

## **Section 16F, Overhead Crane Safety, Monthly Crane Inspection Form**

### **Knowing the Dangers**

Depending on the specific equipment being used, some of the possible hazards include:

- Overloading or unbalanced loading of cranes or lifts that could cause them to topple over and seriously injure or kill operators and nearby workers.
- Defective machinery and parts, which can cause the lifting equipment to fail and drop a heavy load.
- Unqualified operators who, because they do not know how to use lift equipment safely, endanger themselves and other workers.
- Cluttered work areas that do not allow enough space for cranes, slings, and motorized lift vehicles to operate safely.

### **Training Is Essential**

One of the best ways to avoid the hazards of lifting equipment is proper training for operators and others who work with it. According to OSHA, only properly trained and designated persons should be allowed to operate and inspect such equipment.

### **Frequent Inspections**

Overhead cranes at the TFREC shop should be inspected monthly.

The TFREC vehicle maintenance mechanic will perform the inspections. The results of each inspection should be recorded on the provided inspection sheet.

If any part of the equipment is found to be defective, the equipment must be taken out of service, repaired, and re-inspected before it can be used again. This may seem to be an obvious safety precaution, but all too many accidents have happened because of seemingly minor repairs that were postponed, ignored, or not caught during inspections. In fact, the most frequent violations of Subpart N of the OSHA rules for general industry are for failure to inspect equipment properly and to remove defective equipment from service.

### **Commonsense Rules**

The OSHA rules governing mechanical lifting equipment are very detailed. But as is usually the case, they represent what should be commonsense guidelines for preventing tragedy. In addition to the training and inspection requirements, here are some other basic prescriptions for safe operation of lifting equipment.

Use lifting equipment only for its intended purpose. Cranes and lifts are rated for the maximum loads they can carry safely, and these ratings should be posted on the equipment where they can be seen. Lifting equipment should never be overloaded, because doing so can either directly cause an accident or damage the equipment so that it is no longer safe. If there is a doubt about whether a load is too heavy, do not lift it until you are absolutely sure it is within the rated capacity of the equipment.

Keep work spaces clear. The work space should be clear of items that could accidentally be struck and knocked over. Similarly, workers should stay out of the area where cranes or lifts are operating unless they are directly involved in the work being performed.

### **Operating Rules**

The following operating rules for crane operators are from the Crane Manufacturers Association of America, Inc.:

1. Crane controls should be moved smoothly and gradually to avoid abrupt, jerky movements of the load. Slack must be removed from the sling and hoisting ropes before the load is lifted.

2. Center the crane over the load before starting the hoist to avoid swinging the load as the lift is started. Loads should not be swung by the crane to reach areas not under the crane.
3. Crane hoisting ropes should be kept vertical. Cranes shall not be used for side pulls.
4. Be sure everyone in the immediate area is clear of the load and aware that a load is being moved.
5. Do not make lifts beyond the rated load capacity of the crane, sling chains, rope slings, etc.
6. Do not operate the crane if limit switches are out of order or if chains show defects or wear.
7. Make certain that before moving the load, load slings, load chains, or other load lifting devices are fully seated in the saddle of the hook.
8. On all capacity or near capacity loads, the hoist brakes should be tested by returning the master switch or push button to the OFF position after raising the load a few inches off the floor. If the hoist brakes do not hold, set the load on the floor and do not operate the crane. Report the defect immediately to the supervisor.
9. Check to be sure that the load is lifted high enough to clear all obstructions and personnel when moving bridge or trolley.
10. At no time should a load be left suspended from the crane unless the operator is at the master switches or push button with the power on, and under this condition keep the load as close as possible to the floor to minimize the possibility of an injury if the load should drop. When the crane is holding a load, the crane operator should remain at the master switch or push button.
11. Do not lift loads with any sling hooks hanging loose. (If all sling hooks are not needed, they should be properly stored or a different sling should be used.)
12. All slings or cables should be removed from the crane hooks when not in use. (Dangling cables or hooks hung in sling rings can inadvertently snag other objects when the crane is moving.)
13. Crane operators should not use limit switches to stop the hoist under normal operating conditions. (These are emergency devices and are not to be used as operating controls.)
14. Do not block, adjust or disconnect limit switches in order to go higher than the switch will allow.
15. Upper limit switches (and lower limit switches, when provided) should be tested in stopping the hoist at the beginning of each shift, or as frequently as otherwise directed.
16. No loads should be moved or suspended over people regardless of the attachment.
17. If plugging protection is not provided, always stop the controllers momentarily in the OFF position before reversing—except to avoid accidents. (The slight pause is necessary to give the braking mechanism time to operate.)

### **General Maintenance Safety Rules**

All controllers should be in the OFF Position.

The main power source should be disconnected, deenergized and locked, tagged, or flagged in the deenergized position. All other sources of energy should be neutralized so that they are in a state of energy isolation.

WARNING or OUT OF ORDER signs should be placed on the crane, on the floor beneath, or on the hook where they are visible from the floor.

If other cranes are in operation on the same runway, rail stops or other suitable devices shall be provided to protect the idle crane.

Trained, qualified, and authorized personnel shall be provided to work on energized equipment when adjustments and tests are required. After all repairs have been completed, guards shall be reinstalled, safety devices reactivated, and maintenance equipment removed before restoring crane to service.

## Monthly Crane Inspection

Date (month/year) \_\_\_\_\_

Items to be inspected	Acceptable	Needs Repair	Date Repaired
1. Operating mechanisms for proper operation, proper adjustment and unusual sounds			
2. Test upper and lower limit switches for proper operation			
3. Check hoist braking system for proper operation			
4. Check lifting hooks for cracks, deformation and proper operating latch			
5. Hoist or load attachment chains for wear, distorted links or stretched links			
6. Slings for wear, stretch, cuts, kinks or twists			
7. Trolley stops in good condition			
8. Check trolley beams for distortion or cracking			
9. Wear on chain drive sprockets			
10. Worn, cracked or distorted parts such as pins, bearings, shafts, gears, rollers and clamping locking devices			
11. Check electrical devices, cords, push buttons, switches for proper operation, deterioration			
12. Check pendant control for automatic shut-off when up or down button is released, damaged controls, frayed wiring			
13. Check trolley wheels and bearings for wear and proper operation			
Inspector's signature			