



# series 2802

## BOOM TRUCKS

### features

- 28 Ton (24,4 mton) Capacity
- 4-Section 102' (31,0 m) Proportional Boom
- 4-Section 92' (28.0 m) Proportional Boom
- 2-Section 26' (7,9 m) to 46' (14,0 m) Telescopic Jib
- 157' (47,85 m) Maximum Tip Height with Telescopic Jib
- 111' (33,83 m) Maximum Main Boom Tip Height
- 19' 8", (6 m) Out-and-Down Outriggers at Full Extension
- Intermediate and Fully Extended Outrigger Charts are Standard
- 2-Speed Planetary Hoist with Grooved Drum and Negative Draft Flange
- Load Moment Indicator with Digital Display, CAN Bus, Overload Shutdown and Internal Boom Length Cable
- Radio ATB
- Rugged, Weatherproof Electrical System with Circuit Status LEDs
- Removable Boom Rest
- System Pressure Gauge
- Continuous Rotation
- Clamp-On Mounting
- Aeroquip STC (Snap to Connect) Hydraulic Fittings
- Manitex UPTIME Comprehensive Support



product guide

# series 2802

## GENERAL SPECIFICATIONS

### BOOM

**Booms** – Inverted T-cross section, 4-section telescoping type, extended and retracted proportionally by a double-acting hydraulic cylinder and cable-crowd system. Easily replaceable and adjustable high-density nylon slide pads. **28102S** – 4-Section 28' 0" (8,5 m) to 92' 0" (28,0 m). 2-Section 26' (7,9 m) to 46' (14,0 m) jib.

**Quick Reeve Boom Point** – Three high-density nylon load sheaves mounted on heavy-duty roller bearings. Two removable pin-type rope guards.

**Boom Elevation** – Double-acting hydraulic cylinder. Working range from 9P below horizontal to 80P above.

**Load Hook** – 5-ton (4,5 mton) capacity hook with heavy-duty swivel and weight is provided for single-line operation.

### HOIST

**Hoist** – Maximum theoretical line speed 247 fpm (75,3 mpm). Maximum theoretical bottom-layer line pull 11,500 lb (5 227 kg). Two-speed planetary reducer. Spring applied, pressure-released internal brake.

**Wire Rope** – 335' (102,1 m) of 9/16" (14,3 mm) diameter 6 X 25 EIPS IWRC.

### SWING SYSTEM

Continuous rotation is standard. Externally mounted, double-reduction planetary driven by hydraulic motor. Maximum swing speed 1.5 rpm. Spring-applied hydraulically-released parking brake. Ball-bearing swing circle with external gear.

### OUTRIGGERS

Fully extended, intermediate extension and fully retracted positions. Out-and-down type with double-acting hydraulic cylinders operated independently for precise leveling. Bubble level located near outrigger controls.

### MOUNTING

**Mounting** – Lower frame is mounted to chassis by threaded rods and clamp plates. No welding to truck chassis is required. 12" (305 mm) diameter.

**Rear Underride Protection** – Supplied on factory mounted cranes. Fabricated structure mounted under rear of carrier. Complies with Bureau of Motor Carrier Safety Standard 393.86.

**Lower Frame** – Torsion resistant, rigid 4-plate design with integrated outrigger and pedestal.

**Boom Rest** – Heavy-duty fabrication. Easily removed to simplify loading and unloading truck deck.

### CONTROL SYSTEM

Single operator platform and seat mounted to turret. Four single-axis crane controls, bubble level and system pressure gauge arranged to ANSI B30.5 standards. The operator station includes engine start/stop, air foot throttle, signal horn, load moment indicator console, boom-angle indicator, load chart and range diagram. Optional pilot operated controls not available on units configured with radio remote controls.

### HYDRAULICS

**Hydraulic System** – A 3-section vane pump direct-mounted to power take-off on truck transmission provides 32 gpm to the hoist, 21 gpm to the boom hoist and telescope circuit, and 8 gpm (80 lpm) to the swing and outrigger circuit. 70-gallon (265-liter) baffled reservoir with strainer and 25-micron filter in the return lines. Ball-type shutoff valve and strainer are provided in suction line. All fittings are ORS type and SAE. Aeroquip STC (Snap-to-Connect) on all hoses up to 1" virtually eliminates leaks.

**Hydraulic Cylinders** – All load-holding cylinders are equipped with integral holding valves.

### WARNING SYSTEMS

**Load Moment Indicator (LMI)** – CAN bus system maximizes expansion capabilities. Senses boom hoist cylinder pressure, boom length and boom angle. Audio-visual warning indicated overload conditions and overload shutoff feature prevents continuing overload. Operator can access all load conditions via display at the operator station. Internal boom length cable.

**Radio Anti-Two-Block System** – Audible warning and shutoff functions prevent hook from contacting boom point.

**Back-Up Alarm** – Electronic audible motion alarm activated when truck transmission is in reverse gear.

### GENERAL

**Electrical** – State-of-the-art, weather-resistant components throughout. Hermetically sealed power in relays. Enclosure includes power in relays and circuit status LEDs. Designed to withstand high pressure washing and varying climates.

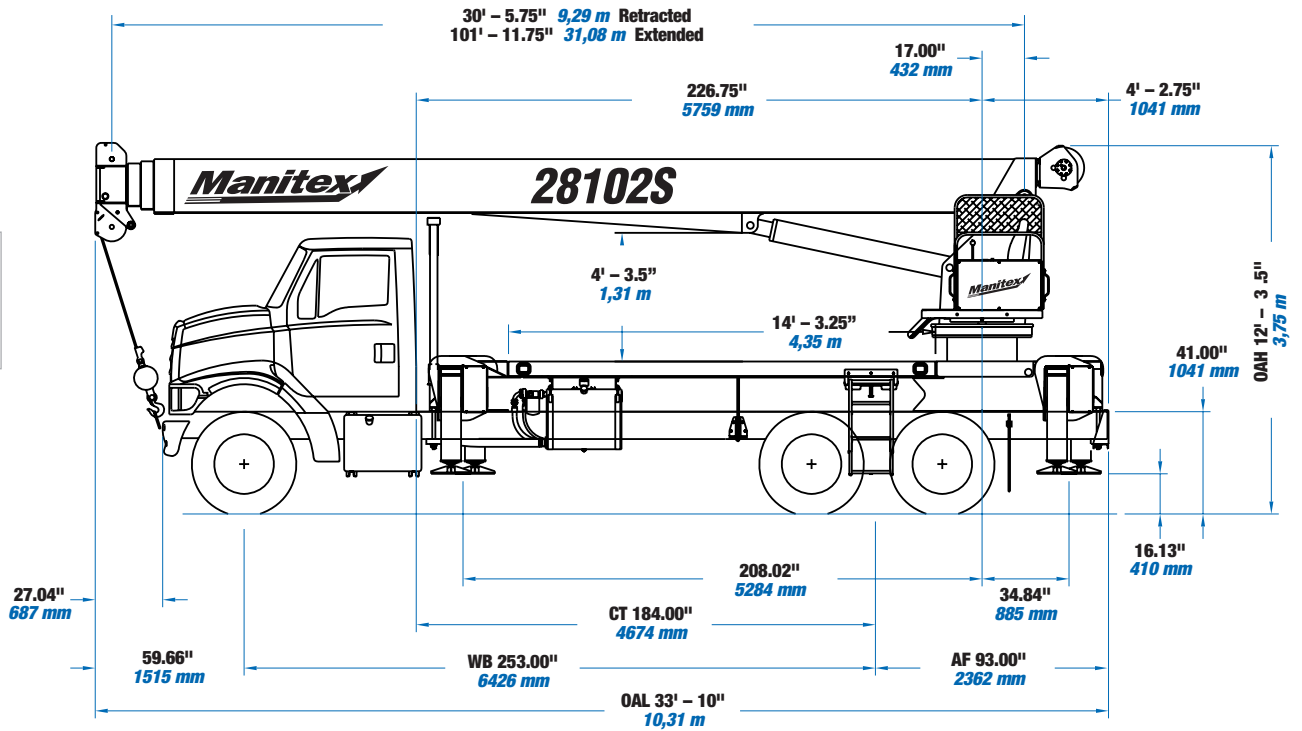
**Design/Welding** – Design conforms to ANSI B30.5. Welding conforms to AWS D1.1. Tested to SAE 1063 and SAE 765.

**Manuals** – Operator, service and parts manuals depict correct crane operation, maintenance procedures and parts listing.

**Warranty** – 12-month warranty covers parts and labor resulting from defects in material and workmanship.

\* In order to ensure continuous improvement, specifications may change without notice.

OAH Overall Height  
 CT Cab to Tandem  
 CA Cab to Axle  
 WB Wheel Base  
 OAL Overall Length  
 BBC Bumper to Back of Cab  
 AF Afterframe

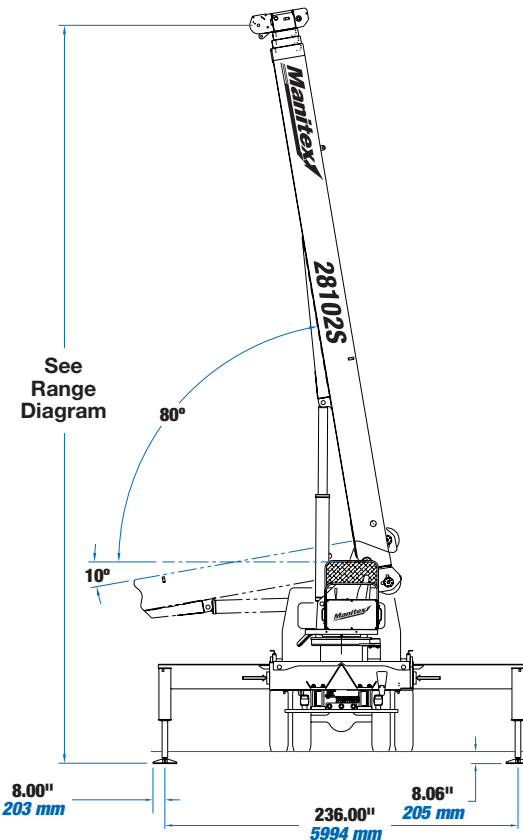


CHASSIS DATA	28102S/2892S
Wheelbase (WB)	253" 6 426 mm
Cab to Tandem (CT)	184" 4 674 mm
After Frame (AF)	93" 2 362 mm
Frame Section Modulus at 180° Area of Operation	20.0 in <sup>3</sup> 110,000 psi 758 422 kPa
Frame Section Modulus at 360° of Operation	20.0 in <sup>3</sup> 110,000 psi 758 422 kPa
Front Axle Gross Weight Rating	18,000 lb 8 182 kg
Rear Axle Gross Weight Rating	34,000 lb 15 455 kg
Minimum Truck Axle Weight - Front**	8,400 lb 3 810 kg
Minimum Truck Axle Weight - Back**	8,300 lb 3 773 kg
Nominal Frame Width	34" 864 mm

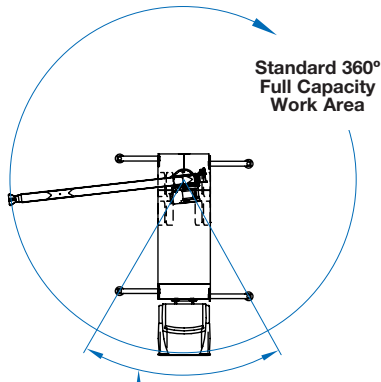
\*Frame section modulus at 360° area of operation requires front bumper stabilizer.  
 \*\*Minimum chassis weight is required to meet 85% stability requirements.  
 Chassis data is general - not for engineering. Some dimensions depend on truck selection.

MAXIMUM TIP HEIGHT	28102S	2892S
Configuration	Boom 102' 31,1 m	Boom 92' 28 m
Extended Boom	111' 9" 34,1 m	101' 9" 31 m
Fixed or Retracted Jib	138' 42,1 m	128' 39 m
Extended Jib	157' 9" 48.1 m	147' 9" 45 m

WEIGHTS	28102S	2892S
Cab Alone	575 lb 261 kg	575 lb 261 kg
Crane (Without Cab)	23,100 lb 10 478 kg	22,392 lb 10 157 kg
14' (4,27 m) Flat Bed	1,260 lb 573 kg	1,260 lb 572 kg
26' (7,92 m) Fixed Length Jib	832 lb 378 kg	832 lb 377 kg
26' (7,92 m) to 46' (14,02 m) Telescopic Jib	1,226 lb 557 kg	1,226 lb 557 kg



## AREA OF OPERATION



### WARNING

The front tires must be in contact with the ground and the machine level when operating in this area.

## DEDUCTIONS

Auxiliary Block	50 lb 22.72 kg
Auxiliary Block	50 lb 22.72 kg
Load Block	See block manufacturer nameplate
Overhaul Ball	See overhaul ball manufacturer nameplate
Hose Reel	140 lb 63.64 kg
Swing Around Jib* (Stowed)	See load rating chart

## WEIGHTS

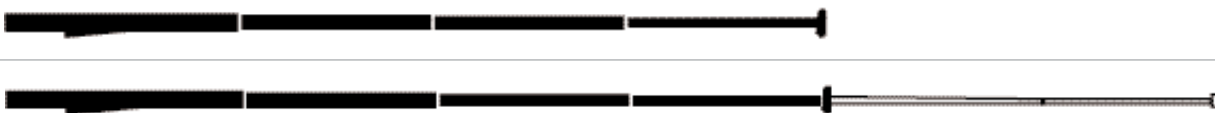
1 Part Line	2 Part Line	3 Part Line	4 Part Line	5 Part Line	6 Part Line	7 Part Line	WARNING
							<p>Anti-two-block system must be in good operating condition before operating crane. Refer to the owner's manual. Keep at least three wraps of load line on the drum at all times.</p>
8,500 lb 3 864 kg	17,000 lb 7 727 kg	25,500 lb 11 591 kg	34,000 lb 15 455 kg	42,500 lb 19 318 kg	51,000 lb 23 182 kg	56,000 lb 25 455 kg	
7,400 lb 3 364 kg	14,800 lb 6 727 kg	22,200 lb 10 091 kg	29,600 lb 13 455 kg	37,000 lb 16 818 kg	44,400 lb 20 182 kg	51,800 lb 23 545 kg	<p>.5625" rot resistant (5.0:1 SF) - 37000 lb. min. breaking strength</p> <p>.5625" 6 x 25 IWRC (3.5:1 SF) - 29750 lb. min. breaking strength</p>

## BOOM AND JIB COMBINATIONS

28102S      102'      4 Section      Boom      26' - 46' 2 - Section Jib



2892S      92'      4 Section      Boom      26' - 46' 2 - Section Jib



**UPTime is the Manitex commitment to complete support of thousands of units working every day.**

***UPTime*** 

- Includes 24-7-365 parts shipments.
- Utilizes the efficiency of UPNet online parts order system.
- Relies on Manitex's UPTrak support tracking system for performance analysis and resource allocation.
- Features REMan, Manitex's cost effective rebuild/exchange program.
- Provides expert service technicians for troubleshooting and site visits.
- Mandates training; at our facility and yours. It includes coordinated support from all component suppliers.
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# Load Rating Chart

***Model 2892S***

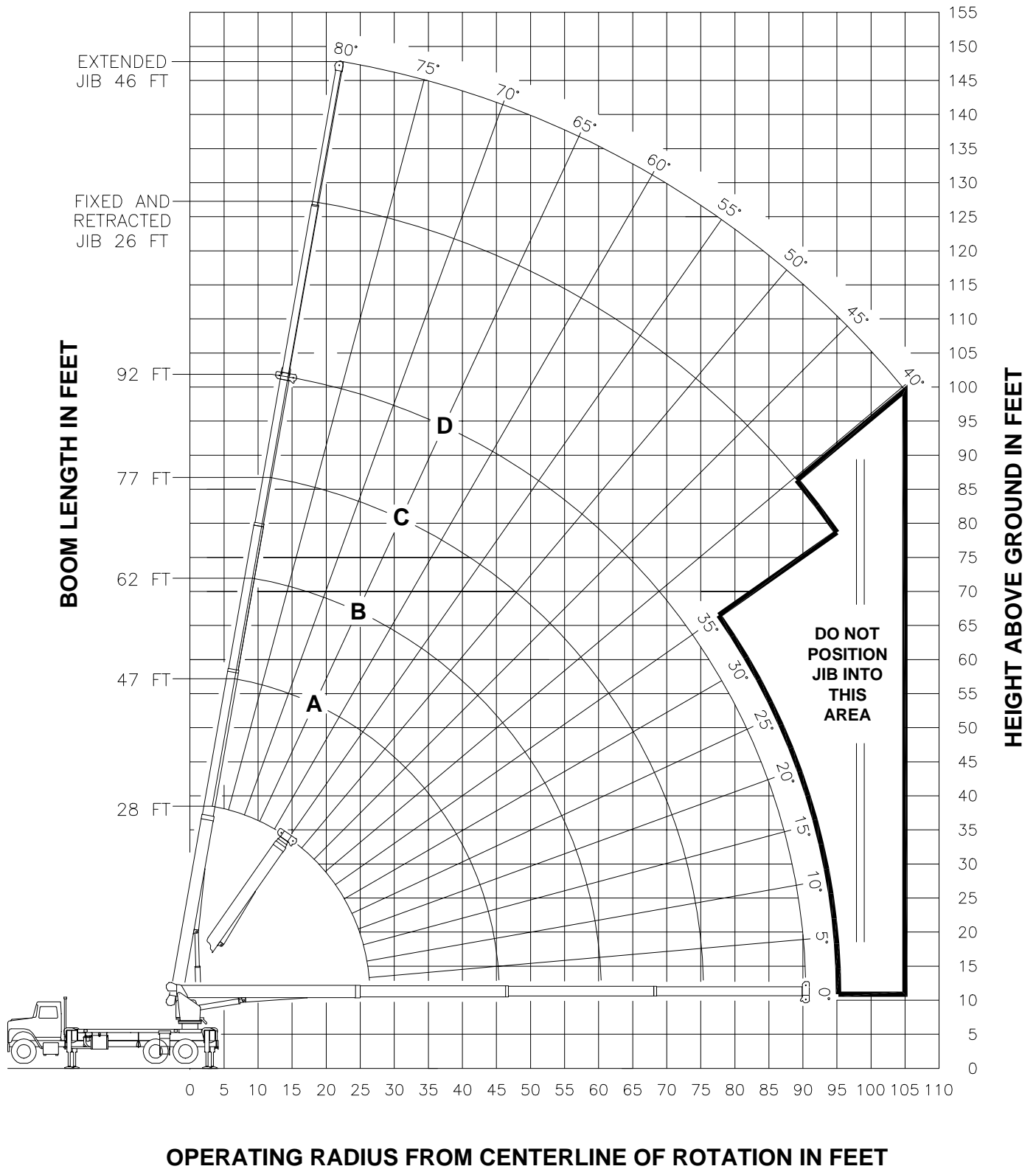


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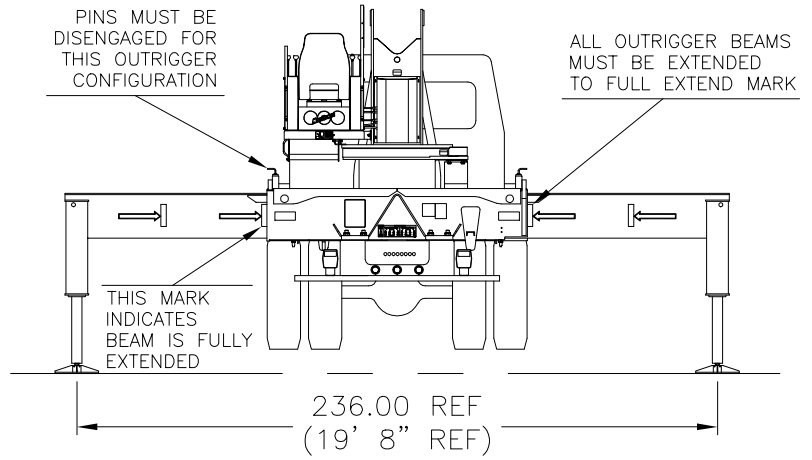
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**NOTE:** Additional copies of this Load Rating Chart can be purchased from your Manitex Distributor. When ordering, use the part number shown in the bottom left corner of this page.

# RANGE DIAGRAM - FULLY EXTENDED OUTRIGGER CONFIGURATION -



**USE THIS CHART ONLY  
WHEN ALL OUTRIGGERS  
ARE FULLY EXTENDED**

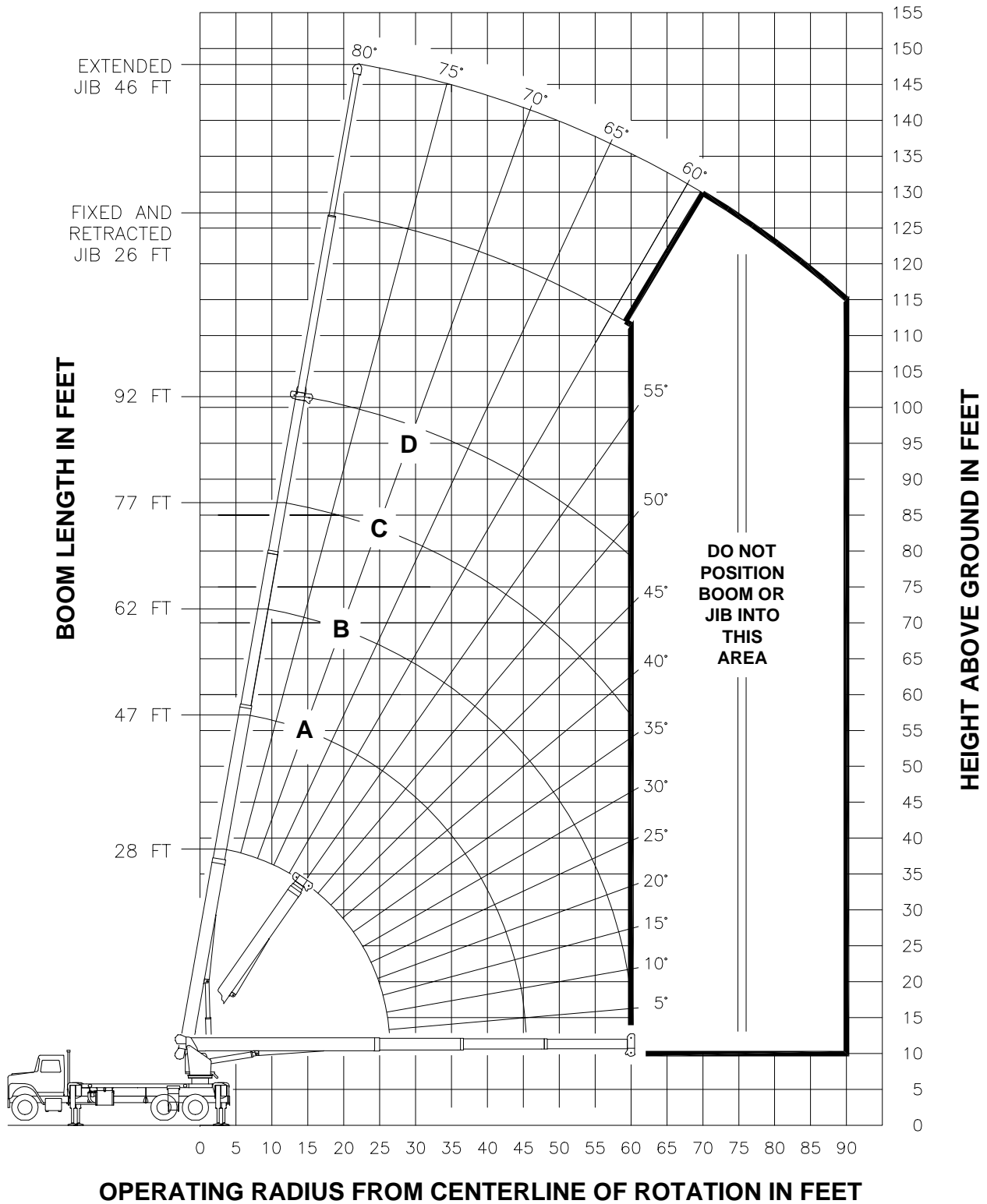


**- FULLY EXTENDED OUTRIGGER CONFIGURATION -**

MAIN BOOM LOAD RATINGS IN LBS WITH OUTRIGGERS PLACED AS SHOWN AND THE CRANE LEVEL										JIB LOAD RATINGS IN LBS WITH OUTRIGGERS PLACED AS SHOWN AND THE CRANE LEVEL							
LMI CODE #1																	
OPERATING RADIUS FT	LOADED BOOM ANGLE		BOOM LENGTH AND MARKER								FIXED JIB		TELESCOPIC JIB				
					LMI CODE #2		LMI CODE #3		LMI CODE #4								
					A	B	C	D	BOOM ANGLE	JIB LENGTH FOR ALL BOOM LENGTHS SEE WARNING NOTE 4	BOOM ANGLE	JIB LENGTH FOR ALL BOOM LENGTHS SEE WARNING NOTE 4	BOOM ANGLE	JIB LENGTH FOR ALL BOOM LENGTHS SEE WARNING NOTE 4			
	28 FT	47 FT	62 FT	77 FT	92 FT					26 FT	26 FT	46 FT					
5	79	56000															
8	73	40670															
10	69	34520	78	22500													
12	64	30130	76	22500	80	22500											
15	57	23660	72	22310	77	20960	80	15920									
20	43	16950	65	17280	72	16920	77	13540	79	10700							
25	22	12820	58	13210	67	13310	73	11710	76	9290	25	79	5600	79	5400		
30			50	10460	62	10570	69	10160	73	8330	30	77	5300	77	5100	79	3400
35			41	8470	57	8580	65	8640	70	7320	35	75	4960	75	4700	77	3300
40			30	6910	51	7030	60	7090	66	6460	40	72	4490	72	4230	76	3200
45			11	5700	44	5850	56	5910	63	5730	45	70	4080	70	3820	74	3040
50					36	4880	51	4960	59	5010	50	67	3710	67	3440	72	2800
55					27	4000	46	4090	55	4140	55	65	3380	65	3100	69	2630
60					10	3290	40	3400	51	3450	60	62	3080	62	2810	67	2480
65							33	2820	47	2880	65	59	2820	59	2540	65	2310
70							24	2340	42	2400	70	56	2520	56	2200	63	2110
75							9	1930	37	2000	75	53	2110	53	1820	60	1940
80									31	1650	80	50	1760	50	1470	58	1770
85									23	1340	85	46	1460	46	1170	55	1610
90									9	1070	90	42	1200	42	900	52	1350
95											95	38	960	38	670	49	1120
100											100					46	910
105											105					43	720
	460 LBS	270 LBS	210 LBS	170 LBS	140 LBS	DEDUCTIONS FOR STOWED FIXED JIB											
	690 LBS	410 LBS	310 LBS	250 LBS	210 LBS	DEDUCTIONS FOR STOWED TELESCOPIC JIB											

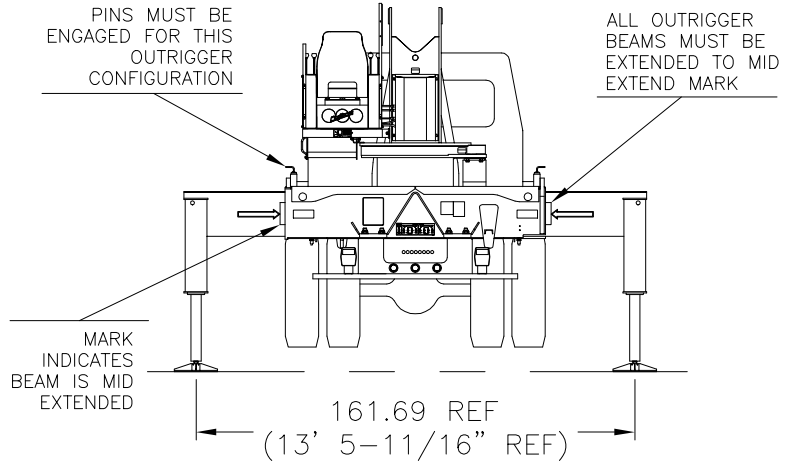


# RANGE DIAGRAM - INTERMEDIATE OUTRIGGER CONFIGURATION - (MID EXTEND)



**NOTE :** LIFTING PERSONNEL WITH CRANE IN THIS OUTRIGGER CONFIGURATION IS STRICTLY PROHIBITED. USE ONLY FULLY EXTENDED OUTRIGGER CONFIGURATION WHEN LIFTING PERSONNEL.

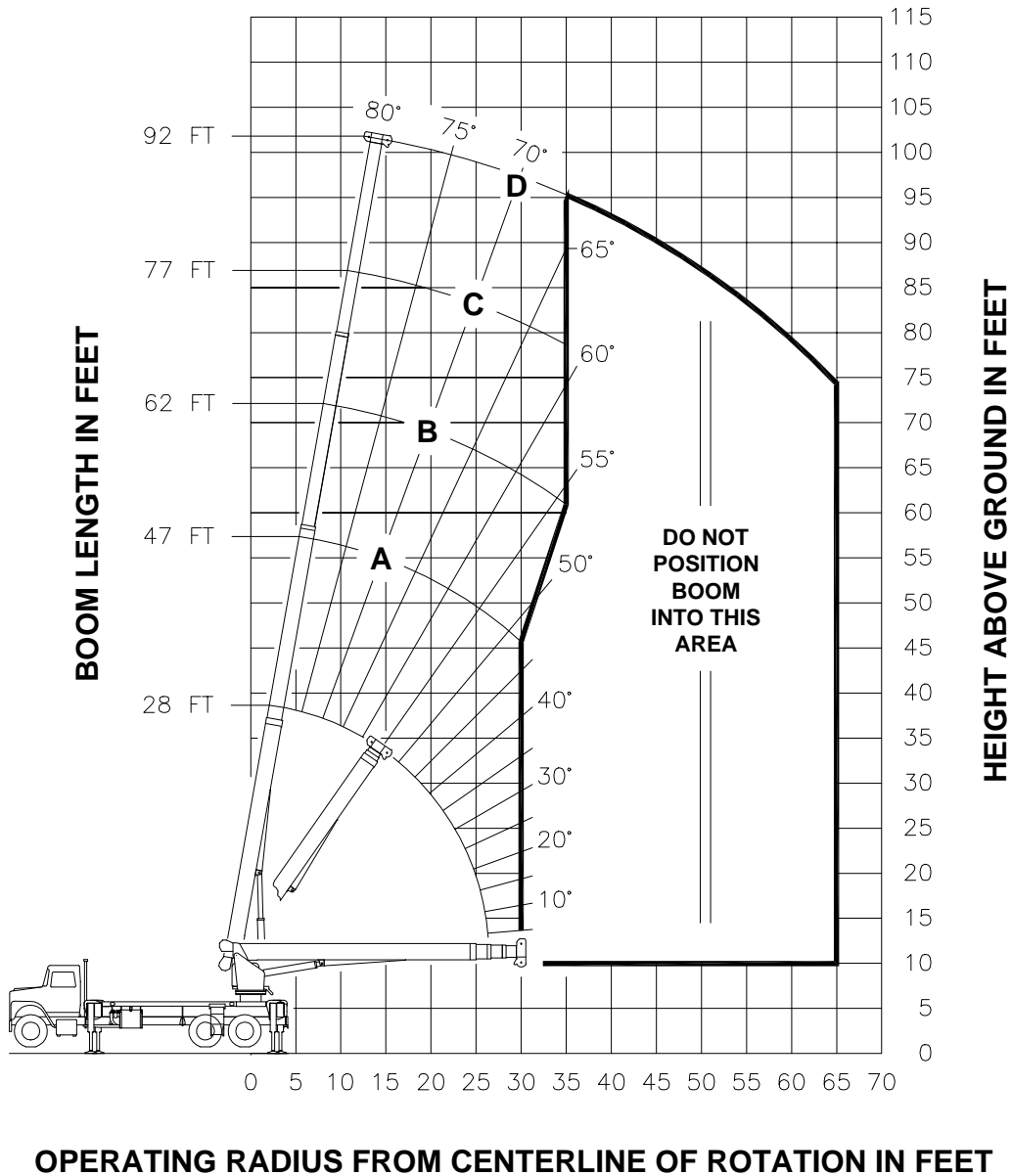
**USE THIS CHART ONLY WHEN ALL OUTRIGGERS ARE IN THE INTERMEDIATE POSITION**



**- INTERMEDIATE OUTRIGGER CONFIGURATION - (MID EXTEND)**

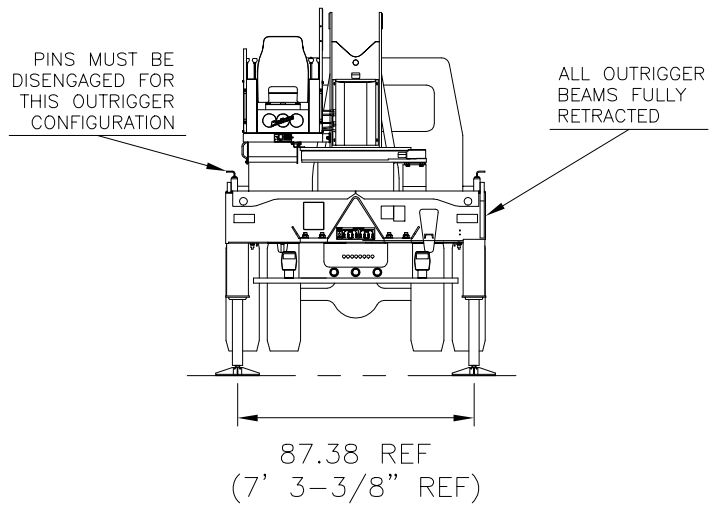
MAIN BOOM LOAD RATINGS IN LBS WITH OUTRIGGERS PLACED AS SHOWN AND THE CRANE LEVEL										JIB LOAD RATINGS IN LBS WITH OUTRIGGERS PLACED AS SHOWN AND THE CRANE LEVEL							
LMI CODE #9										FIXED JIB		TELESCOPIC JIB					
OPERATING RADIUS	LOADED BOOM ANGLE		BOOM LENGTH AND MARKER							OPERATING RADIUS	LOADED BOOM ANGLE	JIB LENGTH FOR ALL BOOM LENGTHS SEE WARNING NOTE 4	LOADED BOOM ANGLE	JIB LENGTH FOR ALL BOOM LENGTHS SEE WARNING NOTE 4	LOADED BOOM ANGLE	JIB LENGTH FOR ALL BOOM LENGTHS SEE WARNING NOTE 4	
					A	B	C	D	LMI CODE #10								LMI CODE #11
	28 FT	47 FT	62 FT	77 FT	92 FT												
5	79	56000															
8	73	40670															
10	69	34520	78	22500						10							
12	64	30130	76	22500	80	22500				12							
15	57	21360	72	21880	77	20960	80	15920		15							
20	43	12010	65	12460	72	12610	77	12700	79	10700							
25	22	7730	58	8200	67	8330	73	8410	76	8460	25	79	5600	79	5400		
30			50	5760	62	5890	69	5960	73	6010	30	77	5300	77	5100	79	3400
35			41	4180	57	4310	65	4380	70	4430	35	75	4530	75	4230	77	3300
40			30	3070	51	3210	60	3280	66	3320	40	72	3410	72	3110	76	3200
45			11	2220	44	2390	56	2460	63	2500	45	70	2590	70	2280	74	2780
50					36	1750	51	1830	59	1870	50	67	1950	67	1650	72	2130
55					27	1250	46	1330	55	1370	55	65	1450	65	1140	69	1620
60					10	820	40	920	51	960	60	62	1040	62	740	67	1200
65											65	59	700			65	860
70											70					63	570
		460 LBS	270 LBS	210 LBS	170 LBS	140 LBS	DEDUCTIONS FOR STOWED FIXED JIB										
		690 LBS	410 LBS	310 LBS	250 LBS	210 LBS	DEDUCTIONS FOR STOWED TELESCOPIC JIB										

## RANGE DIAGRAM - FULLY RETRACTED OUTRIGGER CONFIGURATION -



**NOTE :** LIFTING PERSONNEL WITH CRANE IN THIS OUTRIGGER CONFIGURATION IS STRICTLY PROHIBITED. USE ONLY FULLY EXTENDED OUTRIGGER CONFIGURATION WHEN LIFTING PERSONNEL.

**USE THIS CHART  
ONLY WHEN ALL  
OUTRIGGERS ARE  
FULLY RETRACTED**



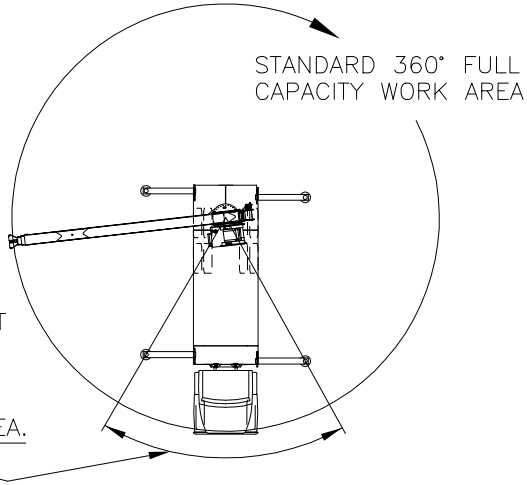
**- FULLY RETRACTED OUTRIGGER CONFIGURATION -**

MAIN BOOM LOAD RATINGS IN LBS WITH OUTRIGGERS PLACED AS SHOWN AND THE CRANE LEVEL										
LMI CODE #13										
OPERATING RADIUS FT	LOADED BOOM ANGLE		BOOM LENGTH AND MARKER							
	28 FT	47 FT	62 FT	77 FT	92 FT					
5	79	56000								
8	73	23040								
10	69	14740	78	15170						
12	64	10410	76	10800	80	10940				
15	57	6760	72	7130	77	7260	80	7330		
20	43	3640	65	4000	72	4120	77	4190	79	4230
25	22	1940	58	2340	67	2450	73	2510	76	2550
30			50	1300	62	1410	69	1470	73	1510
35					57	700	65	760	70	800
		460 LBS	270 LBS	210 LBS	170 LBS	140 LBS	DEDUCTIONS FOR STOWED FIXED JIB			
		690 LBS	410 LBS	310 LBS	250 LBS	210 LBS	DEDUCTIONS FOR STOWED TELESCOPIC JIB			

**NO JIBS ARE TO  
BE ERECTED IN  
THIS  
OUTRIGGER  
CONFIGURATION**

ALLOWABLE LINE PULL							<b>WARNING</b>
1 PART LINE	2 PART LINE	3 PART LINE	4 PART LINE	5 PART LINE	6 PART LINE	7 PART LINE	
							<p>ANTI-TWO-BLOCK SYSTEM MUST BE IN GOOD OPERATING CONDITION BEFORE OPERATING CRANE.</p> <p>REFER TO THE OWNER'S MANUAL.</p> <p>KEEP AT LEAST 3 WRAPS OF LOAD LINE ON THE DRUM AT ALL TIMES.</p>
8500 LBS	17000 LBS	25500 LBS	34000 LBS	42500 LBS	51000 LBS	56000 LBS	
7400 LBS	14800 LBS	22200 LBS	29600 LBS	37000 LBS	44400 LBS	51800 LBS	<p>9/16" 6X25 IWRC (3.5:1 SF) – 29750 LBS MIN BREAKING STRENGTH</p> <p>9/16" ROT RESISTANT (5.0:1 SF) – 37000 LBS MIN BREAKING STRENGTH</p>

**AREA OF OPERATION**



**WARNING:**  
THE FRONT TIRES MUST BE IN CONTACT WITH THE GROUND, AND THE MACHINE LEVEL, WHEN OPERATING IN THIS AREA.

**DEDUCTIONS FROM RATED LOADS FOR LOAD HANDLING DEVICES SUPPLIED BY MANITEX.**

- AUXILIARY BLOCK — — — — — 50 LBS
- AUXILIARY SHEAVE — — — — — 50 LBS
- OVERHAUL BALL — — — — — SEE OVERHAUL BALL MANUFACTURER NAMEPLATE
- LOAD BLOCK — — — — — SEE BLOCK MANUFACTURER NAMEPLATE
- HOSE REEL — — — — — 140 LBS
- SWING AROUND JIB — — — — — SEE LOAD CHART

## LMI OPERATING CODES

SETTING	CRANE CONFIGURATION	OUTRIGGER CONFIGURATION
#1	— MAIN BOOM — — — — —	FULLY EXTENDED
#2	— FIXED JIB — — — — —	FULLY EXTENDED
#3	— TELESCOPIC JIB—RETRACTED — — — — —	FULLY EXTENDED
#4	— TELESCOPIC JIB—EXTENDED — — — — —	FULLY EXTENDED
#5	— PERSONNEL LIFTING PLATFORM ON MAIN BOOM — — — — —	FULLY EXTENDED
#6	— PERSONNEL LIFTING PLATFORM ON FIXED JIB — — — — —	FULLY EXTENDED
#7	— PERSONNEL LIFTING PLATFORM ON TELESCOPIC JIB—RETRACTED — — — — —	FULLY EXTENDED
#8	— PERSONNEL LIFTING PLATFORM ON TELESCOPIC JIB—EXTENDED — — — — —	FULLY EXTENDED
#9	— MAIN BOOM — — — — —	INTERMEDIATE
#10	— FIXED JIB — — — — —	INTERMEDIATE
#11	— TELESCOPIC JIB—RETRACTED — — — — —	INTERMEDIATE
#12	— TELESCOPIC JIB—EXTENDED — — — — —	INTERMEDIATE
#13	— MAIN BOOM — — — — —	FULLY RETRACTED

### **WARNING**

1. THE OPERATOR MUST READ AND UNDERSTAND THE OWNER’S MANUAL BEFORE OPERATING THIS CRANE.
  
2. POSITIONING OR OPERATION OF CRANE BEYOND AREAS SHOWN ON THIS CHART IS NOT INTENDED OR APPROVED EXCEPT WHERE SPECIFIED IN OWNER’S MANUAL.
  
3. LOADED BOOM ANGLES AT SPECIFIED BOOM LENGTHS GIVE ONLY AN APPROXIMATION OF THE OPERATING RADIUS. THE BOOM ANGLE BEFORE LOADING SHOULD BE GREATER TO ACCOUNT FOR DEFLECTIONS. DO NOT EXCEED THE OPERATING RADIUS FOR RATED LOADS.
  
4. THE OPERATING RADIUS SHOWN IN THE JIB RATING CHART IS FOR FULLY EXTENDED BOOM ONLY. WHEN BOOM IS NOT FULLY EXTENDED, USE ONLY LOADED BOOM ANGLE TO DETERMINE LOAD RATING OF JIB.
  
5. FOR BOOM ANGLES NOT SHOWN ON JIB LOAD RATING CHART, USE RATING OF NEXT LOWER BOOM ANGLE.
  
6. FOR BOOM LENGTHS NOT SHOWN, USE RATING OF NEXT SHORTER OR LONGER BOOM LENGTH, WHICHEVER IS LESS. FOR RADII NOT SHOWN, USE RATING OF NEXT LONGER RADIUS.
  
7. CRANE LOAD RATINGS ON OUTRIGGERS ARE BASED ON FREELY SUSPENDED LOADS WITH THE MACHINE LEVELED AND STANDING ON A FIRM UNIFORM SUPPORTING SURFACE. NO ATTEMPT SHALL BE MADE TO MOVE A LOAD HORIZONTALLY ON THE GROUND IN ANY DIRECTION.


## **WARNING (CONTINUED)**

8. PRACTICAL WORKING LOADS DEPEND ON SUPPORTING SURFACE, WIND, AND OTHER FACTORS AFFECTING STABILITY SUCH AS HAZARDOUS SURROUNDINGS, EXPERIENCE OF PERSONNEL, AND PROPER HANDLING, ALL OF WHICH MUST BE TAKEN INTO ACCOUNT BY THE OPERATOR.
9. THE MAXIMUM LOAD WHICH MAY BE TELESCOPED IS LIMITED BY HYDRAULIC PRESSURE, BOOM ANGLE, AND BOOM LUBRICATION. IT IS SAFE TO ATTEMPT TO TELESCOPE ANY LOAD WITHIN THE LIMITS OF THE LOAD RATING CHART.
10. LIFTING OFF THE MAIN BOOM POINT WHILE THE SWING AROUND JIB IS ERECTED IS NOT INTENDED OR APPROVED.

## **INFORMATION**

1. DEDUCTIONS MUST BE MADE FROM RATED LOADS FOR STOWED JIB, OPTIONAL ATTACHMENTS, HOOKS, AND LOADBLOCKS (SEE DEDUCTION CHART). WEIGHTS OF SLINGS AND ALL OTHER LOAD HANDLING DEVICES SHALL BE CONSIDERED A PART OF THE LOAD.
2. LOAD RATINGS ABOVE THE HEAVY LINE ARE STRUCTURALLY LIMITED CAPACITIES. LOAD RATINGS BELOW THE HEAVY LINE ARE STABILITY LIMITED CAPACITIES AND DO NOT EXCEED 85% OF TIPPING.

## **DEFINITIONS**

1. OPERATING RADIUS IS THE HORIZONTAL DISTANCE FROM THE AXIS OF ROTATION TO THE CENTER OF THE VERTICAL HOIST LINE OR TACKLE WITH LOAD APPLIED.
2. LOADED BOOM ANGLE AS SHOWN IN THE COLUMN HEADED BY , IS THE INCLUDED ANGLE BETWEEN THE HORIZONTAL AND LONGITUDINAL AXES OF THE BOOM BASE AFTER LIFTING RATED LOAD AT RATED RADIUS.