Base Mounted Hoist Operator Guidelines

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DISCLAIMER

The Communications Infrastructure Contractors Association, (NATE) is a nonprofit trade organization dedicated to facilitating safety, education and standards for the tower erection, service, and maintenance industry. In that regard, NATE compiles safety resources available to Members to assist them in the development of their safety and health programs.

NATE wishes to confirm that this document is not intended to be a training course, but rather an informational safety resource to provide a minimum requirement for educating hoist operators and should not be considered a review of responsibilities for other duties conducted on a tower site. All details pertaining to Base Mounted Hoist Operator standards can be found in the ANSI/ASSP A10.48-2023. By reviewing and utilizing this information provided by NATE, you hereby acknowledge and agree that NATE is not and does not assume responsibility or any legal duty to any one person or party, including any liability for the training of employees on tower sites. At all times, employers remain solely responsible for the safety of employees on tower sites, and it is their sole legal obligation and responsibility to comply with all applicable OSHA and state regulations. The use of the resource and the concepts discussed herein is at the user's sole discretion and risk.

If you have any questions regarding these guidelines, please contact the NATE office at:

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Base Mounted Hoist Operator Guidelines

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This manual contains the suggested minimum safety requirements for training to become a qualified base mounted hoist operator.

I. BASE MOUNTED HOIST

A. Becoming Familiar with Base Mounted Hoists

Operators should become familiar with the following items including, but not limited to:

- Hoist lifting capacities (load chart);
- Operation of anti-two-block system and/or alternative procedures;(required if lifting personnel)
  - Note: High RF environment may affect the Anti-Two Block system
- Normal engine operating speeds and temperatures;
- Normal hydraulic pressures and temperatures;
- Service and maintenance information;
- Emergency stop functions;
- Manufacturer's operation and maintenance manual.
- Fire extinguisher location in the operator's station on the hoist, minimum 5 lb. BC extinguisher.

B. Setting up the Hoist

The Operator shall be familiar with the following items including, but not limited to:

- Hoist inspection requirements and checklist (see inspection section)
- Construction Plan per the ANSI/ASSP A10.48-2023
  - Placement of the hoist in relation to the structure face shall consider the angle from the base block(s) and equipment mounted, or to be mounted, on the structure. Make certain there is ample clearance for the load line and the intended load to move up and down the tower.
- Rigging Components and connections on the structure
- Heel block placement (matches the construction plan)
- Placement of hoist to ensure level, proper fleet angle, drum clearance, and distance;
- Hoist Anchorage
  - The hoist anchorage system shall be sufficient to withstand the heaviest anticipated load calculated to include appropriate safety factors. Conducting the proof test will verify the anchorage. If there is hoist movement during the proof test, re-evaluate the anchorage system and make corrections.
- Ground hoist as per manufacturer's recommendations or company's procedures
- Proof Test
- Tagging methods
- End connections on the spool

C. Lifting Applications

The Operator shall be familiar with the following items including, but not limited to:

- Material Lifting

  The operator must be deemed qualified by their employer as a hoist operator. The operator has the ability to review and adhere to the site-specific construction plan.

A documented proof test shall be performed after the operator performs the pre-job inspection prior to lifting any loads.

- Personnel Lifting

  The operator must be authorized by their employer to lift personnel.

  Only a man-rated drum (personnel rated) hoist can be used to raise personnel. Man-rated drums must be inspected and maintained in accordance with the manufacturer's instructions and recommendations and the ANSI/ASSP A10.48-2023. A daily hoist inspection shall be conducted and documented prior to lifting personnel. The inspection shall include the hoist and all rigging components.

  Lifting of personnel must be performed in accordance with OSHA Directive CPL 02-01-056, commonly referred in the industry as the "Riding the Line" directive.

  If using a platform to hoist personnel, the platform must be an approved personnel platform and a documented inspection shall be performed. Personnel platform requirements can be found in the ANSI/ASSP A10.48-2023.

  Prior to lifting personnel, the operator shall perform and document the proof test and engage in the pre-lift meeting. All personnel on the site shall attend the pre-lift meeting. The operator shall perform a proof test and engage in the pre-lift meeting each time the hoist is moved and set up in a new location or returned to a previously used position. In addition, a pre-lift meeting must be repeated any time there is a personnel change.

  Operator and/or competent person shall determine if weather conditions are acceptable before lifting personnel.

  A designated operator shall supervise a trainee when lifting personnel or other loads deemed critical by the employer. The employer shall maintain a record of hours trained.

D. Unsafe Lifting Conditions

- Weather

  Loads shall not be hoisted during adverse weather conditions or when there is other impending danger, except in the case of an emergency or employee rescue. Weather conditions that can create a hazard include, but are not limited to:

  - Wind
  - Lightning
  - Rain
  - Snow
  - Sleet/Hail
  - Extreme cold
  - Ice
  - Heat

- Power Lines

TABLE A - MINIMUM CLEARANCE DISTANCES	
Voltage (nominal, kV, alternating current)	**Minimum Clearance Distance (feet)**
Up to 50	10
Over 50 to 200	15
Over 200 to 350	20
Over 350 to 500	25
Over 500 to 750	35
Over 750 to 1,000	45
Over 1,000	As established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.
Note: *The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200 kV.*	

Maintain the minimum approach distance from power lines at all times. The gin pole, base mounted hoist(s), hoist cables, load, and tag line must be kept at least ten (10) feet from any power line operating at 50 kV or less. If the voltage of the power line is not known, the operator and field supervisor should ensure all operations maintain a forty-five (45) foot clearance.

During operations the base mounted hoist shall be grounded. All power lines shall be considered energized unless de-energization is verified with the utility owner. Any lines deemed inactive as a result of verification shall be visibly grounded.

E. Proper Communication

The pre-lift meeting should include proper signaling procedures and, if radios are used, must include a radio check.

Signaling techniques shall follow all of the requirements listed in subpart CC 1926.1419. Making sure the hoist operator and the tower crew are using the same terminology on the radio and/or hand signals is essential. All employees involved in directing or controlling the lift, must be familiar with and use the company's standardized hand and voice signals.

F. Conducting a Pre-Lift Meeting

A pre-lift meeting shall be held prior to lifting personnel, material, or equipment and all employees on the job site shall participate.

Topics covered include, but are not limited to:

- Hoist and rigging component inspections;
- Safety procedures for personnel mounting, riding, and dismounting the hoist line. If using a personnel plat form, the procedures for entering and exiting the platform should be discussed;
- The work to be performed;
- Signaling and communication methods to be used; and
- Anti-two block method or procedure is operational and must be utilized when personnel are being lifted.

G. Performing a Proof Test

- Perform a proof test per ANSI A10.48-2023 prior to lifting materials or personnel.
- A proof test is required each time the hoist is moved and set up in a new location, returned to a previously used position, the lift route has changed, or the lifted item changes from material to personnel or vice versa.

- Any defects or problems found in the equipment after the proof test inspection shall be corrected prior to performing lifting activities, and another proof test shall be conducted.

H. Onsite Documentation

The following documentation including, but not limited to, shall be maintained on site:

- Most current revision of the Construction Plan
- Hoist Load Chart provided by the manufacturer or created by a qualified engineer
- Daily Hoist Inspection
- Operating manual for the specific make and model of hoist being used
- Pre-lift meeting acknowledgement
- Proof test
- Anti-two-block testing of equipment or procedure, if applicable
- Gin Pole Load Chart, if applicable
- Gin Pole Assembly Drawings, if applicable

I. Hoist Inspections

- All Hoists:

  Before operating the hoist, a competent person shall perform a documented daily pre-operations check list per the manufacturer's guidelines. The pre-operation checklist may include but is not limited to a check of: fluid levels, controls, cables, brakes, clutches, chains, hoses, hour meter, functionality of all safety devices and brakes, loose and/or missing structural components, etc. to make sure nothing was dam- aged during transport and unloading activities. The hoist must function properly without any damage. Inspection records shall be available and accessible for a minimum of two years.

  - Inspection records shall be available and accessible for a minimum of two years.
  - A documented periodic inspection shall include the following items in addition to the daily inspection criteria specified above and be maintained for two years:
    - Engine and hydraulic oil analysis and evaluation per the manufacturer's specifications.
    - Dynamic testing of winch assembly in both hoisting and lowering directions while under load of at least 30% of hoist listed capacity.
  - A teardown inspection shall include the hoist being disassembled, cleaned and inspected, replacement of all worn, cracked, corroded, or distorted parts such as pins, bearings, shafts, gears, brake rotors, brake plates, drum and/or base.
  - After a teardown inspection, a certificate shall be issued that includes the following: the effective date of repair, the asset and serial numbers of the unit, the name of the repair shop, the name of the qualified person.

- <u>Hoists that are utilized for personnel hoisting</u>:

  Must perform initial, frequent, periodic and tear down inspections in accordance with the hoist manufacturer's instructions and as outlined in the OSHA Directive CPL 02-01-056 and ANSI/ASSP A10.48-2023.

- <u>Initial Inspection</u>

  This inspection is performed by the qualified person when a new hoist is put into service or an existing hoist is returned to service after maintenance, modification, or repair. Consult the manufacturer's guidelines or owner's manual for guidance.

- Frequent Inspection

  Daily documented inspection by the operator or other designated personnel. Deficiencies that do not pose a hazard shall be corrected immediately (e.g. fluid level); hazardous deficiencies shall be referred to your company's qualified person for repair.

- Periodic Inspection –

  A documented inspection of equipment and components performed at intervals as specified by the manufacturer, regulation or standard, but not to exceed one year. Periodic inspections are based upon the frequency of use and severity of service conditions. Any deficiencies shall be examined and a determination made by a qualified person, if such items constitute a hazard.

- Hoist Not in Regular Use

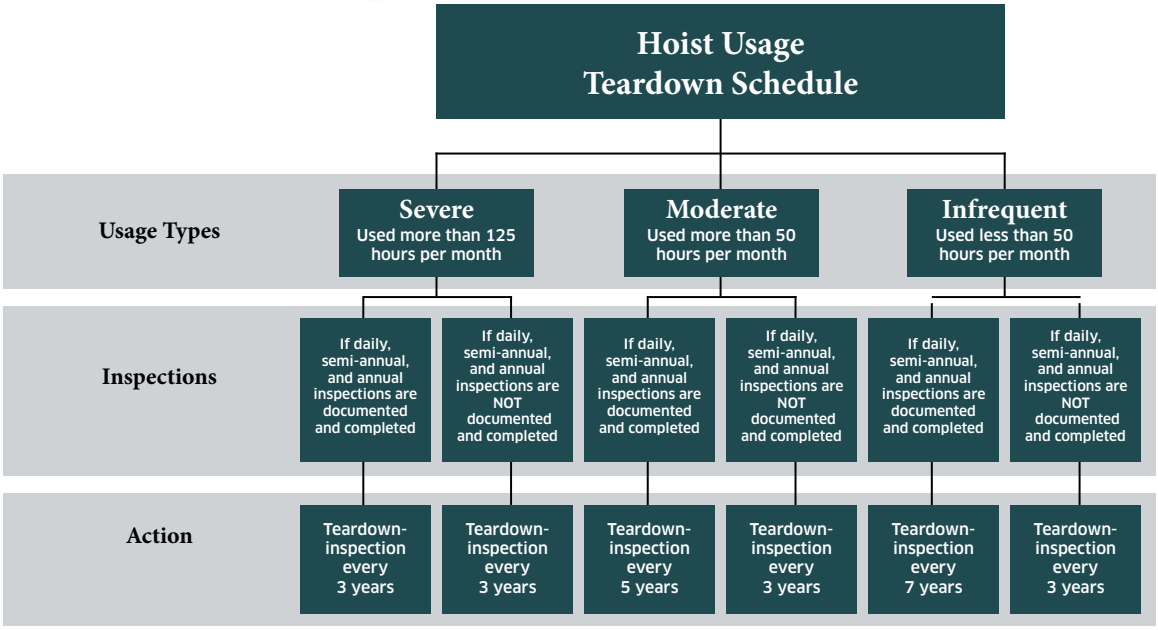
  A hoist which has been idle for a period of one month or more, but less than six months, shall be given an inspection conforming with the requirements of the frequent inspection before being placed in service. Follow manufacturer's recommendations for putting the unit back in use.

  A hoist which has been idle for a period over six months shall be given a complete inspection conforming to the requirements of both frequent and periodic inspections.

- Tear-Down Inspections

  All hoists shall undergo a tear-down inspection annually unless the following conditions exist:

  - Hoists with infrequent or moderate usage may go 36 months between tear-down inspections if serviced under a preventive maintenance program as specified by the manufacturer (See CPL 02-01-056 Hoist Inspections); and
  - Hoists that experience heavy usage may go up to 24 months between tear-down inspections if serviced under a preventive maintenance program as specified by the manufacturer (See CPL 02-01-056 Hoist Inspections).



- Inspection Records

  Dated inspection reports and records shall be made on critical items as specified by the manufacturer. Dated records must be kept where readily available to appointed personnel.

II. HOIST OPERATOR

A. Qualifications

All operators shall read and be familiar with the ANSI/ASSP A10.48-2023 This standard includes the specific qualifications required to operate a base-mounted drum hoist.

ANSI/ASSP A10.48-2023 Section 14 references the training requirements which may include a written exam, practical exercises and documented practical evaluations. Section 8 references the operator requirements and responsibilities.

An operators' competency shall be evaluated by a qualified person on the hoist in use. The competency may be a written test with a minimum percentage of understanding, and/or a physical demonstration of understanding that is clearly measurable. The employer is ultimately responsible for ensuring the training is applicable to the work tasks and for designating an individual as authorized, competent, or qualified based upon their demonstrated proficiency and experience.

The physical qualifications should be evaluated prior to certifying or re-certifying an operator.

The recommended physical requirements consistent with ANSI/ASSP A10.48 and/or a DOT medical examination and include but not limited to:

- Have vision, with or without corrective lenses to visualize the operations taking place
- Ability to distinguish colors, regardless of position, if color differentiation is required
- Hearing to meet operational demands, with or without hearing aid.
- Strength, endurance, agility, coordination, and speed of reaction to meet operation demands.

In addition, NATE recommends that as a minimum, the qualified hoist operator:

- Has experience in the work being performed on the structure.
- The ability to assist in a rescue as an Authorized Rescuer.
- Know hand signals per ANSI/ASSP A10.48-2023 Appendix A-8(b) as well as radio communication signals.
- Read and become familiar with OSHA Directive CPL 02-01-056 if lifting personnel.
- Keep up-to-date with changes in equipment advances and changes in OSHA regulations, standards, and best practices that pertain to the operation of a base mounted hoist.

B. Responsibilities

Operators shall have documented training consisting of safe operation of the hoist utilizing the manufacturer-provided operator's manual, company policy, and ANSI/ASSP A10.48-2023. An operator is responsible for the operations under their direct control and has the authority to stop work and refuse to handle a load. Operators should have experience on the same or similar unit being used for the intended project and shall demonstrate proficiency on the safe operation of the hoist in use. They shall be familiar with regulations and standards associated with the lifting and rigging equipment used. They shall be qualified on the machine being operated:

An operator trainee shall NEVER hoist personnel or other critical lifts, and shall only operate the hoist un- der direct supervision of a designated operator. The trainee shall be familiar with the method of communication in use, which may include, but is not limit- ed to: two-way non-trunked radio communication, industry standard or company designated hand signals, and/or verbal cues. The method of communication shall be confirmed with the designated signal person prior to a lift, when applicable. They shall be familiar with gin pole operations and procedures if applicable.

III. RIGGING METHODS AND PRACTICES

Before lifting a load, the hoist operator shall have knowledge and understanding of the rigging system as documented in the construction plan. NATE recommends utilizing rigging training that meets the NATE Rigging Training Standard (RTS).

At a minimum, the hoist operator should be able to read and understand the onsite Construction Plan (Rigging Plan), know how to inspect the rigging in use, be able to determine the center of gravity of any material being hoisted, have a working knowledge of the OSHA regulations and ANSI/ASME standards, and utilize best practices.

It is important to realize that reading this document does not make an individual a competent rigger. Resources for rigging training can be found on the NATE EXCHANGE.

IV. HOIST FREQUENT INSPECTION CHECKLIST

Date:_____ Job Number:_____ Operator:_____

Serial #:_____ Model #:_____ Unit #:_____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Motor Oil Level Engine & Winch																															
Hoses																															
Water Level																															
Fuel Level																															
Hydraulic Oil Level																															
Hydraulic Oil Leak																															
Air Pressure/ Leak																															
Electrical Components																															
Gauges																															
Anti-Two Block																															
Overspeed Alarm																															
Brakes																															
Load Test Completed																															
Batteries																															
Fire Extinguisher (min 10BC)																															
Protective Covers																															
Broken Welds/ Cracks																															
Top Drum																															
Middle Drum																															
Bottom Drum																															
Base/Heel Blocks																															
Tie Down Hardware																															
Rope Terminations																															
Grease Points																															
Capstan Hoist Operation																															
Structural Condition																															
Notes:																															

V. HOIST PERIODIC INSPECTION CHECKLIST

Date:_____ Job Number:_____ Unit #:_____

Drum Serial #:_____ Model #:_____ Man Rated ☐ YES ☐ NO

Drum Serial #:_____ Model #:_____ Man Rated ☐ YES ☐ NO

Drum Serial #:_____ Model #:_____ Man Rated ☐ YES ☐ NO

Inspection Criteria	Pass	Fail	Date Corrected	Comments
Frequent Inspection completed				
Deformed, cracked, or corroded members				
Loose or missing bolts or rivets				
Cracked or worn drums or sheaves				
Power plants operating in compliance with applicable safety requirements and manufacturer specifications				
Excessive wear, distortion, or damage on brake and clutch system parts and linings, and on pawls and ratchets				
Worn, cracked, or distorted parts such as pins, bearings, shafts, gears, rollers, and locking and clamping devices				
Excessive wear of chain drive sprockets and excessive chain stretch, if applicable				
Pitting, corrosion or deterioration of controller contacts, limit switches, and push button stations				
Frame, leveling devices and outriggers, if applicable				
Dynamic testing of winch assembly in both the hoisting and lowering directions while under a load of at least 30% of the hoist lifting capacity.				
Engine and hydraulic oil analysis report				

Periodic Inspection should be done in conjunction with a Frequent Inspection.

Attach documentation for any items corrected.

Qualified Person Signature_____ Date_____

NOTES

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