

CHANGE RECORD

This page is provided for recording of future changes to this version of P-307.

Change No.	Date	Title or Brief Description	Entered By
1	3/31/2011	NDT Periodicity; Mobile Crane Test; Complex Lift Rules for Ordnance Handling; and OSHA Rules Update for Navy Cranes Used in Construction Changes.	Navy Crane Center
2	8/11/2011	Cranes Owned by Other Services and Operated at Navy Activities; New Crane Procurement and Overhaul; Other Policy Clarifications.	Navy Crane Center
3	6/20/2012	Complex Lift Rules for Ordnance Handling; Correction of Mistake in Table 5-1, Equipment History File.	Navy Crane Center

CHANGE 3 June 2012

CHANGE SYNOPSIS

This change synopsis is provided to assist the user in determining the changes to the previous version of NAVFAC P-307. Changes in the text are indicated by change bars in the left and right margins. Page number only changes are not identified by change bars but are noted in the change synopsis.

Table 5-1 Item (9) Corrected inadvertent deletion of this item in Change 2 publication on Navy Crane Center Web Site.

Paragraph 10.4.a Clarified complex lift requirements for cranes handling ordnance.

Paragraph 10.4.1.d Exempted category 3 cranes lifting ordnance from the complex crane lift requirement due to lifts above 80% of capacity.

Paragraph 10.4.1.2 Clarified supervisor briefing rules for complex lift requirements for cranes handling ordnance.

Paragraph 10.4.1.2.a Noted exemption in paragraph 10.4.1.d.

TABLE 5-1
(continued)

	Documentation	Minimum Retention Time
9	Crane Alterations	Life of crane
10	Deficiency Reports (i.e., load bearing or load controlling parts or operational safety devices)	Seven years
11	Purchase Contracts (If available)	Life of crane
12	Accident Reports	Life of Crane
13	Hook Tram Point Base Measurement	Life of hook
14	Operational Lifts Exceeding the Certified Capacity	Life of crane
15	Specification Data Sheets	Life of crane
16	Crane Acceptance Test (If available)	Life of crane
17	Mobile Crane Operating Procedures for Ancillary Equipment	Life of crane
17.1	Completed Procedures When Used	Seven years
18	Crane Roller Clearance Data Standard of Acceptance	Life of crane
19	Slewing bearing clearance readings	Life of bearing
20	Oil analysis/vibration analysis data	Life of component
20.1	(Alternate. Internal gear inspection report)	(Latest)
21	Material Inspection Report for Floating cranes (per OPNAVINST 4780.6)	Latest, including waivers of depot availability
22	Coupling alignment data per appendices C or D	Latest
23	Lubrication Records	One year
24	Hoist Rollback Data	Life of crane
25	Controlled Disassembly Reassembly Procedures	Life of crane
25.1	Completed Procedures When Used	Seven years
26	Hoist brake actuator Belleville torque spring cycle limit	Life of component
27	Individual hoist brake actuator Belleville torque spring number of cycles	Latest
28	Hydraulic mobile crane OEM inspection and replacement intervals for hoist drives. Age of crane/component.	Life of crane/component
29	Setting of load shutdown device (see paragraph 11.5)	Life of crane/component
30	Copy of Rail Certification per NAVFACINST 11230.1	Current certification
31	Maintenance inspection, lubrication, or servicing deferral and justification.	Latest
32	Floating crane barge maintenance documentation (paragraph 2.1)	Latest plus previous year
33	Type of hook material and hook manufacturing method (If available).	Life of hook

10.3 OEM's Operation Manual. Crane operators shall read, thoroughly understand, and comply with all procedures, safety instructions, and precautions in the OEM's operation manual. This also applies to instructors and supervisors in initial checkout of new cranes. Where operating procedures are unavailable from the manufacturer, the activity shall develop and ensure compliance with all procedures necessary for the safe operation of the equipment and attachments. Procedures that change or develop the capacity of the crane (where the original capacity is not available from the manufacturer) shall be submitted to the Navy Crane Center for approval. The OEM's operation manual shall be on the crane and readily available to the operator for all category 1 and 4 cranes. Where instructions provided by the OEM are in conflict with local safety instructions or safety procedures provided in this document, the operator shall refer such conflicts to his supervisor for resolution.

10.3.1 OEM's Supplemental Safety Information. Manufacturers, particularly of mobile cranes, often issue information more current and supplemental to that in the operation manual furnished with a particular crane. Much of the information (although sometimes addressed in service bulletins) pertains to the safe operation of the crane. Activities shall contact the OEM or authorized distributor for supplemental information applicable to their cranes, and, if practical, be added to the OEM's distribution list for such information.

10.4 Lifting Operations. Lifting operations shall be classified into two basic categories, complex lifts and non-complex lifts.

a. Except as noted, lifts of ammunition and explosives (ordnance) are considered to be a category separate from these criteria for complex/non complex lifts. Ordnance lifts have unique procedures and approved ordnance handling equipment that must be utilized. However, lifts of ordnance involving the use of tilt fixtures; lifts of ordnance onto/from ships/submarines where binding may occur, such as VLS/CLS operations; and lifts of ordnance as described in subparagraphs 10.4.1(d), (e), (f), and (h) shall be treated as complex lifts. For all ordnance lifts, follow NAVSEA OP-5 in addition to this manual. A pre-lift brief shall be conducted to ensure the roles and responsibilities of the crane team and the ordnance handling team are understood and fully coordinated (see paragraph 10.4.1.2). For ordnance lifts, the ordnance handling team leader has the overall responsibility for the safety of the lift.

10.4.1 Complex Lifts. These are lifts with a moderate to high level of risk involving:

- a. Hazardous materials, e.g., poisons, corrosives, highly volatile substances, etc. This does not include palletized unit loads of ordnance, nor materials such as oxygen, acetylene, propane, diesel fuel, or gasoline in cans, or tanks that are properly secured in racks or stands designed for lifting and transporting by crane.
- b. Large and complex geometric shapes.
- c. Lifts of personnel.
- d. Lifts exceeding 80 percent of the capacity of the crane's hoist (e.g., main hoist, whip hoist) planned for use (lifts exceeding 50 percent of the hoist capacity for a

mobile crane mounted on a barge). For variable rated cranes, this shall be at the maximum anticipated radius planned for use. (Lifts of ordnance with category 3 cranes and all lifts with jib cranes, pillar jib cranes, fixed overhead hoists, and monorails are excluded. Lifts of test weights during maintenance or testing when directed by a qualified load test director are excluded.)

e. Lifts of submerged or partially submerged objects. The following lifts are not considered complex:

Removal of valves, rotors, pipes, etc., from dip tanks for cleaning or coating purposes.

Lifting boats of known weight from the water if the boats are of open design with bilge compartments accessible for visual inspection; the boats have label plates indicating weights; and the boats have pre-determined lifting points established by the OEM or the activity engineering organization.

Lifting submerged or partially submerged objects that meet the following criteria: the object is verified to not contain fluid in pockets and/or voids that is unaccounted for in the weight of the object; the object is verified or known to not be stuck by suction or adhesion by corrosion, marine growth, excessive surface tension, mud, etc.; and the object is verified to be clear of obstructions such as other objects in the water, underwater cables, etc.

f. Multiple crane or multiple hook lifts on the same crane, except for bridge or gantry cranes with hooks coupled together and specifically designed for simultaneous lifting such as jet engine test stand lifting cranes.

g. Lifts of unusually expensive or one-of-a-kind equipment or components.

h. Lifts of constrained or potentially constrained loads (binding condition). See paragraph 10.5

i. Other lifts involving non-routine operations, difficult operations, sensitive equipment, or unusual safety risks.

10.4.1.1 Identification and Procedures. Activities shall identify complex lifts and prepare procedures (including rigging sketches where required) for conducting these lifts. Procedures may be standard written instructions or detailed procedures specific to a lift.

10.4.1.2 Supervisor or Working Leader Review and Oversight. A rigger supervisor, operator supervisor, or a rigging or crane operator working leader (classified as WL) shall review on-site conditions for complex lifts and shall perform a pre-job briefing before each complex lift to ensure all crane team personnel understand the required procedures for the lift. For lifts of ordnance, this brief is in addition to the brief conducted by the ordnance handling team leader as required by NAVSEA OP-5, unless specifically covered as part of the ordnance brief. A rigger supervisor, operator supervisor, or working leader shall personally supervise the following lifts:

- a. Lifts exceeding 80 percent of the certified capacity of the crane's hoist used for the lift. (See exceptions in paragraph 10.4.1.d).
- b. Multiple hook lifts when the weight of the object being lifted exceeds 80 percent of the certified capacity of any hoist used for the lift (see exception in paragraph 10.4.1.f).
- c. Lifts of ordnance involving the use of tilt fixtures.

If the lifts are repetitive in nature, the supervisor or working leader shall be present during the first evolution of the lift with each rigging crew. Subsequent identical lifts by the same crew may be done under the guidance of the rigger-in-charge.

10.4.2 Non-complex Lifts. These lifts are ordinary in nature and do not require supervisory oversight. They may be made at the discretion of a qualified rigger.

10.5 Pre-lift Preparation. Operators and riggers shall understand and comply with the load rating chart posted on the crane. The rigger giving the signals shall be identified and the type(s) of communication to be used shall be established.

To avoid overloading any equipment (e.g., hoist, rigging gear, container, material handling platform) used in a crane lift, the rigger-in-charge shall know or have a reasonable estimate of the weight to be lifted and, if applicable, the maximum radii at which the load will be picked and positioned. If the weight is estimated to exceed 50 percent of the capacity of the hoist (at the maximum anticipated radius if applicable) or 80 percent of the capacity of the rigging gear, platform/skid, below-the-hook lifting device, etc., the weight shall be verified by performing an engineering evaluation or using a local procedure approved by the certifying official or activity engineering organization. Alternatively, a load indicating device shall be used. Where overloading of the crane or rigging is possible due to binding conditions, a portable load indicating device with a readout readily visible to the signal person or RIC shall be used. When a load indicating device is used, an appropriate stop point shall be established and the load indicating device shall be carefully monitored to ensure the stop point is not exceeded. When necessary, chainfalls or other hoisting control means shall be used to avoid sudden overload of the crane or rigging gear. This is a complex lift.

Note: Electrically powered load indicating or other devices used in the vicinity of ammunitions and explosives shall meet the Hazards of Electromagnetic Radiation to Ordnance (HERO) requirements of NAVSEA OP 3565.

For mobile cranes, the following also applies. The operator shall know the boom and jib length and crane configuration, and thoroughly understand and comply with the crane's load rating charts and accompanying notes. When determining the safe maximum working radius for the load to be handled, the crane team shall consider whether the lift will be made over the side, front, or rear (or any combination), and whether operation will be on tires or outriggers/stabilizers. For lifts exceeding 50 percent of the crane's capacity at the maximum anticipated radius planned for use, verify by actual measurement or by operating the crane with an empty hook through the lift evolution and verifying the radii