-1003	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 3-02G First Aid (Dec 02)
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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: Without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Contain spill.
3. Report spill.
4. Remove uncontaminated material.
5. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1141-ADMN-1004	1171-ADMN-1004
1169-ADMN-2004	1142-ADMN-1004	

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)

3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. UNIT SOP Unit's Standing Operating Procedures

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: Using Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and the reference.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (PPE) (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	1171-ADMN-1005
1169-ADMN-2005	1142-ADMN-1005	

REFERENCES:
1. MCRP 3-02G First Aid (Dec 02)

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL: Material Safety Data Sheet (MSDS) file.

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 information will be available for accurate completion of work.

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 1171-ADMN-1006 1142-ADMN-1006

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
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 0416 - 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:** 1 month

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 the references.

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 1171-ADMN-1007 1142-ADMN-1007

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

1161-ADMN-1008: Conduct a Limited Technical Inspection (LTI)

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 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 (PPE) (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-1007 1161-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1171-ADMN-1008 1142-ADMN-1008

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCRP 4-11.4A Battle Damage Assessment and Repair
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UNIT SOP Unit's Standing Operating Procedures
5. Appropriate Technical Manuals

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])

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 per the references.

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).

RELATED EVENTS:
1141-ADMN-1009 1171-ADMN-1009 1142-ADMN-1009

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL:
- NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service
` Record)

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 forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: So valid requisitions will be created per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Complete NAVMC 10925 header information.
4. Annotate repair part/component information on the NAVMC 10925.
5. Submit NAVMC 10925 for input.
6. Follow up/reconcile requisition (as needed/required).

PREREQUISITE EVENTS:
1161-ADMN-1006

RELATED EVENTS:
1141-ADMN-1010 1171-ADMN-1010 1161-ADMN-1011
1142-ADMN-1010

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP.

1161-ADMN-1011: Document equipment service/repair history

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With forms and references,

STANDARD: So Equipment Repair Order (NAVMC 10245) is complete with descriptive data and service/repair actions for equipment indicated per the references.

PERFORMANCE STEPS:
1. Review references.

2. Fill out equipment descriptive data on NAVMC 10245.
3. Annotate NAVMC 10245 with service/repair actions taken.
4. Submit NAVMC 10245 for input.

RELATED EVENTS:

1161-ADMN-1006	1161-ADMN-1008	1161-ADMN-1009
1171-ADMN-1011	1141-ADMN-1011	1142-ADMN-1011
1161-ADMN-1010		

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10245 (Equipment Repair Order [ERO])

1161-ADMN-1012: Initiate a Recommended Change to Technical Publications/Logistics-Maintenance Data Coding (NAVMC 10772)

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 an identified error/deficiency to a technical publication and references.

STANDARD: So corrections/improvements to the publication will be affected per the references.

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 per unit's SOP.

PREREQUISITE EVENTS:
1161-ADMN-1006

RELATED EVENTS:

1141-ADMN-1012	1171-ADMN-1012	1142-ADMN-1012

REFERENCES:
1. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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 used will be https://pubs.logcom.usmc.mil.

1161-ADMN-1016: Obtain EPA Section 609 Technician Certification

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 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 609 examination.
3. Obtain documentation of certification.
4. Monitor changes to Section 609 of the Clean Air Act (CAA).

RELATED EVENTS:
1161-ADMN-1018 1161-ADMN-1017

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 (Oct 89)
4. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
5. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Refrigeration Mechanic Course (CID: A0111D1) have Environmental Protection Agency (EPA) Section 609 certification. EPA Section 609 certification allows the technician to work on automotive systems. Certification is obtained from an authorized EPA testing facility. Current information on Section 609 of the CAA can be found at www.epa.gov/ozone/title6/609.

SPECIAL PERSONNEL CERTS: EPA Section 609 Technician Certificate.

1161-ADMN-1017: Obtain EPA Section 608 Type I Technician Certification

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 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).

RELATED EVENTS:
1161-ADMN-1018 1161-ADMN-1016

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 (Oct 89)
4. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
5. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Refrigeration Mechanic Course (CID: A0111D1) 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 testing facility. Current information on Section 608 of the CAA can be found at www.epa.gov/ozone/title6/608.

SPECIAL PERSONNEL CERTS: EPA Section 608 Type I Technician Certificate.

1161-ADMN-1018: Obtain EPA Section 608 Type II Technician Certification

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 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).

RELATED EVENTS:
1161-ADMN-1016 1161-ADMN-1017

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 (Oct 89)
4. PL 101-549 Public Law No: 101-549 - Clean Air Act Amendments of 1990
5. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Graduates of the Basic Refrigeration Mechanic Course (CID: A0111D1) 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 testing facility. Current information on Section 608 of the 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**: 6 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.

RELATED EVENTS:

1161-ADMN-1002	1141-MANT-1101	1171-MANT-2101
1161-ADMN-1001	1142-MANT-1101	

REFERENCES:
1. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
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 (Jul 68)
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Multimeter
- 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, refrigerant 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 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-1017	1161-ADMN-1016	1161-ADMN-1006
1161-ADMN-1018		

RELATED EVENTS:
1161-MANT-1103 1161-MANT-1107 1161-MANT-1106
1161-MANT-1104

REFERENCES:
1. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Bar Gauge Manifold
- 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, 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. Review references.
2. Perform before operation checks on vacuum pump.
3. Connect vacuum pump to refrigerant system tubing via Bar Gauge Manifold.
4. Turn on pump.
5. Check for suction.
6. Monitor Bar Gauge Manifold until vacuum is established.
7. Turn off pump.
8. Verify refrigerant tubing is not leaking.
9. Perform after operation checks on vacuum pump.

PREREQUISITE EVENTS:
1161-ADMN-1016 1161-ADMN-1006 1161-ADMN-1018
1161-ADMN-1017

RELATED EVENTS:
1161-MANT-1106 1161-MANT-1107 1161-MANT-1104
1161-MANT-1102

REFERENCES:
1. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Vacuum pump
- Bar Gauge Manifold
- 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: Operate a Refrigerant Recovery/Recycling Station

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/recycled with "de minimis" atmospheric impact.

PERFORMANCE STEPS:
1. Identify FROST BITE HAZARD(S).
2. Review reference(s).
3. Don PPE.
4. Attach hoses to equipment being serviced.
5. Perform before operation checks.
6. Check for leaks.
7. Turn on station.
8. Recover/recycle refrigerant.
9. Perform during operation checks.
10. Turn off station.

PREREQUISITE EVENTS:

1161-ADMN-1017	1161-ADMN-1016	1161-ADMN-1006
1161-ADMN-1018		

RELATED EVENTS:

1161-MANT-1102	1161-MANT-1103	1161-MANT-1107

REFERENCES:
1. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Refrigerant Recovery and Recycling Station [B1713]
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061] (if required)
- 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 pressure.

PERFORMANCE STEPS:
1. Review reference(s).
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. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. Appropriate Technical Manuals

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 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. TB SIG 222 Solder and Soldering
2. Appropriate Technical Manuals

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, refrigerant, electrical power source and references.

STANDARD: So refrigerant system operating pressures are obtained per the equipment's technical manual(s).

PERFORMANCE STEPS:
1. Identify FROST BITE HAZARD(S).
2. Review references for normal operating pressures.
3. Don 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-1004	1161-ADMN-1005	1161-ADMN-1016
1161-ADMN-1006	1161-ADMN-1018	1161-MANT-1102
1161-ADMN-1017		

RELATED EVENTS:

1161-MANT-1104	1161-MANT-1103

REFERENCES:
1. Appropriate Technical Manuals

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: Splice a wire connection on equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 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 required.
4. Don 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.
9. Test splice.
10. Insulate bare wires.

PREREQUISITE EVENTS:
1161-ADMN-1002 1161-MANT-1101 1161-ADMN-1006

RELATED EVENTS:
1161-MANT-1109 1142-MANT-1108

REFERENCES:
1. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Multimeter
- 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**: 6 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 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. Dispose of excess used solder (it is hazardous material).
13. Test connection.
14. Insulate bare wires.

PREREQUISITE EVENTS:

1161-ADMN-1006	1161-ADMN-1002	1161-MANT-1101

RELATED EVENTS:

1142-MANT-1109	1161-ADMN-1004	1161-MANT-1108

REFERENCES:
1. TB SIG 222 Solder and Soldering
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 (Jul 68)
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Multimeter
- 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-1191: Comply with a Modification Instruction (MI)

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 an Equipment Repair Order (ERO) 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 ERO.
3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don PPE (if required).
6. Apply modification.
7. Test modification.
8. Document modification.

PREREQUISITE EVENTS:
1161-ADMN-1006

RELATED EVENTS:

1161-ADMN-1008	1161-ADMN-1010	1171-MANT-2191
1141-MANT-2191	1142-MANT-2191	1161-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

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 10245 (Equipment Repair Order [ERO])
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service ` Record)
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1161-MANT-1211: Perform Preventive Maintenance Checks and Services (PMCS) on a 1.5-Ton Environmental Control Unit (ECU)

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

BILLETS: Refrigeration and Air Conditioning 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 11080A-OI/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manual.
3. Review ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1002

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1011 1161-ADMN-1010
1161-ADMN-1008

REFERENCES:
1. TM 11080A-OI Operation and Maintenance Manual with Repair Parts List for Air Conditioner, 1.5-Ton, 7,000/14,000 BTU/HR
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Environmental Control Unit (ECU), 1.5-Ton, 7,000/14,000 BTU/hr [B0003]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1161-MANT-1214: Perform Preventive Maintenance Checks and Services (PMCS) on a 5-Ton Environmental Control Unit (ECU)

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

BILLETS: Refrigeration and Air Conditioning 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 11084A-OI and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manual.
3. Review ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1002

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1011 1161-ADMN-1010
1161-ADMN-1008

REFERENCES:
1. TM 11084A-OI Air Conditioner, 5 Ton, 60,000
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Environmental Control Unit (ECU), 5-Ton, 37,000/60,000 BTU/hr [B0008]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])

- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1161-MANT-1215: Perform Preventive Maintenance Checks and Services (PMCS) on an 8/10-Ton Environmental Control Unit (ECU)

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

BILLETS: Refrigeration and Air Conditioning 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 11079A/11079B-OI and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manual.
3. Review ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1002

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1011 1161-ADMN-1010
1161-ADMN-1008

REFERENCES:
1. FP 11079A/11079B Fielding Plan for Environmental Control Unit (ECU) 120,000 BTU/hr
2. SI 4120-OI/3B Warranty Procedures for the Family of Marine Corps Environmental Control Units
3. TM 11079A/11079B-OI Operation/Maintenance Manual with Repair Parts List for Environmental Control Unit, 120,000 BTU/hr (120K ECU)
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Environmental Control Unit (ECU), 8/10-Ton [B0010]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1161-MANT-1216: Perform Preventive Maintenance Checks and Services (PMCS) on a 3-Ton Environmental Control Unit (ECU)

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

MOS PERFORMING: 1161

BILLETS: Refrigeration and Air Conditioning 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 11082-OI and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manual.
3. Review ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1002

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1011 1161-ADMN-1010
1161-ADMN-1008

REFERENCES:
1. TM 11082A-OI Air Conditioner, 3 Ton, 36,000
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Environmental Control Unit (ECU), 3-Ton, 31,000/36,000 BTU/hr [B0014]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1161-MANT-1234: Perform Preventive Maintenance Checks and Services (PMCS) on a 3/4-Ton Environmental Control Unit (ECU)

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

BILLETS: Refrigeration and Air Conditioning 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 11453-OI/1 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manual.
3. Review ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1002

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1011 1161-ADMN-1010
1161-ADMN-1008

REFERENCES:
1. TM 11453-OI/1 Operation/Maintenance Manual with Repair Parts List for Environmental Control Unit, 9,000 BTU/HR (9K ECU)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Environmental Control Unit (ECU), 3/4-Ton, 9,000 BTU/hr [B0074]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1161-MANT-1235: Perform Preventive Maintenance Checks and Services (PMCS) on a Small Field Refrigeration System (SFRS)

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

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 manual and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manual.
3. Review ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1002 1161-ADMN-1006

RELATED EVENTS:
1161-ADMN-1008 1161-ADMN-1011 1161-ADMN-1010
1161-ADMN-1007

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Small Field Refrigeration System (SFRS) [B0075]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])

- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 (normally a 5kW MEP-802A Tactical Quiet Generator)

1161-MANT-1275: Perform Preventive Maintenance Checks and Services (PMCS) on a VM405 MAX EL 4,500 BTU/hr Enhanced Refrigeration Unit (ERU)

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

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 TM 10673A-12/2 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review equipment technical manual.
3. Review ERO.
4. Don PPE.
5. Contain (Lockout/Tagout) hazardous energy.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1002

RELATED EVENTS:
1161-ADMN-1010 1161-ADMN-1011 1161-ADMN-1008
1161-ADMN-1007

REFERENCES:
1. TM 10673A-12/2 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- VM405 MAX EL 4,500 BTU/hr Enhanced Refrigeration Unit (ERU) [B1645]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 (normally a 10kW MEP-803A Tactical Quiet Generator)

1161-MANT-1311: Diagnose a 1.5-Ton Environmental Control Unit (ECU) malfunction

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

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 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 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.
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-ADMN-1002	1161-ADMN-1006	1161-ADMN-1018
1161-MANT-1102	1161-MANT-1101	

RELATED EVENTS:

1161-ADMN-1008	1161-MANT-1211	1161-ADMN-1011
1161-ADMN-1010		

REFERENCES:
1. TM 11080A-OI Operation and Maintenance Manual with Repair Parts List for

Air Conditioner, 1.5-Ton, 7,000/14,000 BTU/HR
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Anti-Static Wrist Strap
- Faulty 1.5-Ton Environmental Control Unit (ECU) [B0003] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-1314: Diagnose a 5-Ton Environmental Control Unit (ECU) malfunction

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

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 action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review ERO.
4. Review equipment technical manuals.
5. Don 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.

12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-ADMN-1002	1161-ADMN-1006	1161-ADMN-1018
1161-MANT-1102	1161-MANT-1101	

RELATED EVENTS:

1161-ADMN-1008	1161-MANT-1214	1161-ADMN-1011
1161-ADMN-1010		

REFERENCES:
1. TM 11084A-OI Air Conditioner, 5 Ton, 60,000
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Anti-Static Wrist Strap
- Faulty 5-Ton Environmental Control Unit (ECU) [B0008] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-1315: Diagnose an 8/10-Ton Environmental Control Unit (ECU) malfunction

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

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 action(s) initiated.

PERFORMANCE STEPS:

1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review ERO.
4. Review equipment technical manuals.
5. Don 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 the malfunction is electrical or mechanical.
10. Isolate faulty circuit(s)/component(s).
11. Determine if circuit/component fault was caused by a defect elsewhere.
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-ADMN-1002	1161-ADMN-1006	1161-ADMN-1018
1161-MANT-1102	1161-MANT-1101	

RELATED EVENTS:

1161-ADMN-1008	1161-MANT-1215	1161-ADMN-1011
1161-ADMN-1010		

REFERENCES:

1. TM 11079A/11079B-OI Operation/Maintenance Manual with Repair Parts List for Environmental Control Unit, 120,000 BTU/hr (120K ECU)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Anti-Static Wrist Strap
- Faulty 8/10-Ton Environmental Control Unit (ECU) [B0010] or components

MATERIAL:

- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-1316: Diagnose a 3-Ton Environmental Control Unit (ECU) malfunction

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

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 action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review ERO.
4. Review equipment technical manuals.
5. Don 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.
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-ADMN-1006	1161-MANT-1101	1161-ADMN-1002
1161-ADMN-1018	1161-MANT-1102	

RELATED EVENTS:

1161-ADMN-1008	1161-MANT-1216	1161-ADMN-1011
1161-ADMN-1010		

REFERENCES:
1. TM 11082A-OI Air Conditioner, 3 Ton, 36,000
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Anti-Static Wrist Strap
- Faulty 3-Ton Environmental Control Unit (ECU) [B0014] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-1334: Diagnose a 3/4-Ton Environmental Control Unit (ECU) malfunction

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

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 action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review ERO.
4. Review equipment technical manuals.
5. Don 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.
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-MANT-1101	1161-MANT-1102	1161-ADMN-1018
1161-ADMN-1006	1161-ADMN-1002	

RELATED EVENTS:

1161-ADMN-1008	1161-MANT-1234	1161-ADMN-1011
1161-ADMN-1010		

REFERENCES:
1. TM 11453-OI/1 Operation/Maintenance Manual with Repair Parts List for Environmental Control Unit, 9,000 BTU/HR (9K ECU)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Anti-Static Wrist Strap
- Faulty 3/4-Ton Environmental Control Unit (ECU) [B0074] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-1335: Diagnose a Small Field Refrigeration System (SFRS) malfunction

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 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 FROST BITE HAZARD(S).
3. Review ERO.
4. Review equipment technical manuals.
5. Don 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.
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-MANT-1101	1161-MANT-1102	1161-ADMN-1002
1161-ADMN-1006	1161-ADMN-1018	

RELATED EVENTS:

1161-ADMN-1011	1161-MANT-1235	1161-ADMN-1010
1161-ADMN-1008		

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Faulty Small Field Refrigeration System (SFRS) [B0075] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-1375: Diagnose a VM405 MAX EL 4,500 BTU/HR Enhanced Refrigeration Unit (ERU) malfunction

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 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 FROST BITE HAZARD(S).
3. Review ERO.
4. Review equipment technical manuals.
5. Don 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.
12. Determine echelon(s) of maintenance.
13. Document findings (complete LTI/initiate ERO).
14. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-MANT-1101	1161-MANT-1102	1161-ADMN-1018
1161-ADMN-1006	1161-ADMN-1002	

RELATED EVENTS:

1161-ADMN-1008	1161-MANT-1275	1161-ADMN-1011
1161-ADMN-1010		

REFERENCES:
1. TM 10673A-10/1 Operator's Manual for Enhanced Refrigeration Unit (ERU), VM405 MAX EL
2. TM 10673A-12/2 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL
3. TM 10673A-30P/3 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Faulty VM405 MAX EL 4,500 BTU/HR Enhanced Refrigeration Unit (ERU) ` [B1645] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-1396: Diagnose an Automotive Air Conditioner malfunction

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 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 FROST BITE HAZARD(S).
3. Review ERO.
4. Review equipment technical manuals.
5. Don PPE.
6. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
7. Check switches for correct settings.
8. Determine if malfunction is electrical or mechanical.
9. Isolate faulty circuit(s)/component(s).
10. Determine if circuit/component fault was caused by a defect elsewhere.
11. Determine echelon(s) of maintenance.
12. Document findings (complete LTI/initiate ERO).
13. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1161-MANT-1101	1161-MANT-1102	1161-ADMN-1016
1161-ADMN-1006	1161-ADMN-1002	

RELATED EVENTS:

1161-ADMN-1008	1161-ADMN-1011	1161-ADMN-1010

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Faulty Automotive Air Conditioner

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 609 Technician Certificate.

1161-MANT-1401: Repair an Environmental Control Unit (ECU) mechanical system

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, refrigerant (if needed), tools, forms and references.

STANDARD: So equipment functions/operates as specified in the equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don PPE.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Recover refrigerant (if necessary).
9. Remove faulty part(s).
10. Prepare area(s) for new part(s).
11. Attach new part(s), making necessary adjustments.
12. Vacuum test refrigerant system (if needed).
13. Recharge refrigerant system (if needed).
14. Test repairs.
15. Document repairs.

PREREQUISITE EVENTS:

1161-ADMN-1018	1161-MANT-1103	1161-MANT-1104
1161-MANT-1105	1161-MANT-1107	1161-MANT-1102
1161-MANT-1106		

RELATED EVENTS:

1161-ADMN-1006	1161-ADMN-1008	1161-ADMN-1011
1161-MANT-1211	1161-MANT-1214	1161-MANT-1215
1161-MANT-1403	1161-MANT-1234	1161-MANT-1311
1161-MANT-1314	1161-MANT-1315	1161-MANT-1316
1161-MANT-1334	1161-MANT-1216	

REFERENCES:

1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

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 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 Unit/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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, refrigerant (if needed), tools, forms and references.

STANDARD: So equipment functions/operates as specified in equipment 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don PPE.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Recover refrigerant (if necessary).
9. Remove faulty part(s).
10. Prepare area(s) for new part(s).
11. Attach new part(s), making necessary adjustments.
12. Vacuum test refrigerant system (if needed).
13. Recharge refrigerant system (if needed).
14. Test repairs.
15. Document repairs.

PREREQUISITE EVENTS:

1161-ADMN-1018	1161-MANT-1102	1161-MANT-1103
1161-MANT-1107	1161-MANT-1105	1161-MANT-1106
1161-MANT-1104		

RELATED EVENTS:

1161-ADMN-1006	1161-ADMN-1008	1161-ADMN-1011
1161-MANT-1375	1161-MANT-1404	1161-MANT-1235
1161-MANT-1335	1161-MANT-1275	

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 10673A-10/1 Operator's Manual for Enhanced Refrigeration Unit (ERU), VM405 MAX EL
3. TM 10673A-12/2 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL
4. TM 10673A-30P/3 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. Appropriate Technical Manuals

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 10245 (Equipment Repair Order [ERO])

- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 Environmental Control Unit (ECU) electrical system

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in the equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don PPE.
6. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
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:

1161-MANT-1101	1161-MANT-1108	1161-MANT-1109

RELATED EVENTS:

1161-ADMN-1006	1161-ADMN-1008	1161-ADMN-1011
1161-MANT-1211	1161-MANT-1214	1161-MANT-1215
1161-MANT-1401	1161-MANT-1234	1161-MANT-1311
1161-MANT-1314	1161-MANT-1315	1161-MANT-1316
1161-MANT-1334	1161-MANT-1216	

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

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 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-MANT-1404: Repair a Refrigeration Unit electrical system

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in TM 10673A-10/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Review ERO.
3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don PPE.
6. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
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:

1161-MANT-1101	1161-MANT-1375	1161-MANT-1109
1161-MANT-1108		

RELATED EVENTS:

1161-ADMN-1006	1161-ADMN-1008	1161-MANT-1402
1161-MANT-1275	1161-ADMN-1011	

REFERENCES:

1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 10673A-10/1 Operator's Manual for Enhanced Refrigeration Unit (ERU), VM405 MAX EL
3. TM 10673A-12/2 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL
4. TM 10673A-30P/3 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Degraded/deadlined VM405 MAX EL 4,500 BTU/HR Enhanced Refrigeration
` Unit (ERU) [B1645]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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-MANT-1496: Repair an Automotive Air Conditioner

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded equipment, the degraded equipment, repair parts from ERO layette, refrigerant (if needed), tools, forms and references.

STANDARD: So air conditioner functions/operates as specified in the equipment's technical manual(s) and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:

1. Identify ELECTRIC SHOCK HAZARD(S).
2. Identify FROST BITE HAZARD(S).
3. Review ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don PPE.
7. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
8. Recover refrigerant (if necessary).
9. Remove faulty part(s).
10. Prepare area(s) for new part(s).
11. Attach new part(s), making necessary adjustments.
12. Vacuum test refrigerant system (if needed).
13. Recharge refrigerant system (if needed).
14. Test repairs.
15. Document repairs.

PREREQUISITE EVENTS:

1161-MANT-1108	1161-ADMN-1016	1161-MANT-1101
1161-MANT-1103	1161-MANT-1104	1161-MANT-1396
1161-MANT-1107	1161-MANT-1109	1161-MANT-1102
1161-MANT-1105	1161-MANT-1106	

RELATED EVENTS:

1161-ADMN-1008	1161-ADMN-1006	1161-MANT-1404
1161-MANT-1402	1161-ADMN-1011	

REFERENCES:

1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Vehicle/equipment with degraded air conditioner

MATERIAL:

- Refrigerant (if needed)
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA Section 609 Technician Certificate.

1161-XENG-1611: Set up a 1.5-Ton Environmental Control Unit (ECU)

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: As part of a team, with refrigeration and environmental control support plan and established Course of Action (COA), equipment, and references.

STANDARD: So unit's mission is supported per the commander's intent and ECU is set up in accordance with TM 11080A-OI.

PERFORMANCE STEPS:
1. Review refrigeration and environmental control support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don 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

REFERENCES:
1. TM 11080A-OI Operation and Maintenance Manual with Repair Parts List for Air Conditioner, 1.5-Ton, 7,000/14,000 BTU/HR

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), 1.5-Ton [B0003]

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-1614: Set up a 5-Ton Environmental Control Unit (ECU)

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: As part of a team, with refrigeration and environmental control support plan and established Course of Action (COA), equipment, and references.

STANDARD: So unit's mission is supported per the commander's intent and ECU is set up in accordance with TM 11084A-OI.

PERFORMANCE STEPS:
1. Review refrigeration and environmental control support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don 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

REFERENCES:
1. TM 11084A-OI Air Conditioner, 5 Ton, 60,000

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), 5-Ton [B0008]

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-1615: Set up an 8/10-Ton Environmental Control Unit (ECU)

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: As part of a team, with refrigeration and environmental control support plan and established Course of Action (COA), equipment, and references.

STANDARD: So unit's mission is supported per the commander's intent and ECU is set up in accordance with TM 11079A/11079B-OI.

PERFORMANCE STEPS:
1. Review refrigeration and environmental control support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don 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

REFERENCES:
1. TM 11079A/11079B-OI Operation/Maintenance Manual with Repair Parts List for Environmental Control Unit, 120,000 BTU/hr (120K 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), 8/10-Ton [B0010]

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-1616: Set up a 3-Ton Environmental Control Unit (ECU)

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: As part of a team, with refrigeration and environmental control support plan and established Course of Action (COA), equipment, and references.

STANDARD: So unit's mission is supported per the commander's intent and ECU is set up in accordance with TM 11082A-OI.

PERFORMANCE STEPS:
1. Review refrigeration and environmental control support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don 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

REFERENCES:
1. TM 11082A-OI Air Conditioner, 3 Ton, 36,000

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), 3-Ton [B0014]

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 Environmental Control Unit (ECU)

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

MOS PERFORMING: 1161

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment and references.

STANDARD: Per TM 11453A-OI/1.

PERFORMANCE STEPS:
1. Review references.
2. Don PPE.
3. Install ECU and accessories, connecting power source.
4. Perform before operation checks on ECU.
5. Start ECU.
6. Perform during operation checks on ECU.

PREREQUISITE EVENTS:
1161-ADMN-1001

REFERENCES:
1. TM 11453-OI/1 Operation/Maintenance Manual with Repair Parts List for Environmental Control Unit, 9,000 BTU/HR (9K ECU)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Forklift (with capacity to lift ECU)
- Electric power generation and distribution equipment
- Environmental Control Unit (ECU), 3/4-Ton [B0074]

UNITS/PERSONNEL:
- MOS 1345 (Engineer Equipment Operator) to lift ECU
- MOS 1141 (Electrician) to establish electrical power support

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1161-XENG-1635: Set up a Small Field Refrigeration System (SFRS)

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: As part of a team, with equipment and references.

STANDARD: Per equipment manuals.

PERFORMANCE STEPS:
1. Review references.
2. Don PPE.
3. Prepare site.
4. Set up SFRS and accessories, connecting power source.
5. Camouflage equipment and accessories.
6. Perform before operation checks on SFRS.
7. Start SFRS.
8. Perform during operation checks on SFRS.

PREREQUISITE EVENTS:
1161-ADMN-1001

REFERENCES:
1. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)

- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Forklift (with capacity to lift ERU)
- Electric power generation and distribution equipment
- Small Field Refrigeration System (SFRS) [B0075]

UNITS/PERSONNEL:
- MOS 1345 (Engineer Equipment Operator) to lift SFRS
- MOS 1141 (Electrician) to establish electrical power support

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1161-XENG-1675: Install a VM405 MAX EL 4,500 BTU/HR Enhanced Refrigeration Unit (ERU)

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: As part of a team, with equipment and references.

STANDARD: Per TM 10673A-10/1.

PERFORMANCE STEPS:
1. Review references.
2. Don PPE.
3. Install ERU and accessories, connecting power source.
4. Perform before operation checks on ERU.
5. Start ERU.
6. Perform during operation checks on ERU.

PREREQUISITE EVENTS:
1161-ADMN-1001

REFERENCES:
1. TM 10673A-10/1 Operator's Manual for Enhanced Refrigeration Unit (ERU), VM405 MAX EL
2. TM 10673A-12/2 Organizational and Intermediate Maintenance Instruction Including Repair Parts List for Enhanced Refrigeration Unit (ERU) 4,500 BTU/hr, 50/60Hz, VM405 MAX EL

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Cooling and Refrigeration Expeditionary Kit (CREK) [B0061]
- Forklift (with capacity to lift ERU)
- Electric power generation and distribution equipment
- VM405 MAX EL 4,500 BTU/HR Enhanced Refrigeration Unit (ERU) [B1645]

UNITS/PERSONNEL:
- MOS 1345 (Engineer Equipment Operator) to lift ERU
- MOS 1141 (Electrician) to establish electrical power support

7004. 2000-LEVEL EVENTS

1161-ADMN-2021: Apply safety programs

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With resources and references.

STANDARD: So applicable safety measures and procedures are in place per the references.

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-1002 1161-ADMN-1001

RELATED EVENTS:
1141-ADMN-2021 1171-ADMN-2021 1142-ADMN-2021

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCO 5100.19E Marine Corps Traffic Safety Program (Drivesafe) (Dec 00)
3. MCO 5100.29A Marine Corps Safety Program (Jul 04)
4. MCO 5100.30A Marine Corps Off-Duty and Recreation Safety Program (Oct 01)
5. 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 (Jan 07)
6. MCO 5100.8 Marine Corps Occupational Safety and Health (OSH) Policy Order (May 06)
7. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
8. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
9. UNIT SOP Unit's Standing Operating Procedures
10. Appropriate Technical Manuals

1161-ADMN-2022: Apply environmental regulations

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With references.

STANDARD: So environmental policies and procedures will be adhered to per the references.

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 1171-ADMN-2022 1142-ADMN-2022

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. OPNAVINST 5090.1C Environmental Readiness Program Manual (Oct 07)
5. UNIT SOP Unit's Standing Operating Procedures

1161-ADMN-2023: Conduct Military Occupational Specialty (MOS) training

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained per the references.

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 1141-ADMN-2023 1171-ADMN-2023

REFERENCES:
1. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
2. MCO 1553.4B Professional Military Education (PME) (Jan 08)
3. MCO 3500.26A Universal Naval Task List (UNTL) Version 3.0 (Jan 07)
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
7. OPNAVINST 1560.10C Administration of the United Services Military Apprenticeship Program (USMAP) (Apr 07)
8. SAT MANUAL Systems Approach to Training (SAT) Manual (Jun 04)
9. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: MOS Roadmaps are located at http://www.tecom.usmc.mil/g3/roadmap.htm.

1161-ADMN-2041: Initiate a Product Quality Deficiency Report (PQDR) (SF 368)

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a defective item, blank forms, and references.

STANDARD: So deficiency can be corrected per the references.

PERFORMANCE STEPS:
1. Review references.
2. Verify deficiency requires a PQDR.
3. Determine if deficiency is Category I or Category II.
4. Collect data.
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 1171-ADMN-2041 1142-ADMN-2041

REFERENCES:
1. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

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 www.logcom.usmc.mil/pqdr.

1161-ADMN-2042: Submit a Beneficial Suggestion

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 internet access and Common Access Card (CAC), or OPNAV 5305/1 (Department of the Navy Suggestion Form), and references.

STANDARD: So a suggested improvement to equipment, forms, or Tactics, Techniques, and Procedures (TTP) is documented for decision and action by higher authority per the Marine Corps Military Incentive Awards Program.

PERFORMANCE STEPS:
1. Review references.
2. Identify problem, difficulty or circumstance.
3. Develop suggested change.
4. Determine if benefits are tangible/intangible.
5. Quantify savings if change has tangible benefits.
6. Document suggestion, electronically or in writing by completing OPNAV 5305/1.
7. Identify benefit/savings to Marine Corps/U.S. Government.
8. Forward suggestion per unit's SOP (on line if applicable).
9. Ensure confirmation of receipt.

RELATED EVENTS:
1141-ADMN-2042 1171-ADMN-2042 1142-ADMN-2042

REFERENCES:
1. MCO 1650.17F Marine Corps Military Incentive Award Program
2. OPNAVINST 1650.8D Cash Awards for Military Personnel for Suggestions, Inventions, Scientific Achievements and Disclosures (Apr 07)
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: OPNAV 5305/1 (Department of the Navy Suggestion Form)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP. The website used will be www.logcom.usmc.mil/benesugg.

1161-ADMN-2051: Establish equipment preventive maintenance schedule

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment records, forms and references.

STANDARD: So preventive maintenance is scheduled per the references.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit equipment records.
4. Complete NAVMC 10561.

PREREQUISITE EVENTS:
1161-ADMN-1011

RELATED EVENTS:
1141-ADMN-2051 1171-ADMN-2051 1142-ADMN-2051

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCWP 4-11.4 Maintenance Operations
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UNIT SOP Unit's Standing Operating Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)

1161-ADMN-2061: Maintain Pre-Expended Bin (PEB)

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 commander's pre-expended bin authorization and the references.

STANDARD: So common, low-cost, high usage parts are continuously available for immediate maintenance/repair of equipment per the references.

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 1171-ADMN-2061 1161-ADMN-2061

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1161-ADMN-2062: Maintain Equipment Repair Order (ERO) 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 per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Receive repair parts, annotating EROSL, and placing repair parts in appropriate bin.
3. Take corrective action if repair parts do not match EROSL.
4. Maintain EROSL in appropriate bin, inventorying the bin every 2 weeks.
5. Issue repair parts, when all are received, annotating EROSL and ERO per unit's SOP.

RELATED EVENTS:
1161-ADMN-2061 1141-ADMN-2062 1171-ADMN-2062
1142-ADMN-2062

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With maintenance management reports, supporting documentation, and references.

STANDARD: Insuring accuracy of the reports per the references.

PERFORMANCE STEPS:
1. Monitor daily maintenance reports.
2. Monitor weekly maintenance reports.
3. Monitor readiness reports.

PREREQUISITE EVENTS:
1161-ADMN-1011

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)

5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM 4400-124 FMF SASSY Using Unit Procedures
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
8. UNIT SOP Unit's Standing Operating Procedures

1161-ADMN-2072: Monitor maintenance related programs

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment 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 Replacement Evacuation (R&E) program.
8. Monitor Quality Deficiency (QDR) program.
9. Monitor Recoverable Items (WIR) program.
10. Monitor Quality Control (QC) program.
11. Monitor Corrosion Prevention and Control (CPAC) program.
12. Ensure program and equipment records are maintained.

RELATED EVENTS:

1141-ADMN-2072	1142-ADMN-2072	1169-ADMN-2072
1161-ADMN-2073	1161-ADMN-2041	1161-ADMN-2051
1161-ADMN-2071	1171-ADMN-2072	

REFERENCES:
1. MCO 4400.194 Class VII Stock Rotation Program
2. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
3. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
4. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
5. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
6. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
7. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
10. UNIT SOP Unit's Standing Operating Procedures
11. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: 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: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With repaired equipment, maintenance forms and references.

STANDARD: So equipment repairs and documentation are certified complete.

PERFORMANCE STEPS:
1. Review references.
2. Review Equipment Repair Order (ERO).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS:
1161-ADMN-1008

RELATED EVENTS:

1141-ADMN-2073	1142-ADMN-2073	1171-ADMN-2073
1161-ADMN-1011	1161-ADMN-1009	

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1161-MANT-2212: Perform Preventive Maintenance Checks and Services (PMCS) on a 18,000 BTU 400Hz Vertical Air Conditioner

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 an environmental control unit, personal protective equipment (PPE), tools, power source, forms, equipment records and references.

STANDARD: To ensure maintenance requirements are met per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform the Preventative Maintenance Checks.
3. Perform the Preventative Maintenance Services.
4. Document maintenance performed.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Environmental Control Unit, proper tools.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have required EPA Certification.

1161-MANT-2213: Perform Preventive Maintenance Checks and Services (PMCS) on a 36,000 BTU 400Hz Vertical Air Conditioner

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 an environmental control unit, personal protective equipment (PPE), tools, power source, forms, equipment records and references.

STANDARD: To ensure maintenance requirements are met per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform the Preventative Maintenance Checks.
3. Perform the Preventative Maintenance Services.
4. Document maintenance performed.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Environmental Control Unit, proper tools.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have required EPA Certification.

1161-MANT-2218: Perform Preventive Maintenance Checks and Services (PMCS) on an Integrated Trailer/ECU/Generator (ITEG)

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: As part of a team, with equipment, tools, parts for scheduled services, forms 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 ERO.
6. Don PPE.
7. Contain (Lockout/Tagout) hazardous energy.
8. Inspect equipment.
9. Service equipment.
10. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1161-ADMN-1006 1161-ADMN-1002

RELATED EVENTS:
1161-ADMN-1007 1161-ADMN-1011 1161-ADMN-1010
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. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Integrated Trailer, Environmental Control Unit, Generator (ITEG) [B0018]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Electrician (MOS 1141) is required for PMCS on the generator portion of the ITEG.

1161-MANT-2276: Perform Preventive Maintenance Checks and Services (PMCS) on a 350CUFT Rigid Box Refrigerator

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 personal protective equipment (PPE), tools, forms, equipment records and references.

STANDARD: So maintenance requirements are met per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform the Preventative Maintenance Checks.
3. Perform the Preventative Maintenance Services.
4. Document maintenance performed.

PREREQUISITE EVENTS:
1161-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

1161-MANT-2287: Perform Preventive Maintenance Checks and Services (PMCS) on a Small Remote Air Conditioner Skid Mounting Assembly

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 personal protective equipment (PPE), tools, forms, equipment records and references.

STANDARD: So maintenance requirements are met per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform the Preventative Maintenance Checks.
3. Perform the Preventative Maintenance Services.
4. Document maintenance performed.

PREREQUISITE EVENTS:
1161-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

1161-MANT-2288: Perform Preventive Maintenance Checks and Services (PMCS) on a Large Remote Air Conditioner Skid Mounting Assembly

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 personal protective equipment (PPE), tools, forms, equipment records and references.

STANDARD: So maintenance requirements are met per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform the Preventative Maintenance Checks.
3. Perform the Preventative Maintenance Services.
4. Document maintenance performed.

PREREQUISITE EVENTS:
1161-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

1161-MANT-2312: Diagnose an 18,000 BTU 400Hz Vertical Air Conditioner malfunction

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 an environmental control unit, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: Identify faulty condition per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Determine if the malfunction is electrical or mechanical.
3. Identify the faulty component.
4. Determine if component fault was not caused by a defect elsewhere.
5. Repeat steps 2-4 as required.
6. Record finding and order parts if necessary.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: electrical power source, PPE, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA certification.

1161-MANT-2313: Diagnose a 36,000 BTU 400Hz Vertical Air Conditioner malfunction

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 an environmental control unit, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: Identify faulty condition per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Determine if the malfunction is electrical or mechanical.
3. Identify the faulty component.
4. Determine if component fault was not caused by a defect elsewhere.
5. Repeat steps 2-4 as required.
6. Record finding and order parts if necessary.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: electrical power source, PPE, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA certification.

1161-MANT-2318: Diagnose an Integrated Trailer/ECU/Generator (ITEG) environmental control unit malfunction

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 an environmental control unit, electrical power source, PPE, tools, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references.

STANDARD: Identify faulty condition per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Determine if the malfunction is electrical or mechanical.
3. Identify the faulty component.
4. Determine if component fault was not caused by a defect elsewhere.
5. Repeat steps 2-4 as required.
6. Record finding and order parts if necessary.

REFERENCES:
1. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: electrical power source, PPE, test measurement and diagnostic equipment (TMDE), equipment records, forms, and references

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must have EPA certification.

1161-MANT-2476: Repair a 350CUFT Rigid Box Refrigerator

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 personal protective equipment (PPE), tools, power source, equipment records, forms, repair parts (if needed) and references.

STANDARD: So equipment is returned to an operational condition per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review the diagnosis of the fault.
3. Replace/ adjust/ connect/ service faulty parts (as required).
4. Test the repairs.
5. Document repairs.

PREREQUISITE EVENTS:
1161-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

1161-MANT-2487: Repair a Small Remote Air Conditioner Skid Mounting Assembly

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 personal protective equipment (PPE), tools, power source, equipment records, forms, repair parts (if needed) and references.

STANDARD: So equipment is returned to an operational condition per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review the diagnosis of the fault.
3. Replace/ adjust/ connect/ service faulty parts (as required).
4. Test the repairs.
5. Document repairs.

PREREQUISITE EVENTS:
1161-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

1161-MANT-2488: Repair a Large Remote Air Conditioner Skid Mounting Assembly

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 personal protective equipment (PPE), tools, power source, equipment records, forms, repair parts (if needed) and references.

STANDARD: So the equipment is returned to an operational condition per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review the diagnosis of the fault.
3. Replace/ adjust/ connect/ service faulty parts (as required).
4. Test the repairs.
5. Document repairs.

PREREQUISITE EVENTS:
1161-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

1161-XENG-2571: Design an interior heating, ventilation and air conditioning (HVAC) system for a permanent structure

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With construction plans for a structure and references.

STANDARD: To meet requirements of structure based on local environment and structure's purpose.

PERFORMANCE STEPS:
1. Review the construction plans 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. Determine number of personnel required to safely install system.
9. Establish a Bill of Materials (BOM), including safety items.
10. Establish a Course of Action (COA).

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: 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-2612: Set up an 18,000 BTU 400Hz Vertical Air Conditioner

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: Provided tools, power source and references.

STANDARD: To ensure normal and safe operation in accordance with references.

PERFORMANCE STEPS:
1. Review the references.
2. Connect the ECU to a power source.
3. Perform pre-operation checks.
4. Start the ECU.
5. Perform operation checks.
6. Turn off ECU.

REFERENCES:
1. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Environmental Control Unit, power source.

1161-XENG-2613: Set up a 36,000 BTU 400Hz Vertical Air Conditioner

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: Provided tools, power source and references.

STANDARD: To ensure normal and safe operation in accordance with references.

PERFORMANCE STEPS:
1. Review the references.
2. Connect the ECU to a power source.
3. Perform pre-operation checks.
4. Start the ECU.
5. Perform operation checks.
6. Turn off ECU.

REFERENCES:
1. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Environmental Control Unit, power source.

1161-XENG-2618: Set up an Integrated Trailer/ECU/Generator (ITEG)

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: Provided tools, power source and references.

STANDARD: To ensure normal and safe operation in accordance with references.

PERFORMANCE STEPS:
1. Review the references.
2. Connect the ECU to a power source.
3. Perform pre-operation checks.

4. Start the ECU.
5. Perform operation checks.
6. Turn off ECU.

REFERENCES:
1. TM 11490A-OR Operation Manual with Repair Parts List, Integrated Trailer-ECU-Generator (ITEG)

1161-XENG-2641: Direct air conditioning equipment installation/set up

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a mission, a camp layout, air conditioning equipment, installation crew with tools, and references.

STANDARD: To ensure safe and proper installation per the references.

PERFORMANCE STEPS:
1. Review the mission, camp layout, and the technical manuals for the air conditioning equipment being installed.
2. Brief installation crew, answer questions, make assignments, and discuss safety precautions.
3. Observe the installation process, correct deficiencies, and provide guidance in proper procedures.
4. Ensure that safety rules are observed, correct violations, and identify and correct unsafe situations.
5. Ensure that air conditioning equipment is installed on time.

REFERENCES:
1. Appropriate Technical Manuals

1161-XENG-2642: Direct refrigeration equipment installation

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a mission, a camp layout, refrigeration equipment, installation crew with tools, and reference.

STANDARD: To ensure safe and proper installation per the reference.

PERFORMANCE STEPS:
1. Review the mission, camp layout, and the technical manuals for the refrigeration equipment being installed.
2. Brief installation crew, answer questions, make assignments, and discuss safety precautions.
3. Observe the installation process, correct deficiencies, and provide guidance in proper procedures.
4. Ensure that safety rules are observed, correct violations, and identify and correct unsafe situations.
5. Ensure that refrigeration equipment is installed on time.

REFERENCES:
1. TM 10673A-10/1 Operator's Manual for Enhanced Refrigeration Unit (ERU), VM405 MAX EL
2. TM 10673A-12-2 ERU TM Manual

1161-XENG-2699: Camouflage equipment

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: At a remote site with equipment.

STANDARD: So site detection is avoided by routine enemy surveillance.

PERFORMANCE STEPS:
1. Determine threats.
2. Identify critical equipment.
3. Identify availability of natural cover and concealment.
4. Select camouflage materials and techniques.
5. Install decoys.
6. Space equipment irregularly (in length and depth).
7. Cover equipment with nets and other materials that blend with background.
8. Inspect camouflaging, from different angles, for ease of detection.

REFERENCES:
1. FM 20-3 Camouflage

1161-XENG-2971: Install interior heating, ventilation and air conditioning (HVAC) system in a permanent structure

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure, construction blueprints, tools, a bill of materials (BOM), all materials listed on the BOM, and references.

STANDARD: So structure will have HVAC per the construction blueprints and installation will be completed safely and on time per the references.

PERFORMANCE STEPS:
1. Review the blueprints.
2. Review applicable section(s) of the references.
3. Run ducts.
4. Install HVAC equipment.
5. Run electrical wiring.
6. Charge the system with refrigerant.
7. Test the system.

REFERENCES:
1. Appropriate Technical Manuals

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.

1161-XENG-2972: Install commercial split unit air conditioning system

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure, construction blueprints, tools, a bill of materials (BOM), all materials listed on the BOM, and references.

STANDARD: So structure will have air conditioning per construction blueprints and the installation will be completed safely and on time per the references.

PERFORMANCE STEPS:
1. Review blueprints.
2. Review applicable section(s) of references.
3. Run copper tubing.
4. Install external unit.
5. Install internal unit.
6. Run electrical wiring.
7. Charge system with refrigerant.
8. Test system.

RELATED EVENTS:
1161-XENG-2971

REFERENCES:
1. Appropriate Technical Manuals

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.

1161-XENG-2973: Repair interior heating, ventilation and air conditioning (HVAC) system of a permanent structure

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure, tools, repair parts, and the references.

STANDARD: So HVAC system operates safely to the equipment specifications.

PERFORMANCE STEPS:
1. Review the equipment manuals/specifications.
2. Determine if the malfunction is electrical or mechanical.
3. Identify the faulty component.
4. Determine if component fault was not caused by a defect elsewhere.
5. Repeat steps 2-4 as required.
6. Replace/adjust/connect/service faulty parts (as required).
7. Test the repairs.

REFERENCES:
1. Appropriate Technical Manuals

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.

1161-XENG-2976: Direct interior heating, ventilation and air conditioning (HVAC) system installation

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure, construction blueprints, tools, a bill of materials (BOM), all materials listed on the BOM, and the references.

STANDARD: So HVAC system will be installed in the structure per construction blueprints and the installation will be completed safely and on time per the COA.

PERFORMANCE STEPS:
1. Review the blueprints.
2. Inventory the BOM.
3. Brief installation crew.
4. Direct installation crew.
5. Conduct final inspection of installed HVAC system.

REFERENCES:
1. Appropriate Technical Manuals

1161-XENG-2977: Direct interior heating, ventilation and air conditioning (HVAC) system repairs

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure requiring HVAC system repairs, personnel, tools, materials, and the references.

STANDARD: Ensuring compliance with EPA regulations per the references.

PERFORMANCE STEPS:
1. Examine the HVAC system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Direct repairs.
6. Conduct inspection of repaired HVAC system.

REFERENCES:
1. Appropriate Technical Manuals

1161-XENG-2978: Inspect interior heating, ventilation and air conditioning (HVAC) system of a permanent structure

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

BILLETS: Refrigeration and Air Conditioning Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operational plan, a structure containing a HVAC system, tools, and the references.

STANDARD: So ability of HVAC system to support the structure and mission are determined, safety concerns are addressed, and required repairs/upgrades are identified.

PERFORMANCE STEPS:
1. Review operational plan and references.
2. Find and determine capabilities/serviceability of ducts and vents, recording findings.
3. Find and determine capabilities/serviceability of HVAC system electrical wiring, recording findings.
4. Determine size of structure and BTU/Tons required to condition the air, recording findings.
5. Identify any part of the HVAC system that fails to comply with mission requirements.
6. Analyze findings.
7. List all discrepancies identified, specifying any corrective action(s) required.

REFERENCES:
1. Appropriate Technical Manuals

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.

ENG & UTIL T&R MANUAL

CHAPTER 8

MOS 1169 INDIVIDUAL EVENTS

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CHAPTER 8

MOS 1169 INDIVIDUAL EVENTS

8000. PURPOSE. This chapter includes all individual training events for the Utilities Chief. An individual event is an event that a trained Utilities Chief would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

8001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4 character identifier. The first four digits represent the occupational field or military occupational field (Utilities Chief, or 1169).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2001) of the event. The Utilities Chief individual training events are separated into two levels:

2000 – Core Plus Skills

8002. INDEX OF INDIVIDUAL EVENTS

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8003. 2000-LEVEL EVENTS

1169-ADMN-2001: Supervise Operational Risk Management (ORM)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 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 per the references.

PERFORMANCE STEPS:
1. Review task/mission.
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:

1141-ADMN-1001	1142-ADMN-1001	1120-ADMN-2001
1171-ADMN-1001	1161-ADMN-1001	

REFERENCES:
1. DODI 6055.1 DoD Safety and Occupational Health (SOH) Program (Aug 98)
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
3. MCRP 5-12.1C Risk Management (Feb 01)

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**: 6 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 1171-ADMN-1002 1161-ADMN-1002
1142-ADMN-1002

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. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

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:

CONDITION: Without references.

STANDARD: So danger to personnel is eliminated and victim is cared for per the references.

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	1171-ADMN-1003
1120-ADMN-2003	1161-ADMN-1003	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 3-02G First Aid (Dec 02)
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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:

CONDITION: Without references.

STANDARD: So spill is contained, reported, and cleaned up per the references.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Contain spill.
3. Report spill.
4. Remove uncontaminated material.
5. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1141-ADMN-1004	1171-ADMN-1004
1161-ADMN-1004	1142-ADMN-1004	

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: 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:

CONDITION: Using Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and the reference.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (PPE) (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	1171-ADMN-1005
1161-ADMN-1005	1142-ADMN-1005	

REFERENCES:
1. MCRP 3-02G First Aid (Dec 02)

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL: Material Safety Data Sheet (MSDS) file.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: First aid for chemical ingestion/contact is taught at all basic MOS producing courses in the Occupational Field.

1169-ADMN-2006: Control publications

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

BILLETS: Utilities 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: So required publications are available to maintain section's operational capabilities and readiness per the references.

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:

1141-ADMN-1006	1142-ADMN-1006	1169-ADMN-2012
1171-ADMN-1006	1120-ADMN-2006	1161-ADMN-1006

REFERENCES:
1. MCO 4400.120A Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes (Mar 03)
2. MCO 5215.1K Marine Corps Directives Management Program
3. MCO 5600.20P Marine Corps Doctrinal Publications System (Nov 06)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
6. MCO P5600.31G Marine Corps Publications and Printing Regulations (Sep 93)
7. SECNAV M-5210.2 Standard Subject Identification Code (SSIC) Manual
8. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, is required in order to complete this event.

1169-ADMN-2007: Supervise equipment SL-3/BII inventories

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 1 month

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 the references.

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:

1141-ADMN-1007	1142-ADMN-1007	1120-ADMN-2007
1171-ADMN-1007	1161-ADMN-1007	

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4400-124 FMF SASSY Using Unit Procedures
5. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2012: Validate a Recommended Change to Technical Publications/Logistics-Maintenance Data Coding (NAVMC 10772)

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a completed NAVMC 10772 and the references.

STANDARD: So corrections/improvements to publications are affected per the references.

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:
1169-ADMN-2006 1171-ADMN-1012 1161-ADMN-1012
1142-ADMN-1012 1141-ADMN-1012

REFERENCES:
1. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP. The website used will be https://pubs.logcom.usmc.mil.

1169-ADMN-2021: Enforce safety programs

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With resources and references.

STANDARD: Ensuring applicable safety measures and procedures are in place per the references.

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-2002 1169-ADMN-2001

RELATED EVENTS:
1141-ADMN-2021 1171-ADMN-2021 1161-ADMN-2021
1142-ADMN-2021

REFERENCES:
1. DOD 6055.1 DOD Occupational Safety and Health (OSH) Program
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
3. MCO 5100.19E Marine Corps Traffic Safety Program (Drivesafe) (Dec 00)
4. MCO 5100.29A Marine Corps Safety Program (Jul 04)
5. MCO 5100.30A Marine Corps Off-Duty and Recreation Safety Program (Oct 01)
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 (Jan 07)
7. MCO 5100.8 Marine Corps Occupational Safety and Health (OSH) Policy Order (May 06)
8. MCO 5104.2 Marine Corps Radiofrequency Electromagnetic Field Personnel Protection Program (Apr 95)
9. MCO 5104.3A Marine Corps Radiation Safety Program (Jun 03)
10. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
11. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
12. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
13. OPNAVINST 5100.23G Navy Safety and Occupational Health (SOH) Program Manual (Dec 05)
14. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2022: Enforce environmental regulations

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references.

STANDARD: So environmental policies and procedures are adhered to per the references.

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 1171-ADMN-2022 1161-ADMN-2022
1142-ADMN-2022

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. OPNAVINST 5090.1C Environmental Readiness Program Manual (Oct 07)
5. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2023: Direct Military Occupational Specialty (MOS) training program

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained per the references.

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:
1141-ADMN-2023 1142-ADMN-2023 1120-ADMN-2023
1171-ADMN-2023 1161-ADMN-2023

REFERENCES:
1. DODD 1322.18 Military Training (Sep 04)
2. MCO 1553.1B The Marine Corps Training and Education System
3. MCO 1553.2A Management of Marine Corps Formal Schools and Training Centers
4. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
5. MCO 3500.26A Universal Naval Task List (UNTL) Version 3.0 (Jan 07)
6. MCO P1553.4_ Professional Military Education (PME)

7. MCO P1560.25C Marine Corps Lifelong Learning Program (Dec 99)
8. MCO P3500.72A Marine Corps Ground Training and Readiness (T&R) Program (Apr 05)
9. MCRP 3-0A Unit Training Management Guide
10. MCRP 3-0B How to Conduct Training
11. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
12. OPNAVINST 1560.10C Administration of the United Services Military Apprenticeship Program (USMAP) (Apr 07)
13. SAT MANUAL Systems Approach to Training (SAT) Manual (Jun 04)
14. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: MOS Roadmaps are located at http://www.tecom.usmc.mil/g3/roadmap.htm.

1169-ADMN-2031: Brief utilities safety to end users

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

BILLETS: 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 per the references.

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-2021
1169-ADMN-2003	1169-ADMN-2002	

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. DODI 6055.1 DoD Safety and Occupational Health (SOH) Program (Aug 98)
4. FM 10-52 Water Supply in Theaters of Operation
5. FM 10-52-1 Water Supply Point Equipment and Operations
6. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
7. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
8. MCO 3500.27B Operational Risk Management (ORM) (May 04)
9. MCO 5100.29A Marine Corps Safety Program (Jul 04)
10. MCRP 4-11.1D Field Hygiene and Sanitation
11. MCRP 5-12.1C Risk Management (Feb 01)
12. MCWP 4-11.6 Petroleum and Water Logistics Operations
13. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
14. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
15. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
16. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
17. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
18. TB MED 593 Guidelines for Field Waste Management
19. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
20. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: Sample warning signs.

1169-ADMN-2041: Validate a Product Quality Deficiency Report (PQDR) (SF 368)

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

BILLETS: 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 per the references.

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 1171-ADMN-2041 1161-ADMN-2041
1142-ADMN-2041

REFERENCES:
1. MCO 4400.120A Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes (Mar 03)
2. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
3. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
4. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
5. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
7. UM 4400-124 FMF SASSY Using Unit Procedures
8. UNIT SOP Unit's Standing Operating Procedures
9. Appropriate Technical Manuals

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 www.logcom.usmc.mil/pqdr.

1169-ADMN-2042: Submit a Beneficial Suggestion

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With internet access and Common Access Card (CAC), or OPNAV 5305/1 (Department of the Navy Suggestion Form), and references.

STANDARD: So a suggested improvement to equipment, forms, or Tactics, Techniques, and Procedures (TTP) is documented for decision and action by higher authority per the Marine Corps Military Incentive Awards Program.

PERFORMANCE STEPS:
1. Review references.
2. Identify problem, difficulty or circumstance.

3. Develop suggested change.
4. Determine if benefits are tangible/intangible.
5. Quantify savings if change has tangible benefits.
6. Document suggestion, electronically or in writing by completing OPNAV 5305/1.
7. Identify benefit/savings to Marine Corps/U.S. Government.
8. Forward suggestion per unit's SOP (on line if applicable).
9. Ensure confirmation of receipt.

RELATED EVENTS:

1141-ADMN-2042	1142-ADMN-2042	1120-ADMN-2042
1171-ADMN-2042	1161-ADMN-2042	

REFERENCES:
1. MCO 1650.17F Marine Corps Military Incentive Award Program
2. OPNAVINST 1650.8D Cash Awards for Military Personnel for Suggestions, Inventions, Scientific Achievements and Disclosures (Apr 07)
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: OPNAV 5305/1 (Department of the Navy Suggestion Form)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP. The website used will be www.logcom.usmc.mil/benesugg.

1169-ADMN-2043: Initiate a Universal Need Statement (UNS)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

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.

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.

REFERENCES:
1. CJCSI 3470.01 Rapid Validation and Resourcing of Joint Urgent Operational Needs (JUONS) in the Year of Execution (Jul 05)
2. MCO 3900.15B Marine Corps Expeditionary Force Development System (EFDS)

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: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, maintenance management reports, forms and references.

STANDARD: So equipment will be available to support unit's mission.

PERFORMANCE STEPS:
1. Review references.
2. Audit NAVMC 10561.
3. Audit maintenance management reports.
4. Determine maintenance priorities.
5. Validate support and test equipment assets and requirements.
6. Assign tasks, briefing personnel on PMCS requirements.
7. Ensure PMCS schedule is followed.
8. Ensure PMCS actions are documented.

RELATED EVENTS:

1141-ADMN-2051	1142-ADMN-2051	1120-ADMN-2051
1171-ADMN-2051	1161-ADMN-2051	

REFERENCES:
1. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. MCWP 4-11.4 Maintenance Operations
4. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UNIT SOP Unit's Standing Operating Procedures
7. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)

1169-ADMN-2052: Supervise corrective maintenance

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

BILLETS: 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 the Daily Process Report (DPR) 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

REFERENCES:
1. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. MCWP 4-11.4 Maintenance Operations
4. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UNIT SOP Unit's Standing Operating Procedures
7. Appropriate Technical Manuals

1169-ADMN-2061: Supervise section's supply support

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

BILLETS: 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 field budget requirements.
5. Supervise execution of allocated funding.
6. Determine maintenance requirements.
7. Determine supply requirements.
8. Determine fuel requirements.
9. Supervise shop/section 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 4105.2 Marine Corps Warranty Program (Nov 87)
2. MCO 4340.1_ Reporting of Missing, Lost, Stolen, or Recovered (MLSR) Government Property (Aug 94)
3. MCO 4400.120A Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes (Mar 03)
4. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
5. MCO 4410.9G Assignment of Local Stock Numbers and Criteria for Determining Assignment of National Stock Numbers (Aug 93)
6. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
7. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
8. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
9. MCO 7510.5A Marine Corps Fraud, Waste, and Abuse (FWA) Oversight, Awareness, Prevention, and Remedies (Aug 86)
10. MCO P4050.38C Personal Effects and Baggage Manual (Apr 01)
11. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
12. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
13. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
14. MCO P7100.8K Field Budget Guidance Manual
15. MCO P7300.21 Marine Corps Financial Execution Standard Operating Procedure Manual
16. NAVMC 2664 Financial Guidebook for Commanders
17. SECNAVINST 4355.18A Reporting of Supply Discrepancies (Jan 99)
18. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
19. TM 4795-12/1 Organizational Corrosion Prevention and Control Procedures
20. UM 4400-124 FMF SASSY Using Unit Procedures
21. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
22. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2062: Place new equipment in service

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, Users Logistics Support Summary (ULSS) or Fielding Plan (FP), and references.

STANDARD: So equipment is supported by maintainers and operators per the references.

PERFORMANCE STEPS:
1. Review the equipment's Users Logistics Support Summary (ULSS) or Fielding Plan (FP).
2. Establish a training plan for the new equipment.
3. Determine licensing requirements.

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2063: Validate unit Table of Organization and Equipment (T/O&E)

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

BILLETS: 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 Mission Essential Task List (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. MCO 5311.1C Total Force Structure Process (TFSP) (Jan 99)
2. MCO 5320.12E Precedence Levels for Manning and Staffing (Aug 03)

3. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. UNIT SOP Unit's Standing Operating Procedures
6. UNIT T/O&E Unit's Table of Organization and Equipment
7. Appropriate Technical Manuals

1169-ADMN-2065: Supervise equipment availability

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment records, reports, and references.

STANDARD: To support the mission per the references.

PERFORMANCE STEPS:
1. Identify shortages/excesses.
2. Review readiness.
3. Review priority designator assignments.
4. Review maintenance cycle time.
5. Develop a plan to increase equipment availability.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
5. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
6. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
7. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2071: Validate maintenance management reports

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With maintenance management reports, supporting documentation, and references.

STANDARD: To ensure accurate knowledge of the maintenance situation per the references.

PERFORMANCE STEPS:
1. Validate daily maintenance reports.
2. Validate weekly maintenance reports.
3. Validate readiness reports.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM 4400-124 FMF SASSY Using Unit Procedures
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
8. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2072: Monitor maintenance related programs

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment 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 Joint Oil Analysis Program (JOAP).
8. Monitor Replacement Evacuation (R&E) program.
9. Monitor Quality Deficiency (QDR) program.
10. Monitor Recoverable Items (WIR) program.
11. Monitor Quality Control (QC) program.
12. Monitor Corrosion Prevention and Control (CPAC) program.
13. Ensure program and equipment records are maintained.

RELATED EVENTS:

1169-ADMN-2041	1169-ADMN-2051	1169-ADMN-2052
1169-ADMN-2065	1171-ADMN-2072	1120-ADMN-2072
1141-ADMN-2072	1142-ADMN-2072	1161-ADMN-2072
1169-ADMN-2071		

REFERENCES:
1. MCO 4400.194 Class VII Stock Rotation Program

2. MCO 4731.1A Oil Analysis Program for Ground Equipment (Nov 90)
3. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
4. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
5. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
6. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
7. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
8. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
9. TI-4731-14/1C MC Joint Oil Analysis Program
10. TM 4700-15/1H Ground Equipment Record Procedures
11. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
12. UNIT SOP Unit's Standing Operating Procedures
13. Appropriate Technical Manuals

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: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, records, forms, and references.

STANDARD: So section readiness can be determined per the references.

PERFORMANCE STEPS:
1. Identify records requirements.
2. Manage records.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11_(WRONG TITLE) Marine Corps Ground Equipment Resources Reporting WRONG NOMENCLATURE
3. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
4. MCO 5210.11E Marine Corps Records Management Program (Apr 06)
5. MCO 5213.7C Marine Corps Forms Management Program (May 90)
6. MCO P3000.13 Marine Corps Status of Resources and Training System (SORTS)
7. MCO P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
8. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
9. MCO P4790_1B MIMMS INTRO MANUAL
10. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic

Equipment (TMDE) Calibration and Maintenance Program
11. TM 4700-15/1H Ground Equipment Record Procedures
12. UM 4400-120 Asset Tracking for Logistics Supply System Manual
13. UM 4400-123 FMF SASSY Management Unit Procedures
14. UM 4400-124 FMF SASSY Using Unit Procedures
15. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
16. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2074: Validate Maintenance Shop procedures

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

BILLETS: 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.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. 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: 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: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review the Operation Order, environmental impact report, camp layout, and references.
2. Plan field maintenance.
3. Determine safety/environmental considerations.
4. Establish field maintenance facility.
5. Establish guidelines for field maintenance facility operation.
6. Supervise equipment maintenance.
7. Supervise records maintenance.
8. Recover field maintenance facility.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
4. UNIT SOP Unit's Standing Operating Procedures

1169-ADMN-2081: Monitor equipment embarkation requirements

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment, personnel, unit MAFTF Deployment Support System II (MDSS II)/Marine Air Ground Task Force II (MAFTF II) Logistics Automated Information System (LOGAIS) and/or Joint Operational Planning and Execution System (JOPES) reports, Logistics Automated Marking and Reading Symbols (LOGMARS) labeling support, and references.

STANDARD: To support unit readiness/movement per the references.

PERFORMANCE STEPS:
1. Review the MDSS II, MAFTG II LOGAIS, and/or JOPES reports.
2. Inspect assigned equipment.
3. Identify Remain Behind Equipment (RBE).
4. Identify Leave Behind Equipment (LBE).
5. Determine safety/environmental considerations.
6. Brief personnel.
7. Ensure equipment is marked for transportation/embarkation to include LOGMARS labels.
8. Ensure equipment is disassembled, stowed, packed, and/or prepared for transportation/embarkation.
9. Coordinate with unit embark chief to ensure that discrepancies with MDSS II, MAGTF II LOGAIS, and or JOPES reports are corrected.

REFERENCES:
1. DODD 4500.9 Transportation and Traffic Management
2. FM 101-10-1_ Organizational, Technical and Logistical Data
3. FM 55-15 Transportation Reference Data
4. FM 55-9 Unit Air Movement Planning

5. FMFM 3-1 Command and Staff Action
6. FMFM 4-6 Movement of Units in Air Force Aircraft
7. JOINT PUB 3-02 Joint Doctrine for Amphibious Operations
8. MCO 4610.35 USMC Equipment Characteristics File
9. MCO P4030.19_ Preparing Hazardous Materials for Military Air Shipments
10. MCO P4600.7_ USMC Transportation Manual
11. MCWP 3-31.5 Ship-to-Shore Movement
12. MCWP 4-11.3 Transportation Operations
13. NAVMC/MCO 3000.18 Marine Corps Planner's Manual
14. TM 4700-15/1H Ground Equipment Record Procedures
15. TM 4750-15/2 Painting and Registration Marking for Marine Corps Combat and
16. TM 55-2200-001-12 Application of Blocking, Bracing, and Tie Down Material

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1169-ADMN-2082: Administer equipment operator licensing program

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, supporting documentation, and references.

STANDARD: Ensuring licensed operators are available to operate the unit's equipment per the references.

PERFORMANCE STEPS:
1. Determine licensing requirements.
2. Establish a unit licensing program.
3. Monitor licensing program.

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Examiner's Manual (Jun 83)
4. 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 per the references.

PERFORMANCE STEPS:
1. Determine briefing requirements.
2. Gather briefing materials.
3. Present the information.
4. Answer questions (as required).

REFERENCES:
1. FM 101-5 Staff Organization and Operations
2. MCWP 5-1 Marine Corps Planning Process

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: MOJT

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, commander's intent, and references.

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 generator sites.
11. Develop RFIs on electrical power distribution requirements.
12. Prioritize RFIs.

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. MCO 3500.27B Operational Risk Management (ORM) (May 04)
6. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
7. MCRP 4-11.1D Field Hygiene and Sanitation
8. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
9. MCRP 5-12.1C Risk Management (Feb 01)
10. MCRP 5-2A Operational Terms and Graphics

11. MCWP 3-17 Engineer Operations
12. MCWP 4-11.4 Maintenance Operations
13. MCWP 4-11.6 Petroleum and Water Logistics Operations
14. MCWP 5-1 Marine Corps Planning Process
15. NAVMC DIR 3000.18 Marine Corps Force Deployment Planning and Execution Process Manual
16. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
17. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
18. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
19. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
20. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
21. UNIT T/O&E Unit's Table of Organization and Equipment

1169-XENG-2502: Conduct a utilities site survey

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

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a map, warning order, equipment, personnel, blank forms and references.

STANDARD: So data for planning unit support will be available to generate utilities support plans per the warning order and references.

PERFORMANCE STEPS:
1. Review map, warning order, and references.
2. Brief personnel.
3. Conduct survey.
4. Evaluate site for safety concerns.
5. Evaluate site for environmental concerns.
6. Ensure conditions are evaluated and recorded on Water Reconnaissance Reports (DA 1712R).
7. Evaluate alternate water sources.
8. Evaluate site for camouflage, concealment, and decoys.
9. Evaluate site for Rear Area Security concerns.
10. Develop Site Survey Report.
11. Brief Site Survey to those concerned.
12. Provide input for camp layout.
13. Provide input for engineer portions of operation orders.

PREREQUISITE EVENTS:
1169-XENG-2501

RELATED EVENTS:

1169-XENG-2503	1169-XENG-2521	1169-XENG-2558
1169-XENG-2553	1169-XENG-2555	1169-XENG-2541

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 20-3 Camouflage
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
6. MCRP 3-17B Engineer Forms and Reports
7. MCRP 4-11.1D Field Hygiene and Sanitation
8. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
9. MCRP 5-12.1C Risk Management (Feb 01)
10. MCWP 3-17 Engineer Operations
11. MCWP 3-17.4 Engineer Reconnaissance
12. MCWP 4-11.6 Petroleum and Water Logistics Operations
13. MCWP 5-1 Marine Corps Planning Process
14. NAVMC DIR 3000.18 Marine Corps Force Deployment Planning and Execution Process Manual
15. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
16. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
17. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
18. TB MED 593 Guidelines for Field Waste Management
19. TC 3-34.489 The Soldier and the Environment
20. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
21. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 08)
22. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)

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

1169-XENG-2503: Conduct a contingency operational assessment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With commander's intent, available intelligence reports/surveys and references.

STANDARD: So a comprehensive Operation Order can be developed.

PERFORMANCE STEPS:
1. Review demographics (people, infrastructure, security).
2. Develop Pre-Deployment Site Survey (PDSS) checklist.
3. Assess potable water requirements.
4. Identify water sources.
5. Assess hygiene requirements.
6. Determine electrical power requirements.

RELATED EVENTS:
1169-XENG-2502 1169-XENG-2501

REFERENCES:
1. DODD 2205.2 Humanitarian and Civic Assistance (HCA) Provided in Conjunction with Military Operations (Oct 94)
2. DODD 5100.46 Foreign Disaster Relief (Dec 75)
3. DODI 2205.3 Implementing Procedures for the Humanitarian and Civic Assistance (HCA) Program (Jan 95)
4. FM 10-52 Water Supply in Theaters of Operation
5. FM 10-52-1 Water Supply Point Equipment and Operations
6. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
7. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
8. MCO 3500.27B Operational Risk Management (ORM) (May 04)
9. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
10. MCRP 4-11.1D Field Hygiene and Sanitation
11. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
12. MCRP 5-12.1C Risk Management (Feb 01)
13. MCWP 3-33.1 MAGTF Civil Military Operations
14. MCWP 3-33.4 Domestic Support Operations
15. MCWP 4-11.6 Petroleum and Water Logistics Operations
16. MCWP 5-1 Marine Corps Planning Process
17. NAVMC DIR 3000.18 Marine Corps Force Deployment Planning and Execution Process Manual
18. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
19. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
20. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
21. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

22. TB MED 593 Guidelines for Field Waste Management
23. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
24. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 08)
25. UNIT T/O&E Unit's Table of Organization and Equipment
26. USAID FOG U.S. Agency for International Development (USAID) Field Operations Guide (FOG) for Disaster Assessment and Response - Version 4.0 (Sep 05)

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 1169-ADMN-2001

RELATED EVENTS:
1141-XENG-2521

REFERENCES:
1. FM 20-3 Camouflage
2. FM 5-412 Project Management
3. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
4. MCRP 3-17B Engineer Forms and Reports
5. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.4 Engineer Reconnaissance
8. MCWP 3-35.6 Desert Operations
9. MCWP 3-41.1 Rear Area Operations
10. MCWP 4-11 Tactical Level Logistics
11. MCWP 4-11.5 SeaBee Operations in the MAGTF
12. MCWP 5-1 Marine Corps Planning Process
13. TC 3-34.489 The Soldier and the Environment
14. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 08)
15. Appropriate Technical Manuals

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 the 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-2031	1169-ADMN-2002

RELATED EVENTS:

1120-XENG-2522	1169-XENG-2521	1169-ADMN-2003

REFERENCES:
1. 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
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. MCO 3500.27B Operational Risk Management (ORM) (May 04)
4. MCRP 5-12.1C Risk Management (Feb 01)
5. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
6. TC 11-6 Grounding Techniques (Mar 89)
7. TM 5-690 Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities (Feb 02)
8. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
9. Appropriate Technical Manuals

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/air conditioning 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/air conditioning 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. Determine safety requirements.
3. Determine environmental requirements.
4. Develop camp layout of refrigeration/air conditioning equipment.
5. Design a plan for installation and operation of field refrigeration/air conditioning equipment.
6. Determine logistical/materiel requirements.
7. Analyze plan for changes.
8. Draw plan over camp layout.
9. Brief plan to those concerned.

REFERENCES:
1. FM 5-412 Project Management
2. MCO 10110.34E USMC Food Service and Subsistence Program
3. NAVSUP P-421 Navy Food Service SOP
4. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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 (see Joint Pub 4-03).
25. Brief water support plan (if required).

PREREQUISITE EVENTS:
1169-XENG-2502 1169-ADMN-2001

RELATED EVENTS:
1171-XENG-2553

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 20-3 Camouflage
4. FM 5-412 Project Management
5. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
6. MCRP 3-17B Engineer Forms and Reports
7. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance

10. MCWP 3-35.6 Desert Operations
11. MCWP 3-41.1 Rear Area Operations
12. MCWP 4-11 Tactical Level Logistics
13. MCWP 4-11.5 SeaBee Operations in the MAGTF
14. MCWP 4-11.6 Petroleum and Water Logistics Operations
15. MCWP 5-1 Marine Corps Planning Process
16. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
17. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
18. TC 3-34.489 The Soldier and the Environment
19. Appropriate Technical Manuals

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 1169-ADMN-2001

RELATED EVENTS:
1171-XENG-2555

REFERENCES:
1. FM 20-3 Camouflage
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 5-412 Project Management
4. MCRP 3-17B Engineer Forms and Reports
5. MCRP 4-11.1D Field Hygiene and Sanitation
6. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
7. MCWP 3-17 Engineer Operations
8. MCWP 5-1 Marine Corps Planning Process
9. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
10. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
11. TC 3-34.489 The Soldier and the Environment
12. Appropriate Technical Manuals

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-ADMN-2001 1169-XENG-2555 1169-XENG-2553

RELATED EVENTS:
1171-XENG-2558

REFERENCES:
1. FM 20-3 Camouflage
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 4-25.12 Unit Field Sanitation Team
4. FM 5-412 Project Management
5. MCRP 3-17B Engineer Forms and Reports

6. MCRP 4-11.1D Field Hygiene and Sanitation
7. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
8. MCWP 3-17 Engineer Operations
9. MCWP 5-1 Marine Corps Planning Process
10. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
11. TB MED 593 Guidelines for Field Waste Management
12. TC 3-34.489 The Soldier and the Environment
13. Appropriate Technical Manuals

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 building, a list of electrical fixtures/appliances to be installed, local code requirements, and references.

STANDARD: Per 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-ADMN-2001

RELATED EVENTS:
1169-XENG-2961 1141-XENG-2561 1169-XENG-2962

REFERENCES:
1. FM 5-412 Project Management
2. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
3. FM 5-553 General Drafting
4. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
5. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

MATERIAL: Construction plans.

1169-XENG-2571: Plan an interior heating, ventilation and air conditioning (HVAC) system

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

MOS PERFORMING: 1169

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With construction plans for a building, a list of heating, ventilation and air conditioning criteria for the building, local code requirements, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review construction plans, local code, and the references.
2. Review HVAC criteria.
3. Calculate volume of air to be conditioned.
4. Determine insulation characteristics.
5. Identify tons of air to be conditioned per hour.
6. Determine code requirements.
7. Determine vent and ducting requirements.
8. Plot HVAC system on construction plans.
9. Ensure HVAC system plan conforms to the references and the building's requirements.
10. Determine number of personnel required to install system.
11. Establish a Bill of Materials (BOM), including safety items.
12. Establish a Course of Action (COA).

REFERENCES:
1. FM 5-412 Project Management
2. FM 5-553 General Drafting
3. TM 5-704 Construction Print Reading in the Field
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
5. National Electrical Code

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 building, a list of plumbing fixtures to be installed, local code requirements, and references.

STANDARD: Per 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-ADMN-2001

RELATED EVENTS:
1169-XENG-2987 1171-XENG-2581 1169-XENG-2988

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-412 Project Management
3. FM 5-553 General Drafting
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:

MATERIAL: Construction plans.

1169-XENG-2621: Supervise field electrical power generation/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, camp layout, equipment, personnel, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Manage electrical power generation/distribution system installation.
6. Inspect installed field electrical power generation/distribution system.

REFERENCES:
1. EM 0086 Generator Sets and Power Units (CD-ROM)
2. EM 0158 Power Supplies, Light Sets, and Battery Chargers
3. FM 11-61 Communications-Electronics Fundamentals: Basic Principles, Alternating Current
4. FM 5-422 Engineer Prime Power Operations
5. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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: With a ground test set and references.

STANDARD: To ensure safety of equipment and personnel per the references.

PERFORMANCE STEPS:
1. Review references.
2. Test ground.
3. Take necessary actions to improve ground.

REFERENCES:
1. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1169-XENG-2641: Supervise field refrigeration/air conditioning equipment installation

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: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Manage field refrigeration/air conditioning equipment installation.
6. Inspect installed field refrigeration/air conditioning equipment.
7. Ensure inspection of installed equipment by preventive medicine personnel.

REFERENCES:
1. EM 0148 Heaters, Air Conditioners, and Support Equipment
2. MCO 10110.34E USMC Food Service and Subsistence Program
3. NAVMED P-5010 Navy Sanitation
4. NAVSUP P-421 Navy Food Service SOP
5. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1169-XENG-2652: 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 equipment and references.

STANDARD: To ensure only potable water is consumed by the unit per the references.

PERFORMANCE STEPS:
1. Review references.

2. Test water.
3. Take necessary actions to improve product water quality.

REFERENCES:
1. FM 10-52-1 Water Supply Point Equipment and Operations
2. MCWP 4-11.6 Petroleum and Water Logistics Operations
3. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
4. 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)

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, completed Water Reconnaissance Reports (DA-1712R), camp layout, equipment, personnel, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Manage field water purification/storage/distribution system installation.
6. Inspect installed field water purification/storage/distribution system.
7. Ensure inspection of installed system by preventive medicine personnel.

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. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1169-XENG-2655: Supervise field hygiene equipment installation

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: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Manage field hygiene equipment installation.
6. Inspect installed field hygiene equipment.
7. Ensure inspection of installed equipment by preventive medicine personnel.

REFERENCES:
1. EM 0127 Laundry, Bath, and Hygiene Equipment
2. FM 21-10 Field Hygiene and Sanitation
3. FM 21-10-1 Unit Field Sanitation
4. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
5. FM 5-163 Sewerage
6. NAVMED P-5010 Navy Sanitation
7. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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, environmental impact report, area map, camp layout, equipment, personnel, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Manage installation of sanitation system components.
6. Inspect installed sanitation system.
7. Ensure inspection of installed system by preventive medicine personnel.

REFERENCES:
1. EM 0127 Laundry, Bath, and Hygiene Equipment
2. FM 21-10 Field Hygiene and Sanitation
3. FM 21-10-1 Unit Field Sanitation

4. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
5. FM 5-163 Sewerage
6. NAVMED P-5010 Navy Sanitation

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: To support unit mission per the references.

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 dummy loads.
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.

REFERENCES:
1. EM 0086 Generator Sets and Power Units (CD-ROM)
2. EM 0158 Power Supplies, Light Sets, and Battery Chargers
3. FM 11-61 Communications-Electronics Fundamentals: Basic Principles, Alternating Current
4. FM 5-422 Engineer Prime Power Operations
5. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
6. TM 4700-15/1H Ground Equipment Record Procedures
7. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
8. UNIT SOP Unit's Standing Operating Procedures

1169-XENG-2741: Supervise field refrigeration/air conditioning 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/air conditioning equipment, operators, and references.

STANDARD: To support unit mission per the reference.

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 operator schedule.
6. Brief personnel.
7. Monitor operation of air conditioning equipment.
8. Monitor operation of ice cream plants.
9. Monitor operation of ice making machines.
10. Monitor operation of refrigeration units.
11. Manage refrigeration/air conditioning equipment operator maintenance.
12. Ensure records/reports are updated/completed.

REFERENCES:
1. EM 0148 Heaters, Air Conditioners, and Support Equipment
2. MCO 10110.34E USMC Food Service and Subsistence Program
3. NAVMED P-5010 Navy Sanitation
4. NAVSUP P-421 Navy Food Service SOP
5. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
6. TM 4700-15/1H Ground Equipment Record Procedures
7. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
8. UNIT SOP Unit's Standing Operating Procedures

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, completed Water Reconnaissance Reports (DA-1712R), camp layout, water purification/storage/distribution system, operators, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order, Water Reconnaissance Reports, 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/storage/distribution system.
8. Monitor operation of water purification equipment.
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 operation of mobile water chillers.
13. Monitor use of collapsible tanks and bladders.
14. Ensure water quantity and quality meet requirements.
15. Ensure all water production reports and logs are completed and submitted.
16. Manage water purification/storage/distribution equipment operator maintenance.
17. Ensure records/reports are updated/completed.

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
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

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: To support unit mission per the references.

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 bare base laundry facilities.
8. Monitor operation of bare base 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.

REFERENCES:
1. EM 0127 Laundry, Bath, and Hygiene Equipment
2. FM 21-10 Field Hygiene and Sanitation
3. FM 21-10-1 Unit Field Sanitation
4. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
5. FM 5-163 Sewerage
6. NAVMED P-5010 Navy Sanitation
7. TM 4700-15/1H Ground Equipment Record Procedures
8. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
9. UNIT SOP Unit's Standing Operating Procedures

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: To support unit mission per the references.

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.

REFERENCES:
1. EM 0127 Laundry, Bath, and Hygiene Equipment
2. FM 21-10 Field Hygiene and Sanitation
3. FM 21-10-1 Unit Field Sanitation
4. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
5. FM 5-163 Sewerage
6. NAVMED P-5010 Navy Sanitation
7. UNIT SOP Unit's Standing Operating Procedures

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: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect installed field electrical power generation/distribution system.
5. Brief recovery crew.
6. Ensure electrical power generation/distribution system recovery.

REFERENCES:
1. EM 0086 Generator Sets and Power Units (CD-ROM)
2. EM 0158 Power Supplies, Light Sets, and Battery Chargers
3. FM 11-61 Communications-Electronics Fundamentals: Basic Principles, Alternating Current
4. FM 5-422 Engineer Prime Power Operations
5. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1169-XENG-2841: Supervise field refrigeration/air conditioning 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: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.

4. Inspect installed field refrigeration/air conditioning equipment.
5. Brief recovery crew.
6. Ensure field refrigeration/air conditioning equipment recovery.

REFERENCES:
1. EM 0148 Heaters, Air Conditioners, and Support Equipment
2. MCO 10110.34E USMC Food Service and Subsistence Program
3. NAVMED P-5010 Navy Sanitation
4. NAVSUP P-421 Navy Food Service SOP
5. TM 4120-15/1D Principal Technical Characteristics of US Marine Corps Military Standard Air Conditioners (Environmental Control Units (ECU)) with Supplemental Logistics Data (Jul 97)
6. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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, completed Water Reconnaissance Reports (DA-1712R), camp layout, equipment, personnel, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect installed field water purification/storage/distribution system.
5. Brief recovery crew.
6. Ensure field water purification/storage/distribution system recovery.

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

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: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect installed field hygiene equipment.
5. Brief recovery crew.
6. Ensure field hygiene equipment recovery.

REFERENCES:
1. EM 0127 Laundry, Bath, and Hygiene Equipment
2. FM 21-10 Field Hygiene and Sanitation
3. FM 21-10-1 Unit Field Sanitation
4. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
5. FM 5-163 Sewerage
6. NAVMED P-5010 Navy Sanitation
7. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review Operation Order, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect sanitation system.
5. Brief recovery/closure crew.
6. Ensure sanitation system recovery/closure.
7. Ensure marking of closed sanitation system.
8. Inspect closed/marked sanitation system.
9. Ensure inspection of closed/marked system by preventive medicine personnel.
10. Ensure closed latrine sites are recorded on area map.
11. Forward marked map to those concerned.

REFERENCES:
1. EM 0127 Laundry, Bath, and Hygiene Equipment

2. FM 21-10 Field Hygiene and Sanitation
3. FM 21-10-1 Unit Field Sanitation
4. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
5. FM 5-163 Sewerage
6. NAVMED P-5010 Navy Sanitation

1169-XENG-2961: 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: With a structure, blueprints, electrical plan, personnel, tools, bill of material, materials, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review blueprints, electrical plan, and bill of material.
2. Determine safety/code requirements.
3. Inventory bill of material.
4. Brief installation crew.
5. Manage installation crew.
6. Conduct final inspection of installed wiring system.

REFERENCES:
1. FM 5-553 General Drafting
2. TM 5-704 Construction Print Reading in the Field
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. National Electrical Code

1169-XENG-2962: Supervise interior electrical wiring system repairs

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

MOS PERFORMING: 1169

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure requiring interior electrical wiring system repairs, personnel, tools, materials, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Examine interior electrical wiring system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Manage repairs.
6. Conduct inspection of repaired wiring system.

REFERENCES:
1. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
2. National Electrical Code

1169-XENG-2971: Supervise interior heating, ventilation and air conditioning (HVAC) system installation

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

MOS PERFORMING: 1169

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure, blueprints, HVAC plan, personnel, tools, bill of material, materials, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review blueprints, HVAC plan, and bill of material.
2. Determine safety/code requirements.
3. Inventory bill of material.
4. Brief installation crew.
5. Manage installation crew.
6. Conduct final inspection of installed HVAC system.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-553 General Drafting
3. TM 5-704 Construction Print Reading in the Field
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1169-XENG-2972: Supervise interior heating, ventilation and air conditioning (HVAC) system repairs

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

MOS PERFORMING: 1169

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure requiring HVAC system repairs, personnel, tools, materials, and the references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Examine HVAC system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Manage repairs.
6. Conduct inspection of repaired HVAC system.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

1169-XENG-2987: Supervise interior plumbing system installation

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

MOS PERFORMING: 1169

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure, blueprints, plumbing plan, personnel, tools, bill of material, materials, and references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Review blueprints, plumbing plan, and bill of material.
2. Determine safety/code requirements.
3. Inventory bill of material.
4. Brief installation crew.
5. Manage installation crew.
6. Conduct final inspection of installed plumbing system.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-163 Sewerage

3. FM 5-553 General Drafting
4. TM 5-704 Construction Print Reading in the Field
5. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
6. National Plumbing Code

1169-XENG-2988: Supervise interior plumbing system repairs

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

MOS PERFORMING: 1169

BILLETS: Utilities Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With a structure requiring interior plumbing system repairs, personnel, tools, materials, and the references.

STANDARD: To support unit mission per the references.

PERFORMANCE STEPS:
1. Examine plumbing system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Manage repairs.
6. Conduct inspection of repaired plumbing system.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-163 Sewerage
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. National Plumbing Code

ENG & UTIL T&R MANUAL

CHAPTER 9

MOS 1171 INDIVIDUAL EVENTS

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CHAPTER 9

MOS 1171 INDIVIDUAL EVENTS

9000. PURPOSE. This chapter includes all individual training events for the Water Support Technician. An individual event is an event that a trained Water Support Technician would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

9001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4 character identifier. The first four characters represent the MOS (1171).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Water Support Technician individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

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9003. 1000-LEVEL EVENTS

1171-ADMN-1001: Conduct an Operational Risk Assessment (ORA)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 6 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 per the references.

PERFORMANCE STEPS:
1. Review task/mission.
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 1141-ADMN-1001 1161-ADMN-1001

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCRP 5-12.1C Risk Management (Feb 01)

SUPPORT REQUIREMENTS:

MATERIAL: Risk Management Worksheet.

1171-ADMN-1002: Control (Lockout/Tagout) hazardous energy

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment, equipment manuals, PPE, 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. Shut down equipment/turn off circuit.
6. Dissipate or restrain any stored energy.
7. Apply Lockout/Tagout devices.
8. Verify energy is isolated/dissipated (test circuit).
9. Effect required service, maintenance, repairs or modifications to equipment/circuit.
10. Remove Lockout/Tagout devices.
11. Restore equipment/circuit to normal operation.
12. Return Lockout/Tagout devices to program coordinator.

RELATED EVENTS:
1141-ADMN-1002 1161-ADMN-1002 1142-ADMN-1002

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. UNIT SOP Unit's Standing Operating Procedures
3. Appropriate Technical Manuals

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: Without references.

STANDARD: So danger to personnel is eliminated and victim is cared for per the references.

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	1169-ADMN-2003
1120-ADMN-2003	1161-ADMN-1003	

REFERENCES:
1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. MCRP 3-02G First Aid (Dec 02)
3. TM 2000-15/4 Power System Reference Manual (Jul 68)
4. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)

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: Without references.

STANDARD: So the spill is contained, reported, and cleaned up.

PERFORMANCE STEPS:
1. Evacuate immediate area (if necessary).
2. Contain spill.
3. Report spill.
4. Remove uncontaminated material.
5. Dispose of hazardous material.

RELATED EVENTS:

1120-ADMN-2004	1141-ADMN-1004	1169-ADMN-2004
1161-ADMN-1004	1142-ADMN-1004	

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)

3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. UNIT SOP Unit's Standing Operating Procedures

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: Using Material Safety Data Sheets (MSDS).

STANDARD: So effect of the chemical is mitigated and victim is cared for per the MSDS and the reference.

PERFORMANCE STEPS:
1. Protect yourself and other personnel.
2. Send for help.
3. Review Material Safety Data Sheet (MSDS).
4. Provide for personal protection (PPE) (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	1169-ADMN-2005
1161-ADMN-1005	1142-ADMN-1005	

REFERENCES:
1. MCRP 3-02G First Aid (Dec 02)

SUPPORT REQUIREMENTS:

EQUIPMENT: Personal Protective Equipment (PPE).

MATERIAL: Material Safety Data Sheet (MSDS) file.

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 information will be available for accurate completion of work.

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 1142-ADMN-1006

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
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 0416 - 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:** 6 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 the references.

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 1161-ADMN-1007 1142-ADMN-1007

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

1171-ADMN-1008: Conduct a Limited Technical Inspection (LTI)

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 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 (PPE) (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-1007 1171-ADMN-1006

RELATED EVENTS:
1141-ADMN-1008 1161-ADMN-1008 1142-ADMN-1008

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCRP 4-11.4A Battle Damage Assessment and Repair
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UNIT SOP Unit's Standing Operating Procedures
5. Appropriate Technical Manuals

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])

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 per the references.

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).

RELATED EVENTS:
1141-ADMN-1009 1161-ADMN-1009 1142-ADMN-1009

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL:
- NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service
` Record)

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 forms, a list of required parts/components, required unit unique data, equipment technical manuals, and references.

STANDARD: So valid requisitions will be created per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review equipment technical manuals and/or stock lists.
3. Complete NAVMC 10925 header information.
4. Annotate repair part/component information on the NAVMC 10925.
5. Submit NAVMC 10925 for input.
6. Follow up/reconcile requisitions (as needed/required).

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1141-ADMN-1010 1171-ADMN-1011 1161-ADMN-1010
1142-ADMN-1010

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
4. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per the Unit SOP.

1171-ADMN-1011: Document equipment service/repair history

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With forms and references.

STANDARD: So Equipment Repair Order (NAVMC 10245) is complete with descriptive data and service/repair actions for equipment indicated per the references.

PERFORMANCE STEPS:
1. Review references.

2. Fill out equipment descriptive data on NAVMC 10245.
3. Annotate NAVMC 10245 with service/repair actions taken.
4. Submit NAVMC 10245 for input.

RELATED EVENTS:

1171-ADMN-1006	1171-ADMN-1008	1171-ADMN-1009
1161-ADMN-1011	1141-ADMN-1011	1142-ADMN-1011
1171-ADMN-1010		

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10245 (Equipment Repair Order [ERO])

1171-ADMN-1012: Initiate a Recommended Change to Technical Publications/Logistics-Maintenance Data Coding (NAVMC 10772)

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

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 the references.

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 per unit's SOP.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:

1141-ADMN-1012	1161-ADMN-1012	1142-ADMN-1012

REFERENCES:
1. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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 used will be https://pubs.logcom.usmc.mil.

1171-MANT-1231: Perform Preventive Maintenance Checks and Services (PMCS) on 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: As part of a team, with equipment, 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 ERO.
5. Don 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-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1011 1171-ADMN-1010
1171-ADMN-1008

REFERENCES:
1. SL-3-10006A Components List for Bath Shower Unit, Expedition
2. 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
3. TM 10006A-14&P/1 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Shower Facility, Bare Base [B0055]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1232: Perform Preventive Maintenance Checks and Services (PMCS) on a Containerized Batch Laundry (CBL) Unit

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment, tools, parts 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 ERO.
5. Don 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-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

REFERENCES:
1. FP 11413A Fielding Plan for Containerized Batch Laundry (CBL) Unit
2. SI 11413A Warranty Procedures for the Containerized Batch Laundry

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 4700-15/1H Ground Equipment Record Procedures (Jul 95)
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)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Containerized Batch Laundry (CBL) Unit [B0066]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1241: Perform Preventive Maintenance Checks and Services (PMCS) on 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: As part of a team, with equipment, 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 ERO.
3. Don PPE.
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1011 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1007

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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 500 Gallon Capacity Collapsible Fabric Potable Water Drum [B0571]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-1248: Perform Preventive Maintenance Checks and Services (PMCS) on a Forward Area Water Point Supply System (FAWPSS)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment, 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 ERO.
3. Don PPE.
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Forward Area Water Point Supply System (FAWPSS) [B0676]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1271: Perform Preventive Maintenance Checks and Services (PMCS) on 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 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 ERO.
5. Don PPE.

6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1011 1171-ADMN-1010
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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Hypochlorination Unit [B1140]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1272: Perform Preventive Maintenance Checks and Services (PMCS) on 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 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 ERO.
5. Don PPE.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

REFERENCES:
1. SL-4-08922C Pump Unit 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 4700-15/1H Ground Equipment Record Procedures (Jul 95)
8. ULSS 004283-15 User's Logistics Support Summary for Water Pump and Storage Tank Modules

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 125/150 GPM Water Pump (Hatz) [B1581]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1274: Perform Preventive Maintenance Checks and Services (PMCS) on 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 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 ERO.
5. Don PPE.
6. Inspect equipment.
7. Service equipment.
8. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1011 1171-ADMN-1010
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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 125 GPM Water Pump (Yanmar) [B1620]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])

- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1277: Perform Preventive Maintenance Checks and Services (PMCS) on 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 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 ERO.
3. Don PPE.
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

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 4700-15/1H Ground Equipment Record Procedures (Jul 95)
8. ULSS 004283-15 User's Logistics Support Summary for Water Pump and Storage Tank Modules

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- SIXCON Water Tank Module [B2086]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-1278: Perform Preventive Maintenance Checks and Services (PMCS) on 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: As part of a team, with equipment, 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 ERO.
3. Don PPE.
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1011 1171-ADMN-1010
1171-ADMN-1008

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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 3,000 Gallon Capacity Collapsible Fabric Water Tank [B2130]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-1279: Perform Preventive Maintenance Checks and Services (PMCS) on 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 equipment, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 10-4320-344-10 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 ERO.
5. Don 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-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

REFERENCES:
1. FP 11222A/11223A Fielding Plan for 600 Gallon per Minute (GPM) Fuel and Water Pump Assembly
2. SI 11222/11223A-OI/1 Warranty Procedures for the 600 GPM Fuel and Water Pump Assembly

3. SL-3-86702D Components List for Pump, Centrifugal, Trailer Mounted, 600 GPM
4. SL-4-86702 Repair Parts for Pump, Centrifugal, 600 GPM
5. TM 10-4320-344-10 Operator's Manual for Pumping Assembly, Water, 600 GPM
6. TM 10-4320-344-24 Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Water, 600 GPM
7. TM 10-4320-344-24P-1 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
8. TM 10-4320-344-24P-2 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
9. TM 10-4320-344-24P-3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
10. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 600 GPM Water Pump [B2394]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1280: Perform Preventive Maintenance Checks and Services (PMCS) on a Tactical Water Distribution System (TWDS)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment, 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 ERO.
3. Don 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-1002	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1007	1171-ADMN-1008	1171-ADMN-1010
1171-ADMN-1011	1171-MANT-1271	1171-MANT-2273
1171-MANT-1274	1171-MANT-1278	1171-MANT-1279
1171-MANT-1284	1171-MANT-1285	1171-MANT-1272

REFERENCES:

1. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
2. LO 5-4320-226-12 Lubrication Order for Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 FT Head
3. SL-3-09481A Components List for Connection Set, Hose
4. SL-3-09483A Components List for Connection Kit, Hose Nozzle
5. SL-3-09484A Components List for Connection Kit, 125 GPM Pump
6. SL-3-09495A Components List for Connection Kit, Tank
7. SL-3-09496A Components List for Kit, Spare Parts, Tank
8. SL-3-09536A Components List for Distribution Point
9. SL-3-09537A Components List for Connection Kit, Bag
10. SL-3-09538A Components List for Storage Assembly
11. SL-3-09539A Components List for Pumping Station
12. SL-3-09563A Components List for Interconnection Kit
13. SL-3-09564A Components List for Connection Kit, 350 GPM Pump
14. SL-3-09721A Components List for Connection Set, Hose
15. SL-3-09854A Components List for 10 Mile Segment Kit
16. SL-3-10761A Tank, Fabric, Collapsible w/Chest, Fuel, 50,000 Gallon Capacity
17. SL-4-06999A Repair Parts List for Tank Assembly, Fabric, Collapsible: 20,000 Gallon Capacity
18. SL-4-08922C Pump Unit 125 GPM
19. 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
20. 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
21. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
22. TM 09476B-23P/2 Unit and Direct Support Maintenance Repair Parts and Special Tools List for Hypochlorination Unit
23. TM 10-4320-226-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
24. TM 10-4320-226-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
25. TM 10-4320-303-13 Operator's, Unit and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System (TWDS) Set, 10-Mile Segment
26. TM 10-4320-317-13 Operator's, Unit, and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System, 10 Mile Segment
27. TM 10-4320-324-14 Operator's, Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Flammable Liquid, Bulk Transfer

(Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
28. TM 10-4320-324-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
29. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
30. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
31. 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
32. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water
33. ULSS 004283-15 User's Logistics Support Summary for Water Pump and Storage Tank Modules

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Tactical Water Distribution System (TWDS) [B2395]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1282: Perform Preventive Maintenance Checks and Services (PMCS) on a 1,500 GPH Tactical Water Purification System (TWPS)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment, 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 ERO.
8. Don 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-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1011 1171-ADMN-1010
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. 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 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 1,500 GPH Tactical Water Purification System (TWPS) [B2605]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1283: Perform Preventive Maintenance Checks and Services (PMCS) on a 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System (3000 LMT)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with equipment, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 09777A-14/1 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 ERO.
6. Don PPE.
7. Inspect equipment.
8. Service equipment.
9. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

REFERENCES:
1. TM 09777A-14/1 Operation and Maintenance Instructions for the Water Purification System, Model 3000LMT
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System (3000 ` LMT) [B2628]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical ` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-1284: Perform Preventive Maintenance Checks and Services (PMCS) on 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: As part of a team, with equipment, 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 ERO.
3. Don PPE.
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1011 1171-ADMN-1010
1171-ADMN-1008

REFERENCES:
1. SL-3-10761A Tank, Fabric, Collapsible w/Chest, Fuel, 50,000 Gallon Capacity
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
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)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 50,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2631]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-1285: Perform Preventive Maintenance Checks and Services (PMCS) on 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: As part of a team, with equipment, 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 ERO.
3. Don PPE.
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

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 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 20,000 Gallon Capacity Collapsible Fabric Potable Water Tank [B2632]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 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/initiate ERO).
13. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1010 1171-MANT-1231 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. 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
2. TM 10006A-14&P/1 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
3. TM 10006A-14&P/1 USMC Supplement 1 U.S. Marine Corps Supplement to Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Shower Facility, Bare Base [B0055] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])

- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/280VAC 60Hz electrical power source (normally a 10kW MEP-803A Tactical Quiet 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 Containerized Batch Laundry (CBL) 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, 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 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/initiate ERO).
13. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-1232 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Containerized Batch Laundry (CBL) Unit [B0066] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 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-1348: Diagnose a Forward Area Water Point Supply System (FAWPSS) 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 action(s) initiated.

PERFORMANCE STEPS:
1. Review LTI.
2. Review equipment technical manuals.
3. Don 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/initiate ERO).
9. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-1248 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. 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)
2. 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
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Forward Area Water Point Supply System (FAWPSS) [B0676] or
` components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 action(s) initiated.

PERFORMANCE STEPS:
1. Identify HYPOCHLORITE HAZARD(S).
2. Identify CHEMICAL BURN HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don 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/initiate ERO).
11. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-1271 1171-ADMN-1011
1171-ADMN-1010

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 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Hypochlorination Unit [B1140] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 action(s) 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 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/initiate ERO).
11. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-1272 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. SL-4-08922C Pump Unit 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 10209-10/1 Use and Care of Hand Tools and Measuring Tools
7. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 125/150 GPM Water Pump (Hatz) [B1581] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 action(s) 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 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/initiate ERO).
11. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-1274 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. 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
2. 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
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. 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
5. 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
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 125 GPM Water Pump (Yanmar) [B1620]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 action(s) 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 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/initiate ERO).
12. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-1279 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. SL-4-86702 Repair Parts for Pump, Centrifugal, 600 GPM
2. TM 10-4320-344-10 Operator's Manual for Pumping Assembly, Water, 600 GPM

3. TM 10-4320-344-24 Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Water, 600 GPM
4. TM 10-4320-344-24P-1 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
5. TM 10-4320-344-24P-2 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
6. TM 10-4320-344-24P-3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
7. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 600 GPM Water Pump [B2394] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 1,500 GPH Tactical Water Purification System (TWPS) malfunction

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, 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.
8. Don 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/initiate ERO).
16. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1171-ADMN-1006 1171-ADMN-1002

RELATED EVENTS:

1171-ADMN-1008 1171-MANT-1282 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:

1. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
2. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
5. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
6. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
7. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
8. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 1,500 GPH Tactical Water Purification System (TWPS) [B2605] or ` components

MATERIAL:

- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical ` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 416VAC 60Hz 3-Phase electrical power source (normally a 60kW MEP-806A or MEP-806B Tactical Quiet 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-1383: Diagnose a 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System (3000 LMT) 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 action(s) 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 PPE.
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/initiate ERO).
12. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-1283 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. TM 09777A-14/1 Operation and Maintenance Instructions for the Water Purification System, Model 3000LMT
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)

- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System
` (3000 LMT) [B2628] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, a 120/208VAC 60Hz electrical power source, repair parts from ERO 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don 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-1002 1171-MANT-1331

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1231 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. 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

2. TM 10006A-14&P/1 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
3. TM 10006A-14&P/1 USMC Supplement 1 U.S. Marine Corps Supplement to Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined Shower Facility, Bare Base [B0055]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 MEP-803A Tactical Quiet Generator)

1171-MANT-1432: Repair a Containerized Batch Laundry (CBL) Unit

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, a 120/208VAC 60Hz electrical power source, repair parts from ERO 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don 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-MANT-1332 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1006 1171-MANT-1232
1171-ADMN-1011

REFERENCES:
1. TM 10-4630-206-12&P Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Sewage Ejection Pump (SEP)
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 11413A-OI/1 Operator/Maintenance Manual Instructions with Repair Parts and Special Tools List (RPSTL) for Containerized Batch Laundry
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined Containerized Batch Laundry (CBL) Unit [B0066]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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)

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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don 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-MANT-1241

RELATED EVENTS:
1171-ADMN-1006 1171-ADMN-1011 1171-ADMN-1008

REFERENCES:
1. 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
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 500 Gallon Capacity Collapsible Fabric Potable Water ` Drum [B0571]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical ` Inspection for Engineer Equipment [LTI])

1171-MANT-1448: Repair a Forward Area Water Point Supply System (FAWPSS)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don 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-MANT-1348

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1248 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. 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)
2. 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
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined Forward Area Water Point Supply System (FAWPSS) [B0676]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment [LTI])

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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don 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-MANT-1371

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1271 1171-ADMN-1011
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 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined Hypochlorination Unit [B1140]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don 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-MANT-1372

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1272 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. SL-4-08922C Pump Unit 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 10209-10/1 Use and Care of Hand Tools and Measuring Tools
7. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 125/150 GPM Water Pump (Hatz) [B1581]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don 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-MANT-1374

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1274 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. 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
2. 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
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. 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
5. 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
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 125 GPM Water Pump (Yanmar) [B1620]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don 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-MANT-1277

RELATED EVENTS:
1171-ADMN-1006 1171-ADMN-1011 1171-ADMN-1008

REFERENCES:
1. SL-4-08990A Repair Parts List for Tank, Water Module
2. TI 08990A-OD/1 Depot Level Repair and/or Rebuild of the Water Tank Module, SIXCON
3. TM 09032A-14/1 Operation and Maintenance Instructions with Illustrated Parts List for SIXCON Shipping Frame
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 10209-10/1 Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined SIXCON Water Tank Module [B2086]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 PPE.
3. Prepare area(s) for patch/plug.
4. Attach patch/plug.
5. Test repairs.

PREREQUISITE EVENTS:
1171-MANT-1278

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1006

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 10209-10/1 Use and Care of Hand Tools and Measuring Tools

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in TM 10-4320-344-10 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don 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-MANT-1379 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1279 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. SL-4-86702 Repair Parts for Pump, Centrifugal, 600 GPM
2. TM 10-4320-344-24 Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Water, 600 GPM
3. TM 10-4320-344-24P-1 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
4. TM 10-4320-344-24P-2 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
5. TM 10-4320-344-24P-3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Water, 600 GPM
6. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
7. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 600 GPM Water Pump [B2394]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-1482: Repair a 1,500 GPH Tactical Water Purification System (TWPS)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, a 416VAC 60Hz 3-Phase electrical power source, repair parts from ERO 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 ERO.
7. Inventory parts from ERO layette.
8. Review equipment technical manuals.
9. Don PPE.
10. Ensure equipment is grounded (or bonded to power source).
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-MANT-1382 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1282 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
2. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
3. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 10802A-OI/1A Vol 1 Operator Manual for Tactical Water Purification System (TWPS)
5. TM 10802A-OI/1A Vol 2 Field Maintenance Manual for Tactical Water Purification System (TWPS)
6. TM 10802A-OI/2A Field Maintenance Repair Parts and Special Tools List for Tactical Water Purification System (TWPS)
7. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 1,500 GPH Tactical Water Purification System (TWPS) ` [B2605]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical ` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 416VAC 60Hz 3-Phase electrical power source (normally a 60kW MEP-806A or MEP-806B Tactical Quiet Generator)

1171-MANT-1483: Repair a 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System (3,000 LMT)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in TM 09777A-14/1 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 ERO.
5. Inventory parts from ERO layette.
6. Review equipment technical manuals.
7. Don 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-MANT-1383

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-1283 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. TM 09777A-14/1 Operation and Maintenance Instructions for the Water Purification System, Model 3000LMT
2. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]

- Degraded/deadlined 3,000 GPH Light, Medium, Tactical (LMT) Water
` Purification System (3,000 LMT) [B2628]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don 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-MANT-1284

RELATED EVENTS:
1171-ADMN-1011 1171-ADMN-1006 1171-ADMN-1008

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
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)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 50,000 Gallon Capacity Collapsible Fabric Potable
` Water Tank [B2631]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO 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 ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don 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-MANT-1285

RELATED EVENTS:
1171-ADMN-1011 1171-ADMN-1008 1171-ADMN-1006

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 10209-10/1 Use and Care of Hand Tools and Measuring Tools
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
5. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 20,000 Gallon Capacity Collapsible Fabric Potable
` Water Tank [B2632]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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: As part of a team, with water reconnaissance report, water support plan and established Course of Action (COA), equipment, 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 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-2699 1171-XENG-1782 1171-XENG-2781

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. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with field waste water disposal plan and established Course of Action (COA), equipment, 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 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-2699

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
5. TB MED 593 Guidelines for Field Waste Management

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with hygiene equipment support plan and established Course of Action (COA), equipment, 120/208VAC 60Hz electrical power source(s), area lighting, tools 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 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-2699 1171-XENG-1605

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
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 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
10. TM 10006A-14&P/1 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
11. TM 10006A-14&P/1 USMC Supplement 1 U.S. Marine Corps Supplement to Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]

- 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 MEP-803A Tactical Quiet 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: As part of a team, with hygiene equipment support plan and established Course of Action (COA), equipment, 120/208VAC 60Hz electrical power source(s), area lighting, tools 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 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-2699 1171-XENG-1605

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
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

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with water support plan and established Course of Action (COA), equipment, tools 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 the references.

PERFORMANCE STEPS:
1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don 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-2781	1171-XENG-1678
1171-XENG-1680	1171-XENG-1684	1171-XENG-1685
1171-XENG-1748	1171-XENG-1771	1171-XENG-1772
1171-XENG-1774	1171-XENG-1779	1171-XENG-1782
1171-XENG-2699	1171-XENG-2773	1171-XENG-1677

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. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with water support plan and established Course of Action (COA), equipment, tools 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 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-MANT-1272 1171-XENG-2699 1171-MANT-1277

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. SL-3-08990A Components List for Module, Water Tank (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

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with water support plan and established Course of Action (COA), equipment, tools 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 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-MANT-1278

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

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 Tactical Water Distribution System (TWDS)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, with water support plan and established Course of Action (COA), equipment, tools and references.

STANDARD: So water distribution system will support unit's mission per the commander's intent and is set up in accordance with the references.

PERFORMANCE STEPS:

1. Review water support plan and Course of Action (COA).
2. Review references.
3. Reassess operational risk.
4. Don 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-1648 1171-XENG-1604

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. SL-3-00970D Components List for Pump Unit Set
5. SL-3-01034 Components List for Tank, Fabric, Collapsible, Water Storage, 3,000 Gallon
6. SL-3-09481A Components List for Connection Set, Hose
7. SL-3-09483A Components List for Connection Kit, Hose Nozzle
8. SL-3-09484A Components List for Connection Kit, 125 GPM Pump
9. SL-3-09495A Components List for Connection Kit, Tank
10. SL-3-09496A Components List for Kit, Spare Parts, Tank
11. SL-3-09536A Components List for Distribution Point
12. SL-3-09537A Components List for Connection Kit, Bag
13. SL-3-09538A Components List for Storage Assembly
14. SL-3-09539A Components List for Pumping Station
15. SL-3-09563A Components List for Interconnection Kit
16. SL-3-09564A Components List for Connection Kit, 350 GPM Pump
17. SL-3-09721A Components List for Connection Set, Hose
18. SL-3-09854A Components List for 10 Mile Segment Kit
19. SL-3-86702D Components List for Pump, Centrifugal, Trailer Mounted, 600 GPM
20. 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
21. 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
22. TM 09476B-13/1 Operator, Unit, and Direct Support Maintenance Manual for Hypochlorination Unit
23. TM 10-4320-226-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head

24. TM 10-4320-303-13 Operator's, Unit and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System (TWDS) Set, 10-Mile Segment
25. TM 10-4320-317-13 Operator's, Unit, and Direct Support Maintenance Manual for Tactical Water Distribution Equipment System, 10 Mile Segment
26. TM 10-4320-324-14 Operator's, Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
27. 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
28. TM 10-4320-344-10 Operator's Manual for Pumping Assembly, Water, 600 GPM
29. 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
30. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
31. 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
32. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with water support plan and established Course of Action (COA), equipment, tools 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 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-MANT-1284

REFERENCES:
1. SL-3-10761A Tank, Fabric, Collapsible w/Chest, Fuel, 50,000 Gallon Capacity
2. 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)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: As part of a team, with water support plan and established Course of Action (COA), equipment, tools 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 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-MANT-1285

REFERENCES:
1. GAC Manual 519-91-2 Goodyear Aerospace Corporation Manual for 20,000 Gallon Collapsible Tank, Potable Water
2. TM 5-5430-216-13&P Tank, Fabric, Collapsible 20,000 Gallon, Water

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 the references and test results are recorded.

PERFORMANCE STEPS:
1. Identify CHEMICAL HAZARD(S).
2. Review references.
3. Don 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-2781
1171-XENG-2753	1171-XENG-2752	1171-XENG-2652

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. TB MED 577 Occupational and Environmental Health 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: As part of a team, at an established shower site, with hygiene equipment support plan, fuel, tools, forms, and references.

STANDARD: Per TM 10006A-14&P/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the hygiene equipment support plan.

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 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-XENG-1631 1171-ADMN-1001

RELATED EVENTS:

1171-MANT-1231 1171-ADMN-1009

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 10006A-14&P/1 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:

- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 MEP-803A
` 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 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 Containerized Batch Laundry (CBL) Unit

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, at an established laundry site, with hygiene equipment support plan, fuel, tools, forms, and references.

STANDARD: Per TM 11413A-OI/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the hygiene equipment support plan.

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 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-XENG-1632 1171-ADMN-1001

RELATED EVENTS:

1171-MANT-1232 1171-ADMN-1009

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 4700-15/1H Ground Equipment Record Procedures (Jul 95)
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)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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-1748: Operate a Forward Area Water Point Supply System (FAWPSS)

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 supply point, with water support plan, fuel, tools, forms, and references.

STANDARD: Per TM 08936A-13&P/1 or TM 10-4320-346-12&P, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the water support plan.

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 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-XENG-1648 1171-ADMN-1001

RELATED EVENTS:
1171-ADMN-1009 1171-XENG-1702 1171-MANT-1248

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 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)
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 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
7. TM 4320-OI Operation and Maintenance Manual with Repair Parts List for Pump, Centrifugal, Fuel, 150 GPM; and Pump, Centrifugal, Water, 150 GPM [Hatz]
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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, tools, forms, and references.

STANDARD: Per TM 09476B-13/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the water support plan.

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 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-1680
1171-XENG-1648	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. TB MED 577 Occupational and Environmental Health 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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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, fuel, tools, forms, 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 set forth in the water support plan.

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 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-1748
1171-XENG-1677	1171-XENG-1680	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. 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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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, fuel, tools, forms, 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 set forth in the water support plan.

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 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-XENG-1648	1171-MANT-1274
1171-XENG-1748	1171-XENG-1680	

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 4320-14/1 Operator, Unit, Direct Support, and General Support Maintenance for Pump Unit, Centrifugal, Self-Priming, 125 GPM, Water, Class 3, Diesel-Driven
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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, fuel, tools, forms, and references.

STANDARD: Per TM 10-4320-344-10, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the water support plan.

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 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-XENG-1680 1171-ADMN-1001

RELATED EVENTS:
1171-ADMN-1009 1171-MANT-1279 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. TM 10-4320-344-10 Operator's Manual for Pumping Assembly, Water, 600 GPM
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 1,500 GPH Tactical Water Purification System (TWPS)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, at an established water purification site, with water support plan, tools, forms, 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 set forth in the water support plan.
NOTE: It requires three Water Support Technicians to operate one TWPS. Each technician must know all operational aspects of the TWPS for safe operation.

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 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-XENG-1702	1171-ADMN-1001	1171-XENG-1604

RELATED EVENTS:

1171-MANT-1282	1171-ADMN-1009

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. TB MED 577 Occupational and Environmental Health 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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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: MOS 1141 (Electrician) to provide/ensure electrical power support and lighting.

OTHER SUPPORT REQUIREMENTS:
- 416VAC 60Hz 3-Phase electrical power source (normally a 60kW MEP-806A
` or MEP-806B Tactical Quiet 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-1783: Operate a 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System (3,000 LMT)

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 purification site, with water support plan, tools, forms, and references.

STANDARD: Per TM 09777A-14/1, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the water support plan.

PERFORMANCE STEPS:
1. Identify CHEMICAL 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, ensuring warning signs are posted.
7. Don PPE.
8. Ensure raw water supply hose intakes are submerged in raw water source.
9. Perform before operation checks.
10. Make sure product water hose is disconnected from the product water distribution tank.
11. Check valves/switches/gauges for correct settings.
12. Mix polymer solution.
13. Mix Calcium Hypochlorite solution.
14. Fill D.E. tank with Diatomaceous Earth.
15. Start up pump engine.
16. Establish raw water flow.
17. Precoat filter.
18. Filter raw water.
19. Check quality of product water, adjusting chlorine level (if required).
20. Connect product water hose to product water distribution tank.
21. Re-check all hose connections, fixing any leaks.
22. Perform during operation checks/services.
23. Maintain equipment logs.
24. Remove product water hose from product water distribution tank.
25. Shut down equipment.
26. Conduct backwash and open filter housing wash down.
27. Perform after operation checks.
28. Document equipment operation.
29. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:

1171-XENG-1702	1171-XENG-1604	1171-ADMN-1001

RELATED EVENTS:

1171-MANT-1283	1171-ADMN-1009

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. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

5. TM 09777A-14/1 Operation and Maintenance Instructions for the Water Purification System, Model 3000LMT
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 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System ` (3,000 LMT) [B2628]

MATERIAL:
- NAVMC 10523 (Engineer Equipment Operational Record)
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service ` Record)
- Fuel
- Calcium Hypochlorite
- Diatomaceous Earth
- Coagulant, water treatment

OTHER SUPPORT REQUIREMENTS:
- Area lighting (normally a floodlight set [B0640])
- Raw water source
- Product water distribution tank (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 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System (3,000 LMT) [B2628].

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a 3,000 GPH Light, Medium, Tactical (LMT) Water Purification System (3,000 LMT) [B2628].

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: As part of a team, with camp waste water disposal plan and established Course of Action (COA), area map, equipment, and references.

STANDARD: So reusable devices are recovered and waste areas are covered, marked and recorded per the references.

PERFORMANCE STEPS:
1. Identify WASTEWATER HAZARD(S).
2. Review waste water disposal plan and Course of Action (COA).
3. Review references.
4. Don 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-XENG-1605 1171-ADMN-1001

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
5. TB MED 593 Guidelines for Field Waste Management
6. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 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 by forwarded to higher
` headquarters per Unit'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. FM 3-34.471 Plumbing, Pipefitting, 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 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. FM 3-34.471 Plumbing, Pipefitting, 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 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. FM 3-34.471 Plumbing, Pipefitting, 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 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-1982 1171-XENG-1981 1171-XENG-1984

RELATED EVENTS:
1171-XENG-2983

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, 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 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-1985 1171-XENG-1984

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, 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)

9004. 2000-LEVEL EVENTS

1171-ADMN-2021: Apply safety programs

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

BILLETS: 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 per the references.

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-1002 1171-ADMN-1001

RELATED EVENTS:
1141-ADMN-2021 1171-ADMN-2021 1142-ADMN-2021

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCO 5100.19E Marine Corps Traffic Safety Program (Drivesafe) (Dec 00)
3. MCO 5100.29A Marine Corps Safety Program (Jul 04)
4. MCO 5100.30A Marine Corps Off-Duty and Recreation Safety Program (Oct 01)
5. 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 (Jan 07)
6. MCO 5100.8 Marine Corps Occupational Safety and Health (OSH) Policy Order (May 06)
7. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
8. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
9. UNIT SOP Unit's Standing Operating Procedures
10. Appropriate Technical Manuals

1171-ADMN-2022: Apply environmental regulations

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With references.

STANDARD: So environmental policies and procedures will be adhered to per the references.

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 1161-ADMN-2022 1142-ADMN-2022

REFERENCES:
1. MCO 4450.12A Storage and Handling of Hazardous Materials (Jan 99)
2. MCO P5090.2A Environmental Compliance and Protection Manual (Jul 98)
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. OPNAVINST 5090.1C Environmental Readiness Program Manual (Oct 07)
5. UNIT SOP Unit's Standing Operating Procedures

1171-ADMN-2023: Conduct Military Occupational Specialty (MOS) training

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records, and references.

STANDARD: So MOS proficiency is maintained per the references.

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 1142-ADMN-2023

REFERENCES:
1. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
2. MCO 1553.4B Professional Military Education (PME) (Jan 08)
3. MCO 3500.26A Universal Naval Task List (UNTL) Version 3.0 (Jan 07)
4. MCRP 3-0A Unit Training Management Guide
5. MCRP 3-0B How to Conduct Training
6. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
7. OPNAVINST 1560.10C Administration of the United Services Military Apprenticeship Program (USMAP) (Apr 07)
8. SAT MANUAL Systems Approach to Training (SAT) Manual (Jun 04)
9. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

OTHER SUPPORT REQUIREMENTS: MOS Roadmaps are located at http://www.tecom.usmc.mil/g3/roadmap.htm.

1171-ADMN-2041: Initiate a Product Quality Deficiency Report (PQDR) (SF 368)

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

BILLETS: 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 corrected per the references.

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 1141-ADMN-2041 1161-ADMN-2041

REFERENCES:
1. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

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 www.logcom.usmc.mil/pqdr.

1171-ADMN-2042: Submit a Beneficial Suggestion

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With internet access and Common Access Card (CAC), or OPNAV 5305/1 (Department of the Navy Suggestion Form), and references.

STANDARD: So a suggested improvement to equipment, forms, or Tactics, Techniques, and Procedures (TTP) is documented for decision and action by higher authority per the Marine Corps Military Incentive Awards Program.

PERFORMANCE STEPS:
1. Review references.
2. Identify problem, difficulty or circumstance.
3. Develop suggested change.
4. Determine if benefits are tangible/intangible.
5. Quantify savings if change has tangible benefits.
6. Document suggestion, electronically or in writing by completing OPNAV 5305/1.
7. Identify benefit/savings to Marine Corps/U.S. Government.
8. Forward the suggestion per Unit's SOP (on line if applicable).
9. Ensure confirmation of receipt.

RELATED EVENTS:
1141-ADMN-2042 1161-ADMN-2042 1142-ADMN-2042

REFERENCES:
1. MCO 1650.17F Marine Corps Military Incentive Award Program
2. OPNAVINST 1650.8D Cash Awards for Military Personnel for Suggestions, Inventions, Scientific Achievements and Disclosures (Apr 07)
3. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

MATERIAL: OPNAV 5305/1 (Department of the Navy Suggestion Form)

OTHER SUPPORT REQUIREMENTS: Internet access, with a CAC card, may be required in order to complete this event per Unit's SOP. The website used will be www.logcom.usmc.mil/benesugg.

1171-ADMN-2051: Establish equipment preventive maintenance schedule

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment records, forms and references.

STANDARD: So preventive maintenance is scheduled per the references.

PERFORMANCE STEPS:
1. Review references.
2. Determine equipment Preventive Maintenance Checks and Services (PMCS) requirements.
3. Audit equipment records.
4. Complete the Preventive Maintenance Checks and Services (PMCS) Roster (NAVMC 10561).

PREREQUISITE EVENTS:
1171-ADMN-1011

RELATED EVENTS:
1141-ADMN-2051 1161-ADMN-2051 1142-ADMN-2051

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCWP 4-11.4 Maintenance Operations
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UNIT SOP Unit's Standing Operating Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: NAVMC 10561 (Preventive Maintenance Checks and Services (PMCS) Roster)

1171-ADMN-2061: Maintain Pre-Expended Bin (PEB)

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With commander's pre-expended bin, (PEB) authorization and references.

STANDARD: So common, low-cost, high usage parts are continuously available for immediate maintenance/repair of equipment per the references.

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 any excess items.

RELATED EVENTS:
1171-ADMN-2062 1161-ADMN-2061 1142-ADMN-2061
1141-ADMN-2061

REFERENCES:
1. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

MATERIAL: Storage bins

1171-ADMN-2062: Maintain Equipment Repair Order (ERO) 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 per the references.

PERFORMANCE STEPS:
1. Review references.
2. Receive repair parts, annotating EROSL, and placing repair parts in appropriate bin.
3. Take corrective action if repair parts do not match EROSL.
4. Maintain EROSL in appropriate bin, inventorying the bin every 2 weeks.
5. Issue repair parts, when all are received, annotating EROSL and ERO per Unit's SOP.

RELATED EVENTS:
1171-ADMN-2061 1161-ADMN-2062 1142-ADMN-2062
1141-ADMN-2062

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. 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: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With maintenance management reports, supporting documentation, and references.

STANDARD: Ensuring accuracy of reports per the references.

PERFORMANCE STEPS:
1. Monitor daily maintenance reports.
2. Monitor weekly maintenance reports.
3. Monitor readiness reports.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO 3000.11D Marine Corps Automated Readiness Evaluation System (MARES) (Feb 04)
3. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

6. UM 4400-124 FMF SASSY Using Unit Procedures
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
8. UNIT SOP Unit's Standing Operating Procedures

1171-ADMN-2072: Monitor maintenance related programs

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With equipment 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 Replacement Evacuation (R&E) program.
8. Monitor Quality Deficiency (QDR) program.
9. Monitor Recoverable Items (WIR) program.
10. Monitor Quality Control (QC) program.
11. Monitor Corrosion Prevention and Control (CPAC) program.
12. Ensure program and equipment records are maintained.

RELATED EVENTS:

1142-ADMN-2072	1161-ADMN-2072	1171-ADMN-2041
1169-ADMN-2072	1171-ADMN-2071	1141-ADMN-2072
1171-ADMN-2073	1171-ADMN-2051	

REFERENCES:
1. MCO 4400.194 Class VII Stock Rotation Program
2. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
3. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
4. MCO P4400.150E Consumer-Level Supply Policy Manual (Jun 99)
5. MCO P4400.82F Regulated/Controlled Item Management Manual (Feb 85)
6. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
7. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
8. TM 4700-15/1H Ground Equipment Record Procedures
9. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
10. UNIT SOP Unit's Standing Operating Procedures
11. Appropriate Technical Manuals

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: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With repaired equipment, maintenance forms and references.

STANDARD: So equipment repairs and documentation is certified complete.

PERFORMANCE STEPS:
1. Review references.
2. Review Equipment Repair Order (ERO).
3. Verify equipment's operational condition.
4. Reject faulty equipment.
5. Verify equipment closeout.
6. Verify completion of maintenance actions.

PREREQUISITE EVENTS:
1171-ADMN-1008

RELATED EVENTS:

1171-ADMN-1011	1141-ADMN-2073	1161-ADMN-2073
1171-ADMN-1009	1142-ADMN-2073	

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. TM 750-245-4 Direct Support, General Support Quality Control Inspector's Inspection Criteria
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Repaired equipment

MATERIAL: NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

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.

RELATED EVENTS:

1171-ADMN-1002	1141-MANT-1101	1171-ADMN-1001
1161-MANT-1101	1142-MANT-1101	

REFERENCES:
1. IM 8024B Manufacturer's Instruction Manual for Fluke Model 8024B Digital Multimeter
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 (Jul 68)
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Multimeter
- Equipment with an electrical circuit

1171-MANT-2191: Comply with a Modification Instruction (MI)

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Equipment Repair Order (ERO) 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 ERO.

3. Inventory parts from ERO layette.
4. Review equipment technical manuals.
5. Don PPE (if required).
6. Apply modification.
7. Test modification.
8. Document modification.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1008	1171-ADMN-1010	1161-MANT-1191
1141-MANT-2191	1142-MANT-2191	1171-ADMN-1011

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Water support or hygiene equipment being modified

MATERIAL:
- Modification Instruction (MI)
- Parts (if required)
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service ` Record)
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 696D (Motor Vehicle and Engineer Equipment Record Folder)

1171-MANT-2273: Perform Preventive Maintenance Checks and Services (PMCS) on a 350 GPM Water Pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

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 10-4320-226-14 or TM 10-4320-324-14 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 ERO.
5. Don 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-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1011 1171-ADMN-1007 1171-ADMN-1008
1171-ADMN-1010

REFERENCES:
1. LO 5-4320-226-12 Lubrication Order for Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 FT Head
2. TM 10-4320-226-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
3. TM 10-4320-226-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
4. TM 10-4320-324-14 Operator's, Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
5. TM 10-4320-324-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 350 GPM Water Pump [B1582]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-2281: Perform Preventive Maintenance Checks and Services (PMCS) on a Reverse Osmosis Water Purification Unit (ROWPU)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

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 08580C-24 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review ERO.
3. Don 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-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1011 1171-ADMN-1007 1171-ADMN-1008
1171-ADMN-1010

REFERENCES:
1. LI 08580C-12 Lubrication Instruction for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted (ROWPU)
2. SL-3-08580C Components List for Water Purification Unit, Reverse Osmosis, 600 GPH, Frame Mounted
3. TM 08580C-10/1 Operator's Manual for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
4. TM 08580C-24 Unit, Direct Support, and General Support Maintenance Manual for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
5. TM 08580C-24P/3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Reverse Osmosis Water Purification Unit (ROWPU) [B2604]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-2294: Perform Preventive Maintenance Checks and Services (PMCS) on a Field Food Service System (FFSS) plumbing system

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with equipment, tools, parts for scheduled services, forms and references.

STANDARD: So equipment is checked and serviced per TM 10879A-12 and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Review ERO.
3. Don PPE.
4. Inspect equipment.
5. Service equipment.
6. Document maintenance performed and deficiencies/discrepancies noted.

PREREQUISITE EVENTS:
1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1007 1171-ADMN-1008 1171-ADMN-1010
1171-ADMN-1011

REFERENCES:
1. SL-3-10879A SL-3 For Field Food Service System
2. TM 10879A-12 Field Food Service System Technical Manual (Commercial)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. ULSS 001302-15 User's Logistics Support Summary for Field Food Service System (FFSS)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Field Food Service System (FFSS) [C5810]

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])
- Parts for scheduled services

1171-MANT-2373: Diagnose a 350 GPM Water Pump malfunction

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 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 FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review LTI.
4. Review equipment technical manuals.
5. Don 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/initiate ERO).
12. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1002 1171-ADMN-1006

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-2273 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. TM 10-4320-226-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
2. TM 10-4320-226-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
3. TM 10-4320-324-14 Operator's, Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
4. TM 10-4320-324-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head

5. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 350 GPM Water Pump [B1582] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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-2381: Diagnose a 600 GPH Reverse Osmosis Water Purification Unit (ROWPU) malfunction

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 Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 120/208VAC 3-phase 60Hz electrical power source, tools, forms and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Review LTI.
2. Review equipment technical manuals.
3. Don PPE.
4. Ensure equipment is grounded.
5. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
6. Check valves/switches/gauges 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/initiate ERO).
11. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-2281 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. TM 08580C-10/1 Operator's Manual for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
2. TM 08580C-24 Unit, Direct Support, and General Support Maintenance Manual for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
3. TM 08580C-24P/3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
6. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 600 GPH Reverse Osmosis Water Purification Unit (ROWPU) [B2604] or ` components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical ` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 3-phase 60Hz electrical power source (normally a 30kW MEP-805A or MEP-805B Tactical Quiet 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-2391: Diagnose a M17MCHF Lightweight Decontamination System water pump malfunction

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 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. Review LTI.
2. Review equipment technical manuals.
3. Don PPE.
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Check valves/switches/gauges for correct settings.
6. Isolate faulty component(s)/identify leaks.
7. Determine if component fault was caused by a defect elsewhere.
8. Determine echelon(s) of maintenance.
9. Document findings (complete LTI/initiate ERO).
10. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1008 1171-ADMN-1011 1171-ADMN-1010

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 10692B-23&P Organizational and Intermediate Maintenance for Decontaminating Apparatus: Power Driven, Lightweight M17 Marine Corps Heavy Fuel (MCHF)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty M17MCHF Lightweight Decontamination System [B1291] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-2394: Diagnose a Field Food Service System (FFSS) plumbing system malfunction

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with a Limited Technical Inspection (LTI) on inoperable equipment, the inoperable equipment, a 120/208VAC 50/60Hz electrical power source, tools, forms and references.

STANDARD: So equipment faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Review LTI.
2. Review equipment technical manuals.
3. Don PPE.
4. Ensure any stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
5. Check valves/switches/gauges for correct settings.
6. Isolate faulty component(s)/identify leaks.
7. Determine if component fault was caused by a defect elsewhere.
8. Determine echelon(s) of maintenance.
9. Document findings (complete LTI/initiate ERO).
10. Initiate EROSL (if required).

PREREQUISITE EVENTS:
1171-ADMN-1006 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1008 1171-MANT-2294 1171-ADMN-1011
1171-ADMN-1010

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 10879A-12 Field Food Service System Technical Manual (Commercial)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Field Food Service System (FFSS) [C5810] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 50/60Hz electrical power source (normally two 100kW MEP-807A or three 60kW MEP-806A or MEP-806B Tactical Quiet Generators)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Assistance from an Electrician (MOS 1141), Engineer Equipment Electrical Systems Technician (MOS 1142), and/or Food Service Specialist (MOS 3381) may be required to fully diagnose any plumbing related malfunction.

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 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 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/initiate ERO).
15. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1171-ADMN-1002	1171-MANT-2101	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1008	1171-ADMN-1010	1171-ADMN-1011
1142-MANT-2332	1171-MANT-1331	1142-MANT-2331
1171-MANT-1231		

REFERENCES:

1. TC 9-60 Communications-Electronics Fundamentals, Basic Principles of Alternating Current and Direct Current
2. 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
3. TM 10006A-14&P/1 Erection, Operation, Storage, Inspection and Maintenance Instructions with Illustrated Parts Breakdown for Shower Facility, Bare Base
4. TM 10006A-14&P/1 USMC Supplement 1 U.S. Marine Corps Supplement to 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 4700-15/1H Ground Equipment Record Procedures (Jul 95)
7. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty Shower Facility, Bare Base [B0055] or components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- 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 MEP-803A Tactical Quiet 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 action(s) initiated.

PERFORMANCE STEPS:
1. Identify FIRE/EXPLOSION HAZARD(S).
2. Identify CARBON MONOXIDE HAZARD(S).
3. Review LTI/ERO.
4. Review equipment technical manuals.
5. Don 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/ERO).
12. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1171-ADMN-1002	1171-ADMN-1004	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1008	1171-ADMN-1011	1171-ADMN-1010

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Water pump with a faulty fuel system

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

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 an electrical malfunction on a 1,500 GPH Tactical Water Purification System (TWPS)

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 416VAC 3-phase 60Hz electrical power source, tools, forms and references.

STANDARD: So equipment electrical faults are identified and corrective action(s) initiated.

PERFORMANCE STEPS:
1. Identify ELECTROCUTION HAZARD(S).
2. Identify CHEMICAL HAZARD(S).
3. Review LTI/ERO.
4. Review equipment technical manuals/wiring diagrams/schematics.
5. Don PPE.
6. Ensure equipment is grounded (or bonded to power source).
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/ERO).
15. Initiate EROSL (if required).

PREREQUISITE EVENTS:

1171-MANT-2101	1171-ADMN-1002	1171-ADMN-1006

RELATED EVENTS:

1171-ADMN-1010	1171-ADMN-1011	1171-ADMN-1008
1171-MANT-1382	1142-MANT-1382	1171-MANT-1282

REFERENCES:
1. SI 10802A-IN/1 Warranty Procedures for the Marine Corps Tactical Water Purification System (TWPS)
2. SI 10802A-OR/3 Supply Instructions for the TWPS Recirculation Kit
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 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 4700-15/1H Ground Equipment Record Procedures (Jul 95)
10. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Multimeter
- Tool Kit, Multi-Capable Maintainer [C7036]
- Faulty 1,500 GPH Tactical Water Purification System (TWPS) [B2605] or
` components

MATERIAL:
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 416VAC 3-phase 60Hz electrical power source (normally a 60kW MEP-806A or MEP-806B Tactical Quiet 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-2473: Repair a 350 GPM Water Pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in TM 10-4320-226-14, or TM 10-4320-324-14 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 ERO.
4. Inventory parts from ERO layette.
5. Review equipment technical manuals.
6. Don 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-MANT-2373 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-2273 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. TM 10-4320-226-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
2. TM 10-4320-226-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
3. TM 10-4320-324-14 Operator's, Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
4. TM 10-4320-324-24P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
5. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 350 GPM Water Pump [B1582]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-2481: Repair a 600 GPH Reverse Osmosis Water Purification Unit (ROWPU)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, a 120/208VAC 3-phase 60Hz electrical power source, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in TM 08580C-10/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don PPE.
5. Ensure equipment is grounded.
6. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
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-MANT-2381 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-2281 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. TM 08580C-10/1 Operator's Manual for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
2. TM 08580C-24 Unit, Direct Support, and General Support Maintenance Manual for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
3. TM 08580C-24P/3 Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted
4. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined 600 GPH Reverse Osmosis Water Purification Unit
` (ROWPU) [B2604]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 3-phase 60Hz electrical power source (normally a 30kW MEP-805A or MEP-805B Tactical Quiet Generator)

1171-MANT-2491: Repair a M17MCHF Lightweight Decontamination System water pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in TM 10692A-10/1 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don PPE.
5. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
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:
1171-MANT-2391 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1006 1171-ADMN-1011 1171-ADMN-1008

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 10692A-10/1 Operator's Manual for the M17 MCHF - LDS
3. TM 10692B-23&P Organizational and Intermediate Maintenance for Decontaminating Apparatus: Power Driven, Lightweight M17 Marine Corps Heavy Fuel (MCHF)
4. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined M17MCHF Lightweight Decontamination System [B1291]
` with faulty water pump

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])

- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

1171-MANT-2494: Repair a Field Food Service System (FFSS) plumbing system

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: As part of a team, with an Equipment Repair Order (ERO) on degraded/deadlined equipment, the degraded/deadlined equipment, a 120/208VAC 50/60Hz electrical power source, repair parts from ERO layette, tools, forms and references.

STANDARD: So equipment functions/operates as specified in TM 10879A-12 and repairs are documented per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review ERO.
2. Inventory parts from ERO layette.
3. Review equipment technical manuals.
4. Don PPE.
5. Ensure equipment is grounded.
6. Ensure stored/hazardous energy is dissipated/controlled (Lockout/Tagout).
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-MANT-2394 1171-ADMN-1002

RELATED EVENTS:
1171-ADMN-1006 1171-MANT-2294 1171-ADMN-1011
1171-ADMN-1008

REFERENCES:
1. TM 10209-10/1 Use and Care of Hand Tools and Measuring Tools
2. TM 10879A-12 Field Food Service System Technical Manual (Commercial)
3. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Degraded/deadlined Field Food Service System (FFSS) [C5810]

MATERIAL:
- Repair parts
- NAVMC 10245 (Equipment Repair Order [ERO])
- NAVMC 10925 (Equipment Repair Order Shopping/Transaction List [EROSL])
- NAVMC 10560 (Worksheet for Preventive Maintenance and Technical
` Inspection for Engineer Equipment [LTI])

OTHER SUPPORT REQUIREMENTS: 120/208VAC 50/60Hz electrical power source (normally two 100kW MEP-807A or three 60kW MEP-806A or MEP-806B Tactical Quiet Generators)

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: As part of a team, with a warning order, transportation, area map, equipment, materials, forms and references.

STANDARD: So water sources that will support designated equipment and personnel can be selected, developed and purified per the references.

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 (see 1171-XENG-1702).
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-2652	1171-XENG-2558	1171-XENG-2651
1171-XENG-2555		

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine

4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 4-11.6 Petroleum and Water Logistics Operations
7. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
8. 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)

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: 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: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With warning order, data from water reconnaissance, calculator and references.

STANDARD: So water source(s) 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-2501 1171-XENG-1702

RELATED EVENTS:
1171-XENG-1604 1171-XENG-2553 1171-XENG-2752
1171-XENG-2699 1171-XENG-2651

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 20-3 Camouflage
4. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 4-11.6 Petroleum and Water Logistics Operations
7. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
8. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies

SUPPORT REQUIREMENTS:

EQUIPMENT: Calculator.

MATERIAL:
- Area topographical map(s)
- Completed DA Form 1712-Rs (Water Reconnaissance Reports)
- Water Smartcards (if any)

1171-XENG-2553: Develop a water support plan

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

BILLETS: 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 (see Joint Pub 4-03).
25. Brief water support plan (if required).

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-XENG-2502	1171-XENG-2501
1171-XENG-1702		

RELATED EVENTS:

1171-ADMN-1006	1171-XENG-1604	1171-XENG-1648
1171-XENG-2699	1171-XENG-2558	1171-XENG-2651
1171-XENG-2555		

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. FM 20-3 Camouflage
4. FM 5-412 Project Management
5. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
6. MCRP 3-17B Engineer Forms and Reports
7. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance
10. MCWP 3-35.6 Desert Operations
11. MCWP 3-41.1 Rear Area Operations
12. MCWP 4-11 Tactical Level Logistics
13. MCWP 4-11.5 SeaBee Operations in the MAGTF
14. MCWP 4-11.6 Petroleum and Water Logistics Operations
15. MCWP 5-1 Marine Corps Planning Process
16. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
17. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
18. TC 3-34.489 The Soldier and the Environment
19. Appropriate Technical Manuals

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: 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	1171-ADMN-1001

RELATED EVENTS:

1171-ADMN-1006	1171-XENG-1631	1171-XENG-2699
1171-XENG-2558	1171-XENG-1632	

REFERENCES:

1. FM 20-3 Camouflage
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 5-412 Project Management
4. MCRP 3-17B Engineer Forms and Reports
5. MCRP 4-11.1D Field Hygiene and Sanitation
6. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
7. MCWP 3-17 Engineer Operations
8. MCWP 5-1 Marine Corps Planning Process
9. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
10. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
11. TC 3-34.489 The Soldier and the Environment
12. Appropriate Technical Manuals

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: 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 1171-ADMN-1001

RELATED EVENTS:
1171-ADMN-1006 1171-XENG-1605 1171-XENG-1631
1171-XENG-2699 1171-XENG-1805 1171-XENG-2553
1171-XENG-1632

REFERENCES:
1. FM 20-3 Camouflage
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 4-25.12 Unit Field Sanitation Team
4. FM 5-412 Project Management
5. MCRP 3-17B Engineer Forms and Reports
6. MCRP 4-11.1D Field Hygiene and Sanitation
7. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
8. MCWP 3-17 Engineer Operations
9. MCWP 5-1 Marine Corps Planning Process
10. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
11. TB MED 593 Guidelines for Field Waste Management
12. TC 3-34.489 The Soldier and the Environment
13. Appropriate Technical Manuals

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: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With construction plans for a building, a list of plumbing fixtures to be installed, local code requirements, and references.

STANDARD: Per 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 1171-ADMN-1001

RELATED EVENTS:
1171-XENG-1985 1171-XENG-1986 1171-XENG-2989
1171-XENG-2988 1171-XENG-2987

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-412 Project Management
3. FM 5-553 General Drafting
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:

MATERIAL: Construction plans.

1171-XENG-2651: Develop a water source

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As part of a team, at a water source, with water reconnaissance report, water support plan and established Course of Action (COA) from an Operation Order, equipment, 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 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. Provide security.

PREREQUISITE EVENTS:

1171-ADMN-1001	1171-XENG-2553	1171-XENG-2502
1171-XENG-2501		

RELATED EVENTS:

1171-XENG-1648	1171-XENG-1702	1171-XENG-2752
1171-XENG-2699	1171-XENG-1604	1171-XENG-2653

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
4. MCWP 3-17.4 Engineer Reconnaissance
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
7. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
8. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- Water Pump(s) (as designated by water support plan)
- Earthmoving equipment (if required to develop site)
- Strainer
- Intake screen

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)
- Anchors
- Rope
- Sand bags

UNITS/PERSONNEL: MOS 1345 (Engineer Equipment Operator) to move earth (if required).

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Tactical situation, ORA and other changes encountered at a given source may ultimately determine final COA for source development.

1171-XENG-2652: 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 PPE.
3. Perform chlorine residual test.
4. Identify chlorine residual standards.
5. Determine chlorine requirements.

PREREQUISITE EVENTS:

1171-XENG-1604	1171-XENG-1702	1171-XENG-1648

RELATED EVENTS:

1171-XENG-2653	1171-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. MCWP 4-11.6 Bulk Liquid Operations
4. TB MED 577 Occupational and Environmental Health 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)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Water Quality Analysis Set, Purification (WQAS-P) [B2630]

MATERIAL: Water sample(s) from water 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-2653: Direct field water purification/storage/distribution system installation

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Supervise the field water purification/storage/distribution system installation.
6. Inspect installed field water purification/storage/distribution system.
7. Ensure inspection of installed system by preventive medicine personnel.
8. Brief recovery crew.
9. Supervise the field water purification/storage/distribution system recovery.

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-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
6. Appropriate Technical Manuals

1171-XENG-2655: Direct field hygiene equipment installation

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Supervise the field hygiene equipment installation.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
5. TB MED 593 Guidelines for Field Waste Management
6. Appropriate Technical Manuals

1171-XENG-2658: Direct field waste water disposal system installation

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief installation crew.
5. Supervise installation of sanitation system components.
6. Inspect installed sanitation system.
7. Ensure inspection of installed system by preventive medicine personnel.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
5. TB MED 593 Guidelines for Field Waste Management
6. Appropriate Technical Manuals

1171-XENG-2699: Camouflage equipment

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

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At a remote site with equipment.

STANDARD: So site detection is avoided by routine enemy surveillance.

PERFORMANCE STEPS:
1. Determine threats.
2. Identify critical equipment.
3. Identify availability of natural cover and concealment.
4. Select camouflage materials and techniques.
5. Install decoys.
6. Space equipment irregularly (in length and depth).
7. Cover equipment with nets and other materials that blend with background.
8. Inspect camouflaging, from different angles, for ease of detection.

REFERENCES:
1. FM 20-3 Camouflage

1171-XENG-2752: Monitor water test equipment measurements

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With water test equipment and references.

STANDARD: So continuous safety of unit's water supply is maintained.

PERFORMANCE STEPS:
1. Review references.
2. Test water.
3. Take necessary actions to improve product water quality.

REFERENCES:
1. FM 10-52-1 Water Supply Point Equipment and Operations
2. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
3. 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)

1171-XENG-2753: Direct field water purification/storage/distribution system operation

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, operators, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order, Water Reconnaissance Reports, and camp layout.
2. Inspect the installed water purification/storage/distribution system.
3. Review safety concerns.
4. Review environmental concerns.
5. Establish operator schedule.
6. Brief personnel.
7. Monitor the operation of water purification/storage/distribution system.
8. Monitor operation of water purification equipment.
9. Monitor operation of forward area water point supply systems.
10. Monitor operation of six-con 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. Supervise water purification/storage/distribution equipment operator maintenance.
16. Ensure records/reports are updated/completed.

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
6. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
7. TC 3-34.489 The Soldier and the Environment
8. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
9. UNIT SOP Unit's Standing Operating Procedures
10. Appropriate Technical Manuals

1171-XENG-2755: Direct field hygiene equipment operation

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, field hygiene equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order and camp layout.
2. Inspect the 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 that daily sanitation standards are met.
12. Supervise hygiene equipment operator maintenance.
13. Ensure records/reports are updated/completed.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
5. TB MED 593 Guidelines for Field Waste Management
6. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
7. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
8. UNIT SOP Unit's Standing Operating Procedures
9. Appropriate Technical Manuals

1171-XENG-2773: Operate a 350 GPM Water Pump

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 24 months

BILLETS: Water Support Technician

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: At an established water storage/distribution site, with water support plan, fuel, tools, forms, and references.

STANDARD: Per TM 10-4320-226-14 or TM 10-4320-324-14, documenting operation in accordance with TM 4700-15/1H, and complying with unit's mission requirements set forth in the water support plan.

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. Check valves/switches/gauges for correct settings.
7. Perform before operation checks.

8. Ensure water suction and discharge hoses are connected per water support plan.
9. Prime engine.
10. Prime pump, if required.
11. Start engine.
12. Re-check hose connections, fixing any Class III leaks.
13. Adjust engine speed for required flow rate.
14. Perform during operation checks/services.
15. Maintain equipment logs.
16. Shut down equipment.
17. Perform after operation checks.
18. Document equipment operation.
19. Pack out equipment for movement/retrograde.

PREREQUISITE EVENTS:
1171-ADMN-1001 1171-XENG-1680

RELATED EVENTS:
1171-XENG-1648 1171-ADMN-1009 1171-MANT-2273

REFERENCES:
1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. TM 10-4320-226-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Water Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
4. TM 10-4320-324-14 Operator's, Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Flammable Liquid, Bulk Transfer (Fuel Use Only), or Pump Unit (Water Use Only), Centrifugal, Diesel Engine Driven, Wheel Mounted, 350 GPM, 275 Foot Head
5. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)

SUPPORT REQUIREMENTS:

EQUIPMENT:
- Personal Protective Equipment (PPE)
- Tool Kit, Multi-Capable Maintainer [C7036]
- 350 GPM Water Pump [B1582]

MATERIAL:
- NAVMC 10523 (Engineer Equipment Operational Record)
- NAVMC 10524 (Consolidated Engineer Equipment Operation Log and Service ` Record)
- Fuel

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Operators must be licensed to operate a 350 GPM Water Pump [B1582].

1171-XENG-2781: Operate a Reverse Osmosis Water Purification Unit (ROWPU)

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 Reverse Osmosis Water Purification Unit (ROWPU), a watch, earplugs, developed water source, and references.

STANDARD: So it will function normally, safely, and will not be damaged by the operation per the references.

PERFORMANCE STEPS:
1. Install Reverse Osmosis Water Purification Unit (ROWPU) tanks.
2. Start Generator.
3. Operate ROWPU.
4. Perform turbidity test.
5. Perform operator maintenance.
6. Complete Daily Water Purification Log-ROWPU (DA Form 1713-1-R).
7. Complete Daily Water Distribution Log.
8. Shut down ROWPU.
9. Shut down generator.
10. Complete Water Point Daily Production Summary.
11. Complete Water Point Daily Distribution Summary.
12. Dismantle system.
13. Repack system for movement.

REFERENCES:
1. TM 08580C-10/1 Operator's Manual for Water Purification Unit, Reverse Osmosis, 600 GPH, Skid Mounted

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Due to changes required in training facilities to implement training on the Tactical Water Purification System (TWPS), graduates of the Basic Water Support Technician course (CID: M031102) will not be licensed to operate the ROWPU.

SPECIAL PERSONNEL CERTS: Reverse Osmosis Water Purification Unit (ROWPU) operators will need to be licensed through an authorized licensing program in the Total Force.

1171-XENG-2853: Direct field water purification/storage/distribution system recovery

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order, Water Reconnaissance Report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Inspect installed field water purification/storage/distribution system.
5. Ensure inspection of installed system by preventive medicine personnel.
6. Brief recovery crew.
7. Supervise the field water purification/storage/distribution system recovery.

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. Appropriate Technical Manuals

1171-XENG-2855: Direct field hygiene equipment recovery

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery crew.
5. Supervise the field hygiene equipment recovery.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
5. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
6. TB MED 593 Guidelines for Field Waste Management
7. Appropriate Technical Manuals

1171-XENG-2858: Direct field waste water system recovery/closure

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

BILLETS: Water Support Technician

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With an operation order, camp layout, equipment, personnel, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the Operation Order, environmental impact report, and camp layout.
2. Review safety requirements.
3. Review environmental requirements.
4. Brief recovery/closure crew.
5. Supervise sanitation system recovery/closure.
6. Supervise marking of closed sanitation system.
7. Inspect closed/marked sanitation system.
8. Ensure inspection of closed/marked system by preventive medicine personnel.
9. Ensure closed latrine sites are recorded on area map.
10. Forward marked map to those concerned.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 4-25.12 Unit Field Sanitation Team
3. MCRP 4-11.1D Field Hygiene and Sanitation
4. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
5. NAVMED P-5010-9 Manual for Preventive Medicine, Chapter 9, Preventive Medicine for Ground Forces (Jun 91)
6. TB MED 593 Guidelines for Field Waste Management
7. TC 3-34.489 The Soldier and the Environment

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 fitting(s) 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 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.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, 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: 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: With a structure, blueprints, plumbing plan, personnel, tools, bill of material, materials, and references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Review the blueprints, plumbing plan, and bill of material.
2. Determine safety/code requirements.
3. Inventory bill of material.
4. Brief installation crew.
5. Supervise installation crew.
6. Conduct final inspection of installed plumbing system.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-553 General Drafting
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

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1171-XENG-2988: 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: With a structure requiring interior plumbing system repairs, personnel, tools, materials, and the references.

STANDARD: So unit's mission is supported per the commander's intent.

PERFORMANCE STEPS:
1. Examine the plumbing system needing repairs.
2. Determine safety/code requirements.
3. Determine material requirements.
4. Brief repair crew.
5. Supervise repairs.
6. Conduct inspection of repaired plumbing system.

REFERENCES:
1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. UPC (IAPMO/ANSI) Uniform Plumbing Code - by International Association of Plumbing and Mechanical Officials/American National Standard Institute

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1171-XENG-2989: 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: As part of a team, at a structure with an installed interior plumbing system, with tools, code requirements 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 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-1002	1171-ADMN-1001

RELATED EVENTS:

1171-XENG-1981	1171-XENG-1985	1171-XENG-2988
1171-XENG-2581	1171-XENG-2987	1171-XENG-1986

REFERENCES:

1. FM 3-34.471 Plumbing, Pipefitting, 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

ENG & UTIL T&R MANUAL

CHAPTER 10

MOS 1302 INDIVIDUAL EVENTS

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CHAPTER 10

MOS 1302 INDIVIDUAL EVENTS

10000. PURPOSE. This chapter includes all individual training events for the Combat Engineer Officer. An individual event is an event that a trained Combat Engineer Officer would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

10001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1302).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
CMOB – Counter-mobility
DEMO - Demolitions
MANT - Maintenance
MOBL – Mobility
RECN – Engineer Reconnaissance
SURV – Survivability
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

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10003. 1000-LEVEL EVENTS

1302-ADMN-1001: Manage unit training

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

REFERENCES:
1. MCRP 3-0A Unit Training Management Guide
2. MCRP 3-0B How to Conduct Training

1302-ADMN-1002: Participate in the Marine Corps Planning Process (MCPP)

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

BILLETS: Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Assist in mission analysis.
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
2. MSTP 5-0.3 MAGTF Planner's Reference Manual
3. MSTP PAM 5-0.2 Operational Planning Team Guide

1302-ADMN-1003: Deliver a military brief

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

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. FMFM 13 MAGTF Engineer Operations
2. FMFM 3-1 Command and Staff Action
3. MCWP 5-1 Marine Corps Planning Process

1302-ADMN-1004: Arrange external support for engineer projects/operations

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order.

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. FMFM 13 MAGTF Engineer Operations
2. FMFM 3-1 Command and Staff Action
3. MCWP 4-1 Logistics Operations
4. MCWP 5-1 Marine Corps Planning Process

1302-ADMN-1005: Manage a Consolidated Memorandum Receipt (CMR)

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given itemized equipment.

STANDARD: To maintain accountability of itemized equipment and associated documentation.

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. Subcustody 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:
1. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3

1302-CMOB-1001: Plan the emplacement of an obstacle

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

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. FM 20-32 Mine/Countermine Operations
2. FM 5-102 Countermobility
3. MCRP 3-17A Engineer Field Data

1302-CMOB-1002: Plan construction of vehicle checkpoints as a part of an urban countermobility plan

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

BILLETS: Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-102 Countermobility
2. FM 5-103 Survivability
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-CMOB-1003: Prepare an obstacle plan

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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, all of which support the scheme of manuever by fixing, turning, blocking or disrupting enemy movement.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-100 Engineers in Combat Operations
2. FM 5-102 Countermobility
3. FM 90-7 Combined Arms Obstacle Integration
4. FMFM 13 MAGTF Engineer Operations
5. FMFM 3-1 Command and Staff Action
6. MCDP 1 Warfighting

7. MCDP 1-3 Tactics
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 3-1 Ground Combat Operations

1302-DEMO-1001: Plan for demolition operations

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-250 Explosives and Demolitions
2. FMFM 13 MAGTF Engineer Operations
3. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

EQUIPMENT: MAP, DA Form 2203-R, NOTE TAKING GEAR

1302-DEMO-1002: Detonate demolitions

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

BILLETS: Platoon Commander

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.

PERFORMANCE STEPS:
1. Review target folder, if available.
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 target.
8. Tamp as required.
9. Detonate the explosive(s).
10. Conduct battle damage assessment.
11. Submit required engineer reports.

REFERENCES:
1. FM 5-250 Explosives and Demolitions
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M028	Demolition Kit, Bangalore Torpedo M1	
M032	Charge, Demolition Block TNT 1-Pound	
M039	Charge, Demolition Cratering 40-Poun	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M420	Charge, Demolition Shaped M2 Series	
M456	Cord, Detonating PETN Type I Class E	
M591	Dynamite, Military M1	
M670	Fuse, Blasting Time M700	
M757	Charge, Assembly Demolition M183 Com	
M766	Igniter, M60 for Time Blasting Fuse	
M982	Charge, Demolition Sheet 0.161 Inch	
MM30	Charge, Flexible 20 Gram PETN MK140	
MM44	Charge, Demolition Flexible Linear S	
MM45	Charge, Demolition Flexible Linear S	
MM47	Charge, Demolition Flexible Linear S	
MM48	Charge, Demolition Flexible Linear S	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	

EQUIPMENT: Kevlar helmet, flak vest, Squad Demolition Kit, hearing protection, firing device (M34, MK152 remote firing device , CD450-4J blasting machine, AN/PRC 119

UNITS/PERSONNEL: Range safety officer, corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-DEMO-1003: Engage targets with expedient demolitions

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

BILLETS: Platoon Commander

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.

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 mine.
8. Construct a purpose built charge, based on mission requirements.
9. Engage the target.
10. Confirm target reduction.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 5-250 Explosives and Demolitions

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
M757 Charge, Assembly Demolition M183 Com	
M766 Igniter, M60 for Time Blasting Fuse	
MN08 Igniter, Time Blasting Fuse with Sho	

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, Squad Demolition Kit, hearing protection, firing device (MK152 remote firing device, CD450-4J blasting machine,)AN/PRC 119

UNITS/PERSONNEL: Range safety officer, corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-DEMO-1004: Plan emergency destruction of Captured Enemy Ammunition (CEA)

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

BILLETS: Platoon Commander

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 and mission requirements.

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 reduction.
6. Report results to higher headquarters.

REFERENCES:
1. CHB Country Handbooks
2. FM 5-250 Explosives and Demolitions
3. GTA 5-10-33 Demolition Card
4. MCWP 3-17 Engineer Operations
5. ORD ORDATA II (Software)

1302-DEMO-1005: Conduct range operations

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

BILLETS: Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Plan for training.
2. Conduct site reconnaissance, if required.
3. Build shot plan(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.

REFERENCES:
1. FM 3-34.214 Explosives and Demolitions
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
3. MCO 3570.1B Range Safety (Jun 03)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17502 Non-Standard Small Arms Range

EQUIPMENT: M4, M16A4, M9, M249, M240G, M2, MK19, MK153, Military Demolitions, Shotgun, PPE, Range Folder, Safety Vehicle, Communication Assets, Ammunition Transport Vehicle

UNITS/PERSONNEL: Corpsman w/medical supplies, Ammo Tech, Armorer

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Approved RSO/OIC card, Special permits (if applicable)

1302-MANT-1001: Manage maintenance management reports and records

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

BILLETS: Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given appropriate maintenance reports and references, gear/materiel on consolidated memorandum receipt (CMR), and references.

STANDARD: To identify discrepancies and processing errors within the maintenance cycle; account for gear/materiel on CMR; track deadlined or MARES reportable items.

PERFORMANCE STEPS:
1. Review reports for discrepancies within the maintenance and supply cycle.
2. Review reports transaction for processing errors.
3. Inspect reports for compliance with references.
4. Review supply requests to identify any discrepancies.
5. Conduct reconciliation with MMO and supply.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures
3. UM 4790-5 Users Manual MIMMS

1302-MOBL-1001: Plan a military road

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

BILLETS: Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT

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 to reduce risks during construction.

REFERENCES:
1. FM 5-434 Earthmoving Operations
2. FM 5-472 Materials Testing
3. FMFM 13 MAGTF Engineer Operations
4. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Engineer Equipment Officer (1310) or Engineer Equipment Chief (1349)

1302-MOBL-1002: Plan dismounted route sweep operations

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 20-32 Mine/Countermine Operations
2. FM 5-170 Engineer Reconnaissance
3. FMFM 13 MAGTF Engineer Operations
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: RANGE SAFETY OFFICER, CORPSMAN

1302-MOBL-1003: Plan breaching of a complex obstacle

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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 support the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Identify available bypasses.
3. Identify the type(s) of breaching operation (i. e., bypass, hasty, in-stride, deliberate, assault, or covert/clandestine) and the number of lanes required to allow the passage of the ground combat element (GCE) and Logistics Combat Element (LCE).
4. Identify and evaluate potential breach sites.
5. Determine number/type of explosive/nonexplosive breaching assets available.
6. Task organize engineer personnel and equipment within the breach force.
7. Determine proper sequencing of the breach force based on tactical situation.
8. Develop battle drills (individual/unit) to rehearse the breach of a complex obstacle.
9. Determine support requirements.
10. Plan, prioritize, and recommend fire support requirement.
11. Prepare appendix of the operations order.
12. Coordinate actions of support force and assault force before, during, and after, planned breaches.
13. Coordinate rehearsals with breach, support, and assault forces.

REFERENCES:
1. FM 5-100 Engineers in Combat Operations
2. FM 5-101 Mobility
3. FM 5-170 Engineer Reconnaissance
4. FM 90-13-1 Combined Arms Breaching Operations
5. FMFM 13 MAGTF Engineer Operations
6. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
7. MCWP 3-1 Ground Combat Operations

1302-MOBL-1004: Plan the reduction of strongpoints and structures

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

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 or 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 or structure.
15. Coordinate transfer of control of reduction site to follow-on/ designated force.
16. Submit required reports.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-250 Explosives and Demolitions
3. FM 5-434 Earthmoving Operations
4. MCRP 3-17A Engineer Field Data
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-MOBL-1005: Conduct mobility operations in an Improvised Explosive Device (IED) environment

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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 per the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Plan immediate actions for mobility operation.
3. Conduct immediate actions.
4. Conduct breaching actions.
5. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 5-101 Mobility
3. FM 5-250 Explosives and Demolitions
4. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace

5. MCWP 3-17.4 Engineer Reconnaissance
6. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-MOBL-1006: Conduct assault breaching into buildings

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

BILLETS: Company Commander, Platoon Commander

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 penetrate 100% of the target while limiting the amount of collateral damage in accordance with the commander's intent.

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. Select and construct appropriate explosives for the designated target.
6. Determine possible effects of detonation on the target and surrounding structures.
7. Determine possible effects on the assault team.
8. Identify safety precautions required during detonation.
9. Compute Net Explosive Weight (NEW).
10. Computer standoff distance.
11. Brief team members on explosive effects and safe locations.
12. Position yourself and your team in a safe location during detonation.
13. Suppress enemy fire and set up security.
14. Obscure target from enemy observation.
15. Emplace and detonate the charge.
16. Proof breach site ensure adequacy of breach.
17. Mark breach lane, as required.
18. Pass assault force through the breach site.

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-250 Explosives and Demolitions
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-17.3 MAGTF Breaching Operations

1302-MOBL-1007: Operate a robot

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

BILLETS: Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, suspected explosive hazards, combat engineer equipment, field protective equipment and references.

STANDARD: To locate, confirm and mark the explosive hazard(s) per the operator's manual and applicable references.

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. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.210 Explosive Hazard Operations
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-170 Engineer Reconnaissance
7. FM 5-250 Explosives and Demolitions
8. FM 5-34 Engineering Field Data
9. Appropriate Manufacturer's Assembly Manual/Instructions
10. Appropriate Technical Manuals

1302-MOBL-1008: Identify Explosive Hazards (EH)

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

BILLETS: Company Commander, Platoon Commander

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 orgin, 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. Identfy 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. FM 20-32 Mine/Countermine Operations
2. FM 3-34.210 Explosive Hazard Operations
3. FM 5-250 Explosives and Demolitions
4. FM 5-34 Engineering Field Data
5. SWO 60-AA-MMA-010 Demolition Materials
6. Appropriate Reference Materials

1302-MOBL-1009: Reduce Explosive Hazards (EH)

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

BILLETS: Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, a positively identified explosive hazard, 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.

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. FM 100-10 Combat Service Support
2. FM 100-14 Risk Management
3. FM 20-32 Mine/Countermine Operations
4. FM 3-06 Urban Operations
5. FM 3-06.11 Combined Arms Operations in Urban Terrain
6. FM 3-07 Stability Operations (2008)
7. FM 3-34.210 Explosive Hazard Operations
8. FM 5-100 Engineers in Combat Operations
9. FM 5-101 Mobility
10. FM 5-103 Survivability
11. FM 5-170 Engineer Reconnaissance
12. FM 5-250 Explosives and Demolitions
13. FM 5-34 Engineering Field Data
14. FM 90-13-1 Combined Arms Breaching Operations
15. GTA 5-10-33 Demolition Card
16. GTA 5-2-5 Engineer Reconnaissance
17. MCWP 3-1 Ground Combat Operations
18. MCWP 3-17 Engineer Operations

19. MCWP 3-17.3 Breaching Operations
20. Appropriate Technical Manuals
21. Supported Battalion SOP

1302-MOBL-1010: Design a ribbon bridge/raft

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Conduct reconnaissance of ribbon bridge/raft site.
3. Determine site condition and layout.
4. Determine logistical support requirements for ribbon bridge construction.
5. Determine engineer estimate of supportability.
6. Determine configuration of the ribbon bridge/raft to be utilized.
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. FMFM 13 MAGTF Engineer Operations
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17.1 River-Crossing Operations
4. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

1302-MOBL-1011: Design a medium girder bridge

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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 Engineer Field Data
2. TM 5-5420-212-12 Medium Girder Bridge
3. TM 5-5420-212-12-1 Link Reinforcement Set

1302-MOBL-1012: Classify a bridge

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

BILLETS: Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Coordinate support/security requirements with supported units.
3. Prepare bridge reconnaissance team and all applicable forms and reports.
4. Conduct bridge reconnaissance.
5. Make appropriate calculations.
6. Determine bridge classification/restrictions.

REFERENCES:
1. FM 5-446 Military Non-Standard Fixed Bridges
2. GTA 5-7-13 Bridge Classification Booklet
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports

1302-MOBL-1013: Plan construction of an expeditionary airfield (EAF)

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, airfield configuration, and references.

STANDARD: To meet requirements of the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
2. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design

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1302-RECN-1001: Conduct engineer reconnaissance operations

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Determine reconnaissance requirements.
3. Issue the warning order.
4. Task organize personnel and equipment.
5. Coordinate security, fire support, and logistical support as required.
6. Issue the order.
7. Conduct rehearsals.
8. Inspect reconnaissance team.
9. Execute reconnaissance mission.
10. Submit reports.

REFERENCES:
1. FM 5-101-5-1 Operational Terrain and Symbols
2. FM 5-170 Engineer Reconnaissance

3. GTA 5-2-5 Engineer Reconnaissance
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports

1302-SURV-1001: Plan construction of blast mitigation measures

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-102 Countermobility
2. FM 5-103 Survivability
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-SURV-1002: Plan building hardening

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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 measure to harden buildings against weapon effects.
5. Plan for additional structural support of a building to allow for additional load of protective materials and to prevent progressive collapse of an existing structure.
6. Plan fighting positions within an existing structure to allow for employment of infantry weapons from within an enclosed space allowing for backblast, dust control, and minimum arming distances.
7. Plan above ground fighting positions and shelters in instances where digging is not possible.
8. Develop a fire prevention and firefighting plan.
9. Coordinate survivability/ countermobility plan with supported unit.
10. Develop a countermobility plan that supports the commander's intent (disrupt, fix, turn, block) and prevents enemy access to structures as required.
11. Correct deficiencies/ modify positions/ obstacles to provide better support to supported unit.

REFERENCES:
1. FM 5-102 Countermobility
2. FM 5-103 Survivability
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-SURV-1003: Plan construction of a vehicle entry point as a part of a protective barrier plan

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, an operations order, a map, and references.

STANDARD: To meet unit requirements outlined in the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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 to provide minimum safe standoff distances to protect from bomb blasts.
5. Design entry point to 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. FM 5-102 Countermobility
2. FM 5-103 Survivability
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1302-SURV-1004: Prepare a survivability plan

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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, and the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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 for proper construction techniques and the level of support afforded to the supported unit.
8. Prepare survivability appendix to operations order.

REFERENCES:
1. FM 20-3 Camouflage
2. FM 5-103 Survivability
3. FMFM 3-1 Command and Staff Action
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-1 Ground Combat Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Pioneer Platoon kit, Pioneer Squad Kit, 260 CFM, Heavy Equipment.

MATERIAL: Tie Wire, barbed wire, engineer stakes, timbers, sandbags, HESCO,

UNITS/PERSONNEL: Range Safety Officer, Corpsman, Heavy Equipment and Operators

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-XENG-1001: Plan a horizontal construction project

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-33 Terrain Analysis
2. FM 5-410 Military Soils Engineering
3. FM 5-412 Project Management
4. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations

5. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
6. FM 5-434 Earthmoving Operations
7. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
8. NAVAIR 51-60-A-1 Installation, Maintenance, Repackaging and Illustrated Parts Breakdown, AM-2 Airfield Mat and Accessories

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1302-XENG-1002: Plan a vertical construction project

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

MOS PERFORMING: 1302

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-412 Project Management
2. FM 5-426 Carpentry
3. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

EQUIPMENT: NONE

MATERIAL: Map, calculation worksheets, calculator, blueprints, engineer forms and reports

UNITS/PERSONNEL: 1361, Engineer Assistant

OTHER SUPPORT REQUIREMENTS: ORM

1302-XENG-1003: Establish project/operation schedules

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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: 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 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. FM 5-412 Project Management

1302-XENG-1004: Plan a cantonment

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, size of the unit to occupy cantonment, and references.

STANDARD: To meet unit requirements outlined in the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.

2. Conduct a site reconnaissance.
3. Determine site requirements and camp layout.
4. Select a temporary facility, if available.
5. Determine logistical support requirements.
6. Determine bill of materials (BOM).
7. Determine utility requirements.
8. Determine drainage requirements.
9. Develop obstacle/barrier plan, as required.
10. Establish a survivability plan, as required.
11. Determine task organization of personnel and equipment.
12. Illustrate final design/design blueprints.
13. Coordinate with supported commander, as required.
14. Coordinate logistical support, as required.
15. Incorporate safety measures to be taken at the construction site(s).
16. Coordinate security measures as required.
17. Establish a waste disposal plan, as required.
18. Establish an ammunition storage/ distribution, transportation plan, as required.
19. Establish a bulk liquid storage and distribution plan.
20. Establish a facility/ site maintenance and repair plan.

REFERENCES:
1. FM 5-102 Countermobility
2. FM 5-103 Survivability
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
5. FMFM 13 MAGTF Engineer Operations
6. MCRP 3-17A Engineer Field Data
7. MCWP 4-11.6 Bulk Liquid Operations

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Utility Officer (1120) or Utilities Chief (1169) will assist

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1302-XENG-1005: Develop mobile electric power distribution plan

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Conduct site reconnaissance.
3. Identify existing electrical power sources.
4. Determine electrical power requirements based on personnel, equipment, and facilities.
5. Determine priorities for electric power.
6. Determine task organization of personnel and equipment to construct and operate the mobile electric power distribution system.
7. Develop a distribution diagram.

REFERENCES:
1. FMFM 13 MAGTF Engineer Operations
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Utility Officer (1120) or Utilities Chief (1169) will assist

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1302-XENG-1006: Develop field water distribution system

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Conduct site reconnaissance.
3. Identify existing water sources through water point reconnaissance.
4. Determine water consumption based on numbers of personnel, equipment, facilities, and climate conditions.
5. Develop plan for production, purification, storage, and distribution of water (i.e., well drilling, Hypo-chlorination, ROWPU, TWPS.)
6. Plan drainage system to prevent contamination of water source from storm runoff.
7. Plan construction or improvement main supply routes (MSR) from water point and/or well sites.
8. Determine task organization of equipment and personnel to operate the water points and distribution system.

9. Develop a distribution diagram.
10. Coordinate with supported commander, as required.
11. 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

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1302-XENG-1007: Plan fuel operations

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, a map, operations order, task organization of equipment and personnel, and references.

STANDARD: To meet requirements as outlined in the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Plan reconnaissance of selected sites.
3. Determine the fuel shortage and distribution requirements to support the concept of operations.
4. Identify existing fuel sources and host nation support availability.
5. Coordinate with appropriate services with the delivery of fuel.
6. Select sites for fuel farms.
7. Plan horizontal construction operations.
8. Determine task organization of equipment and personnel.
9. Illustrate the layout of the fuel farm.
10. Illustrate fuel distribution plan.
11. Maintain record of fuel distribution.
12. Plan/coordinate firefighting support.

REFERENCES:
1. FM 10-67-1 Concepts and Equipment of Petroleum Operations
2. FM 10-67-2 Petroleum Laboratory Testing and Operations
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. FMFM 13 MAGTF Engineer Operations

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: Bulk Fuel Officer (1390) or Bulk Fuel Specialist (1391) and Engineer Equipment Officer (1310) or Engineer Equipment Chief (1349)

10004. 2000-LEVEL EVENTS

1302-ADMN-2001: Direct the Marine Corps Planning Process (MCPP)

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

BILLETS: Battalion Commander, Battalion/Squadron Executive Officer, Battalion/Squadron Operations Officer, Company Commander

GRADES: CAPT, MAJ, LTCOL

INITIAL TRAINING SETTING: MOJT

CONDITION: Given higher headquarters' operations order, commander's guidance, an operational planning team (OPT), and references.

STANDARD: To develop a unit operations order; transition into the execution phase in accordance with the concept of operations.

PERFORMANCE STEPS:
1. Direct mission analysis.
2. Direct course of action (COA) development.
3. Direct course of action (COA) wargaming.
4. Direct course of action (COA) comparison and decisionmaking.
5. Direct the development of appropriate staff products, operations plans, orders, annexes, and appendices.
6. Direct transition.

REFERENCES:
1. MCWP 5-1 Marine Corps Planning Process
2. MSTP 5-0.3 MAGTF Planner's Reference Manual
3. MSTP PAM 5-0.2 Operational Planning Team Guide

1302-CMOB-2001: Coordinate employment of a FASCAM Obstacle

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a tactical situation, an operations order, and FASCAM delivery resources.

STANDARD: To plan the requirements (along with required forms and reports) for the emplacement of hand, artillery, and aviation delivered scatterable minefields.

PERFORMANCE STEPS:
1. Conduct mission analysis.

2. Determine assets/timeline necessary to meet obstacle intent (turn, block, fix, disrupt).
3. Identify logistical requirements.
4. Coordinate emplacement firing/ delivering units as required.
5. Verify the obstacle is effective based on the principles of obstacle employment and the FASCAM decision points identified during planning.
6. Monitor construction/installation of the scatterable minefield.
7. Submit required Engineer reports.
8. Ensure dissemination of the SCATMINEWARN report to affected unit(s).
9. Monitor minefield destruction timeline.
10. Ensure common operational picture reflects changes in situational obstacle status.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 5-102 Countermobility
3. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

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

1302-DEMO-2001: Supervise demolition operations

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

BILLETS: Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a tactical situation, a map, an operations order, a demolitions plan, equipment and personnel, and the references.

STANDARD: To execute the concept of operations of the operations order.

PERFORMANCE STEPS:
1. Review the demolition plan.
2. Validate quantity and type of demolition required.
3. Task organize personnel and equipment.
4. Issue the order.
5. Plan and conduct mission rehearsal.
6. Conduct demolition mission.
7. Submit engineer reports as required.

RELATED EVENTS:
1302-DEMO-1001

REFERENCES:
1. FM 5-250 Explosives and Demolitions
2. FMFM 13 MAGTF Engineer Operations

3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

EQUIPMENT: Kevlar Helmet, Flak vest, Squad Demolitions Kit, hearing protection, firing device (M34, MK152 remote firing device, CD450-4J blasting machine), AN/PRC 119, map, note taking gear

MATERIAL: DA Form 2203-R

UNITS/PERSONNEL: range safety officer, corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-MANT-2001: Manage an organizational maintenance program

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

BILLETS: Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an engineer task organization of equipment and personnel, equipment technical manuals, and references.

STANDARD: To ensure equipment and maintenance records are maintained.

PERFORMANCE STEPS:
1. Review daily processing report, as necessary.
2. Ensure proper manuals and forms are available.
3. Ensure personnel are trained in proper procedures.
4. Ensure required maintenance is performed and documented.
5. Inventory equipment, as required.
6. Reconcile deadlined equipment with the Maintenance Management Officer (MMO) and Supply Officer on a weekly basis.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures
3. Appropriate Equipment Manual
4. Appropriate Technical Manuals

1302-MOBL-2001: Direct mobility operations from the high water mark inland

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

GRADES: CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given the an operations order, location of adjacent friendly forces, estimated locations and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement and supporting arms.

STANDARD: To achieve force projection and conduct follow-on operations in accordance with the operations order.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Conduct engineer reconnaissance.
3. Plan, organize, and coordinate the assault breaching of explosive and nonexplosive obstacles from the high-water mark inland, if applicable.
4. Employ assault bridge systems, if applicable.
5. Construct expedient, short-span bridges from local materials in support of ground combat operations, if applicable.
6. Provide temporary repair of existing roads and limited new construction of combat roads and trails.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 5-100 Engineers in Combat Operations
3. FM 5-101 Mobility
4. FM 5-170 Engineer Reconnaissance
5. FM 5-250 Explosives and Demolitions
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 5-36 Route Reconnaissance and Classification
8. FM 5-553 General Drafting
9. FM 90-13-1 Combined Arms Breaching Operations
10. FMFM 13 MAGTF Engineer Operations
11. FMFM 4-4 Engineer Operations
12. MCRP 3-17B Engineer Forms and Reports
13. MCWP 3-17 Engineer Operations
14. MCWP 3-17.1 River-Crossing Operations
15. MCWP 3-17.3 Breaching Operations
16. MCWP 3-17.3 MAGTF Breaching Operations
17. MCWP 3-17.3 MAGTF Breaching Operations
18. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System
19. TM 09962A-10/1 Operating Instruction Charts MARK 1 MOD 0 Mine Clearance System
20. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
21. TM 9-1300-214 Military Explosives
22. UNIT SOP Unit's Standing Operating Procedures

1302-MOBL-2002: Plan engineer aspects of a gap crossing operation

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical situation, operations order with river crossing annex, and references.

STANDARD: To support the concept of operations.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. Conduct operations per breaching fundamentals.
8. Coordinate with supported unit.
9. Submit required engineer reports.
10. Coordinate with bridge force, support force, and assault force, as required.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. MCRP 3-17B Engineer Forms and Reports
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17.1 River-Crossing Operations
5. MCWP 5-1 Marine Corps Planning Process

1302-MOBL-2003: Design a non-standard bridge

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander

GRADES: CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

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.

PERFORMANCE STEPS:
1. Conduct mission analysis.
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. FM 5-446 Military Non-Standard Fixed Bridges
2. MCRP 3-17A Engineer Field Data

1302-MOBL-2004: Direct Route and Area Clearance (RAAC) Operations

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

BILLETS: Battalion Commander, Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ, LTCOL

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.

PERFORMANCE STEPS:
1. Plan Route and Area Clearance (RAAC) Operations.
2. Develope a RAAC operation order.
3. Ensure employment concept is consistent with the tactical situation and scheme of maneuver.
4. Issue the order.
5. Conduct rehearsals and Immediate Action (IA) drills.
6. Conduct onsite coordination with higher, adjacent, and supporting units, as required.
7. Ensure all obstacles are detected, identified and marked.
8. Reduce or bypass obstacle per commander's intent.
9. Submit required reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-06.11 Combined Arms Operations in Urban Terrain
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-101-5-1 Operational Terrain and Symbols
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-34 Engineering Field Data
10. FM 5-36 Route Reconnaissance and Classification
11. FMFM 13 MAGTF Engineer Operations
12. FMFM 4-1 Combat Service Support Operations
13. GTA 5-10-33 Demolition Card
14. GTA 5-2-5 Engineer Reconnaissance
15. MCO 3500.27B Operational Risk Management (ORM) (May 04)

16. MCRP 3-17B Engineer Forms and Reports
17. MCWP 3-17 Engineer Operations
18. MCWP 3-17.3 Breaching Operations
19. MCWP 3-17.3 MAGTF Breaching Operations
20. MCWP 3-17.3 MAGTF Breaching Operations
21. MCWP 3-17.4 Engineer Reconnaissance

1302-MOBL-2005: Direct the clearing of mines and booby traps

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a tactical situation, information on possible mines, IEDs, booby traps, and other explosive hazards, an area of operations, and references.

STANDARD: To ensure that all explosive hazards are cleared from the designated area.

PERFORMANCE STEPS:
1. Conduct mission analysis.
2. Conduct site reconnaissance.
3. Task organize demolition teams.
4. Establish a systemic plan based on priority of occupation for clearing the area.
5. Issue the order.
6. Conduct rehearsals.
7. Breach (Reduce, Proof, Mark) the area.
8. Submit required engineer reports.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 5-250 Explosives and Demolitions
3. MCWP 3-17.3 MAGTF Breaching Operations

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: RANGE SAFETY OFFICER, CORPSMAN

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-MOBL-2006: Direct breaching of a complex obstacle

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

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a tactical situation, an operations order, a map, and references.

STANDARD: To ensure the breach is executed per the mission order and the commander's intent.

PERFORMANCE STEPS:
1. Identify requirements outlined in the breach plan.
2. Task organize and coordinate personnel and equipment.
3. Issue the breaching orders to unit leaders.
4. Plan and conduct breach rehearsals.
5. Conduct the breach per breaching fundamentals; suppress, obscure, secure, reduce, and reconstitute.
6. Submit required engineer reports.
7. Coordinate with support force and assault force to synchronize actions at the breach site.
8. Coordinate logistical support, as required.
9. Coordinate security, as required.
10. Ensure safety measures are observed to reduce risks during breaching operations.
11. Coordinate transfer of control of breach lanes with support breach force or designated follow-on forces.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 90-13-1 Combined Arms Breaching Operations
3. MCWP 3-17.3 MAGTF Breaching 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	
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range

UNITS/PERSONNEL: Range Safety Officer, Corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

1302-SURV-2001: Prepare a barrier plan

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a tactical situation, a map, an operations order, task organized equipment and personnel, design specifications, construction materials and references.

STANDARD: To turn, block, fix or disrupt enemy forces in accordance with concept of operations.

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 5-102 Countermobility
3. FM 5-250 Explosives and Demolitions
4. FM 5-34 Engineer Field Data - Field Expedient Charges
5. FM 90-7 Combined Arms Obstacle Integration
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports

1302-XENG-2001: Direct a horizontal construction repair operation

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given the operations order, task organization of personnel and equipment, a construction design, and references.

STANDARD: To ensure all construction activities are completed per the concept of operations.

PERFORMANCE STEPS:
1. Analyze design to determine requirements for repair.
2. Employ construction management tool.
3. Establish site layout.
4. Coordinate logistical requirements.
5. Issue the order.
6. Inspect construction tasks to ensure proper construction techniques.
7. Update construction schedule to maximize productivity.
8. Coordinate with supported unit.
9. Submit appropriate engineer reports.
10. Coordinate logistical support, as required.
11. Coordinate security, as required.
12. Ensure safety measures are observed to reduce risks during construction.

REFERENCES:
1. FM 5-33 Terrain Analysis
2. FM 5-410 Military Soils Engineering
3. FM 5-412 Project Management
4. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
5. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
6. FM 5-434 Earthmoving Operations
7. MCRP 4-11.3E Multi-service Helicopter Sling Load: Vols I,II and III
8. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
9. NAVAIR 51-60-A-1 Installation, Maintenance, Repackaging and Illustrated Parts Breakdown, AM-2 Airfield Mat and Accessories

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1302-XENG-2002: Direct a vertical construction repair operation

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given the operations order, task organization of personnel and equipment, a construction design, and references.

STANDARD: To ensure all construction activities are completed per the concept of operations.

PERFORMANCE STEPS:
1. Analyze design requirements.
2. Develop construction management tool.
3. Establish site layout.
4. Coordinate logistical requirements.
5. Issue the order.
6. Inspect construction tasks.
7. Update construction schedule, as required.
8. Submit required engineer reports.
9. Coordinate with supported unit.
10. Coordinate logistical support, as required.
11. Coordinate security, as required.
12. Ensure safety measures are observed to reduce risks during construction.

RELATED EVENTS:
1302-XENG-1002

REFERENCES:
1. FM 5-412 Project Management
2. FM 5-426 Carpentry
3. MCRP 3-17B Engineer Forms and Reports
4. TM 5-704 Construction Print Reading in the Field

1302-XENG-2003: Supervise airfield damage repair

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

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.

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 based on crater size.
4. Calculate the material requirements for spall repair based on spall size.
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 to be taken at the construction site(s).
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 in line with commander's repair priorities.

REFERENCES:
1. FM 5-34 Engineering Field Data
2. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design

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1302-XENG-2004: Plan Forward Arming and Refueling Point (FARP) operation

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

BILLETS: Battalion/Squadron Operations Officer, Company Commander, Platoon Commander

GRADES: 2NDLT, 1STLT, CAPT, MAJ

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a tactical situation, operations order, and references.

STANDARD: To provide support to aviation assets located forward and in accordance with the concept of operations.

REFERENCES:

1. FM 5-34 Engineering Field Data
2. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
3. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design

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ENG & UTIL T&R MANUAL

CHAPTER 11

MOS 1310 INDIVIDUAL EVENTS

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CHAPTER 11

MOS 1310 INDIVIDUAL EVENTS

11000. PURPOSE. This chapter includes all individual training events for the Engineer Equipment Officer. An individual event is an event that a trained Engineer Equipment Officer would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

11001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1310).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

2000 – Core Plus Skills

11002. INDEX OF INDIVIDUAL EVENTS

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11003. 2000-LEVEL EVENTS

1310-ADMN-2001: Manage load test of engineer equipment

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided appropriate load lifting equipment with completed annual condition inspection, maintenance resources, and references.

STANDARD: To ensure load testing is conducted, certified, documented and maintained on a scheduled basis per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Identify load testing requirements.
3. Conduct a load test.
4. Document load test results.
5. Review documentation.
6. Certify documentation.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 4700-15/1H Ground Equipment Record Procedures
3. Appropriate Technical Manuals

1310-ADMN-2002: Manage corrosion prevention and control program

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 per the reference.

PERFORMANCE STEPS:
1. Indentify corrosion prevention and control requirements.

2. Establish corrosion prevention and control procedures.
3. Manage corrosion prevention and control procedures.

REFERENCES:
1. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
2. TM 3080-12 Corrosion Control for Marine Corps Ground Equipment
3. TM 3080-50 Corrosion Control Procedures

1310-ADMN-2003: Manage support and test equipment program

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review support and test equipment assets and requirements.
3. Manage support and test equipment inventory and control.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures

1310-ADMN-2004: Manage maintenance-related reports

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

BILLETS: Engineer Equipment Officer, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance-related reports, supporting documentation and references.

STANDARD: To support mission requirements for Corrective Maintenance (CM) and Preventive Maintenance (PM) programs per the references.

PERFORMANCE STEPS:
1. Provide input to the unit Maintenance Management Standard Operating Procedures.

2. Conduct internal inspections program.
3. Plan, organize, and coordinate the use of maintenance resources.

REFERENCES:
1. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1310-ADMN-2005: Manage engineer equipment records and forms

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Indentify 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. Manage Product Quality Deficiency Report (PQDR) program.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H w/Ch 3 Ground Equipment Record Procedures
3. UM 4790-5 Users Manual MIMMS

1310-ADMN-2006: Manage engineer equipment MOS training program

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 that MOS proficiency is maintained per the references.

PERFORMANCE STEPS:
1. Review the annual training plan.
2. Review the section training plan.
3. Identify supervisor's responsibilities.
4. Select personnel to conduct training.
5. Review the references.
6. Select topics to be instructed to unit personnel.
7. Select topics to be instructed to maintenance personnel.
8. Select topics to be instructed to operator personnel.
9. Select topics to be instructed to maintenance management personnel.
10. Direct the training of all personnel.
11. Ensure training is documented correctly.

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
3. MCO 3500.27B Operational Risk Management (ORM) (May 04)
4. MCO P3500.72A Marine Corps Ground Training and Readiness (T&R) Program (Apr 05)
5. MCRP 3-0A Unit Training Management Guide
6. MCRP 3-0B How to Conduct Training
7. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
8. TM 11275-15/4 Tactical Engineer Equipment Licensing Examiner's Manual (Jun 83)

1310-ADMN-2007: Manage engineer equipment section supply support program

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance-related reports (MIMMS-AIS), appropriate equipment-related publications, and references.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review supply support request.
3. Submit input for budget requirements.
4. Monitor allocated funding.
5. Establish pre-extended bin (PEB) and Equipment Repair Order (ERO) layette procedures.
6. Submit input for supply requirements.

7. Establish validation/reconciliation procedures.
8. Manage PEB and ERO layette procedures.

REFERENCES:
1. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. MCO P4400.82_ Regulated/Controlled Item Management Manual
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. UM 4400-124 FMF SASSY Using Unit Procedures
6. UM 4790-5 Users Manual MIMMS

1310-ADMN-2008: Manage publications program

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 per the references.

PERFORMANCE STEPS:
1. Review the 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 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 5215.1K Marine Corps Directives Management Program
3. MCO 5600.20P Marine Corps Doctrinal Publications System (Nov 06)
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
6. MCO P5600.31G Marine Corps Publications and Printing Regulations (Sep 93)
7. UNIT SOP Unit's Standing Operating Procedures

1310-ADMN-2009: Manage engineer equipment licensing program

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, documentation, licensing records, and references.

STANDARD: Ensuring equipment operators are licensed per the references.

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 P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Examiner's Manual (Jun 83)
4. UNIT SOP Unit's Standing Operating Procedures

1310-ADMN-2010: Manage maintenance-related programs

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 reference.

STANDARD: To support mission requirements per the reference.

PERFORMANCE STEPS:
1. Supervise MIMMS-AIS.
2. Supervise modification control program.
3. Supervise calibration control program.
4. Supervise quality control program.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)

1310-ADMN-2011: 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, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

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 per the references.

PERFORMANCE STEPS:
1. Review the task/mission.
2. Review the references.
3. Indentify the hazards.
4. Assess hazards, indentifying severity and probability.
5. Develop controls.
6. Make risk decisions.
7. Implement controls.

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. MCO 5100.29A Marine Corps Safety Program (Jul 04)
3. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
4. MCRP 5-12.1C Risk Management (Feb 01)

1310-MANT-2001: Manage engineer equipment maintenance shop operations

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided with the references, a maintenance facility, a maintenance mission and maintenance resources.

STANDARD: To ensure maintenance facilities and processes are established per the mission requirements and references.

PERFORMANCE STEPS:
1. Indentify resources.
2. Indentify mission requirements.
3. Indentify environmental and natural resource considerations.
4. Designate appropriate maintenance shop areas.
5. Validate operational risk management procedures.
6. Implement the shop plan.
7. Implement shop safety programs.
8. Prioritize use of facilities.
9. Ensure facilities are maintained.

REFERENCES:
1. MCO P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. Appropriate Technical Manuals

1310-MANT-2002: Manage engineer equipment availability

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided with the references, a maintenance facility, a maintenance mission and maintenance resources.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review urgency of need designator assignment code.
3. Review maximum maintenance cycle time.
4. Develop plan to increase equipment availability.

REFERENCES:
1. MCO P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)

1310-XENG-2001: Manage horizontal construction

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 specifications and milestones per the project specifications and the references.

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. FM 5-412 Project Management
2. FM 5-434 Earthmoving Operations

1310-XENG-2002: Manage horizontal construction project production and logistical requirements

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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 support mission requirements per the references.

PERFORMANCE STEPS:
1. Conduct site reconnaissance.
2. Identify construction requirements.
3. Identify logistical requirements.
4. Indentify environmental controls and natural resources considerations.
5. Formulate an estimate.

REFERENCES:
1. FM 5-412 Project Management
2. FMFM 13 MAGTF Engineer Operations
3. Appropriate Technical Manuals

1310-XENG-2003: Validate project/operation schedule

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance 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. FM 5-412 Project Management
2. FM 5-434 Earthmoving Operations

1310-XENG-2004: Manage engineer equipment operations

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

MOS PERFORMING: 1310

BILLETS: Engineer Equipment Officer, Maintenance Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, available resources, a mission, and references.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:

1. Review the mission.
2. Indentify engineer equipment assets required.
3. Conduct engineer equipment operations.
4. Manage material handling equipment employment.
5. Manage earth moving equipment employment.
6. Manage general support engineer equipment employment.
7. Manage equipment recovery operations, as required.

REFERENCES:

1. FM 5-434 Earthmoving Operations
2. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
3. Appropriate Technical Manuals

ENG & UTIL T&R MANUAL

CHAPTER 12

MOS 1316 INDIVIDUAL EVENTS

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CHAPTER 12

MOS 1316 INDIVIDUAL EVENTS

12000. PURPOSE. This chapter includes all individual training events for the Metal Worker. An individual event is an event that a trained Metal Worker would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

12001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1316).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Metal Worker individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

12002. INDEX OF INDIVIDUAL EVENTS

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12003. 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, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided job site with working personnel to inspect and references

STANDARD: To identify, annotate and ensure corrective procedures and actions in accordance with job specifications and references.

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. Implement corrective action.

REFERENCES:
1. MCO P5100.8 Marine Corps Occupational Safety and Health Program Manual (Obsolete - replaced by NAVMC DIR 5100.8)

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay.

EQUIPMENT: Required equipment

MATERIAL: Required materials

1316-ADMN-1002: Maintain engineer equipment records and forms

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 engineer forms and records.

STANDARD: To meet mission requirements in accordance with job specifications and references.

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. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
2. UM 4790-5 Users Manual MIMMS

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, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided tool sets, chests, kits and references

STANDARD: To reconcile the inventory list for accountability and serviceability in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review the references.
2. Conduct inventory.
3. Properly annotate inventory sheet.
4. Take corrective action as required.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, bay or equipment storage area

EQUIPMENT: Required equipment

1316-MANT-1001: Perform operations check on welding/cutting equipment

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 a welding facility, welding/cutting equipment, and the references

STANDARD: To ensure a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Inventory the equipment necessary to perform the assigned check.
2. Perform before operations checks.
3. Perform during operations checks
4. Perform after operations checks

REFERENCES:
1. TC 9-237 Welding Theory
2. TM 04055D-14&P Marine Corps Tactical Welding Shop
3. TM 10927A-14&P Technical Manual Titanium Kit

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom and welding annex or bay

EQUIPMENT: Welding and/or cutting equipment

MATERIAL: Personnel protective equipment

1316-MANT-1002: Perform identification tests on metal

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 necessary tools, metals to be tested, and the references

STANDARD: To ensure correct metal for use in accordance with job specifications and references.

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. 1-56637-987-3 Modern Welding Textbook
2. 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-1003: Perform corrosion prevention and control

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 an item, required safety equipment, materials, appropriate tools and references

STANDARD: To maintain equipment in operational condition in accordance with the job specifications and references.

PERFORMANCE STEPS:
1. Review the reference.
2. Identify discrepancies.
3. Perform necessary corrective action to prevent corrosion and deterioration.
4. Properly dispose of waste.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. TC 9-237 Welding Theory
3. TM 4750-15/2 Painting and Registration Marking for Marine Corps Combat and

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay

EQUIPMENT: Required equipment

MATERIAL: Personnel protective equipment required materials

1316-MANT-1004: Perform arm or plate welding/repair

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 Gas Metal Arc Welding (GMAW) equipment or Shielded Metal Arc Welding (SMAW) equipment, armor plate, job specifications and references.

STANDARD: To ensure a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review job specifications.
2. Don PPE.
3. Perform operations checks and services.
4. Prepare armor for welding/repair.
5. Prepare Gas Metal Arc welding (GMAW) equipment for welding, as required.
6. Prepare Shielded Metal Arc welding (SMAW) equipment for welding, as required.
7. Perform the required welds.
8. Perform after operation checks and services.
9. Secure the equipment.

PREREQUISITE EVENTS:
1316-XENG-1004 1316-XENG-1006 1316-XENG-1005

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. TC 9-237 Welding Theory
3. 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**: 6 months

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided Marine Corps Tactical Welding Shop (MCTWS), job specifications and references

STANDARD: To ensure proper operation of the Marine Corps Tactical Welding Shop (MCTWS) per the references.

PERFORMANCE STEPS:
1. Perform before, during and after operations checks.
2. Perform start up procedures
3. Perform set up procedures for all welding/cutting operations.
4. Perform shutdown procedures
5. Conduct operator preventative maintenance checks and services.

PREREQUISITE EVENTS:
1316-ADMN-1001

RELATED EVENTS:

1316-MANT-1001	1316-ADMN-1002	1316-XENG-1002
1316-ADMN-1003	1316-XENG-1006	1316-XENG-1003
1316-XENG-1004	1316-XENG-1005	1316-MANT-1003

REFERENCES:
1. TM 04055D-OI/1 MARINE CORPS TACTICAL WELDING SHOP (MCTWS)

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 gas tungsten arc welding equipment, required metal, job specifications and references

STANDARD: To ensure a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review job specification.
2. Set up GTAW equipment.
3. Don PPE.
4. Perform operations checks and services.
5. Prepare aluminum for welding, as required.
6. Prepare stainless steel for welding, as required.
7. Prepare titanium for welding, as required.
8. Prepare carbon steel for welding, as required.
9. Prepare alloy 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.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. 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 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 oxyacetylene equipment, required metal, job specification, and references.

STANDARD: To ensure a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review job specifications.
2. Set up oxyacetylene equipment.
3. Don PPE.
4. Perform operation checks and services.
5. Prepare sheet metal for welding, as required.
6. Prepare carbon steel for welding, as required.
7. Prepare alloy 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.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. 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-1004: 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 Shielded Metal Arc Welding (SMAW) equipment, required metal, job specification, and references.

STANDARD: To ensure a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review job specification.
2. Set up SMAW equipment.
3. Don PPE.
4. Perform operations checks and services..
5. Prepare aluminum for welding, as required.
6. Prepare stainless steel for welding, as required.
7. Prepare carbon steel for welding, as required.
8. Prepare alloy steel for welding, as required.

9. Prepare cast steel for welding, as required.
10. Prepare pipe for welding, as required.
11. Perform the required welds.
12. Perform after operations check.
13. Secure the equipment.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. 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-1005: 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 Gas Metal Arc Welding (GMAW) equipment, required metal, job specifications and the references.

STANDARD: To ensure a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review job specification.
2. Set up GTAW equipment.
3. Perform operations checks and services.
4. Prepare Aluminum for welding, as required.
5. Prepare Stainless steel for welding, as required.
6. Prepare carbon steel for welding, as required.
7. Prepare alloy steel for welding, as required.
8. Prepare cast steel for welding, as required.
9. Perform the required welds.
10. Perform after operations checks.
11. Secure the equipment.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. 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-1006: 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 oxyacetylene welding equipment, required metal, job specifications and references.

STANDARD: To ensure a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review job specifications.
2. Set up cutting equipment.
3. don PPE.
4. Perform operations checks and services.
5. Prepare shear for cutting, as required.
6. Prepare Plasma Arc for cutting, as required
7. Prepare oxyacetylene for cutting, as reqired.
8. Perform the required cuts.
9. Perform after operation checks.
10. Secure the equipment.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Classroom, welding annex or welding bay.

EQUIPMENT: Oxy fuel Equipment

MATERIAL: Personnel protective equipment, required metal and required consumables

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12004. 2000-LEVEL EVENTS

1316-ADMN-2001: Supervise welding operations

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

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided subordinate personnel, welding job specifications, welding equipment, materials and references

STANDARD: To ensure safe working conditions, proper techniques and job completion in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review references and specifications.
2. Brief welding crew on mission requirements
3. Observe crew on mission requirements
4. Ensure safety precautions are observed
5. Ensure product/process meets specifications
6. Complete required documentation.

REFERENCES:
1. TC 9-237 Welding Theory
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. UM 4790-5 Users Manual MIMMS

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: MOJT

CONDITION: Provided welding shop, welding equipment and tools, subordinate personnel and references

STANDARD: To ensure inventory is conducted in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review the references
2. Issue instructions to personnel.
3. Observe inventory in progress.
4. Ensure safe handling of tools and materials
5. Review discrepancies
6. Complete required documents.

REFERENCES:
1. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay/office

EQUIPMENT: Required equipment

MATERIAL: Required material

1316-ADMN-2003: Review MIMMS reports

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

BILLETS: Welder

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provide MIMMS-AIS reports, supporting documentation, and references

STANDARD: To ensure completeness and accuracy per the requirements of the references.

PERFORMANCE STEPS:
1. Review references
2. Review MIMMS report.
3. Identify discrepancies.
4. Initiate corrective action.

REFERENCES:
1. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay/office

EQUIPMENT: Required equipment

MATERIAL: Required materials

1316-MANT-2001: Perform metal surface hardening

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

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided oxyacetylene welding equipment, metal, job specifications and references

STANDARD: To ensure proper surface hardening in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Set up the equipment.
2. Perform before operation checks and services
3. Review the specifications for the object.
4. Prepare the metal for hardening.
5. Harden the metal.
6. Perform after operations checks and services.
7. Secure the equipment.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay

EQUIPMENT: Oxyfuel equipment

MATERIAL: Personnel protective equipment, required metals and gases

---

1316-MANT-2002: Repair radiators

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

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided oxyacetylene welding equipment, radiator patching material, solder, flux, soldering iron, water and compressed air supplies, appropriate tools, and references

STANDARD: To ensure a serviceable weld and maintain appropriate pressure in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review TM 9-237 and the job specifications
2. Set up the welding equipment
3. Purge the radiator
4. Clean the radiator
5. Repair the radiator
6. Test the radiator.
7. Perform after operations checks.
8. Secure the equipment.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. FM 43-2 Metal body Repair and Related Operations
3. TC 9-237 Welding Theory
4. TM 750-254 Tactical Vehicle Cooling System

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay

EQUIPMENT: Welding and or cutting equipment

MATERIAL: Personnel protective equipment, required object and required consumables

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1316-MANT-2003: Supervise welding shop preventative maintenance

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

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided items of engineer equipment, (NAVMC 696D/10523/10245/10560/10524/10561/10925) and references

STANDARD: To meet mission requirements in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Review the references.
2. Determine records and forms required NAVMC 696D (Record Jacket), NAVMV 10523 (Engineer Equipment Operational Record) NAVMC 10245 (ERO), NAVMC 10560 (Worksheet for Preventative Maintenance and Technical Inspection for Engineer Equipment), NAVMC (Engineer Equipment Operation Log and Service Record), NAVMC 10561 (Preventive Maintenance Checks and Service Roster), NAVMC 10925 (EROSL).
3. Prepare records and forms
4. Maintain records and forms

REFERENCES:
1. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay/office

EQUIPMENT: Required equipment

MATERIAL: Required materials

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 welding facility, oxyacetylene equipment, material to forge, job specification, and the references

STANDARD: To ensure proper techniques in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Set up the equipment.
2. Perform operation check and services.
3. Review the specifications for the object.
4. Prepare the material for forging.
5. Forge the material.
6. Perform after operations checks and services.
7. Secure the oxyacetylene equipment.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay

EQUIPMENT: Oxy fuel equipment

MATERIAL: Personnel protective equipment and required objects

---

1316-XENG-2002: Fabricate special tools and metal objects

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 welding/cutting equipment, fabrication material, welding materials, job specifications and references

STANDARD: To ensure a functional tool or object in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Set up the equipment
2. Perform operations checks and services.
3. Review the specification for the project.
4. Prepare the material for welding.
5. Perform the required welds.
6. Perform after operations checks.
7. Secure the equipment.

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. 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 and required drawing and or blueprints

---

1316-XENG-2003: Perform Sheet Metal Operations

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

MOS PERFORMING: 1316

BILLETS: Welder

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a welding facility, job specifications, materials, tools and references.

STANDARD: To ensure correct cutting, forging or a serviceable weld in accordance with job specifications and references.

PERFORMANCE STEPS:
1. Set up the equipment
2. Perform operations checks
3. Determine bill of material
4. Draw pattern(s)
5. Lay out pattern(s)
6. Prepare the material
7. Perform sheet metal operations
8. Secure the equipment

REFERENCES:
1. 1-56637-987-3 Modern Welding Textbook
2. TC 9-237 Welding Theory

SUPPORT REQUIREMENTS:

ROOMS/BUILDINGS: Welding bay

EQUIPMENT: Required welding and/or cutting equipment

MATERIAL: Personnel protective equipment, required object or metals and required consumables

ENG & UTIL T&R MANUAL

CHAPTER 13

MOS 1341 INDIVIDUAL EVENTS

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CHAPTER 13

MOS 1341 INDIVIDUAL EVENTS

13000. PURPOSE. This chapter includes all individual training events for the Engineer Equipment Mechanic. An individual event is an event that a trained Engineer Equipment Mechanic would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

13001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1341).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

13002. INDEX OF INDIVIDUAL EVENTS

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13003. 1000-LEVEL EVENTS

1341-ADMN-1001: Conduct Shop Operations

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

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

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. Complete tasks to be performed during the acceptance phase.
2. Complete tasks to be performed during induction phase.
3. Select appropriate technical manuals.
4. Complete tasks to be performed during maintenance phase.
5. Complete tasks to be performed during closeout phase.
6. Complete preventive maintenance as required.
7. Complete corrective maintenance as required.
8. Apply operational risk management.

REFERENCES:
1. MCBUL 3000 MARES Logistics Reportable Equipment
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. NAVMC 10772 RECOMMENDED CHANGE TO TECHNICAL PUBLICATION
6. SL-3-11668A General Mechanics Tool Box
7. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
8. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
9. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1341-ADMN-1002: Conduct inventory of tool sets, chests, and kits

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

DESCRIPTION: Conduct inventory of tool sets, chests, and kits.

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided tools sets, chests, kits, and references.

STANDARD: To reconcile inventory records for accountability and serviceability per the references.

PERFORMANCE STEPS:
1. Review References
2. Properly annotate inventory sheet.
3. Take corrective actions as required.
4. Conduct inventory

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
5. Appropriate Technical Manuals

1341-MANT-1001: Perform corrective maintenance on engineer equipment

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

DESCRIPTION: Perform corrective maintenance on engineer equipment

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an item of engineer equipment, ERO, appropriate tools, equipment records, and references.

STANDARD: To return equipment to serviceable condition per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review the references.
3. Perform applicable corrective maintenance services.
4. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

1341-MANT-1002: Repair air compressor system

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

DESCRIPTION: Repair air compressor system.

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning air compressor system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1003: Repair equipment electrical system

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

DESCRIPTION: Repair equipment electrical system.

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning electrical system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1005: Perform preventive maintenance

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

DESCRIPTION: Perform preventive maintenance

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided ERO, item of equipment, applicable tools, equipment records, and references.

STANDARD: To meet maintenance requirements per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review ERO.
3. Perform applicable preventive maintenance services.
4. Initiate EROSL if required.
5. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3

1341-MANT-1006: Repair equipment intake exhaust system

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

DESCRIPTION: Repair equipment intake exhaust system.

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning intake/exhaust system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review the ERO.
2. Review the references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1007: Use test measurement and diagnostic equipment

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

DESCRIPTION: Use test measurement and diagnostic equipment

MOS PERFORMING: 1341

BILLETS: Squad Member

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 per the reference.

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-1009: Repair equipment hydraulic system

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

DESCRIPTION: Repair equipment hydraulic system

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning hydraulic system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1010: Repair equipment coolant system

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

DESCRIPTION: Repair equipment coolant system.

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning coolant system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance action.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1011: Repair equipment fuel system

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

DESCRIPTION: Repair equipment fuel system.

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning fuel system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance action.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1012: Repair equipment brake system

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

DESCRIPTION: Repair equipment brake system

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, brake system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1013: Adjust equipment power train components

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

DESCRIPTION: Adjust equipment power train components

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning power train system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review the ERO.
2. Review references.
3. Diagnose malfunction.

4. Perform necessary adjustments.
5. Test adjusted system.
6. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

1341-MANT-1014: Replace cutting edge/teeth on engineer equipment

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

DESCRIPTION: Replace cutting edge/teeth on engineer equipment

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an item of engineer equipment, a 1345 operator to assist, cutting edges/teeth, appropriate tools, and the references.

STANDARD: To restore equipment to full operational condition per the references.

PERFORMANCE STEPS:
1. Review ERO
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

1341-MANT-1015: Repair equipment engine assembly

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

DESCRIPTION: Repair equipment engine assembly.

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning engine assembly, appropriate tools, and references.

STANDARD: To restore proper function per the reference.

PERFORMANCE STEPS:
1. Review ERO.
2. Review References.
3. Diagnose malfunction.
4. Initiate EROSL if necessary.
5. Adjust, disassemble, or repair unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.
8. Test repaired system.
9. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

13004. 2000-LEVEL EVENTS

1341-ADMN-2001: Conduct inventory of tool sets, chests, and kits

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

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided Support and Test Equipment and a mission, with the aid of references.

STANDARD: To maintain control of Support and Test Equipment in order to accomplish the mission in accordance with the references.

PERFORMANCE STEPS:
1. Review references.
2. Review the task/mission.
3. Conduct inventories as required.
4. Identify missing items.
5. Document missing items.
6. Order missing items.

REFERENCES:
1. Appropriate Reference Materials
2. Local Standard Operating Procedures (SOP)

1341-ADMN-2002: Conduct an operational risk assessment (ORA)

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

DESCRIPTION: Given the inherent dangers involved working around equipment and electricity, effort must be made to ensure risks are reduced or eliminated by implementing controls

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a task/mission, a Risk Management Worksheet, and references.

STANDARD: Task/mission effectiveness is increased while loss of personnel and material is minimized through the use of risk management controls per the references.

PERFORMANCE STEPS:
1. Review task/mission
2. Review the the references.
3. Identify hazards
4. Access hazards to determine severity and probability
5. Develop controls
6. Make risk decisions
7. Implement controls

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal school.

1341-ADMN-2003: Maintain ERO layettes

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

DESCRIPTION: Maintain ERO layettes

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provide an ERO, EROSL repair parts, ERO layettes, and the references.

STANDARD: To ensure repair parts are kept in the appropriate layettes and available for timely maintenance of engineer equipment per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Receive repair parts, annotate EROSL, and place repair parts in appropriate layette.
3. Take corrective action if repair part does not match EROSL.
4. Maintain EROSL in the appropriate layettes.
5. Issue repair parts, and annotate EROSL.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
5. UM 4790-5 Users Manual MIMMS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal school.

1341-ADMN-2004: Complete calibration control record

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

DESCRIPTION: Complete calibration control record

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided calibration control record data, appropriate calibration control record, and the reference.

STANDARD: To maintain calibration data per the reference.

PERFORMANCE STEPS:
1. Review the references.
2. Review the appropriate Calibration Control Record.
3. Annotate Calibration Control Record as necessary

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-ADMN-2005: Prepare estimate cost repair worksheet

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

DESCRIPTION: Prepare estimate cost repair worksheet

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a completed Preventive Maintenance and Technical Inspection (LTI) Worksheet, Estimate Cost Repair Worksheet, and the references.

STANDARD: To record cost estimate date per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review the LTI worksheet (NAVMC 10560)
3. Complete the estimate Cost Repair Worksheet.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-ADMN-2006: Complete equipment repair order (ERO) and equipment repair order shopping list (EROSL)

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

DESCRIPTION: Complete equipment repair order (ERO) and equipment repair order shopping list (EROSL)

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided ERO and EROSL data, appropriate equipment technical manual(s), and the references.

STANDARD: To reflect data per type of service performed and the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review equipment technical manual to obtain maintenance information.
3. Complete required mechanic's entries for ERO and/or EROSL.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-ADMN-2007: Complete commodity manager's modification control record

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

DESCRIPTION: Complete commodity manager's modification control record

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an item of engineer equipment, Commodity Manager's Modification Control Record (NAVMC 11053/11054), and the references.

STANDARD: To record equipment modifications per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Examine equipment for modifications.
3. Review NAVMC 11053/11054.
4. Complete NAVMC 11053/11054, as required.

REFERENCES:
1. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
2. TM 4700-15/1H Ground Equipment Record Procedures
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
5. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-ADMN-2008: Maintain pre-expended bins

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

DESCRIPTION: Maintain pre-expended bins

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provide pre-expended bins; low cost, high usage hardware items; and the references.

STANDARD: To ensure bins are stocked for timely maintenance of engineer equipment per the references.

PERFORMANCE STEPS:
1. Separate items by NSN into separate boxes, compartments, or containers labeled with the NSN.
2. Review the reference.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-ADMN-2009: Maintain publications

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

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provide with Marine Corps, technical publications, equipment related publications, and the references.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:
1. Review references.
2. Conduct inventory as required.
3. Annotate discrepancies.
4. Take corrective actions as necessary.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
3. MCO P5600.31G Marine Corps Publications and Printing Regulations (Sep 93)
4. NAVMC 2761 Catalog of Publications (Oct 07)

1341-ADMN-2010: Review daily process report (DPR)

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

DESCRIPTION: Review daily process report (DPR).

MOS PERFORMING: 1341

BILLETS: Squad Member

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided DPR, supporting documentation, and the references.

STANDARD: To ensure completeness and accuracy per the references.

PERFORMANCE STEPS:
1. Review references.
2. Review DPR.
3. Identify discrepancies.
4. Initiate corrective actions as required.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H Ground Equipment Record Procedures
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
5. UM 4790-5 Users Manual MIMMS

1341-MANT-2001: Repair chain saw

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

DESCRIPTION: Repair chain saw

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an ERO, malfunctioning chain saw engine, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate ERSOL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test Chainsaw.
7. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate TM/Manufacture's Manual for Chainsaw

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-MANT-2002: Repair power train system

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

DESCRIPTION: Repair power train system

MOS PERFORMING: 1341

BILLETS: Section Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning power train system, appropriate tools, and references.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Disassemble and remove parts to be replaced.
4. Diagnose malfunction.
5. Clean parts.
6. Replace parts.
7. Assemble system.
8. Test repaired equipment.
9. Adjust system.
10. Document maintenance actions.

REFERENCES:
1. TM 4700-15/1H Ground Equipment Record Procedures
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-MANT-2003: Perform advance use of test measurement and diagnostic equipment

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

DESCRIPTION: Provided Support and Test Equipment and a mission, with the aid of references, supervise the control of Support and Test Equipment to accomplish the mission in accordance with the references.

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided test measurement and diagnostic equipment (TMDE), appropriate tools, an item of equipment, and the references.

STANDARD: To diagnose advanced level engineer equipment faults per the reference.

PERFORMANCE STEPS:
1. Review the references.
2. Determine the appropriate system check.
3. Perform the system check
4. Indentify applicable preventive and corrective maintenance services.

1341-MANT-2004: Conduct advanced repair to equipment intake/exhaust

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

DESCRIPTION: Provided an ERO, malfunctioning intake/exhaust system, appropriate tools, and references.

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning intake/exhaust system, appropriate tools, and references.

STANDARD: Test, adjust, and perform calculations to restore proper function per the references.

PERFORMANCE STEPS:
1. Review the ERO.
2. Review the references.
3. Diagnose the malfunction
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s)
6. Test repaired system.
7. Document maintenance actions.

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal school.

1341-MANT-2005: Conduct advanced repair to equipment hydraulic system

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

DESCRIPTION: Conduct advanced Repair to equipment hydraulic system

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning hydraulic system, appropriate tools, and references.

STANDARD: Test, adjust, and perform calculations to restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part(s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Appropriate Equipment Manual
2. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal school.

1341-MANT-2006: Conduct advanced repair to equipment fuel system

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

DESCRIPTION: Advanced repair to equipment fuel system.

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning fuel system, appropriate tools, and references.

STANDARD: Test, adjust, and perform calculations to restore proper function per the references.

PERFORMANCE STEPS:
1. Review the ERO
2. Review the references
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust or repair unserviceable part(s).
6. Test repaired system.
7. Document maintenance action.

REFERENCES:
1. Appropriate Equipment Manual
2. Appropriate Reference Materials
3. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal school.

1341-MANT-2007: Repair an engineer equipment air conditioner malfunction

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

DESCRIPTION: Repair an Engineer Equipment Air Conditioner malfunction

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an engineer equipment air conditioner, appropriate tool/test equipment, and references.

STANDARD: To ensure the engineer equipment air conditioner is returned to an operational condition per the reference.

PERFORMANCE STEPS:
1. Review the reference.
2. Diagnose the fault.
3. Recover the refrigerant (if needed).
4. Replace/ adjust/ connect/ service faulty parts (as required).
5. Test the repairs.
6. Recharge the system (if needed).
7. Document the repairs.

REFERENCES:
1. Appropriate Equipment Manual
2. Appropriate Reference Materials

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools. The Mechanic must be EPA Section 608/609 Certified.

1341-MANT-2008: Conduct advanced repair of equipment coolant system

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

DESCRIPTION: Provided an ERO, malfunctioning coolant system, appropriate tools, and references. Repair equipment coolant system to restore proper function per the references.

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With an engineer equipment coolant system, appropriate tool/test equipment, and references.

STANDARD: To ensure the engineer equipment coolant system is returned to an operational condition per the reference.

PERFORMANCE STEPS:
1. Review the reference.
2. Diagnose the fault.
3. Recover the coolant (if needed).
4. Replace/ adjust/ connect/ service faulty parts (as required).
5. Test the repairs.
6. Bring system to operation temp.
7. Document the repairs.

REFERENCES:
1. Appropriate Equipment Manual
2. Appropriate Technical Manuals

1341-MANT-2009: Repair Mine Protected Interrogation Vehicle

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

DESCRIPTION: Provided a completed Preventive Maintenance and Technical Inspection worksheet (LTI), Estimate cost repair worksheet, and the reference. Prepare estimate cost repair worksheet to record cost estimate data per the reference. (1341.05.02)

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning mine protected interrogation vehicle, appropriate tools and references, worksheet.

STANDARD: To restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Disassemble and remove parts to be replaced.
5. Clean parts.
6. Replace/ adjust/ connect/ service faulty parts (as required).
7. Assemble system.
8. Test repaired equipment.
9. Adjust system.
10. Document maintenance actions.

REFERENCES:
1. MCO P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
3. Appropriate Equipment Manual

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal school.

1341-MANT-2010: Overhaul diesel engines

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

DESCRIPTION: Overhaul diesel engines

MOS PERFORMING: 1341

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, a malfunctioning diesel engine, appropriate tools and equipment, a complete layette, equipment records, and the references.

STANDARD: To ensure efficient operation with a +/- 5 percent tolerance to the criteria listed in the references.

PERFORMANCE STEPS:
1. Review the ERO.

2. Review the references.
3. Disassemble and removes parts to be replaced.
4. Clean parts.
5. Assemble engine.
6. Replace Parts.
7. Test repaired engine.
8. Document maintenance action.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-MANT-2011: Conduct advanced repair to equipment electrical system

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

BILLETS: Squad Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an ERO, malfunctioning electrical system, appropriate tools, and references.

STANDARD: Test, adjust, and perform calculations to restore proper function per the references.

PERFORMANCE STEPS:
1. Review ERO.
2. Review references.
3. Diagnose malfunction.
4. Initiate EROSL, if necessary.
5. Adjust, disassemble, or repair unserviceable part (s).
6. Test repaired system.
7. Document maintenance actions.

REFERENCES:
1. Applicable operation and maintenance manual/guide
2. Appropriate Equipment Manual
3. Appropriate Reference Materials
4. Appropriate Technical Manuals
5. Wiring Diagrams

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal school.

1341-MANT-2012: Install protective armor kit on the engineer equipment

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

BILLETS: Section Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an ERO, protective armor kit for engineer equipment, appropriate tools, and references.

STANDARD: In order to accomplish mission, in support of commanders intent.

PERFORMANCE STEPS:
1. Review references.
2. Review the task/mission
3. Indentify locations of plates/assemblies on equipment
4. Install plates/assemblies
5. Check plates to ensure proper fit.

REFERENCES:
1. Applicable operation and maintenance manual/guide
2. Appropriate Equipment Manual
3. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Mechanic formal schools.

1341-MANT-2013: Perform installation/removal of Medium Crawler Tractor (MCT) attachments

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

MOS PERFORMING: 1341

BILLETS: Section Leader

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With assistance of a 1345 Engineer Equipment Operator, an MCT, MCT attachments, tools, and the reference.

STANDARD: To ensure safe installation/removal with no injury to personnel or damage to the equipment per the reference.

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

ENG & UTIL T&R MANUAL

CHAPTER 14

MOS 1342 INDIVIDUAL EVENTS

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CHAPTER 14

MOS 1342 INDIVIDUAL EVENTS

14000. PURPOSE. This chapter includes all individual training events for the Engineer Small Craft Mechanic. An individual event is an event that a trained Engineer Small Craft Mechanic would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

14001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1342).

2. The second four characters represent the functional or duty area. For example:

MANT – Maintenance

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills

14002. INDEX OF INDIVIDUAL EVENTS

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14003. 1000-LEVEL EVENTS

1342-MANT-1001: Perform outboard motor preventive maintenance

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

DESCRIPTION: Preventive maintenance is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures. The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs. It is designed to preserve and enhance equipment reliability. Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication and so on.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an outboard Multi-Fuel engine, and the applicable tools, supplies, records, and reference.

STANDARD: To maintain serviceability in accordance with the reference.

PERFORMANCE STEPS:
1. Perform break-in services (as required).
2. Perform routine Preventive Maintenance Checks and Services.
3. Perform 100 hour Preventive Maintenance Checks and Services.
4. Perform 300 hour Preventive Maintenance Checks and Services.

REFERENCES:
1. P/N 5007808 MFE Technical Manual

SUPPORT REQUIREMENTS:

EQUIPMENT: Outboard Engine Maintenance Kit

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a Small Craft Mechanic Course (1342) graduate in order to perform this event.

1342-MANT-1002: Perform small craft preventive maintenance

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

DESCRIPTION: Preventive maintenance is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures. The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs. It is designed to preserve and enhance equipment

reliability. Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication and so on.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the applicable tools, under approved operating conditions, with the aid of references.

STANDARD: Meet maintenance requirements to maintain equipment operability, in accordance with the references.

PERFORMANCE STEPS:
1. Remove valve.
2. Clean metallic valve parts with toluene.
3. Clean neoprene rubber parts with fingertip.
4. Lubricate female valve body.
5. Inspect/Test valve to ensure mating surfaces glide smoothly.
6. Assemble valve.
7. Perform pressure retention test

REFERENCES:
1. TM 09665B-10A/1 Combat Rubber Reconnaissance Craft Field Service Manual
2. TM 09665B-13&P/2 Operation and maintenance of the Combat Rubber Reconnaissance Craft

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Must be a graduate of the Small Craft Mechanic Course NMOS (1342)

1342-MANT-1003: Perform bridge erection boat preventive maintenance

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

DESCRIPTION: Preventive maintenance is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures. The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs. It is designed to preserve and enhance equipment reliability. Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication and so on.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a bridge erection boat, and the applicable tools, supplies, records, and reference.

STANDARD: To maintain serviceability in accordance with the reference.

PERFORMANCE STEPS:
1. Complete Preventive maintenance checklist.
2. Perform checks and services to equipment.
3. Test equipment.

REFERENCES:
1. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II

SUPPORT REQUIREMENTS:

EQUIPMENT: Fast Lube Oil Change System (FLOCS), Alignment tool

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1342-MANT-1004: Perform boat trailer preventive maintenance

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

DESCRIPTION: Preventive maintenance is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures. The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs. It is designed to preserve and enhance equipment reliability. Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication and so on.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a small craft trailer, and the applicable tools, supplies, records, and reference.

STANDARD: To maintain serviceability in accordance with the reference.

PERFORMANCE STEPS:
1. Complete maintenance checklist.
2. Perform checks and services to equipment.
3. Test equipment.

REFERENCES:
1. BOAT PUB Boat Master Aluminum Trailers Owner's Manual
2. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II

1342-MANT-1005: Perform outboard motor corrective maintenance

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

DESCRIPTION: Maintenance actions carried out to restore a defective item to a specified condition.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an outboard Multi-Fuel engine, the applicable tools, supplies, records, and reference.

STANDARD: To restore operability in accordance with the reference.

PERFORMANCE STEPS:
1. Diagnose malfunctioning component
2. Repair electrical System, if applicable.
3. Repair outboard motor fuel system, if applicable.
4. Repair power head, if applicable. .
5. Repair gear case if applicable.
6. Repair cooling system, if applicable.
7. Repair oiling system, if applicable.
8. Repair manual starter, if applicable.
9. Test equipment.

REFERENCES:
1. P/N 5007808 MFE Technical Manual

SUPPORT REQUIREMENTS:

EQUIPMENT: Outboard Engine Maintenance Kit

1342-MANT-1006: Perform small craft corrective maintenance

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

DESCRIPTION: Maintenance actions carried out to restore a defective item to a specified condition.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a small craft, and the applicable tools, supplies, records, and references.

STANDARD: To restore operability in accordance with the references.

PERFORMANCE STEPS:
1. Perform leak test
2. Repair/replace intercommunicating valves.
3. Repair hull fabric.
4. Repair/replace intercommunicating valves, if required.
5. Repair hull fabric, if required.
6. Repair/replace carry handles, if required.
7. Replace D-53 ring, if required.
8. Replace D-25 ring, if required.
9. Replace C02 Overpressure relief valve, if required
10. Apply latex to buoyancy and keel tubes, if required.
11. Repair/replace Rub strake, if required.
12. Replace Keel valve, if required.
13. Replace C02 Inlet valve, if required.
14. Test equipment

REFERENCES:
1. TM 09665B-10A/1 Combat Rubber Reconnaissance Craft Field Service Manual
2. TM 09665B-13&P/2 Operation and maintenance of the Combat Rubber Reconnaissance Craft

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1342-MANT-1007: Perform bridge erection boat corrective maintenance

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

DESCRIPTION: Maintenance actions carried out to restore a defective item to a specified condition.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a bridge erection boat, the applicable tools, supplies, records, and reference.

STANDARD: To restore operability in accordance with the reference.

PERFORMANCE STEPS:
1. Diagnose malfunctioning component.
2. Repair fuel system, if required.
3. Repair air intake/exhaust system, if required.
4. Repair cooling system, if required.
5. Repair electrical system, if required.
6. Repair propulsion and steering components, if required.
7. Test equipment

REFERENCES:
1. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II

1342-MANT-1008: Perform small craft trailer corrective maintenance

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

DESCRIPTION: Maintenance actions carried out to restore a defective item to a specified condition.

MOS PERFORMING: 1342

BILLETS: Small Craft Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a boat trailer, the applicable tools, supplies, records, and references.

STANDARD: To restore operability in accordance with the references.

PERFORMANCE STEPS:
1. Diagnose malfunctioning component.
2. Repair electrical components, if required.
3. Repair braking system, if required.
4. Replace trailer components, if required.
5. Replace wheel bearings and applicable components, if required.
6. Test equipment

REFERENCES:
1. BOAT PUB Boat Master Aluminum Trailers Owner's Manual
2. TM 10020C-OI Boat, Bridge Erection Twin Jet, Aluminum Hull (Model MK III) Vol. I&II

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. BOAT PUB Boat Master Aluminum Trailers 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 4700-15/1H w/ch 3 Ground Equipment Record Procedures

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CHAPTER 15

MOS 1343 INDIVIDUAL EVENTS

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CHAPTER 15

MOS 1343 INDIVIDUAL EVENTS

15000. PURPOSE. This chapter includes all individual training events for the Assault Breacher Mechanic. An individual event is an event that a trained Assault Breacher Mechanic would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

15001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1343).

2. The second four characters represent the functional or duty area. For example:

MANT - Maintenance

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills

15002. INDEX OF INDIVIDUAL EVENTS

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1343-MANT-1001	Drive the ABV	15-4
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1343-MANT-1007	Utilize ABV Embedded Diagnostics	15-7
1343-MANT-1008	Maintain ABV unique components of the electrical system	15-8
1343-MANT-1009	Maintain ABV unique components of the hydraulic system	15-8

15003. 1000-LEVEL EVENTS

1343-MANT-1001: Drive the ABV

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

MOS PERFORMING: 1343

BILLETS: ABV Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, and references.

STANDARD: Without damage to the vehicle, and in accordance with TM 10984A/OR-1, Volume 1 and 2.

PERFORMANCE STEPS:
1. Prepare the driver station.
2. Perform start up procedures.
3. Move the vehicle.
4. Perform shut down procedures.

REFERENCES:
1. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task is for Equipment Maintainer "shop use" type driving - not tactical driving.

1343-MANT-1002: Perform Preventive Maintenance Checks and Services (PMCS) on ABV specific items

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

MOS PERFORMING: 1343

BILLETS: ABV/JAB Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV and technical manuals, FEE, LMS, LDCS, POLs, SL-3 tools and equipment, required records and reports.

STANDARD: So that equipment is checked and serviced per the maintenance schedule and deficiencies are corrected/identified, in accordance with TM 10984A-OI/3 and TM 10984A-OR/1, Volume 1 and 2.

PERFORMANCE STEPS:
1. Perform a Limited Technical Inspection (LTI) on ABV specific items.
2. Perform Before-Operations Checks and Services on ABV specific items.
3. Perform During-Operations Checks and Services on ABV specific items.
4. Perform After-Operations Checks and Services on ABV specific items.
5. Perform Semi-Annual/Annual Checks and Services on ABV specific items.
6. Perform Lubrication Order on ABV specific items.

REFERENCES:
1. TI-08953A-14/9 Inspection and evacuation criteria for tank, combat, full tracked, 120mm gun, M1A1
2. TM 10984A-OI/3 Maintenance Manual (ABV)
3. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
4. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2
5. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

1343-MANT-1003: Maintain ABV Front End Equipment

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

MOS PERFORMING: 1343

BILLETS: ABV Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a ABV, technical manuals, POL's, SL-3, tools and equipment.

STANDARD: So that equipment is restored to normal operating condition in accordance with TM 10984A-OI/3, and TM 4700-15/1_w/Ch_.

PERFORMANCE STEPS:
1. Perform Limited Technical Inspection (LTI).
2. Diagnose malfunction on Front End Equipment (FEE).
3. Remove unserviceable parts or components.
4. Repair/replace unserviceable parts or components.
5. Perform function test on Front End Equipment to ensure operability.
6. Complete maintenance/administrative records and procedures.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2
4. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

1343-MANT-1004: Maintain ABV Linear Demolition Charge System (LDCS)

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

MOS PERFORMING: 1343

BILLETS: ABV/JAB Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, tools, technical manuals, POLs, required records, and reports.

STANDARD: To return LDCS to operational readiness in accordance with TM 10984A-OI/3 and TM 4700-15/1_w/Ch_.

PERFORMANCE STEPS:
1. Inspect ABV Linear Demolition Charge System (LDCS).
2. Troubleshoot Linear Demolition Charge System (LDCS).
3. Remove ABV Linear Demolition Charge System (LDCS), as required.
4. Repair/replace components as required.
5. Inspect Jettison system components.
6. Install Linear Demolition Charge System (LDCS), as required.
7. Perform function check.
8. Complete maintenance/administrative records and procedures.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

1343-MANT-1005: Maintain the ABV Lane Marking System (LMS)

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

MOS PERFORMING: 1343

BILLETS: ABV/JAB Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, tools, technical manuals, POLs, required records, and reports.

STANDARD: To return LMS to operational readiness in accordance with TM 10984A-OI/3 and TM 4700-15/1_w/Ch_.

PERFORMANCE STEPS:
1. Inspect ABV Lane Marking System (LMS).
2. Troubleshoot LMS.
3. Remove ABV LMS, as required.
4. Repair/replace components as required.
5. Install LMS as required.
6. Perform function check.
7. Complete maintenance/administrative records and procedures.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

1343-MANT-1006: Maintain the ABV Integrated Viewing System

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

MOS PERFORMING: 1343

BILLETS: ABV/JAB Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, tools, and technical manuals.

STANDARD: To return Viewing system to operational readiness in order to accomplish mission and in accordance with TM 10984A-OI/3 and TM 4700-15/1_w/Ch_.

PERFORMANCE STEPS:
1. Inspect IVS.
2. Troubleshoot the IVS.
3. Replace components as required.
4. Perform function check of system.
5. Complete maintenance/administrative records and procedures.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 11-5855-311-12&P1 Operators and Unit Maintenance Manual for Drivers Vision Enhancer (DVE) AN/VAS -5A(V)6
4. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

1343-MANT-1007: Utilize ABV Embedded Diagnostics

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

MOS PERFORMING: 1343

BILLETS: ABV Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, tools, technical manuals, and Tough Book programmed with full diagnostic software.

STANDARD: To ensure correct faults in system are identified, and equipment is returned to mission capable status in accordance with TM 10984A-OR/1 Volume 1.

PERFORMANCE STEPS:
1. Identify major components of embedded diagnostics.
2. Perform an Embedded Diagnostics Health Check.
3. Troubleshoot the vehicle using ABV Embedded Diagnostics.
4. Use Interactive Authoring and Display System (IADS) to repair the ABV.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1

1343-MANT-1008: Maintain ABV unique components of the electrical system

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

MOS PERFORMING: 1343

BILLETS: ABV Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, necessary tools and test equipment, and references.

STANDARD: So that equipment is mission capable in normal operating conditions and in accordance with TM 10984A-OI/3, and TM 4700-15/1_w/Ch_.

PERFORMANCE STEPS:
1. Perform Limited Technical Inspection (LTI).
2. Diagnose electrical malfunction.
3. Remove unserviceable parts or electrical components.
4. Repair/replace unserviceable parts or electrical components.
5. Perform function tests to ensure system is operable.
6. Complete maintenance/administrative records and procedures.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

1343-MANT-1009: Maintain ABV unique components of the hydraulic system

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

MOS PERFORMING: 1343

BILLETS: ABV Mechanic

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, necessary tools and test equipment, and the references.

STANDARD: So that equipment is mission capable in normal operating condition and in accordance with TM 10984A-OI/3, and TM 4700-15/1_w/Ch_.

PERFORMANCE STEPS:
1. Perform Limited Technical Inspection (LTI).
2. Diagnose malfunction.
3. Remove unserviceable parts or components.
4. Repair/replace unserviceable parts or components.
5. Perform function test to ensure system is operable.
6. Complete maintenance/administrative records and procedures.

REFERENCES:
1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

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CHAPTER 16

MOS 1345 INDIVIDUAL EVENTS

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CHAPTER 16

MOS 1345 INDIVIDUAL EVENTS

16000. PURPOSE. This chapter includes all individual training events for the Engineer Equipment Operator. An individual event is an event that a trained Engineer Equipment Operator would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

16001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1345).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

16002. INDEX OF INDIVIDUAL EVENTS

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1345-ADMN-1001	Prepare motor vehicle accident report (SF 91)	16-4
1345-ADMN-1002	Conduct Shop Operations	16-4
1345-MANT-1001	Conduct engineer equipment preventive maintenance	16-5
1345-MANT-1002	Assist in replacing cutting edges/teeth on applicable engineer equipment	16-5
1345-MANT-1003	Perform corrosion prevention and control	16-6
1345-XENG-1001	Operate the motorized road grader	16-6
1345-XENG-1002	Operate the tractor, rubber-tired, articulated steering, multi-purpose (TRAM) 624KR	16-7
1345-XENG-1003	Operate the Millennia Military Vehicle (MMV) extended boom forklift	16-8
1345-XENG-1004	Operate the Medium Crawler Tractor (MCT)	16-9
1345-XENG-1005	Operate the MC1150E tractor	16-9
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1345-XENG-1007	Operate the Terex Light Capability Rough Terrain Forklift (LCRTF) forklift	16-11
1345-XENG-1008	Operate the 420D IT backhoe	16-11
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1345-ADMN-2001	Conduct inventory of tools sets, chests, and kits	16-15
1345-ADMN-2002	Maintain engineer equipment operator records/forms	16-15
1345-ADMN-2003	Initiate a Product Quality Deficiency Report (PQDR) (SF 368)	16-16
1345-ADMN-2004	Administer engineer equipment licensing program	16-16
1345-ADMN-2005	Conduct safety inspections	16-17
1345-MANT-2001	Assist in the installation/removal of Medium Crawler Tractor (MCT) attachments	16-18
1345-MANT-2002	Assist in performing engineer equipment limited technical inspection (LTI)	16-18
1345-XENG-2001	Operate the 621B Scraper	16-19
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1345-XENG-2003	Operate the Rough Terrain Container Handler (KALMAR)	16-20
1345-XENG-2004	Operate the M9 ACE	16-21
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16003. 1000-LEVEL EVENTS

1345-ADMN-1001: Prepare motor vehicle accident report (SF 91)

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided accident data, SF 91, and the reference.

STANDARD: To record the accident per the reference.

PERFORMANCE STEPS:
1. Review SF 91.
2. Annotate appropriate operator's entries on SF 91.
3. Submit to appropriate supervisor.

REFERENCES:
1. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures

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1345-ADMN-1002: Conduct Shop Operations

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

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. Select the appropriate Technical Manuals and Lubrication orders.
3. Select petroleum, oils, and lubricants
4. Select appropriate tools.
5. Conduct PMCS, as required
6. Complete records and forms
7. Apply operational risk management

REFERENCES:
1. MCO 3500.27_ Operational Risk Management (ORM)
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. SL-3-11668A General Mechanics Tool Box
4. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures

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1345-MANT-1001: Conduct engineer equipment preventive maintenance

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, tools, equipment records and references.

STANDARD: So that equipment is checked and serviced per the appropriate technical manual and actions/deficiencies/discrepancies are recorded per TM 4700-15/1H.

PERFORMANCE STEPS:
1. Review references.
2. Draw appropriate tools.
3. Perform applicable preventive maintenance services.
4. Document maintenance actions as necessary.

REFERENCES:
1. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

1345-MANT-1002: Assist in replacing cutting edges/teeth on applicable engineer equipment

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an item of engineer equipment, a 1341 Engineer Equipment Mechanic, cutting edges/teeth, 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. Assist in removing old cutting edges/teeth.
4. Assist in replacing new cutting edges/teeth.

PREREQUISITE EVENTS:
1345-MANT-1002 1341-MANT-1014

REFERENCES:
1. Appropriate Technical Manuals

1345-MANT-1003: Perform corrosion prevention and control

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an item of equipment, required safety equipment, materials, appropriate tools, and references.

STANDARD: To maintain equipment in optimum operating condition per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Identify discrepancies.
3. Draw 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. TM 3080-12 Corrosion Control for Marine Corps Ground Equipment
2. TM 3080-50 Corrosion Control Procedures for Depot Maintenance Activities
3. Appropriate Technical Manuals

1345-XENG-1001: Operate the motorized road grader

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a motorized road grader, an engineer equipment requirement, and engineer equipment records and forms.

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. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on item of equipment.

1345-XENG-1002: Operate the tractor, rubber-tired, articulated steering, multi-purpose (TRAM) 624KR

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a TRAM, an engineer requirement, and equipment records and forms.

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 clamshell operations.
6. Operate tractor to perform loading a haul unit.
7. Change attachments on the TRAM as required.
8. Operate tractor to perform material handling operations.
9. Perform shut down procedures.
10. Perform after operations checks and services.
11. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on item of equipment.

1345-XENG-1003: Operate the Millennia Military Vehicle (MMV) extended boom forklift

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an MMV, an engineer requirement, and engineer equipment records and forms.

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. Perform shut down procedures.
7. Perform after operations checks and services.
8. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on the item of equipment

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1345-XENG-1004: Operate the Medium Crawler Tractor (MCT)

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an MCT, an engineer equipment requirement, and engineer records and forms.

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 stockpiling.
6. Operate tractor to perform leveling.
7. Operate tractor to perform ditching operations.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on item of equipment.

1345-XENG-1005: Operate the MC1150E tractor

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an MC 1150E tractor, an engineer equipment requirement and engineer equipment records and forms.

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. Operate tractor to perform stockpiling operations.
6. Operate tractor to perform leveling operations.
7. Operate tractor to perform ditching operations.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on item of equipment.

1345-XENG-1006: Operate the 420C vibratory compactor

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a 420C vibratory compactor, an engineer equipment requirement, and engineer equipment records and forms.

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 compactor to perform compacting operations.
6. Change drums as required.
7. Perform shut down procedures.
8. Perform after operations checks and services.
9. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Marine must be licensed on the item of equipment.

SPECIAL PERSONNEL CERTS: Marine must be licensed on item of equipment.

1345-XENG-1007: Operate the Terex Light Capability Rough Terrain Forklift (LCRTF) forklift

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Light Capability Rough Terrain Forklift (LCRTF), an engineer equipment requirement, and engineer equipment records and forms.

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. Perform shut down operations.
7. Perform after operations checks and services.
8. Load/unload the backhoe onto an Engineer Equipment Trailer (EET), as required.
9. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on the item of equipment.

1345-XENG-1008: Operate the 420D IT backhoe

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a 420D backhoe, an engineer requirement, and engineer equipment records and forms.

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. Perform shut down procedures.
10. Perform after operations checks and services.
11. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on the item of equipment.

1345-XENG-1009: Operate the Multi-Terrain Loader (MTL)

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

MOS PERFORMING: 1345, 1371

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an MTL, an engineer equipment requirement, and engineer records and forms.

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 loader to perform stockpiling.

6. Operate loader to perform leveling.
7. Perform shut down procedures.
8. Perform after operations checks and services.
9. Complete operational records.

REFERENCES:
1. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on the item of equipment.

1345-XENG-1010: Operate the Runway Sweeper

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a runway sweeper, an engineer equipment requirement, and engineer records and forms.

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. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed on the item of equipment.

1345-XENG-1011: Camouflage positions, vehicles or equipment with lightweight screening system

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

MOS PERFORMING: 1345

BILLETS: Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a mission, an area, vehicle(s), or equipment, and lightweight camouflage screening system components.

STANDARD: To prevent detection from 200 meters in any direction or from the air.

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

16004. 2000-LEVEL EVENTS

1345-ADMN-2001: Conduct inventory of tools sets, chests, and kits

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

MOS PERFORMING: 1345

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided tool sets, chests, kits, and references.

STANDARD: To reconcile inventory records for accountability and serviceability per the references.

PERFORMANCE STEPS:
1. Review references.
2. Conduct inventory.
3. Properly annotate inventory sheet.
4. Take corrective actions as required.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

1345-ADMN-2002: Maintain engineer equipment operator records/forms

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

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an item of Engineer Equipment, Record Jacket (NAVMC 696D), Engineer Equipment Operational Record (NAVMC 10523), Daily Dispatch-Log Record of Vehicles (NAVMC 10031), ERO (NAVMC 10245), Worksheet for Preventive Maintenance and Technical Inspection for Engineer Equipment (NAVMC 10560), Engineer Equipment Operation Log and Services Record Consolidated (NAVMC 10524), Preventive Maintenance Checks and Services Roster (NAVMC 105), EROS Condition Inspection Record, Load Test Equipment Daily Checklist (NAVMC 10925) and references.

STANDARD: To comply with record-keeping procedures per the references.

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. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

1345-ADMN-2003: Initiate a Product Quality Deficiency Report (PQDR) (SF 368)

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

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With a defective item, blank forms, and references.

STANDARD: So deficiency can be corrected per the references.

PERFORMANCE STEPS:
1. Review references.
2. Verify deficiency requires a PQDR.
3. Determine if deficiency is Category I or Category II.
4. Collect data.
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. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
2. TM 4700-15/1H Ground Equipment Record Procedures (Jul 95)
3. UNIT SOP Unit's Standing Operating Procedures
4. Appropriate Technical Manuals

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 www.logcom.usmc.mil/pqdr.

1345-ADMN-2004: 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 per the references.

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 P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Examiner's Manual (Jun 83)
4. UNIT SOP Unit's Standing Operating Procedures

1345-ADMN-2005: Conduct safety inspections

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

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a working environment with working personnel and references.

STANDARD: To identify discrepancies in safety procedures and to provide for their immediate correction per the references.

PERFORMANCE STEPS:
1. Observe working environment and activities.
2. Identify discrepancies in safety procedure.
3. Issue corrective orders.

REFERENCES:
1. MCO 5100.29A Marine Corps Safety Program (Jul 04)
2. MCO 5100.8 Marine Corps Occupational Safety and Health (OSH) Policy Order (May 06)

3. MCO P5100.8 Marine Corps Occupational Safety and Health Program Manual (Obsolete - replaced by NAVMC DIR 5100.8)

1345-MANT-2001: Assist in the installation/removal of 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 per the reference.

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

1345-MANT-2002: Assist in performing engineer equipment limited technical inspection (LTI)

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

MOS PERFORMING: 1345

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an item of equipment, a 1341 engineer equipment mechanic, a Preventive Maintenance and Limited Technical Inspection Worksheet (NAVMC 10560), appropriate tools, and references.

STANDARD: To meet LTI requirements per the references.

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. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

1345-XENG-2001: Operate the 621B Scraper

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

MOS PERFORMING: 1345

GRADES: LCPL, CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a 621B Scraper, 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 per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Operate the scraper.
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. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marines must be Licensed on item of equipment.

1345-XENG-2002: Operate the LRT-110 Crane

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

MOS PERFORMING: 1345

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an LRT-110 Crane, 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 per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Operate the crane.
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. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Operator formal school..

SPECIAL PERSONNEL CERTS: Marine must be licensed on item of equipment.

1345-XENG-2003: Operate the Rough Terrain Container Handler (KALMAR)

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

MOS PERFORMING: 1345

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a KALMAR, 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 per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operational checks and services.
3. Perform starting procedures.
4. Install/remove container handling attachment, as required.
5. Operate container handler to perform material handling operations.
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. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must be Cpl or above to attend NCO Operator formal school.

SPECIAL PERSONNEL CERTS: Marine must be Licensed on the item of equipment.

1345-XENG-2004: Operate the M9 ACE

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

MOS PERFORMING: 1345

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an M9 ACE Tractor, 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 per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Operate the M9 Ace.
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. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be Licensed on the item of equipment.

1345-XENG-2005: 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 a MAC 50, 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 per the references

PERFORMANCE STEPS:
1. Review the references.
2. Perform before operational checks and services.
3. Perform starting procedures.
4. Operate the crane.
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. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Marine must be licensed.

ENG & UTIL T&R MANUAL

CHAPTER 17

MOS 1349 INDIVIDUAL EVENTS

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CHAPTER 17

MOS 1349 INDIVIDUAL EVENTS

17000. PURPOSE. This chapter includes all individual training events for the Engineer Equipment Chief. An individual event is an event that a trained Engineer Equipment Chief would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailors individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

17001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1349).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Ground Supply individual training events are separated into two levels:

2000 – Core Plus Skills

17002. INDEX OF INDIVIDUAL EVENTS

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17003. 2000-LEVEL EVENTS

1349-ADMN-2001: Supervise load test of engineer equipment

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided appropriate load lifting equipment with completed Annual Condition Inspection (ACI), maintenance resources, and references.

STANDARD: To ensure load testing is conducted, certified, documented and maintained on a scheduled basis per the references.

PERFORMANCE STEPS:
1. Review the References.
2. Indentify load testing requirements.
3. Conduct a load test
4. Document load test results.
5. Review documentation.
6. Certify documentation.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
3. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Formal Schools and have completed the MCI (1328E) Engineer Equipment Chief (MC-1601-0016)

1349-ADMN-2002: Supervise corrosion prevention and control

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations 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 per the references.

PERFORMANCE STEPS:
1. Indentify corrosion prevention and control requirements.
2. Establish corrosion prevention and control procedures.
3. Manage corrosion prevention and control procedures.

REFERENCES:
1. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
2. TM 3080-12 Corrosion Control for Marine Corps Ground Equipment
3. TM 3080-50 Corrosion Control Procedures

1349-ADMN-2003: Supervise support and test equipment program

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

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided support and test equipment and references.

STANDARD: To support mission requirements per the references.

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 P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2004: Supervise maintenance-related reports

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

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance-related reports, supporting documentation, and references.

STANDARD: To support mission requirements for Corrective Maintenance (CM) and Preventive Maintenance (PM) programs per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Validate Daily Process Report.
3. Review Daily Transaction Report.
4. Review Weekly Table of Authorized Material (TAM) Report.
5. Review Weekly Maintenance Report.
6. Review Weekly LM2 Report.
7. Manage Corrective Maintenance (CM) Program.
8. Manage Preventive Maintenance (PM) Program.

REFERENCES:
1. MCO 4855.10B Product Quality Deficiency Report (PQDR) (Jan 93)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. UM 4790-5 Users Manual MIMMS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2005: Supervise engineer equipment records and forms

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations 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 per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Indentify 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. Supervise Product Quality Deficiency Report (PQDR) program.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2006: Supervise engineer equipment MOS training program

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

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With training resources, records and references.

STANDARD: So that MOS proficiency is maintained per the references.

PERFORMANCE STEPS:
1. Review the annual training plan.
2. Review the section training plan.
3. Identify supervisor's responsibilities.
4. Select personnel to conduct training.
5. Review the references.
6. Select topics to be instructed to unit personnel.
7. Select topics to be instructed to maintenance personnel.
8. Select topics to be instructed to operator personnel.
9. Select topics to be instructed to maintenance management personnel.
10. Direct the training of all personnel.
11. Ensure training is documented correctly.

REFERENCES:
1. MCO 11240.66_ Standard Licensing Policy for Operators of Military Motor Vehicles
2. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
3. MCO 3500.27B Operational Risk Management (ORM) (May 04)
4. MCO P3500.72A Marine Corps Ground Training and Readiness (T&R) Program (Apr 05)
5. MCRP 3-0A Unit Training Management Guide

6. MCRP 3-0B How to Conduct Training
7. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual
8. TM 11275-15/4 Tactical Engineer Equipment Licensing Examiner's Manual (Jun 83)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2007: Supervise engineer equipment section supply support program

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance-related reports (MIMMS-AIS), appropriate equipment-related publications, and references.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review supply support request.
3. Submit input for budget requirements.
4. Monitor allocated funding.
5. Establish pre-expended bin (PEB) and Equipment Repair Order (ERO) layette procedures
6. Submit input for supply requirements.
7. Establish validation/reconciliation procedures.
8. Supervise PEB and ERO layette procedures.

REFERENCES:
1. MCO 4400.16G Uniform Materiel Movement and Issue Priority System (Jun 85)
2. MCO P4400.150_ Consumer Level Supply Policy Manual
3. MCO P4400.82_ Regulated/Controlled Item Management Manual
4. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
5. UM 4400-124 FMF SASSY Using Unit Procedures
6. UM 4790-5 Users Manual MIMMS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2008: Supervise publications program

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations 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 per the references.

PERFORMANCE STEPS:
1. Review the 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 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 5600.20P Marine Corps Doctrinal Publications System (Nov 06)
3. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
4. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
5. MCO P5215.17_ Marine Corps Technical Publications System
6. MCO P5600.31_ Marine Corps Publications and Printing Regulations
7. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2009: Supervise engineer equipment licensing program

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, documentation, licensing records, and references.

STANDARD: Ensuring equipment operators are licensed per the references.

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 P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Examiner's Manual (Jun 83)
4. UNIT SOP Unit's Standing Operating Procedures

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2010: Supervise maintenance-related programs

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided maintenance resources, local maintenance directives, and the reference.

STANDARD: To support mission requirements per the reference.

PERFORMANCE STEPS:
1. Supervise MIMMS-AIS.
2. Supervise modification control program.
3. Supervise calibration control program.
4. Supervise quality control program.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-ADMN-2011: 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: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

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 per the references.

PERFORMANCE STEPS:
1. Review the task/mission.
2. Review the references.
3. Identify hazards.
4. Assess hazards to indentify severity and probability.
5. Develop controls.
6. Make risk decisions.
7. Implement controls.

REFERENCES:
1. 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
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
3. MCO 5100.29A Marine Corps Safety Program (Jul 04)

4. MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual (Jan 05)
5. MCRP 5-12.1C Risk Management (Feb 01)
6. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-MANT-2001: Supervise engineer equipment maintenance shop operations

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided with the references, a maintenance facility, a maintenance mission and maintenance resources.

STANDARD: To ensure maintenance facilities and processes are established per the mission requirements and references.

PERFORMANCE STEPS:
1. Indentify resources.
2. Indentify the mission requirements.
3. Indentify environmental and natural resource considerations.
4. Designate appropriate maintenance shop areas.
5. Validate operational risk management procedures.
6. Implement the shop plan.
7. Implement shop safety programs.
8. Prioritize use of facilities.
9. Ensure facilities are maintained.

REFERENCES:
1. MCO P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-MANT-2002: Supervise engineer equipment availability

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided with the references, a maintenance facility, a maintenance mission and maintenance resources.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Review urgency of need designator assignment code.
3. Review maximum maintenance cycle time.
4. Develop plan to increase equipment availability.

REFERENCES:
1. MCO P4790.1B Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual (Mar 89)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-XENG-2001: Supervise horizontal construction

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Operations 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 specifications and milestones per the project specifications and the references.

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. FM 5-412 Project Management
2. FM 5-434 Earthmoving Operations

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-XENG-2002: Supervise horizontal construction project production and logistical requirements

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, resources, and references.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:
1. Conduct site reconnaissance.
2. Identify construction requirements.
3. Identify logistical requirements.
4. Identify environmental controls and natural resources considerations.
5. Formulate an estimate.

REFERENCES:
1. FM 5-412 Project Management
2. FMFM 13 MAGTF Engineer Operations
3. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

1349-XENG-2003: Validate project/operation schedule

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Maintenance Chief, Engineer Equipment Operations 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. FM 5-412 Project Management
2. FM 5-434 Earthmoving Operations

1349-XENG-2004: Supervise engineer equipment operations

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

MOS PERFORMING: 1349

BILLETS: Engineer Equipment Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, available resources, a mission, and references.

STANDARD: To support mission requirements per the references.

PERFORMANCE STEPS:
1. Review the mission.
2. Indentify engineer equipment assets required.
3. Conduct engineer equipment operations.

4. Supervise material handling equipment employment.
5. Supervise earth moving equipment employment.
6. Supervise general support engineer equipment employment.
7. Supervise equipment recovery operations, as required.

REFERENCES:

1. FM 5-434 Earthmoving Operations
2. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
3. Appropriate Technical Manuals

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Must attend MOS 1349 Engineer Equipment Chief Course Formal Schools and complete MCI (1328E) Engineer Equipment Chief (MC-1601-0016).

ENG & UTIL T&R MANUAL

CHAPTER 18

MOS 1361 INDIVIDUAL EVENTS

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CHAPTER 18

MOS 1361 INDIVIDUAL EVENTS

18000. PURPOSE. This chapter includes all individual training events for the Engineer Assistant. An individual event is an event that a trained Engineer Assistant would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

18001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1361).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering
SRVY - Surveying

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

18002. INDEX OF INDIVIDUAL EVENTS

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18003. 1000-LEVEL EVENTS

1361-SRVY-1001: Perform basic drafting techniques

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided survey set (G.P.), and references.

STANDARD: To meet American National Standards Institute (ANSI) guidelines per the references.

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-SRVY-1002: Create computer-aided multi-view drawings

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided survey set (G.P.), written project specifications, design sketches, a printer or plotter, and references.

STANDARD: To conform to project specifications, design sketches, and American National Standards Institute (ANSI) guidelines per the references.

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 Users Manual) AutoCAD Users Manual

1361-SRVY-1003: Create computer-aided architectural drawings

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided survey set (G.P.), written project specifications, design sketches, a printer or plotter, and references.

STANDARD: To conform to project specifications, design sketches, and American National Standards Institute (ANSI) guidelines per the references.

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 Masonry
4. FM 5-553 General Drafting
5. NAVEDTRA 10696 Engineer Aid 3
6. OEM (AutoCAD Users Manual) AutoCAD Users Manual
7. TM 5-581B Construction Drafting
8. TM 5-704 Construction Print Reading in the Field
9. TM 5-760 Interior Wiring

1361-SRVY-1004: Establish a control traverse using optical equipment

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

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. Indentify control station locations.
3. Assemble the total station instruments and reference targets.
4. Initialize job file.
5. Perform station establishment
6. Initialize for optical traverse.
7. Measure and record angle sets and distances between traverse stations.

REFERENCES:
1. FM 3-100.4 Environmental Considerations in Military Operations
2. FM 5-232 Elements of Surveying
3. FM 5-233 Construction Surveying
4. NAVEDTRA 10696 Engineer Aid 3
5. OEM (TRIMBLE S6 Users Manual) TRIMBLE S6 Users Manual
6. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1005: Conduct a radial survey using optical equipment

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, a control traverse, a survey set (G.P.), and references.

STANDARD: To collect planimetric and topographic field data to the third order of accuracy.

PERFORMANCE STEPS:
1. Review project specifications.
2. Assemble the total station instrument.
3. Initialize job file.
4. Perform station establishment.
5. Initialize for topographic data collection.

6. Measure and record topographic and planimetric data.
7. Assign properties to observations.
8. Perform surface scan.

REFERENCES:
1. FM 3-100.4 Environmental Considerations in Military Operations
2. FM 5-232 Elements of Surveying
3. FM 5-233 Construction Surveying
4. NAVEDTRA 10696 Engineer Aid 3
5. OEM (TRIMBLE S6 Users Manual) TRIMBLE S6 Users Manual
6. 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

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a survey set (G.P.), collected survey field data, and references.

STANDARD: To accurately represent existing terrain features per the references.

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.

REFERENCES:
1. FM 3-100.4 Environmental Considerations in Military Operations
2. FM 5-233 Construction Surveying
3. OEM (Terra Model Users Manual) Terra Model Users Manual
4. 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

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a survey set (G.P.), adjusted field data file, written project specifications and references.

STANDARD: To conform to project specifications, design sketches, and American National Standards Institute (ANSI) guidelines per the references.

PERFORMANCE STEPS:
1. Review written project specifications and design sketches.
2. Open project file.
3. Create a contoured site plan, per specifications.
4. Perform horizontal design per specifications.
5. Create cross section drawings.
6. Create a plan and profile drawing.
7. Create a contoured plot plan.
8. Print earthwork volume readouts.
9. Print or plot the civil drawings.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 3-100.4 Environmental Considerations in Military Operations
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
5. FM 5-553 General Drafting
6. NAVEDTRA 10696 Engineer Aid 3
7. OEM (Terra Model Users Manual) Terra Model Users Manual

1361-SRVY-1008: Layout a project

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

DESCRIPTION: Layout a project

MOS PERFORMING: 1361

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project design specifications, a total station instrument, a data collection device, a computer, software applications, a design coordinate file, a printer, and references.

STANDARD: To meet design specifications per the reference.

PERFORMANCE STEPS:
1. Boot the computer.
2. Start the software program.
3. Connect the data collector device to computer.

4. Upload design coordinates to the data collector device.
5. Establish hardware synchronization.
6. Print design coordinates data.
7. Assemble the total station instrument.
8. Access working file
9. Perform station establishment.
10. Initialize stake-out program
11. Stake-out project design points.

REFERENCES:
1. NAVEDTRA 10696 Engineer Aid 3
2. TM 5-232 Elements of Construction Surveying

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

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 coordinates to the data collector device.
3. Assemble the total station instrument.
4. Initialize job file.
5. Perform station establishment.
6. Stake-out project design points.

REFERENCES:
1. FM 3-100.4 Environmental Considerations in Military Operations
2. FM 5-232 Elements of Surveying
3. NAVEDTRA 10696 Engineer Aid 3
4. OEM (TRIMBLE S6 Users Manual) TRIMBLE S6 Users Manual
5. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1009: Establish a control traverse using Global Positioning System (GPS) equipment

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

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. Indentify control station locations.
3. Assemble the GPS base station and rovers.
4. Initialize job file.
5. Start base station and begin a logging session.
6. Establish observed control points with the rover.
7. Post process data.
8. Perform site calibration adjustment.

REFERENCES:
1. FM 3-100.4 Environmental Considerations in Military Operations
2. FM 5-232 Elements of Surveying
3. FM 5-233 Construction Surveying
4. NAVEDTRA 10696 Engineer Aid 3
5. OEM (TRIMBLE R-8 Users Manual) TRIMBLE R-8 Users Manual
6. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1010: Conduct a topographic survey with GPS equipment

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided written project specifications, a control traverse, a survey set (G.P.), and references.

STANDARD: To collect planimetric and topographic field data to the third order of accuracy.

PERFORMANCE STEPS:
1. Review project specifications.
2. Assemble the GPS surveying system.
3. Initialize job file.
4. Assemble the GPS base station and rovers.

5. Start base station.
6. Initialize for topographic data collection.
7. Measure and record topographic and planimetric data.
8. Assign properties to observations.

REFERENCES:
1. FM 3-100.4 Environmental Considerations in Military Operations
2. FM 5-232 Elements of Surveying
3. FM 5-233 Construction Surveying
4. NAVEDTRA 10696 Engineer Aid 3
5. OEM (TRIMBLE R-8 Users Manual) TRIMBLE R-8 Users Manual
6. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

1361-SRVY-1011: Layout a project using GPS equipment

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: PVT, PFC, LCPL

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. Upload design coordinates to the data collector device.
2. Assemble GPS surveying system.
3. Start base station and rover.
4. Initialize job file.
5. Stake-out project design points.

REFERENCES:
1. FM 3-100.4 Environmental Considerations in Military Operations
2. FM 5-232 Elements of Surveying
3. FM 5-233 Construction Surveying
4. NAVEDTRA 10696 Engineer Aid 3
5. OEM (TRIMBLE R-8 Users Manual) TRIMBLE R-8 Users Manual
6. TM 5-6675-332-10 Operators Manual, Automated Integrated Survey Instrument (AISI)

18004. 2000-LEVEL EVENTS

1361-MANT-2001: Initiate maintenance actions

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With forms and references.

STANDARD: So the Equipment Repair Order (NAVMC 10245) is complete with descriptive data and service/repair actions for the equipment indicated and valid requisitions (NAVMC 10925) are created per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Complete an Equipment Repair Order (ERO) (NAVMC 10245).
3. Review equipment technical manuals and /or stock lists.
4. Complete an ERO Shopping/Transaction list (NAVMC 10925).
5. Reconcile outstanding requisitions.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
3. TI 4733-15/21 Survey Instrument Exchange Program
4. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
5. UM 4790-5 Users Manual MIMMS
6. UNIT SOP Unit's Standing Operating Procedures

1361-MANT-2002: Monitor maintenance related programs

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With equipment and references.

STANDARD: So that units mission is supported per the references.

PERFORMANCE STEPS:
1. Determine requirements for maintenance related programs.
2. Inspect equipment.
3. Monitor Modification Control program.
4. Monitor Calibration Control program.
5. Monitor New Equipment Warranty program.
6. Monitor Replacement and Evacuation (R&E) program.
7. Monitor Quality Deficiency (QDR) program.
8. Monitor Recoverable Items (WIR) program.
9. Monitor Quality Control (QC) program.
10. Ensure records are updated.

REFERENCES:
1. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TI 4733-15/1 Calibration Requirements Test, Measurement and Diagnostic Equipment (TMDE) Calibration and Maintenance Program
4. UNIT SOP Unit's Standing Operating Procedures

1361-MANT-2003: Manage maintenance management reports

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With MIMMS (AIS) reports, supporting documentation, and references.

STANDARD: Ensuring accuracy of the maintenance effort per the references.

PERFORMANCE STEPS:
1. Analyze Daily Processing Report (DPR).
2. Analyze Daily Transaction Listing (DTL).
3. Analyze daily SASSY transactions.
4. Analyze daily LM-2 Report.
5. Analyze weekly TAM Report.
6. Analyze weekly Maintenance Exceptions Report.
7. Monitor weekly LM-2 Report.

REFERENCES:
1. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
2. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
4. UM 4400-124 FMF SASSY Using Unit Procedures
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
6. UNIT SOP Unit's Standing Operating Procedures

1361-MANT-2004: Control publications

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: With units Publications Listing (PL) and Table of Organization and Equipment (T/O&E), access to publications websites and management systems, and references.

STANDARD: To ensure publications are available to maintain the sections operational capabilities and readiness per the references.

PERFORMANCE STEPS:
1. Review the references.
2. Identify publication requirements based on mission and T/O&E.
3. Audit sections PL.
4. Validate on-hand publications inventory.
5. Inspect sections 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 P4790.2C MIMMS Field Procedures Manual (Jul 94)
3. MCO P5215.17C The Marine Corps Technical Publications System (Jun 96)
4. MCO P5600.31G Marine Corps Publications and Printing Regulations (Sep 93)
5. NAVMC 2761 Catalog of Publications (Oct 07)
6. UNIT SOP Unit's Standing Operating Procedures

1361-SRVY-2001: 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 general purpose (GP), soil test set, and references.

STANDARD: To safely support all calculated loads per the references.

PERFORMANCE STEPS:
1. Review the vertical construction mission.
2. Perform a project site reconnaissance as necessary.
3. Perform a soil field identification test 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. Develop finished design sketches.
9. Create project design specifications.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 5-426 Carpentry
3. FM 5-428 Concrete Masonry
4. FM 5-472 Materials Testing
5. FM 5-553 General Drafting
6. NAVEDTRA 10696 Engineer Aid 3
7. OEM (AutoCAD Users Manual) AutoCAD Users Manual
8. TM 5-581B Construction Drafting
9. TM 5-704 Construction Print Reading in the Field
10. TM 5-760 Interior Wiring

1361-SRVY-2002: Utilize automated facilities programs

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a project mission and specifications, a computer, facilities software applications, a printer or plotter, and the references.

STANDARD: To identify structural requirements in support of project missions and specifications per the references.

PERFORMANCE STEPS:
1. Review the project mission and specifications.
2. Start the automated facilities program.
3. Identify the appropriate facilities drawings.
4. Modify the facilities drawing as necessary.
5. Utilize the facility resource data base.
6. Print facilities resource lists.
7. Print facilities drawings.

REFERENCES:
1. ABFC (Automated) Advanced Base Functional Components
2. ANSI A-A-52034A Drafting
3. TCMS (Automated) Theater Construction Management System

1361-SRVY-2003: 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: To account for all Class IV quantities per the references.

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. FM 5-412 Project Management
2. FM 5-428 Concrete Masonry
3. NAVFAC P-405 Seabee Planner's and Estimator's Handbook
4. TM 5-426 Carpentry
5. TM 5-581B Construction Drafting
6. TM 5-704 Construction Print Reading in the Field

1361-SRVY-2004: 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 per the references.

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. FM 5-412 Project Management
2. NAVFAC P-405 Seabee Planner's and Estimator's Handbook

1361-SRVY-2005: 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 general purpose (GP), soil test set and references.

STANDARD: To meet construction mission requirements per acceptable construction standards and the references.

PERFORMANCE STEPS:
1. Review the horizontal construction mission.
2. Perform a project site reconnaissance.
3. Perform a soil field identification test.

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.

REFERENCES:
1. ANSI A-A-52034A Drafting
2. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
3. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
4. FM 5-472 Materials Testing
5. MCRP 3-17A Engineer Field Data
6. OEM (AutoCAD Users Manual) AutoCAD Users Manual

1361-SRVY-2006: Prepare Grade Control System (GCS)

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

MOS PERFORMING: 1361

BILLETS: Engineer Assistant

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a survey set general purpose (GP), completed horizontal construction design, data transfer device, corresponding heavy equipment and references.

STANDARD: To integrate design data into GCS to guide construction quality control.

PERFORMANCE STEPS:
1. Validate civil design of horizontal project.
2. Use Trimble Business Center.
3. Upload data to data transfer device.
4. Assemble GPS base station.
5. Start GPS base station.
6. Establish communication between base station and heavy equipment.
7. Supervise blade calibration.

REFERENCES:
1. FM 5-434 Earthmoving Operations
2. OEM (Grade Control System User's Manual) GCS User's Manual

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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 obtain a two-letter USCS classification, CBR, and moisture content per the references.

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. FM 5-410 Military Soils Engineering
2. FM 5-472 Materials Testing
3. MCRP 3-17A Engineer Field Data

1361-XENG-2002: Plan survey support for the construction of a forward operations base

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, commanders intent, size of unit to occupy cantonment, and references.

STANDARD: To provide the commander with precise GPS locations of all essential structures in support of the concept of operations and commanders intent per the references.

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. Stake out locations for obstacles and barriers based on minimum safe standoff distances.
6. Determine drainage requirements.
7. Stake out locations for bunkers and shelters.
8. Conduct base layout.
9. Recommend incremental improvements per METT-T.
10. Provide detailed FOB survey data as required.

REFERENCES:
1. FM 5-102 Counter mobility
2. FM 5-103 Survivability
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-17 Engineer Operations
5. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)

1361-XENG-2007: Project Planning and Scheduling

SUPPORTED MET(S): None

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 1 month

DESCRIPTION: Provided a project mission, written project specification, finishes design drawings, a completed bill of materials, a scientific calculator, a computer, software applications, a printer and references, implement project planning, to support the project mission, per (1361.03.05).

CONDITION: Provided a project mission, written project specification, finishes design drawings, a completed bill of materials, a scientific calculator, a computer, software applications, a printer and references, implement project planning, to support the project mission, per FM 5-430-00-1, FM 5-430-00-2 (1361.03.05).

STANDARD: Implement project planning, to support the project mission, per FM 5-430-00-1, FM 5-430-00-2 (1361.03.05)

REFERENCES:
1. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
2. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design

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ENG & UTIL T&R MANUAL

CHAPTER 19

MOS 1371 INDIVIDUAL EVENTS

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CHAPTER 19

MOS 1371 INDIVIDUAL EVENTS

19000. PURPOSE. This chapter includes all individual training events for Combat Engineers. An individual event is an event that a trained Combat Engineer would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

19001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1371).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
CMOB – Counter-mobility
DEMO - Demolitions
MANT - Maintenance
MOBL – Mobility
RECN – Engineer Reconnaissance
SURV – Survivability
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2171) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

19003. INDEX OF INDIVIDUAL EVENTS

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19003. 1000-LEVEL EVENTS

1371-CMOB-1001: Construct wire obstacles

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

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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. FM 5-102 Counter mobility
2. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area

UNITS/PERSONNEL: RANGE SAFETY OFFICER, CORPSMAN

1371-CMOB-1002: Construct field expedient obstacles

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

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Platoon Guide, Platoon Sergeant, Squad Leader, Squad Member

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 abates if applicable
4. Construct improvised obstacles if applicable
5. Improve as necessary

RELATED EVENTS:
1371-CMOB-1001 1371-XENG-1012 1371-XENG-1010
1371-CMOB-1004

REFERENCES:
1. FM 3-06 Urban Operations
2. FM 3-34.210 Explosive Hazard Operations
3. FM 5-102 Counter mobility
4. FM 5-103 Survivability
5. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17410 Maneuver/Training Area, Light Forces
Facility Code 17420 Maneuver/Training Area, Heavy Forces
Facility Code 17411 Maneuver/Training Area, Amphibious Forces
Facility Code 17413 Field Training Area
Facility Code 17962 MOUT Collective Training Facility (Small)
Facility Code 17963 MOUT Collective Training Facility (Large)

1371-CMOB-1003: Create craters and ditches using explosives

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

GRADES: PVT, PFC, LCPL

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 3-34.214 Explosives and Demolitions
2. FM 5-102 Counter mobility
3. GTA 5-10-33 Demolition Card
4. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M030	Charge, Demolition Block TNT 1/4-Pou	
M032	Charge, Demolition Block TNT 1-Pound	
M039	Charge, Demolition Cratering 40-Poun	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M420	Charge, Demolition Shaped M2 Series	
M421	Charge, Demolition Shaped M3 Series	
M456	Cord, Detonating PETN Type I Class E	
M591	Dynamite, Military M1	
M670	Fuse, Blasting Time M700	
M757	Charge, Assembly Demolition M183 Com	
MN08	Igniter, Time Blasting Fuse with Sho	

1371-CMOB-1004: Employ U. S. mines

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

MOS PERFORMING: 1371

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the proper authority, Class V (mines, AHD), demolition tools and equipment, and personal protective equipment (PPE), and references.

STANDARD: So that mines are emplaced and concealed according to the method of mine operation, the type of ground in which the mine 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 mine
2. Select the appropriate AHD (if applicable)
3. Select the location for emplacement
4. Prepare location for emplacement
5. Emplace mine

6. Employ anti-handling devices or tripwires (if applicable)
7. Arm the mines
8. Camouflage the mines (if applicable)
9. Dispose of excess soil and re-use in sandbags
10. Remove all tape, debris, and sandbags, restoring the area to its natural state.
11. Inventory tools, equipment and safeties
12. Recover safeties
13. Locate mines
14. Uncover mines
15. Remove AHD if present and disarm the mines
16. Remove/cut tripwires (if applicable)
17. Remove the mines
18. Inventory all mines and dispose of properly
19. Return area to natural state

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
K002 Activator, M1 for Antitank Mine Prac	
K051 Fuze, M604 for Antitank Mine Practic	
K143 Mine, Antipersonnel M18A1 with M57 F	
K231 Mine, Antitank Practice M20	
M327 Coupling Base, Firing Device with Pr	
M626 Firing Device, Demolition Pressure M	
M627 Firing Device, Demolition Pressure R	
M630 Firing Device, Demolition M1 Pull Ty	

RANGE/TRAINING AREA:
Facility Code 17905 Mine Warfare Area

1371-DEMO-1001: Employ military explosives

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

GRADES: PVT, PFC, LCPL

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. FM 3-34.214 Explosives and Demolitions
2. GTA 5-10-33 Demolition Card
3. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M023	Charge, Demolition Block M112 1-1/4	
M030	Charge, Demolition Block TNT 1/4-Pou	
M032	Charge, Demolition Block TNT 1-Pound	
M039	Charge, Demolition Cratering 40-Poun	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M420	Charge, Demolition Shaped M2 Series	
M421	Charge, Demolition Shaped M3 Series	
M456	Cord, Detonating PETN Type I Class E	
M591	Dynamite, Military M1	
M670	Fuse, Blasting Time M700	
M757	Charge, Assembly Demolition M183 Com	
M766	Igniter, M60 for Time Blasting Fuse	
ML03	Firing Device, Demolition Multi-Purp	
MN08	Igniter, Time Blasting Fuse with Sho	

1371-MOBL-1001: Breach non-explosive obstacles

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

MOS PERFORMING: 1371

GRADES: PVT, PFC, LCPL

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 force mobility is 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 destroy obstacle(s)
4. Reduce the obstacle.
5. Mark the lane as required.

REFERENCES:
1. FM 3-34.214 Explosives and Demolitions
2. FM 5-101 Mobility
3. GTA 5-10-33 Demolition Card
4. MCRP 3-17A Engineer Field Data
5. MCWP 3-17.3 MAGTF Breaching Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M023	Charge, Demolition Block M112 1-1/4	
M028	Demolition Kit, Bangalore Torpedo M1	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M456	Cord, Detonating PETN Type I Class E	
M670	Fuse, Blasting Time M700	
M757	Charge, Assembly Demolition M183 Com	
M766	Igniter, M60 for Time Blasting Fuse	
MN08	Igniter, Time Blasting Fuse with Sho	

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range

UNITS/PERSONNEL: Range Safety Officer, Corpsman

1371-MOBL-1002: Operate mine detectors

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

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a mission, mine detector, marking equipment, personal protective equipment (PPE), and references.

STANDARD: To ensure all mines 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 a mine.

9. Sweep for secondary mines
10. Proof area after mine has been reduced.
11. Perform PMCS.
12. Disassemble and repack the mine detector.

REFERENCES:
1. Applicable operation and maintenance manual/guide
2. Appropriate Technical Manuals

1371-MOBL-1003: Breach explosive obstacles/hazards

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

MOS PERFORMING: 1371

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, provided a mission, personnel, Class V, demolitions equipment, mine probes, mine detectors, and protective field equipment.

STANDARD: In accordance with breaching fundamentals, ensuring all mines in the lane are located, marked, and/or destroyed in place (or removed); and employ minefield marking system after successful breach.

PERFORMANCE STEPS:
1. Locate mines
2. Visually identify mines
3. Reduce lane(s)
4. Proof lane(s)
5. Mark lane(s)

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 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)

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M023	Charge, Demolition Block M112 1-1/4	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M456	Cord, Detonating PETN Type I Class E	
M670	Fuse, Blasting Time M700	
M757	Charge, Assembly Demolition M183 Com	

M766 Igniter, M60 for Time Blasting Fuse
MN08 Igniter, Time Blasting Fuse with Sho
MN88 Cap, Blasting, 500 ft mini-tube M21
MN90 Cap, Blasting, 1000 ft mini-tube M23

RANGE/TRAINING AREA:
Facility Code 17905 Mine Warfare Area

UNITS/PERSONNEL: Range Safety Officer, Corpsman

1371-MOBL-1004: Assist in employing 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 and launch per the references.

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.
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. MCRP 3-17A Engineer Field Data
2. TM 08676A-10/1-1 Operators Manual Medium Girder Bridge

1371-MOBL-1005: Assist in employing the Improved Ribbon Bridge (IRB)

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: Ensuring proper assembly of a bridge/raft capable of supporting unit mobility requirements during wet gap crossings.

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. MCRP 3-17A Engineer Field Data
2. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
3. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

1371-MOBL-1006: Maintain the MK 153 SMAW

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 1 month

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: MOJT

CONDITION: Without the aid of references, in a field or garrison environment, during daylight or darkness, given a SMAW and appropriate cleaning material.

STANDARD: to ensure the weapon functions and is free of carbon, dirt and rust in accordance with the references.

PERFORMANCE STEPS:
1. Check to ensure the weapon is in Condition 4.
2. Disassemble the weapon.
3. Inspect the weapon.
4. Clean the SMAW and the sights.
5. Reassemble the weapon.
6. Lubricate the weapon.
7. Perform function check.

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)

1371-MOBL-1007: Engage targets with MK 153 SMAW

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

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: MOJT

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.

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
AX11 Cartridge, 9mm Spotting Rifle MK212	
HX05 Rocket, 83mm Assault MK3 Mod 0 (SMAW	
HX06 Rocket, 83mm HEAA MK6 Mod 0 (SMAW)	
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	

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.

1371-RECN-1001: Obtain critical information for engineer reconnaissance

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

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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. FM 5-170 Engineer Reconnaissance
2. GTA 5-2-5 Engineer Reconnaissance
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area

1371-SURV-1001: Construct survivability positions

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

DESCRIPTION: Construction of bunkers, blast shields, revetments, fighting positions, and the operation of the 260 cfm.

MOS PERFORMING: 1371

BILLETS: Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL

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.

PERFORMANCE STEPS:
1. Prepare to construct survivability position(s).
2. Place structural materials (if applicable).
3. Place shielding materials.
4. Place HESCO container (if applicable).
5. Place revetment materials (if applicable).
6. Camouflage position (if applicable).

RELATED EVENTS:
1371-XENG-1009 1371-XENG-1012 1371-XENG-1011

REFERENCES:
1. FM 5-103 Survivability
2. MCRP 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

EQUIPMENT: Some equipment that can be used to construct survivability position are, TRAMs, 420D backhoe, pioneer kit, 260 cfm, and PPE.

MATERIAL: Material that can be used in construction of survivability positions are, I.E., heavy and mid size lumber, 3x6 - 12x12, HESCO, sandbags, natural material, nails, drift pins, etc.

1371-SURV-1002: Erect the Light Weight Screening System

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

BILLETS: Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: MOJT

CONDITION: As a member of a team, given Light Weight Screening System components and the requirement to camouflage positions, vehicles, or equipment.

STANDARD: Ensuring that the finished design breaks up the silhouette of the covered area, without creating unnatural shadows or contours.

PERFORMANCE STEPS:
1. Determine required modules of light weight screening.
2. Assemble modules into one net.
3. Place assembled modules over positions, vehicles, or equipment to be camouflaged.
4. Ensure appropriate blend is showing.
5. Inspect area frequently and upgrade camouflage as needed.

REFERENCES:
1. FM 20-3 Camouflage
2. Appropriate Manufacturer's Assembly Manual/Instructions

1371-XENG-1001: Cut lumber to dimension

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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.

RELATED EVENTS:
1371-XENG-1002

REFERENCES:
1. FM 5-426 Carpentry
2. Appropriate TM/Manufacture's Manual for Power Tools

1371-XENG-1002: Place lumber

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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: By fastening pieces together using the proper fastener for the component being constructed, using proper tools while observing all safety precautions.

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.

RELATED EVENTS:
1371-XENG-1003 1371-XENG-1001

REFERENCES:
1. FM 5-426 Carpentry
2. Appropriate Manufacturer's Assembly Manual/Instructions

1371-XENG-1003: Construct concrete forms

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

BILLETS: Construction NCO, Squad Member

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: By fastening pieces together using the proper fastener for the form component being constructed; using proper tools while observing all safety precautions; and ensuring that finished form height conforms to building lines. As required, place all joints, anchors, and reinforcement per the design specifications.

PERFORMANCE STEPS:
1. Review the construction drawings, blueprints, and/or specifications.
2. Perform earthwork as necessary to level the surface area to be formed.
3. Construct footing/slab forms.
4. Construct wall forms (if applicable).
5. Place reinforcement material per design specifications.
6. Apply releasing agent on forms prior to placing concrete.

RELATED EVENTS:
1371-XENG-1006 1371-XENG-1002

REFERENCES:
1. FM 5-426 Carpentry
2. FM 5-428 Concrete Masonry

1371-XENG-1004: Mix concrete

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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 batches of concrete are of uniform quality, conforming to the specified mix ratio; the concrete mixer is properly set up, operated, and secured; and all safety precautions are observed.

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. Place concrete.
6. Clean and secure all tools and equipment.

REFERENCES:
1. FM 5-428 Concrete Masonry
2. Applicable operation and maintenance manual/guide

1371-XENG-1005: Pour concrete

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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 sub-grade by moistening, as required.
3. Check forms.
4. Place concrete.
5. Consolidate the concrete.
6. Screed the concrete.
7. Clean and secure all tools and equipment.

RELATED EVENTS:
1371-XENG-1004 1371-XENG-1003

REFERENCES:
1. FM 5-428 Concrete Masonry

1371-XENG-1006: Finish concrete

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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.

REFERENCES:
1. FM 5-428 Concrete Masonry

1371-XENG-1007: Lay concrete block

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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. FM 5-428 Concrete Masonry

1371-XENG-1008: Assemble prefabricated structures

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

DESCRIPTION: Tasks involves preparation and construction of pre-engineered structures such as K-Spans, PEBs and manufactured type structures utilized in the Operating Forces.

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a building location, prefabricated materials or materials manufacture on site, manufacture'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 per manufacturer's instructions.

REFERENCES:
1. Appropriate Manufacturer's Assembly Manual/Instructions

1371-XENG-1009: Operate a chainsaw

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Fire Team/Section Leader, Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

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.

RELATED EVENTS:

1371-XENG-1010	1371-MOBL-1001	1371-CMOB-1002
1371-SURV-1001	1371-XENG-1012	

REFERENCES:
1. FM 5-100 Engineers in Combat Operations
2. FM 5-101 Mobility
3. FM 5-102 Counter mobility
4. FM 5-103 Survivability
5. FM 5-34 Engineering Field Data
6. Appropriate TM/Manufacture's Manual for Chainsaw

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area

MATERIAL: Required to have heavy timber (3 inch or larger) for personnel to cut.

UNITS/PERSONNEL: Required to have a corpsman on site during chainsaw operation.

1371-XENG-1010: Fell standing timber

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

MOS PERFORMING: 1371

BILLETS: Squad Leader, Squad Member

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: So that 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

RELATED EVENTS:
1371-XENG-1009

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. Appropriate TM/Manufacture's Manual for Chainsaw

SUPPORT REQUIREMENTS:

EQUIPMENT: Equipment to be used in felling standing timber would be, I.E., chainsaw, pioneer tools, mechanical means, rope, chain, wench, PPE, timber carriers, axe, machete, bush hook, etc.

1371-XENG-1011: Operate the 260 CFM compressor

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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: All pre-operation checks and start up/shut down procedures must be performed per the manufacturer's checklist; and all SL-3 components must be selected and operated 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.

RELATED EVENTS:
1371-SURV-1001 1371-XENG-1012

REFERENCES:
1. TM 5-4310-256-15 Compressor Recipe Air Hand, Truck Mounted

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1371-XENG-1012: Place timber

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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).

RELATED EVENTS:
1371-SURV-1001

REFERENCES:
1. FM 5-103 Survivability
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data

1371-XENG-1013: Maintain combat engineer chests, sets and kits

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

MOS PERFORMING: 1371

BILLETS: Squad Leader, Squad Member

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. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. Appropriate Reference Materials
3. Appropriate Technical Manuals

1371-XENG-1014: Tie knots/lashings for rigging operations

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

MOS PERFORMING: 1371

BILLETS: Construction NCO, Squad Member

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 if required.
6. Set up a block and tackle system if required.

REFERENCES:

1. MCRP 3-17A Engineer Field Data

19004. 2000-LEVEL EVENTS

1371-ADMN-2001: Manage engineer forms and reports

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 1 month

BILLETS: Battalions Operations Chief, Company Gunnery Sergeant, Operations Chief

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided completed engineer form(s) and/or report(s), operations plan, map, unit SOP(s) and references

STANDARD: So that 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) and/or report(s).
2. Review the appropriate section(s) of the references.
3. Examine form(s) and/or report(s) for deficiencies.
4. List all deficiencies.
5. Return form(s) and/or report(s) to originator for corrections if necessary.
6. Prepare evaluation of form(s) and/or report(s) as required.
7. File and Submit form(s) and/or report(s) to higher headquarters as required.

RELATED EVENTS:

1371-MANT-2001	1371-MANT-2002	1371-XENG-1013
1371-XENG-2009	1371-ADMN-2003	1371-ADMN-2004
1371-ADMN-2002		

REFERENCES:
1. FM 100-14 Risk Management
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-100 Engineers in Combat Operations
6. FM 5-101 Mobility
7. FM 5-101-5-1 Operational Terrain and Symbols
8. FM 5-102 Counter mobility
9. FM 5-103 Survivability
10. FM 5-33 Terrain Analysis
11. FM 90-13-1 Combined Arms Breaching Operations
12. GTA 5-10-33 Demolition Card
13. GTA 5-2-5 Engineer Reconnaissance
14. GTA 5-7-13 Bridge Classification Booklet
15. GTA 5-7-6 Bridge Design Card
16. MCRP 3-17A Engineer Field Data
17. MCRP 3-17B Engineer Forms and Reports

18. MCWP 3-17 Engineer Operations
19. MCWP 3-17.1 River-Crossing Operations
20. MCWP 3-17.3 Breaching Operations
21. MCWP 3-17.3 MAGTF Breaching Operations
22. MCWP 3-17.4 Engineer Reconnaissance
23. Local Standard Operating Procedures (SOP)
24. Supported Battalion SOP

1371-ADMN-2002: Evaluate engineer situation reports

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

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer situation report and references.

STANDARD: To summarize information from each heading of the situation report, describe the impact of each heading on engineer operations, and act on the information as required.

PERFORMANCE STEPS:
1. Review the appropriate section(s) of the references.
2. Examine the situation report.
3. Prepare situation report evaluation.

RELATED EVENTS:
1371-ADMN-2001

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports

1371-ADMN-2003: Evaluate minefield records/reports

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

GRADES: SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a completed 1355-R or 1355-1-R and references.

STANDARD: To identify any deficiencies concerning emplacement, marking of minefields, and reporting of minefield data per the references.

PERFORMANCE STEPS:
1. Examine 1355-R or 1355-1-R for deficiencies.
2. List all deficiencies.
3. Return to originator for corrections if necessary.

RELATED EVENTS:
1371-ADMN-2001

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports

1371-ADMN-2004: Evaluate engineer reconnaissance reports

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

GRADES: GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a completed DA Form 1711-R, an operations plan, an area tactical map, and references,

STANDARD: to determine the impact of engineer-related activities on the operations plan.

PERFORMANCE STEPS:
1. Review appropriate section(s) of the references.
2. Examine the DA Form 1711-R.
3. Prepare reconnaissance report evaluation.

RELATED EVENTS:
1371-ADMN-2001

REFERENCES:
1. FM 5-170 Engineer Reconnaissance
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports

1371-ADMN-2005: Participate in the Marine Corps Planning Process (MCPP)

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

BILLETS: Battalions Operations Chief

GRADES: MSGT, MGYSGT

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 accomplishments of the mission and commander's intent.

PERFORMANCE STEPS:
1. Assist mission analysis.
2. Assist in course of action development.
3. Assist in war gamming of course of action.
4. Assist in comparison and recommendation of course 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.

RELATED EVENTS:

1302-XENG-1002	1371-SURV-2002	1371-MOBL-2023
1371-XENG-2008	1371-MOBL-2012	1371-CMOB-2002

REFERENCES:
1. MCWP 5-1 Marine Corps Planning Process

1371-ADMN-2006: Deliver a military brief

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

BILLETS: Battalions Operations Chief, Operations Chief, Section SNCOIC

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. FMFM 13 MAGTF Engineer Operations
2. FMFM 3-1 Command and Staff Action
3. MCWP 5-1 Marine Corps Planning Process

1371-ADMN-2007: Prepare non-nuclear target folder

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 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 per the references.

PERFORMANCE STEPS:
1. Review DA Form 2203-R.
2. Review the references.
3. Complete the three sections of the target folder.
4. Ensure all sections of the target folder are completed in specific languages.

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. FM 3-34.214 Explosives and Demolitions
3. STANAG 2123 Obstacle Folder

1371-ADMN-2008: Arrange external support for engineer projects/operations

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

MOS PERFORMING: 1371

BILLETS: Battalions Operations Chief, Operations Chief, Section SNCOIC

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order.

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. FMFM 13 MAGTF Engineer Operations
2. FMFM 3-1 Command and Staff Action
3. MCWP 4-1 Logistics Operations
4. MCWP 5-1 Marine Corps Planning Process

1371-ADMN-2009: Establish operations center

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 12 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: To enhance efficiency in intra-staff coordination, minimize internal traffic, maximize communications, and maintain security.

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. FMFM 13 MAGTF Engineer Operations
2. FMFM 3-1 Command and Staff Action

1371-ADMN-2010: Manage unit training

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

BILLETS: Battalions Operations Chief, Company Gunnery Sergeant, Operations Chief, Platoon Sergeant

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 support of the MAGTF per the references.

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 the T&R Manual and METs.
5. Develop logical sequence for training individual 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.

REFERENCES:
1. MCO 3501.1C Marine Corps Combat Readiness and Evaluation System (MCCRES) (Mar 93)
2. MCO 3501.7A Marine Corps Combat Readiness Evaluation System (MCCRES); Volume VI, Combat Service Support Units (Apr 91)
3. MCRP 3-0A Unit Training Management Guide

4. MCRP 3-0B How to Conduct Training
5. NAVMC 3500.12A Marine Corps Engineer and Utilities Training and Readiness Manual

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1371-CMOB-2001: Recommend obstacle placement

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order, an area map, reconnaissance reports and references.

STANDARD: That ties 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 actual work sequence.
8. Determine task organization required.
9. Determine coordination required.

RELATED EVENTS:
1371-CMOB-2002 1371-CMOB-2006 1371-CMOB-2005
1371-CMOB-2004

REFERENCES:
1. FM 5-102 Counter mobility
2. MCRP 3-17A Engineer Field Data

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, a map, an operations order, and references.

STANDARD: That recommends types of obstacles; obstacle placement; the resources required to construct the obstacles; and an obstacle overlay, all of which support the scheme of maneuver by fixing, turning, blocking or disrupting enemy movement per the commander's intent and the references.

PERFORMANCE STEPS:
1. Analyze the mission, enemy, terrain, troops and fire support available and time, space and logistics (METT-TSL).
2. Conduct Intelligence Preparation of the Battlefield (IPB).
3. Identify Requests for Information (RFI) to the S-2.
4. Provide guidance for the location and intent of obstacles to the S-3.
5. Identify logistics requirements to the S-4.
6. Identify and prioritize fire support requirements.
7. Prepare an overlay and an obstacle plan appendix to the operations order.

RELATED EVENTS:
1371-CMOB-2001

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. FM 5-102 Counter mobility
3. FM 90-7 Combined Arms Obstacle Integration
4. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
5. MCWP 3-1 Ground Combat Operations
6. MCWP 5-1 Marine Corps Planning Process

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 protective field equipment.

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.

PERFORMANCE STEPS:
1. Review the mission.
2. Perform area reconnaissance.
3. Determine location for booby traps.
4. Determine type of firing device to be used.
5. Determine types and amount of explosive to be used.
6. Complete the firing chain.
7. Arm the booby traps.
8. Camouflage the booby traps and return the area to its natural state.
9. Record the booby traps on DA Form 1355.
10. Turn in all safety pins and clips to the NCOIC.
11. Submit required reports.

REFERENCES:
1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCRP 3-17B Engineer Forms and Reports

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: Ensuring 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. FM 3-34.214 Explosives and Demolitions
2. GTA 5-10-33 Demolition Card
3. MCRP 3-17A Engineer Field Data

1371-CMOB-2005: Emplace a hasty protective row minefield

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

MOS PERFORMING: 1371

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical position, an operations order, personnel, compass, map, protractor, Class V, Class IV, DA Form 1355-1-R, mine detectors, probes, sandbags, engineer tools and protective field equipment.

STANDARD: Outside of hand grenade range but within the range of small caliber weapons, and tied into existing natural or manmade obstacles in order to prevent direct enemy assault on a position.

PERFORMANCE STEPS:
1. Receive permission to lay mines.
2. Conduct map/site reconnaissance.
3. Establish a Reference Point between unit position and tentative minefield.
4. Locate and place row markers for the beginning of the rows (a minimum of two rows).
5. Determine mine spacing for each row.
6. Emplace mines.
7. Locate and place row markers for the end of the rows.
8. Record all row markers on 1355-1-R.
9. Record a permanent landmark on the 1355-1-R.
10. Arm mines.
11. Verify count of all pins and clips and turn in to NCOIC.
12. Complete 1355-1-R.
13. Submit required reports to higher headquarters.
14. Transfer minefield as required.
15. Conduct mine removal as required.
16. Clean, repack or dispose of mine per unit SOP.
17. Submit required reports to higher headquarters.

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Class V requirements (mines) are currently discontinued due to doctrinal changes.

1371-CMOB-2006: Emplace a row minefield

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a tactical position, an operations order, personnel, compass, map, protractor, Class V, Class IV, DA Form 1355, mine detectors, probes, sandbags, engineer tools and protective field equipment.

STANDARD: To tie into existing natural or other manmade obstacles so that enemy movement/maneuvers are fixed, turned, blocked, or disrupted per the concept of operations.

PERFORMANCE STEPS:
1. Review the mission, the map of the area, and reconnaissance reports.
2. Determine enemy avenues of approach for armor and/or infantry.
3. Determine location for observation posts.

4. Determine logistical requirements for mine dump.
5. Identify key terrain features forming natural boundaries and obstacles.
6. Set up site security.
7. Locate a reference point.
8. Submit required reports to higher headquarters (Intent, Initiation, Progress, Completion, Transfer).
9. Emplace mines as required.
10. Verify the arming of all mines.
11. Verify that mines are buried/camouflaged.
12. Verify count of all safety pins and clips and turn-in to NCOIC.
13. Record minefield on DA Form 1355.
14. Submit DA Form 1355.
15. Verify the disarming of all mines.
16. Remove mines.
17. Destroy the minefield record, if required.

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. MCRP 3-17A Engineer Field Data
3. MCRP 3-17B Engineer Forms and Reports

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: Class V requirements (mines) are currently discontinued due to doctrinal changes.

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 the target.
2. Construct a platter charge.
3. Construct an expedient claymore mine.
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 mine.
8. Construct an expedient bangalore torpedo.
9. Engage the target.

REFERENCES:
1. FM 3-34.214 Explosives and Demolitions
2. GTA 5-10-33 Demolition Card

3. MCRP 3-17A Engineer Field Data
4. SWO 60-AA-MMA-010 Demolition Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M023	Charge, Demolition Block M112 1-1/4	
M032	Charge, Demolition Block TNT 1-Pound	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M327	Coupling Base, Firing Device with Pr	
M456	Cord, Detonating PETN Type I Class E	
M626	Firing Device, Demolition Pressure M	
M627	Firing Device, Demolition Pressure R	
M670	Fuse, Blasting Time M700	
M766	Igniter, M60 for Time Blasting Fuse	
ML03	Firing Device, Demolition Multi-Purp	
ML47	Cap, Blasting Non-Electric M11 with	
MN08	Igniter, Time Blasting Fuse with Sho	
MN88	Cap, Blasting, 500 ft mini-tube M21	

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 the 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. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.214 Explosives and Demolitions
3. GTA 5-10-33 Demolition Card
4. SWO 60-AA-MMA-010 Demolition Materials
5. TM 9-1300-214 Military Explosives

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
M023	Charge, Demolition Block M112 1-1/4	
M130	Cap, Blasting Electric M6	
M131	Cap, Blasting Non-Electric M7	
M456	Cord, Detonating PETN Type I Class E	
M670	Fuse, Blasting Time M700	
M766	Igniter, M60 for Time Blasting Fuse	
M980	Charge, Demolition Sheet 0.0831 Inch	
M981	Charge, Demolition Sheet 0.125 Inch	
M982	Charge, Demolition Sheet 0.161 Inch	
MM45	Charge, Demolition Flexible Linear S	
MM46	Charge, Demolition Flexible Linear S	
MM48	Charge, Demolition Flexible Linear S	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	
MN14	Firing Device, Dual Mode MK54	
MN88	Cap, Blasting, 500 ft mini-tube M21	
MN90	Cap, Blasting, 1000 ft mini-tube M23	

1371-DEMO-2003: Maintain a Breacher's Logbook

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a breaching mission.

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.

RELATED EVENTS:

1371-DEMO-2004	1371-DEMO-2006	1371-DEMO-2007
1371-DEMO-2008	1371-DEMO-2014	1371-DEMO-2010
1371-DEMO-2011	1371-DEMO-2012	1371-DEMO-2013
1371-DEMO-2009		

REFERENCES:
1. FM 3-34.214 Explosives and Demolitions
2. TM 9-1300-206 Explosive Standards
3. Guidebook for Assault Entry Techniques

SUPPORT REQUIREMENTS:

MATERIAL: Breacher's Logbook

1371-DEMO-2004: Compute the Net Explosive Weight (NEW)

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

PERFORMANCE STEPS:
1. Utilizing conversion factors, convert weights of all explosives used into Tri-Nitro-Toluene (TNT) equivalent.
2. Determine the NEW in pounds.
3. Calculate the safe-blast and safe-fragmentation distance from a given charge.

RELATED EVENTS:
1371-MOBL-2030 1371-DEMO-2003

REFERENCES:
1. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives

1371-DEMO-2005: Take appropriate protective measures

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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 yourself and your team in a safe location during detonation.

REFERENCES:
1. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a targeted structure, and references.

STANDARD: To determine an appropriate breaching technique.

PERFORMANCE STEPS:
1. Identify building construction methods.
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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
AX14	Primer, Percussion 12 Gauge W209	
M130	Cap, Blasting Electric M6	
M456	Cord, Detonating PETN Type I Class E	
ML03	Firing Device, Demolition Multi-Purp	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	

1371-DEMO-2008: Employ a window charge

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
AX14 Primer, Percussion 12 Gauge W209	
M456 Cord, Detonating PETN Type I Class E	
ML03 Firing Device, Demolition Multi-Purp	
MM56 Detonator, Non-Electric MK123 Mod 0	
MN08 Igniter, Time Blasting Fuse with Sho	

1371-DEMO-2009: Employ a water charge

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards

4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
AX14	Primer, Percussion 12 Gauge W209	
M456	Cord, Detonating PETN Type I Class E	
ML03	Firing Device, Demolition Multi-Purp	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	

1371-DEMO-2010: Employ an oval charge

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
AX14	Primer, Percussion 12 Gauge W209	
M456	Cord, Detonating PETN Type I Class E	
ML03	Firing Device, Demolition Multi-Purp	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	

1371-DEMO-2011: Employ a Uli knot slider charge

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
AX14	Primer, Percussion 12 Gauge W209	
M456	Cord, Detonating PETN Type I Class E	
ML03	Firing Device, Demolition Multi-Purp	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	

1371-DEMO-2012: Employ a detonating cord linear charge

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC		Quantity
AX14	Primer, Percussion 12 Gauge W209	
M456	Cord, Detonating PETN Type I Class E	
ML03	Firing Device, Demolition Multi-Purp	
MM56	Detonator, Non-Electric MK123 Mod 0	
MN08	Igniter, Time Blasting Fuse with Sho	

1371-DEMO-2013: Employ a concrete charge

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	

1371-DEMO-2014: Employ a fence charge

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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. FM 3-34.214 Explosives and Demolitions
2. SWO 60-AA-MMA-010 Demolition Materials
3. TM 9-1300-206 Explosive Standards
4. TM 9-1300-214 Military Explosives
5. Appropriate Reference Materials

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC	Quantity
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	

1371-DEMO-2015: Conduct range operations

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

BILLETS: Platoon Sergeant, Section Leader, Section SNCOIC

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), and references.

STANDARD: To complete required training without injury to personnel and equipment.

PERFORMANCE STEPS:
1. Plan for training
2. Conduct site reconnaissance, if required.
3. Build shot plan(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.

REFERENCES:
1. FM 3-34.214 Explosives and Demolitions
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
3. MCO 3570.1B Range Safety (Jun 03)
4. MCO P3500.72A Marine Corps Ground Training and Readiness (T&R) Program (Apr 05)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17830 Light Demolition Range
Facility Code 17581 Machine Gun Field Fire Range
Facility Code 17502 Non-Standard Small Arms Range

EQUIPMENT: M4, M16A4, M9, M249, M240G, M2, MK19, MK153, Military Demolitions, Shotgun, PPE, Range Folder, Safety Vehicle, Communication Assets, Ammunition Transport Vehicle

UNITS/PERSONNEL: Corpsman w/medical supplies, Ammo Tech, Armorer

MISCELLANEOUS:

SPECIAL PERSONNEL CERTS: Approved RSO/OIC card, Special permits (if applicable)

1371-MANT-2001: Maintain MIMMS program

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided Marine Corps Order P4790.2_, TM 4700-15/_, UM 4700-5, and blank maintenance forms.

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 a Consolidated Engineer Equipment Log and Service Record (NAVMC 10524).
3. Complete an Equipment Repair Order (NAVMC 10245).
4. Complete an ERO Shopping/Transaction List (NAVMC 10925).
5. Complete Engineer Equipment Operational Records (NAVMC 10523).
6. Complete a General Purpose Transaction Document (NAVMC 696).
7. Analyze Daily Processing Report (DPR).
8. Reconcile outstanding supply requests.
9. Complete modification control records.
10. Direct maintenance related programs.

REFERENCES:
1. MCO P4790.2C MIMMS Field Procedures Manual (Jul 94)
2. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
3. UM 4790-5 Users Manual MIMMS

1371-MANT-2002: Analyze maintenance management records

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

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Daily Process Report (DPR), Daily Transaction Listing (DTL), Equipment Repair Order (NAVMC 10245), Equipment Repair Order Shopping List (NAVMC 10925), and the references,

STANDARD: To ensure that maintenance functions are processed per the references.

PERFORMANCE STEPS:
1. Analyze Daily Process Report (DPR).
2. Analyze requisition procedures.
3. Analyze Daily Transaction Listing (DTL).
4. Analyze equipment records.

REFERENCES:
1. TM 4700-15/1H w/ch 3 Ground Equipment Record Procedures
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1371-MOBL-2001: Perform hasty soil analysis

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

GRADES: CPL, SGT

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 per the references.

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. FM 5-410 Military Soils Engineering
2. FM 5-472 Materials Testing
3. MCRP 3-17A Engineer Field Data

1371-MOBL-2002: Design expedient drainage structures

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

BILLETS: Fire Team/Section Leader, Squad Leader

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 per the references.

PERFORMANCE STEPS:
1. Review the 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. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
2. MCRP 3-17A Engineer Field Data

1371-MOBL-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: Ensuring that ditch side slopes and longitudinal ditch slope; culverts; headwalls/wing-walls; and ditch lining all conform to the design specifications.

PERFORMANCE STEPS:
1. Review the specifications.
2. Task organize personnel and equipment.
3. Cut drainage ditches.
4. Excavate, as required, for culverts.
5. Install culverts.
6. Construct headwalls/wing-walls as required.
7. Install check dams as required.
8. Line ditches as required.

REFERENCES:
1. FM 5-428 Concrete Masonry
2. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
3. FM 5-434 Earthmoving Operations
4. MCRP 3-17A Engineer Field Data

1371-MOBL-2004: Design Tactical Landing Zones (TLZ)/Forward Operating Bases (FOB)

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

GRADES: CPL, SGT

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, AM-2 matting and accessories, 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 FOB or an un-surfaced FOB per the mission specifications.

PERFORMANCE STEPS:
1. Analyze METT-TSL and reconnaissance forms, if provided.
2. Determine whether mission calls for a TLZ or a FOB.
3. Conduct site reconnaissance, keying on soil composition, drainage and obstructions.
4. Determine appropriate configuration.
5. Determine matting requirement (for FOB).
6. Calculate scope of engineer effort to prepare site.
7. Prepare site.
8. Lay mat as required (for FOB).
9. Install marking.

REFERENCES:
1. FM 5-430-00-2 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. MCRP 4-11.3E Multi-service Helicopter Sling Load: Vols I,II and III
4. NAVAIR 51-60-A-1 Installation, Maintenance, Repackaging and Illustrated Parts Breakdown, AM-2 Airfield Mat and Accessories

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1371-MOBL-2005: Repair damaged airfields (ADR)

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

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a damaged airfield, an 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.

PERFORMANCE STEPS:
1. Brief damage assessment teams.
2. Conduct damage assessment.
3. Once airfield commander has selected an MOS, have EOD clear UXO.
4. Repair spalls and craters to meet surface roughness criteria.
5. Install FOD cover on repaired crater(s).

REFERENCES:
1. MCWP 3.21.1 Aviation Ground Support
2. Navy/Marine Corps Runway Crater Repair (Interim Handbook), Navy

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1371-MOBL-2006: Employ the Medium Girder Bridge (MGB)

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

GRADES: CPL, SGT

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 and launch per the references.

PERFORMANCE STEPS:
1. Review the references and the Pro Forma.
2. Make crew assignments and brief crews.
3. Lay out the site based on critical pallet loads.
4. Install front roller beam.
5. Build end of bridge (EOB) +1.
6. Install rear roller beam.
7. Build and boom bridge, to include launching nose configuration, per the Pro Forma and the TM specifications.
8. Launch bridge.
9. Set bridge on deck.
10. Dress bridge.
11. Anchor as required.
12. Retrieve the MGB.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. TM 08676A-10/1-1 Operators Manual Medium Girder Bridge
3. TM 5-5420-212-12 Medium Girder Bridge
4. TM 5-5420-212-12-1 Link Reinforcement Set

1371-MOBL-2007: 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.

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 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2

1371-MOBL-2008: Employ the Improved Ribbon Bridge (IRB)

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

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, provided 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 per the references.

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 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
3. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

1371-MOBL-2009: Conduct military rafting operations

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

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, 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 per the references.

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. Following the commands of the raft commander, maneuver the raft to the far shore, debark equipment, repeat cycle.
14. Maintain rafting schedule.
15. Perform during-operation checks of the BEBs and IRB.
16. Perform post-operation checks and services of the BEBs and IRB.

REFERENCES:
1. MCRP 3-17A Engineer Field Data
2. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2

1371-MOBL-2010: 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 per the references.

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. FM 5-170 Engineer Reconnaissance
2. MCRP 3-17A Engineer Field Data

1371-MOBL-2011: Determine 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 per the references. For a dry gap crossing, determine the MGB configuration, calculate pallets required, determine all logistical requirements, and calculate total time to construct the bridge per the references.

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. For MGB, 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 all logistical support required.
10. Calculate total time to construct the bridge.

REFERENCES:
1. FM 5-170 Engineer Reconnaissance
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data
4. TM 5-5420-212-12 Medium Girder Bridge
5. TM 5-5420-212-12-1 Link Reinforcement Set

1371-MOBL-2012: 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 per the references.

PERFORMANCE STEPS:
1. Analyze the mission, enemy, terrain, troops and fire support available; and time, space and logistics (METT-TSL).
2. Conduct Intelligence Preparation of the Battlefield (IPB).
3. Identify Requests for Information (RFI) to the S-2/G-2.
4. Plan/conduct reconnaissance to determine potential river crossing sites, staging areas, ingress/egress routes, regulating points, and river profile.
5. Determine support requirements, to include fire support and logistics.
6. Coordinate with supported unit commanders.
7. Complete an overlay with engineer related tactical control measures.
8. Prepare order/appropriate appendix to operations order.

RELATED EVENTS:
1371-MOBL-2006 1371-MOBL-2009 1371-MOBL-2008
1371-RECN-2001

REFERENCES:
1. FM 5-170 Engineer Reconnaissance
2. FM 90-13-1 Combined Arms Breaching Operations
3. FMFM 13 MAGTF Engineer Operations
4. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17.1 River-Crossing Operations
7. MCWP 5-1 Marine Corps Planning Process

1371-MOBL-2013: Design a non-standard bridge

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

GRADES: SSGT, 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 per the references.

PERFORMANCE STEPS:
1. Review engineer reconnaissance reports/conduct site reconnaissance.
2. Determine the bridge type based on gap size and MLC.
3. Design the superstructure.

4. Design the substructure, if required.
5. Design the abutments, if required.
6. Calculate the bill of materials.
7. Determine logistical support requirements.
8. Illustrate final design.

REFERENCES:
1. FM 5-446 Military Non-Standard Fixed Bridges
2. MCRP 3-17A Engineer Field Data
3. NAVEDTRA 10648-6 Builder 3&2

1371-MOBL-2014: 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, protective field equipment, and an area to fire the charge.

STANDARD: To breach a lane through a minefield or other linear obstacles as directed to provide continuation of force mobility.

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, ensuring proper standoff distance is achieved.
5. Fire the rocket.
6. Fire the charge.
7. Perform immediate actions for misfire (if required).

REFERENCES:
1. FM 20-32 Mine/Countermine Operations
2. FM 5-101 Mobility
3. 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	
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	

EQUIPMENT: MCLIC Trailer (M353)

1371-MOBL-2015: Employ the APOBS

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

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, given an anti-personnel minefield or wire obstacle, an MK-7 Mod 1 Antipersonnel Obstacle Breaching System (APOBS), demolition tools and equipment, and protective field equipment.

STANDARD: Using mechanical initiation or command mode initiating to clear a lane through the obstacle while observing all safety precautions.

PERFORMANCE STEPS:
1. Inspect all equipment.
2. Set up the MK-7 MOD 1 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. FM 20-32 Mine/Countermine 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	

1371-MOBL-2016: 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 and equipment, engineer equipment, and Class V.

STANDARD: To reduce linear obstacles or breach a lane through a minefield per MAGTF breaching fundamentals.

PERFORMANCE STEPS:
1. Analyze METT-T and any 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. Coordinate obscuration of entire obstacle with supporting arms.
7. Direct reduction of the obstacle(s) to make a breach lane.

8. Set up security on near side of obstacle.
9. Proof the lane.
10. Mark the lane.
11. Control movement through the breach.
12. Conduct turnover of breaching lane(s) to supporting units.
13. Consolidate and re-supply the breach force.

RELATED EVENTS:

1371-ADMN-2004	1371-MOBL-2014	1371-MOBL-2027
1371-MOBL-2023	1371-MOBL-2015	

REFERENCES:
1. FM 5-101 Mobility
2. FM 5-250 Explosives and Demolitions
3. FM 90-13-1 Combined Arms Breaching Operations
4. MCRP 3-17A Engineer Field Data
5. MCWP 3-17.3 MAGTF Breaching Operations
6. TM 013750-13&P Operators Manual MK-7 MOD. 1 Anti-Personnel Obstacle Breaching System (APOBS)
7. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

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1371-MOBL-2017: Perform weapons handling procedures with the shotgun

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a shotgun and dummy ammunition.

STANDARD: Without violating the four safety rules.

PERFORMANCE STEPS:
1. Demonstrate the weapons carries.
2. Demonstrate the weapons transports.
3. Fill the magazine tube.
4. Place the weapon in Condition 1.
5. Conduct a Condition 1 reload.
6. Place the weapon in Condition 3.
7. Place the weapon in Condition 4.
8. Conduct a dry reload.
9. Apply remedial action.
10. Unload weapon and show clear.

REFERENCES:
1. 590 MILS M590 Shotgun Owner's Manual
2. MCRP 3-10 A Rifle Marksmanship
3. Appropriate Technical Manuals

1371-MOBL-2018: Maintain the shotgun

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a shotgun, small arms maintenance equipment, approved cleaning solvents, and lubricants.

STANDARD: To keep the shotgun operational/serviceable.

PERFORMANCE STEPS:
1. Handle the weapon safely.
2. Place the shotgun in Condition 4.
3. Perform PMCS IAW technical manual.
4. Perform a function check.
5. Unload weapon and show clear.

REFERENCES:
1. 590 MILS M590 Shotgun Owner's Manual
2. MCRP 3-10 A Rifle Marksmanship
3. Appropriate Technical Manuals

1371-MOBL-2019: Engage stationary targets with the shotgun

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

MOS PERFORMING: 0351, 1371

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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. Clear the shotgun.
2. Select the appropriate ammunition type.
3. Fill the magazine tube.
4. Place the weapon in Condition 1.
5. Effectively engage targets on command.
6. Place weapon in Condition 4.
7. Assess ammunition effects from 15 yards.
8. Repeat steps 1 through 7 with "weak" side from 15 yards.
9. Unload weapon and show clear.

REFERENCES:
1. 590 MILS M590 Shotgun Owner's Manual
2. MCRP 3-10 A Rifle Marksmanship
3. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17502 Non-Standard Small Arms Range

1371-MOBL-2020: Perform select shot drills with the shotgun

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

REFERENCES:
1. 590 MILS M590 Shotgun Owner's Manual
2. MCRP 3-10 A Rifle Marksmanship
3. Appropriate Technical Manuals

1371-MOBL-2021: Qualify with the shotgun

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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 the magazine tube with "00" buckshot rounds.
3. Place the weapon in Condition One.
4. Engage targets on command.
5. Place the weapon in Condition Four.
6. Assess targets.
7. Fill the magazine tube with 1 oz. slug rounds.
8. Place the weapon in Condition One.
9. Engage targets on command.
10. Place the weapon in Condition Four.
11. Assess targets.

REFERENCES:
1. 590 MILS M590 Shotgun Owner's Manual
2. MCRP 3-10 A Rifle Marksmanship
3. Appropriate Technical Manuals

1371-MOBL-2022: Conduct ballistic breach

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

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.

RELATED EVENTS:

1371-MOBL-2017	1371-MOBL-2018	1371-MOBL-2021
1371-MOBL-2020	1371-MOBL-2019	

REFERENCES:
1. 590 MILS M590 Shotgun Owner's Manual
2. FM 3-06.11 Combined Arms Operations in Urban Terrain
3. MCRP 3-10 A Rifle Marksmanship
4. Appropriate Reference Materials

1371-MOBL-2023: 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 force mobility per the commander's intent and the references.

PERFORMANCE STEPS:
1. Analyze the mission, enemy, terrain, troops and fire support available and time, space and logistics (METT-TSL).
2. Identify possible bypasses.
3. Identify the type of breaching operation required and the number of lanes required to allow passage of the maneuver element.
4. Identify potential breach sites.
5. Identify Requests for Information (RFI) to the S-2/G-2.
6. Determine type of explosive/non-explosive breaching assets available.
7. Task organizes engineer personnel and equipment within the assault 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.
12. Prepare appendix for the operation order.

REFERENCES:
1. FM 5-100 Engineers in Combat Operations
2. FM 5-101 Mobility
3. FM 5-170 Engineer Reconnaissance
4. FM 90-13-1 Combined Arms Breaching Operations
5. FMFM 13 MAGTF Engineer Operations
6. MCRP 2-3A Intelligence Preparation of the Battlefield/Battlespace
7. MCWP 3-1 Ground Combat Operations
8. MCWP 3-17.3 MAGTF Breaching Operations

1371-MOBL-2024: Conduct a dismounted route sweep

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

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, given a tactical situation, a route to be swept, route sweeping equipment, a map, and a route sweep order.

STANDARD: To locate, mark, and/or neutralize all explosive hazards/obstacles on the designated route.

PERFORMANCE STEPS:
1. Analyze METT-TSL.
2. Task organize personnel and equipment.
3. Issue the order.
4. Conduct rehearsals.
5. Ensure all mines/obstacles are detected, marked, and neutralized.
6. Submit required reports.

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 5-170 Engineer Reconnaissance
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17.3 MAGTF Breaching Operations

1371-MOBL-2025: Perform manual breaching

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

BILLETS: Fire Team/Section Leader, Squad Leader, Squad Member

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.

PERFORMANCE STEPS:
1. Conduct target analysis.
2. Select appropriate tool.
3. Employ the tool.

REFERENCES:
1. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
2. Appropriate Reference Materials

1371-MOBL-2026: Direct explosive hazards reduction operations

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

MOS PERFORMING: 1302, 1371

BILLETS: Battalions Operations Chief, Company Gunnery Sergeant, Operations Chief

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 per the references.

PERFORMANCE STEPS:
1. Review mission for clearance operations
2. Task organize personnel for clearance operations
3. Task organize equipment for clearance operations
4. Identify explosive hazards during clearance operations
5. Conduct coordination with higher and adjacent units for clearance operations
6. Plan for destruction of explosive hazards within capabilities
7. Report results to higher headquarters

RELATED EVENTS:

1371-MOBL-2024	1371-MOBL-2027	1371-MOBL-2030
1371-MOBL-2029	1371-MOBL-2028	

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCWP 3-17 Engineer Operations

1371-MOBL-2027: Conduct Route and Area Clearance Operations

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

MOS PERFORMING: 1302, 1371

BILLETS: Battalions Operations Chief, Fire Team/Section Leader, Platoon Guide, Platoon Sergeant, Squad Leader, Squad Member

GRADES: CPL, SGT, SSGT, GYSGT, MSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a team, 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 METT-TSL
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 commanders intent
7. Submit required reports

REFERENCES:
1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-34 Engineering Field Data
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 3-17 Engineer Operations
10. MCWP 3-17.3 MAGTF Breaching Operations
11. Appropriate Equipment Manual
12. Supported Battalion SOP

1371-MOBL-2028: Operate a robot

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

MOS PERFORMING: 1371

BILLETS: Company Gunnery Sergeant, Fire Team/Section Leader, Platoon Guide, Platoon Sergeant, Squad Leader, Squad Member

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, suspected explosive hazards, combat engineer equipment, field protective equipment and references.

STANDARD: To safely perform remote operations without injury to personnel or damage to equipment, per the operator's manual and applicable references.

PERFORMANCE STEPS:
1. Visually assess the terrain
2. Prepare robot for operation
3. Operate the robot
4. Conduct robotic reconnaissance
5. Retrieve the robot
6. Conduct post-op PMCS

REFERENCES:
1. FM 3-06 Urban Operations
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-170 Engineer Reconnaissance
7. MCRP 3-17A Engineer Field Data
8. Appropriate Manufacturer's Assembly Manual/Instructions
9. Appropriate Technical Manuals

1371-MOBL-2029: Identify Explosive Hazards (EH)

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

MOS PERFORMING: 1302, 1371

BILLETS: Battalions Operations Chief, Company Gunnery Sergeant, Fire Team/Section Leader, Operations Chief, Platoon Guide, Platoon Sergeant, Squad Leader

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. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCRP 3-17A Engineer Field Data
5. SWO 60-AA-MMA-010 Demolition Materials
6. Appropriate Reference Materials

1371-MOBL-2030: Reduce Explosive Hazards (EH)

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

MOS PERFORMING: 1371

BILLETS: Company Gunnery Sergeant, Fire Team/Section Leader, Platoon Guide, Platoon Sergeant, Squad Leader

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an operating environment, a positively identified explosive hazard, 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 per the references.

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. FM 100-14 Risk Management
2. FM 3-06 Urban Operations
3. FM 3-06.11 Combined Arms Operations in Urban Terrain
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.119 Improvised Explosive Device (IED) Defeat
6. FM 3-34.210 Explosive Hazard Operations
7. FM 3-34.214 Explosives and Demolitions
8. FM 5-100 Engineers in Combat Operations
9. FM 5-101 Mobility
10. FM 5-103 Survivability
11. FM 5-170 Engineer Reconnaissance
12. FM 90-13-1 Combined Arms Breaching Operations
13. GTA 5-10-33 Demolition Card
14. GTA 5-2-5 Engineer Reconnaissance
15. MCRP 3-17A Engineer Field Data
16. MCWP 3-1 Ground Combat Operations
17. MCWP 3-17 Engineer Operations
18. MCWP 3-17.3 Breaching Operations
19. Appropriate Technical Manuals
20. Supported Battalion SOP

1371-MOBL-2031: Operate the Route Clearance Medium Mine Protected Vehicle (MMPV)

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

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Platoon Sergeant, Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a route clearance team, 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.

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. TM 10001620 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 4X4
2. TM 10001624 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 6X6
3. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
4. Appropriate Technical Manuals

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-2032: Operate the Route Clearance Mine Protected Clearance Vehicle (MPCV)

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

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Platoon Guide, Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a route clearance team, given an operational MPCV, the applicable government furnished equipment (GFE), operator forms/records, and a vehicle crew.

STANDARD: To safely complete the vehicle operation without injury to personnel, or damage to the vehicle.

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. TM 11217A-OI/1 Operator's Manual for Buffalo Mine Protected Clearance Vehicle, MK1&MK2
2. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
3. Appropriate Technical Manuals

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-2033: Operate the Route Clearance Vehicle Mounted Mine Detector (VMMD) Vehicle

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 1 month

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Platoon Guide, Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a route clearance team, given an operational VMMD, Mine Detonation Trailer (MDT) set, and the operator forms/records.

STANDARD: To safely complete the vehicle operation without injury to personnel, or damage to the vehicle.

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 mine detection operations (as required)
9. Perform vehicle egress procedures (as required)
10. Perform vehicle recovery procedures (as required)
11. Perform during operations PMCS
12. Perform post operations PMCS
13. Complete operator forms/records

REFERENCES:
1. TM 4700_15H Ground Equipment Record Procedures with Ch1 Ch2 Ch3
2. TM X-XXX-XXX-XX (Draft) Operator's Manual for Interim Vehicle Mounted Mine Detection (IVMMD) MK II System
3. User Guide Husky, MK III Vehicle Mounted Mine Detector (VMMD) Operator's Field User's Guide
4. Appropriate Technical Manuals

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-2034: Operate the Route Clearance Vehicle's Government Furnished Equipment (GFE)

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL**: 1 month

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Platoon Guide, Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: As a member of a route clearance team, given an operational route clearance vehicle, the GFE components, and the references.

STANDARD: To safely operate the GFE during vehicle operations without injury to personnel, or damage to the GFE component(s).

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. TM 10001620 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 4X4
2. TM 10001624 Operator's Manual for Cougar, Mine Resistant Ambush Protected (MRAP) 6X6
3. TM 11217A-OI/1 Operator's Manual for Buffalo Mine Protected Clearance Vehicle, MK1&MK2
4. TM X-XXX-XXX-XX (Draft) Operator's Manual for Interim Vehicle Mounted Mine Detection (IVMMD) MK II System
5. User Guide Husky, MK III Vehicle Mounted Mine Detector (VMMD) Operator's Field User's Guide
6. Appropriate Technical Manuals

1371-RECN-2001: Conduct engineer reconnaissance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 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; 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.

PERFORMANCE STEPS:
1. Analyze METT-TSL.
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. FM 5-170 Engineer Reconnaissance
2. FMFM 13 MAGTF Engineer Operations
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports

1371-RECN-2002: Conduct demolition reconnaissance

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 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, DA Form(s) 2203-R, and references.

STANDARD: Complete all blocks of the DA Form(s) 2203-R 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) per the references.

PERFORMANCE STEPS:
1. Conduct map reconnaissance.
2. Proceed to assigned objective.
3. Estimate explosives and logistics required.

4. Estimate personnel and time required to complete mission.
5. Identify bypass requirements.
6. Sketch side views of target and cross sections of members to be cut.
7. Sketch a plan of the firing circuits and firing points.
8. Submit DA Form 2203-R.

REFERENCES:
1. FM 5-170 Engineer Reconnaissance
2. FM 5-250 Explosives and Demolitions
3. GTA 5-10-33 Demolition Card
4. GTA 5-7-13 Bridge Classification Booklet
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports

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.

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. FM 5-103 Survivability
2. MCRP 3-17A Engineer Field Data

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 per the references.

PERFORMANCE STEPS:
1. Analyze the mission, enemy, terrain, troops and fire support available and time, space and logistics (METT-TSL).
2. Conduct Intelligence Preparation of the Battlefield (IPB).
3. Identify Requests for Information (RFI) to the S-2/G-2.
4. Identify location(s) of survivability positions.
5. Identify and prioritize survivability requirements.
6. Plan for protective obstacle integration.
7. Task organize engineer equipment and personnel.
8. Plan inspections of survivability positions for proper construction techniques.
9. Prepare survivability appendix to the operation order.

REFERENCES:
1. FM 5-103 Survivability
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 5-1 Marine Corps Planning Process

1371-XENG-2001: Design wood frame structure

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

GRADES: SSGT, GYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided construction drawings, blueprints or specifications, writing/sketching materials, a calculator, and references.

STANDARD: The design must conform to the construction drawings, blueprints, or specifications; identify the type of materials and proper spacing; and support all loads considered, per the references.

PERFORMANCE STEPS:
1. Review construction drawings, blueprints or specifications.
2. Prepare a materials takeoff sheet.
3. Prepare a bill of materials.

REFERENCES:
1. FM 5-426 Carpentry
2. TM 5-704 Construction Print Reading in the Field

1371-XENG-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 the references.

STANDARD: Ensuring 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. FM 5-426 Carpentry
2. TM 5-704 Construction Print Reading in the Field

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: 1361 Surveyor

1371-XENG-2003: 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.

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 and adjust mix design to account for aggregate moisture.

REFERENCES:
1. FM 5-428 Concrete Masonry

1371-XENG-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: Structural design must accommodate all dead and live loads considered and form design must include all reinforcement, joints and/or anchor bolts as required in the specifications, per the references.

PERFORMANCE STEPS:
1. Review the 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. Erect form(s).
10. Place reinforcement, joints, and anchors in forms as required.

REFERENCES:
1. FM 5-426 Carpentry
2. FM 5-428 Concrete Masonry

1371-XENG-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 the reference.

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. FM 5-428 Concrete Masonry

SUPPORT REQUIREMENTS:

UNITS/PERSONNEL: 1361 Surveyor

1371-XENG-2006: Employ construction shop component set

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

GRADES: CPL, SGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a construction shop with live power outlets, construction shop set #2 or set #3, and references.

STANDARD: To ensure operability of all required components per the references.

PERFORMANCE STEPS:
1. Determine shop set electrical power requirements.
2. Assemble construction shop components set(s).
3. Select appropriate component for a given task.
4. Operate component(s).
5. Disassemble construction shop components set(s).

REFERENCES:
1. Appropriate Manufacturer's Assembly Manual/Instructions
2. Appropriate Technical Manuals

1371-XENG-2007: Estimate requirements for engineer projects

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

MOS PERFORMING: 1371

BILLETS: Engineer Equipment Operations Chief, Operations Chief, Platoon Commander

GRADES: CPL, SGT, SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a mission, construction drawings, blueprints, specifications, calculator, writing materials, DA Form 2702, and references.

STANDARD: Listing all personnel and equipment resources necessary to accomplish mission requirements per the references.

PERFORMANCE STEPS:
1. Review the mission.
2. Prepare materials estimates/materials takeoff list.
3. Prepare a Bill of Materials (BOM) on DA Form 2702 or other locally approved form.
4. Prepare manpower estimates.
5. Prepare equipment estimates.

REFERENCES:
1. FM 5-412 Project Management
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17 Engineer Operations
4. MCWP 5-1 Marine Corps Planning Process

1371-XENG-2008: Plan a cantonment

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 to occupy the cantonment, and references.

STANDARD: To meet or exceed the unit requirements and the commander's intent, while accounting for future expansion, per the references.

PERFORMANCE STEPS:
1. Analyze the METT-TSL.
2. Identify Requests for Information (RFI).
3. Conduct site/map reconnaissance.
4. Determine cantonment location.
5. Plan road network.
6. Select facilities required to support the cantonment.
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.

RELATED EVENTS:

1371-XENG-2001	1371-RECN-2001	1371-ADMN-2008
1371-MOBL-2002	1371-MOBL-2001	

REFERENCES:
1. FM 5-100 Engineers in Combat Operations
2. FM 5-102 Counter mobility
3. FM 5-103 Survivability
4. FM 5-412 Project Management
5. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
6. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
7. FM 5-434 Earthmoving Operations
8. MCRP 3-17A Engineer Field Data
9. MCRP 4-11.1D Field Hygiene and Sanitation
10. MCWP 3-17 Engineer Operations
11. MCWP 4-11.6 Bulk Liquid Operations
12. MCWP 4-25.5 Bulk Liquids Operations

1371-XENG-2009: Requisition required materials

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

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a mission and bill(s) of materials.

STANDARD: Necessary to accomplish the mission in accordance with accepted purchasing and accounting procedures.

PERFORMANCE STEPS:
1. Review the mission.
2. Review the bill(s) of materials.
3. Requisition the required materials through accepted supply procedures.
4. Requisition the required materials through accepted open purchase procedures.

REFERENCES:
1. UM 4400-124 FMF SASSY Using Unit Procedures
2. Local Standard Operating Procedures (SOP)

1371-XENG-2010: 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: 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 per the reference.

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. FM 5-412 Project Management

1371-XENG-2011: Conduct rigging

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

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Platoon Guide, Platoon Sergeant, Squad Leader, Squad Member

GRADES: PVT, PFC, LCPL, 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 safely.

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 3-17A Engineer Field Data

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:
Facility Code 17413 Field Training Area

1371-XENG-2012: Operate a CRRC

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

MOS PERFORMING: 1371

BILLETS: Fire Team/Section Leader, Platoon Guide, Platoon Sergeant, Squad Leader, Squad Member

GRADES: CPL, SGT, SSGT, GYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a CRRC, a littoral environment, appropriate tools, supplies and equipment, and all personal protective equipment (PPE), under approved operating conditions

STANDARD: Performing confined space and open water maneuvers without damage to equipment or injury to personnel, in accordance with the references.

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. TM 09665A-13&P/1-1 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
2. TM 09665A-13&P/1-2 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
3. TM 09665B/10717A Small Craft Propulsion System, CRRC
4. Appropriate Technical Manuals

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

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ENG & UTIL T&R MANUAL

CHAPTER 20

MOS 1372 INDIVIDUAL EVENTS

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CHAPTER 20

MOS 1372 INDIVIDUAL EVENTS

20000. PURPOSE. This chapter includes all individual training events for the Assault Breacher Vehicle Crewman. An individual event is an event that a trained Assault Breacher Vehicle Crewman would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

20001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1372).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
DEMO - Demolitions
MANT - Maintenance
MOBL – Mobility

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills

20002. INDEX OF INDIVIDUAL EVENTS

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20003. 2000-LEVEL EVENTS

1372-ADMN-1001: Communicate using visual signals for the ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV section, SL-3 equipment, chemical lights or flashlights.

STANDARD: To safely move an ABV or display its weapons status in accordance with TM 10984A-OR/1 Volume 1 and 2, and FM 21-60 Visual Signals.

PERFORMANCE STEPS:
1. Communicate using hand and arm signals to control vehicles.
2. Communicate using flashlights/chemical lights to control vehicles.
3. Communicate using flags to display weapons status.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1

SUPPORT REQUIREMENTS:

MATERIAL: Chem lights Flashlights

1372-ADMN-1002: Maintain Ordnance Vehicle Logbook for the ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV and an Ordnance Vehicle Logbook.

STANDARD: To ensure proper documentation of the vehicle records per TM 4700-15/1 and 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_ Marine Corps Ground Equipment Record Procedures

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1372-ADMN-1003: Communicate using ABV communication equipment

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV section, internal/external communications equipment and the references.

STANDARD: To ensure all equipment is operable, ABV crew can communicate internally and vehicle can communicate with other vehicles in the obstacle clearing detachment.

PERFORMANCE STEPS:
1. Install/remove 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: 10515-0109-4100 Harris Operator Manual AN/PRC-117F
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1

1372-DEMO-1001: Operate ABV Linear Demolition Charge System (LDCS)

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with attached linear demolition charge, and references.

STANDARD: To reduce obstacles in support of the commander's scheme of maneuver and in accordance with the references.

PERFORMANCE STEPS:
1. Install the Linear Demolition Charge System (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 Operators Manual, (ABV) Volume 1
4. TM 10984A-OR/1 V2 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	

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

MOS PERFORMING: 1372

BILLETS: ABV Operator

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with Lane Marking System (LMS), a breached obstacle with mines, and references.

STANDARD: Delineate the breach lane for assault element in accordance with references and 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 3500.27B Operational Risk Management (ORM) (May 04)
2. MCWP 3-17.3 MAGTF Breaching Operations
3. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
4. TM 10984A-OR/1 V2 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 Equipment Operator Preventative Maintenance Checks and Services (PMCS)

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, SL-3 equipment, tools, and technical manuals.

STANDARD: So that equipment is checked and serviced per the maintenance schedule, and deficiencies are identified/corrected in accordance with TM 10984A-OR/1 Volume 1 and 2.

PERFORMANCE STEPS:
1. Perform Before-Operations checks and services.
2. Perform During-Operations checks and services.
3. Perform After-Operations checks and services.
4. Perform Weekly (PMCS).
5. Perform Monthly (PMCS).

REFERENCES:
1. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MANT-1002: Conduct recovery operations for the ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a disabled ABV, SL-3 equipment, and the references.

STANDARD: To ensure the ABV is no longer mired; is rigged for towing; or a stalled ABV is started per TM 10984A/OR-1.

PERFORMANCE STEPS:
1. Locate the disabled vehicle and establish security.
2. 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).
3. Prepare the disabled ABV for recovery (self, like or other).
4. Conduct recovery (self, like or other).
5. Conduct operator repairs as appropriate.
6. Rig vehicle for towing to collection point if repairs can return the vehicle to operational status.

REFERENCES:
1. FM 21-60 Visual Signals
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MANT-1003: Perform track maintenance on the ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with unserviceable track, ABV section, SL-3 equipment, replacement parts, and the references.

STANDARD: To ensure the equipment is maintained in a mission capable status in accordance with TM 10984A-OR/1 Volume 1 and 2.

PERFORMANCE STEPS:
1. Disconnect track.

2. Replace unserviceable track shoe.
3. Install track.
4. Replace track pad.
5. Adjust track tension.
6. Replace road wheel.
7. Complete maintenance/administrative records and procedures.

REFERENCES:
1. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1001: Operate commander's station on ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, SL-3 equipment, and the references.

STANDARD: To ensure all associated vehicle commander equipment is functional and the vehicle is prepared for operation in accordance with TM 10984A/OR-1 Volume 1 and 2.

PERFORMANCE STEPS:
1. Open commander's hatch.
2. Adjust commander's seat and platforms.
3. Power up UTCP, intercom, radio, DAGR, VES (JAB)/IVS (ABV).
4. Power down commander's station.

REFERENCES:
1. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1002: Operate ABV Driver's Station

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a ABV, SL-3 equipment and the references.

STANDARD: To ensure all associated driver station equipment is functional and the vehicle is prepared for operation in accordance with TM 10984A/OR-1 Volume 1 and 2.

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 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1003: Navigate using the Defense Advanced GPS Reciever (DAGR) ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with crew, an operational area, a military map of the operational area, DAGR, a known start point and a destination, and references.

STANDARD: To navigate 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 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 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

MOS PERFORMING: 1343, 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV, a field protective mask, tactical scenario involving an NBC threat, and references.

STANDARD: So the crew is offered maximum protection, the mission is continued, communications are reestablished, and the system remains fully operational.

PERFORMANCE STEPS:
1. Operate NBC main system.
2. Operate NBC back-up system (Fresh air).
3. Conduct NBC back-up filter change criteria
4. Operate M42A1 Protective Mask.
5. Operate ABC-M11 Decontaminating Apparatus.
6. Operate the M88 Chemical detector.
7. Operate Radiac.
8. Decontaminate the ABV.

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1005: Drive the ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with crew, varied terrain, various weather conditions, various light conditions, obstacles (natural and man-made), and references.

STANDARD: Without injury to crew, damage to the vehicle, without losing control of the vehicle at any time, continuously observing the forward terrain, and in support of mobility operations.

PERFORMANCE STEPS:
1. Start the ABV.
2. Operate the driver controls.
3. Move the vehicle.
4. Drive up and down hills.
5. Drive over obstacles.
6. Drive across ditches.
7. Ford shallow water obstacles as required.
8. Ford deep water obstacles as required.
9. Refuel the ABV.

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1006: Employ ABV Terrain Driving Techniques

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with a crew, in an operational environment, and references.

STANDARD: To maintain tactical control, avoiding explosive hazards, and accomplish 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 vehicles.
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 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1007: Operate ABV Front End Equipment

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

MOS PERFORMING: 1372

BILLETS: ABV/JAB Crewman, Section Leader, Vehicle Commander

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING:

CONDITION: Given an ABV, SL-3 equipment, and references.

STANDARD: To reduce obstacles and proof initial lanes in support of the commander's scheme of maneuver and in accordance with the references.

PERFORMANCE STEPS:
1. Operate High Lift Adapter (HLA).
2. Operate Full Width Mine Plow (FWMP).
3. Operate the Surface Mine Plow (SMP).
4. Operate the Rapid Ordnance Removal System (RORS).
5. Operate Combat Dozer Blade (CDB) on the ABV.

REFERENCES:
1. FM 3-34.210 Explosive Hazard Operations
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1008: Execute ABV emergency procedures

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

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 enable vehicle to continue performing mission and prevent loss of life, in accordance with TM 1098A/OR-1.

PERFORMANCE STEPS:
1. Perform immediate action for engine failure to shut down.
2. Unlock stuck parking brake.
3. Perform immediate action for starter failure to disengage.
4. Bypass primary fuel filters
5. Perform immediate action for vehicle master power failure to power down.
6. Disconnect fuel quick-disconnect coupling.
7. Perform emergency crew evacuation procedures.
8. Execute an emergency stop.
9. Perform immediate action for an engine compartment fire.
10. Perform immediate action for loss of engine power.

11. Perform immediate action for loss of steering.
12. Perform immediate action for loss of service brakes.
13. Remove injured crew member from vehicle.

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task will be down graded at the Formal Learning Center (FLC).

1372-MOBL-1009: Operate Vision systems for ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: In an operational environment, while operating the ABV, given SL-3 equipment and references.

STANDARD: To accomplish the mission in accordance with the commander's intent and TM 10984A/OR-1.

PERFORMANCE STEPS:
1. Install the DVE.
2. Perform function checks on vision systems.
3. Operate the DVE.
4. Operate IVS.
5. Remove the DVE.

REFERENCES:
1. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
2. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

1372-MOBL-1010: Operate M48 .50 cal heavy machinegun on the ABV

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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an ABV with M48 .50 cal heavy machinegun, ammunition, references, cleaning equipment, firing range, and targets.

STANDARD: During daylight and night conditions, to accurately engage targets and screen ABV movements in accordance with the references.

PERFORMANCE STEPS:
1. Determine range using Laser Range Finder.
2. Perform Preventative Maintenance Checks and Services (PMCS) on the ABV weapons systems.
3. Disassembly/Assembly/Headspace and Timing M48 .50 cal heavy machinegun.
4. Prepare commander's weapon station.
5. Install weapons systems.
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. Apply failure to fire procedures for the ABV weapons systems.

REFERENCES:
1. FM 3-20.12 Tank Gunnery
2. MCO 3500.27B Operational Risk Management (ORM) (May 04)
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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an ABV with M240_ machinegun, ammunition, references, cleaning equipment, firing range, and targets.

STANDARD: During daylight and night conditions, to accurately engage targets and screen ABV movements in accordance with the references.

PERFORMANCE STEPS:
1. Install M240_ machinegun.
2. Load machinegun.
3. Engage targets with M240_ machinegun.
4. Perform Preventive Maintenance Checks and Services (PMCS) on machinegun.
5. Remove machinegun.

REFERENCES:
1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
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

MOS PERFORMING: 1372

BILLETS: ABV Commander, ABV Operator, ABV Section Leader

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given an ABV with a M257 grenade launcher system, ammunition, references, cleaning equipment, firing range, and targets.

STANDARD: During daylight and night conditions, to accurately engage targets and screen ABV movements in accordance with the references.

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. Apply Failure-to-Fire Procedures on M257 Grenade Launcher System.

REFERENCES:

1. MCO 3500.27B Operational Risk Management (ORM) (May 04)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 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

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CHAPTER 21

MOS 1390 INDIVIDUAL EVENTS

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CHAPTER 21

MOS 1390 INDIVIDUAL EVENTS

21000. PURPOSE. This chapter includes all individual training events for the Bulk Fuel Officer. An individual event is an event that a trained Bulk Fuel Officer would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

21001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1390).

2. The second four characters represent the functional or duty area. For example:

XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

2000 – Core Plus Skills

21002. INDEX OF INDIVIDUAL EVENTS

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21003. 2000-LEVEL EVENTS

1390-XENG-2001: Direct bulk fuel site construction/installation

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, necessary equipment, engineer equipment, engineer equipment operators and references.

STANDARD: To ensure tactical fuel system site is constructed to meet mission requirements and is in accordance with local and federal regulations.

PERFORMANCE STEPS:
1. Identify site.
2. Provide logistical requirements.
3. Direct construction.
4. 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-115 Expeditionary Airfield NATOPS Manual
5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2002: Register bulk fuel Prepositioned War Reserve Materiel Requirements (PWRMR) with appropriate 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) 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, CWO-5

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 references.
2. Draft contingency plan.
3. Staff contingency plan.
4. Publish contingency plan.

REFERENCES:
1. AR 200-1 Environmental Protection and Enhancement
2. NAVFAC P-908 Oil Spill Control for Inland Waters and Harbors
3. TC 5-400 w/CH #1 Unit Leader's Handbooks for Environmental Stewardship

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1390-XENG-2004: Develop maintenance management standard operating procedures (MMSOP)

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 an engineer maintenance activity, applicable forms, applicable records, applicable administrative supplies, personnel and references.

STANDARD: To ensure all equipment Preventative Maintenance (PM) and repairs are performed correctly, and all maintenance management related documentation is prepared and maintained, to ensure an accurate maintenance history of all Table of Equipment (T/E).

PERFORMANCE STEPS:
1. Draft Maintenance Management Standard Operating Procedures (MMSOP).
2. Analyze required reports/records.
3. Manage maintenance programs.
4. Identify discrepancies.
5. Direct corrective actions.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures

1390-XENG-2005: 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 Controls and Accounting for Petroleum and Related Products
3. MCWP 4-11.6 Bulk Liquid Operations

1390-XENG-2006: Develop Petroleum, Oils and Lubrication (POL) appendix to Operation Order

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: Given commander's intent, concept of operations, warning order, fragmentary order, logistic requirements and references.

STANDARD: To ensure appropriate Petroleum, Oils and Lubrication (POL) support, 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. Draft appropriate annex/appendix to the operation order.
7. Submit to appropriate 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. Joint Publication 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

1390-XENG-2007: Review Quality Deficiency Report (QDR) (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: FORMAL

CONDITION: Provided a completed SF 368 and references.

STANDARD: To ensure all inaccuracies are identified and submitted for correction.

PERFORMANCE STEPS:
1. Review appropriate section of the reference.
2. Review the Quality Deficiency Report (QDR) for accuracy.
3. Compile a list of discrepancies.
4. Submit the list of discrepancies for correction.

REFERENCES:
1. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures

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1390-XENG-2008: Prepare 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, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided operation orders, a completed bulk fuel system layout, applicable fire fighting equipment and references.

STANDARD: To ensure the plan contains information regarding 100% of bulk fuel assets/sites are protected by fire extinguishing equipment.

PERFORMANCE STEPS:
1. Analyze a potential fire threat.
2. Identify the location of all fire fighting equipment.
3. Identify personnel to support fire fighting effort.
4. Schedule inspections of fire fighting equipment and facilities.
5. List external support available (crash crew).
6. Develop fire prevention plans.
7. Plan and schedule fire drills.

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 10668_-13&P Compressed Air Foam System-Mobile
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2009: 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 plastic 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 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_ Marine Corps Ground Equipment Record Procedures

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1390-XENG-2010: Direct operations in a Forward Arming 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, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an operations order and references.

STANDARD: To ensure all mission requirements of the Forward Arming Refueling Point (FARP) are accomplished.

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 5-4320-309-14 125 GPM Pump
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

1390-XENG-2011: Calculate feet of head to Pounds per Square Inch (PSI)

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

DESCRIPTION: For a particular fuel at a given pump discharge pressure, there is a maximum height (elevation in feet) to which fuel can be pumped. This is known as Feet of Head (Hf). It is useful to measure frictional pressure loss over a distance in Feet of Head, since pressure is only measured at one given point.

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given specific gravity, calculator and references.

STANDARD: To ensure all friction loss over distance calculations are accurate and correctly documented.

PERFORMANCE STEPS:
1. Convert Feet of Head to pounds per square inch (PSI).
2. Convert pounds per square inch (PSI) to Feet of Head.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2012: Measure speed of fuel

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

DESCRIPTION: Hose line deployment may be required between geographically separated TFS sites. An understanding of the basic dynamics of pump discharge pressure and volume flow rate in relation to friction loss, static head, distance, elevation and fuel gravity (Specific Gravity) is essential in the proper planning for hose line employment and operation.

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given type of fuel, applicable Tactical Fuel System (TFS), calculator and references.

STANDARD: To obtain accurate fuel velocity in feet per second or flow rate in gallons per minute.

PERFORMANCE STEPS:
1. Determine the required formulas.
2. Determine the inside diameter of pipe in feet.
3. Convert variables.
4. Calculate formulas using converted variables.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2013: Determine the Reynolds Number

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

DESCRIPTION: The Reynolds Number is a dimensionless value equal to velocity in feet per second- times diameter in feet- times kinematic viscosity in square feet per second.

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the flow rate in gallons per minute, inside diameter of pipes in inches, viscosity in centistokes and references.

STANDARD: To ensure the accurate identification of the flow type.

PERFORMANCE STEPS:
1. Convert variables.
2. Perform calculations per the reference.
3. Determine flow type.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2014: Determine head loss

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

DESCRIPTION: Feet of Head data by itself is not sufficient in determining the distance (vertical) that fuel can be pumped by a single pump. Head Loss (sometimes referred to as friction loss) is another major factor in pumping operations that must be determined.

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given friction factor, hose length in feet, flow rate, inside diameter of hose and references.

STANDARD: To ensure resistance factor is accurately calculated and documented.

PERFORMANCE STEPS:
1. Identify required formula.
2. Determine friction factor.
3. Compute head loss.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2015: Determine the hydraulic gradient

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

DESCRIPTION: The Hydraulic Gradient (HG) is the Head Loss (HL) in a hose line over one mile of horizontal distance. Note that any distance may apply. The HG provides an expedient method of estimating the placement of booster pump stations in a hose line trace.

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given gallons per minute, inside diameter of the fuel line, type of fuel and references.

STANDARD: To ensure all calculations of Head Loss (HL) are accurate and correctly documented.

PERFORMANCE STEPS:
1. Determine hydraulic gradient base on MOGAS at 60 degrees Fahrenheit.
2. Convert to designed fuel.
3. Plot hydraulic gradient on pipeline trace.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2016: Determine the design hydraulic gradient

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: Given the total available feet of head and references.

STANDARD: To ensure all calculations of Head Loss (HL) due to friction per mile, are accurate and correctly documented.

PERFORMANCE STEPS:
1. Determine initial suction in Feet of Head.
2. Determine minimum suction in Feet of Head.
3. Determine pump capability in Feet of Head.
4. Plot Total Available Head.
5. Subtract minimum Suction Head.
6. Plot Hydraulic Gradient to determine second booster station.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2017: Identify abnormal variants in head pressure

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: Given fuel flow rate and references.

STANDARD: To ensure all situations that result in a reduction of fuel flow are identified, and corrected to achieve optimal fuel flow.

PERFORMANCE STEPS:
1. Determine the hydraulic gradient.
2. Determine the distance in feet.
3. Identify design fuel.
4. Determine pipe size.
5. Determine dynamic pressure.
6. Calculation variations in head pressure.
7. Determine static pressure.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2018: Supervise product change

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 that requires a change of product, a new fuel source and references.

STANDARD: To ensure the fuel system is prepared to receive the new product.

PERFORMANCE STEPS:
1. Review the references.
2. Determine required change.
3. Execute to meet specification requirements.

REFERENCES:
1. FM 10-67-1 Concepts and Equipment of Petroleum Operations
2. FM 10-67-2 Petroleum Laboratory Testing and Operations
3. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
4. TM 9130-12 Fuel Handling Procedures (Liquid Fuel)

1390-XENG-2019: Manage daily inventory/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: MOJT

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.

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-2020: Direct safety programs

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

DESCRIPTION: Human and environmental hazards are inherent in any fuel handling operation. Fuel handling personnel must minimize the risk of fire, explosion, injury, illness, and environmental contamination. To attain this goal, personnel must have a thorough knowledge of the hazards involved, must strictly observe fire and safety precautions, and must closely follow spill control and containment measures.

MOS PERFORMING: 1390

BILLETS: Bulk Fuel Officer

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a work environment, personnel, equipment and appropriate references.

STANDARD: To ensure compliance with published safety orders and directives.

PERFORMANCE STEPS:
1. Review references.
2. Create plan.
3. Staff plan.
4. Publish plan.
5. Inspect for compliance.
6. Direct corrective action as required.

RELATED EVENTS:
1391-XENG-1041 1391-XENG-1042 1391-XENG-1043

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 Controls and Accounting for Petroleum and Related Products
6. MCO 5100.19_ W/CH 1-3 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. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2023: Conduct joint service bulk petroleum operations

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 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. 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.

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2024: Conduct joint multi-national bulk petroleum operations

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 an operations order, personnel, equipment, a 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. Plan for host nation support (HNS) for bulk petroleum (as required).
2. Prepare joint petroleum operations plan.
3. Plan for adjacent unit support for bulk petroleum products.
4. Establish procedures for petroleum distribution.
5. Establish procedures for petroleum storage.

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

1390-XENG-2025: 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 uniform actions of subordinate personnel.

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. 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

1390-XENG-2026: 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 standard operating procedures (SOP) in accordance with the references.
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 standard operating procedures (SOP).
5. Inspect for adherence to quality control procedures.
6. Identify and list all discrepancies.
7. 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 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

1390-XENG-2027: Calculate day of supply by type of fuel

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, using units' T/E, using unit estimates, and references.

STANDARD: To ensure sufficient product is available to meet using units' fuel requirements.

PERFORMANCE STEPS:
1. Review the references.
2. List amount of equipment to be support from the T/E.
3. List kind of equipment to be support from the T/E.
4. State if day of supply is based on estimates or use.
5. List equipment storage capability.

REFERENCES:
1. MCO P5100.8 Marine Corps Occupational Safety and Health Program Manual (Obsolete - replaced by NAVMC DIR 5100.8)
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1390-XENG-2028: 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 engineer equipment, appropriate records and forms, and references.

STANDARD: To ensure equipment status is properly 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_ Standard Subject Identifier Codes
2. MCO 5213.7_ Marine Corps Forms Management Program
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
5. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
6. UNIT SOP Unit's Standing Operating Procedures

1390-XENG-2029: Supervise embarkation of tactical fuel equipment

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 tactical fuel equipment, application tools, embarkation order, and references.

STANDARD: To ensure the tactical fuel system is prepared for embarkation in accordance with the references.

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_ Marine Corps Ground Equipment Record Procedures

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1390-XENG-2030: Direct Military Occupational Specialty (MOS) training program

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

MOS PERFORMING: 1390

GRADES: WO-1, CWO-2, CWO-3, CWO-4, CWO-5

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided unit Table of Organization (T/O), unit Table Equipment (T/E) and references.

STANDARD: To ensure all Marines maintain Military Occupational Specialty (MOS) currency of required tasks and all training is properly conducted and documented.

PERFORMANCE STEPS:
1. Review training standards.
2. Develop training program policies and procedures.
3. Inspect adherence to training program.
4. Institute corrective action as required.

REFERENCES:
1. MCO 3501.1_ Marine Corps Combat Readiness and Evaluation System (MCCRES)

2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
5. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
6. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
7. TM 9130-12 Fuel Handling Procedures (Liquid Fuel)
8. UNIT SOP Unit's Standing Operating Procedures

ENG & UTIL T&R MANUAL

CHAPTER 22

MOS 1391 INDIVIDUAL EVENTS

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CHAPTER 22

MOS 1391 INDIVIDUAL EVENTS

22000. PURPOSE. This chapter includes all individual training events for the Bulk Fuel Specialist. An individual event is an event that a trained Bulk Fuel Specialist would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of an individual event title, condition, standard, performance steps, support requirements, and references. Accomplishment and proficiency level required is determined by the event standard.

22001. ADMINISTRATIVE NOTES

1. Individual T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier. The first four characters represent the MOS (1391).

2. The second four characters represent the functional or duty area. For example:

ADMN - Administration
MANT - Maintenance
XENG – General Engineering

See Appendix A for a complete list of functional areas.

3. The first of the last four characters represent the level (1000 or 2000) and the last three characters the sequence (1001, 2101) of the event. The Engineer and Utilities individual training events are separated into two levels:

1000 – Core Skills
2000 – Core Plus Skills

22002. INDEX OF INDIVIDUAL EVENTS

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22003. 1000-LEVEL EVENTS

1391-XENG-1001: Draw schematic of a Tactical Fuel System (TFS)

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a fuel requirement, list of components and administrative supplies.

STANDARD: To ensure required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review references.
2. Review the requirement
3. Draw tactical fuel system layout.

REFERENCES:
1. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1002: Operate Six-Container (SIX-CON) fuel system

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

DESCRIPTION: This liquid storage, transporting, and dispensing system is commonly called the SIXCON because when configured for administrative shipping (empty, no fuel) on cargo ships, six of the modules can be assembled together with special connectors to form a standard 8x 8 x 20 International Organization for Standardization (ISO) container. The SIXCON system is used to store, transport, and dispense fuel from either a static site or deployed on tactical medium and heavy lift trucks.

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 required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review references.
2. Connect pump modules to take modules.
3. Perform before preventative maintenance checks and services (PMCS).
4. Dispense fuel.
5. Perform during preventative maintenance checks and services (PMCS).
6. Perform shut down procedures.
7. Perform after operations preventative 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-1003: Operate an Expedient Refueling System (ERS).

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

DESCRIPTION: The simplest of the TFS systems is the Expedient Refueling System (ERS). The ERS is a portable, compact, and self-contained 125 GPM pump unit with components capable of establishing two refueling points. It is used for the expedient refueling of ground equipment and is used in conjunction with TFS storage containers, such as the 500-gallon collapsible fuel drum or 3,000-gallon collapsible fabric fuel tank.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given required components, necessary tools, fuel source and administrative supplies, and appropriate personnel.

STANDARD: To ensure required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review references.
2. Assemble Expedient Refueling System (ERS).
3. Perform before preventive maintenance checks and services.
4. Dispense fuel.
5. Perform during preventive maintenance checks and services.
6. Perform shut down procedures.
7. Perform after preventive maintenance checks and services.

REFERENCES:
1. SL-3-03707F w/ch 1 Pump Assembly, Expedient Refueled
2. TM 08922_-24_/2 Pump Unit, Centrifugal, Self-Priming, 125 GPM

3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. TM 5-4320-309-14 125 GPM Pump

1391-XENG-1004: Operate a Helicopter Expedient Refueling System (HERS).

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

DESCRIPTION: The Helicopter Expedient Refueling System (HERS) is designed for refueling rotary aircraft in support of operations in remote locations. It is normally used at Forward Arming and Refueling Points (FARP). Versatility, ease of transportability, and rapid deployment are key features of the HERS. The HERS employs 500-gallon collapsible fuel drums, 3,000-gallon tanks, skid-mounted 125 GPM pumps and filter-separators. The HERS can be rapidly installed and configured to meet the specific tactical situation and requirement.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Helicopter Expedient Refueling System (HERS), applicable fuel and appropriate personnel.

STANDARD: To ensure required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review references.
2. Assemble Helicopter Expedient Refueling System (HERS).
3. Perform before preventive maintenance checks and services.
4. Re-circulate fuel as required.
5. Dispense fuel.
6. Perform during preventive maintenance checks and services.
7. Perform shut down procedures.
8. Perform after preventive maintenance checks and services.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. SL-3-07387C Helicopter Expedient Refueling System
3. SL-3-09467A Pump Assembly, Centrifugal
4. SL-3-10803A Fuel Tank Assembly, Fabric, Collapsible 3 K
5. TM 04486_-15 Drum, Collapsible Liquid Fuel 500 GAL
6. TM 08922_-24_/2 Pump Unit, Centrifugal, Self-Priming, 125 GPM
7. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
8. TM 5-4320-309-14 125 GPM Pump
9. TM 5-6630-218-10 Aviation Fuel, Contaminant, Test Kit

1391-XENG-1005: Operate a Tactical Airfield Fuel Dispensing System (TAFDS).

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

DESCRIPTION: The Tactical Airfield Fuel Dispensing System (TAFDS) is used to provide bulk fuel receipt, storage, and aircraft refueling capabilities at expeditionary airfields and Forward Operating Base (FOB). This system is air-transportable, versatile, and can be quickly installed without special tools. Compatible with other Marine Corps TFS, the TAFDS can receive fuel from almost any source.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a SL-3 complete Tactical Airfield Fuel Dispensing System (TAFDS), site location, necessary tools, administrative supplies and appropriate personnel.

STANDARD: To ensure required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review references.
2. Assemble Tactical Airfield Fuel Dispensing System (TAFDS).
3. Perform before preventive maintenance checks and services.
4. Re-circulate fuel as required.
5. Dispense fuel.
6. Perform during preventive maintenance checks and services.
7. Perform shut down procedures.
8. Perform after preventive maintenance checks and services.

REFERENCES:
1. FM 10-68 Aircraft Refueling
2. FM 10-69 Petroleum Supply Point Equipment and Operations
3. LI 86702D-12 Pump Centrifugal, Skid Mounted (600)
4. MCBUL 3000 Marine Corps Automated Readiness Evaluation System (MARES) Equipment
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. MCWP 4-11.6 Petroleum and Water Logistics Operations
7. MCWP 4-25.5 Bulk Liquids Operations
8. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products
9. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
10. SL-3 04491B Fuel Monitor Assembly (350 GPM)
11. SL-3 04717B Meter Assembly, Skid Mounted (3")
12. SL-3 06996C Repair Kit, General, Bulk Fuel System
13. SL-3 06999_ w/change 1-2 Tank Assembly, Fabric, collapsible (20K)
14. SL-3 07391B Fuel System, Tactical Airfield
15. SL-3-09467A Pump Assembly, Centrifugal

16. SL-3-10761A Tank, Fabric, Collapsible w/Chest, Fuel, 50,000 Gallon Capacity
17. SL-4 05743B Manifold Dispensing
18. TM 10-4320-343-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Fuel Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
19. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
20. TM 4930-15 & P/ 3 Operation and Maintenance Manual, with Illustrated Repair Parts List (600 GPM F)
21. TM 4930-15/2 Installation, Operation, Maintain and Repair Instructions, Pump assembly 600 GPM (US690 ACD-1)
22. TM 96702_-14/1 Pump Centrifugal Engine, 600 GPM

1391-XENG-1006: Operate the Amphibious Assault Fuel System (AAFS).

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

DESCRIPTION: The AAFS is the largest of the TFS systems. The AAFS is used to receive, store, transfer, and dispense fuel to all elements of a MAGTF including distribution to Forwarding Operating Bases (FOB). The AAFS can receive fuel from offshore vessels, railcars, tank trucks, bulk storage tanks, pipeline/hose line, and drums. Fuel is transferred by AAFS hose line or tactical/host nation fuel distribution capabilities (tanker trucks, barges, etc.) to another storage site or dispensed to individual containers, vehicles, tank trucks, and other fuel systems.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a SL-3 complete Amphibious Assault Fuel System (AAFS), site location, necessary tools and administrative supplies.

STANDARD: To ensure required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Prepare the Amphibious Assault Fuel System (AAFS) site.
2. Construct major assemblies of the Amphibious Assault Refueling System (AAFS) (mission dependent).
3. Ensure environmental control, repair, and interface devices are properly placed.
4. Ensure quality control measures are in compliance.
5. Perform before preventive maintenance checks and services.
6. Conduct operations.
7. Perform after preventive maintenance checks and services.

REFERENCES:
1. FM 10-69 Petroleum Supply Point Equipment and Operations
2. LI 86702D-12 Pump Centrifugal, Skid Mounted (600)

3. MCO 4450.12_ Storage and Handling of Hazardous Materials
4. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
5. MCO P4790.2_ MIMMS Field Procedures Manual
6. MCWP 3-31.5 Ship-to-Shore Movement
7. MCWP 4-11.6 Petroleum and Water Logistics Operations
8. SL-3 04717B Meter Assembly, Skid Mounted (3")
9. SL-3 06996C Repair Kit, General, Bulk Fuel System
10. SL-3 06999_ w/change 1-2 Tank Assembly, Fabric, collapsible (20K)
11. SL-3 07661A Extinguisher Fire, Dry Chemical (AFFF)
12. SL-3 10761A Tank, Fabric, Collapsible w/chest, Fuel (50K)
13. SL-3 86702D w/ch 1 Pump, Centrifugal, Trailer Mounted (600 GPM)
14. SL-3 86702F w/ch 1 Pump, Centrifugal, Trailer Mounted (600 GPM)
15. TM 10-4320-344-24 Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Water, 600 GPM
16. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
17. TM 5-4320-303-10 600 GPM Pump

1391-XENG-1007: 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 powered retrieval of lightweight 6-inch hose. The hose is used to connect assemblies within the AAFS and distribute fuel to the Forward Operating Base (FOB) and other Marine Corps tactical fuel systems. Each AAFS has an HRS coupled with the two booster pump assemblies to provide the hose line transfer capabilities.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Hose Reel System (HRS), Appropriate Tactical Fuel System (TFS) supporting vehicles, required tools and designated route.

STANDARD: To ensure required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review the reference.
2. Deploy Hose Reel System (HRS).
3. Check equipment for retrieval of hose.
4. Retrieve Hose Reel System (HRS).

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual

3. TM 10596_-13&P Marine Corps Hose Reel System
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1008: Operate a 125 Gallons Per Minute (GPM) fuel pump assembly

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a 125 Gallons Per Minute (GPM) pump assembly, appropriate Tactical Fuel System (TFS) and fuel.

STANDARD: To dispense fuel in support of a Tactical Fuel System (TFS).

PERFORMANCE STEPS:
1. Review references.
2. Perform before operational checks.
3. Start pump.
4. Dispense fuel.
5. Perform during operations checks.
6. Conduct shut down procedures.
7. Perform after operations checks.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. SL-4-08922C Pump Unit 125 GPM
3. TM 08922_-14/1 Pump Unit, Centrifugal, Self-Priming, 125 GPM
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1009: Operate a 350 Gallons Per Minute (GPM) fuel pump assembly

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

DESCRIPTION: The 350 GPM pump is capable of pumping all types and grades of automotive and aviation fuel. This size pump is used only by the TAFDS and is mounted on a two-wheel frame assembly for towing purposes.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a 350 Gallons Per Minute (GPM) fuel pump assembly, appropriate Tactical Fuel System (TFS) and fuel.

STANDARD: To dispense fuel in support of a Tactical Fuel System (TFS).

PERFORMANCE STEPS:
1. Review references.
2. Perform before operational checks.
3. Start pump.
4. Dispense fuel.
5. Perform during operations checks.
6. Conduct shut down procedures.
7. Perform after operations checks.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 10-4320-343-14 Operator, Unit, Direct Support, and General Support Maintenance Manual for Fuel Pumping Assembly, Diesel Engine Driven, Wheel Mounted, 350 Gallons per Minute (GPM), 275 Foot Head
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1010: Operate a 600 Gallons Per Minute (GPM) fuel pump assembly.

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

DESCRIPTION: The 600 GPM pump is capable of pumping all types and grades of automotive and aviation fuel. This pump is used by the AAFS and TAFDS systems.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a 600 Gallons Per Minute (GPM) fuel pump assembly, an appropriate Tactical Fuel System (TFS) and fuel.

STANDARD: To dispense and transfer fuel in support of a Tactical Fuel System (TFS).

PERFORMANCE STEPS:
1. Review references.
2. Perform before operational checks.
3. Start pump.
4. Dispense fuel.
5. Perform during operations checks.
6. Conduct shut down procedures.
7. Perform after operations checks.

REFERENCES:
1. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
2. TM 4930-15 & P/ 3 Operation and Maintenance Manual, with Illustrated Repair Parts List (600 GPM F)

3. TM 4930-15/2 Installation, Operation, Maintain and Repair Instructions, Pump assembly 600 GPM (US690 ACD-1)
4. TM 96702_-14/1 Pump Centrifugal Engine, 600 GPM

1391-XENG-1013: Perform aircraft refueling

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 fuel system, trained personnel proper personal protective equipment and administrative supplies.

STANDARD: To ensure the appropriate amount of fuel is dispensed to aircraft following proper procedures and without safety mishaps.

PERFORMANCE STEPS:
1. Review references.
2. Conduct all safety procedures.
3. Refuel aircraft.
4. 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-1014: Execute a Petroleum, Oil and Lubricant (POL) 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, appropriate personal protective equipment and appropriate equipment.

STANDARD: To contain Petroleum, Oil and Lubricant (POL) 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. Use fire prevention equipment and procedures as required.
5. Commence clean-up.

REFERENCES:
1. AR 200-1 Environmental Protection and Enhancement
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCO P5100.8 Marine Corps Occupational Safety and Health Program Manual (Obsolete - replaced by NAVMC DIR 5100.8)
5. NAVFAC P-908 Oil Spill Control for Inland Waters and Harbors
6. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
7. OPNAVINST 5090.1_ Environmental Readiness Program Manual
8. TC 5-400 w/CH #1 Unit Leader's Hand book for Environmental Stewardship
9. Federal, State, and Local Environmental Regulations
10. Local Standard Operating Procedures (SOP)

1391-XENG-1015: Operate a Twin Agent Unit (TAU)

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

DESCRIPTION: The Twin Agent Unit (TAU) fire extinguisher is designed to suppress fuel fires or extinguish if possible. The TAU is skid mounted and is equipped with two fire fighting agents and 150-feet of firefighting twin hose line for each agent. These agents are dry chemical (Potassium Bicarbonate (Purple K Powder) and Aqueous Film Forming Foam (AFFF). The dry chemical extinguishes fires by a smothering action. Water mixed with the AFFF concentrate forms foam, which is then used to form a film over the extinguished area, effectively preventing re-ignition.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a Tactical Fuel System (TFS) site, Twin Agent Unit (TAU), required firefighting agents and appropriate personal protective equipment.

STANDARD: To ensure the suppression of fuel fires or to extinguish if possible.

PERFORMANCE STEPS:
1. Perform pre-operational serviceability checks.

2. Don fire fighting personal protective equipment (PPE).
3. Deploy Twin Agent Unit (TAU) hose line to fire site.
4. Charge nitrogen cylinders by opening respective charge valve.
5. Operate Twin Agent Unit (TAU).
6. Perform post operational checks.

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

SUPPORT REQUIREMENTS:

MATERIAL: Potassium Bicarbonate (Purple K Powder), Aqueous Film Forming Foam (AFFF), Nitrogen and Water

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1391-XENG-1016: Operate Compressed Air Foam System - Mobile (CAFS-M)

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

DESCRIPTION: The Compressed Air Foam System- Mobile is designed to be mounted in the High Mobility Multipurpose Wheeled Vehicle (HMMWV) to provide mobile fuel fire fighting capabilities for the various TFS systems. The CAFSM provides supplemental coverage for the TAU and for remote refueling sites not conducive to deployment of the TAU. It utilizes Aqueous Film Forming Foam (AFFF) as its primary firefighting agent to extinguish fires.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Compressed Air Foam System - Mobile (CAFS-M), required firefighting agents and appropriate personal protective equipment.

STANDARD: To ensure the suppression of fuel fires or to extinguish if possible.

PERFORMANCE STEPS:
1. Perform pre-operational serviceability checks.
2. Don firefighting personal protective equipment (PPE).
3. Unroll hose completely.
4. Operate Compressed Air Foam System- Mobile (CAFS-M).
5. Perform post-operational checks.

REFERENCES:
1. TM 10668_-13&P Compressed Air Foam System-Mobile
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

MATERIAL: Aqueous Film Forming Foam (AFFF) and Water

1391-XENG-1017: Obtain sample from a tank reference point

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, sampling equipment, sample containers, administrative supplies and personal protective equipment.

STANDARD: To ensure an adequate product sample is taken in order to perform applicable testing procedures.

PERFORMANCE STEPS:
1. Review reference.
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. NAVEDTRA 10883-B Fundamentals or Petroleum
5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1018: Obtain sample from a closed 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: Provided a fuel system, clean sample bottles, sampling equipment, administrative supplies and personal protective equipment.

STANDARD: To ensure an adequate product sample is taken in order to perform applicable testing procedures.

PERFORMANCE STEPS:
1. Review references
2. Re-circulate proper amount of fuel (system dependent).
3. While pump is still re-circulating the fuel, connect sampling apparatus to fuel port.
4. Rinse sample container.
5. Draw appropriate amount of fuel.
6. Complete administrative requirements.

REFERENCES:
1. ASTM D-4057 Standard Practice for Manual Sampling of Petroleum Products
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

1391-XENG-1019: Conduct a visual fuel test

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

DESCRIPTION: Also known as the Color and Appearance Test, this test is conducted to ensure the fuel is clean, bright, and free of visible contaminates. The fuel color should agree with the type of fuel.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a fuel sample.

STANDARD: To ensure the fuel is clear, bright and free of contaminants.

PERFORMANCE STEPS:
1. Swirl the fuel in container to form a vortex (whirlpool).
2. Check fuel sample for contaminants.

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

1391-XENG-1021: 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 water.
6. Calculate amount of fuel at 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-1022: Conduct a Gravity (API) test

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

DESCRIPTION: Each type and grade of fuel has a characteristic API gravity range. API gravity confirms the identity of fuel received from multi-product tanks and helps prevent commingling of fuel types.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a clean sample container, appropriate thermo-hydrometer, hydrometer cylinder and references.

STANDARD: To ensure positive identification of petroleum product.

PERFORMANCE STEPS:
1. Review the reference.
2. Fill cylinder two-thirds full with sample.
3. Place thermo-hydrometer into cylinder for 2 minutes.
4. Record API reading at meniscus line.
5. Record observed temperature appearing on thermo-hydrometer scale.
6. Correct observed API to 60 degrees Fahrenheit using Table 5B.

REFERENCES:
1. ASTM D 1298 Standard Test method for Density, Relative Density (Specific Gravity)
2. ASTM D-1250 Petroleum Measurement Table, Volume Correction Factors
3. ASTM D-287 Standard Test Method for API Gravity
4. MIL STD 3004 Quality Surveillance Handbook for Fuels, Lubricants and Related Products

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1391-XENG-1025: Conduct a B-2 Anti-Icing Additive Test

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

DESCRIPTION: This kit provides the necessary equipment for determining the percent volume (%v) of anti-icing additive (AIA) also known as FSII (Fuel System Icing Inhibitor) in jet turbine fuels. FSII performs two important functions that help to avert significant safety of in-flight problems.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a sample of aviation fuel and a B-2 Anti-Icing Test Kit.

STANDARD: To ensure the percent volume of Fuel System Icing Inhibitor in the fuel sample is within acceptable limits.

PERFORMANCE STEPS:
1. Perform preventative maintenance checks and services on equipment.
2. Prepare laboratory apparatus.
3. Perform test procedures in accordance with the ASTM test method D5006.
4. Calculate test results.
5. Record results.

REFERENCES:
1. D5006-96 Standard Test Method for Measurement of Fuel System Icing Inhibitors (Ether Type) in Aviation Fuels.
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

1391-XENG-1026: Test aviation fuel utilizing the Aviation Fuel Test Kit

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

DESCRIPTION: The Millipore Aviation Fuel Contaminant Test Kit is a one-person, portable kit consisting of components and test equipment capable for determining the particulate contaminant level, API Gravity and temperature, and free water content in aviation fuel samples.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a fuel source and an Aviation Fuel Test Kit.

STANDARD: To ensure the fuel sample is within acceptable standards.

PERFORMANCE STEPS:
1. Perform preventative maintenance checks and services on equipment.
2. Perform test procedures in accordance with TM 5-6630-218-10.
3. Calculate test results.
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

1391-XENG-1027: Operate a Combined Contaminated Fuel Detector (CCFD) test kit

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 Combined Contaminated Fuel Detector (CCFD), Free Water Detector (FWD) pads, Free Water Detector (FWD) standard, .65 micron filter elements and fuel samples.

STANDARD: To ensure the milligrams per liter/gallon of sediment and parts per million of free water in the fuel sample are within acceptable limits.

PERFORMANCE STEPS:
1. Perform start up procedures.
2. Calibrate the CCFD, (as required).
3. Obtain fuel samples.
4. Conduct a sediment test.
5. Conduct a free water test.
6. Record results.
7. Perform shut down procedures.

REFERENCES:
1. FED-STD 791 Lubricants, Liquid Fuel, and Related Products: Methods of Testing
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
5. TM 700001-M8 Combine Contaminated Fuel Detector Kit

1391-XENG-1039: 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, fuel tank repair kit and tools.

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

1391-XENG-1040: Administer first aid for fuel contact with eyes

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

DESCRIPTION: Human and environmental hazards are inherent in any fuel handling operation. Fuel handling personnel must minimize the risk of fire, explosion, injury, illness, and environmental contamination. To attain this goal, personnel must have a thorough knowledge of the hazards involved, must strictly observe fire and safety precautions, and must closely follow spill control and containment measures.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a situation requiring first aid for eyes exposed to fuel.

STANDARD: To reduce or eliminate the risk of personal injury.

PERFORMANCE STEPS:
1. Repeatedly flush thoroughly with large amounts of fresh water.
2. Seek medical assistance immediately.

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1041: Administer first aid for inhalation of vapors

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

DESCRIPTION: Human and environmental hazards are inherent in any fuel handling operation. Fuel handling personnel must minimize the risk of fire, explosion, injury, illness, and environmental contamination. To attain this goal, personnel must have a thorough knowledge of the hazards involved, must strictly observe fire and safety precautions, and must closely follow spill control and containment measures.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a situation requiring first aid for inhalation of vapors.

STANDARD: To reduce or eliminate the risk of personal injury.

PERFORMANCE STEPS:
1. Remove victim from vapors to fresh air area.
2. Seek medical assistance immediately.

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1042: Administer first aid for fuel on skin

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

DESCRIPTION: Human and environmental hazards are inherent in any fuel handling operation. Fuel handling personnel must minimize the risk of fire, explosion, injury, illness, and environmental contamination. To attain this goal, personnel must have a thorough knowledge of the hazards involved, must strictly observe fire and safety precautions, and must closely follow spill control and containment measures.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a situation requiring first aid for fuel contact with skin.

STANDARD: To reduce or eliminate the risk of personal injury.

PERFORMANCE STEPS:
1. Wet clothes first, or if not possible, ground yourself.
2. Repeatedly, rinse thoroughly with fresh water.
3. Wash skin with soapy water.
4. Seek medical assistance immediately.
5. Replace clothing with clean items.

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1043: Administer first aid for ingestion of fuel

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

DESCRIPTION: Human and environmental hazards are inherent in any fuel handling operation. Fuel handling personnel must minimize the risk of fire, explosion, injury, illness, and environmental contamination. To attain this goal, personnel must have a thorough knowledge of the hazards involved, must

strictly observe fire and safety precautions, and must closely follow spill control and containment measures.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a situation requiring first aid for ingestion of fuel.

STANDARD: To reduce or eliminate the risk of personal injury.

PERFORMANCE STEPS:
1. Keep victim calm.
2. Seek medical assistance immediately.

REFERENCES:
1. NAVMC DIR 5100.8 Marine Corps Occupational Safety and Health (OSH) Program Manual (May 06)
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1044: 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 an equipment record jacket, equipment, tools and Limited Technical Inspection of Engineer Equipment (NAVMC 10560).

STANDARD: To inspect the equipment for operability and identify all discrepancies.

PERFORMANCE STEPS:
1. Review the references.
2. Inventory SL-3 components.
3. Verify component serviceability.
4. Complete the NAVMC 10560.

REFERENCES:
1. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

1391-XENG-1045: 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, Consolidated Engineer Equipment Operation Log and Service Record (NAVMC 10524), Storage Tank Test, Repair, and Usage (NAVMC 10626), and Motor Vehicle and Engineer Equipment Record Folder (NAVMC 696D).

STANDARD: To ensure the descriptive data, scheduled preventive maintenance intervals and hours of operation for the equipment are correctly documented.

PERFORMANCE STEPS:
1. Review the reference.
2. Record equipment descriptive data on the NAVMC 10524.
3. Record out equipment descriptive data on the NAVMC 696D.
4. Record the equipment history and usage on the NAVMC 10626.

REFERENCES:
1. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
2. Appropriate Technical Manuals

1391-XENG-1046: Complete Form NAVMC 10925, Equipment Repair Order Shopping/Transaction List (EROSL)

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an Equipment Repair Order Shopping List (EROSL) NAVMC 10925, a list of required parts/components, required unit unique data and equipment technical manuals.

STANDARD: To ensure the Equipment Repair Order Shopping List (EROSL) NAVMC 10925 can be processed, ensuring information is correct and valid requisitions are created.

PERFORMANCE STEPS:
1. Review equipment technical manuals and/or stock lists.
2. Complete the NAVMC 10925 header information.
3. Annotate the repair part/component information on the NAVMC 10925.

4. Submit NAVMC 10925 for input into MIMMS.
5. Follow up/reconcile requisitions, as needed/required.
6. Receipt for parts.
7. Maintain repair project layettes.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
3. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
4. Appropriate Technical Manuals

1391-XENG-1047: Complete Form NAVMC 10245, Equipment Repair Order (ERO)

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an equipment record jacket, Form NAVMC 10245, Equipment Repair Order (ERO), applicable administrative supplies and references

STANDARD: to ensure descriptive data and service/repair actions for the equipment are correctly documented.

PERFORMANCE STEPS:
1. Review equipment technical manuals.
2. Fill out equipment descriptive data on the NAVMC 10245.
3. Annotate the service/repair actions taken on the NAVMC 10245.
4. Submit NAVMC 10245 for input into MIMMS.
5. Reconcile NAVMC 10245 information with data on resulting MIMMS reports.
6. File NAVMC 10245.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
3. UM 4400-124 FMF SASSY Using Unit Procedures
4. UM 4790-5 Users Manual MIMMS
5. Appropriate Technical Manuals

1391-XENG-1048: Identify required publications

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.

STANDARD: To ensure 100% of required publications are identified, and maintained.

PERFORMANCE STEPS:
1. Indentified TAMCN
2. Determine equipment National Stock Number (NSN).
3. Determine equipment Identification Number.
4. Obtain publications.

REFERENCES:
1. MCO 4400.120_ Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes
2. MCO P4790.2_ MIMMS Field Procedures Manual
3. MCO P5215.17_ Marine Corps Technical Publications System
4. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC
5. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
6. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
7. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-1050: Prepare 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: With equipment, unit MAGTF Deployment Support System II (MDSS II)/Marine Air Ground Task Force II (MAGTF II) Logistics Automated Information System (LOGAIS) and/or Joint Operational Planning and Execution System (JOPES) reports and Logistics Automated Marking and Reading Symbols (LOGMARS) labeling support.

STANDARD: To ensure all equipment is properly marked, accounted for and to support unit readiness/movement.

PERFORMANCE STEPS:
1. Review the MDSS II and Unit Deployment Listing.
2. Inspect assigned equipment.
3. Determine safety/environmental considerations.
4. Prepare equipment for transportation/embarkation.
5. Coordinate with unit embarks personnel to ensure that discrepancies with MDSS II, MAGTF II LOGAIS, and or JOPES reports are corrected.

REFERENCES:
1. DODD 4500.9 Transportation and Traffic Management
2. MCO 4610.35 USMC Equipment Characteristics File
3. Local Standard Operating Procedures (SOP)

1391-XENG-1051: Operate a 150 Gallons Per Minute (GPM) fuel pump assembly

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a 150 Gallons Per Minute (GPM) pump assembly, appropriate Tactical Fuel System (TFS) and fuel.

STANDARD: To dispense fuel in support of a Tactical Fuel System (TFS).

PERFORMANCE STEPS:
1. Review references.
2. Perform before operational checks.
3. Start pump.
4. Dispense fuel.
5. Perform during operations checks.
6. Conduct shut down procedures.
7. Perform after operations checks.

REFERENCES:
1. TM 07387_/10802_-OI/3 Pump, Centrifugal, Fuel 150 GPM
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-1052: 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 a Ground Expedient Refueling System (GERS), tactical vehicle and fuel.

STANDARD: To ensure required components are properly placed and fuel requirements are satisfied.

PERFORMANCE STEPS:
1. Review references.
2. Assemble Ground Expedient Refueling System (GERS).
3. Perform before preventive maintenance checks and services.
4. Dispense fuel.
5. Perform during preventive maintenance checks and services.
6. Perform shut-down procedures.
7. Perform after preventive maintenance checks and services.

REFERENCES:
1. TM 11219A/112120A-OI Ground Expedient Refueling System (GERS)

1391-XENG-1053: Receive fuel

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

DESCRIPTION: Fuel is received from many different sources of supply. As a Bulk Fuel Specialist you should be familiar with how to receive fuel from: Off-Shore Petroleum Discharge System (OPDS), Inland Petroleum Distribution System (IPDS), Maritime Prepositioned Ships (MPS), Railcars, Aircraft, Tanker Trucks, Barges and Packaged Fuel.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a fuel requirement and various fuel sources.

STANDARD: To ensure product is obtained and mission requirements are satisfied.

PERFORMANCE STEPS:
1. Review references.
2. Identify source.
3. Identify product.
4. Receive fuel.

REFERENCES:
1. FM 10-69 Petroleum Supply Point Equipment and Operations
2. Joint Publication 4-03 Joint Bulk Petroleum Doctrine
3. LI 86702D-12 Pump Centrifugal, Skid Mounted (600)
4. MCO 4450.12_ Storage and Handling of Hazardous Materials
5. MCWP 3-31.5 Ship-to-Shore Movement
6. MCWP 4-11.6 Petroleum and Water Logistics Operations
7. SL-3 04717B Meter Assembly, Skid Mounted (3")
8. SL-3 06996C Repair Kit, General, Bulk Fuel System
9. SL-3 06999_ w/change 1-2 Tank Assembly, Fabric, collapsible (20K)
10. SL-3 07661A Extinguisher Fire, Dry Chemical (AFFF)
11. SL-3 10761A Tank, Fabric, Collapsible w/chest, Fuel (50K)
12. SL-3 86702D w/ch 1 Pump, Centrifugal, Trailer Mounted (600 GPM)

13. SL-3 86702F w/ch 1 Pump, Centrifugal, Trailer Mounted (600 GPM)
14. TM 10-4320-344-24 Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, Water, 600 GPM
15. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
16. TM 5-4320-303-10 600 GPM Pump

1391-XENG-1054: Operate a Automated Fuel Flash Point Tester (MARFLASH)

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

DESCRIPTION: The Automated Fuel Flash Point Tester is a fully automated, microprocessor controlled, flameless flash point tester. Used by USMC Bulk Fuel distribution units, to test the flash point of different types of fuels.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given an Automated Fuel Flash Point Tester and fuel sample.

STANDARD: To ensure product is within appropriate flashpoint standards.

PERFORMANCE STEPS:
1. Review the reference.
2. Prepare the apparatus.
3. Perform MARFLASH 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 07391_-OI/1 Automated Fuel Flash Point Tester (MARFLASH)
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

22004. 2000-LEVEL EVENTS

1391-XENG-2001: Conduct operations utilizing tactical petroleum laboratory facilities

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

DESCRIPTION: Currently (FY09), 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

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a tactical petroleum laboratory facility, generator, air conditioning unit, water source and references.

STANDARD: To provide quality surveillance of Class III products.

PERFORMANCE STEPS:
1. Review references.
2. Review unit Standard Operating Procedures.
3. Identify set-up location.
4. Unload all essential equipment/materials.
5. Supervise connection of all support equipment.
6. Supervise pre-operational checks and services on external/internal controls and indicators.
7. Perform pre-operational checks on testing equipment.
8. Conduct testing per mission requirements.
9. Follow daily shutdown and preventative maintenance requirements.

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

1391-XENG-2002: Supervise operations utilizing tactical petroleum laboratory facilities

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

DESCRIPTION: Currently (FY09), 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).

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided appropriate personnel, a tactical petroleum laboratory facility, generator, air conditioning unit, water source and references.

STANDARD: To ensure quality surveillance of Class III products.

PERFORMANCE STEPS:
1. Review references.
2. Review unit Standard Operating Procedures.
3. Identify set-up location.
4. Direct the unloading all essential equipment/materials.
5. Supervise connection of all support equipment.
6. Supervise pre-operational checks and services on external/internal controls and indicators.
7. Ensure pre-operational checks on testing equipment are performed.
8. Direct petroleum product testing per mission requirements.
9. Supervise daily shutdown and preventative maintenance requirements.

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

1391-XENG-2003: Prepare pumping schedule 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: MOJT

CONDITION: Provided operation orders, communication plans, and fueling requirements.

STANDARD: To support mission requirements.

PERFORMANCE STEPS:
1. Review operation orders.
2. Review communication plans.
3. Review local codes/regulations (if applicable).
4. Review fuel storage and distribution operation plan.
5. Designate locations for pumping.
6. List fuel requirements for using units.
7. List support personnel and equipment.
8. Supervise pumping schedule.

RELATED EVENTS:
1391-XENG-1005 1391-XENG-1007 1391-XENG-1006

REFERENCES:
1. FM 10-67-1 Concepts and Equipment of Petroleum Operations
2. FM 10-69 Petroleum Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2004: Prepare preliminary environmental assessments

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, local codes and regulations pertaining to the area of impact (if applicable), planned fuel storage and distribution operation, Standing Operational Procedures (SOPs) and references.

STANDARD: To ensure all petroleum products are stored and dispensed in accordance with applicable base orders and federal regulations.

PERFORMANCE STEPS:
1. Review operations order.
2. Review local codes and regulations (if applicable).
3. Review fuel storage and distribution operations plan.
4. Conduct site survey.
5. Write bulk fuel portion of preliminary environmental assessment.
6. Submit bulk fuel portion of preliminary environmental assessment to appropriate higher headquarters.

REFERENCES:
1. AR 200-1 Environmental Protection and Enhancement
2. FED-STD 791 Lubricants, Liquid Fuel, and Related Products: Methods of Testing
3. MCO P5090.2_ Environmental Compliance and Protection Manual
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. NAVFAC P-908 Oil Spill Control for Inland Waters and Harbors

6. OPNAVINST 5090.1_ Environmental Readiness Program Manual
7. TC 5-400 w/CH_ Unit Leader's Hand book for Environmental Stewardship
8. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-2005: Supervise Tactical Fuel System 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: MOJT

CONDITION: Given a tactical fuel system and references.

STANDARD: To maintain readiness of all plastic 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 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 4700-15/1H Ground Equipment Record Procedures

1391-XENG-2006: Perform Embarkation NCO functions.

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Embark NCO

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provide a Table of Equipment (T/E), mission requirements and references.

STANDARD: To ensure proper 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 5-12_ Organization of Marine Corps Forces
3. MCWP 4-1 Logistics Operations
4. MIL-STD-129 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-2007: Supervise bulk fuel site construction/installation

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 fuel distribution plan with a system layout, necessary equipment, engineer equipment, engineer equipment operators and references.

STANDARD: To ensure tactical fuel system site is constructed to meet mission requirements and is in accordance with local and federal regulations.

PERFORMANCE STEPS:
1. Identify site.
2. Determine Heavy Equipment (HE) required.
3. Develop a work schedule.
4. Guide engineers in performance of site construction.
5. Guide engineers in the prepositioning of equipment.
6. Assemble 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-2008: Supervise 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, MGYSGT

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, specified in an operations order, can support the concept of operations.

PERFORMANCE STEPS:
1. Identify Bulk Fuel requirements in operation order.
2. Determine fuel system requirements.
3. Design construction plan.
4. Implement distribution 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 D-4057 Standard Practice for Manual Sampling of Petroluem Products
6. ASTM D380 Standard Test Method for Rubber Hose
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 08922_-14/1 Pump Unit, Centrifugal, Self-Priming, 125 GPM
21. TM 08990_-15&P/1 Sixcon Water Tank Module
22. TM 10188_-14&P/1 Operator's Organizational & Intermediate Maintenance Manual with Parts List TPLM
23. TM 10596_-13&P Marine Corps Hose Reel System
24. TM 10668_-13&P Compressed Air Foam System-Mobile
25. TM 11082_-OI Air Conditioner, 3 Ton, 36,000
26. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
27. TM 4700-15/1_ Marine Corps Ground Equipment Record Procedures
28. ULSS-00 3089-15 TPLM
29. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
30. UM 4790-5 Users Manual MIMMS
31. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-2009: 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 ensure the hose is emptied of the petroleum product after pumping operations.

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-2011: Implement 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, MGYSGT

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 in accordance with the references.
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 Standard Operating Procedures.
5. Inspect for adherence to quality control procedures.
6. Identify and list all discrepancies.
7. 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: Store a tactical fuel system

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a Tactical Fuel System (TFS), related equipment, applicable tools and references.

STANDARD: To maintain the operation condition and readiness of the Tactical Fuel System (TFS) while in organizational storage.

PERFORMANCE STEPS:
1. Review references.
2. Inspect components for serviceability.

3. Ensure components are clean and dry.
4. Ensure components are packaged per local SOP.
5. Record embarkation data in accordance with the references.

REFERENCES:
1. FM 10-67-1 Concepts and Equipment of Petroleum Operations
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2013: 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, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a Table of Equipment (T/E), applicable forms, applicable records, applicable administrative supplies, applicable tools and references.

STANDARD: To ensure all equipment is maintained in an operational state of readiness and 100% accurate documentation of maintenance activities is captured.

PERFORMANCE STEPS:
1. Develop Marine Integrated Maintenance Management System (MIMMS) desktop procedures.
2. Supervise the Test Measurement and Diagnostic Equipment (TMDE) program.
3. Supervise Preventative Maintenance Checks and Service (PMCS) schedules.
4. Develop repair activity procedures.
5. Develop reconciliation procedures.
6. Inspect required actions.
7. 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_ Marine Corps 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-2016: monitor Class III 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, applicable Class III inventory and references.

STANDARD: To ensure accurate accountability of Class III products.

PERFORMANCE STEPS:
1. Review references.
2. Conduct physical inventories as required.
3. Validate documented inventory.
4. Compare physical and documented inventories.
5. Adjust inventory records as required.

REFERENCES:
1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2017: Manage the fire prevention 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: Given a petroleum facility, firefighting equipment, personnel and references.

STANDARD: To ensure 100% of bulk fuel assets/sites are protected by fire extinguishing equipment and all personnel are trained on the deployment of fire extinguishing assets.

PERFORMANCE STEPS:
1. Review unit fire and fire safety standard operating procedures.
2. Identify hazards within the area of responsibility.
3. Ensure personnel receive first aid and firefighting training.
4. Ensure applicable equipment is correctly placed in area.
5. Inspect the area regularly to ensure compliance with the fire and safety program.
6. Take corrective actions as necessary.
7. Report accidents per local standard operating procedures.

REFERENCES:
1. FM 10-67-1 Concepts and Equipment of Petroleum Operations
2. MCO 3500.27_ Operational Risk Management (ORM)
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual

5. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
6. UNIT SOP Unit's Standing Operating Procedures
7. Federal, State, and Local Environmental Regulations

1391-XENG-2018: Implement bulk fuel site security 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: MOJT

CONDITION: Provided a tactical situation, personnel and references.

STANDARD: To safeguard personnel, troop movement, equipment and fuel locations, and tactical responses to possible threat.

PERFORMANCE STEPS:
1. Review references.
2. Develop a bulk fuel security plan.
3. Write a bulk fuel security site rear area security plan.
4. Coordinate with adjacent units.

REFERENCES:
1. FM 90-3 Desert Operations
2. FMFM 13 MAGTF Engineer Operations
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-11.2 Marine Rifle Squad
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2022: Calculate feet of head to Pounds per Square Inch (PSI)

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

DESCRIPTION: For a particular fuel at a given pump discharge pressure, there is a maximum height (elevation in feet) to which fuel can be pumped. This is known as Feet of Head (Hf). It is useful to measure frictional pressure loss over a distance in Feet of Head, since pressure is only measured at one given point.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given specific gravity, calculator and references.

STANDARD: To ensure all friction loss over distance calculations are accurate and correctly documented.

PERFORMANCE STEPS:
1. Convert Feet of Head to pounds per square inch (PSI).
2. Convert pounds per square inch (PSI) to Feet of Head.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2023: Measure the speed of fuel

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

DESCRIPTION: Hose line deployment may be required between geographically separated TFS sites. An understanding of the basic dynamics of pump discharge pressure and volume flow rate in relation to friction loss, static head, distance, elevation and fuel gravity (Specific Gravity) is essential in the proper planning for hose line employment and operation.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given type of fuel, applicable Tactical Fuel System (TFS), calculator and references.

STANDARD: To obtain accurate fuel velocity in feet per second or flow rate in gallons per minute.

PERFORMANCE STEPS:
1. Determine the required formulas.
2. Determine the inside diameter of pipe in feet.
3. Convert variables.
4. Calculate formulas using converted variables.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2024: Determine the Reynolds Number

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

DESCRIPTION: The Reynolds Number is a dimensionless value equal to velocity in feet per second times diameter in feet times kinematic viscosity in square feet per second.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given the flow rate in gallons per minute, inside diameter of pipes in inches, viscosity in centistokes and references.

STANDARD: To ensure the accurate identification of the flow type.

PERFORMANCE STEPS:
1. Convert variables.
2. Perform calculations per the reference.
3. Determine flow type.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2025: Determine the hydraulic gradient

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

DESCRIPTION: The Hydraulic Gradient (HG) is the Head Loss (HL) in a hose line over one mile of horizontal distance. Note that any distance may apply. The HG provides an expedient method of estimating the placement of booster pump stations in a hose line trace.

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist, Bulk Fuel Unit Leader, Platoon Sergeant

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given gallons per minute, inside diameter of the fuel line, type of fuel and references.

STANDARD: To ensure all calculations of Head Loss (HL) are accurate and correctly documented.

PERFORMANCE STEPS:
1. Determine hydraulic gradient based on MOGAS at 60 degrees Fahrenheit.
2. Convert to designed fuel.
3. Plot hydraulic gradient on pipeline trace.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2026: Determine the design hydraulic gradient

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 the total available feet of head and references.

STANDARD: To ensure all calculations of Head Loss (HL) are accurate and correctly documented.

PERFORMANCE STEPS:
1. Determine initial suction in Feet of Head.
2. Determine minimum suction in Feet of Head.
3. Determine pump capability in Feet of Head.
4. Plot Total Available Head.
5. Subtract minimum Suction Head.
6. Plot Hydraulic Gradient to determine location of booster stations.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2027: Determine head loss

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 friction factor, hose length in feet, flow rate, inside diameter of hose and references.

STANDARD: To ensure resistance factor is accurately calculated and documented.

PERFORMANCE STEPS:
1. Identify required formula.

2. Determine friction factor.
3. Compute head loss.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2028: Identify abnormal variants in head pressure

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 fuel flow rate and references.

STANDARD: To ensure all situations that result in a reduction of fuel flow are identified, and corrected to achieve optimal fuel flow.

PERFORMANCE STEPS:
1. Determine the hydraulic gradient.
2. Determine the distance in feet.
3. Identify Design Fuel.
4. Determine pipe size.
5. Determine dynamic pressure.
6. Calculation variations in head pressure.
7. Determine static pressure.

REFERENCES:
1. FM 5-482 Military Petroleum Pipeline Systems
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems

1391-XENG-2029: 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 appropriate maintenance management forms, applicable administrative supplies and references.

STANDARD: To ensure all maintenance actions are properly followed and accurately documented.

PERFORMANCE STEPS:
1. Complete Equipment Repair Order (ERO).
2. Complete the Equipment Repair Order Shopping List (EROSL).
3. Develop Preventive Maintenance Schedules.
4. Maintain Equipment Record Jackets.
5. Monitor Daily Process Report/Daily Transaction Listing (DPR/DTL).
6. Complete the Product Quality Deficiency Report (PQDR) as required.

REFERENCES:
1. MCO P4790.2_ MIMMS Field Procedures Manual
2. UM 4790-5 MIMMS-AIS Field Maintenance Procedures
3. Appropriate Technical Manuals

1391-XENG-2030: 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 appropriate Petroleum, Oils and Lubricants (POL) 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 appropriate annex/appendix to the operation order.
8. Submit to appropriate 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. Joint Publication 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-2032: 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. 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.

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

1391-XENG-2033: Conduct joint multi-national 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, a 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. Establish procedures for petroleum distribution.
2. Establish procedures for petroleum storage.
3. Plan for adjacent unit support for bulk petroleum products.
4. Plan for host nation support (HNS) for bulk petroleum (as required).
5. Prepare joint 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

1391-XENG-2034: Establish 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 and Directives, administrative supplies, computer assets and personnel.

STANDARD: To ensure operational petroleum requirements are satisfied.

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. 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-2035: Maintain Consolidated Memorandum Receipts (CMR)

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

MOS PERFORMING: 1391

BILLETS: Bulk Fuel Specialist

GRADES: SSGT, GYSGT, MSGT, MGYSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given a garrison property account/Table of Equipment (T/E), a Consolidated Memorandum Receipt (CMR), administrative supplies and personnel.

STANDARD: To ensure 100% accountability of garrison and field bulk fuel equipment.

PERFORMANCE STEPS:
1. Receive order to reconcile CMR quarterly.
2. Conduct inventory of equipment.
3. Reconcile inventory with current CMR.
4. Annotate corrections on the CMR.
5. Prepare required correspondence identifying CMR corrections.
6. Sign and submit all corrections to the Supply Officer.
7. Retain a copy of corrected CMR.

REFERENCES:
1. MCO P4400.150_ Consumer Level Supply Policy Manual

1391-XENG-2036: Manage publication 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, MGYSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Given a unit T/O, unit T/E, unit mission requirements and Publications Library Management System (PLMS) access.

STANDARD: To ensure 100% of the required publications are maintained and updated as required.

PERFORMANCE STEPS:
1. Review Unit T/E.
2. Identify required publications by reviewing SL-1-2/SL-1-3.
3. Review publications library to assure that all publications and changes are required.
4. Request and validate publications that are required.
5. Implement changes as required.

REFERENCES:
1. MCO 5215.1_ Marine Corps Directives Management Program
2. MCO P4790.1_ Marine Corps Integrated Maintenance Management System (MIMMS) Introduction Manual
3. SL-1-2/SL-1-3 Index of Publications Stocked by the USMC

1391-XENG-2038: Prepare official correspondence

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 administrative supplies, computer assets and references.

STANDARD: Ensuring correspondence is developed and submitted without error.

PERFORMANCE STEPS:
1. Prepare endorsements.
2. Prepare multiple address letters.
3. Prepare memorandums.
4. Prepare staff action reports.
5. Prepare business letters.
6. Prepare email communications.
7. Perform office filing procedures.
8. Prepare naval messages.
9. Prepare awards.
10. Prepare fitness reports.

REFERENCES:
1. MCO 5210.11_ Standard Subject Identifier Codes
2. MCO P5600.31_ Marine Corps Publications and Printing Regulations
3. SECNAV M-5210.2 Standard Subject Identification Code (SSIC) Manual
4. SECNAVINST 5216.5 Naval Correspondence Manual

1391-XENG-2039: Submit construction/renovation requirements

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 construction requirement, equipment or facilities requiring renovation, administrative supplies and references.

STANDARD: To ensure all construction requirements are accurately calculated, documented and submitted within prescribed timelines.

PERFORMANCE STEPS:
1. Determine construction requirements.

2. Obtain pricing information.
3. Calculate construction requirements.
4. Prepare required supporting documentation.
5. Submit requirements according to policies and procedures.

REFERENCES:
1. DoDFMR 7000.14-_ Department of Defense Financial Management Regulations (DoDFMR)
2. FAR Federal Acquisition Regulation
3. NAVCOMPT Navy Comptroller Manual

1391-XENG-2040: Supervise Base Fuels 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 Base Fuel facility, personnel, equipment and references.

STANDARD: To ensure the bulk petroleum support meets current and future requirements for base operations.

PERFORMANCE STEPS:
1. Analyze requirements.
2. Review local policies.
3. Inspect adherence to operating procedures.

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
3. Local Standard Operating Procedures (SOP)

1391-XENG-2041: Supervise Air Station Fuel 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 Air Station, personnel, equipment and references.

STANDARD: To ensure bulk petroleum support meets current and future requirements and all aircraft are being issued fuel at required specifications.

PERFORMANCE STEPS:
1. Analyze requirements.
2. Review local policies.
3. Inspect adherence to operating procedures.

REFERENCES:
1. MCWP 4-11.6 Petroleum and Water Logistics Operations
2. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
3. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
4. Local Standard Operating Procedures (SOP)

1391-XENG-2042: Conduct distillation/cetane index procedures

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

DESCRIPTION: Distillation/cetane index procedures are ASTM test methods D-86, D-4737 and D-976.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, personal safety gear, fuel sample and references.

STANDARD: To determine if boiling range and cetane number is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2043: Conduct flash point procedures

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

DESCRIPTION: Flash Point procedures are ASTM test methods: D-92 and D-93.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), Petroleum, Oils and Lubricant (POL) sample, and references.

STANDARD: To determine if the Flash Point is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2044: Conduct Say bolt color test method

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

DESCRIPTION: Say bolt/ASTM color procedures are ASTM test methods: D-156 and D-1500.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample, and references.

STANDARD: To determine the presence of visible color intensity or indication of contamination or deterioration.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.

3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2045: Conduct Reid Vapor Pressure test procedures

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

DESCRIPTION: Reid Vapor Pressure is ASTM test method D-323.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To determine if the volatility of petroleum products is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2046: Conduct neutralization test procedures

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

DESCRIPTION: Neutralization test is ASTM test method D-3242-01.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To ensure acid or basic components remaining from refining, are within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2047: Conduct particulate contaminant test procedures

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

DESCRIPTION: Particulate contaminant tests are ASTM test methods: D-5452 and D-2276.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To ensure that all particulate contaminants in petroleum products are identified.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.

4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2048: Conduct water reaction test procedures

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

DESCRIPTION: Water reaction is ASTM test method D-1094.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To ensure that all surfactants are identified in aviation gasoline and turbine fuels.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2049: Conduct freeze point test procedures

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

DESCRIPTION: Freeze Point is ASTM test method D-2386.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To determine if the temperature at which solid hydrocarbon crystals form in aviation turbine fuels and aviation gasoline, is identified and is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2050: Conduct electrical conductivity test procedures.

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

DESCRIPTION: Electrical conductivity test procedures are performed on aviation fuels containing a static dissipater additive.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To ensure the amount of static dissipater additive present in aviation and distillate fuels is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2051: Conduct existent gum test procedures

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

DESCRIPTION: Existent gum is ASTM test method D-381.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To ensure the level of existent gum content within the product is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2052: Conduct copper strip corrosion test procedures

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

DESCRIPTION: Copper strip corrosion is ASTM test method D-130.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To determine if the amount of corrosiveness in the petroleum product is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2053: Conduct water separation test procedures

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

DESCRIPTION: Water Separation (Micro separator WISM) is ASTM test D-3948.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To determine the fuels ability to release water, and is within the acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2054: Conduct Thermal Oxidation Stability test procedures

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

DESCRIPTION: Thermal Oxidation Stability of Aviation Turbine Fuels (JFTOT) is ASTM test method D-3241.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To determine if the level of deposits that form when liquid fuel contacts a heated surface that is at a specified temperature, is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2055: Conduct Kinematic Viscosity test procedures

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

DESCRIPTION: Kinematic Viscosity is ASTM test methods: D-445 and D-446.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), Petroleum, Oils and Lubricants (POL) sample, and references.

STANDARD: To determine if the internal resistance to flow is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2056: Conduct Pour Point test procedures

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

DESCRIPTION: Pour Point is ASTM test method D-97.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), Petroleum, Oils and Lubricants (POL) sample, and references.

STANDARD: To determine if the fluidity of a residual fuel, at specified temperatures, is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2057: Conduct Cloud Point test procedures

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

DESCRIPTION: Cloud Point is ASTM test method D-2500.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references

STANDARD: To determine if the lowest temperature at which waxy crystals will form in diesel fuels, and is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2058: Conduct Water and Sediment by Centrifuge test procedures

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

DESCRIPTION: Water and Sediment by Centrifuge is ASTM test method D2709.

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To determine if the amount of sediment and water content in a measured amount of fuel, is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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

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1391-XENG-2060: Conduct MARFLASH test procedures

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

MOS PERFORMING: 1391

BILLETS: Laboratory Technician

GRADES: CPL, SGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Given operational petroleum laboratory, test apparatus, Personal Protective Equipment (PPE), fuel sample and references.

STANDARD: To ensure the flashpoint of fuel is within acceptable limits.

PERFORMANCE STEPS:
1. Perform Preventative Maintenance Checks and Services (PMCS) on equipment.
2. Identify type of fuel.
3. Prepare laboratory apparatus.
4. Perform test procedures in accordance with the ASTM test method for your type of fuel.
5. Calculate test results.
6. Report 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 07391_-OI/1 Automated Fuel Flash Point Tester (MARFLASH)

1391-XENG-2061: Manage embarkation of Tactical Fuel Systems (TFS)

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 embarkation operational requirements, personnel, equipment and references.

STANDARD: To ensure all required equipment and resources are embarked in accordance with commanders intent.

PERFORMANCE STEPS:
1. Review mission requirements.
2. Review available assets.
3. Perform pre-embarkation requirements.
4. Embark equipment.

REFERENCES:
1. AR 200-1 Environmental Protection and Enhancement
2. FM 10-69 Petroleum Supply Point Equipment and Operations
3. MCO 4030.36 Marine Corps Packing Manual
4. MCO 4030.40_ Packaging of Hazardous Material
5. MCWP 4-11.6 Petroleum and Water Logistics Operations
6. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
7. TM 3835-OI/1_ Marine Corps Tactical Fuel Systems
8. UNIT SOP Unit's Standing Operating Procedures

1391-XENG-2062: Supervise a Forward Arming Refueling Point (FARP) 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: Provided an operations order, equipment, personnel and references.

STANDARD: To ensure all mission requirements of the Forward Arming Refueling Point (FARP) are accomplished.

PERFORMANCE STEPS:
1. Review references.
2. Verify mission requirements with supported units.
3. Conduct terrain/map analysis.
4. Coordinate with external teams.
5. Validate Table of Equipment (T/E).
6. Validate Table of Organization (T/O).
7. Supervise Forward Arming Refueling Point (FARP) operations.

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 5-4320-309-14 125 GPM Pump
6. TM 5-4330-217-12 Operator and Organizational Maintenance Manual, Filter Separator, Liquid 100 GPM, Frame Mounted
7. TM 5-6630-218-10 Aviation Fuel, Contaminant, Test Kit

APPENDIX A

ENGINEER AND UTILITIES FUNCTIONAL AREA MATRIX

1000. ENGINEER AND UTILITIES FUNCTIONAL AREA MATRIX. The Engineer and Utilities Functional Area Table includes the functional area and long title.

FUNCTIONAL AREA CODE	LONG TITLE
ADMN	Administrative
CMOB	Counter-Mobility
DEMO	Demolitions
EOPS	Engineer Operations
MANT	Engineer Maintenance
MOBL	Mobility
PINF	Provisional Infantry
RECN	Engineer Reconnaissance
SRVY	Surveying
SURV	Survivability
XENG	General Engineering

APPENDIX B

GLOSSARY

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 Pub 1-02, *DOD Dictionary of Military and Associated Terms.*

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 at 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.

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. Utilizing the building block approach to progressive training, these collective events are further supported by individual training events at the 1000 and 2000-levels. 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.

Component Events. Component events are the major tasks involved in accomplishing a collective event. Listing these tasks guide Marines toward the accomplishment of the event and help evaluators determine if the task has been done to standard. These events may be lower-level collective or individual events that must be accomplished.

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.

Core Skills. Core skills are those essential basic skills that “make” a Marine and qualify that Marine for an MOS. They are the 1000-level skills introduced in entry-level training at formal schools and refined in operational units.

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 Marine or 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-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.

Entry-level training. Pipeline training that equips students for service with the Marine Operating Forces.

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.

Individual Readiness. The individual training readiness of each Marine is measured by the number of individual events required and completed for the rank or billet currently held.

Individual Training. Training that applies to individual Marines. Examples include rifle qualifications and HMMWV driver licensing.

Individual Training Standards (ITS). Specifies training tasks and standards for each MOS or specialty within the Marine Corps. In most cases, once an MOS or community develops a T&R, the ITS order will be cancelled. However, most communities will probably fold a large portion of their ITS into their new T&R manual.

Marine Corps Combat Readiness and Evaluation System (MCCRES). An evaluation system designed to provide commanders with a comprehensive set of mission performance standards from which training programs can be developed; and through which the efficiency and effectiveness of training can be evaluated. The Ground T&R Program will eventually replace MCCRES.

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.

Mission Performance Standards (MPS). 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. MPS are contained within the MCCRES volumes. The MCCRES volumes are being replaced by T&R Manuals. Collective events will replace MPS.

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.

Performance Step. Performance steps are included in the components of an Individual T&R Event. They are the major procedures (i.e., actions) a unit Marine must accomplish to perform an individual event to standard. They describe the procedure the task performer must take to perform the task under operational conditions and provide sufficient information for a task performer to perform the procedure (may necessitate identification of supporting steps, procedures, or actions in outline form). Performance steps follow a logical progression and should be followed sequentially, unless otherwise stated. Normally, performance steps are listed only for 1000-level individual events (those that are taught in the entry-level MOS school). Listing performance steps is optional if the steps are already specified in a published reference.

Prerequisite Event. Prerequisites are the academic training and/or T&R events that must be completed prior to attempting the event.

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.

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.
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.

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.

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.