



OVERHEAD TRAVELING CRANE OPERATION AND LIFTING EQUIPMENT SAFETY PROGRAM

(Section 14)

PURPOSE:

Wagner-Meinert, Inc. will maintain a safe and healthy work environment in an ongoing effort to protect each employee from potentially hazardous or unsafe conditions. It is the goal of Wagner-Meinert, Inc. to insure that Personnel will at no time suffer any adverse health effects or injuries related to the use of overhead cranes.

To establish uniform administrative procedures and minimum safety requirements for activities related to the operation of overhead traveling cranes and lifting equipment, Wagner-Meinert, Inc. has developed this program.

SCOPE:

Only authorized, properly trained employees of the Wagner-Meinert, Inc. shall be permitted to operate overhead traveling cranes. These persons shall be authorized by the Shop Foreman or their Supervisor over the use and operation of the crane. Both shall maintain a list of personnel authorized to operate the crane(s) under their jurisdiction.

ASSOCIATED DOCUMENTS:

Appendix 14A: Monthly Overhead Crane Inspection Checklist

Appendix 14B: Monthly Rigging Equipment Inspection Checklist

REFERENCES:

- (A) 29 CFR 1910.179 (j) (2) and (3)

- 1.0 TRAINING**
- 2.0 CRANE INSPECTION**
- 3.0 PREVENTATIVE MAINTENANCE**
- 4.0 LIFTING EQUIPMENT**
- 5.0 RIGGING**

1.0 TRAINING

- 1.1 Before a person may be authorized to operate a crane he/she must complete an apprenticeship with a knowledgeable, authorized operator who will train that person how to operate the crane. The length of the apprenticeship shall be determined by the Shop Foreman. The trainee must also complete a crane safety training course.
 - 1.1.1 Hand signals to crane operators shall be those prescribed by the applicable ANSI standard for the type of crane in use. An illustration of the signals shall be posted at the job site.
 - 1.1.2 Whenever internal combustion engine powered equipment exhausts in enclosed spaces, tests shall be made and recorded to see that employees are not exposed to unsafe concentrations of toxic gases or oxygen deficient atmospheres.
 - 1.1.3 Operators must meet the physical qualifications, pass a physical, a written examination, understand and be able to use a load chart as well as calculate loads for the crane type.

2.0 CRANE INSPECTION

- 2.1 Our overhead crane Program will address all overhead cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968.
- 2.2 Each day or prior to use, a visual inspection shall be made by the crane operator prior to operating the crane. The "Visual Inspection Checklist" shall be completed at the time of each inspection and filed with the Shop Foreman. Any crane deficiencies and safety hazards shall be brought to

the attention of the Shop Foreman. Cranes which are unsafe shall be tagged with sign(s) "Out Of Order" and not be operated.

- 2.3 All hooks are inspected monthly, they are inspected for cracks and deformation and recorded. Date of inspection, signature of person performing inspection, and the serial numbers are documented. (See Appendix 14A). Quarterly inspections on hooks are done by a certified outside contractor and the inspections will be documented.
- 2.4 Monthly inspections on all hoist chains / running ropes (including end connections) and slings for excessive wear, twist, distorted links, and stretch beyond manufacturer's recommendations. Certifications records have date of inspection, signature of competent person performing inspection, and serial number of crane hoist chains are documented. Chains / ropes that were in storage for long periods must be inspected before use (See Appendix 14A). Quarterly inspections on hoist chains / ropes (including end connections) are done by a certified outside contractor and the inspections will be documented.
- 2.5 At least annually, each crane shall be inspected by the manufacturer or by a competent, outside contractor. The inspection shall include as a minimum, the OSHA requirements found in 29 CFR 1910.179 (j) (2) and (3). A written report containing deficiencies, safety hazards and recommendations shall be submitted to the Safety Director. Deficiencies that would render the crane unsafe to operate should be reported to the Safety Director immediately and the crane taken out of service until repairs are made.
- 2.6 A permanent chart with clearly legible shall be provided with each crane or lifting equipment and securely fixed in a location easily visible to the operator while seated at this control station.
- 2.7 Any modifications of equipment may only be made with the manufacturer's written approval.
- 2.8 All inspection records shall be maintained by the shop superintendent.

3.0 PREVENTATIVE MAINTENANCE

- 3.1 As required by OSHA regulations, a preventative maintenance program based on the crane manufacturer's recommendations has been established.
- 3.2 All maintenance records shall be maintained.

- 3.3 During service and maintenance activities, equipment must be tagged "Out of Service. Where the unexpected energizing, start-up or release of stored energy is possible, Wagner-Meinert's Lockout/Tagout Program and procedures shall be followed.

4.0 LIFTING EQUIPMENT

- 4.1 Each day or prior to use, lifting slings, alloy steel chains, running ropes, and all lifting attachments shall be visually inspected for damage and/or defects by the authorized operator or by the shop foreman. Lifting slings, alloy steel chains, running ropes, and all lifting attachments are inspected quarterly by a certified outside contractor and are documented. Damaged or defective equipment shall be immediately removed from service and tagged as being "out of service". WMI personnel will follow manufacturers safe work practices and limitations when using any lifting apparatus.
- 4.2 Additional inspections will be performed on new equipment. During sling use or where operating conditions warrant according to the following outline:

Alloy Steel Chain

At intervals no greater than 3 months, a thorough inspection for wear, defects, deformation and increased length will be conducted by the Safety Director and Shop Foreman. A written record will be maintained. A permanently affixed durable identification tag stating size, grade, reach and capacity will be affixed to all tested and certified chain slings. All new and repaired chain slings, including components, shall be proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. A certificate of this proof test must be retained in Shop Foreman's office.

Wire Ropes Slings and Running Ropes

All slings and running ropes with welded end attachments must be proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. All slings and running ropes are visually inspected monthly. A certificate of this proof test must be retained in Shop Foreman's office.

Metal Mesh Slings

Each sling shall have a tag permanently affixed stating rating capacity for both vertical basket and choker hitches. All new and repaired slings shall not be used unless proof tested by the manufacturer or equivalent entity at a minimum 1.5 times the rated

capacity. A certificate of this test will be retained in Shop Foreman's office.

Synthetic Mesh Slings

Each sling shall be marked or coded to show rated capacities. Repairs shall not be attempted by anyone other than the manufacturer or equivalent entity. Each new and repaired sling shall be proof tested by the manufacturer or equivalent entity to twice the rated capacity. A certificate of this test will be maintained in Shop Foreman's office.

5.0 RIGGING

- 5.1 Rigging is essential for moving construction materials and equipment and, at the same time, keeping them under control.
- 5.2 Never swing loads over the heads of workers in the area.
- 5.3 Only trained flagmen and signalmen are to direct rigging operations, using established hand signals that are standard for the industry.
- 5.4 Tag lines must be used to control rigged loads.
- 5.5 Do not overload any part of your rigging. Check loads just off the ground for balance and stability before hoisting.
- 5.6 Never leave a suspended load unattended.
- 5.7 Never allow loads, booms or rigging to approach within 10 feet of energized electrical lines rated 50KV or lower unless the lines are de-energized. For lines rated greater than 50 KV, follow OSHA regulations.
- 5.8 Always operate cranes on firm, level ground or use mats, particularly for near-capacity lifts.
- 5.9 Rope off or barricade a space equivalent to the swing radius of the rear of the rotating structure 360 degrees around all cranes operating on your jobsite.
- 5.10 All hoist chains, slings and hooks are inspected monthly and before each use. Every three months all hoist chains, slings and hooks will be inspected and documented by a certified outside contractor.
- 5.11 An accessible fire extinguisher of 5BC rating, or higher, shall be available at all operator stations or cabs of equipment.

RELATED DOCUMENTS

Appendix 14A – Monthly Crane Inspection Checklist – At end of this program.

DOCUMENT MANAGEMENT:

The Safety Director is responsible for developing and maintaining the program. Employees may review a copy of the plan by requesting one from the Safety Director. In addition, the Safety Director is responsible for maintaining any records related to the Overhead Traveling Crane Operation and Lifting Equipment Safety Program.

If after reading this program, you find that improvements can be made, please contact the Safety Director. We encourage all suggestions because we are committed to the success of our written Overhead Traveling Crane Operation and Lifting Equipment Safety Program. We strive for clear understanding, safe behavior, and involvement from every level of the company.

CHANGE CONTROL:

All management system changes are reviewed, approved or disapproved by the Safety Committee.

This program was initially developed on April 18, 2003.

Revision No. 1 (April 18, 2003)
Revision or Review No. 2 (January 15, 2001)
Revision or Review No. 3 (January 10, 2002)
Revision or Review No. 4 (January 11, 2003)
Revision or Review No. 5 (January 15, 2004)
Revision or Review No. 6 (October 8, 2004)
Revision or Review No. 7 (October 15, 2004)
Revision or Review No. 8 (January 10, 2005)
Revision or Review No. 9 (January 3, 2006)
Revision or Review No. 9 (August 18, 2006)
Revision or Review No. 10 (September 6, 2007)

PERSONNEL:

The Owners of Wagner-Meinert, Inc. have the ultimate responsibility for the Overhead Traveling Crane Operation and Lifting Equipment Safety Program. They have designated the Safety Director to manage the Electrical Overhead Traveling Crane Operation and Lifting Equipment Safety Program.



WAGNER-MEINERT inc.
Engineers - Contractors

Monthly Crane Inspection Checklist

Appendix 14A

Name: _____ Date: _____ Crane #: _____

1.	Are Cranes visually inspected for defective components prior to beginning of any work shift?	Yes	No	Comments:
2.	Are all electrically operated cranes effectively grounded?	Yes	No	Comments:
3.	Is a crane preventative maintenance program established?	Yes	No	Comments:
4.	Are operating controls clearly identified?	Yes	No	Comments:
5.	Are fire extinguishers available in the immediate area of the crane?	Yes	No	Comments:
6.	Is the rated capacity visibly marked on the crane?	Yes	No	Comments:
7.	Is there sufficient illumination provided for the operator to perform work safely?	Yes	No	Comments:
8.	Does each crane have a certificate indicating that required testing and examinations have been performed?	Yes	No	Comments:
9.	Are crane inspections and maintenance records maintained and available for inspections?	Yes	No	Comments:
10.	All hooks are in good condition; free from cracks and deformation? Write serial numbers in comment section for hooks inspected.	Yes	No	Comments:
11.	All hoist chains and running ropes (including end connections) are free of excessive wear, twist, distorted links, and stretch beyond manufacturer's recommendations. Write serial numbers in comment section for hooks inspected.	Yes	No	Comments:



Rigging

Appendix
14B

Quarterly Inspection Checklist

Job Number/Contract # and title:	
Equipment name & number: Owned or leased?	
Contractor	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
2. Has all defective rigging been removed?			
3. Is rigging stored properly?			
4. Are running lines within 6.5' of the ground or working level guarded by a physical barriers?			
5. Are all eye splices made in an approved manner with rope thimbles? (Sling eyes excepted)			
6. Are positive latching devices used to secure loads?			
7. Are all custom lifting accessories marked to indicate their safe working loads?			
8. Are all custom designed lifting accessories proof-tested to 125% of their rated load?			
9. Are the following conditions met for wire rope:) a. Are they free of rust or broken wires? b. Are defective ropes cut up or marked as unusable? c. Do rope clips attached with U-bolts have the U-bolts on the dead end or short end of the rope? d. Are protruding ends of strands in splices on slings and bridles covered or blunted? e. Except for eye splices in the end of wires and for all endless wire rope slings, are all wire ropes used in hoisting, lowering, or pulling loads one continuous piece, free of knots or splices? f. Do all eye splices have at least 5 full tucks? g. If used, are wedge sockets fastening attached without attached the dead end of the wire rope to the live rope? h. Are they free of eyes or splices formed by wire rope clips or knots?			
9. Are the following conditions met for chain? a. Are chains inspected prior to use and weekly thereafter? b. Do all coupling links or other attachments have rated capacities at least equal to that of the chain. c. Are makeshift fasteners restricted from use?			
10. Are the following conditions met for fiber rope: a. Are all ropes protected from freezing, excessive heat or corrosive materials? b. Are all ropes protected from abrasion? c. Are splices made IAW manufacture's recommendations? d. Do all eye splices in manila rope contain at least 3 full tucks and do all short splices contain at least 6 full tucks(3 on each side of the centerline of the splice)? e. Do all splices in layed synthetic fiber rope contain at least 4 full tucks and do short splices contain at least 8 full tucks (4 on each side of the centerline of the splice)? f. Do the tails of fiber rope splices extend at least 6 rope diameters (for rope 1" diameter or greater) past the last full tuck? g. Are all eye splices large enough to provide an included angle of not greater than 60* at the splice when the eye is placed over the load or support?			



Rigging

Appendix
14B

Quarterly Inspection Checklist

	Yes	No	N/A
11. Are the following conditions met for all slings: a. Is protection provided between the sling and sharp surfaces? b. Do all rope slings have minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice? c. Do all braided slings have a minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice? d. Do all welded alloy steel chain slings have affixed permanent identification stating diameter, rated load, lift capacity in vertical, choker, basket configuration, and date placed in service? e. Is each synthetic web sling marked or coded to identify its manufacturer, rated capacities for each type hitch and the type material?			
12. Are drums, sheaves, and pulley smooth and free of surface defects that may damage rigging? (15.F.01)			
13. Is the ratio of the diameter of the rigging and the drum, block sheave or pulley thread diameter such that the rigging will adjust without excessive wear, deformation, or damage? (15F.02)			
14. Have all damaged drums, sheaves and pulleys been removed from service?			
15. Are all connections, fittings, fastenings, and attachments of good quality, proper size and strength, and installed IAW manufacturer's recommendations?			
16. Are all shackles and hooks sized properly?			
17. Are hoisting hooks rated at 10 tons or greater provided with safe handling means? (15.F.07)			
18. Do all drums have sufficient rope capacity?			
19. Is the drum end of the rope anchored by a clamp securely attached to the drum in a manner approved by the manufacturer?			
20. Do grooved drums have the correct groove pitch for the diameter of the rope and is the groove depth correct?			
21. Do the flanges on grooved drums project beyond the last layer of rope at a distance of either 2" or twice the diameter of the rope, whichever is greater?			
22. Do the flanges on un-grooved drums project beyond the last layer of rope a distance of either 2.5" or twice the diameter of the rope, which ever is greater.			
23. Are the sheaves compatible with the size of rope used and as specified by the manufacture?			
24. Are sheaves properly aligned, lubricated, and in good condition?			
25. When rope is subject to riding or jumping off a sheave, are sheaves equipped with cable keepers?			
26. Are eyebolts loaded in the plane of the eye and at angles less than 45* to the horizontal?			
27. Remarks: (Enter actions taken for "no" answers.)			

Inspector signature: _____

Contractor QC/safety/project manager
signature: _____