

**GENERAL DIMENSIONS AND WEIGHTS:**

Crane rated capacity:	30 Tons
GVWR:	68,000 lbs.
GWW:	60,000 lbs.
Wheel Base:	210 – in.
Total Assembled Boom Length:	30 – ft.
Tail Swing:	11'-0"
Travel Length:	54'-6"
Travel Height:	12'-10"
Travel Width (max.):	8'-6"

NOTE: Travel configuration with 30 feet of boom over the front in the boom rest. Three (3) sheave 30 ton hook block required for max. lifts is not supplied.

**CARRIER****CHASSIS:**

18 – inch high formed plate box beam - high strength steel frame structure. Triple box cross-section and diagonal stiffeners produce a frame with high resistance to bending and torsional loading.

RBM 20,204,650 in/lbs. S.M. 202.046

**ENGINE:**

Diesel 6 – cylinder, four-cycle high torque rise with exhaust driven turbocharger, and after cooler. Piston displacement not less than 504 cubic-inches.

Peak torque not less than 660 ft/lbs. at 1,300 RPM. Gross horsepower not less than 240 at 2,400 RPM. Cummins 8.3T standard – optional engines available.

Engine block heater to aid during cold weather starting.

Air cleaner to be a Donaldson, two-stage dry type with dash mounted restriction indicator, color-coded. Air cleaner to be engine manufacture approved.

Oil filters, spin-on, full flow two (2) each, minimum.

Engine mounted fuel/water separator.

Vertical muffler and exhaust. Exhaust system shall be fully compatible with engine and engine manufacturer approved. Exhaust to terminate with manufacturer choice of rain cap or 90° elbow to minimize the possibility of rain entering the exhaust system. Muffler as required for proper noise suppression.

**COOLING SYSTEM:**

Radiator, heaviest duty shutter-less cooling system available. All radiator, after-cooler, oil cooler, and heater hoses to be manufacture standard.

Coolant recovery system per engine manufactures requirements.

**CLUTCH:**

Clutch to be a minimum of 15 inch heavy-duty double plate, self-adjusting, or equal.

15-1/2 inch normal torque rating of 1,250 FT./LBS.

**MAIN TRANSMISSION:**

Shall be 11 – speed manual. Transmission to have a magnetic drain plug.

Ratios: Forward

LL1 – 26.08 to 1
L – 16.03 to 1
LL2 – 11.85 to 1
1 <sup>st</sup> – 7.41 to 1
2 <sup>nd</sup> – 5.23 to 1
3 <sup>rd</sup> – 3.79 to 1
4 <sup>th</sup> – 2.77 to 1
5 <sup>th</sup> – 1.95 to 1
6 <sup>th</sup> – 1.38 to 1
7 <sup>th</sup> – 1.00 to 1
8 <sup>th</sup> – .73 to 1

Ratios: Reverse

LL – 25.22 to 1
L – 15.76 to 1
H – 4.15 to 1

Max Gross Input Torque: 1150 Ft.Lbs.

Speed at engine RPM. Of 2,400 is 66 MPH.

Transmission is to be twin countershaft type with helical gearing and equipped with air controlled countershaft brake to aid during shifting.

Reference: Eaton Fuller RTO11909-MLL or approved equal.

**AUXILIARY TRANSMISSION:**

Not required.

**FRONT AXLE:**

Capacity not less than 22,000 lbs.

Eaton EFA 22T or equal

Manufactures standard wheel bearing seals.

**REAR TANDEM AXLE:**

Capacity not less than 46,000 lbs.

Single reduction, single speed axle with 6.17 ratio.

Eaton DS463-P or equal.

Inter-axle differential with cab controlled lockout.

**FRONT SUSPENSION:**

9 – leaf springs, 3 – inch by 53 – inches with 5 – leaf auxiliary springs, 3 – inch by 35 – inches.

Ground rating not less than 12,000 pounds each.

**REAR SUSPENSION:**

Hendrickson Bogie with torque rods and equalizer beams.

Suspension to be rated at 46,000 pounds minimum.

**DRIVE LINE:**

Tubular shafts with needle bearing universal joints.

Universal joints between main transmission and forward rear axle to be a minimum of Spicer 1710 series or equal. All universal joints between tandem axle differentials to be a minimum of Spicer 1610 or equal. All shafts will have slip joints.

**STEERING:**

Integral hydraulic power steering with remote reservoir.

Ross TAS-85 or equal.

**BRAKES:**

Heavy duty full air brakes on all wheels. "S" Cam design. Dana Spicer "LMS" cam operated or equal. Total minimum effective brake area:

Front: 386 square – inches

Rear : 900 square – inches

Parking and emergency spring-type brakes on both rear axles, to be Dana Spicer standard or equal.

Air reservoir tank capacities to meet or exceed D.O.T. 121 requirements. Low air pressure warning buzzer. Illuminated air pressure gauge on instrument panel.

Air compressor, water cooled, and engine oil lubricated. Air supply from engine air cleaner system.

Minimum output 13.5 CFM.

CR industries Turbo 2000 air drier with purge tank or equal.

All air tanks to be equipped with remote, cable actuated drain valves.

**WHEEL AND TIRES:**

Front Wheels: Two (2) 22.5 by 13.00

Rear Wheels: Eight (8) 22.5 by 8.25

Or Four (4) 22.5 by 13.00

All wheels 10 – hole disc type.

Front Tires: Two (2) 425/65R-22.5 (L)

Rear Tires: Eight (8) 12R22.5 (H)

or Four (4) 445/65R-22.5 (H)

**ELECTRICAL:**

Heavy duty 12-volt starting system. Two (2) each calcium 12-volt batteries, maintenance free. Cold crank rating at 0° F of 625 amp minimum each, type 31mf. All batteries to be enclosed in a lockable metal box. Alternator, not less than 100 amps, with not less than 20 amps at 600 RPM.

Panel mounted circuit breakers on all major circuits.

Directional signal lights, front and rear with column mounted self-canceling switch. Hazard warning switch.

Sealed beam headlights (high and low beam).

Electric horn.

Full D.O.T. compliant light package to include dual tail and stop lights, clearance lights on all four corners, and required reflectors at front rear and both sides.

All tail, stop, and clearance lights to be hermetically sealed, recessed, and mounted in rubber.

All wires to run through a loom and be securely fastened to the frame or body.

Furnished with one (1) dome light.

Automatic backup warning device, Warn 861-C or equal. Furnish all wiring, lights, reflectors, fenders, and mud guards required by State Motor Vehicle Code.

**OUTRIGGERS:**

Four (4) out-and-down hydraulic outriggers with controls on both sides of the carrier ground accessible. Optional upper structure cab mounted controls are also available.

Outrigger spread 16 feet, 4-inches wide by 15 feet, 11-inches long with removable 24-inch round outrigger floats. Floats shall be made of aluminum and shall have storage area on the carrier.

Vertical outrigger cylinder stroke 20-inches minimum.

**CAB:**

Carrier cab shall be fully enclosed and sound insulated.

Carrier cab shall be equipped as follows:

Tinted safety glass throughout

Grab handles for cab entry

Heater defroster, manufacture's standard. Optional - air conditioning can be supplied.

Windshield wiper and washer

One (1) sun visor

Operator seat to be air suspension type, manufactures standard.

Two (2) exterior rear view mirrors, one (1) each side, heated west coast type, complete with "U" brackets and braced to reduce excessive vibration.

Instrument panel shall include the following illuminated gauges or display the following information on a digital display:

Air Pressure
Voltmeter
Engine Oil Pressure
Water Temperature
Tachometer
Fuel Level
Hour Meter

An audible warning device for low oil pressure, low water level, and high water temperature, with time delayed automatic shut down.

**FUEL TANK:**

One (1) 75-gallon side mounted fuel tank. Cap to be attached with a chain.

**ACCESSORIES:**

Front bumper, heavy-duty type. Front bumper to have two (2) heavy duty tow loops attached to frame.

**UPPER STRUCTURE****BOOM:**

To be 36-inch square angle cord and lattice construction. Basic length 30 feet. Two (2) piece, butt and tip pin connected.

Optional - 5 Ft. – 10 Ft. or 20 Ft. Boom extensions are available

Three (3) sheave boom point with anti-friction bearings and sheave guides.

Frame mounted spring loaded boom backstops, power up and down boom hoist, automatic boom hoist kickout, boom angle indicator, and floating harness suspension.

Optional Rudomatic Tagline Model 636 mounted in boom and supplied with proper amount of 5/16 Dia. cable can be supplied.

Optional fixed roller boom tip fairlead.

#### **ROTATING SUPERSTRUCTURE FRAME:**

To be constructed of two (2) wide flanged "I" beams extending the length of the rotating superstructure with steel plating, supports and braces added for strength and rigidity. Mounting fixtures are to be provided on the frame for boom, cab, engine, power train, and control system components.

#### **GANTRY:**

The gantry is to be of an inverted "V"-frame design, consisting of:

- Two (2) front gantry braces
- One (1) boom hoist sheave assembly
- One (1) extendable rear gantry brace

The lower ends of the front gantry braces are to be attached to the rotating superstructure with, two (2) steel pins. The sheave assembly is to contain, three (3) wire rope sheaves and is to be attached at the apex of the inverted "V"-frame with a steel shaft which also connects the front and rear gantry braces together. The rear gantry brace is to be attached to the rotating superstructure with two (2) steel pins and to be extendable by removing two (2) stop pins on the braces and allowing the boom hoist line to extend the slides.

The folding high gantry is to be able to be raised and lowered through use of the independent boom hoist function. Boom suspension to consist of eight (8) part boom hoist reeving, floating bridle, and pendants to match boom insert sections.

#### **TURNTABLE:**

The turntable is to be of the shear ball design, utilizing chrome steel ball bearings, and an inner race and an outer race with externally cut 138-tooth gear. The external gear will have a pitch diameter of 55.2-inches. Ball race diameter is 47.5-inches. The thrust load capacity is to be 900,000-pounds. The inner race is to be attached to the rotating superstructure with hardened Grade 8 (minimum) machine bolts. The outer race with the gear is to be attached to the carrier with Grade 8 (minimum) hardened machine bolts. The gear is to mate with the pinion gear on the hydraulically powered planetary swing drive to transmit rotational movement for the rotating superstructure.

#### **ENGINE:**

Diesel 6 – cylinder, four cycle high torque rise with exhaust-driven turbocharger. Cummins 6B5.9–152 HP. or equal.

Piston displacement not less than 359 cubic-inches. Peak torque not less than 400 ft/lbs., at 1500 RPM.

Gross horsepower not less than 152 at 2500 RPM.

Cold weather starting aid.

Air cleaner Donaldson two (2) stage dry type with dash mounted restriction indicator. Air cleaner will be sized per engine manufactures recommendation.

Oil filter, spin-on, full-flow replaceable.

Engine manufactures standard fuel-water separator with bleed-off petcock.

Exhaust system to be fully compatible with engine. Exhaust to terminate with either a rain cap or a 90° elbow. Muffler as required for proper noise suppression.

#### **COOLING SYSTEM:**

Radiator, heaviest duty available.

All radiator and heater hoses to be silicone.

Coolant recovery system is not required.

#### **MASTER CLUTCH:**

11-1/2 inches in diameter, Twin Disk over center.

Disconnect clutch for cold weather starting.

#### **AIR SUPPLY:**

Engine gear-driven air compressor, water cooled, and engine oil lubricated. Air supply from engine air cleaner system.

Minimum output of 12 CFM.

CR Industries Turbo 2000 air dryer with moisture purge air tank or equal.

Reserve tank capacity of 5.3 gallons. Reserve tank to have cable actuated drain valve.

#### **FUEL TANK:**

60 gallons minimum.

#### **HYDRAULIC PUMPS:**

Variable Volume Pump:

Displacement (Max.): 5.4 cubic-inches/revolution.

GPM: Approximately 60 GPM at 2,500 RPM. / 1:1 ratio from the engine.

Pump Drive Shaft: SAE C, 14 tooth spline.

Mount: Two (2) or four (4) bolt SAE "C".

"O" ring to be installed between pump and pump drive.

Tandem pump:

To be a two (2) section counter-clockwise rotating gear pump. Gear width 1.5-inches.

Hydraulic Pump Gear Box:

To be Funk Model 28180 DA two (2) outlet Direct Drive Gear Box or equal.

Hydrostatic Hoist Pump:

GPM 62, at 3,000 PSI. To be Rexroth Axial Piston Pump Model AA4V90 or equal.

Hydraulic Swing and Boom Hoist Pump:

GPM 87 at 2,300 PSI. Tandem Commercial Intertech Gear Pump Model P50B with 1.5-inch gear sets.

#### **HYDRAULIC OIL COOLER:**

Capacity: 36 GPM.

The oil cooler is to be mounted ahead of the engine radiator. The cooler is to be equipped with a thermal valve which directs the oil through the cooler in warm weather and by-passes the cooler in cold weather.

#### **HYDRAULIC RESERVOIR:**

Capacity: Approximately 90 gallons.

Reservoir to be located in the right rear of the superstructure and is to be "L" in shape. Part of the reservoir is to be located as near the to the pumps as possible and high enough so as to have the inlets of the pumps below the oil level in the reservoir to minimize the chance of a vacuum condition at the pump inlets.

The reservoir is to be equipped with a combination filler cap and air filter. A replaceable return line filter in the top of the reservoir tank and accessible through a bolted top cover is required.

Filtration: at least 10 micron nominal filter rating.

The return line filter is to be equipped with a dirt sensor gauge.

#### **HOIST MOTOR:**

To drive main and auxiliary hoists. To be Rineer Vane type Model 015-61-009-31, 93 horsepower or equal.

#### **MAIN HOIST:**

Maximum Line Pull: 13,000 pounds on first layer.

Maximum Line Speed: 276 FPM on fifth layer.

Maximum Cable Capacity: 450 feet on fifth layer.

Drum to be nominal 12-inch diameter and grooved for 5/8-inch dia. cable. To be supplied with 350 feet of cable.

#### **AUXILIARY HOIST:**

Maximum Line Pull: 13,000 pounds on first layer.

Maximum Line Speed: 276 FPM on fifth layer.

Maximum Cable Capacity: 350 feet on fifth layer.

Drum to be nominal 12-inch diameter and grooved for 5/8-inch dia. cable. To be supplied with 200 feet of cable.

#### **CABLE:**

5/8-inch 6 by 25 Class and designated as follows:

"6X25,FW,PRF,RRL,XIP,IWRC.

#### **HOIST BRAKES:**

25-inch diameter by 4-inch wide. Externally contracting, band type.

#### **HOIST CLUTCHES:**

21-3/4-inch diameter by 3-inch wide. Two (2) shoe internally expanding.

#### **HYDRAULIC BOOM HOIST:**

9-5/8-inch diameter drum to be driven by a gear type hydraulic motor with automatic integral self adjusting disc type brake. Ratchet and pawl to support boom in a fixed position. 12,000 pound bare drum single line pull.

#### **HYDRAULIC SWING:**

Motor: 40 horsepower Commercial Intertech gear type hydraulic motor. Model M50 or equal.

Speed: Variable - 3 to 5 RPM.

Manual swing brake. Operator controlled ratchet lever.

#### **SWING LOCK:**

Two position plunger type house lock.

#### **COUNTERWEIGHT:**

Weight: Min. of 8,900 pounds.

#### **CAB:**

To be welded steel construction. To enclose all machinery. Operators cab to be fully enclosed, separate from machinery.

Operators cab to be fully sound insulated and have a swing out lockable door and windows, affording 360° vision in the horizontal plane by the operator.

Upper operator windows are also provided to afford vision in the vertical plane from ground to nearly 90° above the horizontal plane. All glass to be tinted.

Grab handles to be provided for cab entry.

Heater defroster, manufacture's standard. Optional air conditioning can be supplied.

Fully adjustable operators seat.

Instruments panel to be hinged for quick accesses and shall include the following illuminated gauges:

- Air Pressure
- Voltmeter
- Engine Oil Pressure
- Water Temperature
- Tachometer
- Fuel level
- Hour meter

An audible warning device for low oil pressure, low water level, and high water temperature. Murphy switch or equal.

Air pressure regulating control valves for swing, hoist, inhaul, and boom hoist are to be Wabco Flexair valves or equal, with adjustable length and detent of handles. Approximately 5 pounds of lever force.

Electric operator controlled warning horn will be supplied.

Optional - Throttle on swing lever, foot throttle.

Optional - AM/FM radio and connection points for intercom radio can be supplied.