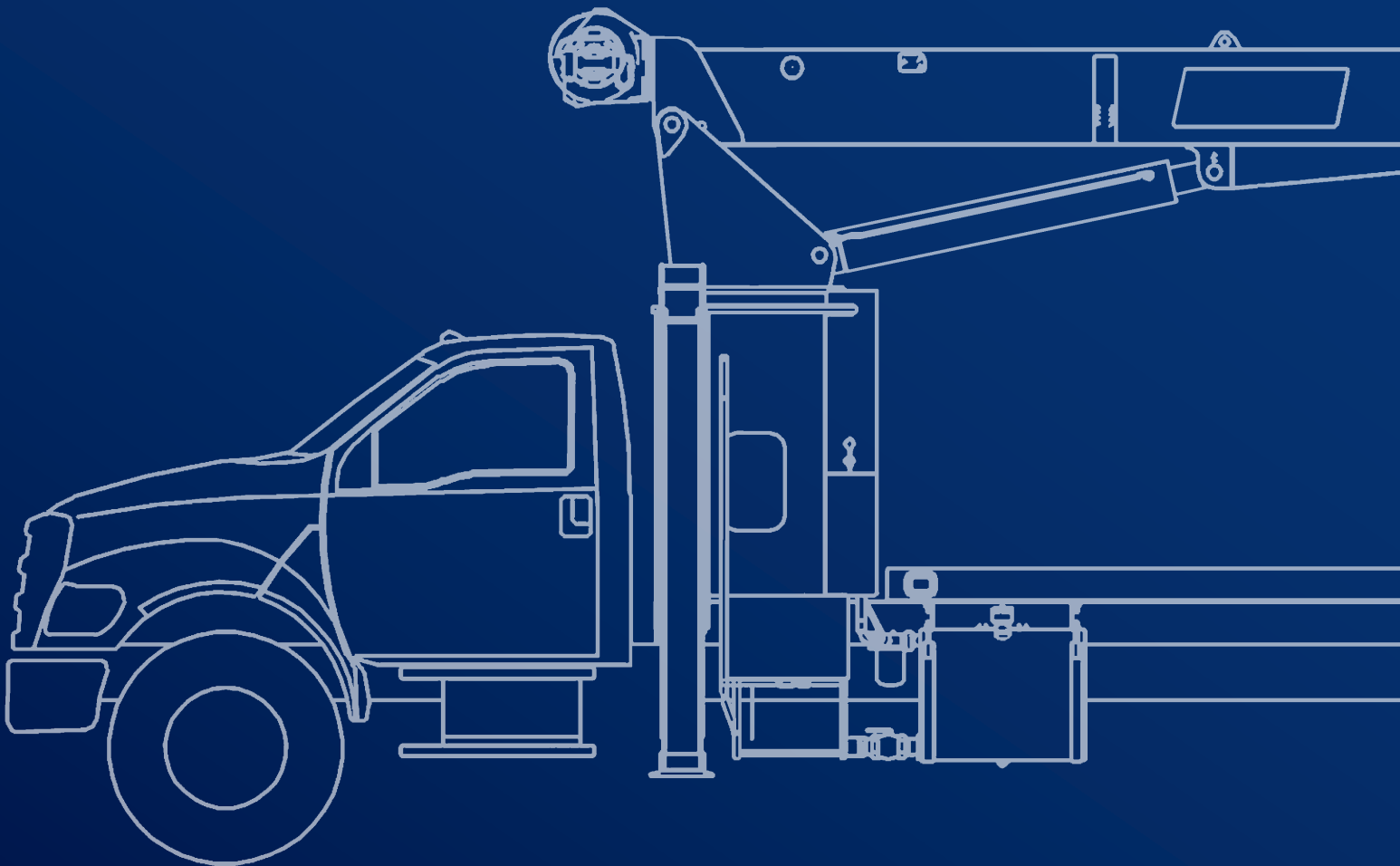


CM190

PRELIMINARY PRODUCT GUIDE

19 TON (17 MT) TELESCOPIC CRANE

Manitex





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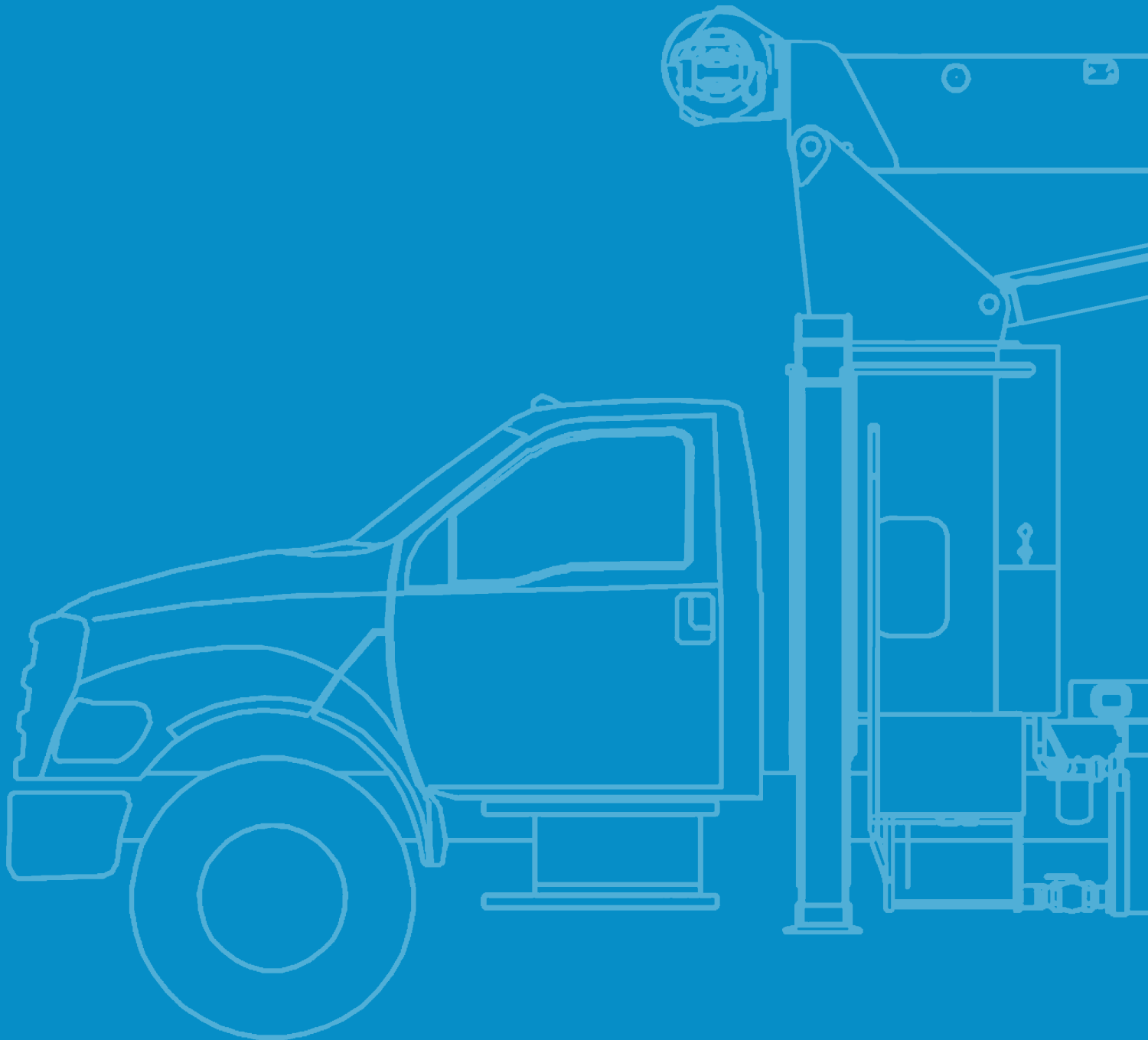
Contents

Chassis Data	6
Outrigger Extension	7
Area of Operation.....	8
Load Chart: Main Boom and Jib	10
Boom Diagram.....	11
LMI Operating Codes	12
Reeving Diagram	12
Technical Description	14-15
Technical Description – Options	16-17

Key

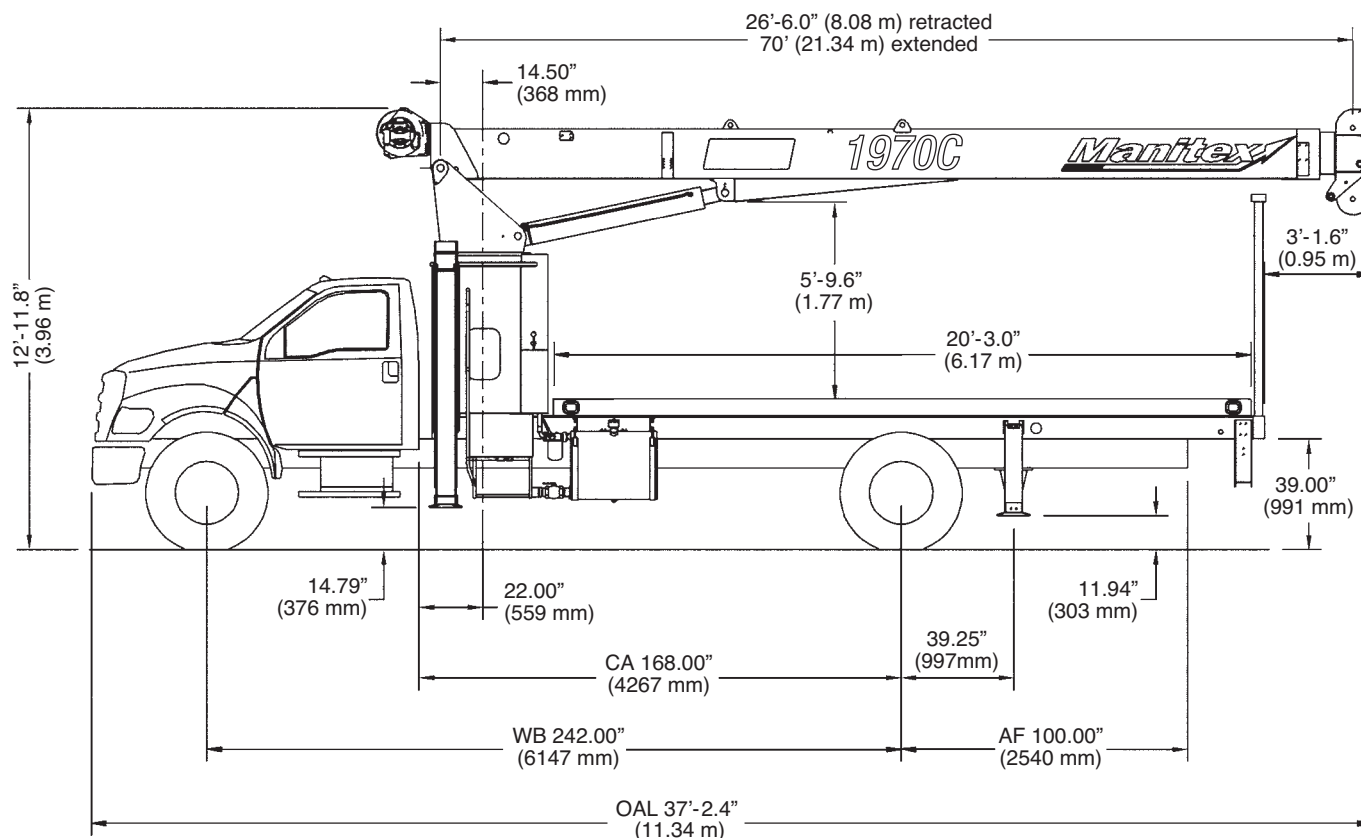
	Operator aids		Radio remote control
	Cab		Hook block
	Heating / Air conditioning		Distance from hook to head sheave pin
	Controls		Hook and ball
	Hoist speed		Hydraulics
	1 - Main hoist 3 - Recovery winch		Boom elevation angle
	Rope length		Max. boom length with extension
	Rope – Standard / optional		Boom with extension retracted
	Rope diameter		Boom angle
	Permissible line pull		Telescoping mode
	Maximum line pull		Working radius
	Slewing / Allowable slewing range		Boom length
	Slewing gears		Hydraulic actuated boom
	Slewing brake		Full power mechanical synchronized
	Outriggers / Lifting on outriggers		Boom head / Hook block dimension
	2-person man basket		Main boom with auxiliary head
	Counterweight		Tip height

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Chassis Data

Dimensions



Chassis Data	
Model	1970C
Wheelbase (WB)	242 in. (6,147 mm)
Cab to axle (CA)	168 in. (4,267 mm)
After frame (AF)	100 in. (2,540 mm)
Frame section modulus at 180° / 360° rotation (min.)	15.9 in ³ 110,000 psi · 758,422 kPa

Truck Axle Weight	
Min. truck axle weight – Front*	6,000 lbs (2,722 kg)
Min. truck axle weight – Rear*	4,000 lbs (1,814 kg)
Nominal frame width	34-35 in. (864-889 mm)
Front axle gross weight rating	12,000 lbs (5,443 kg)
Rear axle gross weight rating	21,000 lbs (9,525 kg)

* Minimum chassis weight is required to meet 85% stability requirements.
Chassis data is general – not for engineering. Some dimensions depend on truck selection.

Crane Weight	
Model	1970C
Basic crane weight	14,625 lbs (6,634 kg)
Fixed jib 23.6 ft (7.2 m)	532 lbs (241 kg)
Telescoping jib 23.6 ft (7.2 m) to 40.6 ft (12.4 m)	823 lbs (373 kg)
Flatbed 20 ft (6.1 m)	1,720 lbs (780 kg)

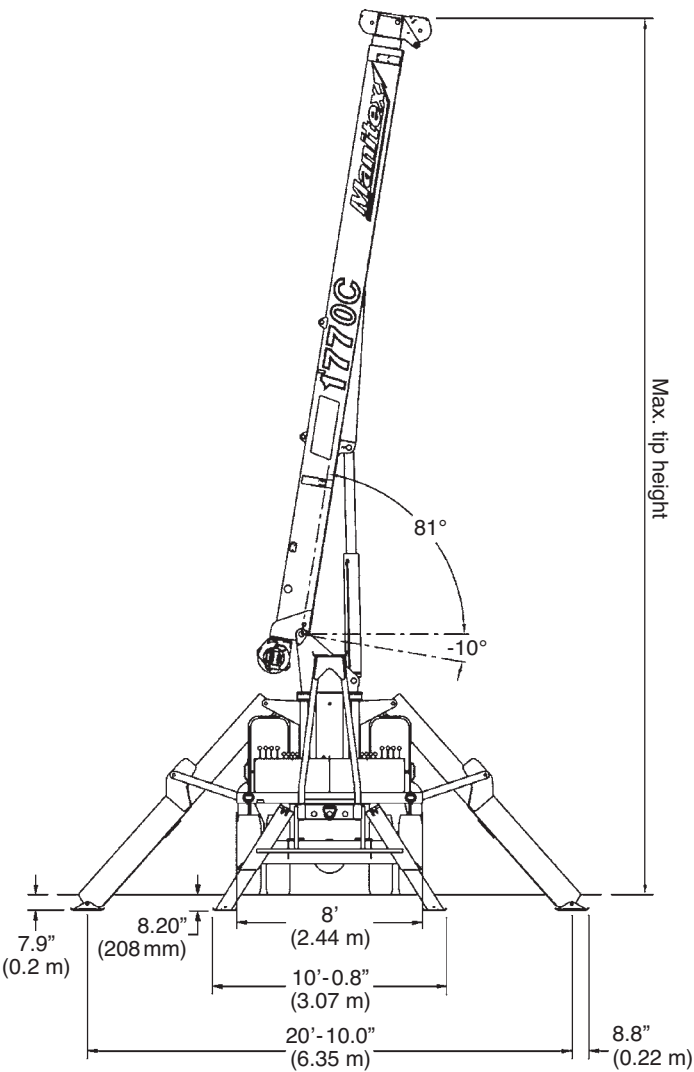
Flatbed weight not included in crane weight

Notes:

Additional axles required for federal bridge legal configuration – consult Manitex.
The addition of a front stabilizer is highly recommended and may be required on some installations – consult Manitex.

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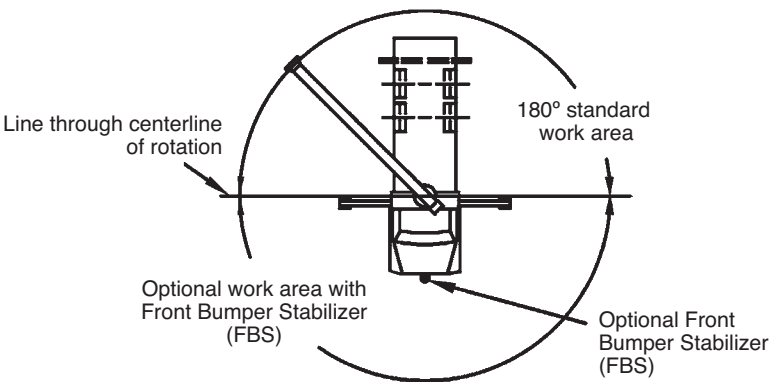
Outrigger Extension



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Area of Operation

Area of Operation

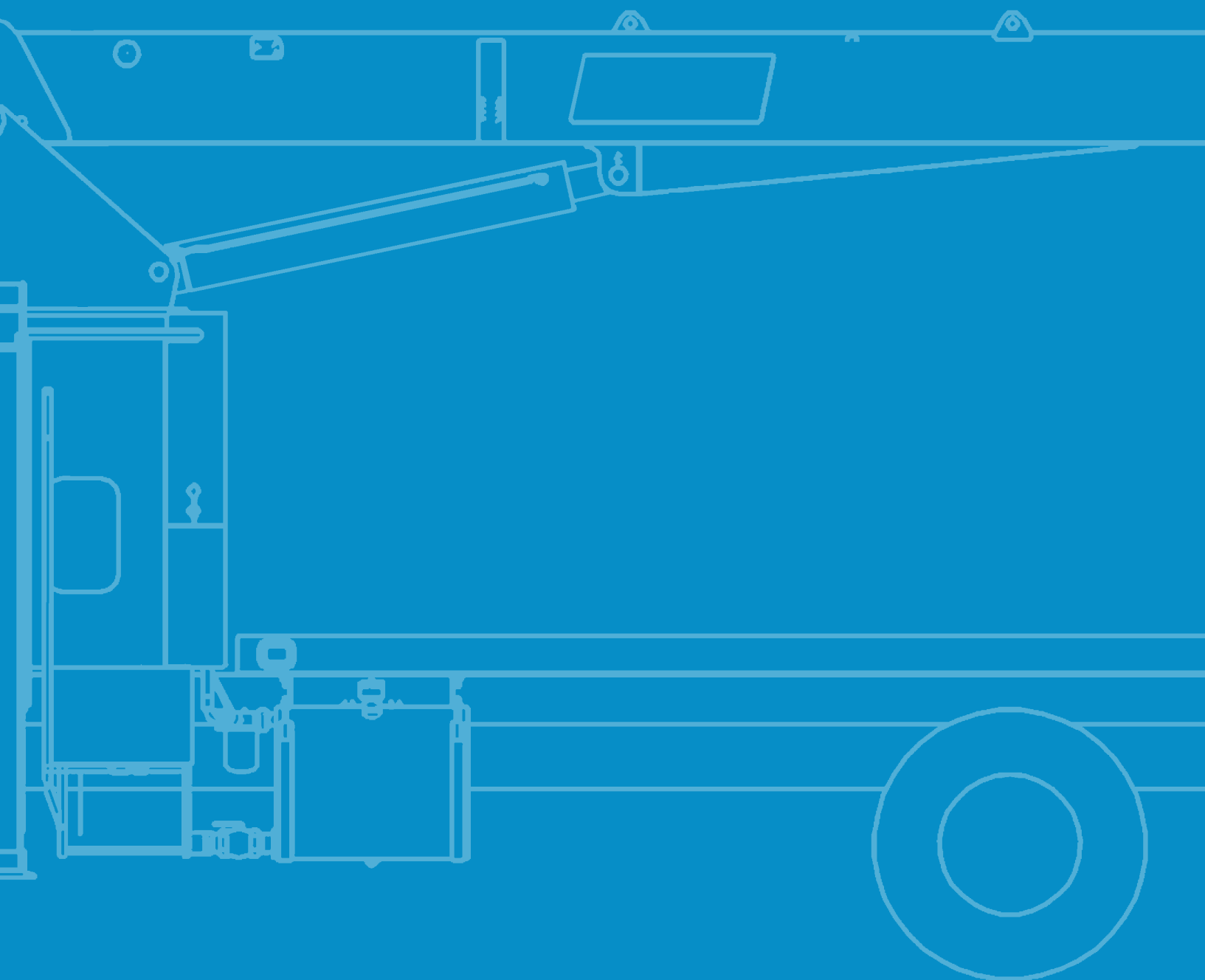


Deductions from rated loads for load handling devices supplied by Manitex

Overhaul ball	See overhaul ball mfgr. nameplate
Load blocks	See block mfgr. nameplate
Hose reel	160 lbs (73 kg)
Swing-around jib	See load chart







WARNING: Lifting off the main boom point while the jib is erected is not intended nor approved.

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Load Chart

Main Boom Jib

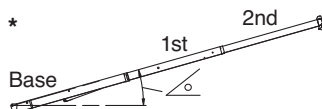
26.5 ft – 70 ft – 3 section Jib 23.6 ft – 40.6 ft							372° non-continuous		20.8 ft (6.4 m)		Fully Extended (100 %)						
																	
		26.5 ft		40 ft (A)		50 ft (B)		60 ft (C)		70 ft (D)		Fixed Jib		Telescopic Jib			
ft	°	lbs	°	lbs	°	lbs	°	lbs	°	lbs	ft	°	lbs	°	lbs	°	lbs
5	79	38,000	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-
8	73	27,010	79	24,000	-	-	-	-	-	-	8	-	-	-	-	-	-
10	68	22,330	76	21,100	80	18,000	-	-	-	-	10	-	-	-	-	-	-
12	63	18,410	73	18,230	77	16,320	80	13,420	-	-	12	-	-	-	-	-	-
15	55	14,420	69	14,600	74	13,940	77	11,900	80	9,400	15	-	-	-	-	-	-
20	40	10,350	61	10,540	68	10,600	72	9,810	76	8,180	20	80	4,400	80	4,200	-	-
25	12	7,830	52	8,070	61	8,130	67	8,170	71	7,000	25	78	4,200	78	4,000	80	3,000
30	-	-	41	6,400	54	6,470	62	6,510	67	6,050	30	75	4,000	75	3,800	78	2,660
35	-	-	28	5,160	47	5,240	56	5,280	62	5,280	35	71	3,600	71	3,380	75	2,380
40	-	-	-	-	37	4,200	50	4,260	58	4,300	40	68	3,220	68	3,010	72	2,150
45	-	-	-	-	25	3,360	43	3,420	52	3,460	45	65	2,880	65	2,650	69	1,940
50	-	-	-	-	-	-	35	2,790	47	2,820	50	61	2,580	61	2,340	66	1,770
55	-	-	-	-	-	-	24	2,290	40	2,330	55	57	2,310	57	2,060	63	1,620
60	-	-	-	-	-	-	-	-	33	1,930	60	53	2,020	53	1,790	60	1,490
65	-	-	-	-	-	-	-	-	23	1,600	65	49	1,690	49	1,460	57	1,380
70	-	-	-	-	-	-	-	-	-	-	70	45	1,410	45	1,180	54	1,280
75	-	-	-	-	-	-	-	-	-	-	75	40	1,180	40	950	51	1,190
80	-	-	-	-	-	-	-	-	-	-	80	34	980	34	750	47	1,030
85	-	-	-	-	-	-	-	-	-	-	85	27	810	27	570	43	850
90	-	-	-	-	-	-	-	-	-	-	90	-	-	-	-	39	700
95	-	-	-	-	-	-	-	-	-	-	95	-	-	-	-	34	560
	0	6,650	0	3,820	0	2,700	0	1,960	0	1,370		-	-	-	-	-	-

Deductions from main boom capacities for stowed jibs

SFJ	350 lbs	240 lbs	190 lbs	160 lbs	140 lbs
STJ	530 lbs	350 lbs	280 lbs	240 lbs	200 lbs

SFJ = Stowed fixed jib · **STJ** = Stowed telescopic jib

↑	Structural
↓	Stability



NOTES:

All loads rated at 360° pick

Loads based on crane on outriggers

All “on outriggers” loads are based on 85% tipping

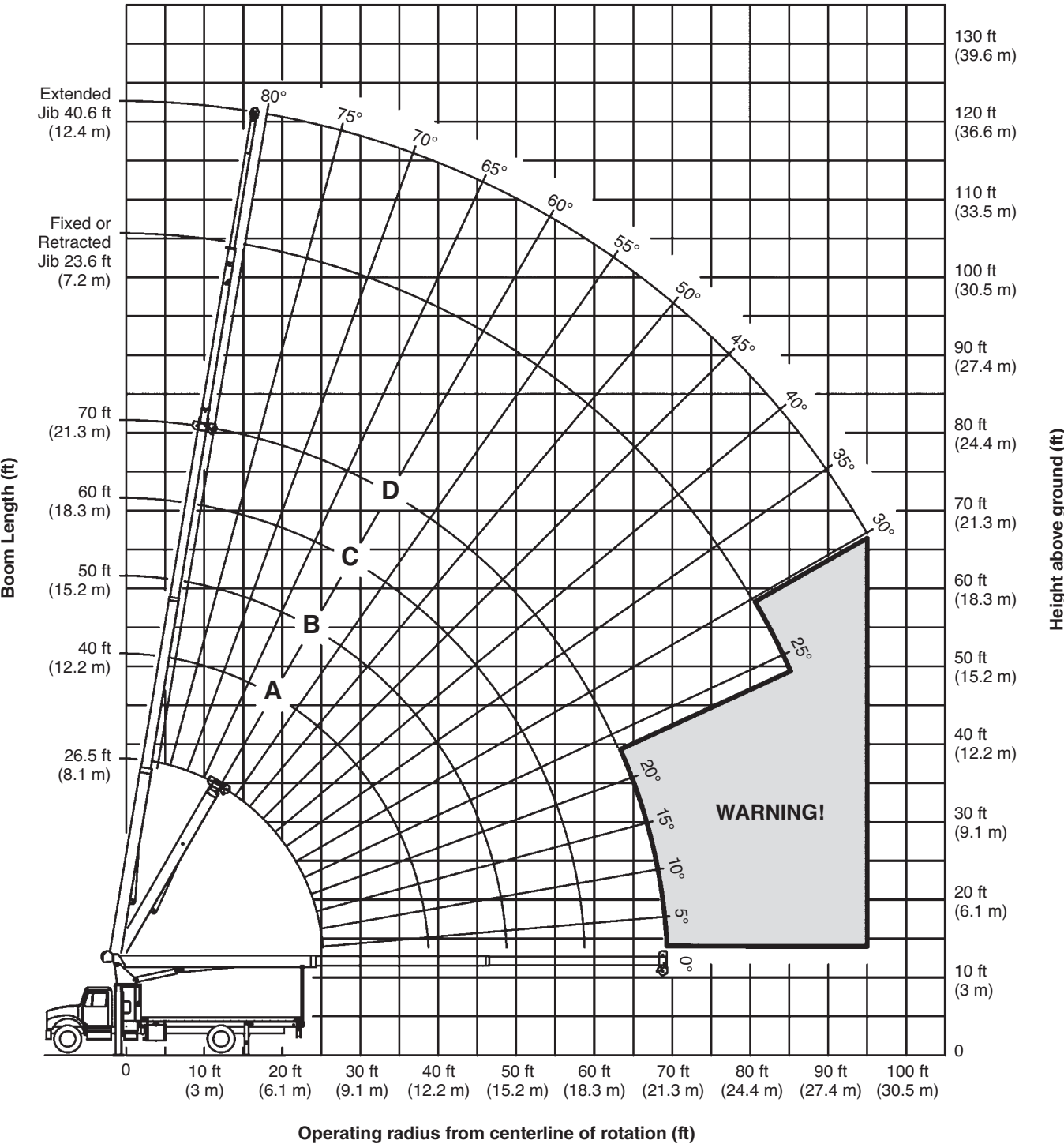
Loads above heavy line are based on structural rating

Loads below heavy line are based on stability rating

Data published herein is intended as a guide only. Crane operation is subject to machine specific load charts and information.

Boom Diagram

Main Boom Jib








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LMI Operating Codes · Reeving Diagram

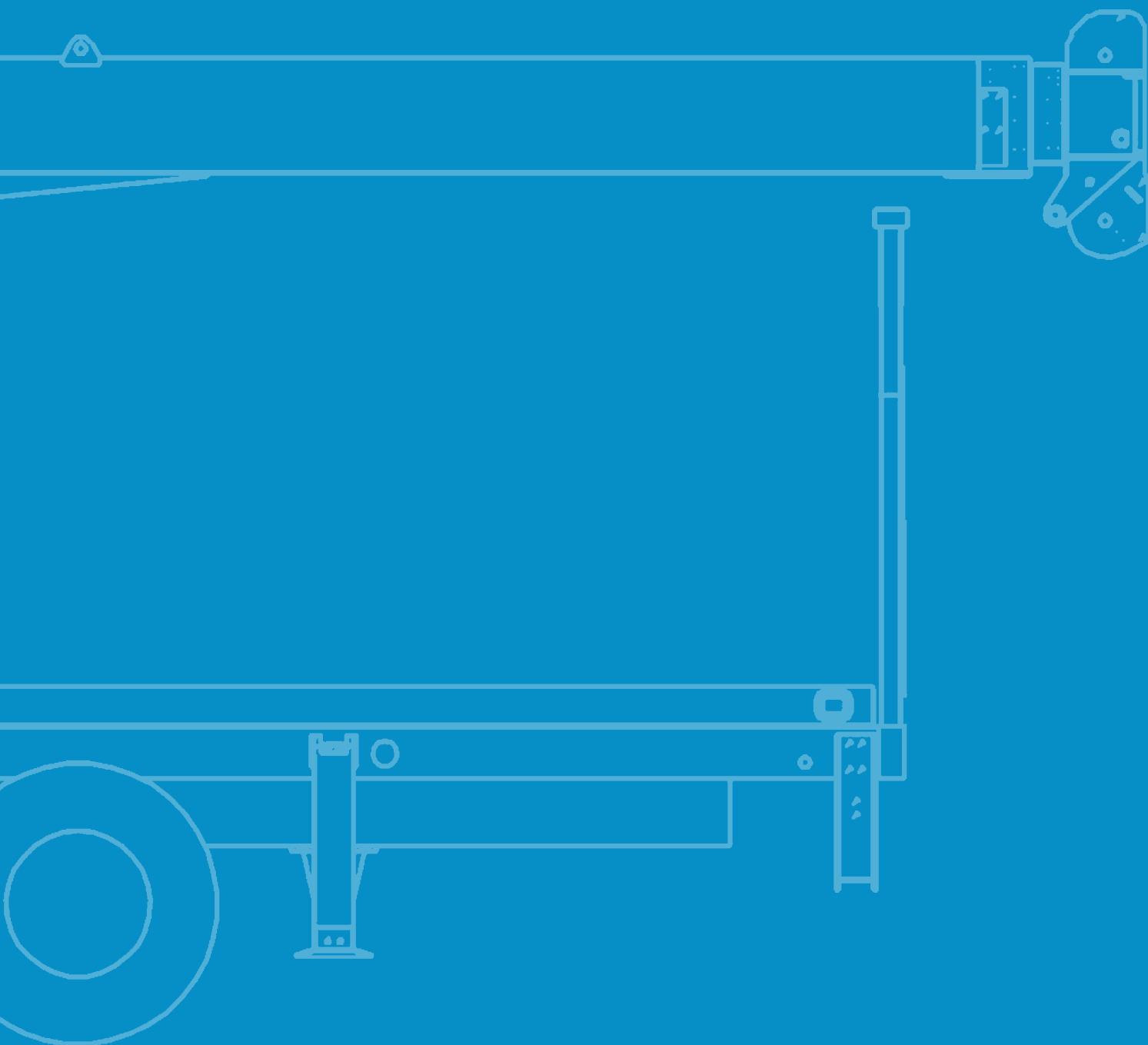
LMI Operating Codes			
Code	Crane Configuration	Outrigger Configuration	Area of Operation
1	Main boom	Fully extended	372° non-continuous
2	Fixed jib	Fully extended	372° non-continuous
3	Telescopic jib – Retracted	Fully extended	372° non-continuous
4	Telescopic jib – Extended	Fully extended	372° non-continuous
5	Personnel lifting platform on main boom	Fully extended	372° non-continuous
6	Personnel lifting platform on fixed jib	Fully extended	372° non-continuous
7	Personnel lifting platform on telescopic jib – retracted	Fully extended	372° non-continuous

WARNING: Lifting personnel from extended jib is not approved.

Reeving Diagram					
Allowable Line Pull					WARNING Anti-Two-Block System must be in good operating condition before operating crane. Refer to the owner's manual. Keep at least 3 wraps of load line on the drum at all times.
1 part line	2 part line	3 part line	4 part line	5 part line	
					
8,500 lbs	17,000 lbs	25,500 lbs	34,000 lbs	38,000 lbs	
7,700 lbs	15,400 lbs	23,100 lbs	30,800 lbs	38,000 lbs	
					9/16" 6 x 25 IWRC (3.5 : 1 SF) 29,750 lbs breaking strength 9/16" rot resistant (5.0 : 1 SF) 38,800 lbs breaking strength

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Technical Description

Boom



Boom length: 3-section 70 ft (21.3 m) proportional boom
3-sheave quick reeve boom point



Boom max. tip height: 80.8 ft (24.6 m)
Boom min. tip height: 37.7 ft (11.5 m)



Boom angle (min./max.):
-10° / 80°

Rotation



Oversized diameter ball bearing swing circle
with external gear



Slewing brake:
Wet, multi-disc internal brake, spring applied, hydraulic pressure released



Boom rotation: 372° non-continuous
Slewing speed: 1.5 - 2 rpm (nominal)

Outriggers



Outriggers: A-frame

Front Spread

- A-frame, to outer edge of pad: 20.8 ft (6.4 m)

Rear Spread

- A-frame, to outer edge of pad: 10.1 ft (3.1 m)

Stowed

- A-frame, to outer edge of pad: 8 ft (2.4 m)

Outrigger motion alarm

Hoist, Rope and Hook



Maximum theoretical line speed:
300 fpm (91 mpm)



Maximum theoretical bottom-layer line pull:
11,500 lbs (5,216 kg)



Main winch cable diameter: 0.5625 in. (14.3 mm)
6 x 25 EIPS IWRC



Line length:
300 ft (91.4 m)



Main winch:
Bent axis 2-speed hydraulic motor (activated electrically)



Load ball:
5 t (4.5 mt) capacity hook with heavy-duty swivel and weight is provided for single line operation

Technical Description

Hydraulics



6-8 bolt direct mounted PTO and SAE B or output or SAE BB output
3-section gear pump, SAE BB input (standard)
Hydraulic reservoir capacity: 70 gallons (265 l)
Pump sections @ 2000 rpm with 100 psi

- Shaft end pump: 32.4 gpm (123 lpm)
- Center pump: 20.6 gpm (78 lpm)
- Cover end pump: 10 gpm (38 lpm)

Operator Aids



LMI with crane function cut-offs for overload protection
Graphical display
Anti-two block system – Cable externally routed

Control System



Dual operating stations are equipped with four single-lever crane controls arranged in accordance with ANSI B30.5 standards.
Fully proportional control valves
Each station includes:

- Individual control levers for each outrigger and stabilizer
- Engine start and stop
- Electronic foot throttle
- Signal horn
- Boom angle indicator
- Beverage holder
- Load chart with range diagram and mount for removable LMI display

Electrical System

State-of-the-art, weather-resistant components throughout
Hermetically sealed enclosure includes power in relays and circuit status LEDs

Mounting System

Pedestal sub-frame and stabilizers are mounted to chassis by threaded rods and clamp plates
Sub-frame:
Torsion resistant, rigid 4-plate design mounted under crane full length of truck frame
Rear under-ride protection:
Standard on factory mounted cranes
Boom rest:
Heavy-duty fabrication, easily removed for unencumbered loading and unloading of crane deck

Technical Description – Options

Tool Boxes and Bulkhead

Tool Boxes

- 24 in. L x 20 in. W x 18 in. H (610 mm L x 508 mm W x 457 mm H) – Steel
- 48 in. L x 24 in. W x 24 in. H (1,219 mm L x 610 mm W x 610 mm H) – Aluminium

Bulkhead:

- 24 in. (610 mm)

Jib



1-section fixed jib:

23.6 ft (7.2 m)

2-section telescopic jib:

23.6 ft (7.2 m) - 40.6 ft (12.4 m)



Max. boom tip height with extension:

121.2 ft (36.9 m) from ground

Max. boom tip height with extension retracted:

104.5 ft (31.9 m) from ground

Hoist, Rope and Hook



Load block:

1-sheave

Technical Description – Options

Hydraulics



3-section vane pump, SAE B input
Hydraulic oil cooler
Hose reel – boom mounted
FBS – Front Bumper Stabilizer

2-Person Basket



2-person man basket – Aluminum or steel – consult Manitex
• Non-rotating (600 lbs capacity)
• Rotating (1,000 lbs capacity) – main boom only

Radio Remote



4-function radio remote crane control system
• 900 Mhz

Bed Options

20 ft (6.1 m) Wood or steel
20 ft (6.1 m) Steel heavy hauler

Notes

Notes

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www.manitex.com

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