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## Refurbished Kingpost Marine Crane, Series 60, API Type “E”

### TECHNICAL DESCRIPTIONS OF PEDESTAL CRANE OFFERED:

Quantity of one (1) **Refurbished** Kingpost Marine Crane, **Series 60 Model 6024** with Load Ratings and Hoist Performance as shown in the attached **Seller's Data Sheet Package**. Implementation and integration of the **AHC System** is included within the total quoted price for the crane refurbishment. Please refer to the attached document “**Design Features, Method of Support and Slew Bearing Arrangement**” for an in-depth description of our **Kingpost Design**.

### MANUFACTURED TO

- **AMSE B30.8**
- **American Petroleum Institute** Specification Q1, Certification for Quality Management System, Registration Number Q1-0716
- **American Petroleum Institute Specification** ISO 9001:2008 – Certification for Quality Management Systems, Certificate Number 0068
- **American Petroleum Institute Specification** ISO/TS 29001 - Certification for Quality Management Systems, Registration Number TS-0547

### BOOM

- **100 Foot** Bolt Connected, Tubular Chord, Lattice Boom with Integral Auxiliary Line Extension, Spring Loaded Boom Stops and mechanical pendulum type Radius Indicator.
- Bolt connected, **Tubular Chord, Lattice Boom** with bolt on **Fast Line Extension, Spring Loaded Boom Stops** and mechanical pendulum type **Radius Indicator**.

- **Boom Maintenance and Work Platform Package**, consisting of an 18" wide walkway along the side of the boom accessible from the engine deck side of the crane. Also included is a "U" shaped Maintenance Platform at the boom tip from which servicing of all of the boom tip machinery such as Sheaves, Main Block, Auxiliary Hook, Boom Lights, and SLI sensors can take place. **The walkway and platforms include bar grating, toe plates, mid rails and handrails.**
- Seller Patented positive mechanical anti-two block system on main and auxiliary hoists. Please refer to the attached document "**Design Features Patented Anti "Two-Block" System**" for a description of this system.
- High and low angle, non-overridable, boom hoist kick out device. Please refer to the attached document "**Boom Hoist Kick-out Overrides, "Ramp Downs" and Automatic Boom Locking Pawls**" for more information.

### **OEM HOIST PACKAGE CONSISTING OF:**

- Main Draw-works with **single drive motor**, hydraulic dynamic braking and spring applied "Fail Safe" static external contracting spring applied **DRUM BRAKE**, on 4 Falls of **galvanized wire rope**.
- Seller Auxiliary Draw-works with **single drive motor**, hydraulic dynamic braking and spring applied "Fail Safe" static external contracting spring applied **DRUM BRAKE**, on **1 fall** of **galvanized wire rope**.
- Seller Luffing Draw-works with **single drive motor**, hydraulic dynamic braking and spring applied "Fail Safe" static external contracting spring applied **DRUM BRAKE**, and manually operated dog, reeved with **10 falls** of **7/8"** diameter cable.
- Please refer to the enclosed **Seller Data Sheet Package**, "**Auxiliary Drum Performance** , and "**Main Drum Performance**" for complete performance information.

### **RIGGING PACKAGE CONSISTING OF:**

- Main block with **Rotating hook provided with a positive locking , spring loaded "H" bar type latch. The latch, connecting pins and pin lanyard are stainless steel. Hook and Block compatible with maximum main line load ratings shown on attached Seller Data Sheets.**
- Overhaul ball with **swivel, stinger and safety hook**, compatible with maximum auxiliary line load ratings shown on attached **Seller Data Sheets**.
- **Forged Rim Steel Sheaves with Tapered anti-friction roller bearings.** Each sheave is lubricated by and individual grease passage through the shaft.

## SLEW DRIVE SYSTEM

- **Dual Pinion**, Spur Gear Slewing drive, consisting of two pinions driving against a stationary external gear fixed to the Kingpost. Each pinion is driven by a planetary speed reducer by means of a bent-axis hydraulic motor. Each speed reducer is equipped with a **Manually Operated** spring applied **Parking Brake**. Dynamic braking is accomplished by "cross control" with the slew motion control lever. The triple pinion drive comes equipped with a slew guard.

## HYDRAULIC SYSTEM:

- Quadruple input, 1000 HP ground tooth pump drive, direct coupled to the Prime Mover.
  - **Variable displacement**, 135 gpm, nominal 6,000 psi., open loop pump for **Main and Auxiliary Hoist** circuits equipped with a "constant horsepower" feature to allow the handling of light loads at higher than normal line speeds with light loads.
  - **Variable displacement**, 135 gpm, nominal 6,000 psi., open loop pump for the **Luffing Hoist** circuit equipped with a "constant horsepower" feature to allow the handling of light loads at higher than normal line speeds with light loads.
  - 80 gpm, pumps for the **Slew and Oil Conditioning** circuits.
  - Variable displacement, 20 gpm, nominal 600 psi., open loop pump for the **Control** circuit.
  - Enhanced Control system without the use of PLC's. Includes Motor Control Valves Integral to the Fixed Bent-Axis Motors.
  - Air to oil hydraulic fluid heat exchanger mounted in machinery room.
  - Return line filtration on the **Slew and Oil Conditioning** circuits.
  - **6000 PSI hydraulic** high-pressure filter system for all three hydraulic circuits.
  - **316L Stainless Steel Hydraulic Reservoir** with filler cap, drain valves, 100 mesh suction strainers, return line diffuser, and clean out hatch.

## DIESEL-HYDRAULIC PRIME MOVER:

- Caterpillar 3406 DITA – EPA Certified Diesel Engine rated **500 bhp @ 2,100 rpm** with Intermittent "D" Rating. This engine provides sufficient power lever to perform all three primary crane motions at the same time, but not necessarily at maximum load.
  - **Radiator** cooling system with antifreeze coolant
  - Spark arresting muffler
  - **Stainless Steel** flexible exhaust tubing

- Thermal Insulated exhaust system components as necessary
  - Hour meter
  - Outdoor air cleaner
  - Water temperature and oil pressure gauges
  - Fuel Pressure gauge
  - Cab-mounted alarm for high coolant temperature or low oil pressure
  - Primary Starting System – Electric
- **316 Stainless Steel Diesel Tank** with filler cap, drain valve, and clean out hatch.

## OPERATORS CABIN

**Mounted on the right hand side of the Revolving Superstructure and equipped as follows: -**

- Tempered Safety Glass Windows:
- Two Center Pivoted, opening side windows
- High Visibility, Fixed front window
- Fixed floor window, protected by removable floor grating.
- Fixed forward sloping roof window.
- Two fixed front quarter panel windows.
- Rear opening swinging door with stainless steel hinges and fixed window.
- Fully adjustable low back operators chair with integral armrest mounted "**joy-stick**" controls for primary crane motions arranged to conform to API Spec 2C, Paragraph 10.7, figure 10.
- 240/1/60 VAC, 3 wire, self contained **Air Conditioner unit**, suitable for "safe area" operation, mounted on the back wall of the cab. Unit is rated for marine salt water, with 23,000 BTU cooling.
  - Foot operated emergency shut down for the hydraulic system
  - Stainless steel, wall mounted console with:
 

<ul style="list-style-type: none"> <li>● Prime Mover Stop controls</li> <li>● Prime Mover Start controls</li> <li>● Hydraulic pressure gages.</li> <li>● Hydraulic oil level gauge with low level visual and audible indication</li> </ul>	<ul style="list-style-type: none"> <li>● Windshield wiper operator</li> <li>● Slew Parking Brake operator</li> <li>● Master control disengage operator</li> <li>● Load Rating Charts</li> <li>● AHC Integration with MRU</li> </ul>
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## FULLY ENCLOSED MACHINERY ROOM

**A integral part of, and encloses the entire left side of the Revolving Superstructure and contains the Prime Mover, Hydraulic Pumps, Heat Exchanger, Hydraulic Filters and Hydraulic Reservoir. This room is constructed from heavy steel plate, 100% seal-welded and equipped with Solid steel Floor.**

- Fixed front mounted **Air Intake Louvers** provide access to the Heat Exchanger.
- Removable, roof mounted, **Air Outlet Assembly & Access Hatch** for installation and removal of equipment.
- **Maintenance Jib**. 3 ton capacity, chain hoist and trolley to be furnished by others.
- **“Front Porch”** with handrails for access to the Heat Exchanger and optional Boom Walkways.
- **Drip Pans** around Hydraulic Components.
- Swinging Front & Rear Doors.
- **Directional Control Valves** and other pieces of hydraulic equipment.
- **Acoustic Insulation Package** is provided on the interior walls of all of the Personnel and Machinery Enclosures. This package will reduce the Operators Cabin noise level to approximately **72 dba** at full speed.

## ELECTRICAL EQUIPMENT

- **Lighting Package**, 120/240-1-60, 3 wire, or 208Y/120-3-60, 4 wire (preferred) with equipment ground, crane “safe area” electrical & lighting system, with boom mounted equipment suitable for IEC Class I, Division 2, Group C&D hazardous locations, consisting of:
  - Three- 2X36 Watt, Fluorescent, deck light fixtures (Cl.I/2/A-D/T2), one under deck, one deck (at boom hoist) and one upper bearing.
  - Three-2X36 Watt, Fluorescent, engine house (Cl.I/2/A-D/T2), two internal and one external.
  - One-2X18 Watt cab light fixture, fluorescent (Cl.I/2/A-D/T2).
  - Two Red Warning Strobe Lights, one mounted on top of gantry and one mounted at the boom tip (Cl.I/2/C-D).
  - One-360° rotation “safe area” collector ring assembly with four or five (depending on supply voltage) x 75Amp/600 volt power rings and ten-10 amp/240 volt communication rings for connection to customers electrical supply. Includes 360° center mounted air swivel union.
  - One cab control panel with branch circuit breakers and control circuits as needed.

- One set of cables, marine shipboard, IEEE 45 (Flame retardant) complete with stainless steel (316) cable tray, returned flanged.
- One-12" x 10" stainless steel (316SS) junction box located on the stationary Kingpost below the revolving portion of the crane for connection to Buyers power supplies.
- Two junction boxes, located at the turntable, for boom wiring and ease of field installation (Eex e or Nema4x j. boxes).
- One-12" x 10" stainless steel (316SS) junction box located on the stationary kingpost below the revolving portion of the crane for connection to Buyer's power supplies.

## COMMUNICATIONS

- Air powered warning horn with control in the operator's console.
- Provisions for Customer Supplied Communications

## ENVIRONMENTAL:

- **Walkways, Ladders, Access Platforms, Railings and Toe Boards** in accordance with API Spec 2C, fifth edition requirements.
- Drip pans or enclosures around hydraulic components.

## SAFETY DEVICES

- A manual emergency load lowering system shall be provided on the main, auxiliary and boom hoists, which when activated will allow the load to be lowered to a safe area without the use of the crane's power unit or the assist of an external power supply.
- Seller Patented positive mechanical anti-two block system on main and auxiliary hoists. Please refer to the attached document "**Design Features Patented "Anti Two-Block" System**" for a description of this system.
- High and low angle, non over-ridable, boom hoist kick-out device. Please refer to the attached document "**Boom Hoist Kick-out Overrides, "Ramp Downs" and Automatic Boom Locking Pawls**" for more information.
- Emergency Master control disengage operator.
- Seller kingpost design.

## **TESTING**

- A full functional shop test is performed on the completed crane. An extensive function test of the prime mover, hydraulic system, hoists, electrical system and safety features are performed before the crane is prepared for shipment. This test is available for witness by customer or third party.

## **COATING SYSTEM**

- Three coat Coating System, with either Carboline or Ameron products, consisting of zinc, epoxy, and urethane in accordance with OEM Paint & Protective Coating Specification number STDWPI-08. If International Paint products are required, a cost increase to the base proposal and impact to the delivery time of the product will be in effect.
- All Major buyout items, such as the prime mover, pumps, valves, etc. contained within the machinery enclosure shall retain their factory OEM coatings.

## **FABRICATION/WELDING**

- Seller's offer is based on the use of its pre-existing welding specifications as listed below, and pre-tested/ pre-certified welders.
  - ST 520-1 Rev.7- FCAW
  - ST 2002-1 Rev.1 – SAW
  - ST 2005 Rev.0 – GMAW

## WARRANTY

**Refurbished Warranty:** Sellers warrants the parts only for a period of 6 months from date of shipment. Labor Travel and standby will be billed at Standard US Rates, as per good industry practice. Time to change warranted part will free of charge.

**Products Manufactured by Others:** Sellers will assign to Purchaser the warranty on products manufactured by others, such as diesel engines, and Seller will provide reasonable assistance to Purchaser to enforce any such warranty.

The forgoing warranties comprise the full extent of the warranties provided by Sellers. Sellers disclaims all other warranties, expressed or implied, including implied warranties of merchantability.