

Introduction to Article:

This article is written to high- light certain aspects of Mobile Crane Safe Operations and to assist the reader in identifying various best and safe operational matters. The article does not cover all safe operational procedures but generally takes a snap shot of Mobile Crane Safe operations.

1. MOBILE CRANE OPERATOR SHALL ENSURE THE FOLLOWING POINTS DURING MOBILE CRANE OPERATIONS:

The load weight shall be confirmed by the Client Rigger or Engineer by using the following methods:

- 1.1 Use of waybill shipping documents to verify weights.
- 1.2 Manufacturer's plate on the side.
- 1.3 Drawings from the manufacturer's drawings.
- 1.4 A calibrated load cell reading.
- 1.5 Calculations by an engineer.

Note! Use of the crane's safe load indicator (SLI) to determine weight of a load is very hazardous and could cause structural failure of the crane

2. THE ONLY TIME A SLI DEVICE MAY BE OVERRIDDEN IS DURING THE FOLLOWING:

- 2.1 Crane setup and dismantling of crane- only if specified by the Original Equipment Manufacturers (OEM) crane manual;
- 2.2 A crane load test or maintenance activity required by the law or the OEM and under the supervision of a suitably competent person.
- 2.3 A crane recovery procedure under the supervision of competent maintenance staff from the OEM and JCH and after approval by the Maintenance Executive;

Note! All these activities must be done only after a Job Hazard Analysis (Risk Assessment) has being completed by the responsible supervisor and understood by all involved.

3. SAFE OPERATIONAL GUIDELINES

The following points are detailed as safe operational guidelines and should be read in conjunction with safety procedures and work instructions.

- 3.1 SLI shall not be regarded as a scale to determine the weight of the load, but can only be used as a guide for determining the approximate load weight under controlled conditions after a complete risk assessment is performed by the relevant competent supervisor.

Note! The weight of hook blocks, ropes and any attached lifting tackle and equipment shall be added to the weight of the load to determine the actual gross weight.

- 3.2 The load shall be well secured and hook positioned over the load centre of gravity. Lift the load slightly from the ground to determine the correct sling position. Re-adjust, if necessary, before lifting the load in its full travel.
- 3.3 Multiple part lines shall not be twisted around each other (candle stick). The reeving of hook blocks shall be in accordance with the crane manufacturer specifications and ensure that crane hoist ropes are not over-wound on winch drums and that ropes are properly seated in sheaves.
- 3.4 Never use the crane hoist ropes to secure the load to be lifted.
- 3.5 Never place any body part under a load or on/between lifting tackle in an attempt to re-position lifting tackle while the lifting tackle or equipment slack is taken-up by the crane.
- 3.6 Always conduct formal mobile crane pre-and-post-operational inspections of the crane, as first line preventative maintenance.
- 3.7 Always conduct the crane set-up, crane boom and fly-jib configurations as well as erection and dismantling of lattice boom sections in accordance with the OEM operating manual.
- 3.8 Use appropriate ladders or work platforms when accessing areas of the crane that do not have access steps.
- 3.9 The lifting capacity of the mobile crane shall be sufficient to lift the total load under controlled conditions.
- 3.10 To lift several separately rigged loads simultaneously on one crane hook is dangerous, even if the lifting capacity of the crane is sufficient to lift the loads. These operations shall only be conducted under qualified engineering control.
- 3.11 In order to compensate for boom deflection and maintain a constant radius when lifting a load, allow for boom deflection by raising the boom when lifting a load to ensure that the boom head stays over the load. The reverse shall be applicable during the lowering of a load.
- 3.12 Ensure that lifting tackle and load being lifted are not caught against obstructions. A side pull may cause crane damage or the crane to tip over.
- 3.13 Do not lift, lower, move and place a load until the Rigger gives the instruction to do so.
- 3.14 Never pull a load diagonally over the ground, even if it is on rollers. The resulting tension could damage the crane boom and over-load the crane. Dragging the load is strictly forbidden.
- 3.15 Neither the load nor the crane boom shall be lowered past the point where three full wraps of rope remain on the crane hoist rope winches.

5. MOBILE CRANE NIGHT TIME OPERATIONS

The crane Operator shall ensure the following during mobile crane operations:

- 5.1 Where lifting operations is to be conducted at night or in areas where natural and artificial lighting is inadequate, adequate illumination shall be provided by the client. The Client and/or the Operator shall notify the Branch Manager immediately if such operations are required.
- 5.2 These lifts shall be regarded as critical lifts and shall be controlled through effective risk analysis and assessments, critical lift planning, communication and leadership.

6. CRANE OVERLOADING

The crane Operator shall ensure the following during mobile crane operations:

- 6.1 Listen for any unusual noises during crane operations.
- 6.2 Sudden acceleration or deceleration will cause the load to swing or derrick dangerously. The crane boom could buckle or the crane can overturn.
- 6.3 Ensure the crane is horizontally aligned at all times during operation.
- 6.4 Do not allow the crane movements to be shut off by safety devices e.g., SLI, Anti-two block safety device. Control the respective movement by gradually stopping.
- 6.5 Do not overload the crane hoist ropes. Ensure that no object comes in contact with the ropes during crane operation(s). Slack rope conditions cause rope loops to form on the winch drums which can lead to the load slipping causing damaging or loss.
- 6.6 Strong winds, can overstrain the mobile crane. Client Riggers and crane Operators shall monitor the wind speed prior to the crane set-up and during crane operations continuously. The appropriate measures and permissible wind speeds may be found in the operating instructions, Company Operator training manual and where specified, mobile crane load charts (only late models). If in doubt, Operators shall enquire information from the Supervisor or Rigger in charge of the crane operation. Operators shall not endanger the crane operation due to the presence of high winds as crane overload may occur. Refer to chart below regarding hazardous wind conditions.

7. BEFORE STARTING A SPECIFIC CRANE ASSIGNMENT:

Crane Operators shall conduct the following before starting a specific crane lifting assignment:

- 7.1 Pre-operational Inspection to be conducted using Mobile Crane Operator Pre-Operational Inspection Report (Appendix A) before leaving yard or starting with any work.
- 7.2 Defects to be reported to Depot/Branch Manager.
- 7.3 Depot/Branch Manager to approve the crane safe for work.
- 7.4 Operator to ask Hire Desk for hire Contract.
- 7.5 Crane ready to depart from Company Branch.
- 7.6 On arrival on site Operator need to introduce himself to client and enquire from the client as to operational assignment(s) risks on Site that are to be encountered. CRN-PRO-01 Crane Operations Procedure
- 7.7 Take part and sign applicable client task-based Risk assessment(s)
- 7.8 Operator to perform a mini risk assessment before commencing with the setup or dismantling of the crane.
- 7.9 After all the above steps have been completed, the crane is allowed to work under supervision of a competent Rigger.

8. MOBILE CRANE PRE- OPERATIONAL INSPECTION REGISTER

- 8.1 Operators of mobile cranes shall thoroughly visually inspect their entire crane to be sure it is in a safe driving and operating condition and record their findings in the Crane Pre-Operational Checklist. (Booklet). Major defects or defects that could influence the safe driving and operation of their cranes shall be reported immediately to their respective branch Manager for maintenance purposes.
- 8.2 pre-operational inspections are not only a legal requirement, but they shall regard pre-operational inspections as preventative maintenance that is not only a safe way of operation, but also cost effective.
- 8.3 Pre-Operational Inspection Checklists must be conducted daily.