



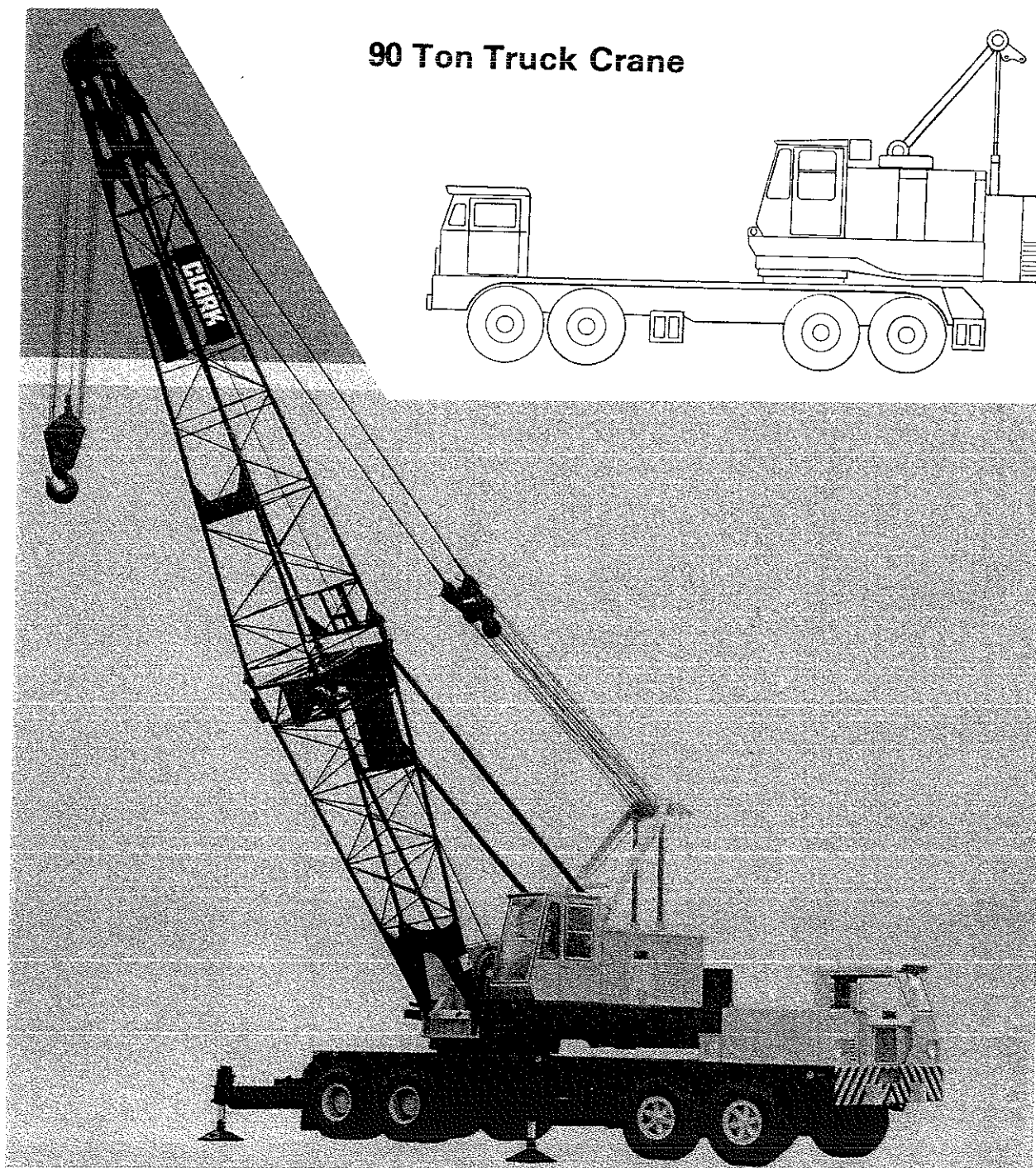
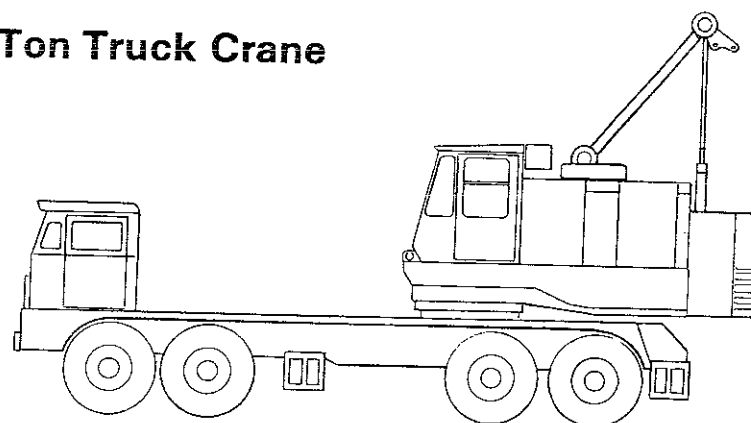
CLARK

**Lima
Division**

990-TC

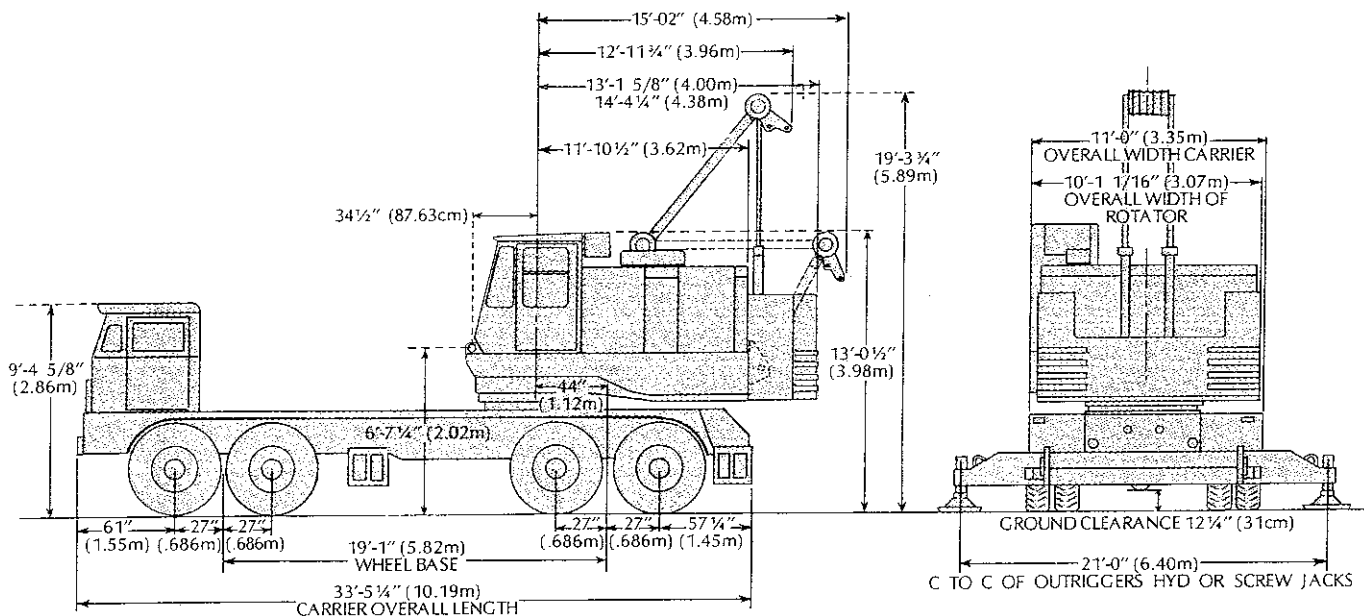
Specification

90 Ton Truck Crane





CLEARANCE AND DIMENSIONS



**AXLE LOADING AND WEIGHTS**

EQUIPPED AS FOLLOWS: Truck: Cummings NTC-290 with Jacob brakes, hydraulic outriggers, boom rest and 14'-00" x 20" (35.6cmx50.8cm) 20 ply tires. UPPER: Cummins N-855-P-160 power plant with 3 stage converter; includes 50 ft. (15.24M) tubular boom; full width front drum with power load lowering; rear drum with power load lowering; boom stops, cables and Sprague clutch. Does not include hook block or ball hook.

WEIGHT COMBINATIONS	BOOM POSITION	WITH HYDRAULIC OUTRIGGERS & FLOATS		
		FRONT	REAR	TOTAL
COMPLETE MACHINE (CRANE)	F	21,225lbs. (9,627kg.)	106,300lbs. (48,218kg.)	127,525lbs. (57,845kg.)
	R	53,775lbs. (24,392kg.)	73,750lbs. (33,453kg.)	127,525lbs. (57,845kg.)
MACHINE LESS COUNTERWEIGHT	F	35,320lbs. (16,021kg.)	61,275lbs. (27,794kg.)	96,595lbs. (43,815kg.)
	R	27,795lbs. (12,608kg.)	68,800lbs. (31,207kg.)	96,595lbs. (43,815kg.)
MACHINE LESS COUNTERWEIGHT, BOXES, BEAMS & FLOATS	F	32,640lbs. (14,806kg.)	50,675lbs. (22,986kg.)	83,315lbs. (37,792kg.)
	R	25,115lbs. (11,392kg.)	58,200lbs. (26,400kg.)	83,315lbs. (37,792kg.)
MACHINE LESS COUNTERWEIGHT, BOXES, BEAMS, FLOATS & POINT SECTION	F	23,985lbs. (10,880kg.)	56,290lbs. (25,533kg.)	80,275lbs. (36,413kg.)
	R	32,605lbs. (14,790kg.)	47,670lbs. (21,623kg.)	80,275lbs. (36,413kg.)
MACHINE LESS COUNTERWEIGHT, BOXES, BEAMS, FLOATS & COMPLETE BOOM	F	19,760lbs. (8,963kg.)	55,055lbs. (24,973kg.)	74,815lbs. (33,936kg.)
	R	34,730lbs. (15,753kg.)	40,085lbs. (18,183kg.)	74,815lbs. (33,936kg.)

F—DENOTES BOOM EXTENDED FORWARD

R—DENOTES BOOM EXTENDED REARWARD

NOTE: Any deviation from the equipment listed above will affect the weights shown proportionately and compensation must be made accordingly.

POWER PLANT DATA (CARRIER)

	MAKE	MODEL	FUEL	CYL.	BORE & STROKE	RATED H.P.
TRUCK CARRIER	Cummins	NTC-290	Diesel	6	5 1/2" (140mm) x 6" (152mm)	290 @ 2,100
	GM	8V-71	Diesel	8	4 1/2" (108mm) x 5" (127mm)	318 @ 2,100

PERFORMANCE DATA (CARRIER)

Number of Travel Speeds Standard—15 Forward and 3 Reverse
Turning Radius — 49Ft. (On Center Outside Front Tire)

ENGINE MAKE & MODEL	CARRIER EQUIPPED WITH 5 SPEED MAIN & 4 SPEED AUXILIARY TRANS.			
	LOW RANGE*		HIGH RANGE**	
	GRADE	SPEED	GRADE	SPEED
Cummins NTC-290	40.0	1.4MPH (2.25KmPH)	1.0	44.7MPH (71.92KmPH)
GM 8V-71	40.0	1.3MPH (2.09KmPH)	1.3	44.7MPH (71.92KmPH)

NOTE: The above is based on a machine equipped with a 5 speed Fuller main transmission and a Spicer (4) speed auxiliary transmission and 14'-00" x 20" (35.6cm x 50.8cm) tires.

Maximum engine torque & machine weighing 127,525 lbs. (57,845kg.) } These weights apply to a standard equipped machine.
Maximum engine speed & machine weighing 74,815 lbs. (33,936kg.) }



DESCRIPTIVE DATA (CARRIER)

Basic, Standard and Optional Components

FRAME: Carrier frame of heavy-duty, all welded construction. Two main members, each of deep box section, are joined together by bumper and box section cross members. 100,000 P.S.I. (7,030kg/cm²) steel is used in higher stressed members of frame. Tow hooks, front and rear.

SWING CIRCLE: A large diameter, single row, antifriction bearing assembly with integral swing gear. Bearing is well sealed with close fitting races, eliminating rocking motion of rotating assembly on carrier.

OUTRIGGER BOXES: The two outrigger boxes are fabricated from steel plates. Boxes are of the pin-on design for ease of removal.

OUTRIGGER BEAMS: four, box section extensible beams mounted two in each outrigger box are fabricated of 100,000 P.S.I. (7,030kg/cm²) steel.

HYDRAULIC OUTRIGGERS: Independent control valves for extending each beam and for lowering each hydraulic jack with T-1 steel floats provide precise leveling of truck. Control valve station on carrier at ground level.

REMOTE CONTROLLED CARRIER: Controls provided in cab of rotating assembly that can start, steer, brake, clutch, shift transmission (low and reverse) and control throttle is available.

FRONT TANDEM SUSPENSION: Front tandem axles are suspended by two alloy steel underslung equalizers, direct-connected to chassis frame. Two radius rods on each axle maintain proper positioning of axles.

FRONT AXLES: Two tubular-high clearance type, rating 27,400# (12,429kg.) each. Wheels are mounted on roller bearings.

REAR AXLES: Planetary drive with inter-axle differential. No spin differential is available.

REAR TANDEM SUSPENSION: Rear tandem axles are suspended by two alloy steel underslung equalizers, direct-connected to chassis frame. One torque rod on each axle maintains proper positioning of axles.

WHEELS: Heavy-duty 20" (50.8cm) x 10.0" (25.4cm) rims, four singles in front, four duals in rear, making a total of twelve wheels.

TIRES: Twelve 14.00" (35.6cm) x 20" (50.8cm) 20 ply rating.

FUEL CAPACITY: 85 Gal. (322 Liters)

FENDERS: Fenders are of the combination fender-deck design, providing a flat full width-full length walkway.

SERVICE BRAKES: Air brakes on all wheels. Front brake shoes are 17¼" (44.0cm) diameter x 4" (10.2cm) wide. Rear brake shoes are 16½" (41.9cm.) diameter x 7" (17.8cm.) wide. The carrier engine is equipped with a Jacobs engine brake as standard equipment.

SAFETY BRAKES: Spring set, air released brake cylinders on rear axles lock brakes in case of air loss or for parking. An auxiliary air reservoir and controls allow brakes to be released and reapplied several times after loss of regular air supply.

OPERATING BRAKE: A hand-operated air valve applies the service brakes when required for holding the machine when operating.

STEERING: Hydraulic steering with Ross roller mounted cam and twin lever type steering gear powered by engine driven pump, double acting cylinder and hydraulic control valve built into draglink.

MAIN TRANSMISSION: Fuller with five speeds forward and one reverse.

AUXILIARY TRANSMISSION: Spicer with four speeds giving 20 speeds forward and three reverse.

CLUTCH: Lipe Rollway 14" (35.6cm.) 2-DLB.

CAB: One-man type, with visor type top. All steel construction, amply ventilated for summer or winter. Adjustable seat. Instrument cluster contains speedometer, odometer, ammeter, oil pressure gauge, water temperature gauge, fuel gauge and pilot light. Instrument panel contains air gauge, light switches, ignition and starter switch.

BUMPER COUNTERWEIGHT: One piece, required when using long boom or boom and jib combination. See "boom and jib data."

MISCELLANEOUS ACCESSORIES: Inflating hose and tire pressure gauge, boom rest, rear view mirrors, two beam headlights, stop and tail light, front, middle and rear marker lights and parking lights, electric directional signals, spare wheel with or without tire, air or electric windshield wipers, air and electric dual horns, fender flaps, heater and defrosters.

**POWER PLANT DATA (ROTATOR)**

ROTATING ASSEMBLY		
MAKE	CUMMINS	G.M.
MODEL	N855-P160	4081
FUEL	Diesel	Diesel
CYL.	6	4
BORE & STROKE	5-1/2" (140mm) x 6" (152mm)	4 1/4" (108mm) x 5" (127mm)
GROSS RATED HP	160 @ 1800	150 @ 2300
TORQUE CONV. HP @ GOVERNED R.P.M.	135 @ 1800	130 @ 1800

LINE PULL	LINE SPEED*	
	1st Layer on Drum 16" (40.6cm) Pitch Dia.	6th Layer On Drum 23 1/2" (59.7 cm) Pitch Dia.
16,800lbs. (7,620kg)	177fpm (54mpm)	175fpm (53mpm)
13,500lbs. (6,124kg)	205fpm (62mpm)	220fpm (67mpm)
10,000lbs. (4,536kg)	237fpm (72mpm)	265fpm (81mpm)
6,000lbs. (2,722kg)	279fpm (85mpm)	367fpm (112mpm)
2,000lbs. (907kg)	323fpm (98mpm)	456fpm (139mpm)

* — Third Drum Speeds Are Approximately 88% of the speeds indicated in the Chart.

CLUTCH AND BRAKE DATA

FUNCTION	CLUTCHES				BRAKES			
	Type	Width	Diameter	Area	Type	Width	Diameter	Area
Main Hoist	Band	5" (12.7cm)	24" (61.0cm)	337 Sq. In. (2,174 Sq. cm)	Band	4 1/2" (11.4cm)	30" (76.2cm)	338 Sq. In. (2,181 Sq. cm)
Auxiliary Hoist	Band	5" (12.7cm)	24" (61.0cm)	337 Sq. In. (2,174 Sq. cm)	Band	4 1/2" (11.4cm)	30" (76.2cm)	338 Sq. In. (2,181 Sq. cm)
3rd Drum Hoist	Band	5" (12.7cm)	24" (61.0cm)	337 Sq. In. (2,174 Sq. cm)	Band	4 1/2" (11.4cm)	30" (76.2cm)	338 Sq. In. (2,181 Sq. cm)
Boom Hoist	Band	5" (12.7cm)	24" (61.0cm)	337 Sq. In. (2,174 Sq. cm)	Band	4 1/2" (11.4cm)	30" (76.2cm)	338 Sq. In. (2,181 Sq. cm)
Swing	2 Shoe	4 1/2" (11.4cm)	24" (61.0cm)	290 Sq. In. (1,871 Sq. cm)	Band	4 1/2" (11.4cm)	30" (76.2cm)	338 Sq. In. (2,181 Sq. cm)
Boom Lowering	Band	4 1/2" (11.4cm)	20" (50.8cm)	248 Sq. In. (1,600 Sq. cm)				
Load Lowering	Band	4 1/2" (11.4cm)	20" (50.8cm)	248 Sq. In. (1,600 Sq. cm)	Band	4" (10.2cm)	26" (66.0cm)	240 Sq. In. (1,548 Sq. cm)
*Front Drum	Band	5" (12.7cm)	24" (61.0cm)	337 Sq. In. (2,174 Sq. cm)	Band	4 1/2" (11.4cm)	30" (76.2cm)	338 Sq. In. (2,181 Sq. cm)

Full width front drum with planetary load lowering.

LAGGING DATA

Lagging Location	Usage	Lagging P.D.	Lagging Width	Type of Lagging	Eff. Capy. 1st Layer	Maximum Capy. & Layers	Wire Rope Size
L.H. Front	Third Drum	14" (35.6cm)	11" (27.9cm)	Smooth	45' (13.7m)	464' (141.4m) In 7	3/4" (19.1mm)
R.H. Front	Crane Auxiliary Hoist	16" (40.6cm)	14-1/2" (36.8cm)	Smooth	71' (21.6m)	569' (173.4m) In 6	3/4" (19.1mm)
R.H. Front	Dragline Drag	16-1/8" (41.0cm)	14-1/2" (36.8cm)	Grooved	49' (14.9m)	—	7/8" (22.2mm)
L.H. Rear	Dragline Hoist	16" (40.6cm)	14-1/2" (36.8cm)	Grooved	48' (14.6m)	—	3/4" (19.1mm)
L.H. Rear	Main Hoist	16" (40.6cm)	14-1/2" (36.8cm)	Smooth	71' (21.6m)	569' (173.4m) In 6	3/4" (19.1mm)
L.H. Rear	Clamshell Closing	16" (40.6cm)	14-1/2" (36.8cm)	Grooved	48' (14.6m)	—	3/4" (19.1mm)
R.H. Front	Clamshell Holding	16" (40.6cm)	14-1/2" (36.8cm)	Grooved	48' (14.6m)	—	3/4" (19.1mm)
R.H. Rear	Boom Hoist	12" (30.5cm)	8-1/2" (21.6cm)	Smooth	28' (8.5m)	372' (113.4m) In 8	3/4" (19.1mm)
Full Width Front Drum	Main or Aux. Hoist	16" (40.6cm)	24-1/8" (61.3cm)	Smooth	123' (37.5m)	959' (292.3m) In 6	3/4" (19.1mm)

MISCELLANEOUS DATA (ROTATOR)

Swing Speed	3.4 RPM	Fuel Capacity 210 Gallons (795 Liters)
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DESCRIPTIVE DATA (ROTATING ASSEMBLY)

Basic Standard and Optional Components

ROTATING BASE: Fabricated with integral machinery frames. Fuel tank built in rear.

SHAFTING: All shafting heat treated alloy steel ground to size. Involute splines used extensively.

VERTICAL SWING SHAFT: The vertical swing shaft and pinion is one piece, mounted on anti-friction bearings.

HORIZONTAL SWING SHAFT: This shaft is mounted on anti-friction bearings, geared to the front and rear drum shafts. It supplies power to the vertical swing shaft through a bevel pinion.

SWING BRAKE: A swing brake operates on the outside of the front swing clutch housing for use as a lock brake.

SWING BRAKE WITH SNUBBER: Same as swing brake except an additional control valve on swing lever provided for momentarily holding while setting loads.

JACK SHAFT: This shaft is mounted on ball bearings, and supplies power through a pinion gear to the power lowering shaft. Lube oil pump is belt driven from right hand end of jack shaft.

FRONT DRUM SHAFT: Supported by self-aligning anti-friction bearings and ball bearings. Mounted on the right hand end of this shaft is a swing clutch geared to the horizontal swing shaft. The right hand drum is a split lagging design, either smooth or grooved. All drums are mounted on ball bearings. Refer to "lagging data" table for specifications.

REAR DRUM SHAFT: Supported by self-aligning anti-friction and ball bearings. Mounted on the right hand end of this shaft is a swing clutch geared to the horizontal swing shaft. The right hand or boom hoist drum is solid-type design. The left hand drum is a split lagging design, either smooth or grooved. All drums are mounted on ball bearings. Refer to "lagging data" table for specifications.

HOIST BRAKES: Are external contracting friction band type, mechanically operated by pedals mounted on anti-friction bearings for maximum ease of operation. Hoist brakes have a foot-controlled lock.

CLUTCHES: All clutches are air actuated. All clutches are of the internal expanding friction band type with the exception of the swing clutches which are of the internal two shoe design.

BOOM HOIST: The boom hoist located on the rear drum shaft is of the spur gear and chain design with power up and power down control. Hoisting control is through and air actuated clutch with a spring set, air released holding brake. The brake automatically releases when hoisting or lowering. The lowering is controlled through an air actuated clutch mounted on the power lowering shaft and chain connected to the boom hoist drum. Lowering speed is reduced considerably resulting in a very smooth, precision, lowering operation. A ratchet and pawl device is supplied for added safety.

BOOMS AND JIBS: Extensible type with tubular chords—refer to boom and jib data.

BOOM STOP: Telescopic with or without automatic air cut-off of boom hoist clutch.

FAIRLEAD: Deck mounted, full revolving.

BOOM SUSPENSION: Crossover with 12 parts of line and 12 parts with mid-point suspension depending on boom length.

THIRD DRUM: One piece high capacity lagging running on ball bearings, located at left hand side of front drum shaft. Actuated by air operated clutch and brake. Refer to "lagging data" table for specifications.

FULL WIDTH FRONT DRUM: High capacity drum located on the front shaft, mounted on ball bearings and equipped with planetary controlled load lowering. Refer to "lagging data" table for specifications. (Third drum not available with this equipment.)

POWER LOWERING SHAFT: This shaft is located behind the rear hoist drum shaft and accommodates the power boom lowering and power load lowering.

POWER LOAD LOWERING: The power load lowering, air actuated clutch is chain connected to the left hand rear main hoist drum. The load lowering speed is reduced considerably, resulting in a very smooth precision, lowering operation.

COUNTERWEIGHT: Two piece counterweight mounted at rear of rotating frame. Readily removable for weight reduction of machine for transporting.

COUNTERWEIGHT REMOVAL EQUIPMENT: Includes sheaves in base section of boom, lifting slings, and boom stop. Hoist cable over sheaves in boom base is used to load or unload counterweight from auxiliary truck. Gantry power up and down feature is used to position counterweight with slings provided.

GANTRY: The gantry consists of a basic low gantry to which is attached a high gantry having telescopic back legs with three set positions. Gantry can be (1) pinned in low position at cab height for traveling with low clearance, (2) pinned in mid-position for traveling with boom suspended over rear of carrier, and (3), raised to full height for machine operation.

CONTROLS: All controls are air except hoist brakes which are mechanical.

OPERATOR'S CAB: Machine equipped with environmental operator's cab lined with sound barrier and deadening material, cuts noise level by an estimated 50 percent. Cab can be heated or air conditioned. Controls are grouped for maximum operator convenience, comfort and efficiency. Side and front windows slide up and down for ventilation. Numerous hatches and doors are provided for access to machinery and power plant. Hoist drums are not covered.

GEARING AND CHAIN DRIVES: All gearing, except rotating pinion and gear, is fully enclosed, running in oil with pump circulation for positive lubrication. The four chain sprockets for boom hoist and load lowering device require hand lubrication. Power take-off chain drive is fully enclosed, running in an oil bath.

MISCELLANEOUS ACCESSORIES: Ball and hook, hook block, electric signal horn, running board (short hook on type).

POWER TAKE-OFF: Disconnect clutch, precision roller chain.



**MAXIMUM LENGTH BOOM OR BOOM AND JIB COMBINATION THAT CAN BE HANDLED
HORIZONTALLY WITH OR WITHOUT BUMPER COUNTERWEIGHT AS INDICATED**

20,430lbs. [9,267kg] Counterweight			
Over Rear With OR.		Over Side With OR.	
L/B CWT.	W/B CWT.	L/B CWT.	W/B CWT.
200' (61.0m)	200' (61.0m)	190' (57.9m)	200' (61.0m)
170' (51.8m) + 20' (6.1m)	200' (61.0m) + 20' (6.1m)	170' (51.8m) + 20' (6.1m)	170' (51.8m) + 20' (6.1m)
170' (51.8m) + 30' (9.1m)	190' (57.9m) + 30' (9.1m)	160' (48.8m) + 30' (9.1m)	170' (51.8m) + 30' (9.1m)
160' (48.8m) + 40' (12.2m)	190' (57.9m) + 40' (12.2m)	160' (48.8m) + 40' (12.2m)	160' (48.8m) + 40' (12.2m)
160' (48.8m) + 50' (15.2m)	180' (54.9m) + 50' (15.2m)	150' (45.7m) + 50' (15.2m)	160' (48.8m) + 50' (15.2m)
150' (45.7m) + 60' (18.3m)	180' (54.9m) + 60' (18.3m)	150' (45.7m) + 60' (18.3m)	150' (45.7m) + 60' (18.3m)
Over Rear Less OR.		Over Side Less OR.	
L/B CWT.	W/B CWT.	L/B CWT.	W/B CWT.
150' (45.7m)	170' (51.8m)	130' (39.6m)	140' (42.7m)
120' (36.6m) + 20' (6.1m)	150' (45.7m) + 20' (6.1m)	100' (30.5m) + 20' (6.1m)	110' (33.5m) + 20' (6.1m)
120' (36.6m) + 30' (9.1m)	140' (42.7m) + 30' (9.1m)	100' (30.5m) + 30' (9.1m)	100' (30.5m) + 30' (9.1m)
110' (33.5m) + 40' (12.2m)	140' (42.7m) + 40' (12.2m)	100' (30.5m) + 40' (12.2m)	100' (30.5m) + 40' (12.2m)
110' (33.5m) + 50' (15.2m)	130' (39.6m) + 50' (15.2m)	90' (27.4m) + 50' (15.2m)	100' (30.5m) + 50' (15.2m)
100' (30.5m) + 60' (18.3m)	130' (39.6m) + 60' (18.3m)	90' (27.4m) + 60' (18.3m)	90' (27.4m) + 60' (18.3m)
With 30,930lbs. [14,030kg] Counterweight			
Over Rear With OR.		Over Side With OR.	
L/B CWT.	W/B CWT.	L/B CWT.	W/B CWT.
200' (61.0m)	200' (61.0m)	200' (61.0m)	200' (61.0m)
190' (57.9m) + 20' (6.1m)	200' (61.0m) + 20' (6.1m)	180' (54.9m) + 20' (6.1m)	190' (57.9m) + 20' (6.1m)
180' (54.9m) + 30' (9.1m)	200' (61.0m) + 30' (9.1m)	180' (54.9m) + 30' (9.1m)	180' (54.9m) + 30' (9.1m)
180' (54.9m) + 40' (12.2m)	200' (61.0m) + 40' (12.2m)	170' (51.8m) + 40' (12.2m)	180' (54.9m) + 40' (12.2m)
170' (51.8m) + 50' (15.2m)	200' (61.0m) + 50' (15.2m)	170' (51.8m) + 50' (15.2m)	180' (54.9m) + 50' (15.2m)
170' (51.8m) + 60' (18.3m)	190' (57.9m) + 60' (18.3m)	160' (48.8m) + 60' (18.3m)	170' (51.8m) + 60' (18.3m)

OR. - Outriggers

L/B CWT. - Less Bumper Counterweight

W/B CWT. - With Bumper Counterweight

BOOM AND JIB DATA

Boom, Tubular Pin Connected		Jib, Tubular Pin Connected	
Type Service	Crane - Drag - Clamshell	Basic Length	20' [25 1/2" (64.8cm) x 34 1/2" (87.6cm sec)]
Suspension	Cross Over and Pendants	Max. Length	60' (18.3m)
Gantry	High Back Hitch (Telescoping Type)	Chord Size	2 1/2" (64mm) O.D.
Quan. Sheaves at Point Shaft	5	Chord Material	100,000 P.S.I. (7,030kg/cm2) Yield
Convertibility	Crane - Dragline - Clamshell	Quan. Sheaves at Point	One (1)
Dia. Point Sheaves	15 1/4" (40.0cm) P.D. - 1/4" (19.1mm) Cable	P.D. Point Sheave	15 1/4" (40cm) P.D. 1/4" (19.1mm) Cable
Basic Boom Length	50' (15.2m)	Capacity — 20'-0" (6.1m)	13 Ton (11.8 Ton)
Type Chords	3 1/4" (83mm) O.D. 100,000 P.S.I. (7,030kg/cm2) Steel	30'-0" (9.1m)	10 Ton (9.1 Ton)
Extensions	10' (3.05m), 20' (6.1m), 30' (9.1m) and 40' (12.2m) straight 60 1/4" (153cm) x 65 1/4" (166cm) sec.	40'-0" (12.2m)	7 Ton (6.4 Ton)
Max. Boom Length	Crane 200' (61.0m) Drag. & Clam 60' (18.3m)	50'-0" (15.2m)	5 Ton (4.5 Ton)
		60'-0" (18.3m)	4 Ton (3.6 Ton)

BOOM HOIST SUSPENSION DATA

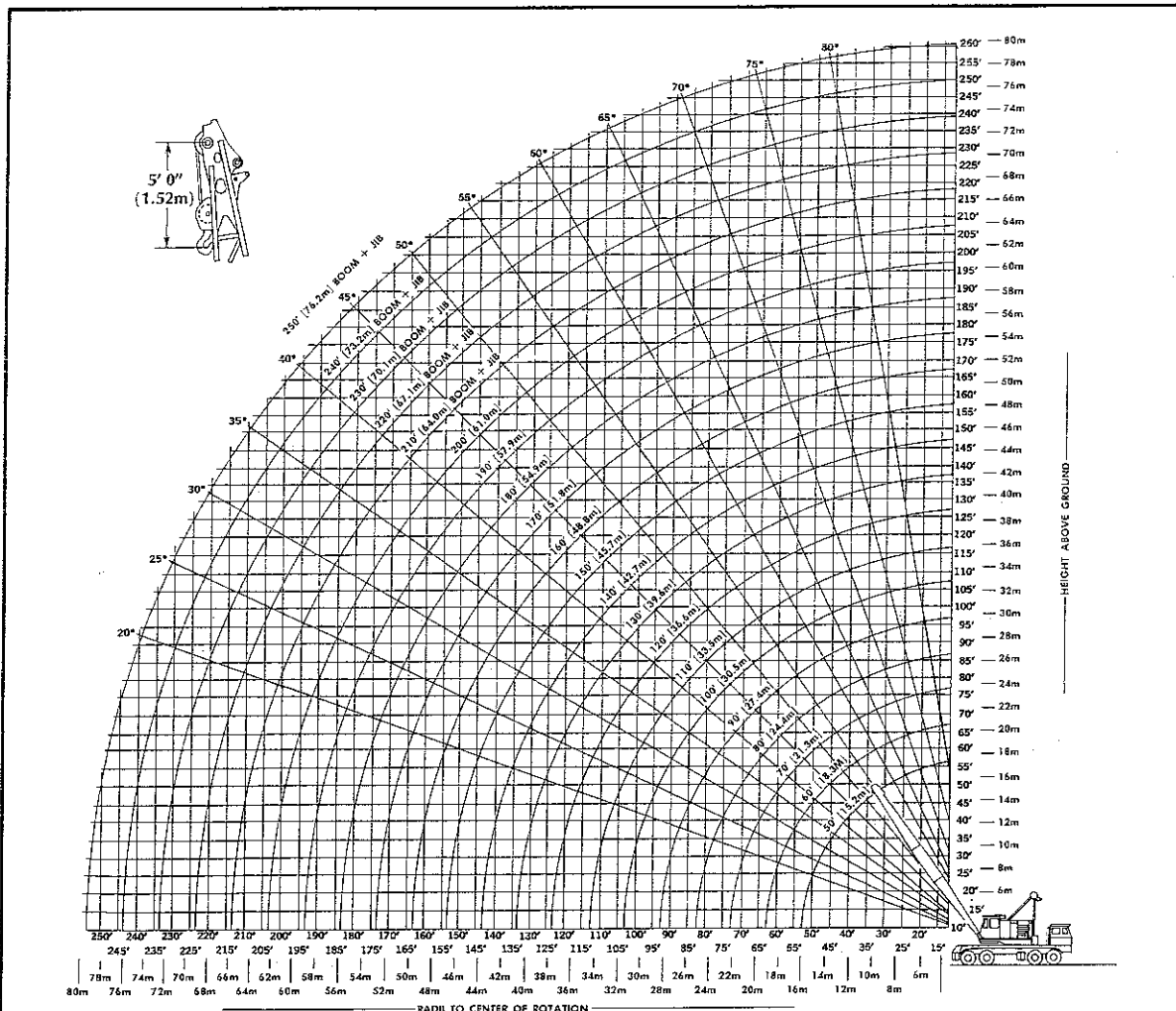
*Boom Length	Reeving Required	Mid-Point Suspension Location
Up thru 150' (45.7m)	12 Part Crossover	None
160' (48.8m) thru 180' (54.9m)	12 Part w/Mid-Point Suspension	90' (27.4m) From Boom Foot Pin
190' (57.9m) & 200' (61.0m)	12 Part w/Mid-Point Suspension	100' (30.5m) From Boom Foot Pin

*Boom length determines suspension required. Jib Does not affect requirement.

Time Required to Raise Or Lower A 50' (15.2m) Boom From 20° Above Horizontal To 70° Above Horizontal With 12 Part Boom Hoist Reeving	to Raise	To Lower
	55 Sec.	88 Sec.



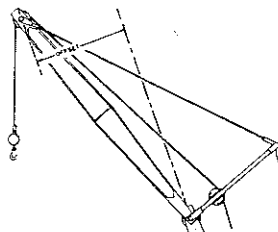
CRANE WORKING RANGES



For Boom or jib specifications, descriptions, maximum lengths and applications, refer to boom and jib Data Chart.

Recommended Wire Rope Reeving For Hook Blocks	
Load in Pounds	No. Part Line
Over 16,800lbs. (7,620kg)	2
Over 33,600lbs. (15,240kg)	3
Over 50,400lbs. (22,860kg)	4
Over 67,200lbs. (30,480kg)	5
Over 84,000lbs. (38,100kg)	6
Over 100,800lbs. (45,720kg)	7
Over 117,600lbs. (53,340kg)	8
Over 134,400lbs. (60,960kg)	9
Over 151,200lbs. (68,580kg)	10
Over 168,000lbs. (76,200kg)	11

Based upon 3/4" dia. wire rope with a minimum breaking strength of 58,800 lbs.



Heavy Duty Jib 25 1/2" (64.8cm) x 34 1/2" (87.6cm) Sec.			
Jib Length	Rating	Offset	Effective Weight
20' (6.1m)	13 Ton (11.8 Ton)	6'-2" (1.88m)	2,055lbs. (932kg.)
30' (9.1m)	10 Ton (9.1 Ton)	11'-3" (3.43m)	2,650lbs. (1,202kg.)
40' (12.2m)	7 Ton (6.4 Ton)	16'-2" (4.93m)	3,360lbs. (1,524kg.)
50' (15.2m)	5 Ton (4.5 Ton)	21'-1" (6.43m)	4,010lbs. (1,819kg.)
60' (18.3m)	4 Ton (3.6 Ton)	26'-0" (7.93m)	4,865lbs. (2,207kg.)

Jib capacities are approximately the same as Boom capacities at any given radius, but not to exceed the rating listed above. Effective jib weight to be subtracted from Boom capacity chart if load is raised on Boom point when jib is assembled on Boom.



CRANE LIFTING CAPACITIES (METRIC)

81.6 Tons
Class 4.6-224

Maximum Counterweight: Outriggers Extended and set.....14,030 kg.
On rubber tires.....9,265 kg.

Boom					On Tires					Outriggers Extended And Set					Boom					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers Extended And Set					On Tires					Outriggers Extended And Set					Boom					On Tires					Outriggers
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**CRANE LIFTING CAPACITIES**

90 Ton Class 15-484													
Boom				Outriggers Extended and Set ±Side/Rear	On Tires		Boom				Outriggers Extended and Set ±Side/Rear	On Tires	
Length	Radius	Height	Angle		±Side	Rear	Length	Radius	Height	Angle		±Side	Rear
50'	15'	55.1'	76.0	*180,000	65,175	74,950	120'	25'	124.6'	79.4	*89,800	31,250	37,275
	20'	53.6'	70.0	*130,000	43,375	50,950		30'	123.5'	76.9	*74,000	24,225	29,275
	25'	51.4'	63.7	102,000	32,100	38,200		35'	122.2'	74.5	58,650	19,500	23,825
	30'	48.6'	57.2	75,000	25,175	30,300		40'	120.7'	72.0	47,875	16,100	19,875
	35'	44.9'	50.0	59,000	20,525	24,925		45'	119.0'	69.5	40,250	13,525	16,900
	40'	40.1'	42.1	48,400	17,175	21,025		50'	117.0'	66.9	34,525	11,500	14,550
	45'	33.5'	32.6	40,900	14,650	18,075		60'	112.1'	61.6	26,575	8,575	11,100
	50'	23.3'	19.5	* 34,825	12,675	15,750		70'	106.1'	56.0	21,275	6,525	8,700
60'	15'	65.4'	78.3	*170,000	65,025	74,775	130'	80'	98.5'	50.0	17,525	5,025	6,925
	20'	61.4'	73.4	*129,000	43,225	50,775		90'	89.1'	43.3	14,700	3,875	5,550
	25'	62.4'	68.4	101,975	31,925	38,025		100'	77.1'	36.0	12,525	2,950	4,475
	30'	60.1'	63.1	74,975	25,025	30,125		110'	60.7'	26.8	10,775	2,225	3,600
	35'	57.3'	57.6	58,975	20,375	24,750		120'	32.7'	12.6	9,350	1,550	2,875
	40'	53.7'	51.8	48,350	17,025	20,850	140'	30'	133.8'	78.0	*63,750	24,050	29,075
	45'	49.3'	45.4	40,825	14,500	17,900		35'	132.6'	75.7	*55,350	19,300	23,625
	50'	43.7'	38.2	35,200	12,525	15,575		40'	131.2'	73.4	47,775	15,875	19,675
	60'	25.0'	17.8	* 26,975	9,625	12,175		45'	129.6'	71.1	40,125	13,300	16,675
70'	20'	74.5'	75.8	*122,200	43,125	50,650		50'	127.8'	68.8	34,375	11,275	14,325
	25'	73.0'	71.6	* 98,600	31,775	37,875		60'	123.4'	63.9	26,400	8,350	10,850
	30'	71.1'	67.2	74,950	24,850	29,950		70'	117.9'	58.9	21,100	6,300	8,450
	35'	68.8'	62.7	58,900	20,175	24,550		80'	111.3'	53.6	17,325	4,775	6,675
	40'	66.0'	58.0	48,250	16,800	20,625		90'	103.1'	47.9	14,500	3,625	5,300
	45'	62.5'	53.0	40,700	14,250	17,650		100'	93.0'	41.7	12,300	2,700	4,225
	50'	58.4'	47.7	35,050	12,275	15,325		110'	80.3'	34.5	10,550	1,925	3,350
	60'	47.1'	35.3	27,175	9,375	11,925	150'	120'	63.0'	25.7	9,125	2,600	1,950
80'	70'	26.5'	16.5	21,975	7,350	9,525		130'	33.8'	12.1	7,925	1,550	2,875
	20'	84.8'	77.6	*122,100	43,075	50,600		30'	144.0'	78.8	*63,725	23,900	28,925
	25'	83.5'	73.9	* 98,500	31,700	37,800		35'	142.9'	76.7	*55,325	19,125	23,450
	30'	81.9'	70.2	74,925	24,775	29,875		40'	141.6'	74.6	47,650	15,700	19,500
	35'	79.9'	66.3	58,875	20,075	24,450		45'	140.1'	72.5	39,975	13,125	16,500
	40'	77.5'	62.4	48,225	16,700	20,525		50'	138.4'	70.3	34,250	11,100	14,125
	45'	74.6'	58.2	40,650	14,150	17,550		60'	134.4'	65.9	26,250	8,150	10,675
	50'	71.3'	53.9	35,000	12,175	15,225	160'	70'	129.5'	61.4	20,925	6,100	8,250
90'	60'	62.6'	44.4	27,100	9,250	11,800		80'	123.5'	56.6	17,150	4,600	6,475
	70'	50.1'	33.0	21,875	7,250	9,425		90'	116.2'	51.5	14,325	3,425	5,100
	80'	27.9'	15.4	18,150	5,750	7,650		100'	107.4'	46.1	12,125	2,525	4,025
	20'	95.0'	79.0	*122,000	43,000	50,500		110'	96.7'	40.1	10,375	1,700	3,150
	25'	93.8'	75.8	* 98,400	31,575	37,650		120'	83.3'	33.2	8,925	2,400	1,725
	30'	92.4'	72.5	74,900	24,600	29,675		130'	65.3'	24.8	7,750	1,750	1,275
	35'	90.7'	69.1	58,825	19,900	24,250	170'	140'	34.8'	11.6	6,725	1,550	2,875
	40'	88.6'	65.6	48,125	16,500	20,300		30'	154.1'	79.6	*63,700	23,725	28,750
100'	45'	86.1'	62.1	40,525	13,950	17,325		35'	153.1'	77.6	*55,300	18,950	23,275
	50'	83.3'	58.4	34,850	11,950	15,000		40'	151.9'	75.7	47,575	15,500	19,275
	60'	76.2'	50.6	26,925	9,025	11,550		45'	150.6'	73.7	39,850	12,925	16,275
	70'	66.6'	41.8	21,675	7,000	9,150		50'	149.0'	71.7	34,100	10,875	13,900
	80'	53.0'	31.0	17,925	5,500	7,400		60'	145.3'	67.6	26,075	7,925	10,450
	90'	29.2'	14.5	15,125	4,350	6,025		70'	140.8'	63.4	20,750	5,850	8,025
	25'	104.1'	77.2	* 89,875	31,425	37,475		80'	135.3'	59.1	16,950	4,350	6,225
	30'	102.9'	74.3	* 74,100	24,450	29,500	180'	90'	128.7'	54.5	14,100	3,175	4,850
110'	35'	101.3'	71.3	58,750	19,725	24,075		100'	120.9'	49.7	11,900	2,225	3,775
	40'	99.5'	68.2	48,025	16,325	20,125		110'	111.6'	44.4	10,150	1,875	2,775
	45'	97.3'	65.1	40,400	13,775	17,150		120'	100.3'	38.7	8,700	1,500	2,100
	50'	94.8'	61.9	34,700	11,775	14,800		130'	86.2'	32.1	7,500	1,475	2,025
	60'	88.7'	55.2	26,775	8,825	11,375		140'	67.4'	23.9	6,475	1,225	1,725
	70'	80.7'	47.8	21,525	6,800	8,975		150'	35.8'	11.2	* 5,225	1,100	1,500
	80'	70.3'	39.5	17,775	5,300	7,200	190'	35'	163.4'	78.4	*50,350	18,500	23,025
	90'	55.7'	29.4	14,950	4,150	5,850		40'	162.2'	76.6	*44,550	15,500	19,275
	100'	30.4'	13.8	12,775	3,250	4,775		45'	161.0'	74.7	39,775	13,500	17,275
120'	25'	114.4'	78.4	* 89,850	31,300	37,325		50'	159.5'	72.9	34,000	11,500	14,550
	30'	113.2'	75.7	* 74,050	24,275	29,325		60'	156.1'	69.1	25,925	7,500	10,550
	35'	111.8'	73.0	58,675	19,525	23,875		70'	151.9'	65.2	20,575	6,100	8,250
	40'	110.2'	70.3	47,900	16,125	19,925		80'	146.8'	61.1	16,775	5,000	7,000
	45'	108.2'	67.5	40,275	13,550	16,925		90'	140.8'	57.0	13,900	4,000	5,500
	50'	106.0'	64.6	34,550	11,525	14,575		100'	133.8'	52.6	11,700	3,400	4,700
	60'	100.6'	58.7	26,600	8,600	11,125		110'	125.5'	48.0	9,925	2,700	3,700
	70'	93.8'	52.4	21,300	6,550	8,725	200'	120'	115.6'	42.9	8,475	2,225	3,100
130'	80'	85.0'	45.5	17,550	5,050	6,950		130'	103.8'	37.4	7,275	1,900	2,600
	90'	73.8'	37.6	14,725	3,900	5,575		140'	89.1'	31.0	6,250	1,600	2,200
	100'	58.3'	28.0	12,550	2,975	4,500		150'	69.5'	23.1	5,200	1,300	1,800
	110'	31.6'	13.1	10,800	2,250	3,625		160'	36.8'	10.9	* 4,200	1,100	1,500

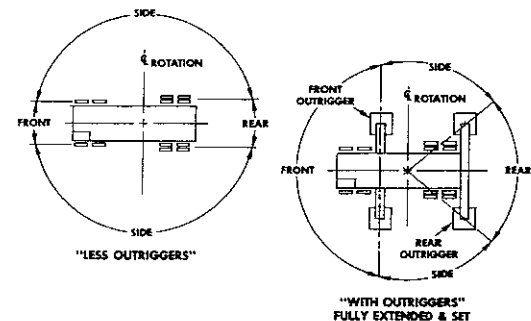


Maximum Counterweight: Outriggers Extended and set 30,930 lbs.
On rubber tires 20,430 lbs.

Boom				Outriggers Extended And Set ‡Side/Rear	On Tires		Capacities Below Include Jib — See Jib Data		Capacities Below Include Jib — See Jib Data	
Length	Radius	Height	Angle		‡Side	Rear	Boom Plus Jib	Outriggers Extended And Set ‡Side/Rear	Boom Plus Jib	Outriggers Extended And Set ‡Side/Rear
170'	35'	173.5'	79.1	*50,325			210' (190' + 20')	50'	26,000	230' (200' + 30')
	40'	172.5'	77.4	*44,525				60'	25,075	
	45'	171.3'	75.7	39,600				70'	19,675	
	50'	169.9'	73.9	33,800				80'	15,850	
	60'	166.7'	70.4	25,700				90'	12,950	
	70'	162.8'	66.7	20,350				100'	10,600	
	80'	158.1'	63.0	16,525				110'	8,725	
	90'	152.6'	59.2	13,650				120'	7,200	
	100'	146.1'	55.2	11,425				130'	5,925	
	110'	138.6'	50.9	9,650				140'	4,850	
	120'	129.8'	46.5	8,200				150'	3,925	
	130'	119.5'	41.6	7,000				160'	3,100	
	140'	107.1'	36.2	5,975				170'	2,300	
	150'	91.8'	30.1	5,100				180'	1,625	
180'	35'	183.7'	79.7	*50,300			220' (200' + 20')	50'	25,975	240' (200' + 40')
	40'	182.7'	78.1	*44,500				60'	25,050	
	45'	181.6'	76.5	39,475				70'	19,650	
	50'	180.3'	74.8	33,650				80'	15,725	
	60'	177.3'	71.5	25,550				90'	12,700	
	70'	173.6'	68.1	20,175				100'	10,350	
	80'	169.3'	64.6	16,350				110'	8,500	
	90'	164.1'	61.1	13,475				120'	6,950	
	100'	158.2'	57.3	11,250				130'	5,675	
	110'	151.3'	53.5	9,450				140'	4,600	
	120'	143.3'	49.4	8,000				150'	3,675	
	130'	134.0'	45.1	6,800				160'	2,800	
	140'	123.2'	40.4	5,775				170'	2,025	
	150'	110.3'	35.2	4,900			250' (200' + 50')	70'	10,000	250' (200' + 50')
	160'	94.4'	29.2	4,125				80'	10,000	
	170'	73.5'	21.8	3,100				90'	10,000	
	180'	38.7'	10.3	* 2,250				100'	10,000	
								110'	8,425	
								120'	6,900	
190'	40'	192.9'	78.7	*42,425			200'	50'	25,975	250' (200' + 50')
	45'	191.9'	77.2	*37,125				60'	25,050	
	50'	190.7'	75.6	*31,825				70'	19,650	
	60'	187.8'	72.5	25,375				80'	15,725	
	70'	184.4'	69.3	19,975				90'	12,700	
	80'	180.3'	66.1	16,125				100'	10,350	
	90'	175.5'	62.7	13,250				110'	8,500	
	100'	169.9'	59.3	11,025				120'	6,950	
	110'	163.5'	55.7	9,250				130'	5,675	
	120'	156.2'	51.9	7,775				140'	4,600	
	130'	147.8'	48.0	6,575				150'	3,675	
	140'	138.1'	43.8	5,550				160'	2,800	
	150'	126.8'	39.3	4,650				170'	2,025	
	160'	113.4'	34.2	3,900						
200'	170'	97.0'	28.4	3,225						
	180'	75.4'	21.2	2,225						
	40'	203.1'	79.3	*42,400			200'	50'	25,975	250' (200' + 50')
	45'	202.1'	77.8	*37,100				60'	25,050	
	50'	201.0'	76.4	*31,800				70'	19,650	
	60'	198.3'	73.4	25,100				80'	15,725	
	70'	195.0'	70.4	19,700				90'	12,700	
	80'	191.1'	67.3	15,875				100'	10,350	
	90'	186.6'	64.2	13,000				110'	8,500	
	100'	181.4'	61.0	10,775				120'	6,950	
	110'	175.5'	57.6	9,000				130'	5,675	
	120'	168.7'	54.2	7,525				140'	4,600	
	130'	161.0'	50.5	6,325				150'	3,675	
	140'	152.2'	46.7	5,300				160'	2,800	
	150'	142.1'	42.6	4,425				170'	2,025	
	160'	130.4'	38.2	3,650						
	170'	116.5'	33.3	2,975						
	180'	99.5'	27.7	2,200						

‡Indicates that side is the least stable charted direction.

DIAGRAMMATIC DEFINITION OF "SIDE", "REAR",
OR "FRONT" AS USED ON CAPACITY CHARTS.



Capacities per SAE Code J765
Class Designation per U.S. Department of Commerce Standards.

THIS CHART IS BASED UPON:

1. Loads marked by * are the maximum loads permitted by the structural strength of the parts and are not based upon the stability of the machine.
2. All other loads are based upon the stability of the machine, and do not exceed 85% of the tipping loads in the least stable direction.
3. Machine to be level on firm solid support; shock and side loads are to be prevented.
4. All hook blocks, lifting tackle, and jib attachments are considered a part of the load to be lifted.
5. Loads must not be lifted or handled over the front of the machine — See Diagram.
6. "On Tires" capacities are not recommended for traveling (Refer to Lima for travel load ratings).
7. Exceeding the capacities shown on this chart or altering the counterweight nullifies all warranties.
8. Jibs referred to on this chart must be equipped with a 9'-0" strut.
9. When the machine is equipped with the 30,930 lb. counterweight and resting on rubber tires, the counterweight must never be swung over side or rear of the machine — the centerline of the rotating unit and the centerline of the truck must be parallel.
10. The load ratings shown on this chart make no allowance for such factors as the effect of side loads, wind, ground conditions, inflation of rubber tires, and operating speeds. The operator shall therefore reduce load ratings to take these factors into account.



CRANE CAPACITY CHART OVER THE REAR ON OUTRIGGERS WITH BUMPER COUNTERWEIGHT CHART NO. 6012855										Maximum Counterweight: Main Counterweight — 30,930 Lbs. Bumper Counterweight — 13,000 Lbs.														
Tubular Boom 90 Ton Class 15-556					Boom					Outriggers Extended and Set Over Rear					Boom					Outriggers Extended and Set Over Rear				
Length	Radius	Height	Angle		Length	Radius	Height	Angle		Length	Radius	Height	Angle		Length	Radius	Height	Angle		Length	Radius	Height	Angle	
50'	15'	55.1'	76.0	*180,000	120'	25'	124.6'	79.4	*89,800	170'	35'	173.5'	79.1	*50,125	190'	40'	192.9'	78.7	*42,425	200'	40'	203.1'	79.3	*42,400
	20'	53.6'	70.0	*130,000		30'	123.5'	76.9	*88,000		40'	172.5'	77.4	*47,000		45'	191.9'	77.2	*40,000		45'	202.1'	77.8	*39,000
	25'	51.4'	63.7	*112,725		35'	122.2'	74.5	*86,700		45'	171.3'	75.7	*43,125		50'	190.7'	75.6	*36,500		50'	201.0'	76.4	*36,250
	30'	48.6'	57.2	*94,400		40'	120.7'	72.0	*84,975		50'	169.9'	75.9	*39,400		60'	187.8'	72.5	*30,000		60'	195.0'	70.4	*23,675
	35'	44.9'	50.0	*87,175		45'	119.0'	69.5	*80,550		60'	166.7'	70.4	*30,350		70'	184.4'	69.3	*23,925		70'	191.1'	67.3	*19,575
	40'	40.1'	42.1	*80,600		50'	117.0'	66.9	*74,200		70'	162.8'	66.7	*24,300		80'	180.3'	66.1	*19,575		80'	186.6'	64.2	*16,075
	45'	33.5'	32.6	*67,275		60'	115.3'	61.6	*63,275		80'	158.1'	63.0	*19,975		90'	175.5'	62.7	*16,325		90'	181.4'	61.0	*13,525
	50'	23.3'	19.5	*56,200		70'	106.1'	56.0	*53,300		90'	152.6'	59.2	*16,725		100'	169.9'	59.3	*13,775		100'	175.5'	57.6	*11,475
						80'	98.5'	50.0	*47,000		100'	146.1'	55.2	*14,175		110'	163.5'	55.7	*11,725		110'	161.0'	50.5	*8,425
						90'	89.1'	43.3	*41,700		110'	138.6'	50.9	*12,150		120'	156.2'	51.9	*10,050		120'	152.2'	46.7	*7,250
60'	15'	65.4'	78.3	*170,000	130'	25'	126.6'	71.1	*95,300	180'	35'	183.7'	79.7	*50,200	200'	40'	203.1'	79.3	*42,400	210'	40'	213.1'	79.9	*42,400
	20'	61.4'	71.4	*154,250		30'	123.8'	78.0	*87,750		40'	182.7'	78.1	*46,500		45'	202.1'	77.8	*40,000		45'	212.1'	78.4	*39,000
	25'	62.4'	68.4	*112,700		35'	122.6'	73.4	*86,000		45'	181.6'	76.5	*43,000		50'	201.0'	76.4	*36,250		50'	211.0'	77.0	*35,250
	30'	60.1'	63.1	*104,375		40'	121.2'	70.4	*80,250		50'	180.3'	74.8	*39,250		60'	198.3'	73.4	*29,725		60'	208.3'	74.0	*28,725
	35'	57.3'	57.6	*97,125		45'	119.6'	67.9	*74,600		60'	177.3'	71.5	*30,200		70'	196.3'	70.4	*23,675		70'	206.3'	71.0	*22,675
	40'	53.7'	51.8	*89,525		50'	117.9'	64.9	*68,000		70'	169.3'	64.6	*24,800		80'	188.3'	69.0	*19,125		80'	198.3'	69.6	*18,125
	45'	49.3'	45.4	*80,925		60'	115.3'	61.6	*63,275		80'	158.1'	63.0	*19,975		90'	175.5'	62.7	*16,325		90'	181.4'	61.0	*13,525
	50'	43.7'	38.2	*69,925		70'	106.1'	56.0	*53,300		90'	152.6'	59.2	*16,725		100'	169.9'	59.3	*13,775		100'	175.5'	57.6	*11,475
	60'	25.0'	17.8	*29,975		80'	98.5'	50.0	*47,000		100'	146.1'	55.2	*14,175		110'	163.5'	55.7	*11,725		110'	161.0'	50.5	*8,425
						90'	89.1'	43.3	*41,700		110'	138.6'	50.9	*12,150		120'	156.2'	51.9	*10,050		120'	152.2'	46.7	*7,250
70'	20'	74.5'	75.8	*122,200	140'	25'	134.0'	78.8	*104,750	190'	35'	193.7'	79.7	*50,200	210'	40'	213.1'	79.9	*42,400	220'	40'	223.1'	80.5	*42,400
	25'	73.0'	71.6	*104,300		30'	142.8'	76.7	*97,000		40'	203.7'	78.1	*46,500		45'	222.1'	78.4	*40,000		45'	232.1'	79.0	*39,000
	30'	71.1'	67.2	*94,325		35'	141.6'	74.6	*90,250		45'	201.6'	76.5	*43,000		50'	221.0'	77.0	*35,250		50'	231.0'	77.6	*34,250
	35'	68.8'	62.7	*87,025		40'	140.4'	72.5	*83,750		50'	201.6'	76.5	*43,000		60'	221.0'	77.0	*35,250		60'	231.0'	77.6	*34,250
	40'	66.0'	58.0	*80,400		45'	139.2'	70.4	*78,250		60'	190.3'	74.8	*39,250		70'	221.0'	77.0	*35,250		70'	231.0'	77.6	*34,250
	45'	62.5'	53.0	*74,050		50'	138.0'	67.9	*70,750		70'	169.3'	64.6	*24,800		80'	221.0'	77.0	*35,250		80'	231.0'	77.6	*34,250
	50'	58.4'	47.7	*67,125		60'	135.7'	64.9	*63,250		80'	158.1'	63.0	*19,975		90'	221.0'	77.0	*35,250		90'	231.0'	77.6	*34,250
	55'	54.1'	43.3	*60,175		70'	133.4'	61.6	*55,750		90'	152.6'	59.2	*16,725		100'	221.0'	77.0	*35,250		100'	231.0'	77.6	*34,250
	60'	47.1'	35.3	*51,925		80'	131.1'	58.9	*50,250		100'	169.3'	64.6	*24,800		110'	221.0'	77.0	*35,250		110'	231.0'	77.6	*34,250
						90'	128.8'	56.0	*45,750		110'	169.3'	64.6	*24,800		120'	221.0'	77.0	*35,250		120'	231.0'	77.6	*34,250
80'	20'	84.8'	77.6	*122,100	150'	25'	144.0'	78.8	*124,750	200'	35'	203.7'	79.7	*50,200	220'	40'	223.1'	80.5	*42,400	230'	40'	233.1'	81.1	*42,400
	25'	83.5'	73.9	*104,250		30'	142.9'	76.7	*117,500		40'	213.7'	78.1	*46,500		45'	232.1'	78.4	*40,000		45'	242.1'	79.0	*39,000
	30'	81.9'	70.2	*84,100		35'	141.7'	74.6	*110,250		45'	211.7'	76.5	*43,000		50'	231.0'	77.0	*35,250		50'	241.0'	77.6	*34,250
	35'	79.0'	67.3	*70,000		40'	140.5'	72.5	*103,750		50'	211.7'	76.5	*43,000		60'	231.0'	77.0	*35,250		60'	241.0'	77.6	*34,250
	40'	77.5'	62.4	*55,350		45'	139.5'	70.4	*97,250		60'	201.7'	76.5	*43,000		70'	231.0'	77.0	*35,250		70'	241.0'	77.6	*34,250
	45'	74.6'	58.2	*47,000		50'	138.4'	67.9	*90,250		70'	190.4'	74.8	*39,250		80'	231.0'	77.0	*35,250		80'	241.0'	77.6	*34,250
	50'	71.3'	53.9	*40,700		60'	136.1'	64.9	*82,750		80'	169.4'	64.6	*24,800		90'	231.0'	77.0	*35,250		90'	241.0'	77.6	*34,250
	55'	67.6'	47.7	*34,850		70'	133.8'	61.6	*75,250		90'	169.4'	64.6	*24,800		100'	231.0'	77.0	*35,250		100'	241.0'	77.6	*34,250
	60'	60.1'	43.0	*29,900		80'	131.5'	58.9	*67,750		100'	169.4'	64.6	*24,800		110'	231.0'	77.0	*35,250		110'	241.0'	77.6	*34,250
						90'	129.2'	56.0	*60,250		110'	169.4'	64.6	*24,800		120'	231.0'	77.0	*35,250		120'	241.0'	77.6	*34,250
90'	20'	95.0'	79.0	*122,000	160'	25'	154.0'	78.8	*144,750	210'	35'	213.7'	79.7	*50,200	230'	40'	233.1'	80.5	*42,400	240'	40'	243.1'	81.1	*42,400
	25'	93.8'	75.8	*104,000		30'	152.8'	76.7	*137,500		40'	213.7'	78.1	*46,500		45'	232.1'	78.4	*40,000		45'	242.1'	79.0	*39,000
	30'	92.4'	72.5	*84,275		35'	151.7'	74.6	*130,250		45'	211.7'	76.5	*43,000		50'	231.0'	77.0	*35,250		50'	241.0'	77.6	*34,250
	35'	90.7'	69.1	*69,925		40'	150.6'	72.5	*123,750		50'	211.7'	76.5	*43,000		60'	231.0'	77.0	*35,250		60'	241.0'	77.6	*34,250
	40'	88.6'	63.6	*55,225		45'	149.5'	70.4	*117,250		60'	201.7'	76.5	*43,000		70'	231.0'	77.0	*35,250		70'	241.0'	77.6	*34,250
	45'	86.1'	62.1	*46,350		50'	148.3'	67.9	*110,250		70'	190.4'	74.8	*39,250		80'	231.0'	77.0	*35,250		80'	241.0'	77.6	*34,250
	50'	83.3'	58.4	*40,525		60'	146.0'	64.9	*102,750		80'	169.4'	64.6	*24,800		90'	231.0'	77.0	*35,250		90'	241.0'	77.6	*34,250
	55'	79.6'	52.9	*31,650		70'	143.7'	61.6	*95,250		90'	169.4'	64.6	*24,800		100'	231.0'	77.0	*35,250		100'	241.0'	77.6	*34,250
	60'	76.6'	41.8	*25,700		80'	141.4'	58.9	*87,750		100'	169.4'	64.6	*24,800		110'	231.0'	77.0	*35,250		110'	241.0'	77.6	*34,250
						90'	139.4'	56.0	*80,250		110'	169.4'	64.6	*24,800		120'	231.0'	77.0	*35,250		120'	241.0'	77.6	*34,250
100'	20'	104.1'	77.2	*89,875	170'	25'	164.0'	78.8	*164,750	220'	35'	223.7'	79.7	*50,200	240'	40'	243.1'	80.5	*42,400	250'	40'	253.1'	81.1	*42,400
	25'	102.9'	74.3	*81,000		30'	162.2'	76.7	*157,500		40'	223.7'	78.1	*46,500		45'	242.1'	78.4	*40,000		45'	252.1'	79.0	*39,000
	30'	101.3'	71.3	*66,600		35'	161.0'	74.6	*150,250		45'	221.7'	76.5	*43,000		50'	241.0'	77.0	*35,250		50'	251.0'	77.6	*34,250
	35'	99.5'	68.2	*55,125		40'	160.0'	72.5	*143,750		50'	221.7'	76.5	*43,000		60'	241.0'	77.0	*35,250		60'	251.0'	77.6	*34,250
	40'	97.3'	65.1	*46,700		45'	158.8'	70.4	*137,250		60'	211.7'	76.5	*43,000		70'	241.0'	77.0	*35,250		70'	251.0'	77.6	*34,250
	45'	94.8'	61.9	*40,375		50'	157.6'	67.9	*130,250		70'	201.7'	76.5	*43,000		80'	241.0'	77.0	*35,250		80'	251.0'	77.6	*34,250
	50'	91.8'	57.7	*34,000		60'	155.3'	64.9	*122,750		80'	201.7'	76.5	*43,000		90'	241.0'	77.0	*35,250		90'	251.0'	77.6	*34,250
	55'	88.7'	47.8	*25,525		70'	153.0'	61.6	*115,250		90'	201.7'	76.5	*43,000		100'	241.0'	77.0	*35,250		100'	251.0'	77.6	*34,250
	60'	86.0'	39.5	*21,275		80'	150.7'	58.9	*107,750		100'	201.7'	76.5	*43,000		110'	241.0'	77.0	*35,250		110'	251.0'	77.6	*34,250
						90'	148.4'	56.0	*100,250		110'	201.7'	76.5	*43,000		120'	241.0'	77.0	*35,250		120'	251.0'	77.6	*34,250
110'	25'	114.4'	78.4	*89,850	180'	25'	174.0'	78.8	*184,750	230'	35'	233.7'	79.7	*50,200	250'	40'	253.1'	80.5	*42,400	260'	40'	263.1'	81.1	*42,400
	30'	113.2'	75.2	*80,500		30'	172.2'	76.7	*177,500		40'	233.7'	78.1	*46,500		45'	252.1'	78.4	*40,000		45'	262.1'	79.0	*39,000
	35'	111.8'	73.0	*66,725																				