

SECTION 7 TRAINING AND QUALIFICATION

7.1 Introduction. This section provides training and qualification requirements for military, civilian, and contractor personnel involved in the operation, maintenance, inspection, testing, and certification of Navy WHE. Ordnance handlers shall refer to NAVSEA OP-5 for training requirements, in lieu of the rigger and rigging gear inspection courses noted herein.

7.2 Training. Table 7-1 identifies courses for applicable Navy WHE job functions. These courses provide basic, fundamental trade related information for the operation, rigging, maintenance, inspection, testing, and certification of WHE at Navy shore activities, as well as oversight of contractor WHE operations. These courses do not provide hands-on training nor qualify personnel to perform a specific function or task. By design, these courses reinforce and enhance existing knowledge for journeymen level personnel and provide a base upon which to develop less-experienced personnel through on-the-job training and mentoring. It is, therefore, incumbent on the activity to provide additional training and evaluation to further develop and assess the proficiency of less-experienced personnel to safely and competently perform weight handling tasks and functions. Additional requirements for crane operators are addressed in section 8.

All courses are available via the internet at Navy eLearning (NeL) at <https://www.aas.prod.nel.training.navy.mil/>. Instructor-led training is an acceptable alternative to web-based training and shall be provided by Navy Crane Center authorized instructors using Navy Crane Center authorized materials. The Navy Crane Center web site has additional information on training (<https://www.navfac.navy.mil/ncc>).

Additional training (e.g., hands-on) to enhance specific skills is encouraged. Such training may be available from naval shipyards, other naval activities, and commercial training sources. Supplemental courses may be required to qualify personnel to perform unique critical job skills at an activity. Activities are responsible to ensure such supplemental training requirements are met.

7.2.1 Qualification. An examination is required to pass each required course listed in table 7-1. The web-based training courses meet this requirement. If NeL is not utilized to give examinations, the examination shall be given in written form. The minimum passing score shall be 80 percent. These courses are prerequisite for the qualification of personnel to perform job functions listed in table 7-1. Final determination of proficiency to perform assigned weight handling duties is the responsibility of the activity. As a minimum, the requirements of this publication shall be satisfactorily completed. Any additional competency requirements established by the activity or other organization shall be satisfactorily accomplished prior to validating qualification. Personnel shall not perform weight handling maintenance, inspection, testing, operation, or rigging until a knowledgeable supervisor, manager, or designated activity representative validates satisfactory completion of all required training and qualification elements (or proper certification for contractors as applicable). Appendix N provides minimum competency requirements.

7.2.2 Exceptions. New BOS contractor personnel, will have 90 days from their start date to obtain the table 7-1 required maintenance training. During this time period, untrained personnel may only perform maintenance on Navy WHE provided personnel trained and qualified in accordance with this publication write procedures covering their work and inspect and accept their work after the individual completes the job.

Non-BOS contract personnel who do not have the table 7-1 required maintenance training may perform maintenance on Navy WHE provided that personnel trained and qualified in accordance with this publication write the statement of work for the contractor and inspect and accept the work after the contractor completes the job.

OEM technicians and personnel trained to work on specific components (e.g., diesel engine repair, hydraulic component repair, tire repair/replacement, or motor repair) are exempt. Additionally, factory trained and authorized technicians (e.g., trained, authorized, and employed by the manufacturer or a manufacturer-authorized distributor) are exempt from these requirements for crane maintenance. They are further exempt from the operational requirements to prove the repair while the crane is located at a factory authorized repair facility and not a Navy activity.

Naval shipyard personnel shall follow the requirements of the NAVSEA 04 Crane Quality Manual in lieu of this section. Non-shipyard personnel who have completed naval shipyard lifting and handling training courses applicable to their job function(s) are not required to take the corresponding courses listed in table 7-1. Documentation of course completion shall be maintained.

There are no additional exceptions for inspectors, load test directors, crane operators, or riggers for any category of crane.

7.2.3 Training for Operator License Candidates. Crane operator license candidates shall take the applicable crane safety training course as shown in Table 7-1 prior to operating a crane. Candidates for operation of mobile boat hoists and rubber-tired gantry cranes shall take the Category 2 and Cab-Operated Category 3 Crane Safety course. See section 8 for additional crane operator training and licensing requirements.

7.2.4 Crane Operators Licensed Prior to 2001. Operators who successfully completed crane safety course(s) as part of their license requirement are not required to take the crane safety course(s) listed in table 7-1, but shall take the crane operator safety refresher courses for license renewal.

7.2.5 Refresher Training. Licensed category 1, 2, 3 (cab-operated), and 4 crane operators shall take the applicable crane safety refresher training course every two years after their initial crane safety training. Category 3 (non-cab-operated) crane operators shall re-take the Category 3 Crane Safety course every three years.

It is recommended that load test directors and certifying officials retake their respective table 7-1 courses every three to five years, or when course revisions are issued.

7.2.6 Training for Users of Portable Manual and Powered Hoists and Portable Floor Cranes. Users of portable manual and powered hoists on crane structures, portable gantry/A-frames, portable floor cranes, and cranes integral to larger machine systems shall take the Rigger course or the Category 3 Crane Safety course. Users of portable manual and powered hoists attached to other structures or equipment (for vertical lifting) shall take the Rigger course.

7.2.7 Training for Mechanics, Electricians, Inspectors, and Load Test Directors of Section 14 Cranes, Powered Hoists, and Crane Structures. Mechanics, electricians, inspectors, and load test directors of section 14 cranes, powered hoists, and crane structures shall take the applicable courses for mechanics, electricians, inspectors, or load test directors, before performing work, inspections, or tests.

7.2.8 Training for Users of Rigging Gear and Miscellaneous Equipment Used with Multi-Purpose Machines, MHE (Forklifts), and NAVFAC P-300 Equipment. Users of rigging gear or other miscellaneous equipment covered by section 14 attached to: multi-purpose machines, equipment covered by NAVFAC P-300 equipped with a winch or crane attachment, or MHE with crane attachments shall take the Rigger course. Users of rigging gear or other miscellaneous equipment covered by section 14 attached to other MHE and equipment covered by NAVFAC P-300, shall take the Rigger or Category 3 Crane Safety course.

7.2.9 Operation/Rigging in a Training Environment. Activity personnel who operate shore based cranes solely for training purposes to simulate operation of cranes used on ships or aircraft governed by other instructions (e.g., NAVSEA, NAVAIR, etc.) may follow the training requirement of the other instruction.

7.3 Supervisors. It is recommended that supervisors take the table 7-1 courses in their areas of cognizance.

7.4 Record Keeping. Record keeping for each student shall be the responsibility of the employing activity. Computer generated files are acceptable, provided they identify individual students, training dates, and examination results.

Table 7-1 Training Courses for WHE Job Functions

Course Title Frequency	General Crane Safety	General Crane Safety Refresher	Category 2 and Cab-Operated Category 3 Crane Safety	Category 2 Crane Safety Refresher	Category 3 (non-cab-operated) Crane Safety	Category 4 Crane Safety	Rigging Practices	Rigging Gear Inspection
Job Function	Initial	Every Two Years (after initial)	Initial	Every Two Years (after initial)	Initial then repeated Every Three Years	Initial	Once	Once
Category 1 Crane Operator: Note 01	X	X						
Mobile Boat Hoist or Rubber-Tired Gantry Crane Operator Note 01			X Note 03	X Note 07				
Category 2 Crane Operator: Note 02			X Note 03	X Note 07				
Category 3 Cab-Operated Crane Operator			X Note 03	X Note 07				
Category 3 Non-cab Crane Operator: Notes 04 & 05					X Note 06			
Category 4 Crane Operator: Note 01		X				X Note 03		
Rigger: Note 04							X	
Rigging Gear Inspector: Note 04								X Note 08

Notes

- 01 Category 1 and category 4 crane operators shall also satisfy the requirements in this section, section 8, and appendices J and L, as applicable. Mobile boat hoists and rubber-tired gantry cranes are category 1 cranes although *Category 2 and Cab-Operated Category 3 Crane Safety* is the designated training course for these cranes.
- 02 Category 2 and cab-operated category 3 crane operators shall also satisfy the requirements of this section, section 8, and appendix K.
- 03 Satisfactory completion of *General Crane Safety* or *Category 4 Crane Safety* satisfies the requirements of this course.
- 04 Personnel shall also satisfy applicable appendix N requirements.
- 05 Personnel who meet Category 3 non-cab operated qualification requirements may perform rigging on category 3 cranes. All other rigging requires satisfactory completion of *Rigging Practices*.
- 06 Satisfactory completion of *General Crane Safety* or *Category 2 and Cab-Operated Category 3 Crane Safety* or *Category 4 Crane Safety* satisfies the initial training requirements of this course.
- 07 Satisfactory completion of *General Crane Safety Refresher* or *Category 2 Crane Safety Refresher* satisfies the retraining requirement for this course.
- 08 Satisfactory completion of *Rigging Practices* satisfies the requirements of this course.

Table 7-1 Training Courses for WHE Job Functions

Course Title Frequency	Crane Mechanic	Mobile Crane Mechanic	Mechanical Crane Inspector	Crane Electrician	Electrical Crane Inspector	Load Test Director	Certifying Official	Contractor Crane Awareness
Job Function	Once	Once	Once	Once	Once	Once	Once	Once
Crane Mechanic: Note 04	X							
Mobile Crane Mechanic: Note 04	X	X Note 09						
Mechanical Crane Inspector: Notes 04 & 11	X	X Note 09	X Note 10					
Crane Electrician: Note 04				X				
Electrical Crane Inspector: Notes 04 & 11				X	X Note 12			
General Inspector: Notes 04, 11 & 13	X	X Note 09	X Note 10	X	X Note 12			
Load Test Director: Notes 04 & 14						X		
Certifying Official: Note 04							X	
Contracting Officer Representatives who perform oversight of contractor WHE operations								X

Notes

- 09 Satisfactory completion of *Crane Mechanic* is prerequisite to taking this course.
- 10 Satisfactory completion of *Mobile Crane Mechanic* is prerequisite to taking *Mechanical Crane Inspector* for personnel who will be inspecting mobile cranes.
- 11 Personnel who perform maintenance and/or condition inspections are required to satisfactorily complete *Mechanical Crane Inspector* or *Electrical Crane Inspector*, as applicable.
- 12 Satisfactory completion of *Crane Electrician* is prerequisite to taking this course.
- 13 Crane inspectors who inspect both mechanical and electrical components (i.e., General Inspector) must satisfy these requirements.
- 14 Satisfactory completion of the applicable crane safety course [for the type of crane to be tested by the candidate] is prerequisite to taking *Load Test Director*.

APPENDIX N - PERSONNEL COMPETENCIES

1. The following personnel who perform functions addressed in this publication shall demonstrate (to the satisfaction of a knowledgeable supervisor, manager, or designated activity representative) adequate knowledge and/or skill in the areas listed below. If an assessment of an employee's competencies or performance indicates the need for remediation, the employee shall be required to be retrained as warranted based on the supervisor's assessment. This may involve retaking the initial or refresher version or other training as determined by management and re-evaluated on the below items. Licensed crane operator qualification and performance requirements items are located in section 8 and appendices J, K, and L.

1.1 Maintenance Personnel (Mechanics and Electricians)

- a. Proper use and care of precision instruments and recording of measurements.
- b. Lockout/tagout procedures.
- c. Maintenance requirements for components (e.g., brakes, clutches, drive trains, motors, controls) integral to the operation of WHE within the person's technical discipline.
- d. For mechanics, basic electrical safety; for electricians, electrical safety and familiarity with the National Electrical Code (NEC).
- e. Proper fastening and lubricating techniques.

1.2 Inspector

- a. Requirements of sections 3, 4, and 5, and appendices C, D, and E of this publication.
- b. For mechanical inspectors, inspection requirements for crane structure, brakes, clutches, drive trains, wire rope, and other mechanical components integral to the operation of WHE.
- c. For electrical inspectors, NEC requirements, as well as inspection requirements for electrical motors, motor control circuits, and other electrical components integral to the operation of WHE.
- d. Proper use and care of precision instruments and recording of measurements.
- e. Lockout/tagout procedures.

1.3 Load Test Director

- a. Requirements of section 4 and appendices C, D, and E of this publication.

- b. Proper use and care of precision instruments and recording of measurements.
- c. Lockout/tagout procedures.
- d. Calculation of weight for load tests.
- e. General knowledge of the operational characteristics of the WHE and components being tested.
- f. Ability to interpret OEM load charts.
- g. Limits of stability of the WHE being tested.
- h. Proper crane communications, i.e., hand signals (See figures 10-1 and 10-2), radio communications, etc.

1.4 Operator of Non-Cab Operated Category 3 WHE. (For the specific type of equipment being operated and the types of lifts the operator will be required to make.)

- a. Operation of the equipment.
- b. Determining the weights of loads.
- c. Determining the center of gravity of loads.
- d. Planning the crane/load movement path and checking for clearances.
- e. Selecting and properly using appropriate rigging equipment.
- f. Basic knots, bends, and hitches, and their use.
- g. Performing necessary calculations to determine the allowable capacity of rigging configurations.
- h. Selecting appropriate attachment points on loads to be lifted.
- i. Performing prior-to-use visual inspections of rigging equipment.
- j. Performing prior-to-use checks and operation of WHE being operated.
- k. Directing other personnel assisting in the lift.
- l. Accident and equipment deficiency problem recognition and reporting procedures.
- m. Proper crane communications, i.e., hand signals (see figures 10-1 and 10-2), radio communications, etc.

1.5 Rigger

- a. Determining the weights of loads.
- b. Determining the center of gravity of loads.
- c. Planning the crane/load path and checking for clearances.
- d. Selecting and properly using appropriate rigging equipment.
- e. Basic knots, bends, and hitches and their use.
- f. Performing necessary calculations to determine the allowable capacity of rigging configurations.
- g. Selecting appropriate attachment points on loads to be lifted.
- h. Performing prior-to-use visual inspections of rigging equipment.
- i. Signal person functions as noted below, including construction signal person as appropriate.
- j. Coordinating activities of other personnel assisting in the lift (when designated as RIC).
- k. General knowledge of mobile crane configuration variations and load chart limitations.
- l. The requirements of section 10 (as applicable to riggers) and section 14 of this publication.
- m. Rail switch alignment requirements (as applicable).
- n. Requirements for inspecting the crane travel path.
- o. Proper tagline handling methods

1.6 Crane Walker

- a. Methods for initiating emergency stop actions and an understanding of when such actions are appropriate.
- b. Rail switch alignment requirements.
- c. Requirements for inspecting the crane travel path.

1.7 Crane Signal Person

- a. Proper crane communications, i.e., hand signals (see figures 10-1 and 10-2), radio communications, etc.
- b. Methods for initiating emergency stop actions and an understanding of when such actions are appropriate.

In addition to the above, signal persons used in construction operations, including riggers and designated spotters shall be qualified by an activity's qualified evaluator. Qualification shall be documented and shall specify each type of signaling for which the signal person is qualified.

Each signal person, including riggers giving signals:

- (1) Shall know, understand, and be competent in the types of signals used.
- (2) Have a basic understanding of equipment operation and limitations, including the crane dynamics involved in swinging and stopping loads and boom deflection from hoisting loads.
- (3) Know and understand the relevant requirements for radio, telephone, or other electronic transmission of signals as applicable.
- (4) Demonstrate to the evaluator that he/she meets the above noted requirements through an oral or written test, and through a practical test.

2. Supervisors

2.1 Operator Supervisors. Crane operator supervisors shall demonstrate adequate knowledge in the following areas:

- a. Conducting pre-job briefings.
- b. Assessing personnel qualifications to operate specific cranes and how to determine that those qualifications are current.
- c. Familiarity with safe operating practices, including the requirements of section 10 of this publication.

2.2 Rigger Supervisors. Rigger Supervisors (for weight handling evolutions) shall demonstrate adequate knowledge in the following areas:

- a. Conducting pre-job briefings.
- b. Assessing personnel qualifications to perform specific operations and how to determine that those qualifications are current.

c. Knowledge and abilities noted for Rigger in paragraph 1.5, including the requirements of sections 10 and 14 of this publication.

2.3 Maintenance Mechanic/Electrician, Inspector, and Load Test Director Supervisors. Supervisors shall demonstrate adequate knowledge in the following areas:

a. Conducting pre-job briefings.

b. Assessing personnel qualifications to perform specific operations and how to determine that those qualifications are current.

c. Familiarity with the applicable requirements of this publication.

3. Engineers. Engineers performing work in support of WHE shall:

a. Be technically competent in their particular engineering discipline.

b. For crane engineers, be knowledgeable of the design fundamentals of WHE and NAVCRANECENINST 11450.2, and the requirements of sections 3 through 6 and appendices C through F and O of this publication.

c. For rigging engineers, be knowledgeable of ASME B30.9, B30.10, B30.20, and B30.26, military and federal standards for rigging gear, and sections 10 and 14 of this publication.

4. Certifying Officials. Certifying officials shall demonstrate adequate knowledge in the application of the requirements of this publication for inspection, maintenance, testing, and certification of WHE.

5. Weight Handling Program Manager. The weight handling program manager shall demonstrate adequate knowledge of the requirements of this publication; the ability to direct a monitor program and establish program metrics; and the ability to use monitor program results and metrics to develop effective program self-assessments and corrective actions.