DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
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MCO 11262.2C
I&L (LPE)
31 AUG 2021

MARINE CORPS ORDER 11262.2C

From: Commandant of the Marine Corps
To: Distribution List

Subj: STANDARD POLICY FOR INSPECTION, TESTING, AND CERTIFICATION OF TACTICAL GROUND LOAD LIFTING EQUIPMENT

Ref: (a) 29 CFR 1910.180
(b) ANSI/ASME B30.5 Mobile and Locomotive Cranes August 6, 2018
(c) 29 CFR 1926
(d) SECNAV M-5210.1
(e) DoD Instruction 6055.01, "DoD Safety and Occupational Health (SOH) Program," October 14, 2014
(f) ANSI/ITSDF B56.1-2020 Safety Standard for low fork and high lift trucks, March 27, 2020
(g) MCO 4790.2
(h) UM 4000-125 Vol 3
(i) 10 U.S.C § 101(a)(13)
(j) SECNAVINST 5211.5F
(k) NAVFAC P-307 June 2016
(l) TI 10920A-IN/1
(m) MCO 5210.11F
(n) 5 U.S.C 552a

Encl: (1) General Information, Facilities, and Inspection Types
(2) Procedures for Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
(3) Examples of Load sustaining components

1. Situation

a. This Order is in accordance with references (a) through (n) and is applicable to all active duty and reserve units that possess or use tactical ground load lifting equipment. Tactical ground load lifting equipment includes all mobile equipment commonly referred to as cranes, wreckers, retrievers, container handlers, and forklifts.

b. This order is not applicable to Garrison Mobile load lifting Equipment (cranes, derricks, hoists, winches, monorails, etc.) or load lifting equipment in garrison facilities. These categories of equipment are considered non-tactical.

2. Cancellation. MCO P11262.2B w/ Admin Change

3. Mission. To publish updated policy and procedures for the inspection, testing, and certification of Marine Corps tactical ground load lifting equipment in order to preserve operational readiness, reduce personal injury,

extend life expectancy of tactical ground load lifting equipment, and satisfy the requirements of references (a), (b), and (c).

4. Execution

a. Commander's Intent and Concept of Operations

(1) Commander's Intent. The composition and diversity of the Marine Corps tactical ground load lifting equipment has changed dramatically since the previous revision of this Order was published. As a result, a revision to the current order is necessary to provide updated information to Commanders, Certifying Officials, Test Directors, and inspection/test personnel.

(2) Concept of Operations. The inspection, testing and certification of tactical ground load lifting equipment will be performed in accordance with this Order, references (a), (b), (c) and respective equipment TMs.

b. Subordinate Element Tasks

(1) Commanding General, Marine Corps Systems Command/ Program Executive Office-Land Systems shall ensure that all tactical ground load lifting equipment inspections, testing, and certifications procedures and requirements per reference (a) are clearly stated in the respective equipment's TM/Interactive Electronic Technical Manual (IETM) per this Order.

(2) Commanding generals shall designate specific field maintenance organizations to provide inspection, testing and certification services for units without the organic resources/maintenance authority to conduct those inspections, tests and certifications.

(3) Marine Corps installation commanders (bases and stations) shall establish, maintain and make available a facility that meets the requirements described in chapter 2, enclosure (1) of this Order, so that tenant units can perform inspection, testing and certification of organic tactical ground load lifting equipment.

(4) Commanding Officers (CO) and officers-in-charge (OIC) shall ensure that tactical ground load lifting equipment inspections, testing, and certifications are conducted per this Order and respective equipment TMs. Additionally, COs/OICs shall ensure that equipment records are properly annotated before the certified equipment is returned to service.

5. Administration and Logistics

a. Recommendations. Recommendations concerning the contents of this Order are invited and will be submitted to Commandant of the Marine Corps (CMC), DC I&L Logistics Policy, Engineer and Explosive Ordnance Disposal Branch (LPE).

b. Records Management. Records created as a result of this directive shall be managed according to National Archives and Records Administration (NARA)-approved dispositions per SECNAV M-5210.1 to ensure proper maintenance, use, accessibility and preservation, regardless of format or medium. Records disposition schedules are located on the Department of the Navy/Assistant for Administration (DON/AA), Directives and Records Management Division (DRMD) portal page at: https://forms.documentservices.dla.mil/order/

Refer to MCO 5210.11F for Marine Corps records management policy and procedures.

c. Privacy Act. Any misuse or unauthorized disclosure of Personally Identifiable Information (PII) may result in both civil and criminal penalties. The Department of the Navy (DON) recognizes that the privacy of an individual is a personal and fundamental right that shall be respected and protected. The DON's need to collect, use, maintain, or disseminate PII about individuals for purposes of discharging its statutory responsibilities shall be balanced against the individuals' right to be protected against unwarranted invasion of privacy. All collection, use, maintenance, or dissemination of PII shall be in accordance with the Privacy Act of 1974, as amended (5 U.S.C. 552a) and implemented per SECNAVINST 5211.5F.

d. Forms. Forms can be found by searching the form number "NAVMC 11262" at https://forms.documentservices.dla.mil/order/ and selecting the image of a disc.

6. Command and Signal

a. Command. This Order is applicable to the Marine Corps Total Force.

b. Signal. This Order is effective the date signed.

E. D. BANTA
Deputy Commandant
Installations and Logistics

DISTRIBUTION: PCN 10211800000

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Chapter 1

Introduction

1. Background. Reference (e) requires that the Armed Forces shall apply Department of Labor's Occupational Safety and Health Administration and other non-DoD regulatory safety and health standard to military unique equipment, systems, operations, or workplaces, in whole or in part, insofar as practicable. This chapter incorporates pertinent safety instructions extracted from reference (a), (b), (c), and (f) and is applicable to all Marine Corps' tactical ground load lifting equipment.

2. General Information

a. Figure 1-1 lists requirements of inspection, testing, and certification of tactical ground load lifting equipment. Figure 1 applies to vertical lifting equipment only. All inspections, tests and certifications are required regardless of operational location/posture.

b. A complete check (per applicable NAVMC listed below) of cranes, wreckers or retrievers shall be performed by the operator of the assigned equipment, prior to the initial use of the end item each day. The Crane Daily Inspection checklist (NAVMC 11262/2) shall be used with appropriate dispatching forms for this purpose. The dispatcher of equipment will ensure that a Crane Daily Inspection checklist (NAVMC 11262/2) is attached to the NAVMC 10523/10524 for cranes or NAVMC 10627 for wreckers and retrievers (AAVR7A1 utilize table H-1 from TM 07267C-10/1), for all assigned missions. The Crane daily inspection checklist shall be completed and filed with the respective equipment dispatching forms (trip ticket) or ordnance vehicle logbook.

c. All tactical ground load lifting equipment configurable to lift materiel vertically will be inspected annually utilizing the Condition Inspection Record (NAVMC 11262/3). Certifications are valid for one year from the date of the certifying official's signature.

d. A nondestructive test (NDT) is required every five years. A NDT is required on hooks on cranes, wreckers and retrievers. If load sustaining/lifting components are removed and reinstalled during the conduct of an NDT a Load Test is required. The most recent nondestructive test date will be documented in the remarks section of the NAVMC 11262/3.

e. Cranes, wreckers, retrievers, and aerial personnel devices (maintenance platform) are the only tactical ground load lifting equipment that require load testing. All tactical ground load lifting equipment will be load tested utilizing The Certification of Load Test Record (NAVMC 11262/1).

f. Load testing is required if any load sustaining/lifting components (see ref l and encl (3) have been removed, replaced, or repaired; (i.e., repairs to the truck portion of a mobile crane do not necessitate a load test of the crane portion). Outriggers, sheaves, mainlift cylinders, and boom/gantry pins are considered to be a part of the load sustaining/lifting portion of a crane/aerial personnel device.

g. Load tests will be the responsibility of the organization performing the repairs and will be completed prior to returning the equipment back to its owner. Upon receipt, the owning unit/receiving official will determine

if a load test has been accomplished by examination of the equipment records. If documentation of certification is not present, the owning unit/receiving official may elect to refuse to accept the equipment or accept it and arrange to have it locally load tested.

h. All acquisition contracts pertaining to the purchase and fielding of mobile cranes/aerial personnel devices must include the requirement for the manufacturer to perform load test certification prior to the equipment's delivery.

i. Maintenance/service contracts that permit a commercial contractor to perform significant equipment repair or rebuild of cranes/aerial personnel devices shall contain a load test requirement/certification clause. Maintenance depots (Depot Level of Maintenance) that perform significant repair or rebuild of cranes/aerial personnel devices are also required to perform load test/certification.

j. Certification. The Certifying Official is responsible for ensuring the safety and reliability of all tactical ground load lifting equipment. The Certifying Official will be a Marine officer/chief or qualified civilian and shall be designated in writing by the Commanding Officer. Marine Certifying Officials shall be selected from the following Military Occupational Specialties (MOS): 1310 (Engineer Equipment Officer), 1349 (Engineer Equipment Chief), 3510 (Motor Transport Maintenance Officer), 3529 (Motor Transport Maintenance Chief), 2102 (Ordnance Officer) 2110 (Ordnance Vehicle Maintenance Officer), 2120 (Weapons Repair Officer) 2141 (AAV/ACV Technician GySgt or above and must complete Ground Ordnance Chief's course) 2147 (LAV Technician GySgt or above and must complete Ground Ordnance Chief's course) 2149 (Ordnance Vehicle Maintenance Chief) or 2181 (Ground Ordnance Weapons Chief. The Certifying Official will designate in writing authorized test directors and inspection/test personnel.

k. Certifying Officials shall be qualified at an appropriate Marine Corps MOS school on testing responsibilities and requirements. A Department of Labor approved civilian school may be used as evidence of sufficient training. Once initial training is received, there are no requirements for recertification.

3. Waivers

a. Waiver of the requirements of this Order are permitted under the following three conditions:

b. Administrative Storage Program. Equipment approved for induction into a Deferred Maintenance Program as delineated in Chapter 4 of MCO 4790.2 (ref g) qualify for a waiver. Under no circumstances however, will a waiver for administrative storage be permitted to extend beyond a 36 month period of time. Waivers are not permitted for items placed on administrative deadline or low usage items since reference (e) provides guidance regarding these equipment operating conditions. To ensure better understanding of the waiver process, it is recommended that major command maintenance management SOPs include discussion of local procedures pertaining to waiver of inspection, testing and certification of tactical ground load lifting equipment.

c. Prepositioned War Reserve (PWR) Program. Items of equipment that are placed in PWR Program qualify for waiver under the following conditions:

(1) The asset has met the requirements of this Order prior to induction into PWR.

(2) The asset will meet the requirements of this Order prior to being issued to a using unit.

d. Marine Forces Reserve (MARFORRES). During periods other than a designated contingency operation (see 10 U.S.C § 101(a)(13), reference (j)), declared war, or declared national emergency, MARFORRES Commanding Generals (CGs) are authorized to grant a one year waiver of the requirements of this Order. When waivers are authorized, the respective equipment record will reflect this approval by including a copy of each waiver. Under no circumstances will MARFORRES waivers be permitted to extend beyond the one year time frame. MARFORRES CGs are encouraged to establish Inter-service Support Agreements or commercial contracts to comply with these requirements in cases where appropriate organic Marine Corps personnel are not available due to geographical location. Inspections, testing, and certifications that are performed by agencies outside the Marine Corps should clearly state that the inspections, testing and certifications have been conducted in accordance with the provisions of this Order.

4. Forms and Records. NAVMC 11262/1 (Certification of Load Test Record), NAVMC 11262/2 (Crane Daily Inspection Checklist), NAVMC 11262/3(Condition Inspection Record) and NAVMC 11262/4 (Fork Inspection Record) are the forms that are necessary to perform inspection, testing and certification of tactical ground load lifting equipment. Equipment without applicable load inspection and testing certifications will not be available for use. GCSS-MC will be the reporting system used to record, file, and report all tactical load lift certification and documentation requirements. All remarks that do not have a specific data entry point in GCSS-MC will be entered manually in the item instance notes section or attached as supporting maintenance documents in the installed base.

	FORKLIFT	CONTAINER HANDLER	CRANES	AERIAL PERSONNEL DEVICE	WRECKERS	RETRIEVERS	PAR. REF.
CRANE DAILY INSPECTION CHECK LIST			*		*	*	3.1
ANNUAL CONDITION INSPECTION (ACI)	*	*	*	*	*	*	3.2
ACI CERTIFICATION	*	*	*	*	*	*	3.8 (4)
HOOK INSPECTION			*		*	*	3.2.2
NONDESTRUCTIVE TEST			*		*	*	4.2 (b)
LOAD TEST, NO LOAD TEST (STRUCTURAL AND STABILITY)			*	*	*	*	4.2 (a/c)
LOAD TEST CERTIFICATION			*	*	*	*	4.4

Figure 1-1: Inspection, Testing and Certification Requirements
Inspection, Testing, and Certification Requirements

Note: Figure 1-1 applies to equipment types (wreckers, cranes, etc.) listed in the top row, and the (*) denotes the required inspection, testing or certification procedure for the equipment type. Wreckers, recovery assets, and toolsets equipped with a materiel handling crane, will follow the instructions pertaining to cranes in accordance with applicable TMs and/or this Order.

Chapter 2

Facilities

1. Load Test Facility Requirements. The load test facility shall provide a capability that is sufficient enough to conduct testing procedures for all load lifting equipment requiring load testing aboard their installation. The following facility conditions are required for load testing tactical ground load lifting equipment:

a. A sufficiently large (capable of supporting perimeters of working radius being tested), level hardstand.

b. A calibrated load cell (dynamometer) with a deadman, and two shackles.

c. Calibrated weights, heavy and dense (compact) enough to be used as the load tests procedures describe.

2. Location of Testing Facilities. The Commanders of the following installations will provide the aforementioned facilities for the load testing of tactical ground load lifting equipment for all Marine Corps units within their geographical vicinity:

a. MCB Quantico, Virginia.

b. MCB Camp Lejeune, North Carolina.

c. MCAS Beaufort, South Carolina.

d. MCB Camp Pendleton, California.

e. MCAS Cherry Point, North Carolina.

f. MCAS Miramar, California

g. MCLB Albany, Georgia.

h. MCLB Barstow, California

i. MCAS Kaneohe Bay, Hawaii.

j. MCB Camp Butler, Japan.

k. MCAS Iwakuni, Japan.

l. MCD, EEIC, Fort Leonard Wood, Missouri

Chapter 3

Inspections

1. Crane Daily Inspection Checklist. The purpose of the NAVMC 11262/2 (Crane Daily Inspection Checklist) is to ensure the safety and reliability of the assigned equipment with a list of items that pertain to cranes, wreckers and retrievers that are not found on the NAVMC 10523/10524 or the NAVMC 10627. The Crane Daily Inspection Checklist will be utilized by the operator of an end item with the NAVMC 10523/10524 or the NAVMC 10627 to document the before, during, and after operation checks, services, and inspections. The inspection will be complete prior to the crane being employed at the project site. This is the operator's responsibility. The commodity manager will ensure that corrective action has been initiated/performed on all amplifying comments listed on the Crane Daily Inspection Checklist before the item is allowed to continue to operate. NAVMC 11262/2 will be utilized to document the Crane Daily Inspection.

a. Checklist Preparation Instructions

(1) Section 1 General Information
(Section 1 shall be completed by the dispatcher.)

(a) In the USMC SERIAL NUMBER block, enter the crane's serial number.

(b) In the TYPE/CAP block, enter the type of crane and its capacity.

(c) In the UNIT block, enter the unit that is accountable for the equipment.

(2) Section 2 Inspection. In each block, the operator shall mark the correct description that reflects the crane inspection results as indicated in the legend of marking (S = satisfactory, N/A = not applicable, or U = unsatisfactory). The inspection will be complete prior to the crane being employed.

(3) Section 3 Special Instructions. The operator will immediately notify the supervisor when any unsatisfactory condition of items indicated with an asterisk (*) listed on NAVMC 11262/2 in the inspection section.

(4) Section 4 Remarks. In the REMARKS block, enter comments related to the crane inspection as well as any issues or discrepancies not covered within the inspection section.

(5) Section 5 Signature. The crane operator will sign the OPERATOR block and input the DATE the crane inspection was conducted. The signature and date verifies that the Crane Daily Inspection was properly conducted.

b. Filing and Disposition Instructions

(1) The operator returns the Crane Daily Inspection Checklist to the dispatcher upon completion of the commitment.

(2) The dispatcher will review the Crane Daily Inspection Checklist and take corrective action on any unsatisfactory comments listed in the

Remarks section.

(a) When corrective action is required, the owning unit will request corrective maintenance from the supporting maintenance activity. After the maintenance activity has transferred all corrective action to a Service Request (SR), the Crane Daily Inspection Checklist will be retained with the trip ticket/ordnance vehicle logbook and disposed of when repairs are completed or with trip ticket (per applicable reference).

(b) When no corrective action is required, the Crane Daily Inspection Checklist will be retained with the trip ticket and disposed of when the trip ticket is destroyed.

2. Annual Condition Inspection. In addition to those inspections required by load lifting equipment TMs or commercial manuals, the inspections in Chapter 3 of this order (as applicable) will be performed. Whenever possible, the equipment TMs/IETMs will cover all areas stated below and required test equipment. Navy and Marine Corps Form 11262/3 will be utilized to document the Annual Condition Inspection.

a. Condition Inspection requirements

(1) Inspect all mechanical controls for proper adjustments and inspect the entire control mechanism for excessive wear of components and contamination by leaking lubricants or foreign matter.

(2) Inspect hydraulic system seals, hoses, lines, fittings, pumps, and valves, for deterioration, leaks, and wear.

(3) Inspect the mast and lift carriage assemblies including forks and chains, for cracks, broken welds, distortion, improper fit, and excessive wear.

(4) Inspect the brake and steering systems for excessively worn or defective moving parts to include seat switches, parking brakes, and brake interlock switches.

(5) Inspect the electrical and fuel system for signs of malfunction, excessive deterioration, dirt or moisture accumulation, and compliance with applicable safety regulations.

(6) Inspect the protective motor control circuit devices, battery cable connectors, battery compartment insulation, thermal protectors, compartment covers, filters, and emergency switches.

(a) Ensure all electrical cables are appropriately mounted and protected to prevent damage by abrasion, cutting, or catching on stationary objects.

(b) Ensure batteries are securely fastened in place to prevent spillage of electrolyte onto electrical cables.

(c) Ensure battery compartments provide ample ventilation and are properly guarded to prevent contact of foreign objects with cell terminals.

(d) Ensure equipment is clean and free of excessive oil and grease accumulations, particularly within the confines of the motors and

electrical contacts.

(7) When deficiencies of load lifting components (ref l and encl 3) are identified and corrective action is required, the owning unit will request corrective maintenance from the supporting maintenance activity. Repairs will be completed prior to load testing.

(8) During extended combat operations where load testing is not feasible, ACIs are still required for post maintenance and annually until such a time that load testing can again be accomplished.

b. Hook Inspection

(1) General Inspection. Hooks shall be inspected annually for wear specifically swivels, pins, and the saddle for excessive wear, cracks or gouges, and the proper operation and condition of safety latches, where installed. Cracks and gouges parallel to the contour of the hook shall be removed by surface abrasion and shall result in a smooth surface retaining the profile of the hook. In cases where cracks and gouges cannot be removed by surface abrasion, the hook shall be discarded and replaced. In cases where cracks and gouges are transverse to the contour of the hook, the hook shall be evaluated for retention or disposal. Defects in the unstressed portion of the hook do not affect strength. No attempt shall be made to correct hook deficiencies by use of heat or welding. Where normal wear or removal of cracks or gouges results in a reduction in the original sectional dimension of 10 percent or more, the hook shall be discarded and replaced. If the hook is visually bent or twisted, it shall be discarded and replaced. No attempt shall be made to straighten bent or twisted hooks. Hooks will not be painted; if they are painted, the paint must be removed in a way which does not damage the hook. A clear coat rust inhibitor may be applied on the hook.

(2) Hook Throat Spread. Hooks shall be measured for hook throat spread upon receipt. A throat dimension base measurement shall be established by measuring the distance between these tram points [See figure 3-1]. The base dimension shall be measured using a dial caliper and will be entered manually to the item instance notes section as supporting maintenance documents in install base of GCSS-MC for the life of the hook. If no records of base measurement are present in GCSS-MC and cannot be established from causative research, the owning unit shall replace the hook prior to use of equipment. The hook throat spread will be measured quarterly to ensure it is within tolerance. When nondestructive testing (encl 2, para b.1) is conducted, the hook throat dimension measurement will also be entered in GCSS-MC. Hooks with an increase in throat opening by more than 5 percent from the base measurement shall be discarded.

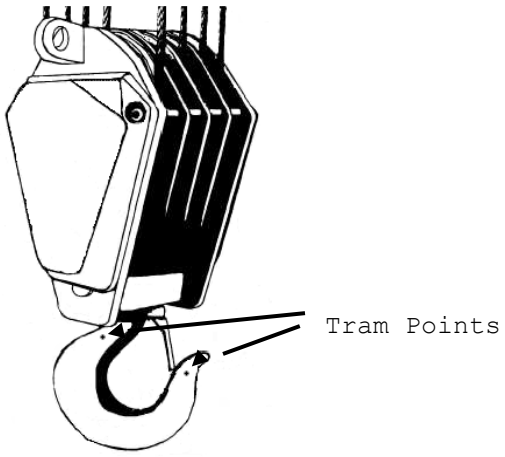

Figure 3-1: Tram Points

(3) Hook Block Inspection. The hook, retaining nut, and bearings shall be thoroughly inspected annually. The hook and retaining nut shall be visually examined for thread wear and corrosion damage. The block bearing plate shall be visually inspected for cracks, wear, or other damage. Bearings shall be inspected for unusual wear and free rotation. All components shall be lubricated in accordance with applicable technical manual/lubrication order.

3. Inspection of Wire Rope, Fastenings, and Terminal Hardware

a. General Procedures. Inspect for crushing, kinks, corrosion, or other damage, broken wires, and proper lubrication. Check the wire rope sockets, swage fittings, eye swivels, trunnions, stays, pendants, and securing hardware for wear, cracks, corrosion, and other damage. The drum end fittings need only be disconnected and/or disassembled when visible evidence of deterioration deems it necessary. Depending on the manufacturer and type of wire rope, it may be necessary to remove the wire rope dressing from those areas exposed to maximum wear, exposure, and abuse. Figure 3-2 gives a basic nomenclature of wire rope which can be used as a visual guide during inspection.

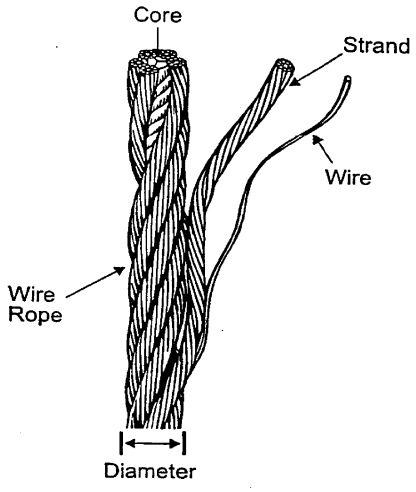

Figure 3-2: Nomenclature of Wire Rope

b. Wire Rope Rejection Criteria. Remove damaged portions (or replace entire length, if necessary) if any of the following are found:

(1) Kinked, Birdcages, Doglegged, or Crushed Sections. Kinked, birdcages, doglegged, or crushed rope in straight runs where the core is missing or protrudes through or between strands, or where the rope does not fit properly in sheave or drum grooves. (This does not apply to runs around eyes, thimbles, or shackles.)

(2) Wear. Wear exceeding one-third the original diameter of outside individual wires.

(3) Broken Wires

(a) Running Ropes. Six randomly distributed broken wires in one lay or three broken wires in one strand in one lay. For rotation resistant wire rope, two in a length equal to six times the rope diameter or four in a length equal to 30 times the rope diameter. One wire break where the wire wraps into the underside of a strand (i.e., a "valley break"). For end connections, two broken wires within one lay length of the end connection. Figure 3-3 is a visual of one lay of the wire rope. As the strand of rope starts on the top, rotating around the circumference of the rope, and again meeting the top of the rope, this is considered “one lay” of the rope.

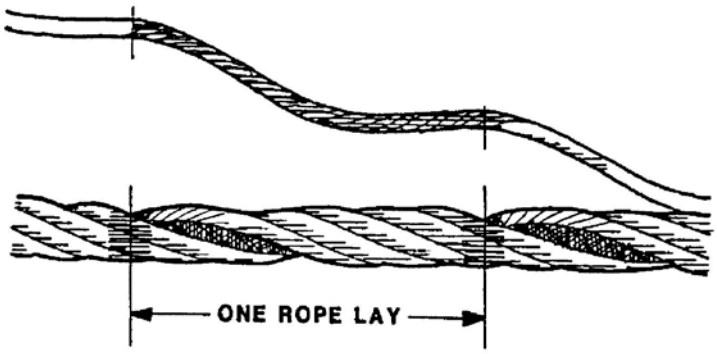

Figure 3-3: Rope Lay Diagram

(b) Standing, Guy, and Boom Pendant Ropes. Three broken wires in one lay length in sections beyond end connection or two broken wires within one lay length of the end connection.

(4) Loss in Diameter. Reduction of more than 5 percent from nominal diameter: (See Fig. 3-4)

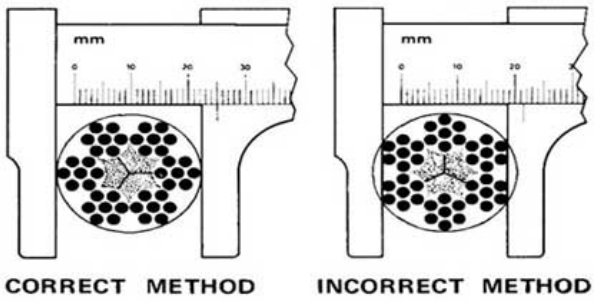

Figure 3-4.--Proper Method to Measure Nominal Wire Rope Diameter

(5) High Strand. Deformity that pushes a strand out of its original position and causes the strand to protrude more than 10 percent higher than nominal diameter of the wire rope.

(6) Corrosion. Corrosion such that significant pitting occurs on the surfaces of outside wires. Minor surface roughness on outside wires is acceptable provided no significant pitting occurs and the rope is not corroded internally. Significant pitting is defined as pitting that cannot be removed by abrasive removal of less than 1/3 of the original diameter of individual outside wires.

(7) Heat Damage. Evidence of heat damage such as metallic discoloration, fusing of wires, or loss of internal lubrication, caused by exposure to heat.

(8) Accumulation of Defects. An accumulation of defects that in the judgment of the inspector creates an unsafe condition.

(9) Splices. Wire rope shall not contain splices.
Rated Capacity. The rated capacity of the replacement wire rope for all cranes shall be per the manufacturers' stated requirements.

4. Hoists, Vertical Lifting Winches and Structural Metal Components

a. Operation Check. The operator shall perform an operation check as prescribed in the respective equipment TM. In cases where an operation checklist is not included in the TM, the following inspection shall be conducted:

(1) Inspect all control mechanisms for maladjustment which could interfere with proper operation.

(2) Inspect all control mechanisms for excessive wear of components and contamination by lubricants or other foreign matter.

(3) Inspect all safety and locking devices for malfunction.

b. Condition Inspection. During each annual certification, inspect for the following, as applicable:

5. General Information

a. Inspect for evidence of mishandling and/or damage.

b. Inspect for excessive wear on brake and clutch system linings, pawls, and ratchets.

c. Inspect for rope reeving for nonconformance with manufacturer's specifications.

d. Frames. Check for bends, distorted sections, broken welds, excessive corrosion, and loose bolts or rivets.

6. Inspection of Forks. Forks will be inspected annually (see Figure 3-5) utilizing NAVMC 11262/4 Fork Inspection Record (FIR). Any forks with measurements outside the tolerances listed below will be removed from service. No attempt shall be made to straighten bent or twisted forks.

a. Height of tips. Deviation between forks greater than 3 percent of the fork length.

b. Angle of shank. Bends greater than 3 degrees from 90 degrees.

c. Straightness. The straightness of the upper face of the blade and the front face of the shank shall be checked for deviation more than 0.5 percent (0.005). This is accomplished by taking the fork blade and/or shank length multiplied by .005 to find the maximum allowable deviation (example 72" (TRAM fork blade length) x .005= .36" (maximum allowable deviation) with a measurement above .36", the fork tine will be replaced.

d. Wear. 10 percent wear of original thickness on any surface.

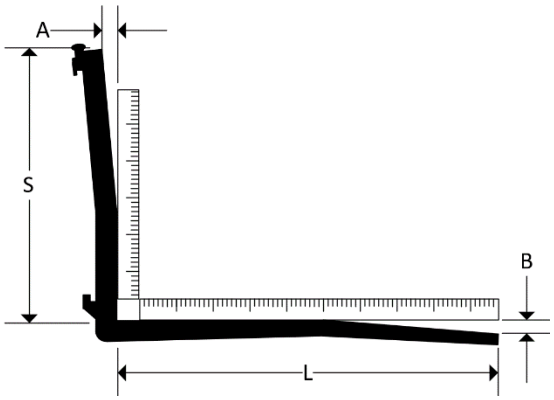

Figure 3-5: Fork Measurement Diagram.

Example: Allowable "B" = (.005) x (L)
B = .005 x 72" = .36"

7. Condition Inspection Record (CIR). The CIR (NAVMC 11262/3) provides a record of the results of the Annual Condition Inspection (ACI). The commodity manager of load lifting equipment will ensure that ACIs are conducted per this Order. The commodity manager will take corrective action on all amplifying comments listed on the CIR.

a. Preparation Instructions

(1) Section 1: General Information

(a) In the USMC SERIAL NUMBER block, enter the equipment's serial number.

(b) In the TYPE/CAPACITY block, enter type of equipment and its maximum capacity.

(c) In the Purpose of inspection block, enter Annual Condition Inspection (ACI).

(2) Section 2: Inspection. In each item block, mark the correct description that reflects the equipment inspection results (S = Satisfactory, N/A = for not applicable, or U for Unsatisfactory). The inspection will be conducted at a minimum of annually (12 months from the last inspection date).

(3) Section 3: Remarks. In the REMARKS block, enter comments related to the equipment inspection as well as any issues or discrepancies not covered within the inspection (i.e. hook throat spread, load test date, fork attachment(s) serial number, fork inspection results, etc.).

(4) Section 4: Certification

(a) Load Test Inspector. An appointed test inspector will print/sign and fill in the date that the inspection was completed (regardless if the results of the inspection was pass or fail). This certifies that the inspection was conducted in accordance with the applicable orders and technical manuals.

(b) Test Director. The appointed test director will print/sign and date once the equipment has passed the condition inspection. This certifies that the inspection was conducted and passed in accordance with the applicable orders and technical manuals.

(c) Certifying Official. The certifying official will print/sign and date once the condition inspection record has been completed and signed by the Test Director. This certifies that the equipment has completed and passed the annual inspection, in accordance with this order and technical manuals.

b. Filing and Disposition Instructions

(1) The commodity manager will review the CIR and take corrective action on any unsatisfactory comments listed in the Remarks section.

(2) When corrective action is required, send the equipment to the supporting maintenance activity.

(3) When corrective action is completed, the commodity manager will ensure that the equipment is inspected using another CIR.

(4) When the equipment passes the ACI, it will be entered manually in the item instance notes section and inspection forms will be attached as supporting maintenance documents in the installed base.

8. Recording Requirements. NAVMC 11262/3 (Condition Inspection Record) shall be used for recording the ACI of load lifting equipment. The CIR of load lifting equipment will be entered manually in the item instance notes section or attached as supporting maintenance documents in installed base of GCSS-MC. It will be retained until successful completion of the next ACI.

Procedures for Inspection, Testing and Certification of Tactical Ground Load Lifting Equipment.

1. Overload tests are prescribed tests and extreme caution should be observed at all times during their performance. When testing hydraulic boom cranes, at no time during the structural test, will an outrigger rise off the deck. During the stability test, an outrigger opposite a load positioned at a swing angle of 45 degrees, 135 degrees, 225 degrees, and 315 degrees (measured from the front of the vehicle as 0 degrees) may rise off the ground, and is not tipping. At no time shall two outriggers rise off the ground. If this condition occurs, testing should immediately be terminated by lowering the test load to the ground.

2. Prior to performing a load test, an Annual Condition Inspection will be performed utilizing NAVMC 11262/3 per the instructions contained in Chapter 3, paragraph 2 of this order. This record will be entered manually in the item instance notes section or attached as supporting maintenance documents in installed base of GCSS-MC.

3. While performing a load test, the test load (a verified weight) should be raised only to a height sufficient to perform the test or its equivalent (deadman), with shackles shall not exceed 110 percent of the rated load at any selected working radius.

4. During all inspection and testing procedures, ensure that all non-essential personnel are positioned outside the working radius of the equipment.

5. During combat conditions, under the supervision of the Certifying Official, items of Military equipment with a known weight or a dynamometer may be used as load testing weights. Reference the technical manuals for equipment being lifted, to ensure proper lifting points are being utilized.

6. The sequence of events for load testing are, conduct the annual condition inspection, nondestructive test (if required), no load test, structural test and stability test.

7. Cranes

a. No-Load Tests. Level the equipment as required by the manufacturer's load chart. For truck cranes, extend outriggers and raise the crane carrier off the ground to completely unload tires or wheels. Rotate the boom 90 degrees from the longitudinal axis of the crane carrier and position the boom at the minimum working radius.

(1) Hoist

(a) Raise and lower the hook through the full working distance of hook travel.

(b) Run the hoist block into the limit switch(es) (where installed) at slow speed.

(c) Run the hoist block beyond the limit switch(es)(where installed) by using the bypass switch.

(2) Boom

(a) Raise and lower the boom through the full working range.

(b) Raise the boom into the upper limit switch (where installed).

(c) Raise the boom past the boom upper limit switch, using the bypass switch.

(d) Test the lower limit switch (where installed) by the same procedure prescribed for testing the upper limit switch.

(e) Extend and retract the telescoping boom sections to the full distance of travel.

(f) Check the radius indicator by measuring the radius at the minimum and maximum boom angle.

(g) Other motions, including swing, shall be operated through one cycle (one full revolution of major components).

b. Non Destructive Test (NDT)

(1) Non Destructive Tests will be performed on the hook of tactical load lifting equipment every 5 years. At a minimum, the Dye Penetrant test will be conducted by trained military or civilian personnel. Every hook will have a current NDT recorded within GCSS-MC. In order to archive the non-destructive test, a Service Request (SR) will be created and the results of the NDT will be recorded within the SR. If the hook fails a test, it shall be discarded and replaced. The minimum required comments to be recorded in the SR will include:

(a) Individual who performed test

(b) Date the test was performed

(c) Serial number of the hook (if applicable)

(d) Test method

(e) Test result (pass/fail)

(f) Corrective actions (if any)

(g) The date of next required test

(h) Hook throat spread measurement

(2) The results of the NDT will be recorded on the Service Request (as task notes). All required remarks that do not have a specific data entry point in GCSS-MC or are not authorized by clarification in reference (i) will be entered manually in the item instance notes section or attached as supporting maintenance documents in install base.

(3) Commanding Officers are not limited to the IMA as the only resource to conduct NDTs. Commanding Officers can also choose to appoint personnel within their command to conduct NDT that have received training on

how to perform the dye penetrant test or a Civilian NDT facility can also be used to satisfy the testing requirement. The NDT methods/tests below can also be used to satisfy the requirement.

(a) Penetrant Testing.

(b) Magnetic Particle Testing.

(c) Electromagnetic/Eddy Current Testing.

(d) Radiography.

(e) Ultrasonic Testing.

(f) Acoustic Emission Testing.

c. Load Test. The load test consists of two parts: a structural load test and a stability test. The delineation between the sections of the load chart, structural and stability, will be identified by the manufacturer. The tests will be performed in accordance with the Technical Manual or the following sequence:

(1) Structural Test

(a) Select a weight capacity from the structural portion of the load chart. During the test, exert 110 percent of the selected weight.

(b) Position the crane at the test site to ensure the test will be conducted 90 degrees to the right or left of the lower carrier frame.

(c) On a suitable surface with outrigger pads or dunnage, extend outriggers to full horizontal extension and vertical cylinders lowered to level the turntable bearing. Check level with carpenter's level. Place level in direction of boom and at 90 degrees to direction of boom to establish a level turntable. Tires must be off the ground for the test.

(d) Position the boom at the prescribed lift angle (verified with a protractor) and extension; verify the radius with a tape measure.

(e) Measure the hook throat spread opening and record the "before" test measurement to NAVMC 11262/1. Attach the hook to the verified weights or deadman using a load lifting measuring device, ensuring the wire rope connecting the hook to the boom is in a vertical configuration (check wire rope with carpenter's level and/or a digital protractor).

(f) Slowly raise the load off the ground (if required), just high enough to clear the surface, (2 to 4 inches), to achieve 110 percent capacity of the selected weight from the load chart. This is validated by observing the Load Movement Indicator.

(g) Once the desired capacity (110 percent) is achieved, suspend (hold) the load for ten minutes. Observe for any lowering that may occur, which may indicate a malfunction of a load sustaining component. If this happens, the equipment has failed the test.

(h) After ten minutes, slowly lower load until wire rope is barely slack. Inspect the hook as described in paragraph 4 of chapter 3.

Once the hook is removed from lifting hardware measure and record the hook throat spread opening "after" test measurement to NAVMC 11262/1. This completes the structural test.

(2) Stability Test

(a) With the use of a Certification of Load Test Record (NAVMC 11262/1) and the equipment load chart, select a weight capacity from the stability portion of the load chart and record it on the NAVMC. Use this weight capacity to determine parts of line required, the boom's length, angle, and radius, to set the crane to prior to performing the test. Chosen test load must be able to clear outriggers during full 360 degrees rotation. Ensure all information has been written on the NAVMC prior to performing the test. During the test, exert no more than 100 percent of the selected weight.

(b) Position the crane at the test site to ensure the test can be conducted through the full range of motion (i.e., 360 degree for mobile cranes). Validate conditions of the test site and crane. Ensure the ground that the test is being performed on can support ground bearing pressure of the outriggers (found in the equipment's technical manual), validate all information recorded on the NAVMC 11262/1 used to configure the crane for the test.

(c) On a suitable surface with outrigger pads or dunnage, extend outriggers to full horizontal extension and lower the vertical cylinders to level the turntable bearing. Check level with carpenter's level. Place level in direction of boom and at 90 degrees to direction of boom to establish a level turntable. Tires must be off the ground for test. Position the hook block in a manner to obtain the appropriate operating radius for boom length. Confirm by actual measurement the operating radius to center of rotation. Adjustment may be necessary to obtain the specified radius.

(d) Mark the operating radius with a line of sufficient length to ensure its visibility when the load is suspended over it. The line should be on an arc about the axis of rotation for the tested radius.

(e) Position the test load inside the selected operating radius. The rated load is equal to the test weight, the hook block weight, and the sling weight.

(f) Position the hook block over the load in order to attach all lifting hardware. Slowly raise the rated load off the ground and boom down to achieve the desired boom angle, and 100 percent capacity of the selected weight from the load chart identified in step (a). This is validated by observing the Load Movement Indicator. The rated load shall remain suspended high enough from the ground to clear the surface, (2 to 4 inches) while performing the 360-degree rotation.

(g) Swing the crane through the 360-degree rotation.

(h) Lower load, this completes the stability test.

(i) Load tests, when required, will be recorded and certified as shown in the form contained within this order. Load test certification forms will be entered manually in the item instance notes section or attached as

supporting maintenance documents in install base.

8. Certification of Load Test Record. Navy and Marine Corps Form 11262/1 provides a record of the results of the Load Test. The commodity manager of load lifting equipment will ensure that the load test is conducted per this Order.

a. Preparation Instructions

(1) Section 1: General Information

(a) In the USMC SERIAL NUMBER block, enter the equipment's serial number.

(b) In the TYPE block, enter type of equipment being load tested.

(c) In the Rated Capacity block, enter the equipment’s rated capacity for pounds and feet boom.

(d) In the Boom Length block, enter the equipment’s boom length.

(e) In the Test Site block, enter the test site location.

(2) Section 2: Load Test

(a) In the TEST LOAD PERCENT block, enter the load test percentages used for the structure (110%) and stability (100%) tests.

(b) In the Structure Test pounds and feet block, enter the weight used and the feet of boom used during the test.

(c) In the stability Test pounds and feet block, enter the weight used and feet of boom used during the test.

(d) In the Hook Throat Spread blocks, enter the hook opening measurements from before and after the tests.

(3) Section 3: Certifications. Enter the paragraph number listed in this MCO and the equipment technical manual (if applicable) that applies to the equipment being tested.

(4) Section 4: Condition. Annotate if the Condition Inspection record was provided.

(5) Section 5 Remarks. In the REMARKS block, enter the comments related to the Load Test that is not covered within Sections 2 and 3.

(6) Section 6: Signature

(a) Load Test Inspector. This will be signed and dated by the individual conducting the load test, certifying that the load test was completed, regardless if the results of the load test was pass or fail. This certifies that the load test was conducted in accordance with the applicable orders and technical manuals.

(b) Test Director. This will be signed and dated by the Test Director once the equipment has passed the load test. This certifies that the

load test was conducted and passed in accordance with the applicable orders and technical manuals.

(c) Certifying Official. This will be signed and dated by the Certifying Official once the load test has been completed and signed by the Test Director. This certifies that the equipment has completed and passed the load test in accordance with the applicable orders and technical manuals and is safe and reliable for employment.

Examples of Load Sustaining Components, Load Controlling Parts, and Operational Safety Devices (Per Reference K, NAVFAC P-307)

HOOK (Nondestructive test)
HOOK NUT
HOOK BEARING
LOAD BLOCK
SHEAVES
SHEAVE PINS
BOOM HEEL PINS
BOOM PIN HOUSINGS
BOOM PIN HOUSING CONNECTIONS WIRE ROPE
WIRE ROPE FITTINGS
WIRE ROPE DRUMS
DRUM SHAFTS
DRUM SHAFT BEARING HOUSINGS DRUM SHAFT HOUSING NUTS AND BOLTS
HOIST DRUM BULL GEAR HOIST DRUM PINION GEAR
GEAR TO SHAFT CONNECTION
GEAR TO DRUM CONNECTION
PINION SHAFT
PINION SHAFT BEARING HOUSINGS
PINION SHAFT BEARING HOUSING BOLTS AND NUTS
AUTOMATIC HOIST BRAKES
PINION SHAFT TO HOIST GEARBOX COUPLING
OUTPUT SHAFT OF HOIST GEARBOX
HOIST GEARBOX GEARS HOIST GEARBOX GEAR SHAFTS
HOIST GEARBOX INPUT SHAFT GEARBOX INPUT SHAFT TO MOTOR COUPLING
HOIST AUTOMATIC BRAKE
BRAKEWHEELS
AS A COMPONENT, ENTIRE HOIST
REDUCER
HOIST MOTOR SHAFT
ALL HOIST DRIVE TRAIN
COMPONENTS FOUNDATIONS FOR HOIST COMPONENTS
FOUNDATION BOLTS AND NUTS
TROLLEY WHEELS AND AXLES
TROLLEY FRAME MAIN MEMBERS
BRIDGE BEAM AND END CONNECTIONS HOOK TRUNNION
EQUALIZER BARS AND PINS
SHEAVE BEARINGS
DRUM AND PINION SHAFT BEARINGS
HOIST REDUCER BEARINGS AND BEARING RETAINERS
HOIST REDUCER MECHANICAL LOAD BRAKES
HOIST DRIVE KEYS
LOAD RESTRAINING SHEAR BLOCKS
LOWER ROLLER PATH
ROLLER SPIDERS
TRUCK SYSTEM SADDLES
LUFFING HOIST PAWL, RATCHET, AND FOUNDATION
UPPER ROLLER PATH ROLLER PATH ROLLERS/WHEELS
LOAD CARRYING AXLES OF ROLLERS
ROLLER PATH SUPPORTING MEMBERS
(UPPER AND LOWER)GUDGEON AND EQUALIZER PINS
TRUCK AXLES
TRUCK WHEELS
ALL MEMBERS OF TUBULAR BOOMS
MAIN CHORD MEMBERS OF STRUCTURAL SHAPE BOOMS

SHEAVE NEST MEMBERS
LUFFING BRIDLE
LUFFING BRIDLE TO BOOM CONNECTIONS
"A" FRAME LEGS AND CONNECTIONS
GANTRY LEG MAIN MEMBERS
EQUALIZER FRAME MAIN MEMBERS
TRUCK FRAME MAIN MEMBERS INSULATED LINK

TAMCN	NOMENCLATURE	CRANE DAILY INSPECTION CHECK LIST	ANNUAL CONDITION INSPECTION	NONDESTRUCTIVE TEST	HOOK THROAT SPREAD	LOAD TEST CERTIFICATION	FORK INSPECTION REPORT
B00137B	COMPACT TRACK LOADER (CTL)		X				X
B00387B	ALL TERRAIN CRANE (ATC) MAC-50	X	X	X	X	X	
B00407B	277C MULTI TERRAIN LOADER		X				X
B00637B	TRACTOR, RUBBER TIRE, ARTICULATED STEERING		X				
B00767B	WORK TOOL SET 277C MTL MULTI-TERRAIN LOADER						X
B03927B	CONTAINER HANDLER, RT, KALMAR		X				X
B06477B	FORKLIFT ATTACHMENT						X
B25617B	EXTENDABLE BOOM FORKLIFT - MODERNIZED (EBFL-M)		X				X
B25667B	FORKLIFT, RT, LT CAPABILITY (LRTF)		X				X
C79082B	LUBRICATING UNIT POWER OPERATED	X	X	X	X	X	
C79307B	SHOP EQUIP, GENERAL PURPOSE, COMMON #30	X	X	X	X	X	
D00157K	AMK 36 MTVR WRECKER	X	X	X	X	X	
D00547K	AMKR 15 LVSR WRECKER	X	X	X	X	X	
D10637K	AMK 37 MTVR HIMARS RESUPPLY	X	X	X	X	X	
D12147K	MKR 15 LVSR WRECKER	X	X	X	X	X	
E08567B	ASSAULT AMPHIBIOUS VEHICLE, RECOVERY	X	X	X	X	X	
E09507B	LAV, MAINT/RECOVERY	X	X	X	X	X	

Appendix A List of certification requirements by TAMCN

Appendix B: Glossary

Terms and Definitions

ALTERATION. Any change in the OEM's WHE design configuration. This includes: Replacement of parts and components with parts or components not identical with original (i.e., changes in material, dimensions, or design configuration), except as noted in section 6 (reference l NAVFAC P-307). Addition of parts or components not previously a part of the equipment. Removal of components that were previously a part of the equipment. Rearrangement of parts or components. Alteration of existing parts and materials.

ANCILLARY LIFTING DEVICES. Buckets, magnets, grabs and other supplemental devices, used for bulk lifting loose materials, draglines, pile driving, etc.

ANGLE OF CHOKE. The angle formed in a sling body as it passes through the choking eye or fittings.

BEARING DAMAGE. As related to synthetic slings, damage resulting from the pressure exerted from a load surface onto the sling by a small load radius or high sling pressure.

BELOW-THE-HOOK-LIFTING-DEVICE. A device suspended from a crane’s hook used for special lifting applications. The device can be a structural, mechanical, magnetic, or vacuum type lifter. For additional descriptions refer to ASME B30.20.

BINDING CONDITION (Constrained Load). The condition that exists when a load being lifted or lowered is not free to move due to an external force such as friction, suction, the object being frozen or rusted to another object, or paint. Additionally, potential for unremoved restraints (e.g., fasteners or welds) due to complexity, number, or location/accessibility.

BOOM. In crane and derrick usage, an inclined spar, strut, or other long member supporting the hoisting tackle.

BOOM DEFLECTION. The amount that a boom deflects downward when lifting a load. This increases the radius of the lifted load. It is more prevalent in mobile cranes than other types of cranes, and more prevalent at longer boom lengths. Also called boom break over.

BOOM HINGE. A pin assembly about which the boom turns when luffed.

BRAIDED WIRE ROPE SLING. A type of wire rope sling made from plaiting (braiding) component wire ropes together to form a sling.

BRAKE. A device used for retarding or stopping motion by friction or power means (see “HOLDING BRAKE” and “STOPPING BRAKE”).

BRIDLE SLING. A sling composed of multiple legs with the top ends gathered in a fitting that attaches to a hook, shackle, or other load handling device.

BUMPER. A device fastened to a traveling crane or to an end stop to cushion the impact of striking another crane or a runway stop.

CABLE-LAID WIRE ROPE SLING. A type of wire rope sling consisting of several individual wire ropes laid as strands around a wire rope core.

CAGE. A partially open circular ring that retains, spaces, and aligns the balls or rollers of an anti-friction bearing, or the rollers or wheels of a roller path.

CAPACITY. The maximum rated load that a crane is designed to handle. Designated limit of operating characteristics based on specific conditions.

CARGO. Any materials or equipment intended for transport to other ships or shore activities.

CERTIFYING OFFICIAL. The individual(s), designated by the commanding officer, responsible for ensuring the activity's cranes are inspected and tested in accordance with the requirements herein, and that the cranes are safe to use for their intended purposes.

CHAFING BLOCK. Wood or brass wear plate used to prevent excessive wear or damage to cable.

CHAINFALL. A portable hand-chain-operated chain hoist used for lifting, pulling or tensioning applications.

CHAIN SLING. A sling fabricated from Grade 80 or Grade 100 alloy steel chain and attachments (i.e., links, rings, upper and lower hooks).

CHOKER HITCH. A method of rigging a sling in which one end of the sling is passed around the load, then through itself, an eye opening, an end fitting, or other device, and attached to the lifting device.

CLEAT. A mooring fitting having two horizontal arms to which mooring lines are secured.

CONTAINER SPREADER. A fixed or telescoping frame, typically attached to the head block of a container crane, which is used for lifting shipping containers.

COUNTERWEIGHT. Weight(s), usually attached to the rotating part of a crane, to provide stability to the rotating superstructure.

COUPLING LINK. A forged, welded, or mechanically closed link used to join alloy steel chain to a master link or to a master coupling link.

CRANE BASE. The portion of the supporting structure immediately below the rotating portion of a crane. On land cranes, it is a portion of the portal, underbody, carrier, or car body. On floating cranes, it is that portion of the framing extending down to the deck of the barge or pontoon.

CRANE CLEARANCE. The distance from any part of the crane to the point of nearest obstruction.

CRANE OPERATION. The use of a crane, loaded or unloaded when an operating envelope has been established (or is being established), includes setup/breakdown of mobile cranes and relocation of crane or hook (e.g., travel or rotate of portal crane, bridging or trolleying a bridge crane, or rotation of a jib crane).

CRANE STRUCTURE. A jib crane, bridge crane, monorail, or davit that does not have a permanently mounted hoist.

CREEP SPEED. A very slow, constant, continuous, fixed rate of motion of the hoist, trolley, or bridge. Usually established at 1 to 10 percent of the normal full load speed.

CUTTING. As related to synthetic slings, damage caused by a corner or an edge (load edge is 90 degrees or less). With moderate pressure a sling may be cut (e.g., machined surface, steel box beam).

D/d RATIO. The ratio of the diameter of the pin, hook, sheave, or other object a running rope, sling, or lashing is bent around, divided by the diameter of the running rope, sling, or lashing (component rope diameter for braided component diameter for braided or multi-part sling). When slings and lashing are bent around a corner, it is the ratio of the curvature taken by the sling or lashing (D) and the diameter or the rope or chain (d).

DEADMAN SWITCH. A control interlock activated by the operator that prevents operation of the control unless the interlock is activated. May be a button, lever, or other type of switch integrated with or independent of the control lever. When the deadman switch is released the motion stops.

DEAD END. The fixed end of a rope or cable on a crane, derrick, or hoist.

DRAFT. Depth of vessel hull below the water line.

DRIFT. Motion after the power is cut off. Also means the change of hook radius due to load.

DRUM. The cylindrical member around which the hoisting rope is wound for lifting or lowering the load.

DYNAMOMETER. Typically, a calibrated scale between the hook of a crane and a load used to measure load weight.

ENDLESS WIRE ROPE SLING. A wire rope sling made endless from one continuous length of wire rope with the ends joined by one or more swaged fittings.

EYE PIN. The pin used to attach an eye hook to a crane’s hook block, e.g., to an overhaul ball assembly on a whip hoist.

FALL ZONE. The area in which it is reasonably foreseeable that partially or completely suspended materials could fall in the event of an accident.

FITTINGS. Any load bearing hardware used to fabricate a sling such as a swage sleeve or coupling link, or an end attachment such as a hook or master link

FLEET ANGLE. The angle formed by the lead of a rope at the extreme end of a drum with a line drawn perpendicular to the axis of the drum through the center of the nearest fixed sheave (expressed in degrees).

FLEETING SHEAVE. A sheave that moves along its supporting shaft or pin.

GROUND FAULT. An accidental conducting connection between the electrical circuit or equipment and the earth or some conducting body that serves in place of the earth.

HOIST. A machinery unit that is used for lifting and lowering a load.

HOOK LATCH. A device used to bridge the throat opening of a hook.

HYDRAULIC BRAKE. A brake that provides retarding or stopping motion by hydraulic means.

KINGPIN (CENTERPIN). A vertical steel pin or hollow tube located at the center of rotation of a crane for the purpose of aiding in preventing overturning of the superstructure and also for maintaining the center of rotation in position. (See "CENTER STEADIMENT.")

LASHING. Wire rope, synthetic rope, or synthetic webbing (without permanent end fittings) that is used for wrapping around and securing an object to provide a point or points from which to lift the object, or attaching to an approved structure to serve as a point from which to rig.

LAY LENGTH OF WIRE ROPE. The distance along a wire rope in which a strand makes one complete turn around the rope’s center.

LIFT. Maximum safe vertical distance through which the hook, magnet, or bucket can move.

LIFT CYCLE. Single lifting and lowering motion (with or without load).

LIMIT SWITCH. A device designed to cut off power automatically at or near the limit of travel for the crane motion or a generic device designed to provide feedback to the control system with respect to the relative state or position of various functions of a crane drive or other system.

LIST. The angle of inclination about the longitudinal axis of a barge or pontoon.

LIVE BOOM. A boom that is lowered by gravity solely under the control of the boom hoist drum brake.

LOAD BEARING PARTS. Those parts of WHE that support the load and upon failure could cause dropping, uncontrolled shifting, or uncontrolled movement of the load. Backup components to primary load bearing parts, such as secondary brakes, shall also be considered as load bearing parts. See appendix F (reference l NAVFAC P-307) for additional examples of load bearing parts.

LOAD BRAKE. A brake that provides retarding force without external control.

LOAD CELL. The load measuring device in a system intended to aid the operator or rigger by continuously monitoring the load and warning to an approach to an overload condition.

LOAD CONTROLLING PARTS. Those parts of WHE that position, restrain, or control the movement of the load (e.g., rotate and travel brakes, clutches), a malfunction of which could cause dropping, uncontrolled shifting, or uncontrolled movement of the load. Crane mounted diesel engines, generators, electrical power distribution systems, and electrical control circuits, associated with the movement of the load, shall be treated as load controlling parts except as noted. Backup components to primary load controlling parts, such as secondary brakes, shall also be considered as load controlling parts. See appendix F (reference l NAVFAC P-307) for additional examples of load controlling parts.

LOAD INDICATING DEVICE (LID). Generic term for a device (on a crane or portable) that monitors and displays the weight of the load but does not warn the operator or prevent movements of the crane.

LOAD MOMENT INDICATOR (LMI). A device, typically on a mobile crane, that automatically monitors and displays load, radius, boom configuration and capacity, warns the operator of an overload condition, and prevents movements of the crane that would result in an overload condition.

LOAD WARNING DEVICE. A device such as a rated capacity indicator, that may or may not be independent of a crane's control system, that will warn the operator of an impending overload to the crane or function but does not stop operation of the crane or function. The device may or may not be adjustable.

LUFFING. A radial in and out movement of the load by the raising or lowering of a crane or derrick boom.

MATERIALS HANDLING EQUIPMENT (MHE). This term includes all self-propelled and conveyor equipment normally used in storage and materials handling operations in and around warehouses, shipyards, industrial plants, airfields, magazines, depots, docks, terminals and on board ships. Included are warehouse tractors, forklift trucks, rough terrain forklift trucks, platform trucks, straddle carrying trucks, and automated material handling systems. Also included are driverless tractor systems, stock selector systems, storage/retrieval systems, stacker crane systems, pallet movement systems, and intra- depot transporter systems for warehouse applications. Excluded are construction and gantry/portal cranes, overhead electric traveling cranes, and non-portal shipboard conveyor systems. See OPNAVINST 4460.1, and NAVSUP P-538.

MULTI-PART SLING. A wire rope sling with more than one component rope in the body. The component ropes may be cable laid or braided.

OPERATOR'S CAB. The operator's compartment from which movements of the crane are controlled. May be specified as open, having only sides or a railing around the operator, or enclosed, complete with roof, windows, etc.

OUTRIGGER/STABILIZER. An extendable or fixed member attached to the mounting base, which rests on supports at the outer ends used to support the crane. May or may not be capable of supporting the entire weight of the crane and load.

OVERLOAD. Any load greater than the rated load.

PAWL. A gear locking device.

PENDANT. A wire rope, strand, or bar of specified length with fixed end connections typically used to support a boom or jib.

PERSONNEL PLATFORM. A platform used for lifting personnel with cranes. It is either suspended from the crane by wire rope or chain slings, or directly attached to the crane.

PROXIMITY ALARM. A device that provides a warning of proximity to a power line or other object.

RADIUS. The horizontal distance from a projection of the axis of rotation to the ground or water line, before loading, to the center of the hoist line(s) with load applied ("radius" and "reach" as used for cranes are synonymous).

RATING. Designated limit of operating characteristics based on specific conditions.

REEVING ARRANGEMENT. A plan showing the path that a rope takes in adapting itself to all sheaves and drums of a piece of equipment.

RIGGING OPERATION. The use of rigging gear and associated equipment, without a crane, when an operating envelope has been established or is being established (e.g., drifting of a load, horizontal pulling of a shaft, usage of a portable hoist).

ROTATE PLATFORM (TURNTABLE). That part of a rotating crane immediately above the roller path supporting the machinery, the machinery house, and cab.

RUNNING SHEAVE. A sheave that rotates as the hook or boom is raised or lowered.

SHACKLE. A U-shaped fitting with a pin across the throat used as connection between lengths of chain or to attach other fittings.

SLACK LINE. A condition on a hoisting rope when there is no tension load on the rope.

SLING. An assembly used for lifting when connected to a lifting mechanism at the sling’s upper end and when supporting a load at the sling’s lower end.

SPREADER. A beam or bar used for holding apart two or more lifting slings that suspend a load having two or more lifting attachments. A spreader may be suspended from a crane or hoist using one or more lifting attachments.

SWIVEL HOIST RING. A threaded fixture used as an attachment device for lifting loads, similar to a shouldered eye bolt, but capable of swiveling 180 degrees and rotating 360 degree with no reduction in capacity.

SYNTHETIC ROPE SLING. A rope sling manufactured from a synthetic fiber (e.g., nylon, polyester, Dyneema).

SYNTHETIC WEBBING SLING. A sling manufactured from nylon or polyester webbing.

TAGLINE. A fiber rope (not wire rope) attached to the load for the purpose of controlling, rotating, or preventing rotation of the load.

TEST LOAD. Any load or force, expressed in pounds, used for testing, the magnitude of which is known within acceptable tolerances.

TRAVEL. The horizontal motion of a crane or its parts (such as a trolley). Also, the movement of a mobile crane under its own power from one location to another on a jobsite or construction site with or without load.

TRUCK. The complete unit of frame, wheels, integral driving, and associated equipment that supports a traveling crane or traveling portion of a crane, such as a trolley.

TURNBUCKLE. A device normally attached in line with a sling(s) for making limited adjustments in length, by turning a threaded barrel attached to right hand and left hand threaded end connections.

TWO-BLOCK. Over-hoisting by direct hoisting or indirectly by lowering the boom or telescoping the boom so that the hook block and the upper sheave assembly or trolley/hoist frame come in contact, resulting in possible damage to the structure, parting of the hoist line, and dropping of the load.

WIRE ROPE SLING. A sling fabricated from wire rope, usually fabricated with an eye at each end.

Acronyms and Abbreviations

ACI- Annual Condition Inspection
ACV- Amphibious Combat Vehicle
ANSI- American National Standards Institute
ASME- The American Society of Mechanical Engineers
AAV- Amphibious Assault Vehicle
CFR- Code of Federal Regulations
CG- Commanding General
CIR- Condition Inspection Record
CO- Commanding Officer
DoD- Department of Defense
DC I&L- Deputy Commandant Installations and Logistics
FIR- Fork Inspection Record
GCSS-MC- Global Combat Support System- Marine Corps
IETM- Interactive Electronic Technical Manual
ITSDF- Industrial Truck Standards Development Foundation
MARFORRES- Marine Forces Reserve
MCAS- Marine Corps Air Station
MCB- Marine Corps Base
MCD- Marine Corps Detachment
MCLB- Marine Corps Logistics Base
MCO- Marine Corps Order
MOS- Military Occupational Specialties
NAVFAC- Naval Facilities
NAVMC- Navy and Marine Corps Form
NDT- Non Destructive Test
OIC- Officer In Charge
PII- Personally Identifiable Information
PWR- Preposition War Reserve
SECNAVINST- Secretary of the Navy Instruction
SECNAV- Secretary of the Navy
SR- Service Request
TI- Technical Instruction
TMs- Technical Manuals
UM- Users Manual
U.S.C.- United States Code
USMC- United States Marine Corps