

# **\*WAC Inspection Criteria for Cranes Used in Construction**

## **IMPORTANT QUESTION:**

Who will be **cited** if a crane on a construction work site has not been inspected according to the new regulations?

## **ANSWER:**

1. The general contractor who, overall is responsible for safety.
2. The subcontractor for whom the crane is performing the work.
3. The crane rental company/owner, if they indicated that the crane was inspected properly, when in fact it was not.

## **CRANES AFFECTED BY WAC 296-155-52902: (Effective Jan. 1, 2010)**

This standard applies to power-operated cranes and derricks used in construction that can hoist, lower and horizontally move a suspended load (with or without attachments). Such equipment includes, but is not limited to: Floating cranes, Cranes on barges, Locomotive cranes, **Mobile cranes: (Rough-terrain, All-terrain, Truck-mounted, Boom truck cranes, Articulating boom cranes, Carry-deck cranes, Dedicated pile drivers, Service/mechanic trucks with a hoisting device, Crawler cranes)**, Crane on a monorail, Tower cranes, Pedestal cranes, Portal cranes, Overhead and gantry cranes, Straddle cranes, Side-boom tractors, Derricks.

**REVIEW THE FOLLOWING CHECKLIST,** prior to the inspection of your crane. Deficiencies found during the inspection many times require a follow-up visit which is not covered in the original price of the inspection. If you have any questions or concerns, please don't hesitate to call us. (\*The guidelines in this checklist are general in nature and may not include all of the inspection criteria for all types of cranes.) Print out the following as necessary.

- Crane maintenance records-** Ensure maintenance has been performed in accordance with manufacturer's recommendations.
- Periodic and frequent inspection documentation-** Review inspection logs and documents to ensure periodic inspections have been performed on a regular basis and all deficiencies have been corrected.
- Owner's manual & load charts-** Before beginning inspection check owner's manual and load charts to plan load and functional tests.
- Wire rope certificate-** Verify that the wire rope meets the specifications of the manufacturer. If unsure then a wire rope certificate will be needed from the manufacturer of the wire rope. (When replacing the wire rope on the crane, be sure to request the wire rope certificate.)

## CAB:

- Crane cleanliness & housekeeping-** Make sure the cab is clean and not cluttered. Check glass for cracks, and that windshield wipers work. The seat should be in good condition and adjustable.
- Fire extinguisher-** A minimum 10 BC rating.
- PTO switch-** Must be labeled properly with instructions for its use.

## CHASSIS:

- Tires-** Check for proper inflation, uneven wear, cuts, bent rims and missing lug nuts.
- Outriggers/stabilizers-** Should deploy smoothly. Check pads for cracks and deformation. Check welds, fasteners, hydraulic hoses, fittings, and tubing.
- Frame-** Check for cracks, broken welds and loose fasteners.
- Under vehicle-** Check engine & drive train; Suspension & steering; Hydraulic pump; Exhaust system; and all air, hydraulic and other pressurized lines are free of damage and leaks.

## OPERATOR STATION/CAB:

- Controls/gauges-** Check for sticking levers, excessive wear or contamination by lubricants or foreign matter. Including signal horn, emergency stop switch, emergency bypass switch, etc.
- Operational aids & safety devices-** Make sure all safety devices and operational aids are in proper working order, including: Level and angle indicators, Weight indicator, Overload prevention system, LMI, etc.
- Steps, guards & handrails-** Must be in good condition. An anti-skid surface on platforms is required.
- Load charts and warning decals-** Check that load chart and decals are legible and applicable. Hand signal chart should be posted at the worksite.

## TURRET AND BOOM:

- Rotation bearing-** Check for wear and lubrication. Check fasteners for signs of looseness. Verify any bolt torque values as specified by the manufacturer.
- Hinge pin/bushing-** Check for wear and lubrication.
- Winch-** Check mounting bolts and for proper reeving.
- Lift cylinder-** Check condition, leaks, and pins.
- Boom sections-** Check each section for dents, twists or damage. The boom sections should have radius markings unless the boom rating is independent of the boom length or there is a radius indicator.

- ❑ **Slide pads-** Check for wear and needed adjustment.
- ❑ **Boom tip/sheaves-** Make sure there the sheaves are in good condition and there is a guard to prevent the rope from coming out of the groove. Bearings should have a means of lubrication if required.
- ❑ **Anti-2-block system-** Is required on cranes that hoist personnel and on all cranes used in maritime in Washington State.
- ❑ **Swing-away or offset jibs-** Inspect for bent chords or lacings, broken welds and pins or fasteners.

## HOOK ASSEMBLY:

- ❑ **Wire rope-** Must meet the crane's specifications for size, type and inspection requirements. Inspect the entire working range of the rope plus 3 wraps.
- ❑ **Hook and safety latch-** Check the hook for a working safety latch. Check for bends and twists. Check swivel for lubrication and ease of movement. Check headache ball for capacity and that it is not pinching the wire rope.
- ❑ **Block assembly-** Check block to make sure it is reeved correctly. Check dead end if attached to the block. Check sheaves for wear and lubrication. Check fasteners on side plates and make sure there is a capacity tag showing the weight and capacity of block.
- ❑ **Wedge socket-** Make sure tail is long enough. It should be 10 times diameter for normal wire rope or at least 6 inches in length. For rotation resistant wire rope it should be 20 times the diameter or at least 10 inches in length. Make sure the tail is tied off correctly and is not wire rope clipped to the live side.

## FUNCTIONAL TEST

- ❑ **Crane configuration-** Is in accordance with the manufacturer's equipment criteria or if unavailable a registered professional engineer familiar with the type of equipment.
- ❑ **Lifting/hoisting and lowering-** Check hoist control. It should be variable going from slow to fast speeds.
- ❑ **Boom lifting and lowering-** Check that boom control is smooth in both the retracted and extended areas.
- ❑ **Boom extension and retraction-** Check boom extension control in both the vertical and level positions.
- ❑ **Swing mechanism-** Check swing control at multiple boom lengths and angles. If crane has 360-degree of operation then completely rotate it.
- ❑ **Limit switches-** Check all limit switches and locks. RT's that are being certified for "on rubber" operations, must have the suspension lock tested.

## LOAD TEST/ANNUAL:

- Setup-** Select a safe secure area. Check ground conditions. Rigging should be inspected by a qualified person. Ensure all personnel involved understand the safety procedures of the test. Use certified weights. (Prior to inspection, please contact inspector to ensure adequate test weights are available.)
- Load test requirements-** Max. line pull on all hoist lines. Do not exceed manufacturer's specifications. If load chart has both structural and stability sections then a load test will need to be performed in both areas.
- Free rated load test (on-rubber) –** This load test is only for those cranes that do "on rubber" picks or "pick and carry". (See WAC 296-155-53202(4)(d) for details.)

### **LOAD TEST/QUADRENNIAL:**

- Jib sections-** Each jib (swing-away, luffing boom, fly jibs) will need to be load tested.
- Off-set jib-** This load test must be at maximum off-set.

### **CERTIFICATES:**

- Permanent State identification sticker-** Must be attached to each crane and jib, and lattice boom section and can only be removed by L&I or a state certified crane inspector.
- Temporary certificate-** Once the crane has passed the inspection and load tests the inspector will issue a temporary certificate which must be posted in the operator's cab or with the operator's manual.
- Deficiency report-** Will be used if there are deficiencies that would affect the safe operation of the crane. When the Certifier has verified that all deficiencies have been corrected than he will issue the temporary certificate.
- State certificate-** This will be issued by the State after all worksheets, proof of load testing have been received and approved. This certificate is valid for one year from the effective date of the temporary certificate and must be posted in the cab or with the operator's manual.

For further Information and to schedule your crane for inspection contact:



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Please schedule your crane as early as possible before the end of this year. We anticipate a waiting period towards the end of 2009 and the beginning of 2010: