Materials Handling – Crane Pre-operation Inspection Fact Sheets

WHEN SHOULD YOU INSPECT A CRANE?

- Use and follow maintenance checklists that include critical safety components as specified by the manufacturer, professional engineer and/or your company's requirements.
- Inspect the crane as often as required – pre-operation, daily, weekly, monthly, annually and/or periodically as specified by the manufacturer.
- Document all findings clearly in the maintenance logbook, including all tests, repairs, modification and maintenance.
- Keep logbook with the crane.
- Have the crane certified by a professional engineer as required, including the structural, mechanical and control systems.

What should you check for before operating a crane?

A crane is a type of material handling equipment that transports a load vertically and horizontally. The lifting mechanism (hoist) is an integral part of the crane.

There are several types of cranes which have the same fundamental characteristics but differ in the way they are supported (mounted): overhead cranes (bridge), mobile cranes, or fixed cranes (tower). Each type may have specific safety operating requirements, but there are safety inspection elements that are similar. Follow the manufacturer's instructions for each type of crane.

- Capacity markings – present
- Rope appearance – lubrication, kinks, cuts, breaks, corrosion, reduced diameter, broken strands of wires or other signs of wear or damage.
- A rope drum – position of cable in groove tracking, means of anchoring and drum wear or damage.
- Sheaves – alignment of ropes, guides, dead ends, wear in sheave groove.
- Hooks – cracks, twisting, straightening, hook throat opening or other signs of wear or damage, bent safety latch and broken spring.
- Slings – appropriate type of sling, legible and appropriate capacity ratings, with no holes, cuts, crushed webbing or other damages.
- Lights – burned out, broken.
- Mechanical parts and guards – loose, bent, broken, and missing.
- Rails – broken, chipped, cracked.
- Wheels – worn (shown by bumpy riding).
- Bearings – loose, worn.
- Brakes – shoe wear.
- Bridge bumpers and trolley end stop – loose, missing, improper placement.

- Controllers and collector shoes or bars – worn, pitted, loose, broken, or faulty operation.
- Control buttons – labeled to indicate their function, properly function, immediately release without sticking.
- Foot walk zone – condition of the boards, railings, and ladders.
- Gears – lack of lubrication or presence of foreign material in gear teeth (indicated by grinding or squealing).
- A fire extinguisher must be in the crane cab.
- Make sure that no one is on or around a crane before closing the main or emergency switch, even when starting on regular duty.
- Before closing the main switch, make sure that all controllers are in the “off” position.
- Inspect oil after opening and locking out the main switch.
- Make sure no overhead power lines are obstructing the crane operation.

What should you inspect while the crane is moving?

Before lifting any load you should start the crane and inspect it when it is moving. Look for:

- Smooth play out of wire rope to and from a drum.
- Sheaves turning without binding or jerking as a rope passes over them.
- Proper alignment where ropes enter sheaves.
- Ropes not rubbing on rope sheave guards.
- Rubbing, scraping, or clattering noises during operation.
- Jerky movements.
- Proper operation of controls and brakes.
- Test the limit switch. Slowly raise the hook block with no load attached to the hook.