Materials Handling & Fork Lifts

Materials Handling

Introduction

S.C. Swiderski, LLC requires that safety planning and practices for commonplace tasks be as thorough as for operations with unusual hazards. Commonplace tasks make up the greater part of the daily activities of most employees and, not unexpectedly, offer more potential sources of accidents with injuries and property damage. Every operation or work assignment begins and ends with the handling of materials. Whether the material is a sheet of paper (paper cuts are painful) or a cylinder of toxic gas, accident risks can be reduced with thorough planning. Identifying obvious and hidden hazards should be the first step in planning work methods and job practices.

Thorough planning should include all the steps associated with good management from job conception through crew and equipment decommissioning. Most of the material presented in this chapter is related to the commonplace and obvious. Nevertheless, *a majority of the incidents leading to injury, occupational illness, and property damage stem from a failure to observe the principles associated with safe materials handling and storage*. A less obvious hazard is the potential failure of used or excessive motorized handling or lifting equipment. The Safety & Compliance Officer must be notified whenever it is desired to acquire a crane, forklift, truck, or other motorized handling or lifting equipment from outside sources.

Handling Materials

In the handling of materials, employees must know the following:

- There must be safe clearance for equipment through aisles and doorways.
- Aisle ways must be designated, permanently marked, and kept clear to allow unhindered passage.
- Motorized vehicles and mechanized equipment will be inspected daily or prior to use.
- Vehicles must be shut off and brakes must be set prior to loading or unloading.
- Containers of combustibles or flammables, when stacked while being moved, must be separated by dunnage sufficient to provide stability.
- If dock boards (bridge plates) are used when loading or unloading operations are taking place between vehicles and docks, precautions must be observed.
- Trucks and trailers will be secured from movement during loading and unloading operations.
- Dock plates and loading ramps will be constructed and maintained with sufficient strength to support imposed loading.

- Hand trucks must be maintained in safe operating condition.
- Chutes must be equipped with sideboards of sufficient height to prevent the handled materials from falling off.
- At the delivery end of rollers or chutes, provisions must be made to brake the movement of the handled materials.
- Pallets must be inspected before being loaded or moved.
- Hooks with safety latches or other arrangements will be used when hoisting materials so that slings or load attachments won't accidentally slip off the hoist hooks.
- Securing chains, ropes, chockers or slings must be adequate for the job to be performed.
- When hoisting material or equipment, provisions must be made to assure no one will be passing under the suspended loads.
- Material Safety Data Sheets will be available to employees handling hazardous substances.

Lifting & Moving

Lifting and moving of objects must be done by mechanical devices rather than by manual effort whenever this is practical. The equipment used must be appropriate for the lifting or moving task. Lifting and moving devices must be operated only by personnel trained and authorized to operate them. Employees must not be required to lift heavy or bulky objects that overtax their physical condition or capability.

Rigging

Planning for safe rigging and lifting must begin at the design stage, and lifting procedures must be developed for assembly and installation. The lifting procedure should be developed and discussed with the rigging crew foreperson. Responsibility for all rigging jobs is shared between the rigging crew and the customer. The customer is responsible for defining and requesting the move, for providing technical information on relevant characteristics of the apparatus, including special lifting fixtures when required, for providing suggestions on rigging and moving, and for assigning someone to represent them both in planning and while the job is being carried out. The riggers are responsible for final rigging and for carrying out whatever moves have been designated.

Before any movement takes place, however, each representative must approve the rigging and other procedures associated with the intended move. Each must respect the responsibility and authority of the other to prevent or terminate any action he or she judges to be unsafe or otherwise improper. The supervisor must make certain that personnel know how to move objects safely by hand or with mechanical devices in the operations normal to the area and must permit only those employees who are formally qualified by training and certification to operate a fork truck, crane, or hoist.

The supervisor must enforce the use of safe lifting techniques and maintain lifting equipment in good mechanical condition. Employees are required to observe all established safety regulations relating to safe lifting techniques. The Safety & Compliance Officer provides training programs followed by certification for employees who have demonstrated the ability to operate Power Industrial Trucks (PIT) and rough terrain forklifts.

Manual Lifting Rules

Manual lifting and handling of material must be done by methods that ensure the safety of both the employee and the material. It is S.C. Swiderski, LLC policy that employees whose work assignments require heavy lifting be properly trained and physically qualified, by medical examination if deemed necessary. The following are rules for manual lifting: Inspect the load to be lifted for sharp edges, slivers, and wet or greasy spots. Wear gloves when lifting or handling objects with sharp or splintered edges. These gloves must be free of oil, grease, or other agents that may cause a poor grip.

Inspect the route over which the load is to be carried. It should be in plain view and free of obstructions or spillage that could cause tripping or slipping. Consider the distance the load is to be carried. Recognize the fact your gripping power may weaken over long distances. Size up the load and make a preliminary “heft” to be sure the load is easily within your lifting capacity. If it is not, get help. If team lifting is required, personnel should be similar in size and physique. One person should act as a leader and give the commands to lift, lower, etc. Two persons carrying a long piece of pipe or lumber should carry it on the same shoulder and walk in step. Shoulder pads should be used to prevent cutting shoulders and help reduce fatigue.

To lift an object off the ground, the following are manual lifting steps:

Make sure of good footing and set your feet about 10 to 15 inches apart. It may help to set one foot forward of the other. Assume a knee-bend or squatting position, keeping your back straight and upright. Get a firm grip and lift the object by straightening your knees - not your back. Carry the load close to your body (not on extended arms). To turn or change your position, shift your feet – do not twist your back. The steps for setting an object on the ground are the same as above, but in reverse.

Mechanical Lifting

Mechanical devices must be used for lifting and moving objects that are too heavy or bulky for safe manual handling by employees. Employees who have not been trained must not operate power-driven mechanical devices to lift or move objects of any weight.

Heavy objects that require special handling or rigging must be moved only by riggers or under the guidance of employees specifically trained and certified to move heavy objects.

Inspections

Each mechanical lifting or moving device must be inspected periodically. Each lifting device must also be inspected before lifting a load near its rated capacity. Defective equipment must be repaired before it is used. The rated load capacity of lifting equipment must not be exceeded. Material moving equipment must be driven forward going up a ramp and driven backward going down a ramp. Traffic must not be allowed to pass under a raised load. The floor-loading limit must be checked before mobile lifting equipment enters an area. Passengers must not be carried on lifting equipment unless it is specifically equipped to carry passengers.

Load Path Safety

Loads moved with any material handling equipment must not pass over any personnel. The load path must be selected and controlled to eliminate the possibility of injury to employees should the material handling equipment fail. Equipment worked on while supported by material handling equipment must have a redundant supporting system capable of supporting all loads that could be imposed by failure of the mechanical handling equipment. A suspended load must never be left unattended but must be lowered to the working surface and the material handling equipment secured before leaving the load unattended.

Off-Site Shipping

Material being shipped off-site must be packed or crated by competent shipping personnel. Boxes, wooden crates, and other packing materials must be safely consigned to waste or salvage as soon as practicable following unpacking.

Truck Loading

All objects loaded on trucks must be secured to the truck to prevent any shifting of the load in transit. The wheels of trucks being loaded or unloaded at a loading dock must be chocked to prevent movement.

Clean Work Areas

All areas controlled by S.C. Swiderski, LLC must be kept in orderly and clean condition and used only for activities or operations for which they have been approved. The following specific rules must also be followed: Keep stairs, corridors, and aisles clear. Traffic lanes and loading areas must be kept clear and marked appropriately. Store materials in workrooms or designated storage areas only. Do not use hallways, fan lofts, or boiler and equipment rooms as storage areas. Do not allow exits, passageways, or access to equipment to become obstructed by either stored materials or materials and equipment that is being used.

Arrange stored materials safely to prevent tipping, falling, collapsing, rolling, or spreading - that is, any undesired and unsafe motion. Do not exceed the rated floor capacity of stored material for the area. The load limit and the maximum height to which material may be stacked must be posted. Place materials such as cartons, boxes, drums, lumber, pipe, and bar stock in racks or in stable piles as appropriate for the type of material.

Store materials that are radioactive, fissile, flammable, explosive, oxidizing, corrosive, or pyrophoric only under conditions approved for specific use by the Safety & Compliance Manager. Segregate and store incompatible materials in separate locations. Remove items that will not be required for extended periods from work areas and put them in warehouse storage. Call for assistance.

Temporary equipment required for special projects or support activities must be installed so that it will not constitute a hazard. A minimum clearance of 36 inches must be maintained around electrical power panels. Wiring and cables must be installed in a safe and orderly manner, preferably in cable trays. Machinery and possible contact points with electrical power must have appropriate guarding.

The controls for temporary equipment must be located to prevent inadvertent actuation or awkward manipulation. When heat-producing equipment must be installed, avoid accidental ignition of combustible materials or touching of surfaces above 60 degrees C (140 F). Every work location must be provided with illumination that meets OSHA requirements. Evaluation of illumination quality and requirements is made by the Safety & Compliance Manager, but the supervisor of an area is responsible for obtaining and maintaining suitable illumination. Areas without natural lighting and areas where hazardous operations are conducted must be provided with enough automatically activated emergency lighting to permit exit or entry of personnel if the primary lighting fails.

Forklifts

OSHA Standards for Forklifts

Forklift users must familiarize themselves with and comply with OSHA Standard 29 CFR 1910.178 and ANSI B56.1. Modifications and additions must not be performed by the customer or user without the manufacturer's prior authorization or qualified engineering analysis. Where such authorization is granted, capacity, operation, and maintenance instruction plates, tags, or decals must be changed accordingly.

If the forklift truck is equipped with front end attachments other than factory installed attachments, the user must ensure that the truck is marked with a card or plate that identifies the current attachments, shows the approximate weight of the truck with current attachments, and shows the lifting capacity of the truck with current attachments at maximum lift elevation with load laterally centered. The user must see that all nameplates and caution and instruction markings are in place and legible. The user must consider that changes in load dimension may affect truck capacities.

Industrial Truck / Forklift Operators

Only trained personnel should be allowed to operate industrial trucks. Lift Truck Operating rules must be posted and will be strictly enforced. When operating any industrial truck, substantial overhead protective equipment will be provided on high lift rider equipment. Directional lighting is also provided on each industrial truck that operates in an area with less than 2 foot-candles per square foot of general lighting. Each industrial truck must have a warning horn, whistle, gong or other devices which can be clearly heard above the normal noise in the area where operated.

Before using a forklift, check that the brakes on each industrial truck are capable of bringing the vehicle to a complete and safe stop when fully loaded. The parking brake must effectively prevent the vehicle from moving when unattended. When motorized hand and hand/rider trucks are operated, and when the operator releases the steering mechanism, make sure that both the brakes are applied and power to the motor shut off.

Forklift Maintenance

Because forklift trucks may become hazardous if maintenance is neglected or incomplete, procedures for maintenance must comply with ANSI B56.1 Section 7 and OSHA Standard 29 CFR 1919.178 g.

Maintenance records are available so that a driver can check on the servicing of the truck in case of questions. When an industrial truck operates in areas where flammable gases, vapors, combustible dust, or ignitable fibers may be present in the atmosphere, the vehicle must be approved for such locations with a tag showing such approval posted on the vehicle itself. Industrial trucks with internal combustion engines, operated in buildings or enclosed areas, should be carefully checked to ensure that the operation of the vehicle does not cause a harmful concentration of dangerous gases or fumes.

Forklift Extension

Maximum efficiency, reliability, and safety require that the use of fork extensions be guided by principles of proper application, design, fabrication, use, inspection, and maintenance. The user must notify the Safety & Compliance Manager before purchasing extensions or having them fabricated. Fork extensions are only appropriate for occasional use. When longer forks are needed on a regular basis, the truck should be equipped with standard forks of a longer length. Routine on-the-job inspections of the fork extension must be made by the forklift operator before each use unless, in the judgment of the supervisor, less frequent inspections are reasonable because of his or her knowledge of its use since the last inspection. Extensions must be inspected for evidence of bending, overload, excess corrosion, cracks, and any other deterioration likely to affect their safe use.

All fork extensions must be proof load tested to establish or verify their rated capacities, whether they were supplied commercially or fabricated at S.C. Swiderski, LLC. A load equal to the rated capacity of the pair at a particular load center multiplied by 1.15, must be placed on each fork extension pair and fork assembly and supported for a period of five minutes without any significant deformation. Rated capacity must be determined at significant load centers, including the midpoint of the extension and at the tip. Once determined, the rated capacity and load center information must be shown by stamping or tagging the extensions in a protected location of low stress. The proof load test must be witnessed by a mechanical engineer or designer. Whenever evidence of deterioration is detected or whenever the extensions have been overloaded, magnetic particle inspection must be performed.

- OSHA's Powered Industrial Trucks page provides detailed information on hazards, safeguards, training, and safe operation of forklifts.

Hoists & Auxiliary Equipment

Every overhead hoist shall be equipped with a limit device to stop the hook travel at its highest and lowest points of safe travel. Check these limits without a load to ensure the device is working correctly. Each hoist should automatically stop and hold any load up to 125 percent of its rated load if its actuating force is removed. Check this periodically under controlled conditions.

Make sure that the rated load of each hoist is legibly marked and visible to the operator. Stops should be provided at the safe limits of travel for trolley hoists. The controls of hoists should be plainly marked to indicate the direction of travel or motion. Every cage-controlled hoist must be equipped with an effective warning device. Close-fitting guards or other suitable devices should be installed on hoists to assure hoist ropes will be maintained in the sheave grooves.

All hoist chains or ropes must be of sufficient length to handle the full range of movement for the application while always maintaining two full wraps on the drum. All nip points or contact points between hoist ropes and sheaves which are permanently located within 7 feet of the floor, ground, or working platform must be guarded. It is prohibited to use chains or rope slings that are kinked or twisted.

The operator must avoid carrying loads over people. Only employees who have been trained in the proper use of hoists are allowed to operate them.

Lifting Fixtures

The Safety & Compliance Manager is responsible for approving the design, fabrication, and testing of lifting fixtures. The design stress for lifting fixtures must not exceed one-fifth (1/5) of the ultimate strength of the material at the operating temperature. If welded fabrication is used, the design stress must take into consideration any weakening effects of welding, such as those that occur in aluminum alloys. If practical, avoid welding in the fabrication of lifting fixtures; however, if welding is used, design and fabrication must conform to the latest standards of the American Welding Society (AWS). Careful, thoughtful design and follow-up are required. The following rules apply when designing welded units: There must be no possibility of subjecting welds to tearing loads. Stresses in welds must be substantially uniform.

Where possible, design lifting fixtures so that the main loads are carried only by structural members, plates, or shear pins rather than by welds. Examine this possibility carefully. Welded fabrications must be proof tested to twice the maximum rated load followed by a magnetic particle inspection or other appropriate crack inspection method. Primary load-carrying welds and welds in tension must be x-rayed. The screw-thread engagement required for conservative development of the full strength of a screw fastener depends upon the screw fastener material and the material of the threaded member. If the fastener is made of the same material as the female threaded member, e.g., a low-carbon steel bolt and a hole threaded into low-carbon steel, an engagement of at least 1-1/2 diameters is required. A hardened steel screw (Allen screw) in mild steel requires at least 2-diameters engagement. A low-carbon screw fastener, threaded into a tapped hole in aluminum alloy, copper, or cast iron must have a threaded engagement of 1-1/2 diameters. Other material combinations must be approved by the Safety & Compliance Manager.

Safety hoist rings may be used to make lifts up to their rated load when screwed 2 hoist ring bolt diameters into materials such as aluminum alloy, copper, or cast iron. When special high-strength bolts are required, consider the use of nonstandard pitch threads to avoid the possibility of using the wrong bolt in the lifting device. Any bolt used as part of S.C. Swiderski, LLC-designed lifting fixtures or pickup devices must be tested to two (2) times its rated load. A crack detection inspection must be performed after the load test to ensure soundness. It is desirable to maintain a supply of tested bolts in the event that one is lost. Once a lifting device or fixture is in the hands of the user, it is the user's responsibility to ensure that the proper bolt is inserted to the proper depth and correctly torqued.

Each operator is responsible for the safety and safety inspection of his or her lifting devices (such as screw pin shackles, hoist rings, commercial equipment, etc.) and for its lifting fixtures (such as spreader bars, special slings, S.C. Swiderski, LLC-designed equipment, etc.). All lifting fixtures designed at S.C. Swiderski, LLC must be proof tested to twice their maximum rated loads before they are placed in service. A magnetic particle inspection or other appropriate crack detection inspection is required after the proof test. The capacity must be marked on the lifting fixture so that it is clearly visible to the equipment operator.

All lifting device pins of 2-inch diameter or larger must have a magnetic particle inspection before they are placed in service. All lifting fixtures must be inspected at least once every four years (or upon request), using magnetic particle detection or other appropriate methods. The Safety & Compliance Manager must ensure that proof testing is performed on all lifting fixtures designed at S.C. Swiderski, LLC before they are placed in service; that adequate test records are kept; and that the lifting devices and fixtures are used and maintained correctly.

Upon request, the Safety & Compliance Manager will provide a current test report to the user. For equipment designed at S.C. Swiderski, LLC, the Safety & Compliance Manager must provide the user with the information required to operate the lifting device or fixture safely.

Mobile Cranes

Purpose

To provide guidance for the protection of personnel operating mobile cranes or working in the area of operation.

References

29 CFR 1926.1400

Policy

Equipment Inspection and Testing

Upon its arrival and before its use on the project and at 30-day intervals thereafter, a competent person will inspect each mobile crane for mechanical defects. Maintenance records will be completed and retained. A third-party inspector approved by the Department of Labor will perform all annual crane inspections. When a crane has been dismantled or has had major repairs, a third-party inspector approved by the Department of Labor will inspect it.

It is recommended that the equipment be load-tested only in accordance with the manufacturer's specifications and limitations and American National Standard Institute (ANSI) B30.5 Current, Mobile and Locomotive Cranes.

No modifications or alterations that affect the capacity or safe operation of the equipment will be made by the project or an individual without the manufacturer's written approval.

Operator Authorization

All mobile crane operators must be instructed in or given the opportunity to read and understand the manufacturer's Operators Manual for assigned make and model machine, and applicable OSHA and ANSI standards. The mobile crane operator must be trained and authorized to operate the specific make and model crane assigned.

Operations

Each day, the operator, prior to starting work, will check all safety features of the cranes. These include but are not limited to:

- Fire extinguisher.

- Seat belts
- Tire pressure
- Widow glass.
- Horn
- Back-up alarm
- Lights
- Signs

Accessible areas within the swing radius of the rotating superstructure counterweight of a crane will be barricaded to prevent employees from being struck or crushed by the counterweight unless the superstructure is elevated 7-feet or more.

The ground shall be level to within 1° of the horizon. All applicable danger signs shall be posted. This includes but is not limited to 1) Danger Electrical Hazard; 2) Swing Radius Warnings; 3) Step Warnings.

The hand signals to be used are those prescribed by the ANSI standard applicable to each crane. Only one individual will assume the signaling duties and no other person shall signal during the lift, except for a person giving an emergency stop signal.

A copy of the manufacturer's Operator's Manual for each make and model machine must be on the project site and the manufacturer's specifications and limitations noted in it will be observed.

In the operations and use of any hydraulic crane, when both an auxiliary and main hoist lines are reeve, an anti-two blocking warning system is required on both auxiliary and main hoist lines.

Attachments used with cranes will not exceed the capacity rating or scope recommended by the crane manufacturer.

No person will ride the headache ball, the hook, or the load being handled by the crane. All operations involving the use of suspended personnel baskets or platforms shall comply with OSHA regulations and the crane shall be equipped with a positive action anti-two blocking device.

Equipment will not be lubricated while in use unless it is designed for safe lubrication application while in use.

No person(s) shall ride in the machine; the machine should not be used for personnel transportation or be equipped with a personnel carrier unless specific approval from the Safety Department is secured.

Electrical Hazards

A crane will not be operated, under any circumstances, wherein any part of the crane or load will come within 10 feet of energized distribution lines rated 50 kV or below unless the following conditions are met:

- The lines have been de-energized and are grounded at the point of work.
- Insulating barriers that are not part of the hoisting equipment have been erected.

For lines rated over 50 kV, see Table A

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)

All lines will be considered energized unless the person or utility owning the lines indicates that they are not energized and that the lines are grounded at the point of operation.

Traveling With a Load (Pick and Carry)

Traveling with a load (pick and carry) is not recommended as a means of transporting loads from one location to another on the project and should be used as a last resort. The use of farm wagons, forklifts, boom trucks, and flatbed trucks should be used to transport these loads rather than “pick and carry” operations.

Traveling with suspended loads entails many variables, i.e., the type of terrain, boom length, momentum in starting and stopping, etc. Therefore, it is impossible to

formulate a single standard procedure with any assurance of safety. Thus, when traveling with a load, the operator must evaluate the prevailing conditions and determine the applicable safety precautions. No matter what, manufacturer guidelines shall not be exceeded.

The following precautions would fall into a general category:

- **DO NOT** exceed rated "on rubber" capacity chart.
- Position the boom parallel to the direction of travel.
- Engage the swing (house) lock.
- Maintain as short a boom length and as low a boom angle as possible.
- Secured load off carrier.
- Provide tag or restraint lines to snub load swing.
- Load should be carried close to ground.
- Do not start and travel until outriggers are fully stowed (retracted).
- Terrain must be smooth, firm, and level.
- Maintain travel speed suitable to terrain.
- Avoid sudden starting and stopping.
- Maintain correct tire pressure for type of tires used.
- Always use flagmen, both front and rear, to give directions and watch for hazards.
- Signalman should watch for power lines and other overhead obstructions.
- No person shall ride on the machine during "pick and carry" operations.

Wire Rope

Wire rope with one or more of the following defects will be removed or replaced immediately. If one wire rope of a set (Pendant lines, multi-leg slings, etc.) requires replacement, entire set of ropes will be replaced.

- In standing ropes, more than two broken wires in one lay in areas beyond end connections or more than one broken wire at an end connection.
- In running ropes, six randomly distributed broken wires in one lay or three broken wires in one strand in one lay.
- Wear of one-third of the original diameter of the outside individual wires caused by abrasion, scrubbing, flattening, or peening.
- Kinking, crushing, bird caging or any other damage resulting in distortion of the rope structure.
- Evidence of heat damage from any cause.
- Reduction from nominal diameter of more than: 1/64 inch for diameters up to and including 5/16 inch; 1/32 inch for diameters from 3/8 inch up to and including ½ inch; 3/64 inch for diameters 916 inch to and including ¾ inch; 1/16 inch for diameters from 7/8 inch up to and including 1 1/8 inches; 3/32 inch for diameters from 1 ¼ inches up to and including 1 ½ inches.

Notices and Posting

Rated load capacities recommended operating speeds, special hazards warnings, operating notes, and special instructions will be posted on all equipment and will be visible to the operator while he is at the control station. Illustrations of the hand signals used in connection with the operation of equipment will be posted at the project site.

RECORDS

Maintenance records shall be maintained at the project.

SIGNALING

Each person that provides signals for the crane operator must:

- Know and understand the type of signals used. If hand signals are used, the signal person must know and understand the Standard Method for hand signals.
- Be competent in the application of the type of signals used.
- Have a basic understanding of equipment operation and limitations, including the crane dynamics involved in swinging and stopping loads and boom deflection from hoisting loads.
- Know and understand the relevant requirements of §§ 1926.1419 through 1926.1422 and 1926.1428.
- Demonstrate that he/she meets the requirements in paragraphs (c)(1) through (4) of this section through an oral or written test, and through a practical test.

Exhibit A - Lifting Plan

EXHIBIT "A"

LOCATION:_____ DATE OF LIFT:_____

LOAD DESCRIPTION:_____

LIFT DESCRIPTION:_____

A. WEIGHT

1. Equipment Condition New ☐ Used ☐
2. Weight Empty _____lbs.
3. Weight of Headache Bail _____lbs.
4. Weight of Block _____lbs.
5. Weight of Lifting Bar _____lbs.
6. Weight of Slings & Shackles _____lbs.
7. Weight of Jib Erect ☐ Stored ☐ _____lbs.
8. Weight of Headache Ball on Jib _____lbs.
9. Weight of Cable (Load Fall) _____lbs.
10. Allowance for Unaccounted Material or Equipment _____lbs.
11. OTHER _____ _____lbs.

TOTAL WEIGHT _____ lbs.

Source of Load Weight:

_____

Weights Verified By:

_____

B. JIB

Erected_____Stored_____

1. If Jib to be used_____
2. Length of Jib_____
3. Angle of Jib_____
4. Rated Capacity of Jib (From Chart) _____

C. CRANE PLACEMENT

1. Any Deviation from Smooth Solid Foundation in the Area?_____

_____

_____

2. Electrical Hazards in Area? _____

_____

_____

3. Obstacles or Obstructions to Lift or Swing? _____

_____

_____

4. Swing Direction and Degree (Boom Swing) _____

_____

D. CABLE

1. Number of Parts of Cable _____
2. Size of Cable _____

E. SIZING OF SLINGS

1. Sling Section
   a. Type of Arrangement_____
   b. Number of Sings in Hook-up _____
   c. Sling Size _____
   d. Sling Length _____
   e. Rated Capacity of Sling _____
2. Shackle Selection
   a. Pin Diameter (inches) _____
   b. Capacity (tons) _____
   c. Shackle Attached to Load By _____

      _____
   d. Number of Shackles _____

F. CRANE

1. Type of Crane _____
2. Crane Capacity_____Tons
3. Lifting Arrangement
   a. Max Distance—Center of Load to center pin of crane_____
   b. Length of Boom _____
   c. Angle of Boom at Pick-up _____Degrees
   d. Angle of Boom at Set _____Degrees
   e. Rated Capacity of crane under severest lifting conditions (from chart)
      1. Over Rear _____lbs.
      2. Over Prong _____lbs.
      3. Over Side _____lbs.
      4. From Chart—Rated Capacity of Crane for this lift _____
      5. Max. Load on Crane_____
      6. Lift is _____ of Crane's Rated Capacity

G. PRE-LIFT CHECKLIST

		YES	NO
1.	Matting Acceptable	☐	☐
2.	Outriggers fully extended	☐	☐
3.	Crane in good condition	☐	☐
4.	Swing Room	☐	☐
5.	Head Room Checked	☐	☐
6.	Max Counterweights used	☐	☐
7.	Tag Line Used	☐	☐
8.	Experienced Operator	☐	☐
9.	Experienced Flagman (Designated)	☐	☐
10.	Experienced Rigger	☐	☐
11.	Load Chart in Crane	☐	☐

12. Wind Conditions _____
13. Crane Inspected By _____
14. Functional Test of Crane By_____

Lattice Boom Inspection Form

Mfg:		Model #			Serial #	Date:
Check the appropriate box:		S = Satisfactory		U = Unsatisfactory	NA = Not Applicable	
Condition		S	U	A	Number item for reference remarks below:	
FLUID LEVELS	1. Crank Case					
	2. Coolant					
	3. Hydraulic Oil					
CAB (S)	4. Electrical System					
	5. House Lock					
	6. Service/Parking Break					
	7. Swing Break/House Lock					
	8. Gauges					
	9. Housekeeping					
	10. Fire Extinguisher(s)					
	11. Load Chart					
	12. Windows/Mirrors					
FUNCTIONS	13. Travel					
	14. Steering					
	15. Outriggers					
	16. Boom Up / Down					
	17. Hoist(s) Up / Down					
	18. Swing					
OPERATIONAL AIDS	19. Anti-Two Block					
	20. LMI / Load Wt. Indicator					
	21. Boom Length Indicator					
	22. Boom Angle Indicator					
	23. Lights/ Locks/ Buzzers					
	24. Back-Up Alarm / Horn					
	25. Boom Kick-Out					
BOOMS, JIBS, & ACCESSORIES	26. Load Block / Ball/ Hook (s)					
	27. Safety Latches					
	28. Wedge Socket(s)					
	29. Sheaves					
	30. Wire Rope Retainers					
	31. Main Boom					
	32. Jib / Extension					
LOWER WORKS	33. Tires / Inflation					
	34. Carrier / Car Body					
	35. Shoes / Tracks / Chain					
	36. Outriggers					
	37. Machine Guards					
	38. Hoist Brake (s) / Clutches					
UPPER WOKRS	39. Hoses / Tubing					
	40. Hoist (s)					
	41. Wrapping on Drum (s)					
	42. Rope Reeving					
	43. Wire Rope					
	44. Gantries / Bridles					

- **Consult** operator's manual for additional inspection items.
- **Do not** operate crane until unsafe conditions are corrected.

Operator Signature

Supervisor Signature

Telescoping Boom Inspection Form

Mfg:		Model #			Serial #	Date:
Check the appropriate box:		S = Satisfactory		U = Unsatisfactory	NA = Not Applicable	
Condition		S	U	A	Number item for reference remarks below:	
FLUID LEVELS	1. Crank Case					

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