

SAUDI ARABIAN OIL COMPANY (Saudi Aramco)
GENERAL INSTRUCTION MANUAL
G. I. NUMBER Approved

7.024

ISSUING ORG. *TRANSPORTATION & EQUIPMENT SERVICES DEPARTMENT

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SUBJECT MARINE AND OFFSHORE CRANE, HOIST, AND RIGGING OPERATIONS

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1.0 PURPOSE

This General Instruction (GI) is intended to improve Saudi Aramco (SA) and contractor safety performance when involved in marine and offshore crane activities. To achieve this, the GI:

- Specifies the methods, procedures, and responsibilities for installation, maintenance, and safe operation of marine and offshore cranes, hoists, and rigging.
- Identifies installation requirements for new marine and offshore cranes and rigging equipment.
- Specifies minimum requirements for certifying SA and contractor personnel who operate cranes, and work with hoisting and rigging equipment on marine and offshore SA facilities and projects.
- Describes minimum requirements for inspecting, maintaining, and certifying marine and offshore cranes, hoists, and other elevating/rigging equipment.
- Identifies the certification categories and work capacities of riggers.

NOTE #1: For the purposes of this GI, crane suspended personnel platforms (manbaskets) shall be referred to as “manbaskets”.

2.0 SCOPE

The requirements of this GI apply to all offshore mechanical, electrical, and hydraulic/pneumatic powered cranes, hoists, and rigging used on boats, docks, offshore fixed and mobile facilities (including manned and unmanned fixed platforms), barges, jack ups, and mobile offshore drilling units (MODUs), either operated by SA, under hire to SA, or undertaking a project on behalf of SA.

3.0 DEFINITIONS

- 3.1 **BLIND LIFT** – Crane lift that does not allow direct visual contact between the crane operator and the signalman, usually the rigger. In blind lifts, additional signalmen, radios, or other communications may be used. However, if electronic communications is used (i.e. radios or

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telephones), a back-up communications system shall be in place in case of failure of the primary communication system.

- 3.2 CERTIFIED INSPECTOR – Person certified by the Saudi Aramco Inspection Department (ID) to perform inspections and certifications on elevating/lifting equipment (For additional information, refer to GI 7.030).
- 3.3 CRANE, FIXED – Equipment consisting of a rotating superstructure with a power plant, operating machinery, and boom, mounted on a base and affixed to the platform decking.
- 3.4 CRANE, MOBILE – Crane consisting of a rotating superstructure with a power plant, operating machinery, and boom, mounted on a base and equipped with crawler treads for travel or mounted on a crane carrier equipped with axles and rubber-tired wheels for travel.
- 3.5 CRANE LIFT – CRITICAL - Crane lifts that require a Critical Lift Plan (See Section 9.0 for types of critical lifts).
- 3.6 CRANE LIFT – STANDARD (ORDINARY) - Any lift not classified as a critical lift. Crane configuration shall be with main boom only.
- 3.7 CRANE OPERATOR – Person certified by SA as being qualified to operate a specific model and capacity of crane; may also receive additional certifications for crane attachments, tandem lifts, pick and carry operations, and manbaskets.
- 3.8 CRITICAL LIFT PLAN – Document (SA 9644) that identifies a specific load and the operating restrictions (For additional information, refer to GI 7.028).
- 3.9 EXTENSIVE REPAIR – Any repair, alteration, or modification to elevating/lifting equipment which is a load and/or load controlling component that could affect the load.
- 3.10 HOME COUNTRY CERTIFICATION - Certification for non-SA marine personnel from a recognized international institution. Examples include, but are not limited to: ABS (Dubai), CITB (UK), Singapore Vocational & Industrial Training Board, US Navy, US Merchant Marine, Crane Tech (USA), Emirates Safety Services, and STCW95 Certification for Deck Crew and Officers that is approved by the IMO (International Maritime Organization).
- 3.11 NIGHT - Hours between sunset and sunrise.
- 3.12 ORIGINATOR – Person who fills out the Critical Lift Plan form, prior to review and approval by a Rigger-I. Only a certified Rigger-I or Rigger-II can be the Originator.

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- 3.13 PERSONNEL CARRIER ("BILLY PUGH") – Rope basket with a canvas or other flexible material base supported by a solid ring on which personnel stand for transferring personnel from boat to platform and vice versa.
- 3.14 PERSONNEL PLATFORM (MANBASKET) - Device designed and constructed to be attached to the hook block of a crane to lift personnel in a safe manner for conducting work activities. This shall not be used as a personnel carrier as defined in paragraph 3.12 above.
- 3.15 RATED CAPACITY [LOAD] LIMITER (RCL) – Device that automatically monitors radius, load weight, and load rating to prevent any movement of the crane that would result in an overload condition.
- 3.16 RIGGER – Person certified by SA to prepare a load for lifting. SA rigger certification categories are Rigger-I, II, and III (See Section 6.0 for more information).
- 3.17 TAILING – Placement of a load resting on the ground from the horizontal position to the vertical position or the vertical position to the horizontal position.
- 3.18 TANDEM LIFT (MULTI-CRANE LIFT) – Crane lift involving two (2) or more cranes lifting, turning, or tailing the same load at the same time.
- 3.19 TURNING – Placement of a load suspended in the air from the horizontal position to the vertical position or the vertical position to the horizontal position.
- 3.20 USER – SA proponent department or other organization authorized to act on behalf of the SA proponent department.
- 3.21 USER SUPERVISOR – Person, representing the USER, with the responsibility for the crane operation.

4.0 REFERENCES

4.1 ACRONYMS

- A) ABS - American Bureau of Shipping
 B) ANSI - American National Standards Institute
 C) API - American Petroleum Institute
 D) ASME - American Society of Mechanical Engineers
 E) CITB - Construction Industrial Training Board
 F) CSD - Consulting Services Department
 G) T&ESD - Transportation & Equipment Services Department
 H) ID - Inspection Department
 I) IMO - International Maritime Organization
 J) ITD - Industrial Training Department

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- K) LPD - Loss Prevention Department
- L) LRS - Lloyd's Register of Shipping
- M) MODU - Mobile Offshore Drilling Unit
- N) PFD - Personal Flotation Device
- O) SOLAS - Safety of Life at Sea
- P) UK - United Kingdom
- Q) USA - United States of America

4.2 The following standards and GIs apply to marine and offshore cranes, hoists, hooks, slings, rigging, manbaskets, and personnel carriers.

- A) API Specification 2C, Specification for Offshore Cranes
- B) API RP 2D, Recommended Practice for Operation and Maintenance of Offshore Cranes
- C) ASME B30.1 Jacks
- D) ASME B30.2 Overhead and Gantry Cranes
- E) ASME B30.3 Hammerhead Tower Cranes
- F) ASME B30.4 Portal, Tower, and Pillar Cranes
- G) ASME B30.5 Mobile and Locomotive Cranes
- H) ASME B30.6 Derricks
- I) ASME B30.8 Floating Cranes and Floating Derricks
- J) ASME B30.9 Slings
- K) ASME B30.10 Hooks
- L) ASME B30.11 Monorails and Underhung Cranes
- M) ASME B30.16 Overhead Hoists (Underhung)
- N) ASME B30.17 Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)
- O) ASME B30.22 Articulating Boom Cranes
- P) ASME B30.23 Personnel Lifting Systems
- Q) GI 2.100 - Work Permit System
- R) GI 6.020 - Personnel Flotation Devices for Work On, Over or Near Water
- S) GI 7.021 - Operating Requirements for Offshore Escape Devices
- T) GI 7.025 - Heavy Equipment Operator Testing and Certification
- U) GI 7.026 - Cranes and Heavy Equipment Accident Reporting Procedures
- V) GI 7.027 - Crane Suspended Personnel Platform (Manbasket) Operations
- W) GI 7.028 - Crane Lifts: Types and Procedures
- X) GI 7.029 - Rigging Hardware Requirements
- Y) GI 7.030 - Inspection and Testing Requirements for Elevating/Lifting Equipment
- Z) IMO STCW 95 - Standards of Training and Certification for Watch Keepers
- AA) IPT's Crane and Rigging Handbook
- BB) Saudi Aramco Medical Services Policy MSP-98, Attachment E "Mobile Heavy Equipment Operators"
- CC) SOLAS Regulation 25-8
- DD) W.G. Newberry's Handbook for Riggers

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4.3 GUIDELINES ONLY

- A) ABS - 1991 - Guide for Certification of Cranes (guideline only)
- B) 29 Code of Federal Regulations 1918 - Long Shoring, United States-Occupational Safety and Health Administration (guideline only)

5.0 NEW INSTALLATIONS AND MODIFICATION OF OFFSHORE/MARINE CRANES AND RIGGING HARDWARE

- 5.1 Cranes, hoists and rigging equipment shall only be installed or repaired in strict accordance with Section 4.0 standards and the manufacturer's recommendations.
- 5.2 Specifications and designs for new SA fixed crane installations and repairs to existing cranes shall be done in accordance with the manufacturer's recommendations and shall be reviewed and approved by CSD. When an offshore crane component is modified or extensively repaired, it shall be inspected and re-certified prior to use.
- 5.3 The USER shall ensure that all newly installed or repaired cranes receive a pre-operation acceptance inspection and proof-load test, witnessed and approved by a SA certified inspector.
- 5.4 Copies of all proof-load test records and acceptance inspections shall be kept permanently on file by the USER.
- 5.5 All fixed and mobile cranes on classed vessels require crane certification by a recognized classification society (e.g., ABS, LRS), and shall be re-certified as required by GI 7.030.
- 5.6 Welding or modification on load hooks and other lifting equipment is strictly forbidden.
- 5.7 When an offshore crane is transferred from one vessel to another, it shall be inspected and re-certified prior to use.
- 5.8 Cranes shall be inspected prior to use when there are changes in the configuration of the crane components, as required by GI 7.030.

6.0 OPERATOR AND RIGGER TESTING AND CERTIFICATION

- 6.1 Marine/Offshore Stationary Crane Operators:
 - 6.1.1 All SA and contractor operators of marine/offshore cranes shall be tested and certified by the Industrial Training Department (ITD), in accordance with GI 7.025
 - 6.1.2 None-SA marine crane operators without onshore access or whose work is only on a MODU shall possess a valid "Home Country" certificate, which is to be furnished to the USER management for review and approval, prior to operating any cranes on SA projects.

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NOTE #2: Operators of the following lifting equipment shall be trained and approved by their management: pendant operated bridge cranes, jib cranes, monorail cranes, and fixed hoists.

6.1.2 All marine/offshore crane operators shall have successfully completed the medical examination prior to applying for initial certification.

6.1.3 Operators of the following lifting equipment shall be trained and approved by their management: pendant operated bridge cranes, jib cranes, monorail cranes, and fixed hoists.

6.1.4 All marine/offshore crane operators shall have successfully completed the medical examination prior to applying for initial certification.

NOTE #2: For SA marine/offshore crane operators, form SA 9663 shall be completed by a SA physician in accordance with SA Medical Services Organization (SAMSO) Medical Services Policy MSP-98, Attachment E. Form SA 3941, "Medical Examination Request/Notice", shall then be completed by the physician and the SA 9663 placed in the SA marine/offshore crane operator's medical records. The marine/offshore crane operator's supervisor shall submit the completed SA 3941 and any other required documents, along with the marine/offshore crane operator's certification application form SA 9647, to ITD.

For contractor marine/offshore crane operators, form SA 9663 shall be completed by a physician in accordance with SAMSO Medical Services Policy MSP-98, Attachment E. Upon completion, the contractor marine/offshore crane operator's supervisor shall submit the completed SA 9663 and any other required documents, along with the marine/offshore crane operator's certification application form SA 9647, to ITD.

6.1.5 All operators shall carry a valid SA Heavy Equipment Certificate for the specified marine and offshore fixed or mobile cranes or other equipment being operated (See GI 7.025).

6.1.6 The SA Heavy Equipment Operator's Certificate shall be valid for three (3) years.

6.1.7 An operators shall immediately provide his SA Heavy Equipment Certificate or valid home country certificate to any authorized SA representative upon request.

6.2 Marine/Offshore Riggers:

6.2.1 All riggers with onshore access shall be Saudi Aramco certified by ITD as Rigger-III, Rigger-II, or Rigger-I in accordance with GI 7.028. The rigger certification identifies the load weight limits and type of lifts that can be rigged without supervision, as noted below:

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- a) Rigger-III can rig loads up to 10 tons (except loads covered in Section 9.0 that require a Rigger-I).
- b) Rigger-II can rig loads up to 40 tons, originate Critical Lift Plans, and rig/supervise manbasket operations.
- c) Rigger-I can rig all loads and approve Critical Lift Plans for critical lifts.

6.2.3 All SA and contractor personnel, assigned to MODU, vessels, or jack-up barge offshore work duties only, shall possess a valid "Home Country" certificate or "Able Seaman" certificate to be furnished to the USER management for review and approval prior to operations on SA projects or shall have demonstrated job competence by training and experience and received written approval of the USER management prior to rigging operations on Saudi Aramco projects.

6.2.3 All MODU, vessels, or jack-up barges shall have a SA certified Rigger-I or Able Seaman onboard at all times to perform rigging operations.

6.2.4 Riggers shall carry their SA rigger certificate or Able Seaman certificate at all times while on the jobsite.

6.2.5 Riggers shall produce their SA rigger or Able Seaman certificate to any SA representative upon request.

7.0 EQUIPMENT INSPECTION

7.1 Each Saudi Aramco crane operator shall perform a daily pre-operational safety inspection, prior to operating the crane, using Saudi Aramco form SA 9466, Crane Operator Daily Inspection Checklist (See GI 7.028, Attachment #2). Any hazardous safety deficiency shall require corrective maintenance prior to the crane being used. Records of daily pre-operational inspections shall be maintained by the USER for a minimum of three (3) months and made available for assessment.

Each contractor crane operator shall perform a daily pre-operational safety inspection prior to operating his assigned crane, using the crane manufacturer's daily inspection checklist or Saudi Aramco form SA 9466. Any hazardous safety deficiency shall require corrective maintenance prior to the crane being used. Records of daily pre-operational inspections shall be maintained by the USER for a minimum of three (3) months and made available for assessment.

7.2 The following shall be inspected by the USER in accordance with Saudi Arab Government regulations, company requirement, or industry standards:

- a) Cargo loading arms
- b) Slings, lifting chains, strops, delta plates, pad eyes, shackles, and other related equipment

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- c) Chain blocks, hand winches, and similar mechanical devices
- d) Escape Capsules (See GI 7.021).

- 7.3 Cranes shall be fitted with the following safety items: fire extinguisher(s), back-up alarm (if applicable) and spark arrestor (for cranes that are without an emission controlled engine system).
- 7.4 Mobile cranes working for SA (company-owned and contractor cranes), shall be equipped with properly working Rated Capacity [load] Limiters (RCLs) and anti-two-block devices or two-block damage prevention features for all points of two-blocking (i.e., jibs, extensions, etc.).
- 7.5 Fixed cranes working for SA (company-owned and contractor cranes), shall be equipped with properly working anti-two-block devices or two-block damage prevention features for all points of two-blocking.
- 7.6 Any extensive repair, modification, or alteration to any elevating/lifting equipment requires a manufacturer's test certification to be furnished by the USER to a certified inspector upon request. This certification shall state that the repairs were completed in compliance with the manufacturer's specifications and recommendations, applicable ASME standards, SA standards, and by utilizing a competent person (as defined in GI 7.030).
- 7.7 Records of tests and inspections shall be recorded in the vessel's Lifting Equipment Register. These records shall be made available for inspection by USER representatives whenever their personnel are involved in lifting operations involving the ship's equipment.
- 7.8 Elevating/lifting equipment shall be clearly marked with its Safe Working Load (SWL) and serial number.
- 7.9 Defective equipment shall be withdrawn from service immediately and only reinstated after repair, examination, and, where required, re-certification.
- 7.10 Below-the-hook lifting equipment shall be inspected in accordance with GI 7.029.
- 7.11 Elevating/lifting equipment inspections shall be performed as determined by ID in accordance with the manufacturer's recommendations and relevant standards listed in Section 4.0.

8.0 MAINTENANCE

- 8.1 The USER shall ensure that all cranes and hoists in the marine/offshore environment have a properly implemented and documented program of preventive maintenance that is in accordance with the manufacturer's recommendations and Section 4.0 standards.
- 8.2 Copies of maintenance and inspection records shall be kept in file for a period of not less than three (3) years.

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8.3 Maintenance and inspection records shall be made available to a SA representative upon request.

9.0 CRITICAL LIFTS

9.1 Critical lifts are defined as high risk lifts where there is a potential for serious injury, major property loss, or disruption of programs, processes, or projects. The following are **examples** of critical lifts (low risk or low consequence lifts are not included) [See GI 7.028 for further information on critical lifts]:

- a. Near energized electrical lines
- b. Near or over hydrocarbon and pressurized piping systems or process equipment
- c. Near or over wellheads
- d. Near or over heli-decks (helicopter landing sites)
- e. On barges, vessels, and hydrocarbon loading piers
- f. Around and over populated/traffic areas
- g. Tandem, multiple, or tailing lifts
- h. On rubber or pick and carry lifts
- i. Manbaskets
- j. High level or long reach lifts
- k. Night lifts
- l. Blind lifts.

9.2 Critical Lift Plans are required for all critical lifts or for a lift when at least one (1) vessel is afloat and the sea exceeds Sea State 3.5 (wind speed not more than 32 kph/20 mph/17 knots and wave heights not more than 1.5 m/5 ft) or wind Beaufort Force Designation 5 (fresh breeze, moderate waves, many white caps evident, spray may be blown off tops). Cranes may perform lifts at marine piers up to the crane manufacturer's maximum recommended wind speed limit or, if not available, 9.0 m/s (For conversion, refer to Appendix A).

9.2.1 Critical Lift Plans shall be reviewed and approved by SA certified Rigger-I before performing critical lifts (See GI 7.028).

9.2.2 Blanket Critical Lift Plans can be used for critical lifts using the same model and capacity of crane, working from the same location, to lift the same piece of equipment during different time periods, without having to fill out and sign a new Critical Lift Plan form. The same Critical Lift Plan may be used for critical crane lifts, provided:

- a) The load configuration is **IDENTICAL**,
- b) The same lifting equipment and accessories (crane, load weight, location, obstructions, work environment, etc.) are used,
- c) The same rigging configuration is used, and
- d) Field verification has been performed by the USER Supervisor. The USER Supervisor shall sign and date the top of the Critical Lift Plan prior to the crane lift.

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9.2.3 Multiple use Critical Lifts Plans are crane lifts using the same model and capacity of crane and location to lift an assortment of different pieces of equipment. The same Critical Lift Plan may be used for multiple use critical crane lifts, provided:

- a) The most extreme radius, boom length, and load weight of the multiple lifts is used in the calculations,
- b) The same crane is used (identified in the Critical Lift Plan by the Equipment ID #),
- c) The certified crane operator and certified rigger, who signed the multiple use Critical Lift Plan are used, and
- d) A multiple use Critical Lift Plan shall not be valid thirty (30) days from the date of signature by a Rigger-I. After thirty (30) days, a new multiple use Critical Lift Plan shall be obtained.

9.3 Critical Lift Plans are not normally required for the following operations:

9.3.1 Standard crane lifts between two (2) vessels where at least one (1) vessel is afloat, provided that the lift is performed within the limits of the crane's dynamic load chart and seas do not exceed Sea State 3-4 or wind Beaufort Force Designation 4 (See Attachment #1, Appendix A).

9.3.2 Standard crane lifts from piers onto or off vessels that are moored, provided that the lift is performed within the limits of the crane's dynamic load chart and seas do not exceed Sea State 3-4 or wind Beaufort Force Designation 4 (See Attachment #1, Appendix A).

9.3.3 Standard crane lifts across water where both the crane and load landing site are on solid footing.

NOTE #3: Standard crane lifts on offshore platform over pressurized piping or equipment containing hydrocarbons shall only be performed after a dropped object study has been conducted by the USER. The USER shall then determine if the risk is acceptable or if dropped object protection is to be installed.

10.0 OPERATING PROCEDURES

10.1 Crane operations shall comply with applicable Section 4.0 standards and the crane manufacturer's recommendations.

10.2 Critical lifts and multiple/tandem lifts shall comply with Section 9 above and GI 7.028 and shall follow the specific critical lift plan requirements.

10.3 All incidents involving cranes and other heavy equipment shall be reported and investigated in accordance with GI 7.026.

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- 10.4 When crane activities are stopped due to weather, the marine/offshore crane operator shall secure the crane as per crane manufacturer recommendations. It is the responsibility of the marine/offshore crane operator to maintain contact with the nearest forecast station or the person in charge of vessel operations.
- 10.5 The marine/offshore crane operator shall be aware of the load weights to be lifted, proper weight distribution on the vessel, shipping manifest information, and the hazards in the area in the vessel. He shall maintain communications with the person in charge of the vessel about placing the load on the vessel.
- 10.6 Cranes shall not be used for dragging loads.
- 10.7 Suitable knot-free and defect-free tag lines shall be used to control suspended loads, except when their use may create a greater hazard.
- 10.8 Proper lighting, sufficient to perform the lift safely, shall be available.
- 10.9 All cranes and other elevating/lifting equipment listed in GI 7.030 shall bear a valid SA inspection sticker prior to use.
- 10.10 Load charts shall be available at all times in crane cabs or at the point of operation where remote controls are used (e.g., from the deck in the case of tower cranes).
- 10.11 Rigging operations shall comply with SA applicable references.
- 10.12 Manbaskets:
- 10.12.1 Manbaskets shall be certified in accordance with GI 7.027 and 7.030.
- NOTE #4:** Manbasket operations shall meet the requirements of GI 7.027 for offshore operations using fixed cranes. Paragraphs 6.16, 6.22 (sentence #8), and 6.32 of GI 7.027 shall not apply.
- 10.12.2 Work from manbaskets shall only be allowed when conventional means of performing the work or reaching the worksite would be more hazardous, or is not practical, because of structural design or worksite conditions.
- 10.12.3 Manbaskets shall not be used for personnel transfers between locations, such as offshore platform to ship or ship to pier, except by divers with an approved Critical Lift Plan.
- 10.12.4 Cranes used to lift manbaskets shall have anti-two-block devices, power-controlled lowering (no free fall), fail safe braking system (with automatic brakes to bring all motion to rest when the equipment operating controls are released, and a holding device

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to prevent uncontrolled movement of the hoisting equipment in the event of a system failure).

10.12.5 Personnel in manbasket shall wear approved personal flotation devices (PFDs) when working over water (divers are exempt from this requirement), in addition to a full-body harness and lanyard.

10.12.6 Manbaskets shall be inspected as determined by ID prior to use and bear a valid SA inspection sticker, in accordance with GI 7.030.

10.12.7 The Personnel Platform (Manbasket) Permit shall be completed prior to using a manbasket (See GI 7.027).

10.13 Personnel Carriers ("Billy Pughs"):

10.13.1 Personnel carriers shall be manufactured under the American Bureau of Shipping (ABS) equipment type approval program and within API Specification 2C Fifth Edition, April 3, 1995 3.13 R2500LGS.

10.13.2 Wire rope used for lifting personnel carriers shall have a design factor of not less than ten (10).

10.13.3 Personnel carriers shall be provided with a lifting ring into which a crane hook is attached. They shall have overhead protection, side protection edges, not exceed its safe working load (SWL), and only be used by physically fit personnel.

10.13.4 Personnel carriers shall be used for personnel transfers in accordance with API RP 2D. Requirements shall include:

10.13.4.1 Crane hooks shall have a safety latch.

10.13.4.2 Lifts shall be under power control during both up and down travel.

10.13.4.3 Personnel shall wear approved PFDs.

10.13.5 Personnel carriers shall be inspected at least monthly by the USER and documented. A pre-use inspection shall be performed by a certified rigger.

10.13.6 Personnel carriers shall not be used as manbaskets.

10.13.7 The rated capacity of personnel carriers shall be clearly visible on the personnel carrier and shall not be exceeded.

10.14 Mobile Cranes on Vessels:

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- 10.14.1 The proposed installation and use of vessel, barge, or pontoon mounted mobile cranes shall be approved by the crane manufacturer for use in an offshore work environment.
- 10.14.2 The vessel's deck strength and/or any reinforcement shall be verified by a qualified structural engineer as adequate to accommodate the foundation and dynamic loads resulting from the installation and operation of the crane.
- 10.14.3 Mobile cranes approved by the manufacturer for offshore operation shall be provided with dynamic load charts clearly stating the de-rated load capacities and applicable limiting environmental conditions on which the chart is based. The dynamic load chart, with appropriate warning notes, shall be available in the crane cab at all times as per ASME B30.8.
- 10.14.4 The vessel shall carry onboard stability information, including offshore crane operations, in accordance with SOLAS Regulation 25-8.
- 10.14.5 Mobile cranes shall be adequately supported and anchored according to a design reviewed by SA (See GI 7.030). The design shall show foundation details and securing arrangements for the unit, including hook block, headache ball, and boom support.
- 10.14.6 The superstructure swing brake and turntable locking pin of the crane shall be fully operational and engaged in transit, or when the crane is idle.
- 10.14.7 The mobile crane installation shall be inspected as determined by ID prior to initial use.
- 10.14.8 Internal combustion engines shall be equipped with spark arrestors. Mobile cranes operating in hazardous areas shall be equipped with all necessary explosion-proof accessories in accordance with respective zone requirements.
- 10.14.9 The crane shall be equipped with an audible alarm to signal all boom and hoist movements.
- 10.14.10 For stability purposes, mobile cranes on vessels shall be de-rated 50% from land based duties, unless the crane manufacturer designates a specific load chart to be used. Capacity markings on crane boom shall show the new maximum capacity.

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* RECOMMENDED:

 Manager
 Transportation & Equipment Services Department

CONCURRED:

 Manager
 Loss Prevention Department

CONCURRED:

 Manager
 Inspection Department

CONCURRED:

 Manager
 Marine Department

CONCURRED:

 Manager
 Drilling & Workover Department

CONCURRED:

 Director
 Industrial Training Department

CONCURRED:

 Executive Director
 Industrial Services

APPROVED:

 Sr. Vice President
 Operations Services

Critical Lift Plan – Offshore & Marine

Organization Name: _____ Organization Code #: _____ Facility Name: _____				Work Permit Required? YES <input type="checkbox"/> NO <input type="checkbox"/> Date of Lift: _____ Contract #: _____ Work Order #: _____ S.O. #: _____ Specific Work Location: _____			
A) Load Description & Weight (From USER):				B) Load Handling Devices (See “Notes” Below):			
_____ kgs/lbs				<u>Load Handling/Boom Attachments</u> <u>Stowed</u> <u>Erected</u> <u>N/A</u> Weight: kgs/lbs			
C) Crane Information (See “Notes” Below):							
1. SA Inspection Sticker YES <input type="checkbox"/> NO <input type="checkbox"/> 2. Inspection Sticker Expiry Date: _____ 3. Equipment ID #: _____ 4. Crane Model: _____ 5. Crane Type: _____ 6. Crane Rated Capacity: _____ kgs/lbs 7. Crane Operating Code # (if applicable): _____ 8. Single Line Pull Capacity: _____ kgs/lbs 9. # of Parts of Line: _____ 10. Total Gross Capacity Hook Block as Reeved: _____ kgs/lbs				Swing-Away Jib: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other Jibs: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Hook Block (Main): <input type="checkbox"/> Auxiliary Boom Head: <input type="checkbox"/> Headache Ball: <input type="checkbox"/> Lifting/Spreader Beam Needed? YES <input type="checkbox"/> NO <input type="checkbox"/> <input type="checkbox"/> Does Beam Have Valid Inspection Sticker? YES <input type="checkbox"/> NO <input type="checkbox"/> Slings, Shackles, etc.: _____ Other: _____ Weight of Load Handling Devices (Section B Above) _____ kgs/lbs + Weight of Load to be Lifted (Section A) _____ kgs/lbs = Total Gross Weight (Sections A + B) _____ kgs/lbs			
D) Crane Configuration (“Notes 1-5” Below):				E) Rigging (“Notes 1-5” Below):			
1. Required Boom Length: _____ m/ft 2. Boom Angle: _____ degrees 3. Required Counterweight: _____ kgs/lbs 4. Operating Radius: _____ m/ft 5. Lift Quadrant (Front, Rear, 360°): _____				1. Hitch Arrangement: _____ 2. Sling Type(s): _____ 3. Sling Size(s): _____ cm/in 4. Sling Length(s): _____ m/ft 5. Shackle Size: _____ cm/in & Capacity: _____ kgs/lbs 6. Capacity of Above Configuration: _____ kgs/lbs			
F) Crane Capacity In This Configuration (De-rated, if applicable): _____ kgs/lbs				Total Gross Weight ÷ Capacity = _____ %			
G) Wind Force: Beaufort Force Designation _____ Wind Speed _____ (Note: <u>Maximum</u> Allowable Sea State is 3-4 <u>or</u> Wind Beaufort Force Designation 4 – See Appendix A Below)							
H) Seas – When at Least One (1) Vessel is Afloat: Wave Height _____ m/ft (See Appendix A Below)							
I) Outriggers Fully Extended and Secured? (For Barge Mounted Land Cranes) YES <input type="checkbox"/> NO <input type="checkbox"/>							
J) Blind Lift? YES <input type="checkbox"/> NO <input type="checkbox"/> If Yes, Do You Have Proper Communications With Back-up Communications? YES <input type="checkbox"/> NO <input type="checkbox"/>							
REPEATED USE OF LIFT PLAN? Yes <input type="checkbox"/> No <input type="checkbox"/>							
Positions:	Name (Signature)	Badge #	Certificate #	Approved by Rigger-I			
Originator:	_____	_____	_____	Name (Print): _____			
Rigger:	_____	_____	_____	Badge #: _____			
Crane Operator:	_____	_____	_____	Certificate #: _____			
USER	_____	_____	_____	Signature: _____			
Supervisor:	_____	_____	_____				

- Notes 1-5:**
1. Sketch(es) of lift site shall be attached, noting obstacles to movement of load, boom, and tail swing.
 2. All units of weight shall be listed in the same units of measure as Crane Load Chart.
 3. All units of measure shall be listed in the same units of measure as Crane Range Diagram.
 4. Crane Load Chart, Range Diagram, and Safety Notes copy shall be attached.
 5. Certain weights may be deducted from Crane Load Chart capacities based on manufacturer’s specifications.

★ CHANGE

★★ ADDITION

NEW INSTRUCTION ☐

COMPLETE REVISION ■

Beaufort Wind Force Scale

Specifications and Equivalent Speeds									
Beaufort Wind Scale	Mean Wind Speed		Limits of Wind Speed		Wind Descriptive Terms	Probable Wave Height In Meters	Probable Maximum Wave Height In Meters	Sea State	Sea Descriptive Terms
	Knots	m/s	Knots	m/s					
0	0	0	<1	0-0.2	Calm	-	-	0	Calm (Glassy)
1	2	0.8	1-3	0.3-1.5	Light Air	0.1	0.1	1	Calm (Rippled)
2	5	2.4	4-6	1.6-3.3	Light Breeze	0.2	0.3	2	Smooth (Wavelets)
3	9	4.3	7-10	3.4-5.4	Gentle Breeze	0.6	1.0	3	Slight
4	13	6.7	11-16	5.5-7.9	Moderate Breeze	1.0	1.5	3-4	Slight-Moderate
5	19	9.3	17-21	8.0-10.7	Fresh Breeze	2.0	2.5	4	Moderate

Based on information provided by British Standards Institution BS 7121-11:1998, Annex A, Table A.1