

Hoist, Jack, and Crane Inspections and Safety Information

Engine hoists, transmission jacks, and cranes work with very heavy loads, so there are some important safety precautions to consider when using this equipment. Even Pneumatic-Hydraulic Mobile Lift Tables pose a safety hazard if they are not functioning properly or used correctly.

The following information and examples of inspection checklists can help you determine if your equipment is in proper working order. It is important to ensure the safety of the operator and other employees working in the area. A pre-use inspection should be completed before each use and a monthly inspection should also be completed. Annual inspections, maintenance, and repairs should be completed by a qualified vendor or technician.

Always refer to the operation manual of your specific equipment to ensure equipment is functioning properly and operated in a safe manor.

General Safety Precautions

- A personal protective equipment (PPE) hazard assessment must be performed for the task.
- Rated load capacities, recommended operating speeds, special hazard warnings and/or instructions, shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to operators while they are at their control stations.
- Do not exceed the rated load capacity of the crane, hoist, slings, or other components.
- Persons operating the crane, hoist or sling shall inspect all machinery and equipment prior to each use to make sure it is in safe operating condition.
- Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or other moving parts or equipment shall be guarded if such parts are exposed to contact by employees, or otherwise create a hazard.
- No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's written approval. In no case shall the original safety factor of the equipment be reduced.
- Lock Out / Tag Out a hoist or crane that is unsafe or in need of repair. Arrange to have the equipment serviced and repaired before continuing use.
- Never operate a hoist or crane that in your opinion is UNSAFE TO OPERATE.
- Read and carefully follow the safety precautions and operating instructions for the specific equipment in use. Most problems with new equipment are caused by incorrect operation or assembly.
- Follow the manufacturer's recommended maximum relief valve pressure setting.
- Never attempt to lift a load heavier than the rated capacity of the equipment, overloaded equipment can fail causing serious injury.
- Stay out from underneath a load being lifted or suspended.
- Do not attempt to catch a falling load, get out of the way and retrieve load when stationary.

Mobile Lift Tables

Daily inspection is effective to find the malfunction or fault on lift tables. Check the lift table on the following points before operation. DO NOT use lift table if any malfunction or fault is found.

Inspection Item	Yes	No	N/A
Are there scratches, bending, cracking, or damage on the lift table?			
Is there any oil leakage from the cylinder?			
Check the vertical creep of the table.			
Check the smooth movement of the wheel.			
Does the brake function properly?			
Are all of the bolts and nuts tightened firmly?			
Are the tie downs or chains present and in good working order?			

Lift Table Safety Precautions

Read the operation manual carefully and completely understand lift table operating procedures.

- Do not use lift table for other purpose than its intended use.
- Do not allow person to operate lift table who does not understand its operation.
- Do not lower table too fast. Load could fall and create danger.
- KEEP watching the condition of load. Stop operating lift table if load becomes unstable.
- Brake lift table when sliding load on or off the table.
- Do not side or end load. Distribute load evenly on at least 80% of table area.
- Do not use lift table with unstable, unbalanced loosely stacked load.
- Practice maintenance work according to service instructions.
- Do not modify lift table without manufacturer's written consent.
- Remove load from table and use safety stopper to prevent table from lowering when servicing lift table. Do not put foot or hand in scissors mechanism.
- Do not allow other person to stand in front of or behind lift table when it is moving.
- Do not move lift table when table is in raised position. Load could fall.
- Understand the load limits of the table and do not overload lift table.
- Do not put foot in front of rolling wheels or go under the table. Injury could result.
- WATCH difference and hardness of floor level when moving lift table. Load could fall.
- Do not use lift table on slope or inclined surface, lift table or load may become unstable.
- Do not lift people. People could fall and suffer severe injury.
- Ensure all loads are secured properly using straps or chains. DO NOT attempt to catch a falling part.

Mobile Floor Cranes

- Do not raise the boom with the legs in the upright position; the legs must be pinned through the cross member.
- To prevent tipping: Do not lift or move a load that has a center of gravity extending beyond the legs or wheels.
- Do not move a loaded crane unless the load has been lowered as close to the floor as possible; use extreme caution when moving a loaded crane on an incline or around a corner, because the load can swing out beyond the wheels and cause the crane to tip over.



Crane & Hoist Monthly Inspection Checklist

Inspection Item	Yes	No	N/A
Conduct pre-use inspection of equipment. Does it pass the pre-use inspection?			
Any deformed, cracked, or corroded members?			
Are there worn, cracked, or distorted parts such as pins, bearings, wheels, shafts, gears, rollers, locking and clamping devices, bumpers, and stops?			
Is there excessive wear or improper operation of the brake system parts, linings, pawls, chain sprockets or ratchets?			
Any cracked or worn sheaves and drums?			
Are there loose or missing bolts, nuts, pins or rivets?			
Is there any signs of pitting or deterioration of controllers, master switches, contacts, limit switches, and push button stations?			
Are load, wind, and other indicators properly operating?			
Are gasoline, diesel, electric, or other power plants performing properly?			
Are stops provided at the limit of travel of the trolley?			
Corroded, cracked, bent, worn, or improperly applied end connections?			
Load chain reeving for compliance with hoist manufacturer's recommendation?			
Is the hydraulic fluid maintained according to the instructions included with the pump and cylinder?			
<u>Hook</u>			
Are there any gouges, nicks, weld spatter, corrosion, deformation, cracks?			
Has the hook throat opening increased 5%, not to exceed ¼ inch (6 mm), more than the normal throat opening measured at the narrowest point?			
Is there any bend or twist from the plane of the unbent hook?			
<u>Chain</u>			
Is there excessive drive chain stretching?			
Test the hoist under load in lifting and lowering directions and observe the operation of the chain and sprockets. Does the chain feed smoothly into and away from the sprockets?			
Does the chain bind, jump, or is noisy? If so, clean chain. If trouble continues inspect the chain and mating parts for wear, distortion, or other damage.			
Slacken the chain and move the adjacent links to one side to inspect for wear at the contact points. Is wear observed? Is stretching suspected?			

Crane ID number or identifier: _____

Inspector (print): _____

Sign: _____

Date: _____



Pre-Use Crane, Hoist and Sling Inspection Guidelines

Item (Slings)	Yes	No	N/A
<i>Chain Slings:</i>			
Nicks, cracks, breaks, stretches, distortions, twists, gouges, bends, heat damage, discoloration, worn or damaged links and components,			
Lack of ability of the chain or components to hinge (articulate) freely,			
Pitting, corrosion or weld splatter,			
Missing or illegible sling identifications,			
Other conditions that cause doubt as to the continued safe use of the sling.			
<i>Wire Rope Slings:</i>			
Broken wires,			
Pitting or corrosion,			
Localized wear (shiny worn spots), abrasion or scrapes,			
Damage or displacement of end fittings, hooks, rings, links, or collars,			
Distortions, kinks, bird caging, crushing, or other evidence of damage to wire rope structure,			
Missing or illegible sling identifications,			
Other conditions that cause doubt as to the continued safe use of the sling.			
<i>Synthetic Fiber Rope / Synthetic Webbing Slings:</i>			
Melting, charring or burning of any part of the surface,			
Snags, punctures, tears, cuts, fraying, broken or worn stitches,			
Change in diameter,			
Discoloration,			
Hard or stiff areas,			
Wear or elongation exceeding the amount recommended by the manufacturer,			
Distortion of fittings,			
Missing or illegible sling identifications,			
Other conditions that cause doubt as to the continued safe use of the sling.			
<i>Metal Mesh Slings:</i>			
Broken weld or brazed joints,			
Broken wire in any part of the mesh,			
Abrasion, corrosion, distortion, pitting, twisting, bending, cracking, gouging of any component,			
Lack of flexibility,			
Missing or illegible sling identifications,			
Other conditions that cause doubt as to the continued safe use of the sling.			

Crane ID number or identifier: _____

Inspector (print): _____

Sign: _____ Date: _____



Pre-Use Crane, Hoist and Sling Inspection Guidelines

Item (Cranes and Hoists)	Yes	No	N/A
Load rating marked on each side of the crane.			
Load rating of the hoist marked on the hoist or its load block and legible from the ground? (If the crane has more than one hoisting unit, each hoist shall have its rated load marked on it or its loading block and this marking shall be clearly legible from the ground.)			
At least 3 inches of overhead clearance and 2 inches laterally between crane and obstructions.			
All controller functions labeled and legible.			
All operational controls and functional operating mechanisms working properly, properly adjusted and no unusual sounds.			
Upper limit switch operating properly. It shall be tested with no load on the hook. Extreme care shall be exercised; the block shall be "inched" into the limit device or run in at slow speed.			
Excessive wear of components on any functional operating mechanisms.			
Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of the air or hydraulic system.			
Excessive dirt, grease, or foreign matter.			
Deformation and/or cracking of the hook, load block, drums and/or sheaves.			
Safety latch on crane/hoist load block that automatically closes.			

Crane ID number or identifier: _____

Inspector (print): _____

Sign: _____

Date: _____

IMPORTANT NOTICE - The information and suggestions presented by PMA Companies in this risk control bulletin are for your consideration in your loss prevention efforts. They are not intended to be complete or definitive in identifying all hazards associated with your business, preventing workplace accidents, or complying with any safety related or other laws or regulations. You are encouraged to alter the information and suggestions to fit the specific hazards of your business and to have your legal counsel review all of your plans and company policies.