



LIFTING PLANNING AND PROCEDURE

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Table of revisions

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1. Internal Controls

1.1. Review Of Procedures

To assure Managements, Shareholders and External agencies confidence in the company's policies & practices, QATAR STEEL Internal Audit may verify compliance with this procedure. [Department Owner] shall review this procedure every three years to ensure that it continues to serve the purpose intended.

1.2. Employee Responsibilities

All employees of the company are required to observe and abide with this procedure.

1.3. Approval

This procedure and any amendments made thereto; require the following approvals.

Authority:

Approved By:

Checked By:

Drafted by:

2. Purpose

The purpose of this Lifting procedure is to implement and verify the standard safe working practices to protect all individuals from the hazards of lifting activities.

3. Scope

This procedure applies to all employees, contractors, Sub-Contractors, at the Bright Holder site who performs or is involved with lifting operations. Each contractor shall ensure that its employees follow this procedure. This regulation specifies in details:

- The mandatory requirements and recommendations for the safe utilization of all lifting equipment operating in Bright Holder premises.
- The experience, qualification and training requirements for lifting equipment personnel, maintenance, inspection, testing, critical lift operation, organizational setup and quality systems for safe use of lifting equipment.

This regulation shall be:

- Considered as mandatory requirements applying to all departments and contractor owned and operated lifting equipment.
- Applied to use, purchase, operate, maintain and hire of lifting equipment, at any location within Bright Holder premises.
- Implemented by buyers, vendors, users, contractors and sub-contractors, and all Bright Holder operational depts. including projects, with clear identification of their responsibilities to prevent the use of any outdated and/or uncertified lifting equipment.

4. Procedures

Bright Holder procedure is to provide and maintain safe working environment at all operational areas including projects with continuous improvement in utilizing lifting equipment. The document defines the requirements that apply to lifting operations within Bright Holder to protect personnel from injury and property from damage.

1.4. Definitions of Terms

Lifting Appliance: Lifting appliances are the mobile or stationary equipment used to lift loads. These are usually powered by mechanical, electrical, hydraulic or pneumatic mechanism. Ex: crane, winch, fork lift, man lifts etc.

Lifting Tackles: These are the aids required to suspend the load by the lifting appliance. Ex: slings, hooks, eyebolts, baskets etc.

Colour Coding: Bright Holder operates a system whereby all lifting equipment is colour coded with a designated colour. The validity of the colour code is one month and colour coded according to the scheduled.

Competent person: A person approved by Bright Holder for the particular activity being described.

Contractor: An organization or entity providing products and/or services to Bright Holder.

Crane footprint: The area contained within 360 degrees of the lifting operation, covering the size of the

load and 1.1 x maximum crane boom length.

Dynamic Factor: The load factor by which the capacity of a crane is determined for offshore and onshore applications.

Emergency Repair: For the purposes of this regulation, an emergency repair of lifting equipment shall only be considered an emergency in situations where the danger to personnel, assets or the environment would be greater if the repair is not carried out. Under no circumstances will an emergency repair be carried out without prior notification and approval of the Bright Holder HSE Manager whose responsibility is to evaluate the situation based on the facts.

Factor of Safety (FOS), Coefficient of Utilization or Working Coefficient: It is a factor that is applied to the MBL to determine the WLL. It varies with the product to take account of the susceptibility to damage and considers the type of stresses the item will meet in normal use.

Inspection: Any physical activity, related to ensuring that an item of lifting equipment, in its entirety and at a given location or environment, meets the specified design and operating standards and is safe to operate or utilize for a specified period. This includes, but is not limited to, activities such as measuring, testing, and recording, checking, analyzing, loading and charting one or more characteristics of the equipment.

Lifting Appliances (Lifting Machines): Any manual or powered lifting machine, that is able to raise, lower or suspend loads, and includes the supporting structure and all plant, equipment and gear used in connection with such a machine, but excludes continuous mechanical handling devices (i.e. conveyors).

- Cranes (mobile, tower, pedestal, etc.),
- Wall/pillar cranes, derricks, swing jibs,
- Runway Beams, Monorails, Gin Poles and Gin Wheels,
- Manual and Powered Hoists and Winches,
- Chain blocks, Tirlors, pull lifts, trolleys,
- Powered Working Platforms,
- Elevators and Lifts,
- Forklifts, boom trucks, side booms and excavators,
- Lifting jacks (pneumatic or hydraulic).

Lifting equipment: A generic term used to cover both lifting gear and lifting machines. Lifting equipment shall mean any work equipment for lifting or lowering loads, and includes its attachments used for anchoring, fixing or supporting it. It includes any lifting accessories that attach the load to the lifting machine in addition to the equipment that carries out the actual lifting function.

Lifting Gear (Lifting Accessories or Loose Gear): Any item used to connect a load to the lifting appliance, but which is not in itself a part of the load or the appliance, such as:

- Chains and Wire
- Chain Slings, Wire Rope Slings and Webbing Slings,
- Rings, Links, Hooks, Shackles, Eye Bolts, Swivels,
- Blocks, Snatch Blocks,

- Beam Clamps and Plate Clamps,
- Lifting Beams / Spreader Beams,
- Man-baskets.

Load: Means any material, personnel, or any combination of these that are lifted, lowered or suspended by the lifting equipment. The weight of the lifting accessories including the hook block shall be considered as part of the load being lifted.

Minimum Breaking (or Failure) Load (MBL): The minimum-breaking load is the calculated load at which a sample of the item will break or fail.

Mode Factor: A factor applied by the user that takes into account the geometry of a sling assembly to obtain the maximum load that may be lifted for a particular mode of use or a configuration of use.

Operational Facility: Any location containing Bright Holder assets or processing plants where any lifting operation can create an unsafe situation or a business risk.

Periodic Inspection: The minimum specified period between one inspection and a repeat or next inspection

Proof Load Test (PLT): Deliberate application of a predetermined load in excess of SWL to assess the ability of the equipment to withstand operational requirements. This applied proof load shall never exceed the elastic limit of the item being tested. The amount of proof load to be applied will vary depending upon the type of equipment, its SWL, and the applicable standard.

Repair: A measure whereby the original state of an appliance will be restored by rebuilding or exchanging parts or units. If essential parts with safety functions are to be rebuilt or exchanged, this is considered to be a major repair. This is the case particularly in respect of the exchange of the following:

- Brakes
- Safety gear or catching devices
- Over-speed governors
- Load carrying parts (e.g. anchorages, open or closed smelters sockets, primary structures etc.)
- Driving mechanisms and controls.

Safe Working Load (SWL): The maximum load, as certified, that an item of lifting equipment may raise, lower or suspend under particular service conditions. It is the SWL that is marked on the item and that appears on any examination report or test records. Standard document, established by consensus and approved, that provides, for common and repeated use, rules, conditions or requirements, recommended practices, procedures, guidelines, specifications, philosophies and datasheets, aimed at the achievement of the optimum degree of order in a given context.

Sub-contractor: An organization or entity providing products and/or services to the contractor.

Supplier: An organization or entity manufacturing and/or selling products and/or services to QP or to the contractor

Third Party Certification: Any activity related to lifting equipment where it is necessary to obtain a certificate, signed by a qualified, independent body possessing the necessary competence,

professionalism and expertise recognized by governments and international institutions worldwide in both legislative or non-legislative environments, having professional liability and indemnity or insurance issued for the purpose of certification.

Third Party Certifying Authorities (TPCA): An internationally recognized independent, inspection and certification body approved by QP Corporate HSE to:

- Inspect, test and certify all lifting equipment,
- Train and certify lifting equipment personnel.

Training: The training of personnel involved in lifting operations such as crane operator, rigging supervisor, forklift operator, rigger, etc. provided by approved Third Party.

Witness: The visual inspection and appraisal by personnel of an approved Third Party, complying with the requirements of this regulation, of any operation or task relating to any item of lifting equipment to ensure compliance in accordance with the relevant standard requirements and to confirm and validate the results.

Working Load Limit (WLL): The maximum load (as certified based on the design and mechanical properties of the item) that an item of lifting equipment is designed to sustain, i.e. to raise, lower or suspend incorporating an appropriate FOS.

1.5. Responsibilities

- It is the responsibility of the concerned Bright Holder Dept. (s), and the contractor to ensure that this regulation and relevant standards detailed below are available. Furthermore, it is the responsibility of the respective operations management to ensure that the lifting equipment personnel are aware of the requirements of the standards and any amendments that may be issued from time to time.
- This regulation is aimed to achieve a high level of quality and safety awareness in all lifting operations performed within the jurisdiction of Bright Holder and contractors. It is the mandatory requirement of this regulation that no item of lifting equipment shall be utilized to raise, lower, suspend or transport a load, unless a valid certificate verifying suitability for its intended use has been issued by an approved TPCA on six monthly basis.
- Any item of lifting equipment, not holding a valid certificate from any approved TPCA, shall not be utilized in any Bright HolderS operational area. Original or approved copy of valid certificate shall be available at the site where lifting equipment is in use.
- Any certificate issued by private companies or TPCAs who are not approved, shall not be accepted unless it is endorsed and supported by a valid certificate issued by an approved TPCA.

1.6. General Requirements

1.6.1. Bright Holder/Contractor Rigging Supervisor

➤ Physical and Educational Qualifications

All Bright Holder/Contractor rigging supervisors shall:

- Be at least 35 years of age.
- Physically fit with regard to eyesight, hearing, reflexes and ability to handle lifting gear and equipment.
- A minimum of 10 years rigging experience in the steel manufacturing, oil and gas industry, with at least three years supervisory experience.

- Have had adequate training and experience and be competent to act as an appointed person or focal point nominated by management to be in overall control of the lifting operations.
- Be capable of reading, speaking, writing and understanding the English language. ☑
Have strong administrative and supervisory skills to schedule, monitor and control the lifting equipment personnel and lifting operations.

➤ **Training and Certification Requirements**

- Must hold valid certification in rigging and rigging supervision issued by an approved TPCA.
- All certified and authorized Bright Holder/contractor rigging supervisors shall hold a laminated identification card with photograph issued by an approved TPCA.

➤ **Responsibilities and Duties**

- Organization and control of the lifting operation.
- Assessment of the lifting operation to provide such planning, selection of cranes, lifting gear and equipment, instruction and supervision as is necessary for the task to be undertaken safely.
- Ensure that accurate weights, radii, heights etc. are established.
- Ensure that the ground is made suitable for taking up the loads to be imposed. ☑
Ensure that suitable access is provided to the site and any area required for erection and dismantling the crane.
- All hazards such as services (gas, water, electricity etc.) above or below ground are identified and suitable precautions are taken.
- Ensure that adequate inspection and maintenance of the equipment has been carried out.
- Ensure that there is an effective procedure for reporting defects and incidents and taking any necessary corrective action.
- Ensure that both the rigger and the crane operator are familiar with the method of signaling to be used.

1.6.2. Crane Operator

➤ **Physical and Educational Qualifications**

All Bright Holder/Contractor rigging supervisors shall:

- Be at least 35 years of age.
- Physically fit with regard to eyesight, hearing, reflexes and ability to handle lifting gear and equipment.
- A minimum of 10 years rigging experience in the steel manufacturing, oil and gas industry, with at least three years supervisory experience.
- Have had adequate training and experience and be competent to act as an appointed person or focal point nominated by management to be in overall control of the lifting operations.
- Be capable of reading, speaking, writing and understanding the English language. ☑
Have strong administrative and supervisory skills to schedule, monitor and control the lifting equipment personnel and lifting operations.

➤ **Training and Certification Requirements**

- Must hold valid certification in rigging and rigging supervision issued by an approved TPCA.
- All certified and authorized Bright Holder/contractor rigging supervisors shall hold a laminated identification card with photograph issued by an approved TPCA.

➤ **Responsibilities and Duties**

- Organization and control of the lifting operation.

- Assessment of the lifting operation to provide such planning, selection of cranes, lifting gear and equipment, instruction and supervision as is necessary for the task to be undertaken safely.
- Ensure that accurate weights, radii, heights etc. are established.
- Ensure that the ground is made suitable for taking up the loads to be imposed.
- Ensure that suitable access is provided to the site and any area required for erection and dismantling the crane.
- All hazards such as services (gas, water, electricity etc.) above or below ground are identified and suitable precautions are taken.
- Ensure that adequate inspection and maintenance of the equipment has been carried out.
- Ensure that there is an effective procedure for reporting defects and incidents and taking any necessary corrective action.
- Ensure that both the rigger and the crane operator are familiar with the method of signaling to be used.

1.6.3. Crane Operator

➤ **Physical and Educational Qualifications**

- Be at least 25 years of age,
- Be educated to a minimum secondary level,
- A minimum of five years' experience,
- Be capable of reading, speaking, writing and understanding the English language sufficient for the safe operation of the crane,
- Be physically and medically fit, especially with regard to eyesight, hearing and reflexes.

➤ **Training and Certification Requirements**

- All mobile cranes shall be driven or operated by a person holding a valid Kurdistan Region of Iraq's driving license (Heavy Machinery) or as authorize.
- All cranes shall be operated by a person holding a valid certificate of competence issued by an approved TPCA.
- All certified and authorized crane operators shall hold a laminated identification card with photograph issued by an approved TPCA
- All certified and authorized crane operators shall only use equipment for which they have received training and to use it in the manner in which they have been trained.
- Minimum training, three days for fresh hands and two days for the refreshers.
- Bright Holder may demand the removal of the Operator where incompetence or negligence is proven at any time during an operation.

➤ **Responsibilities and Duties**

- Correct operation of the crane as per manufacturer's instructions. The crane operator shall ensure that the crane is roadworthy, functioning correctly and is properly maintained each and every time that the crane is operated.
- Setting the crane level prior to lifting and checking that it remains level throughout the operation.
- Establishing which signaling system is to be used and following instructions from only one signaler at a time.
- Stopping operations if given any instructions that would take the crane outside its permitted duties.
- Stopping operations if the signaler is not within his direct sight.
- Stopping operations if visibility is not clear.
- Informing the supervisor of any problems that arise which would affect the lifting operation.

- Recording the daily checks, maintenance and comments relating to the crane's operation in the log book for the crane.
- The crane operator shall know the weight of the load prior to start of lift. No load is to be lifted where the weight is unknown.
- Shall not leave the crane unattended while a load is suspended from the hook. ☒ Where lifting operations involve the use of lifting equipment in proximity to overhead power lines, it is the responsibility of the crane operator to ensure that it is safe to do so. The crane operator shall ensure that the equipment is operated in such a manner that no item of lifting equipment is within 20 meters proximity of any live overhead power line.
- Put the operation on halt if riggers are not present or are exposed to any potential hazard.
- It is forbidden to use mobile phone inside the crane cabin.

1.6.4. Forklift Operator

➤ Physical and Education Qualifications

- Minimum 21 years of age.
- Be capable of reading, speaking, writing and understanding the English language sufficient for the fulfillment of their function in a safe manner.
- Physically fit with regard to eyesight, hearing, reflexes and ability to handle lifting gear and equipment.

➤ Training and Certification Requirements

- All forklift operators shall have a valid Kurdistan Region's driving license, grade 2 up to six tonnes and grade 4 for above six tones.
- All forklift operators shall hold a valid certificate of competence issued by an approved TPCA.
- All certified and authorized forklift operators shall hold a laminated identification card with photograph issued by an approved TPCA.
- All certified and authorized forklift operators shall only use equipment for which they have received training and to use it in the manner in which they have been trained,
- The duration of the training course shall be a minimum of three days for fresh candidates and two days for refresher,
- The validity of the certificates shall not exceed three years.

➤ Responsibilities and Duties

- Forklift operators shall be responsible for ensuring that the forklift is functioning correctly and properly maintained each and every time the forklift is operated.
- Stop the lifting operation if anything out of the ordinary occurs and check that it is safe to continue operation.
- When lifting a load, raise 10 cm stop the load just clear of the ground, to check security and balance of the load, and check the function of the lifting brakes.
- Observe and note other activities within the load operating area to avoid the development of any unforeseen hazards.
- Warn other personnel in the area of the movement of the load.
- Check that the area around the load to be lifted is clear and that the load is not attached to transportation cradle or adjacent equipment.
- Be familiar with the lifting capabilities of the forklift.
- Check that the forklift being used is in good condition and certified for use.
- Ensure that no load is to be lifted where the weight is not stated or unknown.
- Ensure that all equipment controls function correctly.
- Ensure that the load does not block the vision of forklift operation. If unavoidable, safety-watch to be provided during period of load lifts and transfers.

- Ensure that the light around the forklift and rotating siren are functioning correctly.

1.6.5. Man-Lift Operator

This section shall cover all operators of man-lifting appliances including but not limited to man-lifting platforms, mobile elevating work platforms, cherry pickers, boom lift, scissor lifts, etc.

- Physical and Education Qualifications
- Minimum 21 years of age.
- Be educated to a minimum secondary level,
- Be capable of reading, speaking, writing and understanding the English language sufficient for the fulfillment of their function in a safe manner.
- Physically fit with regard to eyesight, hearing, reflexes and ability to handle lifting gear and equipment.
- Training and Certification Requirements
- For all man-lift appliances that require operators to drive them, the operators have a valid Kurdistan Region driving license, as authorized for a car in the Kurdistan Region driving license.
- All man-lift operators shall hold a valid certificate of training issued by the equipment manufacture or an approved TPCA
- All certified and authorized man lift operators shall hold a laminated identification with photograph issued by an approved TPCA
- All certified and authorized operators shall only use equipment for which they received training and to use it in the manner in which they have been trained.

➤ Responsibilities and Duties

Man-lift operators shall be responsible for ensuring that the man-lift is functioning correctly, and properly maintained, and checked against an approved checklist each and every time the man-lift is operated.

- Stop the lifting operation if anything out of the ordinary occurs and check that it is safe to continue operation.
- Observe and note other activities within the operating area to avoid the development of any unforeseen hazards.
- Warn other personnel in the area of the lifting operation.
- Check that the area is clear for operation.
- Be familiar with the lifting capabilities of the man-lift.
- Check that the man-lift being used is in good condition and certified for use.
- Ensure that all equipment controls function correctly.

1.6.6. Lifting Appliances

- All lifting appliances shall be designed, engineered, constructed, installed, tested, operated and maintained in accordance with the specified standards.
- No lifting appliances shall be used unless an approved TPCA has issued a certificate, verifying its design suitability for its intended use in a specified environment.
- All lifting appliances shall be assigned unique identification numbers and marked with certified SWL. In addition all items shall be color coded in accordance with Bright Holder color coding scheme, which is applicable at the time of utilization. The contractor shall ensure that the equipment bears the current color coding according to the period specified in the Bright Holder color coding schedule.
- A comprehensive register of lifting equipment detailing the following minimum information shall be developed for monitoring periodic inspection requirements.
- Maintenance supervisor will be the focal point when equipment arrives on site. He may

- o nominate other personnel for this job.
- o No lifting appliance shall undergo alterations to components or parts that affect its structural integrity or load bearing capacity without the written approval of an approved TPCA or from the original equipment manufacturer.
- o When lifting appliance has undergone repairs that affect the load bearing parts or replacement of parts or components that affect the structural integrity, the lifting appliance shall be re-inspected and certified by an approved TPCA.
- o Safety devices that affect the integrity of a lifting appliance shall not be altered without the written approval of an approved TPCA or the original equipment manufacturers.
- o Where a lifting appliance has suffered major damage or incident, the appliance shall not be repaired without a written repair procedure from the original equipment manufacturer, and shall be retested after the repairs by an approved TPCA to verify the equipment structural integrity.
- o Any lifting appliance, that has been newly installed or relocated, shall undergo approval by TPCA and commissioning tests shall be performed before being used.
- o A complete manufacturer's maintenance and operating manual for lifting appliance shall be available for reference to the operator and maintenance personnel at site/location. The lifting appliance shall be operated and maintained in accordance with the procedures set out in their relevant handbook and manuals.
- o Maintenance activities carried out on the appliance shall be recorded in the log book.

1.7. Requirements for Cranes

1.7.1. General

All cranes shall have the following:

- o A hoisting limit device that, when actuated, stops the hoisting motion and applies the brake on the hoisting winch automatically.
- o A luffing limit device that, when actuated, stops the luffing motion and applies the brake on the luffing winch automatically, and that is so arranged as to prevent bypassing of this device in the normal operation of the crane.
- o Operating levers and switches that are clearly identified and marked. All markings shall be in English or internationally agreed symbols.
- o Engine stop systems that operate in a manner such that the engine comes to rest with minimum delay.
- o Check valves shall be fitted to all hydraulic cylinders to prevent cylinder movement in the event of hose failure.
- o A facility for emergency lowering of loads.
- o Temperature sensing devices, audio or visual type, or equivalent safeguards to give adequate protection to the prime mover and associated equipment.
- o An emergency stop with manual re-set capability within crane operator reach.
- o Motion control levers that return to neutral with a minimum delay upon release – this does not apply to engine throttle lever.
- o Adequate fire extinguishers of a Bright Holder Fire section approved size and type. ☑ All pneumatic, hydraulic and electrical connections clearly tagged/marked, corresponding to the markings on the crane circuit drawings.
- o An emergency escape route for personnel.
- o Safety latches that automatically close fitted to all integral crane hooks.
- o A suitable operating cab that adequately protects the crane operator and controls from the elements (weather), is adequately cooled (if possible) and ventilated, and provides a clear and unrestricted view of all operations associated with the crane.
- o The SWL of the hook block prominently marked and highlighted on the hook.
- o Where the design of the crane is intended for SWL loads of greater than five tonnes, a

calibrated automatic SWL Indicator shall be fitted and a legible metric crane capacity chart prominently displayed.

- Outriggers and hooks clearly marked with a red and white chevron pattern.
- Crane hooks (for mobile cranes) secured to ensure no swinging occurs in transit.
- Maintenance and repair logbook for each crane is to be maintained.
- Audible and visual alarms to be installed in all cranes, which shall sound continuously when the crane slewing is set on.
- No crane shall be utilized for any operation other than that for which it was designed.
- Audible and visual alarm fitted on crawler cranes while travelling forward or reversing.

1.7.2. Special Restrictions

- No person shall be transported by a crane except in an approved workbasket or personnel transfer net. The operator shall not leave the controls while the personnel or load is suspended.
- All cranes utilized at jetties for handling loads shall have a legible metric load chart that has been calculated in accordance with the dynamic factor (load factor) or as recommended by the crane manufacturer, permanently fixed in the crane operator's cabin.
- When a crane is being operated, hand signal communication between the rigger and the crane operator shall be conducted in accordance with the standard hand signal requirements, except that voice communication, by radio or telephone between those persons, is permitted as an alternative.
- No crane shall be used beyond its statutory test period.
- Cranes shall not be used to transport loads unless they are specifically designed for the purpose.
- No crane is allowed to lift any weights above the SWL marked up as per the capacity chart.
- No crane is allowed to pull or tow/drag weights. No crane is allowed to enter any hazardous zone without permission and verification of zone requirement.
- Cranes shall not be utilized when the wind speed is more than 25 knots or where due to the nature of the load it becomes unmanageable due to wind acting on the load.
- Cranes shall not be utilized to carry out any lifting operations after sunset. Any lifting operations that have to be carried out after sunset or during periods of poor visibility, shall be with the full approval of the Bright Holder operational area management and department safety representative. The operational area shall be adequately illuminated to ensure all involved persons and equipment are clearly visible when carrying out the lift. In addition the lifting equipment shall have its own means of illumination to ensure that the operator at all times can see adequately what actions are taking place and the crane itself shall be fitted with lights at all extremities and along the length of the boom where feasible to assist all personnel involved in the operation can be aware of any movement of the crane.
- Ground condition shall be assessed before deploying the crane outriggers. Crane pads shall be used to help disperse weight evenly under each of the cranes outriggers
- Cranes not in regular use shall be subjected to special checks as per the manufacturer's instructions/applicable standard, prior to being used.

1.7.3. Safe Practices in Using Mobile Cranes

- Executing division shall ensure that riggers and crane operators are qualified, certified and competent for the task. Crane operator shall have valid equipment operations license and TPCA certificate.
- Drop area shall be barricaded using tapes or other means in areas where operation or maintenance activities are in progress.

- Outriggers shall be fully extended.
- The designated rigger shall give signals for crane operations. He shall wear a florescent jacket and red helmet for easy visibility.
- Load chart shall be available in the crane operator's cabin.
- Next due date for inspection shall be painted/tagged on the crane.
- Guide rope (tag lines) shall be used to control swinging.
- Communication equipment (Radios) shall be used when the rigger cannot give clear signals to the operator due to obstructions, height, or distance and when the crane operator can't see the load.
- Night parking within unit areas shall not be allowed. If required, it shall not block hydrants or any other access and 15m away from running units with joint approval of Operations supervisor and the Safety Engineer.
- Critical lifting operations must be planned with extreme care and written procedure shall be prepared.
- No one shall stand under the suspended load.
- Load shall not be left suspended and unattended. Crane operator or the rigger shall not leave the area without substitute.
- Fly jib shall not be used unless it is certified. Moving along the road with fly jib shall be minimized and with prior approval of area Safety Engineer.
- Multiple crane lifting operations must be planned with extreme care and written procedure shall be prepared for each lifting. Wire ropes shall remain vertical. Each crane shall be assumed to have 25% less than the rated SWL (Safe Working Load).
- No passengers are allowed to ride on the body of the crane.

1.7.4. Additional Requirements for Cranes Used for Lifting Persons in Suspended Man- Baskets.

- The crane shall have a factor of safety of 10:1 on crane capacity for each personnel lifting operation.
- The crane shall automatically stop all motions when the controls are released. ☐ The crane shall be equipped with wind speed meter.
- The crane control shall be such that the man-basket can move gently and the working speed shall not exceed 0.5 m/s on all motions.
- The crane shall have a control mechanism to lower the man basket to a safe position, in a controlled manner, in the event of power failure or crane's control failure. The operator shall be familiar with this control mechanism.
- The wire rope used for hoisting and lowering the man-basket shall have a diameter 12 mm and above.
- Guide rope (tag lines) shall be used to control swinging.

1.7.5. Lorry Loader Crane

- Shall not be used beyond its statutory test period.
- Shall not lift any weights above the marked SWL defined in the capacity chart.
- Shall not pull or tow weights.
- Shall not enter any dangerous zone without permission and verification of zone requirement.
- Never move the vehicle with the outrigger in extended position.
- Never move the vehicle with the boom in extended or raised position.
- Never move the vehicle with the load on the crane (pick and carry is not allowed).
- Shall not be operated on tires without extending the outriggers.
- Lorry loader crane (telescopic boom with/without winch system) above five tonnes capacity shall be fitted with either automatic safe load indicator or a device that shows the percentage of the actual loads.
- Petrol and LPG-engine lorry loaders shall not be used in areas where there is a risk of a

- flamable vapour, gas or dust concentration being present.
- All lorry loader cranes shall be thoroughly inspected every six months.
- Diesel-powered lorry loader trucks shall only be used in potentially explosive atmospheres if, in addition to protection of the electrical system, the exhaust is protected against spark emission, precautions are taken against the intake of flammable mixtures and hot surfaces are protected.
- All lorry loader operations shall be halted where weather conditions are bad enough to adversely affect the performance of the lift truck or expose the operator to danger, e.g. excessive wind speed, poor visibility due to mist or fog, lightning or heavy rain.
 - An adequate and certified portable fire extinguisher shall be provided within the crane operator reach.
 - Lorry loader can only be operated by a person with a valid Kurdistan Region driving license

1.8. Forklift

All forklifts including electrically/battery operated shall comply with the requirements of the specified standards and the manufacturers operation and maintenance manuals, and additionally:

- Forklifts shall be fitted with Kurdistan Region traffic registered number plate.
- Forklifts shall not be driven on public roads.
- Fork arms shall not be distorted or perforated.
- Forklifts shall not be used to lift a load greater than the maximum designed SWL.
- Forklifts shall not be used to lift loads unless the pneumatic tyres are inflated to the correct pressure.
- The inflation pressure for each tyre shall be shown prominently on the lift truck.
- All lift trucks shall be fitted with audible warning devices such as horn and reverse horn to warn other personnel in the vicinity.
- Forklifts shall be provided with suitable lights at the front and rear if the lift truck has to be driven at night or in areas with insufficient natural or artificial light. Consideration shall be given to fitting a flashing yellow light on the top of the lift truck.
- All lift truck operations shall be halted where weather conditions are bad enough to adversely affect the performance of the lift truck or expose the operator to danger, e.g. excessive wind speed, poor visibility due to mist or fog, lightning or heavy rain.
- Petrol and LPG-engine lift trucks shall not be used in areas where there is a risk of a flammable vapor, gas or dust concentration being present.
- Battery-powered lift trucks shall only be used where there is a risk of a flammable
- Vapor, gas or dust concentration being present if they have been suitably protected. Diesel-powered lift trucks shall only be used in potentially explosive atmospheres if, in addition to protection of the electrical system, the exhaust is protected against spark emission, precautions are taken against the intake of flammable mixtures and hot surfaces are protected.
- If an attachment fitted may alter the characteristics of the lift truck, an approved TPCA, in consultation with the supplier or manufacturer, shall carry out necessary derating.
- The attachments shall be securely fastened and care taken to ensure that the attachments or securing device do not foul any part of the mast structure during raising or lowering of the attachment.
- All forklifts shall be thoroughly inspected by an approved TPCA at a maximum interval of six months.
- The SWL shall be prominently displayed on all forklifts.
- No forklift shall be used beyond its statutory test period.
- Use of forklifts for transport of personnel is strictly forbidden.
- All forklifts shall be annually tested to 100% SWL for offshore and onshore.
- All forklifts shall be fitted with adequate and certified portable fire extinguisher.
- All forklift shall be fitted with light around the forklift and rotating siren.

1.9. Man Lift / Working Platform / Scissor Lift

- Man lift operation shall not be carried out with wind speeds in excess of 12 knots.
- Personnel riding in the man-riding basket shall wear an acceptable safety harness secured to the handrail of the appliance.
- All working platforms (hydraulic, pneumatic and electric) shall comply with the specific standards, manufacturer manuals and this procedure.
- The following points shall be considered for SWL calculation of working platform.
- Average personnel weight shall be 100 kgs.
- Average working tools weight shall be 25 kgs. per person
- Tare weight of the equipment.
- All working platforms shall be:
 - Thoroughly inspected by an approved TPCA at a maximum interval of six months.
 - PLT to 125% SWL after major alteration/repair and thereafter every four years.
 - 100% SWL test yearly.

1.10. Lifting Tackles

All lifting tackle shall be clearly marked, die-stamped or tagged as appropriate with a unique identification number and its SWL. All items shall be colour coded in accordance with QS colour coding scheme applicable at the time of utilization, in addition to the classification society requirements shall also require certification in line with this regulation, i.e. the inspection interval for these cranes shall include a six monthly thorough inspection. All lifting tackle shall be:

- Thoroughly inspected by an approved TPCA at a maximum of six monthly intervals.
- Thoroughly inspected and tested to 100% SWL if the six monthly inspections were missed.
- Thoroughly inspected and PLT if a one year inspection and more were missed.

The following lifting tackle shall be examined and tested;

➤ **Beam Clamp**

- Shall be inspected and PLT.
- And shall be free from any deformation, permanent elongation, visible cracks and any evident wear at pins, bolts, threads, pivots, or other moving parts.

Note: Any fabricated clamp without design calculation shall be PLT to three x SWL.

➤ **Chain Sling**

In addition to the relevant standard the following shall apply:

- Each new chain sling shall be thoroughly examined and PLT. In service chain sling shall be examined thoroughly and as far as is reasonably practicable from any of the following;
- Chain sling markings (i.e. identification and/or the working load limit) Unknown chain sling shall remove from service or shall be certified provided that the chain link and all terminal fittings are known or identifiable.

➤ **Hooks**

All hooks shall be subjected to PLT by any approved TPCA before being put to service. The hook shall also be verified with the following;

- Bending and twisting of more than 10 degrees from the plane of the unbent hook.
- Increase of throat opening by more than 15%.
- Any wear exceeding 10% of the original section of the hook or its load pin.
- Any crack, nicks or gouges.
- Inoperative latch (if provided).

- Hooks found to be in any of the above condition shall be removed from its service until repaired or replaced.

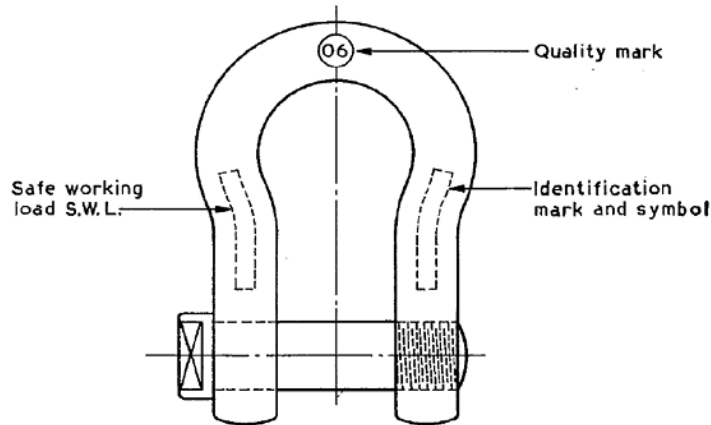
➤ **Safety Harness/Fall Arrestor**

The inspection criteria shall be as follows:

- Six monthly visual inspections shall be carried out by an approved TPCAs.
 - Examine the 'Saflok 'top hook and check for any distortion or wear and ensure the safety latch engages correctly.
 - Examine the top shackle and check for distortion or wear between shackle pin and body.
 - Examine complete body casting and check for cracks/impact damage that may affect the workings of the block.
 - If the block is the retrieval type, ensure the winding handle is still attached.
 - Pull out the cable and check for broken wires, wear and corrosion. Pay particular attention to the portion of wire below the neoprene buffers, as this tends to be a moisture trap.
 - Examine the thimble eye in wire and swivel eye in hook and check for any wear or distortion.
 - Examine bottom hook and check for any wear or distortion and ensure safety latch engages correctly.
 - Examine the webbing on the safety harness and check for any wear or cuts.
 - Ensure all stitching is intact and metal fittings have not abraded the webbing.
 - Examine the buckles/clasp etc. for any visual damage and ensure it fastens correctly.
 - TPCA and manufacturer's issued certificate of conformity or test certificates shall be submitted for HSE review and acceptance.
 - Fall arrestors to be listed for verification to HSE.
 - Department Safety representative to check the safety harness and fall arrestors prior to use.
 - Safety harness shall be discarded after four years regardless of condition.
- Note: It is a mandatory requirement to use the full body harness with shock absorbing double lanyard and snap hooks in Bright Holder operational areas.

➤ **Shackle**

- Shackles with the capacity of less than two tonnes shall not be used for lifting within Bright Holder operational area.
- All shackles shall be individually inspected and PLT
- In addition, all shackles shall be inspected for:
 - Body bend, nick, crack and wear.
 - Pin for any wear, crack, nick and deformation.
 - Pin hole alignment,
 - Pin sits and fits correctly
 - Markings as below:



- Unknown or unidentified shackles shall not be certified and utilized in Bright Holder.
- **Spreader Beam/Lifting Beam/Lifting Bar**
 - Spreader beam, lifting beam or lifting bar shall be examined and tested.
 - All spreader beam or lifting beam shall be PLT every four years.
- **Webbing Sling (Flat Woven/Man-Made Fibre)**
 - All webbing slings shall be supplied with an approved TPCA certificate of a break test.
 - Also shall be fitted with a label (laminated type) that gives the following minimum information:
 - SWL and distinguishing mark(s).
 - The material used to manufacture the sling.
 - Name or unambiguous trade mark of the manufacturer.
 - Mode factors for choke hitch, basket hitch with legs parallel and basket hitch with legs at 0-45 degrees.
 - Webbing slings shall not be colour coded with enamel or spray paint directly. Attach a label or circular disk to indicate the current colour coding system.
 - Webbing sling can only be used for a maximum four (4) years within QS operational area from the initial use.
- **Wire Rope**
 - All wire rope shall be supplied with an approved TPCA certificate of a break test.
 - Wire rope to be installed in any lifting appliances shall be accepted by Lifting Supervisor.
 - All wire rope shall comply with the following requirements:
- **Wire rope must have a certificate that will give at least the following information:**
 - Certificate number,
 - Name and address of the manufacturer,
 - Quantity and nominal length of rope,
 - Standard to which the rope conforms,
 - Minimum breaking force,
 - Date of issue of the certificate and authentication,
 - Measured diameter of rope,
 - Measured breaking force of rope.

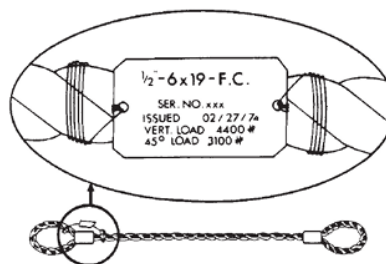
1.11. Wire Rope Inspection

All wire rope in continuous service should be checked daily during normal operation and inspected on a weekly basis. A complete and thorough inspection of all ropes in use must be made at least once a month. Rope idle for a month or more should be given a thorough inspection before it is returned to service. A record of each rope should include date of installation, size, construction, length, extent of service and any defects found.

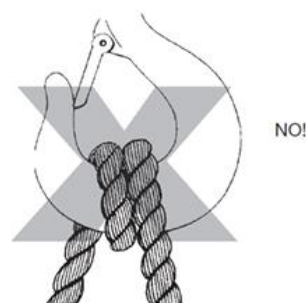
Conditions such as the following should be looked for during inspection.

1.12. Wire Rope Sling

- All wire rope slings shall be supplied with an approved TPCA certificate of a break test.
- Each wire rope sling shall be examined and PLT.
- Certificate of multi-leg wire rope sling shall provide detail of master link and other terminal fittings for verification. Without this detail, the certificate will not be endorsed.
- Never use damaged slings. Inspect slings regularly to ensure their safety. Check wire rope slings for kinking, wear, abrasion, broken wires, worn or cracked fittings, loose seizing and splices, crushing, flattening, and rust or corrosion. Pay special attention to the areas around thimbles and other fittings.
- Slings should be marked with an identification number and their maximum capacity on a flat ferrule or permanently attached ring. Mark the capacity of the sling for a vertical load or at an angle of 45°. Ensure that everyone is aware of how the rating system works.

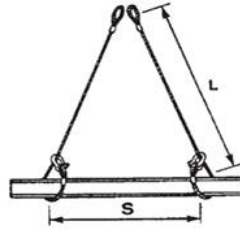


- Avoid sharp bends, pinching, and crushing. Use loops and thimbles at all times. Corner pads that prevent the sling from being sharply bent or cut can be made from split sections of large diameter pipe, corner saddles, padding, or blocking.
- Never allow wire rope slings, or any wire rope, to lie on the ground for long periods of time or on damp or wet surfaces, rusty steel, or near corrosive substances.
- Avoid dragging slings out from underneath loads.
- Keep wire rope slings away from flame cutting and electric welding.
- Never make slings from discarded hoist rope.
- Avoid using single-leg wire rope slings with hand-spliced eyes. The load can spin, causing the rope to un-lay and the splice to pull out. Use slings with Flemish Spliced Eyes.



Never Wrap a Sling Around a Hook

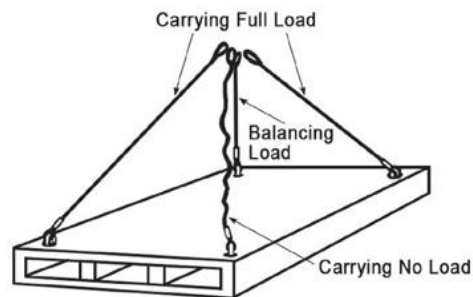
- Never wrap a wire sling completely around a hook. The sharp radius will damage the sling. Use the eye.
- Avoid bending the eye section of wire rope slings around corners. The bend will weaken the splice or swaging. There must be no bending near any attached fitting.



If L is greater than S then sling angle is OK.

Check on Sling Angle

- Ensure that the sling angle is always greater than 45° and preferably greater than 60°. When the horizontal distance between the attachment points on the load is less than the length of the shortest sling leg, then the angle is greater than 60° and generally safe.
- Multi-leg slings - With slings having more than two legs and a rigid load, it is possible for some of the legs to take practically the full load while the others merely balance it. There is no way of knowing that each leg is carrying its fair share of the load.



- When using multi-leg slings to lift loads in which one end is much heavier than the other (i.e., some legs simply provide balance), the tension on the most heavily loaded leg(s) is more important than the tension on the more lightly loaded legs. In these situations, slings are selected to support the most heavily loaded leg(s). Do not treat each leg as equally loaded (i.e., do not divide the total weight by the number of legs.) Keep in mind that the motion of the load during hoisting and travel can cause the weight to shift into different legs. This will result in increases and decreases on the load of any leg.
- When using choker hitches, forcing the eye down towards the load increases tension in the sling, which can result in rope damage. Use thimbles and shackles to reduce friction on the running line.
- Whenever two or more rope eyes must be placed over a hook, install a shackle on the hook with the shackle pin resting in the hook and attach the rope eyes to the shackle. This will prevent the spread of the sling legs from opening up the hook and prevent the eyes from damaging each other under load.

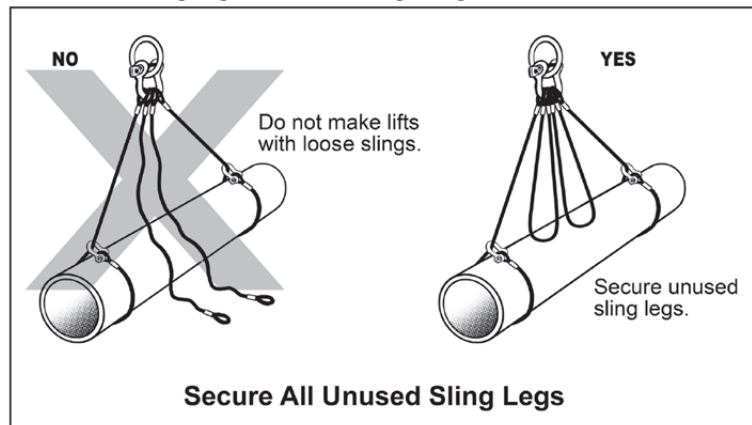


Whenever 2 or more ropes are to be Placed Over a Hook – Use a Shackle

- Rig loads to prevent any parts from shifting or dislodging during the lift. Suspended loads should be securely slung and properly balanced before they are set in motion.
- Keep the load under control at all times. Use one or more taglines to prevent uncontrolled

motion.

- Loads must be safely landed and properly blocked before being unhooked and unslung.
- Lifting beams should be plainly marked with their weight and designed working loads, and should only be used for their intended purpose.
- Never wrap the hoist rope around the load. Attach the load to only the hook, with slings or other rigging devices.
- The load line should be brought over the load's center of gravity before the lift is started.
- Keep hands away from pinch points as slack is being taken up.
- Wear gloves when handling wire rope.
- Make sure that everyone stands clear when loads are being lifted, lowered, and freed of slings.
- As slings are being withdrawn, they may catch under the load and suddenly fly loose.
- Before making a lift, check to see that the sling is properly attached to the load.
- Never work under a suspended load.
- Never make temporary repairs to a sling. Procedures for proper repair should be established and followed.
- Secure or remove unused sling legs of a multi-leg sling before the load is lifted.



- Never point-load a hook unless it is designed and rated for such use.
- Begin a lift by raising the load slightly to make sure that the load is free and that all sling legs are taking the load.
- Avoid impact loading caused by sudden jerking during lifting and lowering. Take up slack on the sling gradually. Avoid lifting or swinging the load over workers below.
- When using two or more slings on a load, ensure that they are all made from the same material.
- Prepare adequate blocking before loads are lowered. Blocking can help prevent damage to slings.

1.13. Control of General and Critical Lifting Operations

1.13.1. General Lifting Operations

All lifting operations shall be carried out by competent persons using the appropriate equipment in a safe manner taking into consideration all of the following requirements:

- Details of the lift, location and associated risk,
- Planned, considering the equipment and manpower certification requirements,
- A risk assessment is completed,
- A toolbox talk is completed,
- Execute with approved and certified personnel and equipment.

1.13.2. Risk Assessment

A risk assessment, specific to the site and lift, shall be carried out by a competent person to identify all potential risks associated with the lifting operation. The competent person shall determine the nature and extent of any measures required to mitigate risk. A contingency plan and escape route to mitigate any eventuality shall be in place. The risk assessment shall be documented and reviewed by the HSE.

1.13.3. Critical Lift

This section specifies the minimum requirements for the execution of critical lifts. Lifting operations are classified as critical if any one of the following conditions applies:

- Any load dimension exceeds 12 meters or the load is of a complex shape where it is difficult to determine.
- Lifts that exceed 50 tons in weight.
- Lifts which exceed 30 meters in height.
- Lifts which require full boom extension or maximum radius.
- Lifts requiring use of more than one crane simultaneously.
- Lifts where the equipment/load consists of thin/fragile members susceptible to deformation during lifting.
- Personnel lifts, lifts over pipelines, near overhead electric power lines, where lifting operation can endanger the safety of the plant or crane.
- Lifts where safety of personnel and equipment are at risk, which is a concern raised by any responsible authorities.

1.13.4. Critical Lifting Plan/Method Statement

A lifting plan/method statement, JSA, including all TP Certificates, shall be submitted to QS HSE for acceptance prior to undertaking the operation, at least seven working days in advance and shall cover the following as a minimum:

- The plan shall address all the foreseeable risks and identify the procedures, responsibilities and any resources required, so that the lifting operation is carried out safely and logically.
- A sketch, including plan and elevation, shall be prepared to scale, detailing the sequence of operation. This shall also show the layout of the equipment/load to be lifted, positioning of the crane/s and load, before, during and after the lift, attaching the lifting gears and tag lines, etc.
- The sequence of the operation to include site preparation, arrival of the equipment on site, any necessary erection, positioning of the crane, lifting and placing of the load(s), and dismantling the crane(s) after lift, to moving off site.
- Crane and lifting gear with a capacity of 25% above the maximum estimated weight of the load to be handled at as-rigged configuration shall be selected for the lift.
- Relevant calculations supporting the safety limits of operation shall consider the effects of dynamic loading and weather conditions. The estimation of the load shall include the weight of hook block, weight of all lifting gear and the weight of the wire rope below boom tip.
- When a load is to be lifted using the main hook, whilst the fly jib is installed, the weight of the fly jib and the fly hook shall be removed from the lifting capacity of the main hook. ☐ The crane configuration such as boom length, height of lift, radius, and available capacity for the intended lift and actual load to be handled at that configuration shall be clearly stated on the plan. The FOS to be calculated and stated on the plan.
- The plan shall ensure that there is adequate site access for safe operation of the lifting equipment. Consideration shall be given to safe positioning of the outriggers or crawlers.
- The compactness of the ground or foundations shall be assessed such that the crane can

operate within level at all times. The bearing pressure shall be calculated taking into account the dead weight of the crane, weight of the load, and any other dynamic factors and shall not exceed the bearing capacity of the supporting ground or foundations.

- The crane and associated lifting gear shall have valid certificates available.
- All the lifting personnel such as rigging supervisor, riggers and the crane operator shall have valid certificates available.
- A clear copy of the crane capacity chart (in metric units and English language) shall be available.
- All lifting operations involving the lifting of personnel shall be subject to a preapproved
- Standard operating procedure (method statement), endorsed by Corporate HSE, taking all risks into consideration. This SOP shall be attached to the PTW prior to any lift.

1.13.5. Responsibilities for Critical Lift

- A competent person, having adequate practical, theoretical knowledge, experience of planning in lifting operations must plan the lifting operation.
- The plan shall nominate a person in charge of the lifting operation. Clear identification and assignment of the responsibilities, including name, for all the activities shall be stated in the plan.
- A 'Lifting Team', comprising site engineer/job officer, rigging supervisor, crane operator, rigger and a department safety representative, are essential for the operation. The nominated person in charge of the lifting operation must make the decisions for the critical lift operation ensuring that the lifting operation is carried out to the approved plan.
- The plan shall ensure provision of suitably trained and certified crane operator, rigging supervisor and riggers who are aware of their duties and responsibilities.
- The nominated person in charge of the lifting operation shall conduct a 'Tool box talk' prior to the lifting operation briefing all the persons involved.
- Suitable means of communication shall be established for the lifting operation.