

Manitex



TC220

22-Ton (20 mt) TELESCOPIC CRANE
TC220 SERIES PRODUCT GUIDE

CONTENTS

Crane Features	4
Chassis Data	5
Outrigger Extension, Area of Operation, Reeving Diagram.....	7
22101S Single Axle Load Chart	8
22101S Single Axle Boom Diagram	9
22101S Load Chart: Main Boom & Jib	10
22101S Boom Diagram	11
2277S Load Chart: Main Boom & Jib	12
2277S Boom Diagram	13
Technical Descriptions	14
Options	15

Effective Date: September 1, 2014

This document is non-contractual. This document is supplied for reference use only. We are constantly making improvements to our products and reserve the right that specification, equipment, and prices are all subject to change without notice or obligation.

The photographs, and /or images in this document are for illustrative purposes only and may include optional equipment and accessories and may not include all standard equipment.

Refer to the appropriate Operator's Manual and Load Charts for instructions on the proper use of this equipment to determine allowable crane lifting capacities, assembly and operating procedures.

Failure to follow the appropriate operator's manual or load chart(s) when using our equipment or to otherwise act irresponsibly may result in serious injury or death.

The only warranty applicable to our equipment is the standard written warranty applicable to the particular product and sale. Manitex makes no other warranty, expressed or implied.



















Products and services listed may be trademarks, service marks or trade-names of Manitex International and /or its subsidiaries in the USA and other countries.

















All rights are reserved. Manitex® is a registered trademark of Manitex International, Inc. in the USA and many other countries.

Copyright 2013 Manitex Inc. Manitex Inc, Georgetown Texas, 7862



KEY

	Operator aids
	Cab
	Heating / Air conditioning
	Controls
	Hoist speed
	1 - Main hoist 2 - Auxiliary winch 3 - Recovery winch
	Rope length
	Rope - standard/optional
	Rope diameter
	Permissible line pull
	Maximum line pull
	Slewing / Allowable slewing range
	Slewing gears
	Slewing brake
	Outriggers / Lifting on outriggers
	2-Person man basket
	Counterweight
	Radio remote control

	Hook block
	Distance from hook to head sheave pin
	Hook and ball
	Hydraulics
	Boom elevation angle
	Max. boom length with extension
	Boom with extension retracted
	Boom angle
	Telescoping mode
	Working radius
	Boom length
	Hydraulic actuated boom
	Full power mechanical synchronized
	Boom head / Hook block dimension
	Main boom with auxiliary head
	Tip height



THE TC220 SERIES TELESCOPIC CRANES

Versatile. Affordable. User friendly.

The TC220 series telescopic cranes are built to meet the wide-ranging needs of owner operators who may use it for residential construction one day and bridge work the next. No matter what the task, the 22-ton line of telescopic crane is designed to get you to the job and on the job quickly.

With it, you can:

- Travel to and between job sites at highway speed on a commercial chassis
- Available in 4 x 2 configuration
- Best in class performance and value

Other features include:

- 22-ton capacity @ 5 ft. radius
- 3, 4-section proportional boom
- Optional telescopic jib
- 139'-10" (42,6m) maximum tip height (with optional jib)
- Open seat control
- Out-and-down outriggers

OUT & DOWN OUTRIGGER

Four Out & Down Outriggers with Audible Outrigger Motion Alarm sounds as outriggers are being deployed and indicator lights verify when they are fully extended.



TWO-SPEED PLANETARY HOIST

Increase productivity and minimize downtime. The two-speed planetary hoist lets you change line speed on the fly and minimize rope stacking.

LOAD MOMENT INDICATOR

The Load-moment indicator sounds a warning standard overload shutoff when lift limitations are about to be exceeded.

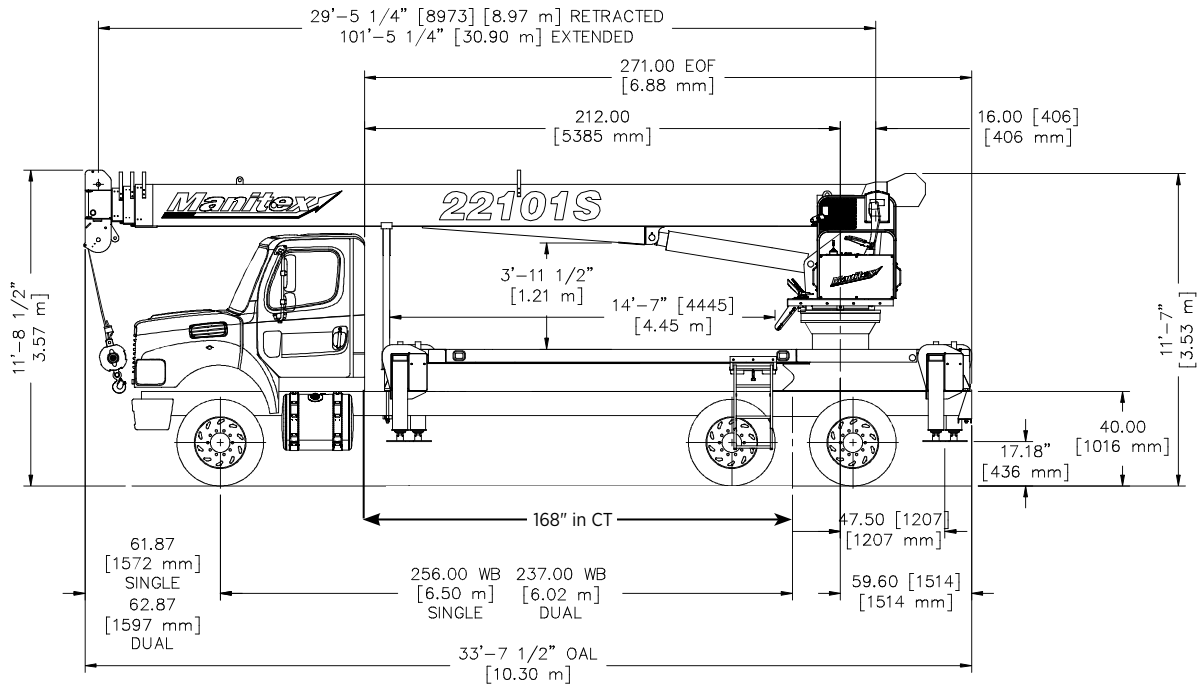
INCREASE PROFITABILITY

The versatile TC220 series is designed to help both owners and operators make the most of their investment.

- Travel to and between jobs at highway speed.
- Minimize maintenance costs with replaceable, self-lubricating boom slider pads and sealed, multi-disc wet brakes on the hoist and swing system.
- Quick setup time
- One man operation



TC220 SERIES CHASSIS DATA



CHASSIS DATA

S Models	22101S Single Axle	22101S Tandem Axle
Wheel Base (WB)	256 in. (6,502 mm)	237 in. (6,020 mm)
Cab to Axle (CA)	186 in. (4,724 mm)	-
Cab to Tandem (CT)	-	168 in. (4,267 mm)
Frame section modulus at 180° area of operation*	15.9 in ³ , 110,000 psi, 758,422 kPa	15.9 in ³ , 110,000 psi, 758,422 kPa
Cab to End of Frame (EOF)	271" (6,883 mm)	271" (6,883 mm)
Nominal Frame Width	34 in. (864 mm)	34 in. (864 mm)

* Frame selection modulus at 360° area of operation requires front bumper stabilizer.

TRUCK AXLE WEIGHTS

S Models	22101S Single Axle	22101S Tandem Axle
Front axle (FAWR)	Consult Factory	16,000 lbs. (7,257 kg)
Rear axle (RAWR)	Consult Factory	40,000 lbs. (18,143 kg)
Min. truck axle W - Front**	Consult Factory	6,800 lbs. (3,084 kg)
Min. truck axle W - Rear**	Consult Factory	7,400 lbs. (3,765 kg)

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

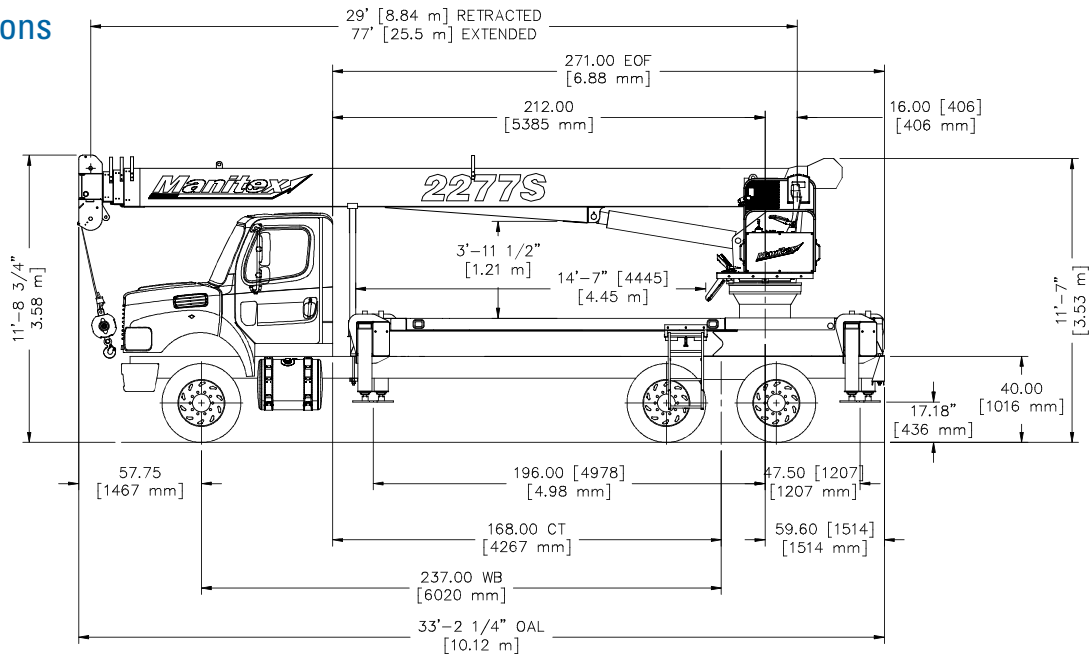
CRANE WEIGHTS

Model	22101S
Crane without cab	18,100 lb. (8210 kg)
Cab	575 lb., (261 kg)
Flatbed 13 ft.	1,100 lb. (544 kg)
Jib Fixed	660 lb. (299 kg)

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

TC220 SERIES CHASSIS DATA: //////////////////////////////////////////////////////////////////

2277S Dimensions



CHASSIS DATA

2277S Tandem Axle	
Wheel Base (WB)	237 in. (5,020 mm)
Cab to Tandem (CT)	168 in. (4,267 mm)
Cab to End of Frame (EOF)	271 in. (6,883 mm)
Nominal frame width	34 in. (864 mm)
Frame section modulus	15.9 in ³ , 110,000 psi 758,422 kPa

TRUCK AXLE WEIGHT

Model	2277S Tandem Axle
Front axle (FAWR)	14,000 lbs. (6350 kg)
Rear axle (RAWR)	40,000 lbs. (18,143 kg)
Min. truck axle weight - Front**	5,750 lbs. (2,608 kg)
Min. truck axle weight - Rear**	6,750 lbs. (3,062 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 WEIGHTS

Model	2277S
Crane without cab	16,575 lb. (7,518 kg)
Cab	575 lb., (261 kg)
Flatbed 13 ft.	1,100 lb. (498 kg)
Jib Fixed	660 lb. (299 kg)

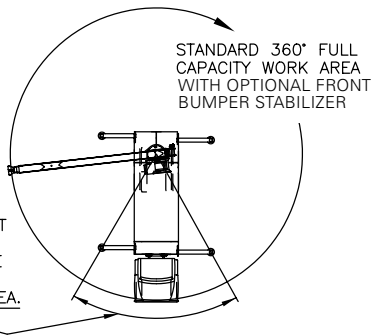
Data published herein is intended as a guide only. Crane operation is subject to machine specific load charts and information.

OUTRIGGER EXTENSION

AREA OF OPERATION

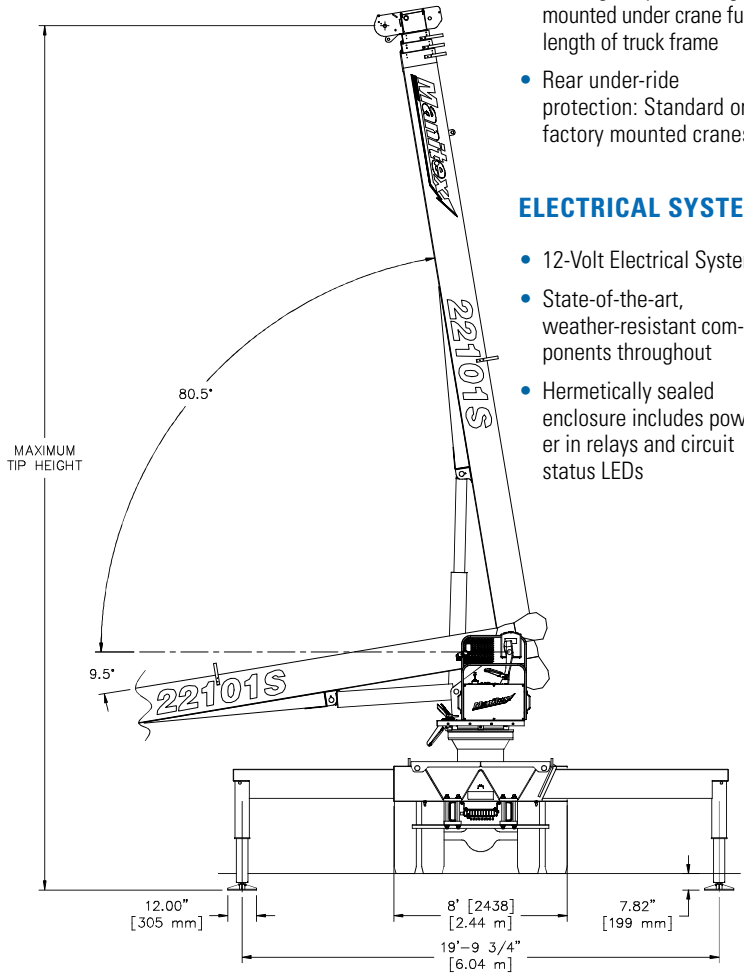
In order to take advantage of full 360° rotation, the optional front bumper stabilizer must be set in accordance to the manual before working in this area and machine must be level.

If a front bumper stabilizer was not supplied, then the front tires must be in contact with the ground before working in this area.



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

FULL EXTENSION



SUB FRAME

- 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

ELECTRICAL SYSTEM

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

Deductions from rated loads for load handling devices supplied by Manitex

Auxiliary block	50 lbs. (22.7 kg)
Overhaul ball	See overhaul ball mfr. nameplate
Load blocks	See load block mfr. nameplate
Hose reel	160 lbs. (72.6 kg)
Swing around jib (stowed)	See load chart

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


ALLOWABLE LINE PULL						WARNING
1 PART LINE	2 PART LINE	3 PART LINE	4 PART LINE	5 PART LINE	6 PART LINE	
						<p>ANTI-TWO-BLOCK SYSTEM MUST BE IN GOOD OPERATING CONDITION BEFORE OPERATING CRANE. REFER TO OWNER'S MANUAL.</p> <p>KEEP AT LEAST 3 WRAPS OF LOAD LINE ON DRUM AT ALL TIMES.</p>
8500 LBS	17000 LBS	25500 LBS	34000 LBS	42500 LBS	44000 LBS	
7400 LBS	14800 LBS	22200 LBS	29600 LBS	37000 LBS	44000 LBS	<p>9/16" - 6X25 IWRC (3.5:1 S.F.) 29750 LBS. BREAKING STRENGTH</p> <p>9/16" ROT RESISTANT (5.0:1 S.F.) 37000 LBS. BREAKING STRENGTH</p>

REEVING DIAGRAM

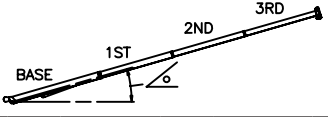
Data published herein is intended as a guide only. Crane operation is subject to machine specific load charts and information.

22101S Single Axle LOAD CHART

Lifting Capacities 4 section Boom 29.4 ft. - 101.4 ft.

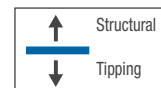
 19' 9 3/4" (6 m)

LMI Single Axle Load Chart
Full Outrigger Extension

Load Ratings in (lbs.) with Outriggers Fully Extended											Jib Load Ratings in (lbs.)				
LMI Code #1											Fixed Jib				
Loaded Boom Angle (ft.)	Boom length & Marker											Loaded Boom Angle (ft.)	LMI Code #2		
		A (lbs.)		B (lbs.)		C (lbs.)		D (lbs.)		Jib Length for All Boom Lengths See Warning Note: 4					
		29.4 ft.	53 ft.	69 ft.	85 ft.	101.4 ft.									
5	80	44,000													
8	74	33,540										8	29.4 ft.		
10	70	28,140										10			
12	66	24,230	78	14,000								12			
14	61	20,460	76	14,000	80	14,000						14			
17	54	16,400	72	14,000	78	12,880						17			
20	46	13,520	69	13,700	75	11,430	79	8,920				20			
25	29	9,910	63	10,320	71	9,460	75	8,000	79	6,000		25			
30			56	7,870	66	7,970	72	7,070	76	5,500		30	80	3,000	
35			49	6,200	61	6,300	68	6,130	73	4,980		35	78	2,840	
40			41	4,990	56	5,100	65	5,150	70	4,490		40	76	2,620	
45			31	4,000	51	4,130	61	4,210	67	4,000		45	73	2,420	
50			17	3,180	45	3,320	57	3,390	64	3,440		50	71	2,230	
55					38	2,680	52	2,750	61	2,800		55	69	2,020	
60					30	2,170	47	2,240	57	2,290		60	67	1,840	
65					19	1,750	42	1,830	54	1,870		65	64	1,670	
70							36	1,480	50	1,520		70	62	1,520	
75							29	1,180	45	1,230		75	59	1,340	
80							20	920	41	970		80	56	1,080	
85									36	750		85	53	860	
90									30	560		90	50	670	
95									22	390		95	47	500	
100															
105															
110															
		340 lbs.		190 lbs.		150 lbs.		120 lbs.		100 lbs.					Deductions for Stowed Jib

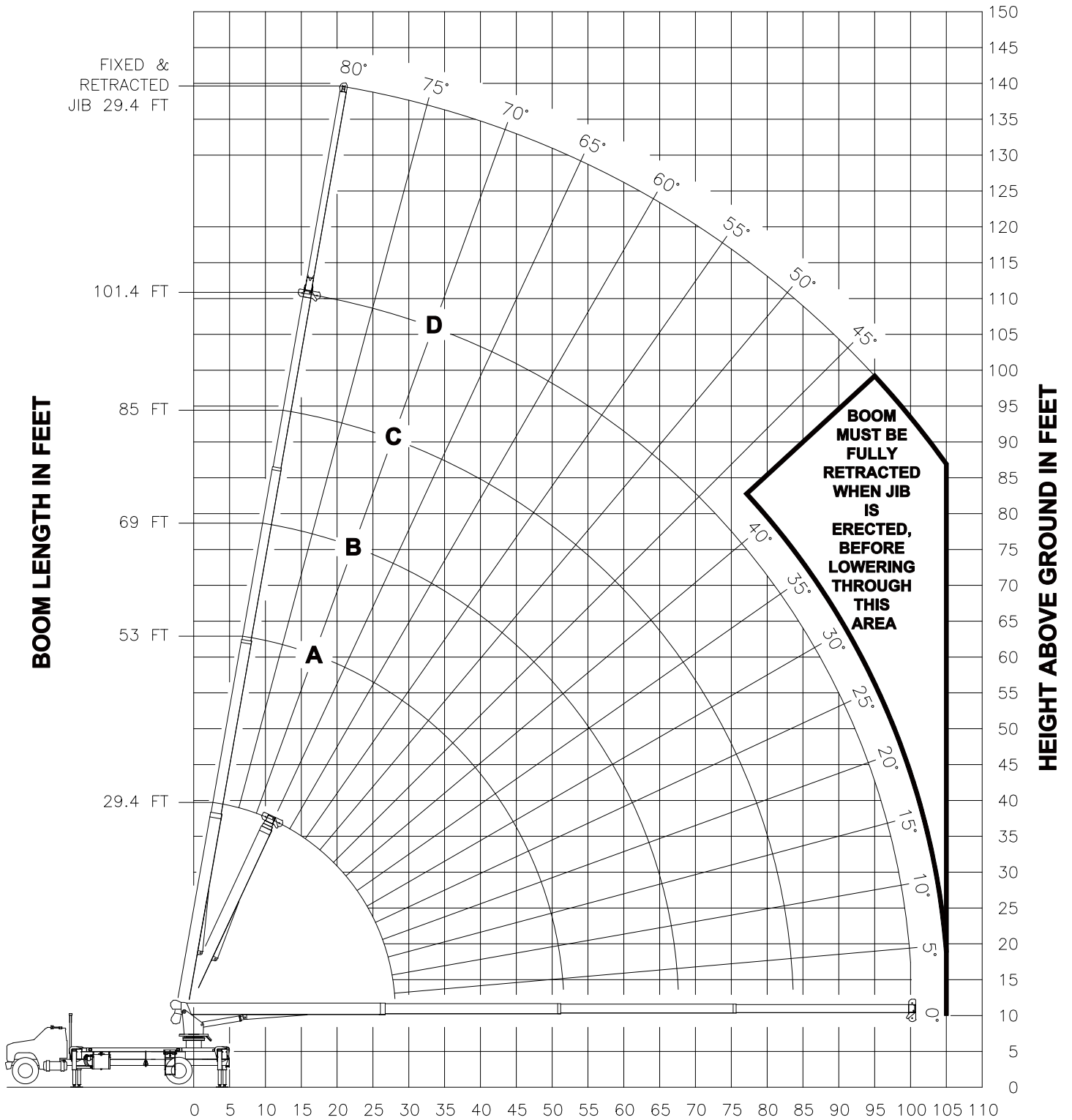
NOTES:

- Loads based on crane on outriggers
- All loads are based on 85% tipping
- Loads above heavy line are based on structural rating
- Loads below heavy line are based on tipping rating



22101S Single Axle BOOM DIAGRAM


RANGE DIAGRAM



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

22101S LOAD CHART: Main Boom & Jib

Lifting Capacities 4 section Boom 29.4 ft. - 101.4 ft.

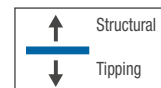
 19' 9 3/4" (6 m)

LMI Tandem Axle Load Chart
Full Outrigger Extension

Load Ratings in (lbs.) with Outriggers Fully Extended										Jib Load Ratings in (lbs.)			
LMI Code #1										Fixed Jib			
Loaded Boom Angle (ft.)	Boom length & Marker	A (lbs.)		B (lbs.)		C (lbs.)		D (lbs.)		Loaded Boom Angle (ft.)	LMI Code #2		
		29.4 ft.	53 ft.	69 ft.	85 ft.	101.4 ft.	Jib Length for All Boom Lengths See Warning Note: 4						
5	80	44,000								8	29.4 ft.		
8	74	33,540								10			
10	70	28,140								12			
12	66	24,230	78	14,000						14			
14	61	20,460	76	14,000	80	14,000				17			
17	54	16,400	72	14,000	78	12,880				20			
20	46	13,520	69	13,700	75	11,430	79	8,920		25			
25	29	10,210	63	10,600	71	9,460	75	8,000	79	6,000			
30			56	8,390	66	8,210	72	7,070	76	5,500	30	80	3,000
35			49	6,790	61	6,890	68	6,130	73	4,980	35	78	2,840
40			41	5,590	56	5,700	65	5,320	70	4,490	40	76	2,620
45			31	4,640	51	4,760	61	4,640	67	4,000	45	73	2,420
50			17	3,880	45	4,000	57	4,070	64	3,580	50	71	2,230
55					38	3,380	52	3,450	61	3,200	55	69	2,020
60					30	2,860	47	2,930	57	2,850	60	67	1,840
65					19	2,410	42	2,490	54	2,520	65	64	1,670
70							36	2,090	50	2,130	70	62	1,520
75							29	1,740	45	1,790	75	59	1,380
80							20	1,440	41	1,500	80	56	1,230
85									36	1,240	85	53	1,080
90									30	1,020	90	50	950
95									22	820	95	47	830
100											100	44	720
105											105	40	570
110											110	36	430
		340 lbs.	190 lbs.	150 lbs.	120 lbs.	100 lbs.	Deductions for Stowed Jib						

NOTES:

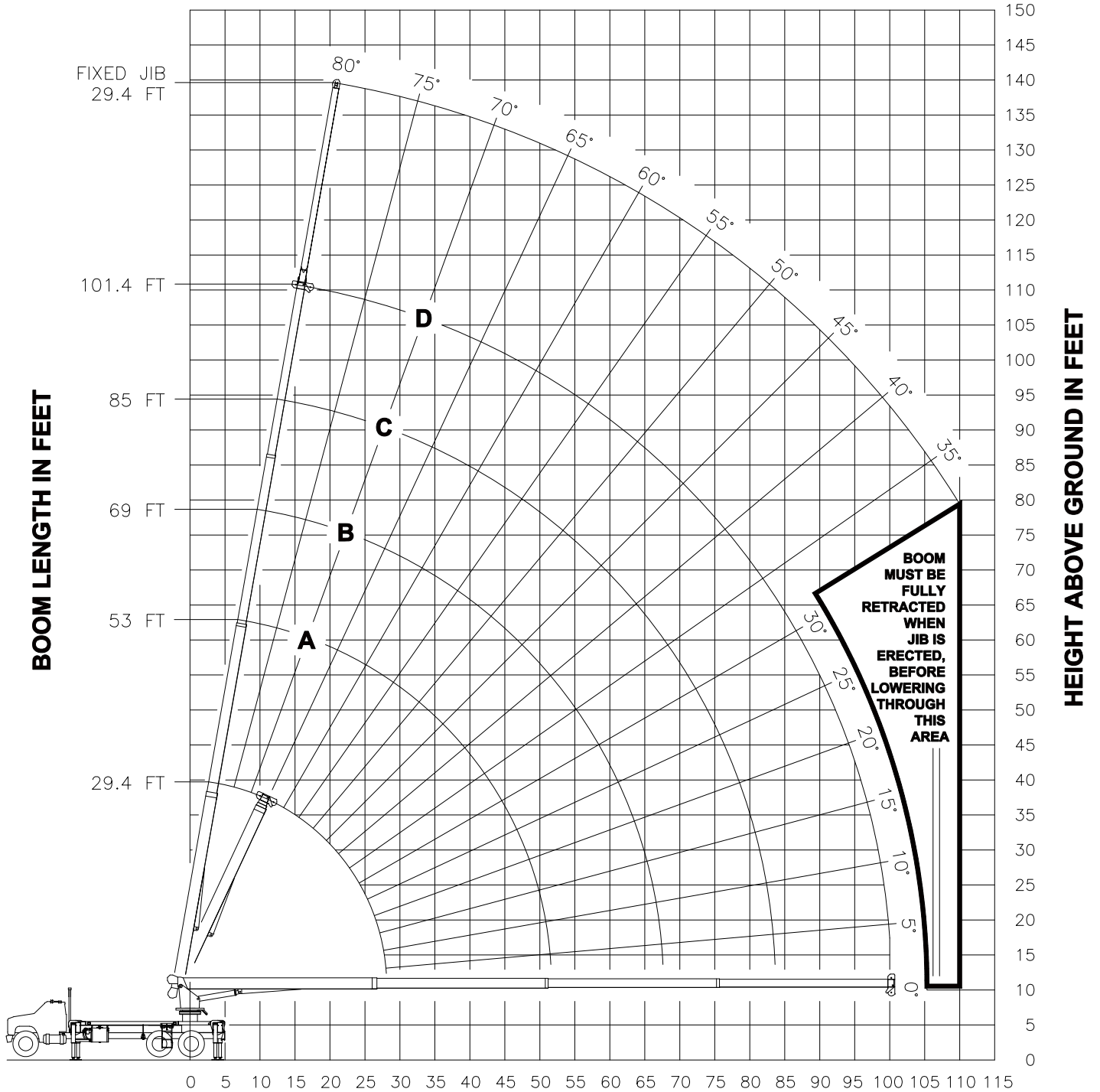
- Loads based on crane on outriggers
- All loads are based on 85% tipping
- Loads above heavy line are based on structural rating
- Loads below heavy line are based on tipping rating



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

22101S BOOM DIAGRAM


- FULLY EXTENDED OUTRIGGER CONFIGURATION -

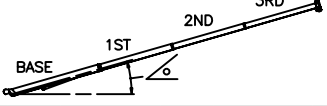


Data published herein is intended as a guide only. Crane operation is subject to machine specific load charts and information.

2277S LOAD CHART: Main Boom & Jib

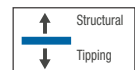
Lifting Capacities 3-Section Boom 29 ft. - 77 ft.
Full Outrigger Extension

 19' 9 3/4" (6 m)

Load Ratings in (lbs.) with Outriggers Fully Extended										Jib Load Ratings in (lbs.)						
LMI Code #1																
Loaded Boom Angle (ft.)	Boom length & Marker									Loaded Boom Angle (ft.)	Fixed Jib		Telescopic Jib		Telescopic Jib	
		A (lbs.)		B (lbs.)		C (lbs.)		D (lbs.)			29 ft. Jib for All Boom Lengths	29 ft. Jib for All Boom Lengths	52 ft. Jib for All Boom Lengths	52 ft. Jib for All Boom Lengths		
											LMI Code #2	LMI Code #3	LMI Code #4	LMI Code #4	LMI Code #4	LMI Code #4
5	80	44,000														
8	74	31,040														
10	69	26,090	76	22,000						10						
12	65	22,570	73	21,220	78	18,500				12						
14	60	19,910	70	18,650	75	16,850	79	14,340		14						
17	53	16,880	66	15,800	72	14,430	76	12,540	79	11,500						
20	45	14,070	61	13,710	69	12,560	73	11,060	77	9,800						
25	27	10,780	52	10,970	63	10,200	69	9,120	73	8,270	79	5,070	79	4,820		
30			42	8,760	56	8,500	64	7,840	69	7,030	77	4,530	77	4,270	80	3,000
35			30	7,120	49	7,220	59	6,670	65	6,050	74	4,050	74	3,790	78	2,900
40					41	5,930	53	5,750	61	5,240	71	3,640	71	3,330	76	2,640
45					31	4,850	47	4,920	56	4,570	68	3,220	68	2,900	74	2,410
50					17	3,980	40	4,060	51	4,010	65	2,860	65	2,540	71	2,200
55							33	3,880	46	3,430	62	2,550	62	2,220	69	2,040
60							22	2,840	40	2,890	60	2,270	59	1,940	67	1,840
65									34	2,440	65	2,040	55	1,710	64	1,670
70									25	2,070	70	1,830	51	1,490	61	1,510
75									13	1,750	75	1,650	47	1,300	58	1,350
80											80	1,480	43	1,130	55	1,220
85											85	1,290	39	970	52	1,060
90											90	1,080	34	760	49	940
95											95	900	29	580	46	830
100											100	740			43	720
105											105				39	630
110											110				35	520
115											115					
	430 lbs.		310 lbs.		240 lbs.		190 lbs.		170 lbs.		Deductions for Stowed Fixed Jib					
	680 lbs.		480 lbs.		370 lbs.		300 lbs.		260 lbs.		Deductions for Stowed Telescopic Jib					

NOTES:

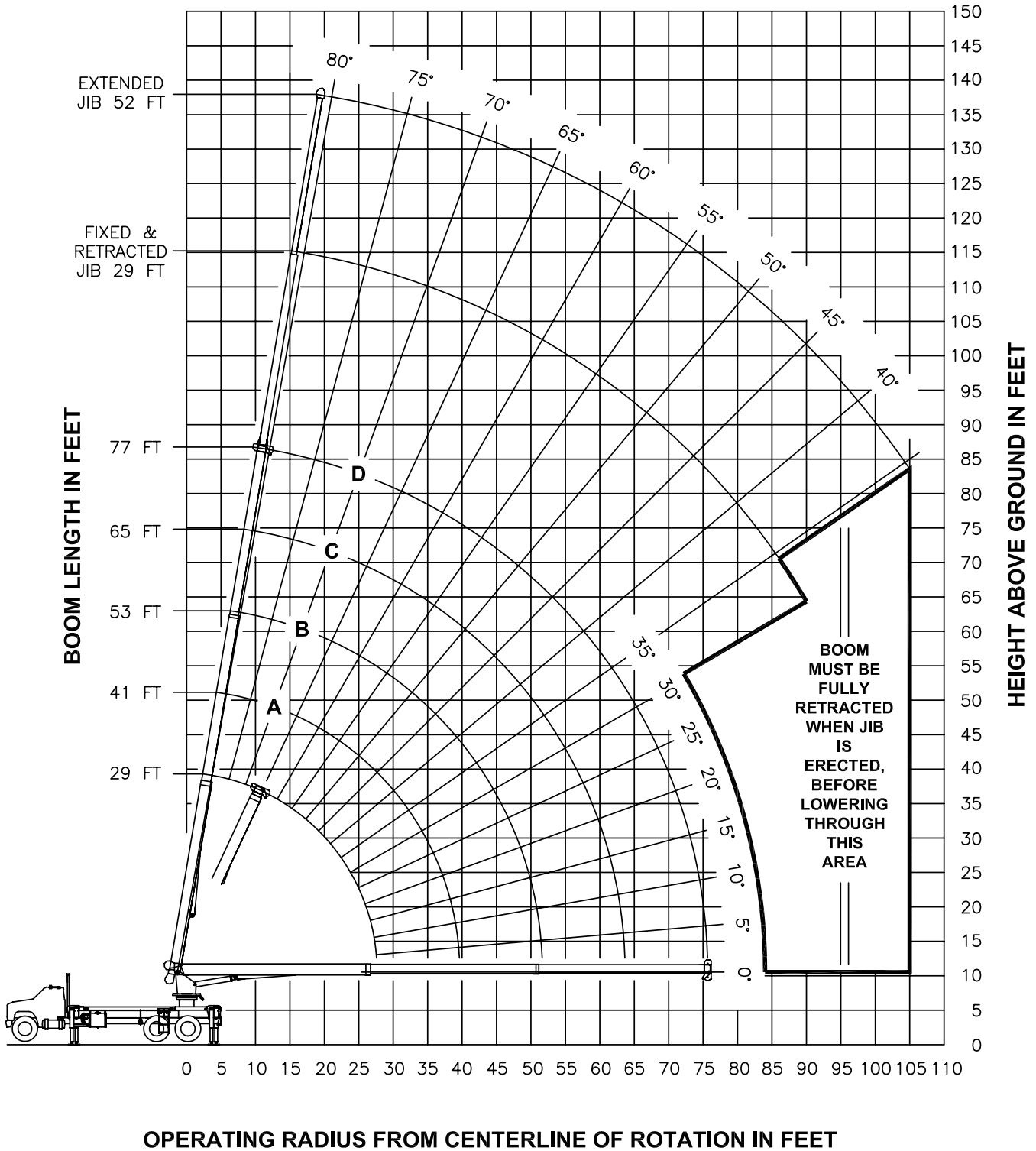
- Loads based on crane on outriggers
- All loads are based on 85% tipping
- Loads above heavy line are based on structural rating
- Loads below heavy line are based on tipping rating



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

2277S BOOM DIAGRAM

RANGE DIAGRAM



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

TECHNICAL DESCRIPTIONS

Boom



- Boom lengths: Proportional boom
- 3-section 77 ft. (23,5 m)
 - 4-section 101 ft. (30,8 m)
 - 3-Sheave quick reeve boom point
 - 1-Idler, 2-Load

Self lubricating slider pad



Max. tip height 2277S: 86' -4" (26,3 m)
 Max. tip height 22101S: 110'5" (33,7 m)



Boom angle (min/max): -6° / 80°

Rotation



Ball-bearing swing circle with external gear
 Double-reduction planetary gearbox driven by hydraulic motor



Slewing brake: Spring-applied pressure released automatic brake



Slewing speed: 1.5 - 2 rpm. (nominal)
 Boom rotation: 360° continuous

Outriggers



Outriggers: Out-and-down style
 FBS - Front Bumper Stabilizer (optional)
 Outrigger monitoring system (for verification only)
 Outrigger motion alarm
 Full extension

- Center to center: 19'-9 3/4" (6 m)

Mid extension for Tandem axle chassis only

- Center to center: 13' 7" (4,1 m)

Full retraction for Tandem axle chassis only

- Center to center: 7'-4" (2,2 m)

12" (304,8 mm) diameter steel pads

Operator aids



- 22101S is Radio LMI with crane function cut-offs for overload protection and Radio anti-two block system
- 2277S is Externally Wired LMI with crane function cut-offs for overload protection
- 22101S is Radio anti-two block system
- Boom angle indicator
- Bubble Level
- Outrigger motion alarm

Hoist, Rope and Hook



Maximum theoretical line speed:
 300 fpm (91 mpm)



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

Rating: Permissible 8,500 lbs (3,855 kg)



Main winch cable diameter: 9/16" (14,3 mm).
 6 x 25 EIPS IWRC Wire Rope
 Optional Rotation Resistant Rope 9/16 in.



Line length: 300 ft. (91,4m)



Main winch: Gear Motor with burst of speed high speed (activated electrically)



Overhaul ball: 7T (6,4 mt) capacity hook with heavy-duty swivel and weight is provided for single line operation.

Hydraulics



8-bolt direct mounted PTO and SAEB or SAE BB output (factory mounted units only)
 3 -section gear pump, Counter Clockwise Standard, SAE BB input (standard).
 Hydraulic reservoir capacity:
 70 gal. (265 L)
 Pump sections @ 2000 rpm with 100 psi

- 32.4 GPM (123 LPM)
- 20.6 GPM (78 LPM)
- 8 GPM (38 LPM)

Ride Around Operator Station Controls



Standard features:
 Ride-around Operator Station with Open Seat.



Controls:

- DS85 –Hirschman display unit
- Four Single axis pilot oil control joy sticks
- Outrigger controls located at rear of truck

OPTIONS

Boom

Max. Tip Height



2277S

- Max. tip height: 86'-4" (26,3m)

22101S

- Max tip height: 110.5 ft (33,7 m)

Jibs

2277S. 22101S

- 1-section fixed jib: 30.5 ft. (9,3 m)
- 2-Section telescopic jib 29'-52' (8,8 m - 15,8 m) for 77' boom only

Max. Tip Height with Extension



2277S

- Max tip height with extension: 138'-3" (42,1 m)
- Max tip height with extension retracted: 115' - 6" (35,2 m)

22101S

- Max. tip height with extension: 139'-7" (42,5 m)

Bulkhead

24 in. (607 mm) bulkhead

Hook Block



Auxiliary lower sheave block for 2-8 part lines
Load blocks 1-3, 1-6, 2-6 part lines

Hydraulics



Hose reel – boom mounted.
Front Bumper Stabilizer (FBS)
Hydraulic oil cooler

Cab



Optional Cab available

- Air Conditioner
- Heater

2-person Basket



Consult Manitex for specific application and rating

- 2-person Steel Gravity Levelled Basket with Friction Brake
- 2-person Steel Gravity Levelled Basket with Hydraulic Brake and Manual Rotation

Radio Remote



4-Function Radio Remote Controls

Tool Boxes & Flatbed

Tool Boxes

- 24 in. L x 18 in. W x 18 in. H (610 mm L x 457 mm W x 457 mm H)
- 48 in. L x 24 in. W x 24 in. H (1,219 mm L x 610 mm W x 610 mm H)

Flatbeds

- 13' (4 m) Steel Flatbed
- 13' (4 m) Wood Flatbed



TTC220

22-Ton (20 mt) TELESCOPIC CRANE
TC220 SERIES PRODUCT GUIDE



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

MANITEX

3000 South Austin Avenue
Georgetown, Texas 78626

1-877-314-3390 www.Manitex.com

Manitex reserves the right that specification, equipment and prices are all subject to change without notice or obligation.