



## **SECTION 21**

# **CRANE SUSPENDED PERSONNEL PLATFORMS Policy & Procedures**



## Health & Safety Policy and Procedures Manual

1. **Scope:** This policy and procedure applies to the design, construction testing, use, and maintenance of personnel platforms and hosting of personnel platforms on the lines of cranes.

The use of a crane to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of worksite (e.g. personnel hoist, ladder, stairway, aerial lift, elevating work platform, or scaffold) would be more hazardous, or is not possible because of industrial design or worksite conditions. The determination of hazard: industrial design or worksite condition shall be documented and filed with the, Maul Electric, Inc. Director.

2. **Definitions:**

- A. **Failure** means load refusal, breakage, or separation of components.
- B. **Hoist or Hoisting** means all crane functions such as lowering, lifting, swinging, booming in and out or up and down, or suspending a personnel platform.
- C. **Maximum Intended Load** means the total of all employees, tools, materials, and other loads reasonably anticipated to be applied to a personnel platform or personnel platform component at any one time. Computations shall be documented and filed with the, Maul Electric, Inc. Director.
- D. **Runaway** means a firm, level surface designed, prepared, and designated as a path of travel for the weight and configuration of the crane being used to lift and travel with the crane suspended platform. An existing surface may be used as long as it meets these criteria. The designated path shall be documented for each lift procedure and filed with the Maul Electric, Inc., Safety Director.
- E. **Training** means all individuals involved in the lifting and use of crane suspended personnel platforms shall be trained in this procedure. This training shall be documented and on file with the Regional Maul Electric, Inc. Director prior to any lift being accomplished.

3. **Crane Requirements:** Selection of crane and operator are critical components of safe use of crane suspended personnel platforms. The crane operator shall be certified by their employer as a competent person to perform this procedure. Inspection data for the crane being used shall be provided prior to accomplishing lift and job set-up. This documentation shall be on file with the Regional Maul Electric, Inc. Director.

- A. Load Lines shall be capable of supporting, without failure, a minimum of seven times the maximum intended load. If the crane is equipped with rotation resistant rope, the lines must be capable of supporting, without



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failure, a minimum of ten times the intended load. (The required design factor is achieved by taking the current safety factor of 3.5 and applying the 50 percent de-rating of the crane capacity.)

- B. The load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs shall be engaged when the occupied personnel platform is in a stationary working position.
- C. The crane shall be uniformly level within one percent of level grade and located on firm footing.
- D. The crane shall be equipped with outriggers and the outriggers shall be fully deployed in accordance with manufacturer specifications when hoisting employees.
- E. The total weight of the loaded personnel platform and related rigging shall not exceed 50 percent of the rated capacity for the radius and configuration of the crane or derrick.
- F. The use of cranes equipped with booms in which lowering is controlled by a brake without aid from other devices that slow the lowering speed is prohibited.
- G. Cranes with variable angle booms shall be equipped with a boom angle indicator, readily visible to the operator.
- H. Cranes with telescoping booms shall be equipped with a device to indicate clearly to the operator at all times, the boom's extended length.
- I. A positive acting device shall be used to prevent contact between the load block or overhaul ball and the boom tip (anti-two blocking device), or a system shall be used which deactivates the hoisting action before damage occurs in the event of a two blocking situation.
- J. The load line hoist drum shall have a system or device on the power train, other than the load hoist brake, which regulates the lowering rate of speed of the hoist mechanism (controlled load lowering) FREEFALL IS PROHBITED.
- K. **Certification that the crane complies with this section must be on file with the Regional Maul Electric, Inc. Director.**

#### 4. Design Criteria for Platform:

- A. A qualified engineer or a qualified and competent person in industrial design shall design the personnel platform and suspension system. The design information shall be on file with the Regional Maul Electric, Inc. Director.



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- B. The suspension system shall be designed to minimize tipping of the platform due to movement employees and their equipment occupying the platform.
- C. The personnel platform, except for the guardrail system, and harness/lanyard anchorages, shall be capable of supporting, without failure, its own weight and a minimum of five times the maximum intended load.
- D. Each personnel platform shall be equipped with a guardrail system and shall be enclosed at least from the toe board to mid-rail with either solid construction of expanded metal having openings no greater than ½ inch.
- E. Harness/lanyard anchorages shall be capable of sustaining a minimum dead weight of 5400 lbs. and located above the point of operation.
- F. A grab rail shall be installed inside the entire perimeter of the personnel platform.
- G. Access gates shall not be allowed to swing outward during hoisting and shall be equipped with a restraining device to prevent accidental opening.
- H. Headroom shall be adequate to allow employees to stand upright in the platform.
- I. All ground crew and employees working in the platform shall use hard hats. Where hazards from falling objects may exist, additional overhead protection shall be provided.
- J. All rough edges exposed to contact by employees shall be smooth surfaced to prevent injury puncture, laceration, etc.
- K. A qualified welder familiar with the weld grades, types, and materials specified in the platform design shall perform all welding of personnel platform and components. Repairs or additions to the personnel platform shall be documented and on file with the Regional Maul Electric, Inc. Director.
- L. The weight of the platform and its rated load capacity or maximum intended load shall be permanently affixed to the personnel platform in a clearly visible location.



### 5. Personnel Platform Loading

- A. The personnel platform shall not be loaded in excess of its rated load capacity. Platforms that do not have a rated load capacity shall not be loaded in excess of the posted maximum intended load data.
- B. The number of employees occupying the personnel platform shall not exceed the number required for the work being performed and item 5-A above.
- C. Personnel platforms and associated rigging shall be used only for employees, their tools, and materials necessary to accomplish their work and shall not be used to hoist only materials or tools when not hoisting personnel.
- D. Materials and tools for used during a personnel lift shall be secured to prevent displacement or shifting.
- E. Materials and tools for use during a personnel lift shall be evenly distributed within the confines of the platform while the platform is suspended.

### 6. Personnel Platform Rigging

- A. Certification data shall be on file with the Regional Maul Electric, Inc. Director for all rigging equipment used in conjunction with Personnel Platforms.
- B. When a wire rope bridle is used to connect the personnel platform to the load line, each bridle leg shall be connected to a master link or shackle in such a manner as to ensure that the load is evenly divided among the bridle legs. All Shackles must be hex nut and cotter pin type and cotter pins must be installed.
- C. Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening.
- D. Wire rope, shackles, rings, master links, and other rigging hardware shall be capable of supporting, without failure, at least five times the maximum intended load applied or transmitted to that component. Where rotation resistant rope is used, the slings shall be capable of supporting without failure at least ten times the maximum intended load.
- E. All eyes in wire rope slings shall be fabricated with thimbles.



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- F. Bridles and associate rigging for attaching the personnel platform to the hoist line shall not be used for any purpose other than hoisting of the personnel platform.
- 7. Weather:** The impact of weather on Personnel Platform work is of extreme importance.
- A. Lifts shall be terminated if the wind is above 15 miles per hour (MPH).
  - B. Lifts shall be terminated at the first indication of electrical storms.
  - C. Lifts shall be terminated in the event of rain, snow, hail, or ice storms.
  - D. Lift platforms shall be clear of any ice and snow prior to commencement of lift.
- 8. Procedure:**
- A. All documentation required in Part 1 of this policy and procedure shall be on file with the Regional Maul Electric, Inc. Director and at the job site. The documentation shall be available for review by individuals or client representatives associated with the lift.
  - B. A pre-lift safety meeting shall be conducted with all personnel involved in the lift. The meeting shall be documented and the following mandatory items reviewed:
    - 1. Scope of work.
    - 2. Site hazards.
    - 3. Job specific hazards.
    - 4. Emergency equipment and procedures.
    - 5. Communication devices and signals.
    - 6. Mandatory safety equipment.
  - C. A safety check of the crane, platform, rigging equipment, fall protection devices, and hook up shall be made and documented by the employees involved in the lift. Any equipment found deficient should be immediately removed from the work area and replaced with certified equipment that shall not alter the platform or rigging lifting data.
  - D. Secure a  $\frac{3}{4}$  inch diameter shackle to the eyehole on the boom head section.
  - E. Attach the eye-spliced end of a  $\frac{5}{8}$ -inch diameter nylon rope to the  $\frac{3}{4}$  inch diameter shackle. The rope spool should be used for weight to ensure that the safety line remains straight. No more than two persons per rope.
  - F. Attach a minimum of  $\frac{1}{2}$ " diameter propylene rope for a tag line on the bottom of the basket.



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- G. Use on “Atlas Kwik Stop”, one “Gemtor Rope Grab” or one similar device for each person.
  - H. Head sets, two way radio, or telephone communication shall be established between the crane operator and employees being raised if a height of greater than 50 feet is to be reached.
  - I. Full body harness and a 4-foot shock-absorbing lanyard shall be worn and connected by all employees being lifted.
9. **Pre-Lift Test:** This pre-lift test shall be performed with the personnel platform unoccupied. Tools and equipment to be used may be loaded and secured in the platform prior to performing the test. **This test must be repeated each time the crane is repositioned. An alternate lift route is used or the crane is returned to a previously lifted or tested location.** Employees shall not be lifted until the pre-lift test is completed and documentation is established.
- A. A full cycle operational test must be made prior to lifting employees.
  - B. The platform shall carry twice the intended load during the lift test.
  - C. Stability of the footing shall be verified by visual inspection during the full cycle operational test.
  - D. Pre-lift plans showing boom angle and maximum intended load shall be prepared for each group of lifts.
  - E. All shackles shall be hex nut and cotter pin type with cotter pins installed.
  - F. Insure that there is as little boom movement as possible when the basket is in use.
  - G. Hoist ropes shall be free of kinks.
  - H. Multiple part lines shall not be twisted around each other.
  - I. The primary attachment shall be centered over the platform.
  - J. The hoisting system shall be inspected if the load rope is slack to ensure that all ropes are properly seated on drums and in sheaves.
  - K. A visual inspection of the crane, rigging, personnel platform, and the crane base support shall be conducted and documented by a competent person immediately after the trial lift to determine if any defect or adverse effect upon any component or structure was caused by the test.
  - L. Any defect found during inspections, which create or can be expected to create a safety hazard shall be corrected and verified by a competent person prior to hoisting personnel. If repairs or modifications are made to the platform and rigging, the platform shall be subjected to proof testing at 125 percent of the platform’s rated capacity by holding it in a suspended position for five minutes with the load evenly distributed on the platform. After proof testing, the competent person shall re-inspect the platform and rigging for deficiencies. **Proof testing is required each time repair or modification is made and must be accomplished, inspected, and documented prior to lifting of personnel.**



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- M. Prior to lifting employees, the platform shall be hoisted a few inches from the ground and the competent person shall perform a final pre-lift safety check.

### 10. Work Practices:

- A. Employees shall keep all parts of the body inside the platform during raising, lowering, and positioning. **(Exception: This does not apply to the signalman in the basket).**
- B. Employees shall not enter or exit a hoisted personnel platform that is not landed.
- C. No lift shall be made on other crane load lines during this procedure.
- D. The personnel platform shall be secured to the structure unless securing the platform creates an additional safety risk.
- E. Tag lines shall be used unless their use creates an unsafe condition.
- F. The crane operator shall remain at the controls at all times when the crane engine is running and the platform is occupied.
- G. Hoisting of employees shall be immediately discontinued upon indication of any dangerous weather condition, site emergency, or any other known or suspected hazard.
- H. Employees being hoisted shall remain in continuous sight and direct communication with the crane operator or signal person.
- I. If work over water is required, the employees being hoisted shall wear personal floatation devices and ring buoys with a minimum of 200 feet of attached line shall be available at the crane.
- J. Cranes shall not travel while employees occupy the personnel platform.

### 11. **EXCEPTION TO THIS POLICY AND PROCEDURE WILL NOT BE MADE AND COMPLIANCE WITH ALL ITEMS IS MANDATORY. VIOLATION OF THIS POLICY AND PROCEDURE WILL RESULT IN IMMEDIATE TERMINATION.**