

CRANE BUZZ



Resources | Solutions

Safety Manual

For

Overhead Crane Operators



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Safety Manual for Overhead Crane Operators

Forward

An overhead crane operator's job is vital to the employers operations and can be dangerous when not performed properly. It is a position of responsibility that the operator shall be qualified to hold. There are rules and regulations everyone involved shall obey and responsibilities that shall be accepted. It is the responsibility of the employer to see that all crane operators are qualified to fill this important position.

The following information is a brief overview of some of these responsibilities. For specific rules and regulations and your responsibilities when overseeing or operating an overhead crane refer to accepted guidelines as published by the EOT (Electric Overhead Traveling) crane industry governing bodies as well as local, state and Federal rules and regulations (see the "Industry Standards" and "Safety" tabs on our web site, www.CraneBuzz.com, for more information on these guidelines, responsibilities and regulatory information sources).

This manual may be used as a summary in the overall training and authorization of a prospective overhead crane operator but should not be used as the only source of education for a crane operator.

Employers and employees need to be aware that all cranes are different and may have specific operating characteristics and safety, inspection and maintenance requirements. It is essential that you have the manufacturers operating manuals and are familiar with your particular crane.

Qualifications

The minimum qualifications for an employee selected to operate a crane are as follows:

- Have corrected vision that meets the same requirements as vision for a valid driver's license.
- Have effective use of all 4 limbs.
- Be of sufficient height to operate the controls and to have an unobstructed view over the controls into the work area.
- Have coordination between eyes, hands, and feet.
- Be free of known convulsive disorders and episodes of unconsciousness.
- Be properly educated / trained to perform these duties.

The employee must also have the ability to understand written signs and labels, and capable of understanding and following written and verbal instructions.

Certification

It is recommended that prospective crane operators be trained and tested by an OSHA Certified Trainer before being allowed to operate an overhead crane. Upon passing a written test and meeting other operator requirements (including demonstrating proficiency in running the crane) as determined by the Trainer, a certificate of compliance will be issued to the trainee. The employer and employee should both keep a copy of this certification and be able to make it available upon request.

Training

Training of all operators should include, but not be limited to, the following:

- Company rules, regulations and procedures.
- Capacities of equipment and attachments.
- Purpose, use and limitation of controls.
- How to make daily checks.
- The energizing sequences, including pneumatic, hydraulic, and electrical sequences.
- Start-up and shutdown procedures.
- Emergency shutdown procedures.
- General operating procedures.
- All basic signaling procedures, including verbal, hand and radio signals, where required.
- Knowledge of accepted guidelines as published by the EOT (Electric Overhead Traveling) crane industry governing bodies as well as local, state and Federal rules and regulations.
- Practice in operating the assigned equipment through the mechanical functions necessary to perform the required task.
- Maximum rated capacity of the crane.
- Best practice and accepted operating procedures.
- Basic safety guidelines of operating an overhead crane.
- Dos and Don'ts of operating an overhead crane.
- How to avoid an accident when operating an overhead crane.
- What to do should an accident occur.

Training of all riggers should include the following:

- Company rules, regulations and procedures.
- The requirements of the Code of Federal Regulation; Title 29, Part 1910.179, Overhead and Gantry Cranes
- The requirements of the Code of Federal Regulation; Title 29, Part 1910.184, Slings.
- Knowledge of accepted guidelines as published by the EOT (Electric Overhead Traveling) crane industry governing bodies as well as local, state and Federal rules and regulations.
- Maximum capacity of the crane.
- Best practice and accepted rigging procedures.
- Basic safety guidelines for rigging a load.
- Dos and Don'ts for rigging a load.
- How to avoid an accident when for rigging a load.
- What to do should an accident occur.

Personal Protective Equipment

When the employer conducts a personal protective equipment hazard assessment, they should include overhead cranes in their review.

An operator and any employee directing a lift must use the appropriate safety equipment recommended for use in this area. If the top of the load is lifted to a height greater than 5 feet, then the load is considered an overhead hazard and head protection (hard hat) should to be worn.

When an employee is performing maintenance on an overhead or gantry crane, either from a man lift or platform, the employee should wear an approved safety harness and lanyard, and/or a fall arrest device.

All crane operators and maintenance personnel shall be trained in a detailed **LOCK OUT / TAG OUT** procedure and supplied with a key operated lock that bears their name and company ID number. When a crane operator believes that the safe operating condition of a crane is in doubt or when maintenance personnel are actively inspecting, service or repairing a crane, it shall be locked out at the mainline disconnect switch by these individuals and no one other than the owner of the lock shall be permitted to remove the lock.

General Conduct of Operators

At the beginning of each shift during which a crane is to be used, a visual inspection should be made in accordance with Table 1 below. A visual inspection is limited to that which can be made from a catwalk or other safe observation point. Any defects must be reported to a supervisor for correction or repair.

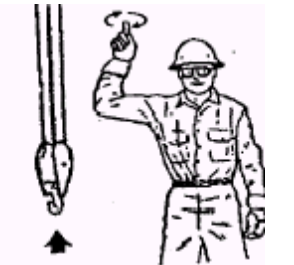
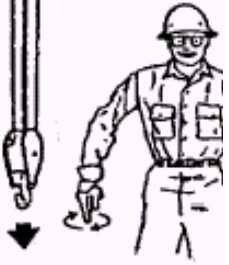
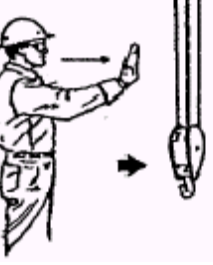

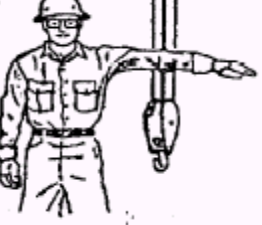




Table 1
Shift/Operator Inspection Checks

Inspection Item	Description of Inspection Check Points
Tagged Crane or Hoist	Check that crane or hoist is not tagged with an out-of-order sign.
Control Devices	Test run that all motions agree with control device markings.
Brakes	Check that all motions do not have excessive drift and that stopping distances are normal.
Hook	Check for damage, cracks, nicks, gouges, deformations of the throat opening, wear on saddle or load bearing point, and twist. Refer to the manual furnished by the original manufacturer of the crane.
Hook Latch	If a hook latch is required, check for proper operation.
Wire Rope	Check for broken wires, broken strands, kinks, and any deformation or damage to the rope structure.
Reeving	Check that the wire rope is properly reeved and that rope parts are not twisted about each other.
Limit Switches	Check that the upper limit device stops lifting motion of the hoist load block before striking any part of the hoist or crane.
Oil Leakage	Check for any sign of oil leakage on the crane and on the floor area beneath the crane.
Unusual Sounds	Check for any unusual sounds from the crane or hoist mechanism while operating the crane or hoist.
Warning and Safety Labels	Check that warning and other safety labels are not missing and that they are legible.
Housekeeping and Lighting	Check area for accumulation of material, trip or slip hazards, and poor lighting.

An operator shall only respond to signals from the designated person directing the lift. The one and only exception to this rule is an emergency stop signal, which must be obeyed when given by any employee or other person in the area. The signals given to an operator should conform to table 2 below.

Table 2

Standard Hand Signals for Controlling Overhead and Gantry Cranes

 <p>HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circle</p>	 <p>LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circle.</p>	 <p>BRIDGE TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.</p>
 <p>TROLLEY TRAVEL. Palm up, fingers closed, thumb pointing in direction of motion, jerk hand horizontally.</p>	 <p>STOP. Arm extended, palm down, hold position rigidly.</p>	 <p>EMERGENCY STOP. Arm extended, palm down, move hand rapidly right and left.</p>
 <p>MULTIPLE TROLLEYS. Hold up one finger for block marked "1" and two fingers for block marked "2". Regular signals follow.</p>	 <p>MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist Slowly shown as an example.)</p>	 <p>MAGNET IS DISCONNECTED. Crane operator spreads both hands apart – palms up.</p>

Dos and Don'ts

An operator shall not carry a load over another person.

A crane shall not be used to make a side pull (except where it has been specifically authorized by a qualified person after making specific determinations).

Compressed gases shall only be lifted by a cradle or enclosed platform.

An employee shall not ride a hoisting device, such as a magnet, hook, ball, or load.

When rigging or moving a load, the crane operator and load rigger shall be certain of all of the following:

- The hoisting rope or chain is free of kinks or twist and not wrapped around the load.
- The load is attached to the load block hook by means of a sling or other approved device.
- The sling and load will clear all obstacles or obstructions.
- The load is balanced and secured before lifting the load more than a few inches.
- Multiple lines are not twisted around each other.
- The hook is brought over the load in a manner to prevent swinging.
- There is no sudden acceleration or deceleration of the moving load.

A hoisting limit switch on a crane or hoisting device shall not be used as an operational control, unless the hoist is also equipped with a backup limit switch.

A load shall not be lowered below a point where less than 2 full wraps of wire rope remain on the hoisting drum. If there is any doubt concerning the safety of a crane or hoisting component or system, the operator shall immediately stop the crane, and report the condition creating the doubt to their supervisor.

In the event of power failure, the operator shall place all controllers in the "off" position.

When an operator leaves a crane unattended for an extended period of time, he or she shall place any attached load on the floor or other surface that relieves the hoist of the lifted load, depress the on/off switch on the controller (push button pendant station or radio remote transmitter) and place the system mainline disconnect switch in the "off" position. The system mainline disconnect switch does not need to be placed in the "off" position nor does the on/off switch on the controller (push button pendant station or radio remote transmitter) if the crane is left unattended for short periods.

Inspections

The inspection procedure for cranes in regular service is divided into 4 general classifications:

1. Pre-shift inspections; which should be performed prior to each shift of operation (as outlined in Table 1 on Page 3).
2. Frequent inspections; which can be performed monthly to quarterly, or at intervals of approximately 100 hours of use, depending on the severity of the crane usage.
3. Periodic inspections; which can be performed at intervals of 100 to 500 hours of use, depending on the severity of the crane usage.

4. Annual inspections; which shall be performed at a minimum of once every 12 months as specified by OSHA, regardless of the severity of the crane usage.

These inspections will yield a written report that shall detail the condition of, deficiencies or damage to, the crane that need to be corrected or repaired on a scale of importance that is called out in the body of the report. It is the responsibility of the owner or end user to have the items resolved in a timely manner.

NOTE: The written records of these inspections shall be kept by a designated person, on the company premises, so as to be available upon request by any regulatory person or agency.

Maintenance

The employer shall maintain a crane and its accessories in a condition that will not unduly endanger an operator, employee or other person in the operating area of the crane.

A preventative maintenance program should be established and be based on the manufacturer's recommendations and for the application as reviewed by a qualified person.

Before adjustments or repairs are made on a crane, all of the following precautions should be taken:

- The crane will be moved to a location where it will cause the least interference with other moving equipment on the track or rails and operations in the area.
- The crane shall be tagged out with warning sign placed on the operator control station.
- Controllers will be placed in the "off" position.
- The mainline disconnect switch will be placed in the "off" position and locked out using a precise **LOCK OUT / TAG OUT** procedure, except where power is necessary to adjust or service the crane.
- Adequate lighting will be provided while maintenance is performed on the crane.

If any other crane uses the same runway, then a protective device should be used to prevent interference with the idle crane undergoing repairs. If a protective device is impracticable, then a signal person shall be placed at a visual vantage point to warn the operator of the active crane when it reaches the limit of safe distance from the idle crane.

A crane that has been serviced, inspected or repaired shall not be returned to normal operation until all guards have been replaced, locks removed by those who installed them, safety devices reactivated and the maintenance personnel and their access equipment and tools removed from the crane itself and the area under and around the crane travel.