Mobile Crane and Boom Truck Annual Inspections Guideline

2021

PURPOSE OF GUIDELINE

The purpose of this guideline is to outline some of the factors that should be considered when determining if an inspection has been conducted in accordance with good engineering practice under section 5.61(2) of Part 5 - Cranes, Hoisting and Lifting of the Yukon Occupational Health and Safety Regulations. The guideline also provides information on who is authorized to certify that the crane or boom truck is safe for use after the inspection has been done.

REGULATORY EXCERPT

Section 5.61 of Part 5 of the Occupational Health and Safety Regulations states:

5.61 Inspection intervals

(1) Mobile cranes or boom trucks, and aerial ladder cranes shall be inspected and certified by a professional engineer

(a) prior to initial service

(b) after any damage and subsequent repair, and

(c) if the crane has been overstressed.

(2) Mobile cranes, boom trucks and aerial ladder cranes shall be inspected in accordance with good engineering practice at intervals not exceeding 12 months, and certified as safe for use by a professional engineer, the crane manufacturer or the crane manufacturer's authorized representative.

5.03 Standards

(3) A mobile crane, telescoping or articulating boom truck or aerial ladder crane shall meet the requirements of

(a) CSA Standard Z150-98, Safety Code on Mobile Cranes,

(b) ANSI Standard B30.5, Cranes, Mobile and Locomotive Cranes, or

(c) ANSI Standard B30.22-2000, Articulating Boom Cranes.

5.07 Inspection, maintenance and repairs

Cranes and hoists shall be inspected and maintained, as specified by the manufacturer's manual, unless otherwise approved by the original equipment manufacturer or a professional engineer, and records kept of the inspections and maintenance.

(1) Maintenance of each crane and hoist shall ensure that every component is capable of carrying out its original design function with an adequate margin of safety.

(2) A crane or hoist shall not be used until any condition that could endanger workers is remedied.

5.07 Records

(3) Records of inspection and maintenance meeting the requirements of these Regulations shall be kept by the equipment operator and other persons inspecting and maintaining the equipment for

(a) a crane or hoist with a rated capacity of 1,000 kg (2,200 lbs.) or more,

(b) a crane or hoist used to support a worker,

(c) a tower crane,

(d) a mobile crane, boom truck or aerial ladder crane,

(e) a side boom tractor or pipe layer,

(f) a construction material hoist,

(g) a chimney hoist, and

(h) any other type of hoisting equipment specified by the director.

GOOD ENGINEERING PRACTICE

An annual inspection and certification of a mobile crane or boom truck is required by the Regulations. This inspection and certification are to be done in accordance with good engineering practice. The concept of good engineering practice as it applies to section 5.61(2) means inspection, assessment, repair (if necessary) and certification of the equipment and includes consideration of:

- Applicable regulations, safety codes and standards
- Manufacturer's instructions for operation, inspection, maintenance, servicing and repair
- Operating, maintenance and service records

CERTIFICATION

Certification must be sealed or stamped by a professional engineer. If the inspection, assessment and any necessary repair work are done in the Yukon, the engineer, as required by the Yukon Engineering Profession Act, must be licensed to practice in the Yukon Territory. If this work is being done outside of the Yukon, for example in Alberta, the engineer must be licensed to practice in that jurisdiction.

The certification documents must include a statement that the equipment is safe for use. This means, if operated according to the manufacturer's instructions, that the equipment should reasonably be expected to perform safely until the next inspection / certification is required.

The certification also needs to include a statement that the structural, mechanical and control elements of the equipment have been inspected in accordance with the manufacturer's specifications and the requirements of the applicable design and safety standards, along with the names of the qualified person(s) who carried out the inspection work, with their qualifications. The supporting documentation to the inspection needs to be readily available for an officer's review when requested.

Any necessary repairs that have been completed and re-inspected in accordance with manufacturer's instructions, the applicable standards and the engineer's repair procedure should also be noted. If the certifying engineer deems it necessary to provide a restricted certification statement (for example, if some components are currently acceptable for safe use but will likely require replacement or renewal before the next annual inspection), the engineer will ensure the owner or employer is made aware of these concerns. He or she will also note the concerns on the equipment inspection and maintenance records. It is not acceptable for the certifying engineer to provide a certification when there are outstanding deficiencies affecting the safe performance of the equipment or compliance with the Regulations.

THE INSPECTION PROCESS

The employer or owner of the equipment should consult the certifying engineer in advance to arrange the location of the inspection, testing and necessary repair work, and to ensure qualified people and adequate facilities are used following the instructions of the certifying engineer.

Inspection and certification requires assessment of the "critical components," meaning the structural, mechanical and control system components that affect the safe operation of the equipment. The specific identity of these components will vary from one type of equipment to another, depending on the design and configuration of the equipment. Appropriate qualifications for performing the inspections include a person qualified to CSA W178.2 (for visual weld inspection), CAN/CGSB 48.9712 (for non-destructive testing) and a licensed heavy duty mechanic (for mechanical/hydraulic and electrical inspection). Other qualifications based on training, education and experience may also be appropriate.

The frequency of inspections of individual components and the extent of inspections, including dismantling, assessment and non-destructive testing or other testing, will be determined by the certifying engineer. The factors relevant in making these determinations include:

1. Requirements of the applicable regulations, safety codes and standards
2. The equipment manufacturer's specifications and instructions
3. The certifying engineer's familiarity with the particular design and model of equipment, including known reliability problems or component problems
4. Previous inspection history and results
5. Age of the equipment and number of hours of use
6. Circumstances of use of the equipment (for example, heavy duty vs. light use) and any known incidents since the last certification
7. The general condition of the equipment
8. The environment in which the equipment has been used (for example, a corrosive environment vs. a clean, dry shop or yard area)
9. The available use, service, inspection and maintenance records
10. The certifying engineer's knowledge of the overall effectiveness of the service and maintenance program

THE REPAIR PROCESS

Based on the outcomes of the inspection, the certifying engineer will determine any necessary repair work. If repair work is necessary, areas affected by the repairs need to be re-inspected. Any repair to load-bearing components of a crane or hoist must be certified by a professional engineer or the original equipment manufacturer as having returned the component to a condition capable of carrying out its original design function with an adequate margin of safety. As required by section 5.08(1) of the Regulations, a professional engineer must certify that the repaired equipment is safe before any use.

Records of all inspections and repairs are to be recorded in the inspection and maintenance recording system in accordance with section 5.07(3) and section 6.02(c) and (d) of the Regulations.

Employers, inspectors and engineers are encouraged to obtain a complete copy of the applicable Standard(s) the equipment is required to meet.

Disclaimer: This resource has been prepared to help the workplace parties understand some of their obligations under the Occupational Health and Safety Act and regulations. It is not legal advice. It is not intended to replace the OHSA or the regulations.