



All DeLong's Facilities

Procedure #:
CS-025

Overhead Crane/Hoist
Inspection and Testing

Rev 1

1. Purpose:

1.1 The purpose of this procedure is to outline the procedure for inspection and safe operation of overhead cranes/hoists.

2. Responsibility:

2.1 The Environmental Health and Safety (EHS) Manager is the program coordinator, with overall responsibility for the program, including reviewing and updating this plan as necessary.

2.2 The EHS Manager and/or Supervisors are responsible for implementation of this procedure and training of all employees with regard to this procedure.

3. References:

3.1 ASME B30.2-2011 – Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist).

3.2 ASME B30.10-2014 – Hooks.

3.3 29 CFR 1910.179 – Overhead and Gantry Cranes.

4. Procedure:

4.1 Crane/Hoist Inspections

4.1.1 Initial Inspection

4.1.1.1 An initial inspection is a visual and audible examination of the crane.

4.1.1.2 New, reinstalled, altered, repaired, and modified equipment will be inspected prior to initial use to verify compliance with the applicable provisions of ASME B30.2 Chapter 2-1.

4.1.1.3 Inspection of altered, repaired, and modified cranes may be limited to the parts of the crane affected by the alteration, repair, or modification, as determined by a qualified person. The cranes shall be tested in accordance with the requirements of ASME B30.2 Section 2-2.3.

4.1.1.4 Adjustments, repairs, or replacements necessary to satisfy requirements shall be made in accordance with ASME B30.2 para. 2-4.2.4 prior to initial use if the inspection and test reveal there are items and conditions that do not comply with the provisions.

4.1.1.5 Records of the inspection and test will be made and filed.

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4.1.2 Frequent Inspections

4.1.2.1 Daily inspections will include, but are not limited to:

- All functional operating mechanisms for maladjustment interfering with proper operation.
- Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.
- Hooks with deformation or cracks.
- Hoist chains, including end connections, for excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations.
- All functional operating mechanisms for excessive wear of components.
- Rope reeving for noncompliance with manufacturer's recommendations.

4.1.2.2 The Daily Crane Inspection Checklist (Form #012) will be completed for each crane/hoist prior to operation, and before each shift.

4.1.2.3 Any crane/hoist that does not pass the daily inspection will be taken out of service according to procedure CS-009 Lockout/Tagout, the supervisor will be notified, and a work order will be created.

4.1.2.4 Adjustments, repairs, or replacements shall be made, as necessary, in accordance with ASME B30.2 para. 2-4.2.4.

4.1.2.5 Monthly inspections will include, but are not limited to:

- Hooks
 - Inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection, and the serial number, or other identifier, of the hook inspected.
- Hoist Chains
 - Inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection, and an identifier of the chain which was inspected.

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- Hoist Ropes
 - Inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection, and an identifier of the rope which was inspected.

4.1.2.6 The Monthly Crane Inspection Checklist (Form #016) will be completed for each crane/hoist at least monthly and given to the EHS Manger to file.

4.1.2.7 Any crane/hoist that does not pass the monthly inspection will be taken out of service according to procedure CS-009 Lockout/Tagout and a work order will be created.

4.1.2.8 Adjustments, repairs, or replacements shall be made, as necessary, in accordance with ASME B30.2 para. 2-4.2.4.

4.1.3 Periodic Inspections

4.1.3.1 Complete inspections of the crane shall be performed at the following intervals:

- Normal service — yearly
 - Operating at less than 85 percent of rated load and not more than 10 lift cycles/hour except for isolated instances.
- Heavy service — semi-annually
 - Operating at 85 to 100 percent of rated load or in excess of 10 lift cycles/hour as a regular specified procedure.
- Severe service — quarterly
 - Operating at normal or heavy service under abnormal operating conditions (i.e., extreme temperatures, corrosive atmospheres).

4.1.3.2 Inspections include, but are not limited to:

- All functional operating mechanisms for maladjustment interfering with proper operation.
- Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.
- Hooks with deformation or cracks.
- Hoist chains, including end connections, for excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations.

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- All functional operating mechanisms for excessive wear of components.
- Rope reeving for noncompliance with manufacturer's recommendations.
- Deformed, cracked, or corroded members.
- Loose bolts or rivets.
- Cracked or worn sheaves and drums.
- Worn, cracked or distorted parts such as pins, bearings, shafts, gears, rollers, locking and clamping devices.
- Excessive wear on brake system parts, linings, pawls, and ratchets.
- Load, wind, and other indicators over their full range, for any significant inaccuracies.
- Gasoline, diesel, electric, or other powerplants for improper performance or noncompliance with applicable safety requirements.
- Excessive wear of chain drive sprockets and excessive chain stretch.
- Electrical apparatus, for signs of pitting or any deterioration of controller contactors, limit switches and pushbutton stations.

4.1.3.3 Adjustments, repairs, or replacements shall be made, as necessary, in accordance with ASME B30.2 para. 2-4.2.4.

4.2 Testing

4.2.1 Operational Tests

4.2.1.1 New, reinstalled, altered, repaired, and modified cranes shall be tested by a designated person prior to initial use to confirm that the crane performs in compliance with the provisions of ASME B30.2.

4.2.1.2 Tests shall include, as applicable, the following functions:

- Lifting and lowering
- Trolley travel
- Bridge travel
- Hoist-limit devices
 - The trip setting of hoist-limit devices shall be determined by tests with an empty hook comprising a series of runs, each at

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increasing hook speed up to the maximum speed, unless the hoist has only a single speed.

- The actuating mechanism of the upper-limit device shall be located or adjusted so that it will trip the device in sufficient time to prevent contact of the load block or load with any part of the trolley or bridge.
 - Travel-limiting devices
 - Locking and indicating devices, if provided

4.2.1.3 Operational testing of altered, repaired, and modified cranes may be limited to the functions affected by the alteration, repair, or modification, as determined by a qualified person.

4.2.2 Load Tests

4.2.2.1 New, reinstalled, altered, repaired, and modified cranes should be load tested prior to initial use, as determined by a qualified person.

4.2.2.2 Load testing of altered, repaired, and modified cranes may be limited to the functions affected by the alteration, repair, or modification, as determined by a qualified person.

4.2.2.3 The replacement of load chain and rope is specifically excluded from this load test; however, an operational test of the hoist shall be made in accordance with ASME B30.2 para. 2-2.3.1 prior to putting the crane back in service.

4.2.2.4 If a load test is conducted, the load shall be not less than 100% of the rated load of the crane or hoist(s), whichever governs; or more than 125% of the rated load of the crane or hoist(s), whichever governs; unless otherwise recommended by the manufacturer or a qualified person.

4.2.2.5 If a load test is conducted, the person conducting the load test shall prepare a written report of the load sustained during the test and the operations performed during the test. Reports will be placed on file.

4.2.2.6 If a load test is conducted, operations will be performed as outlined below or as modified by a qualified person.

- Hoist the test load a distance to ensure that the load is supported by the crane and held by the hoist brake(s).

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- Transport the test load by means of the trolley for the full length of the bridge.
- Transport the test load by means of the bridge for the full length of the runway in one direction with the trolley as close to the extreme right-hand end of the crane as practical, and in the other direction with the trolley as close to the extreme left-hand end of the crane as practical.
- Lower the test load, and stop and hold the load with the brake(s).

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