

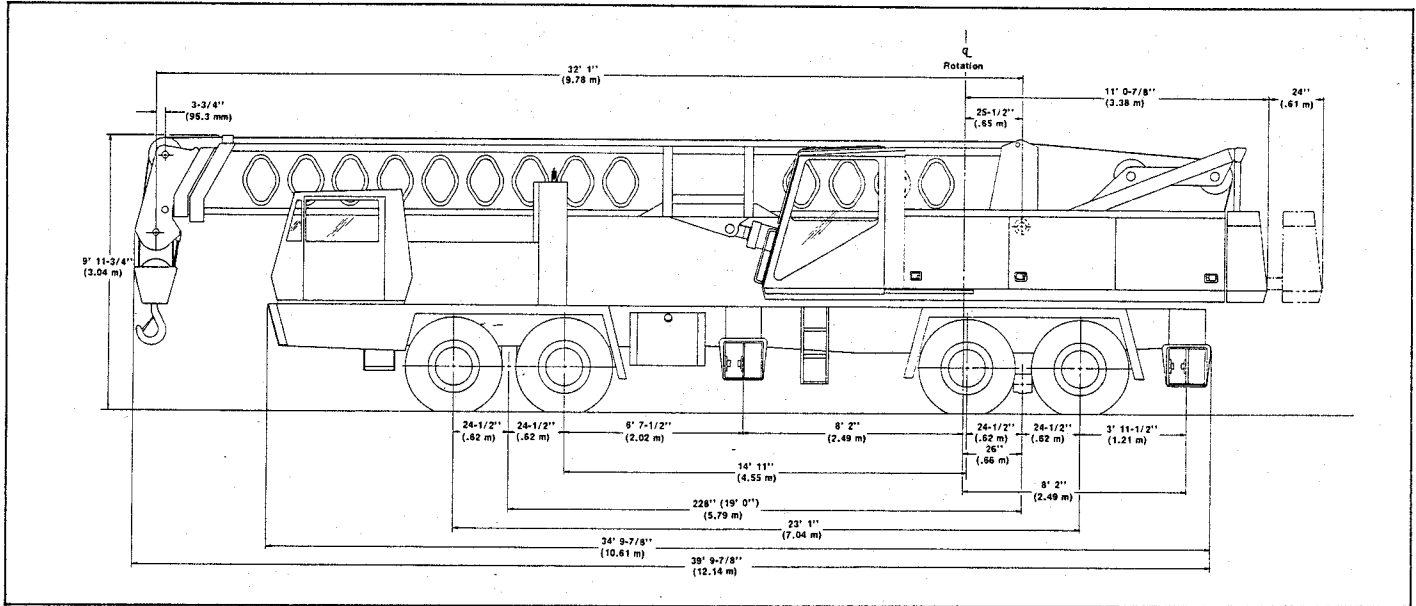
Link-Belt®

# HTC-35

GENERAL INFORMATION ONLY

## 35-Ton Hydraulic Truck Crane

### General Specifications — Carrier, Crane Upper and Attachment



General Dimensions	Feet	Meters
Over-all width, outriggers retracted	7' 11½"	2.43
Over-all width, outriggers extended — C/L of jacks	18' 0"	5.49
Turning radius — C/L of outer front tire	42' 1"	12.83
Tailswing — across corners	11' 8⅞"	3.58
Tailswing — across corners (ctwt. extended)	13' 7¾"	4.16
Minimum ground clearance	10' ⅛"	.25

### Machine Over-all Length and Approximate Working Weights

Three section power boom horizontal over front end of carrier <sup>①</sup> , ctwt. retracted <sup>②</sup> , and 2 wire rope drums.	Machine Over-all Length		Approximate Working Weight	
	Feet	Meters	Pounds	Kilograms
Machine with 32'-80' (9.75 m-24.38 m) power boom:				
—retracted	41' 9⅞"	12.75	60,882	27,616
—extended	—	—	61,432 <sup>①</sup>	27,866 <sup>①</sup>
—retracted and 28' (8.53 m) fly section in stowed position	41' 9⅞"	12.75	61,987	28,076
—extended and 28' (8.53 m) fly section in operating position	—	—	62,112 <sup>③</sup>	28,174 <sup>③</sup>
—retracted and optional 50' (15.24 m) jib in stowed position	41' 9⅞"	12.75	62,625	28,407
—extended and optional 50' (15.24 m) jib in operating position	—	—	62,840 <sup>③</sup>	28,504 <sup>③</sup>

① Includes 35-ton (31.75 metric ton) hook block.

② If ctwt. is extended, add 2' (.61 m) to over-all length dimensions.

③ Fly and jib working weight includes 8½ ton (7.73 metric ton) headache ball.

# General Specifications

## Carrier —

**Type** — FMC; 8 x 4 drive, 8' 0" (2.44 m) wide, 228" (5.79 m) wheelbase.

**Frame** — Welded plate, box section construction between outriggers. Formed channel main beams ahead of front outriggers. Integral outrigger boxes. All alloy steel.

**Front Axles** — Tandem; Rockwell Standard FF931, "I" beam; 80" (2.03 m) track.

**Rear Axles** — Tandem; Rockwell Standard SQHP; 71" (1.80 m) track; 6.833 to 1.0 ratio.

### Suspension —

**Front** — Reyco spring suspension with torque rods.

**Rear** — Hendrickson solid mount; 50" (1.27 m) bogie beam; rubber bushed and bronze bushed pivot.

**Interaxle Differential** — Standard equipment. Lockout manually controlled from carrier cab.

**Wheels** — Gunite cast spoke; 8:00V rims, front and rear.

**Tires** — Single tires, front; dual tires,

**Standard** — 11:00 x 20 (12-ply rating) transport type.

**Optional** — 11:00 x 20 (12-ply rating) road lug type on rear.

**Brakes** — 8 wheel air. Computerized skid control system at each axle.

**Service** — Rockwell Standard wedge type. Two chambers per wheel, front and rear.  
— **Size and Area** — Front — 15" x 5" (38 m x .13 m); total effective lining area, 628 sq. in. (4,053 cm<sup>2</sup>). Rear — 15" x 7" (38 m x .18 m) total effective lining area, 880 sq. in. (5,679 cm<sup>2</sup>).

**Emergency** — One spring chamber per rear wheel (used also for parking brakes). Brakes apply when air pressure drops below 65 p.s.i. (4.57 kg/cm<sup>2</sup>) in system.

**Parking** — One spring chamber per rear wheel (used also for emergency brakes). Brakes applied with air control valve on carrier dash.

**Air Compressor** — 12 c.f.m. (.34 m<sup>3</sup>/min.) Bendix Westinghouse, gear driven, cooled and lubricated from carrier engine.

**Steering** — Power hydraulic assist. Ross integral gear; 18" (.46 m) dia. wheel.

**Outriggers** — Power hydraulic beams and jacks. Beam and jack controls located at crane operator's position in

upper cab. Check valve in each jack cylinder. Hydraulic power supplied by carrier engine-driven pump. Double box section, heat treated alloy steel outrigger boxes welded to carrier; full width, single sliding beams.

**Floats** — 24" (.61 m) dia. round base aluminum.

**Clutch** — Rockford 14RT 14" (.36 m) dia., spring loaded, single plate, dry disc.

**Universals** — Mechanics needle; FMC midpoint bearing.

**Transmission** — Eaton Roadranger RT613; total 13 speeds forward, 3 reverse.

**Main** — Capability of 5 speeds forward, 1 reverse.

**Auxiliary** — 3 range, integrally mounted on main transmission.

**Fuel Tank** — 60 gal. (227.1 liters) capacity.

**Electrical System** — One 12-volt battery and 12-volt alternator. Two single sealed

beam headlights; directional signals, clearance, stop, tail, turn, 4-way flashing system, and backup lights; electric wipers and horn.

**Hydraulic Sump Tank** — FMC; 138 gallons (522.3 liters) capacity; for crane upper and carrier control systems. Filter for return oil. System of baffles for tank strength and oil cooling. Pressurized to 6 p.s.i. (.42 kg/cm<sup>2</sup>) gauge pressure.

**Cab** — FMC; one man, offset, fully enclosed. Insulated interior, mounted on rubber isolation pads; carpeted. Instrument panel with speedometer, odometer, tachometer, voltmeter, low air pressure warning buzzer, throttle control, and push button starting switch. Gauges for oil and air pressure, water temperature, and fuel. Safety switch to prevent starting carrier engine if main transmission is not in neutral or if rope drum motor control valve is not in neutral. Spring cushioned seat equipped with adjustable shock absorbing cylinder.

**Standard Auxiliary Equipment** — Bubble-type level on console of operator's cab, bus-type rear view mirrors, rear fenders, back-up alarm, cab step, access ladder to carrier deck with hand grab rail, front tow loops, and skid-resistant finish on carrier deck.

## Carrier Engine — Diesel.

Engine	GM 6V53	Cummins VT-555
Cylinders - Cycle	6 — 2	8 — 4
Bore	3 <sup>7</sup> / <sub>8</sub> " (98.43 mm)	4 <sup>5</sup> / <sub>8</sub> " (117.48 mm)
Stroke	4 <sup>1</sup> / <sub>2</sub> " (114.3 mm)	4 <sup>1</sup> / <sub>8</sub> " (104.78 mm)
Displacement	318 cu. in. (5,212 cm <sup>3</sup> )	555 cu. in. (9,096 cm <sup>3</sup> )
Max. Brake H.P.	216 @ 2,800 r.p.m.	218 @ 2,800 r.p.m.
Peak Torque	446 ft.-lbs. (61.66 kgm) @ 1,800 r.p.m.	445 ft.-lbs. (61.54 kgm) @ 1,900 r.p.m.
Crankcase Capacity	16 qts. (15.14 liters)	20 qts. (18.93 liters)
Air Compressor	12 c.f.m. (.34 m <sup>3</sup> /min.)	13.2 c.f.m. (.34 m <sup>3</sup> /min.)
Air Cleaner	Dry Type	Dry Type

**Speeds** — Based on GM 6V53 diesel engine; full load speed — 2,800 r.p.m.

Transmission — Eaton RT613 with integral 3-range auxiliary				
Gear	Ratio	Speeds		
		M.P.H.	Km/Hr.	
Direct Range	13th	1.00	49.0	78.84
	12th	1.24	39.5	63.56
	11th	1.60	30.6	49.24
	10th	2.05	23.9	38.46
	9th	2.62	18.7	30.09
	Reverse	2.77	17.7	28.48
Intermediate Range	8th	3.29	14.9	23.97
	7th	4.09	12.0	19.31
	6th	5.26	9.3	14.96
	5th	6.74	7.3	11.75
	4th	8.64	5.7	9.17
	Reverse	9.12	5.4	8.64
Low Range	3rd	10.96	4.5	7.24
	2nd	14.04	3.5	5.63
	1st	18.00	2.7	4.34
	Reverse	19.00	2.6	4.15
Creep <sup>Ⓢ</sup>	1st	18.00	1.75	2.82
	Reverse	19.00	1.70	2.74

<sup>Ⓢ</sup> Based on peak torque of 1,800 r.p.m.

GENERAL INFORMATION ONLY

## Axle Loads — Approximate

Machine equipped with 1 wire rope drum and as follows:	Total Weight		Upper Facing Front				Upper Facing Rear			
			Front		Rear		Front		Rear	
	Lbs.	Kgs.	Lbs.	Kgs.	Lbs.	Kgs.	Lbs.	Kgs.	Lbs.	Kgs.
With 7,700# (3,493 kg) ctwt. on upper in retracted (travel) position and: 32' (9.75 m) to 80' (24.38 m) power boom 32' (9.75 m) to 80' (24.38 m) p.b. w/ 28' (8.53 m) fly ① 32' (9.75 m) to 80' (24.38 m) p.b. w/50' (15.24 m) jib ②	60,695 61,710 62,438	27,531 27,992 28,322	20,064 21,190 22,100	9,101 9,612 10,025	40,631 40,520 40,338	18,430 18,380 18,297	14,148 13,254 12,510	6,418 6,012 5,675	46,547 48,456 49,928	21,114 21,980 22,647
With ctwt. removed, but with the following attachments: 32' (9.75 m) to 80' (24.38 m) power boom 32' (9.75 m) to 80' (24.38 m) p.b. w/ 28' (8.53 m) fly ① 32' (9.75 m) to 80' (24.38 m) p.b. w/50' (15.24 m) jib ②	52,995 54,010 54,738	28,322 24,499 24,829	23,431 24,557 25,467	10,628 11,139 11,552	29,564 29,453 29,271	13,410 13,360 13,277	9,025 8,131 7,387	4,094 3,688 3,351	43,970 45,879 47,351	19,945 20,811 21,478
<b>Machine equipped with 2 wire rope drums and as follows:</b>										
With 6,700# (3,039 kg) ctwt. on upper in retracted (travel) position and: 32' (9.75 m) to 80' (24.38 m) power boom 32' (9.75 m) to 80' (24.38 m) p.b. w/ 28' (8.53 m) fly ① 32' (9.75 m) to 80' (24.38 m) p.b. w/50' (15.24 m) jib ②	60,882 61,897 62,625	27,616 28,076 28,407	20,276 21,402 22,312	9,197 9,708 10,121	40,606 40,495 40,313	18,419 18,369 18,286	13,978 13,084 12,340	6,340 5,935 5,597	46,904 48,813 50,285	21,276 22,142 22,809
With ctwt. removed, but with the following attachments: 32' (9.75 m) to 80' (24.38 m) power boom 32' (9.75 m) to 80' (24.38 m) p.b. w/ 28' (8.53 m) fly ① 32' (9.75 m) to 80' (24.38 m) p.b. w/50' (15.24 m) jib ②	54,182 55,197 55,925	24,577 25,037 25,368	23,205 24,331 25,241	10,526 11,037 11,449	30,977 30,866 30,684	14,051 14,001 13,918	9,521 8,627 7,883	4,319 3,913 3,576	44,661 46,570 48,042	20,258 21,124 21,792
Adjust weights for the following items: 35-ton (31.75 metric ton) hook block at bumper Headache ball at bumper Auxiliary sheave	+550 +215 +120	+249 + 98 + 54	+854 +334 +224	+387 +152 +102	-304 -119 -104	-138 - 54 - 47	— — - 92	— — - 42	— — + 212	— — + 96

## Upper Revolving Superstructure —

**Upper Revolving Frame** — All-welded, jig line bored. Provides boom foot pin mounting holes and supporting points for boomhoist cylinders.

**Turntable Bearing with Integral Swing Gear** — Ball bearing type; inner race bolted to upper. Outer race with integral 104-tooth swing gear bolted on carrier deck. Seals retains lubricant and excludes dirt. Nominal pitch dia. of bearing, 43<sup>13</sup>/<sub>16</sub>" (1.11 m).

**Hydraulic System** — Consists of 2-speed wire rope hoist drum hydraulic motor, swing hydraulic motor, hydraulic cylinders, two banks of main control valves, triple gear pump, oil cooler, oil reservoir, outrigger solenoid valves, 6-way rotating joint, Speed-o-Matic power control system including control valves, pump, and accumulator.

**Oil Capacity** — 236 gal. (893.3 liters) total system capacity; for boomhoist, swing, ctwt. extension, outrigger control, and load handling circuits.

**Main Pump** — Triple gear type, powered by drive shaft from front of carrier engine, and through a pump disconnect. Pump disconnect is FMC jaw-type clutch mechanically engaged or disengaged by cable from carrier cab.

- First section powers boomhoist cylinders and wire rope drum motor — output 73 g.p.m. (267.31 liters/min.) @ 2,800 r.p.m.
- Intermediate section powers outriggers and middle boom telescope — output 28 g.p.m. (105.98 liters/min.) @ 2,800 r.p.m.

- Third section powers swing, boom tip telescope and ctwt. extension/retraction — output 28 g.p.m. (109.98 liters/min.) @ 2,800 r.p.m.
- In the event other functions are not performed, intermediate and third pump section output will combine to furnish high speed middle boom section telescope — total output 56 g.p.m. (211.96 liters/min.) @ 2,800 r.p.m.

**Oil Cooler** — Mounted in front of carrier engine to maintain proper oil temperature in hyd. system.

**Holding Valves** — Provide automatic locking feature to hold boomhoist, load, and extended boom sections against gravity. Also allows controlled lowering of boom and loads, and controlled retraction of extended boom sections.

**Rotating Joint** — FMC; provides oil passage for Speed-o-Matic® power supply, main return, and low pressure return. Electrical collector ring is integral part of rotating joint — serves to transfer electrical power from carrier to upper.

**Speed-o-Matic® System** — Provides hydraulic power for 2-shoe clutch

HTC-35 Hydraulic Circuit Pressure Settings		
Circuit	Function	Pressure
Main	Wire rope hoist drums, Boomhoist	2,750 p.s.i. (193.35 kg/cm <sup>2</sup> )
Secondary	Boom telescope, Swing, Outriggers Counterweight	2,500 p.s.i. (175.78 kg/cm <sup>2</sup> )
Speed-o-Matic System	Hydraulic clutch control of wire rope hoist drums	1,050 p.s.i. (73.83 kg/cm <sup>2</sup> )

control of main and optional auxiliary wire rope drums.

**Pump** — Vickers; belt driven off carrier engine crank shaft. Output 8 g.p.m. (30.28 liters/min.) @ 2,450 r.p.m.

**Oil Filter** — FMC; 40 micron ribbon type element. Full flow filter.

**Relief Valve** — Pressure setting 1,250 p.s.i. (87.89 kg/cm<sup>2</sup>).

**Unloader Valve** — FMC; loads and unloads pump to maintain system pressure range from 900 p.s.i. (63.28 kg/cm<sup>2</sup>) minimum to 1,050 p.s.i. (73.83 kg/cm<sup>2</sup>) maximum.

**Accumulator** — FMC; piston type, precharged with dry nitrogen gas to 650 p.s.i. (45.70 kg/cm<sup>2</sup>).

**Control Valves** — FMC; variable pressure type.

**Swing System** — 360° rotation right or left. Hydraulic tandem gear-type swing motor mounted to speed reducers.

**Speed Reducers** — Two; commercial planetary speed reducer mounted between hydraulic swing motor and FMC speed reducer. FMC speed reducer is 3 shaft, spur gear, double reduction with anti-friction bearings throughout.

**Swing Pinion** — Heat treated, machine cut teeth.

**Swing Brake** — Two shoe, external contracting, manually controlled.

**GENERAL INFORMATION ONLY**

**Swing Lock** — Pin type, manually controlled. Pin fits into pipe welded to carrier deck; can only be engaged when upper is directly over front or rear of carrier.

**Swing Speed** — 2.5 r.p.m.

**Counterweights** — For machine with two hoist drums, — fabricated steel box filled with steel slugs, 6,700# (3,039 kg). For machine with single hoist drum — same as machine with two hoist drums plus 1,000# (454 kg) of plates bolted to front of slug counterweight.

**Counterweight Removal** — Accomplished through use of linkage between ctwt. and sheave frame and wire rope between sheave frame and boom. After ctwt. anchor bolts are removed, ctwt. may be lowered or raised by hoisting or lowering boom.

**Fleeting Sheaves and Frame** — Supports wire rope over base of boom at low angles. Sheaves, 11<sup>25</sup>/<sub>32</sub>" (.30 m) root dia., mounted on non-metallic bushings.

**Operator's Cab** — Offset to left for lower horizontal boom position. Door on sliding track with automatic lock to hold door open. Door is key locked. Safety

glass in all windows with tinted roof glass. Right side window fixed; front window removable and stored in upper machinery cab; roof window swings up. Cab insulated from vibration by rubber mounts. Neoprene seal between platform and cab provides insulation from weather and sound; also sound insulation on cab interior. Heater and windshield wiper standard.

**Upper Machinery Cab** — Equipped with three doors that hinge outward for access to machinery.

## Available Line Pull — not based on wire rope strength.

Front and Rear Drums		Operator Control — Load Hoist Lever ①		Operator Control — 2-Shoe Clutches ②	
		Line Pull		Line Pull	
		Pounds	Kilograms	Pounds	Kilograms
1st Layer Wire Rope	Low Speed	13,472	6,111	16,466	7,469
	High Speed	6,736	3,055	7,933	3,598

Note — Line pull based on single drum.

① Utilizes hydraulic motor only for hoisting or lowering loads; 2-shoe clutches engaged prior to actuating hoist lever.

② Utilizes variable pressure of clutches for hoisting or lowering loads; hoist lever engaged to actuate hydraulic motor prior to using clutches.

## Permissible Line Speed and Pull — based on 5/8" (15.88 mm) Type "N" wire rope strength.

Front and Rear Drums		Operator Control - Load Hoist Lever ①				Operator Control - 2-Shoe Clutches ②			
		Line Speed		Line Pull		Line Speed		Line Pull	
		F.P.M.	Meters/Min.	Pounds	Kilograms	F.P.M.	Meters/Min.	Pounds	Kilograms
1st Layer Wire Rope	Low Speed	138	42.06	11,700	6,111	138	42.06	11,700	7,469
	High Speed	319	97.23	6,736	3,055	319	97.23	7,933	3,598
7th Layer Wire Rope	Low Speed	206	62.79	8,931	4,074	206	62.79	10,977	4,979
	High Speed	477	145.39	4,491	2,037	477	145.39	5,289	2,399

Note: Line pull based on single drum.

① Utilizes hydraulic motor only for hoisting or lowering loads; 2-shoe clutches engaged prior to actuating hoist lever.

② Utilizes variable pressure of clutches for hoisting or lowering loads; hoist lever engaged to actuate hydraulic motor prior to using clutches.

## Attachment —

**Boom** — Fabricated, box type. Side plates have diamond shaped depressions for lateral stiffness. Three-section power boom with two double acting (extend/retract) telescoping cylinders, boom rest, boom angle indicator, and boom length indicator.

**Boom Head Machinery** — Hammerhead design to accommodate high boom angles without fouling wire rope load lines. Equipped with three load sheaves and two deflector sheaves — all 11<sup>25</sup>/<sub>32</sub>" (.30 m) root dia. and mounted on anti-friction bearings. Designed for use with one through eight parts of line; equipped with wire rope deflectors and integrally welded link for boom dead-ending two, four, six, or eight parts of line. Four load sheaves optional.

**Auxiliary Lifting Sheave** — Optional, single sheave mounted in box beam structure bolted to boom head and used with one or two parts of line. Does not affect stowing of either fly section or jib, or use of main load sheaves for multiple reevings.

**Hoist Rope Guide Rollers** — Deflect wire rope over end of boom sections. Three provided: one at bottom end of base section; one at top end of base section; one at top end of middle power boom section.

**Boomhoist Cylinders** — Two FMC double-acting hydraulic cylinders with attached holding valves, preventing boom creeping down under load. Self-aligning steel bushings in each cylinder rod end. Cylinder bore dia. — 9" (.23 m); rod dia. — 5" (.13 m); stroke — 60" (1.52 m).

**Boom Speeds** — Boomhoist to 70°, 18.4 seconds. Boom full extend time, 65 seconds. Boom full retract time, 36 seconds.

**Boom Angle Indicator** — Mechanical linkage from boomfoot pin activates calibrated drum inside operator's cab when boom is raised or lowered. Gravity

compensated pointer shows boom angle reading.

**Boom Length Indicator** — Consists of boom mounted transducer connected to meter read-out in operator's cab.

**Hook Block** — Optional.

**Folding (Stowing) Adaptor** — 5' (1.52 m) long; combination lattice and plate construction. Used in conjunction with lattice sections to obtain 28' (8.53 m) fly or 50' (15.24 m) jib.

**Fly** —

**28' (8.53 m) Fly** — Two-piece; consists of 5' (1.52 m) folding adaptor plus 23' (7.01 m) lattice tip section. Used in in-line position only. Equipped with single sheave, 13<sup>1</sup>/<sub>32</sub>" (.33 m) root dia., mounted on anti-friction bearings. Folding adaptor allows fly to be pivoted to right of boom head and stowed along right side of boom base section.

**GENERAL INFORMATION ONLY**

## Attachment — cont'd.

### Jib —

#### (15.24 m) Jib — Optional.

Three-piece; consists of 5' (1.52 m) folding adaptor plus 23' (7.01 m) lattice tip section (both used for fly) plus 22' (6.71 m) straight lattice extension. Jib can be positioned in-line with boom or 7.5° offset from boom. May be stowed by starting from the in-line position and folding 23' (7.01 m) tip section under 22' (6.71 m) extension and 5' (1.52 m) folding adaptor. Folded assembly then pivots to right of boom head and is stowed along right side of boom base section.

**Jib Mast** — Mounted on 5' (1.52 m) folding adaptor. Jib frontstay pendants connected to top of jib mast — adjustable for jib in-line or 7.5° offset positions. Jib backstay pendants and linkage stationary. Jib mast and pendants stored on 22' (6.71 m) straight extension when jib is stowed along right side of boom base section.

**Jib Mast Stops** — Telescoping type, spring loaded. Pinned from jib mast to boom tip section and from jib mast to folding adaptor. Front jib mast stops stored under 28' (8.53 m) straight extension when jib is stowed along right side of boom base section. Rear jib mast stops stored with folded jib mast.

**Boom Lockout** — Mechanical; locks boom tip section into position when using jib, maintaining proper jib backstay pendant position. Although tip section is locked, boom middle section may be powered in or out. When only fly section is used, both middle and tip boom sections may be powered in or out.

**Load Handling System** — Dual wire rope drums. Rear drum standard; front auxiliary drum optional. Two mode load hoisting/lowering design concept permits matching mode of operation with specific job requirements. Two directional hydraulic motor furnishes power to wire rope drums through spur gear speed reduction, reduction shaft with drive pinion, and spur gears for each

drum. Drums equipped with integrally cast clutch drums, 2-shoe internal expanding Speed-o-Matic power hydraulic clutches and mechanical band brakes. To increase load hoisting or lowering line speeds, a "high-speed" solenoid button is located on swing control lever. Solenoid directs oil internally within motor to high-speed segment and provides 132% increase in hoist rope speeds and 52% decrease in hoist rope pulls. A pressure switch and relay automatically shift motor back into low speed if operator picks load in excess of high speed capability.

— Using hydraulic motor to power wire rope drums directly, operator first engages 2-shoe power hydraulic clutch for respective drum (rear or auxiliary front) being used. Load is then raised or lowered by engaging hoist control lever while simultaneously releasing foot-controlled drum brake. Holding valve manifold mounted on hydraulic motor automatically permits controlled lowering of overhauling loads.

— More precise control of hoisting or lowering loads is provided by use of 2-shoe power hydraulic clutches. Hoist control lever is first engaged to activate two-directional hydraulic motor to power rope drum gear train. Then, by engaging 2-shoe clutch to power respective drum being used, while disengaging drum brake, load may be raised or lowered precisely.

— Free-fall load lowering employed by releasing 2-shoe clutch and controlling speed of load descent with foot-controlled drum brake. Standard on main and optional auxiliary front drum.

**Hoist Motor** — Two-speed hydraulic gear type, flange mounted to speed reducer.

**Speed Reducer** — FMC double spur gear reducer, anti-friction bearings throughout; drum spur gears splined on wire rope drum shafts. Drive pinion splined on hydraulic

motor shaft drives large spur gear of speed reducer. Small spur gear of speed reducer drives wire rope drum spur gears. Speed reducer spur gears splined on shaft. Motor pinion, speed reducer and wire rope drum spur gears all enclosed, running in oil.

**Wire Rope Drums** — Rear drum, standard. 11 $\frac{7}{8}$ " (.30 m) root dia., 16 $\frac{1}{2}$ " (.42 m) wide, smooth, tapered flanges, mounted on anti-friction bearings. Drum capacity — 6 layers of  $\frac{5}{8}$ " (15.88 mm) dia. wire rope; total 621' (189.28 m). Optional auxiliary front drum identical to rear drum.

**Drum Clutches** — Two-shoe internal expanding, Speed-o-Matic power hydraulic; 18" x 4 $\frac{1}{2}$ " (.46 m x .11 m). Clutch spider splined to shaft. Clutch drum cast integral with wire rope drum.

**Drum Brakes** — Two-piece external contracting bands; manually applied and released by foot pedals in operator's cab. Pushing pedal completely down locks brake. Brake drums cast integral with wire rope drums. Brake drum dia., 23" (.58 m); brake band 3 $\frac{3}{4}$ " (.95.25 m) wide.

**Drum Rotation Indicators** — Standard for rear drum and for optional auxiliary front drum. By depressing hydraulically operated indicator buttons, mounted in drum clutch control lever handles, operator feels strong pulsations whenever rope drums rotate in either direction. Pulsations cease when operator releases buttons.

### Boom Telescoping System —

Three-section power hydraulic boom telescopes via two double-acting cylinders mounted one above the other within boom. Lower cylinder rod end is pinned to boom base section and its cylinder is pinned to middle boom section. Upper cylinder rod end also pinned to middle boom section and its cylinder is pinned to boom tip section. Rods remain stationary, cylinders extend and retract power boom sections. Separate controls provided for each boom telescoping cylinder so that each section of boom can be extended or retracted independently. Boom sections must be extended or retracted equidistantly when making lifts except as specified on load rating chart.

## Wire Rope —

Application	Type and Size Used
Main Load Hoist	$\frac{5}{8}$ " (15.88 mm) dia., Type "N"
Jib Load Hoist	$\frac{5}{8}$ " (15.88 mm) dia., Type "N"
Auxiliary Lifting Sheave Load Hoist	$\frac{5}{8}$ " (15.88 mm) dia., Type "N"
Jib Frontstay Pendants	49' 4 $\frac{7}{8}$ " (15.06 m) long, $\frac{1}{2}$ " (12.70 mm) dia., Type "N"
Jib Backstay Pendants	23' 1 $\frac{1}{8}$ " (7.04 m) long, $\frac{1}{2}$ " (12.70 mm) dia., Type "N"

**Wire Rope** — Type "N" 6 x 25 (6 x 19 class) filler wire, extra improved plow steel, preformed, independent wire rope core, right lay, regular lay.

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