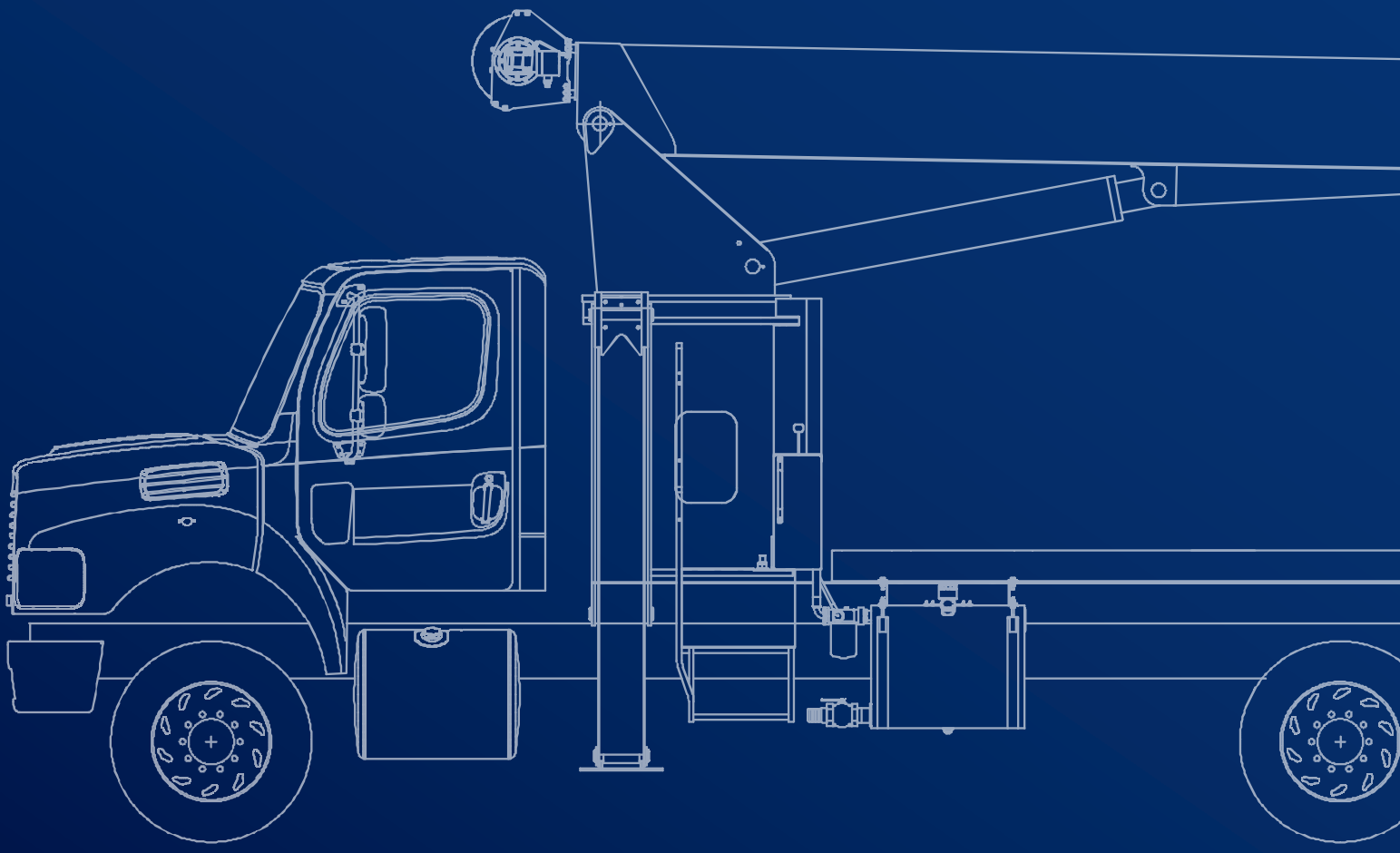
TADANO

TECHNICAL DATA | IMPERIAL

CM280

SERIES PRODUCT GUIDE

28 TON (25.5 MT) TELESCOPIC CRANE



TADANO

Contents

Chassis Data 6-7
Outrigger Extension 8
Area of Operation 9
Reeving Diagram 9

Load Chart: Main Boom and Jib – A-frame Outriggers 12
Boom Diagram – A-frame Outriggers 13
Load Chart: Main Boom and Jib – Out and Down Outriggers 14
Boom Diagram – Out and Down Outriggers 15
LMI Operating Codes 16

Technical Description 18-19
Technical Description – Options 20-21

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


A-Frame 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

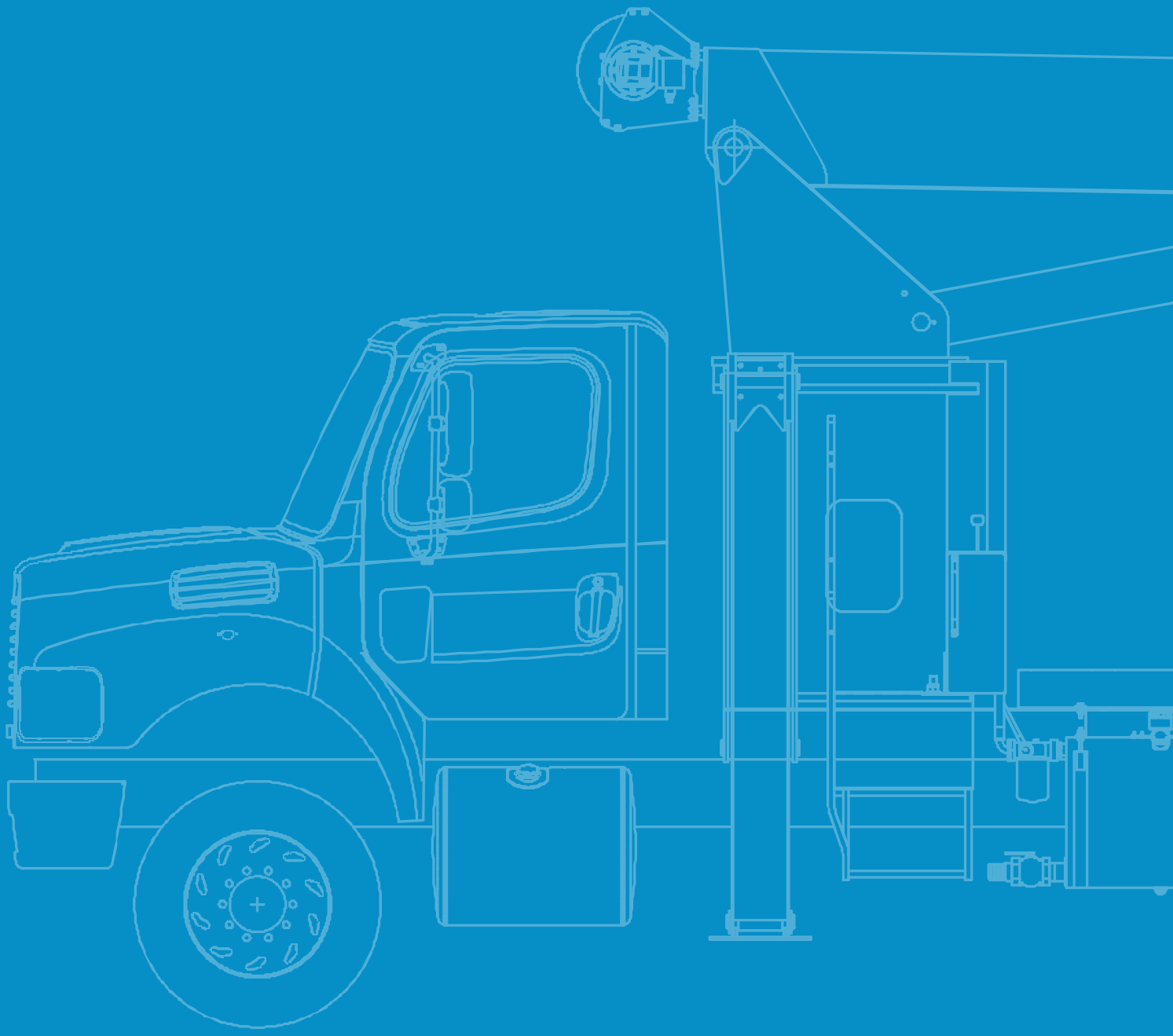

Full power mechanical synchronized


Boom head / Hook block dimension


Main boom with auxiliary head

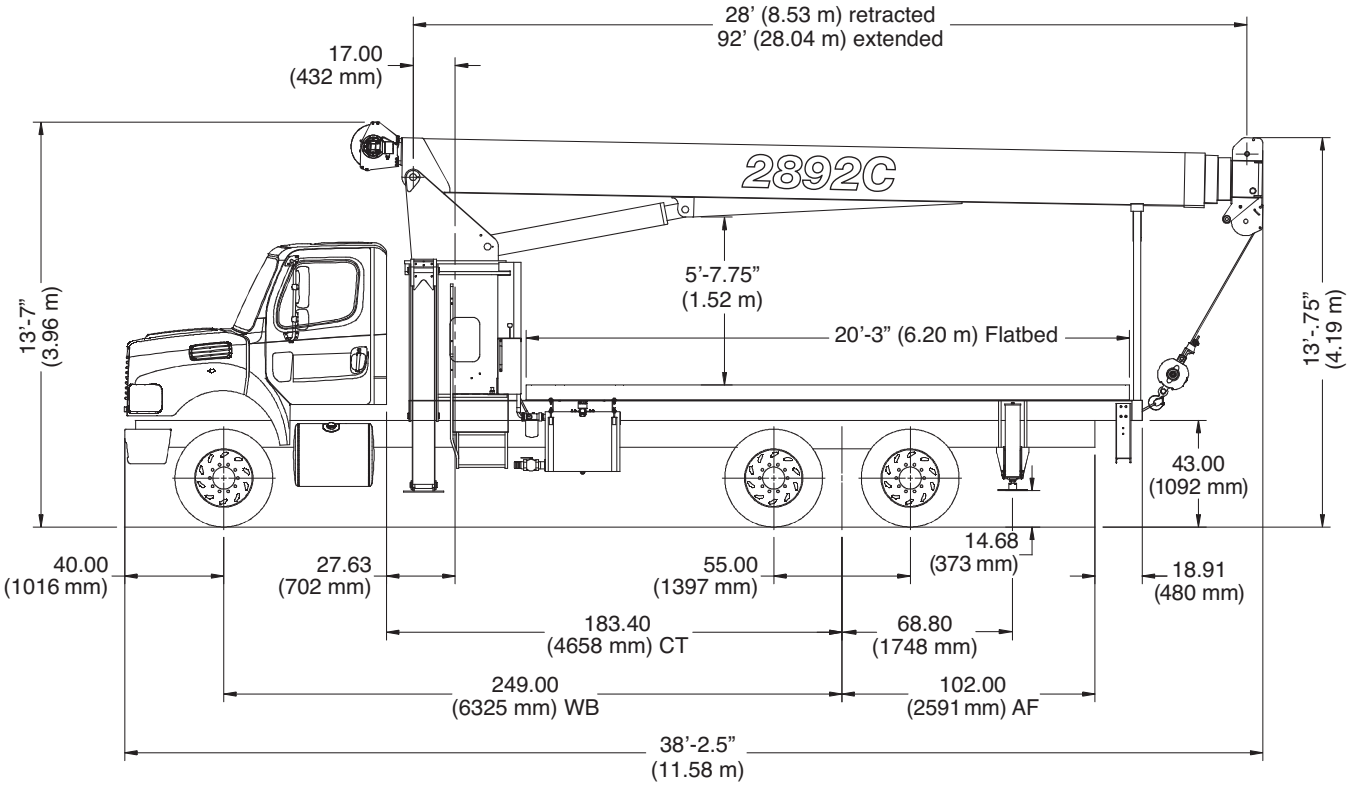

Tip height

CM 280



Chassis Data

A-frame Outriggers – Dimensions



Chassis Data

Model	2892C
Wheelbase (WB)	249 in. (6,325 mm)
Cab to tandem (CT)	183.40 in. (4,658 mm)
After frame (AF)	102 in. (2,591 mm)
Nominal frame width	34 in. (864 mm)
Frame section modulus at 180° / 360° area of operation*	28 in^3 (491.6 cm^3) 110,000 psi · 758,422 kPa

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

Crane Weight

Model	2892C
Total crane standard A-Frame outriggers	20,465 lb (9,376 kg)
Flatbed 20 ft (6.1 m)	1,720 lbs (780 kg)
Flatbed 22 ft (6.7 m)	1,890 lbs (857 kg)
Tele jib	1,220 lbs (553 kg)
Fixed jib	832 lbs (377 kg)

Truck Axle Weight

Front axle gross weight rating	16,000 lbs (7,257 kg)
Rear axle gross weight rating	34,000 lbs (15,422 kg)
Min. truck axle weight – Front**	8,500 lbs (3,856 kg)
Min. truck axle weight – Rear**	8,150 lbs (3,697 kg)

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

Notes:
Additional axles required for federal bridge legal configuration – consult Tadano. Tadano highly recommends addition of a front stabilizer and may be required on some installations – consult Tadano.

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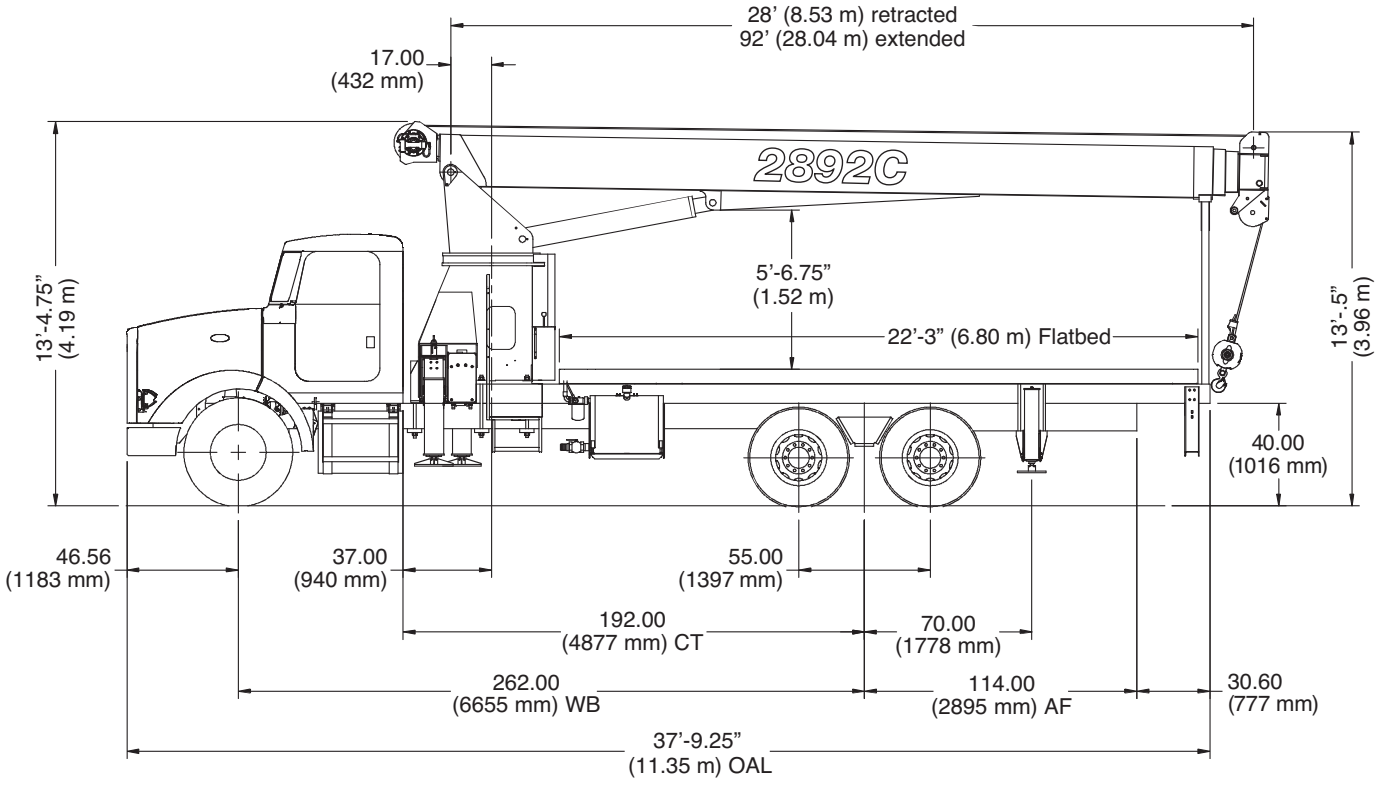
Chassis Data

Out and Down Outriggers – Dimensions



Chassis Data

Model	2892C
Wheelbase (WB)	262 in. (6,655 mm)
Cab to tandem (CT)	192 in. (4,877 mm)
After frame (AF)	114 in. (2,895 mm)
Nominal frame width	34 in. (864 mm)
Frame section modulus at 180° / 360° area of operation*	28 in^3 (491.6 cm^3) 110,000 psi · 758,422 kPa

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

Crane Weight

Model	2892C
Total crane Out and Down outriggers	21,625 lbs (9,902 kg)
Flatbed 20 ft (6.1 m)	1,720 lbs (780 kg)
Flatbed 22 ft (6.7 m)	1,890 lbs (857 kg)
Tele jib	1,220 lbs (553 kg)
Fixed jib	832 lbs (377 kg)

Truck Axle Weight

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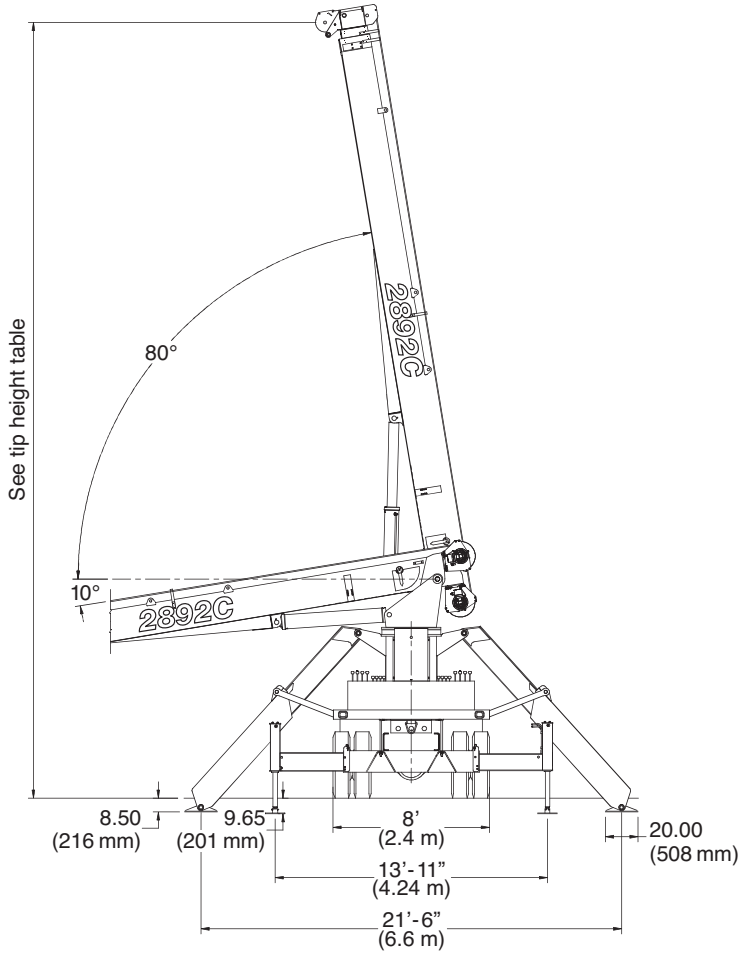
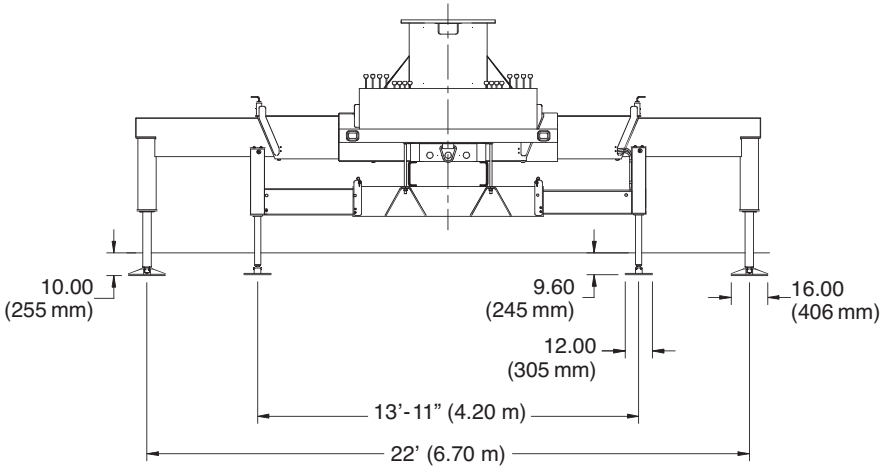
Outrigger Extension

Rear Dimensions for A-Frame Outriggers



Rear Dimensions for Out and Down Outriggers



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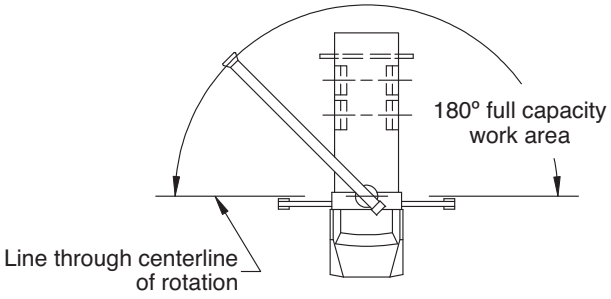
Area of Operation · Reeving Diagram

Area of Operation

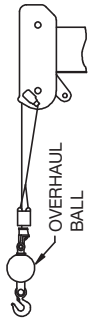
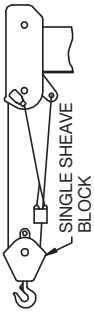
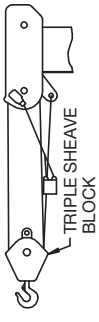
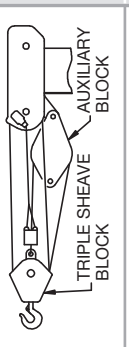
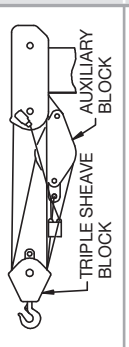
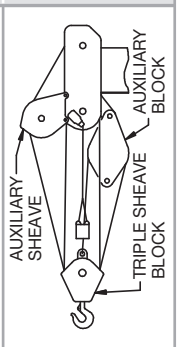


Deductions from rated loads for load handling devices supplied by Tadano

Auxilary block	50 lbs (22.7 kg)
Auxilary sheave	50 lbs (22.7 kg)
Overhaul ball	See overhaul ball mfgr. nameplate
Load blocks	See block mfgr. nameplate
Hose reel	260 lbs (117.9 kg)
Swing-around jib	See load chart

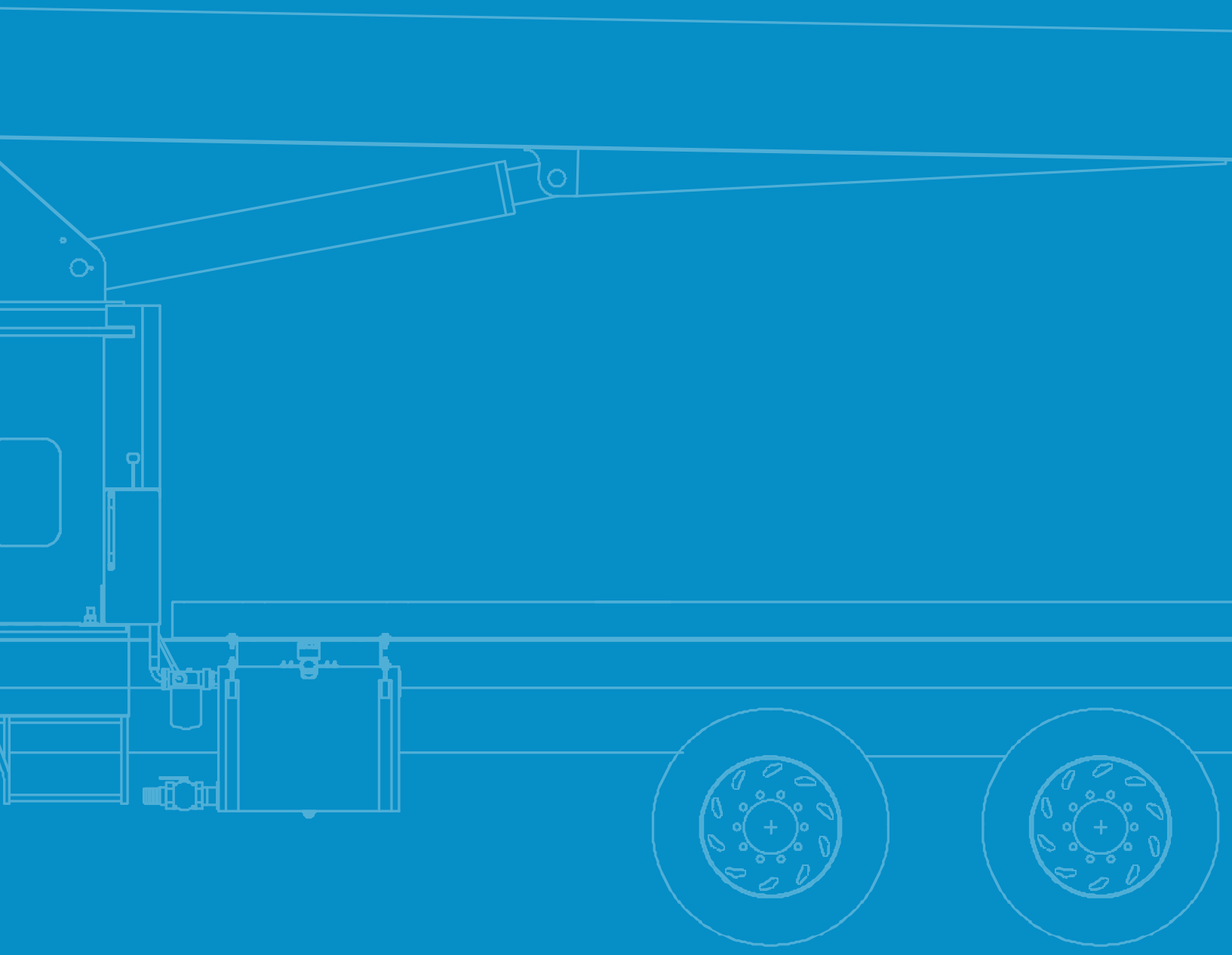
WARNING: Lifting off the main boom point while the jib is erected is not intended nor approved.

Reeving Diagram

Allowable Line Pull							WARNING
1 part line	2 part line	3 part line	4 part line	5 part line	6 part line	7 part line	**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.**
							
8,500 lbs	**17,000 lbs**	**25,500 lbs**	**34,000 lbs**	**42,500 lbs**	**51,000 lbs**	**56,000 lbs**	**9/16" 6 x 25 IWRC (3.5 : 1 SF) 29,750 lbs min. breaking strength**
7,700 lbs	**15,400 lbs**	**23,100 lbs**	**30,800 lbs**	**38,500 lbs**	**46,200 lbs**	**53,900 lbs**	**9/16" rot resistant (5.0 : 1 SF) 38,500 lbs min. breaking strength**

Notes

CM 280



Load Chart

Main Boom
Jib

A-Frame Outriggers

28 ft – 92 ft – 4 section Jib 26 ft – 46 ft | 180° non-continuous | 22 ft (6.7m) Outriggers | 13.8 ft (4.2 m) Stabilizers

	28 ft		47 ft (A)		62 ft (B)		77 ft (C)		92 ft (D)	
ft	°	lbs	°	lbs	°	lbs	°	lbs	°	lbs
5	79	56,000	-	-	-	-	-	-	-	-
8	73	40,670	-	-	-	-	-	-	-	-
10	69	34,520	78	22,500	-	-	-	-	-	-
12	64	30,130	76	22,500	80	22,500	-	-	-	-
15	57	25,430	72	22,310	77	20,960	80	15,920	-	-
20	43	20,130	65	17,540	72	16,290	77	13,540	79	10,700
25	22	15,630	58	14,500	67	13,340	73	11,710	76	9,290
30	-	-	50	12,120	62	11,290	69	10,160	73	8,330
35	-	-	41	9,040	57	9,200	65	8,830	70	7,320
40	-	-	30	6,990	51	7,150	60	7,240	66	6,460
45	-	-	11	5,510	44	5,700	56	5,780	63	5,730
50	-	-	-	-	36	4,600	51	4,690	59	4,740
55	-	-	-	-	27	3,750	46	3,840	55	3,890
60	-	-	-	-	10	3,050	40	3,160	51	3,210
65	-	-	-	-	-	-	33	2,610	47	2,660
70	-	-	-	-	-	-	24	2,140	42	2,200
75	-	-	-	-	-	-	9	1,730	37	1,800
80	-	-	-	-	-	-	-	-	31	1,470
85	-	-	-	-	-	-	-	-	23	1,170
90	-	-	-	-	-	-	-	-	9	910
95	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-

	Fixed Jib		Telescopic Jib			
	26 ft		26 ft		46 ft	
ft	°	lbs	°	lbs	°	lbs
5	-	-	-	-	-	-
8	-	-	-	-	-	-
10	-	-	-	-	-	-
12	-	-	-	-	-	-
15	-	-	-	-	-	-
20	-	-	-	-	-	-
25	79	5,600	79	5,400	-	-
30	77	5,300	77	5,100	79	3,400
35	75	4,960	75	4,700	77	3,300
40	72	4,490	72	4,230	76	3,200
45	70	4,080	70	3,820	74	3,040
50	67	3,710	67	3,440	72	2,800
55	65	3,380	65	3,100	69	2,630
60	62	3,080	62	2,810	67	2,480
65	59	2,790	59	2,500	65	2,310
70	56	2,320	56	2,030	63	2,110
75	53	1,930	53	1,640	60	1,940
80	50	1,590	50	1,300	58	1,760
85	46	1,300	46	1,010	55	1,460
90	42	1,040	42	750	52	1,200
95	38	810	38	520	49	970
100	-	-	-	-	46	770
105	-	-	-	-	43	580
110	-	-	-	-	-	-

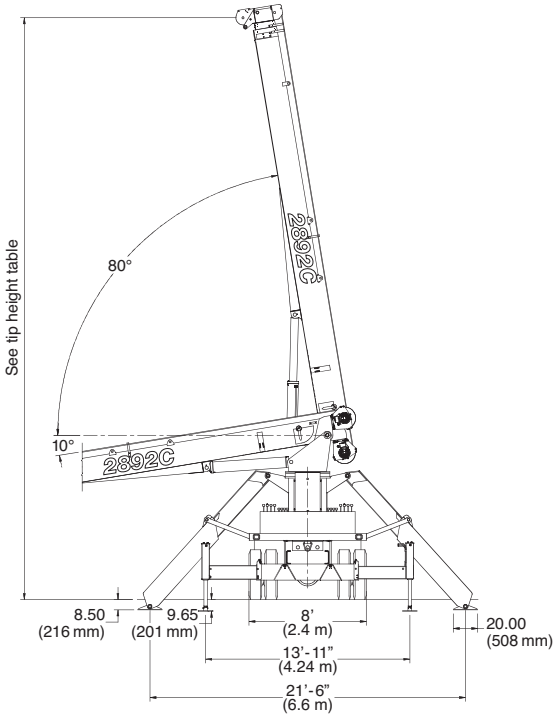
Deductions from main boom capacities for stowed jibs

SFJ	460 lbs	270 lbs	210 lbs	170 lbs	140 lbs
STJ	690 lbs	410 lbs	310 lbs	250 lbs	210 lbs

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

↑ Structural
↓ Stability

NOTES:
All loads rated at 180° pick
Loads based on crane on fully extended outriggers and stabilizers
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



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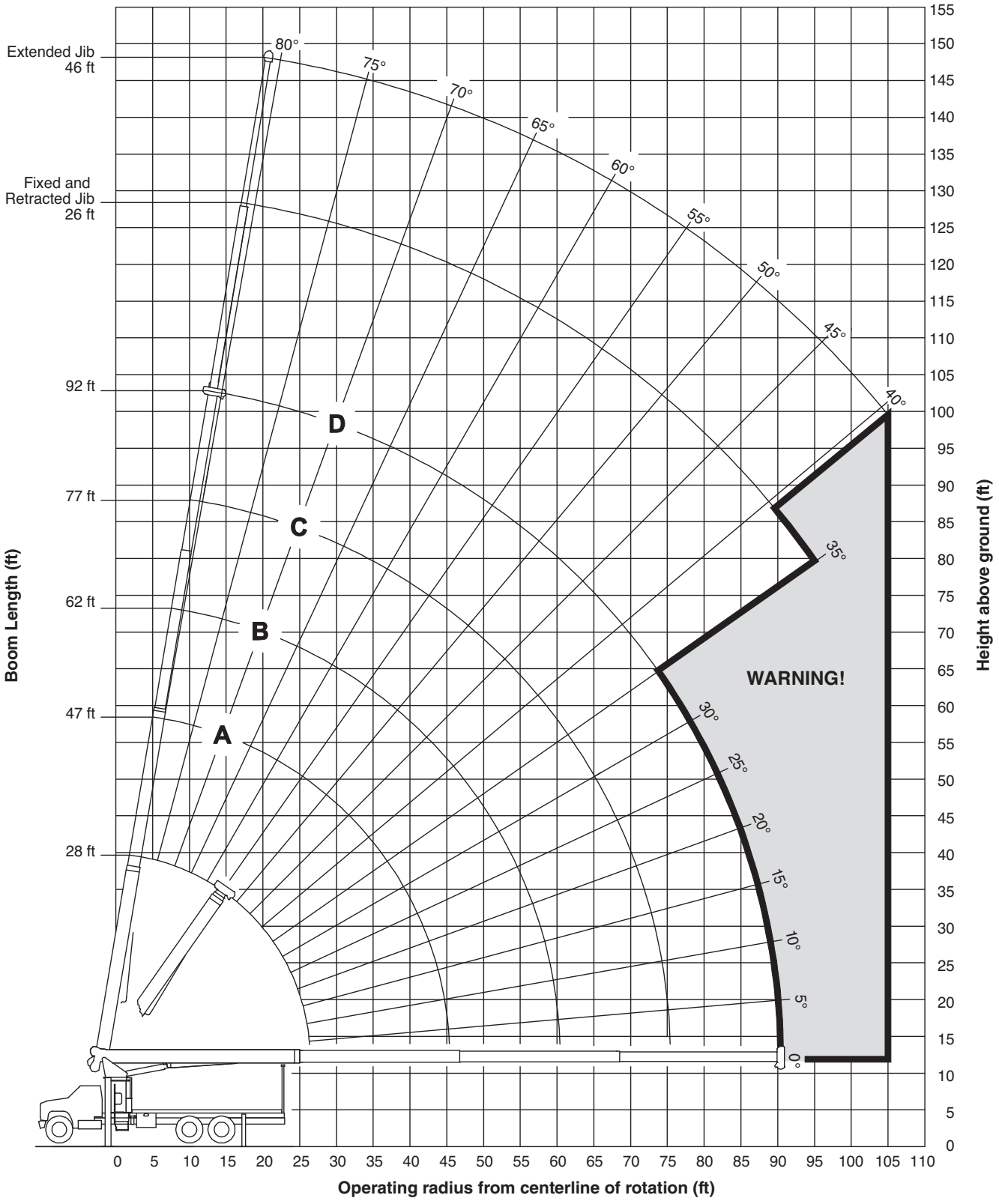
Boom Diagram

Main Boom
Jib

A-Frame Outriggers



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Load Chart

Main Boom
Jib

Out and Down Outriggers

Jib 28 ft – 92 ft – 4 section, 26 ft – 46 ft · 180° non-continuous · 22 ft (6.7m) Outriggers · 13.8 ft (4.2 m) Stabilizers

	28 ft		47 ft (A)		62 ft (B)		77 ft (C)		92 ft (D)	
ft	°	lbs	°	lbs	°	lbs	°	lbs	°	lbs
5	79	56,000	-	-	-	-	-	-	-	-
8	73	40,670	-	-	-	-	-	-	-	-
10	69	34,520	78	22,500	-	-	-	-	-	-
12	64	30,130	76	22,500	80	22,500	-	-	-	-
15	57	25,430	72	22,310	77	20,960	80	15,920	-	-
20	43	20,130	65	17,540	72	16,290	77	13,540	79	10,700
25	22	15,630	58	14,500	67	13,340	73	11,710	76	9,290
30	-	-	50	12,120	62	11,290	69	10,160	73	8,330
35	-	-	41	9,040	57	9,200	65	8,830	70	7,320
40	-	-	30	6,990	51	7,150	60	7,240	67	6,460
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60	-	-	-	-	10	3,050	40	3,160	51	3,210
65	-	-	-	-	-	-	33	2,610	47	2,660
70	-	-	-	-	-	-	24	2,140	42	2,200
75	-	-	-	-	-	-	9	1,730	37	1,800
80	-	-	-	-	-	-	-	-	31	1,470
85	-	-	-	-	-	-	-	-	23	1,170
90	-	-	-	-	-	-	-	-	9	910
95	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-

	Fixed Jib		Telescopic Jib			
	26 ft		26 ft		46 ft	
ft	°	lbs	°	lbs	°	lbs
5	-	-	-	-	-	-
8	-	-	-	-	-	-
10	-	-	-	-	-	-
12	-	-	-	-	-	-
15	-	-	-	-	-	-
20	-	-	-	-	-	-
25	79	5,600	79	5,400	-	-
30	77	5,300	77	5,100	79	3,400
35	75	4,960	75	4,700	77	3,300
40	72	4,490	72	4,230	76	3,200
45	70	4,080	70	3,820	74	3,040
50	67	3,710	67	3,440	72	2,800
55	65	3,380	65	3,100	69	2,630
60	62	3,080	62	2,810	67	2,480
65	59	2,790	59	2,500	65	2,310
70	56	2,320	56	2,030	63	2,110
75	53	1,930	53	1,640	60	1,940
80	50	1,590	50	1,300	58	1,760
85	46	1,300	46	1,010	55	1,460
90	42	1,040	42	750	52	1,200
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110	-	-	-	-	-	-

Deductions from main boom capacities for stowed jibs

SFJ	460 lbs	270 lbs	210 lbs	170 lbs	140 lbs
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SFJ = Stowed fixed jib · **STJ** = Stowed telescopic jib

↑ Structural
↓ Stability

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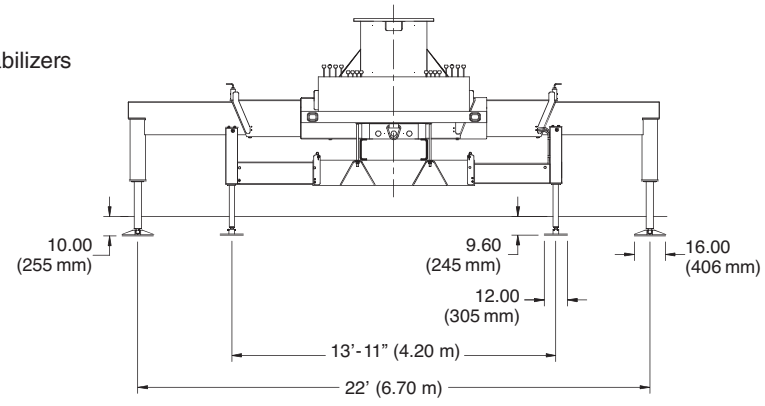

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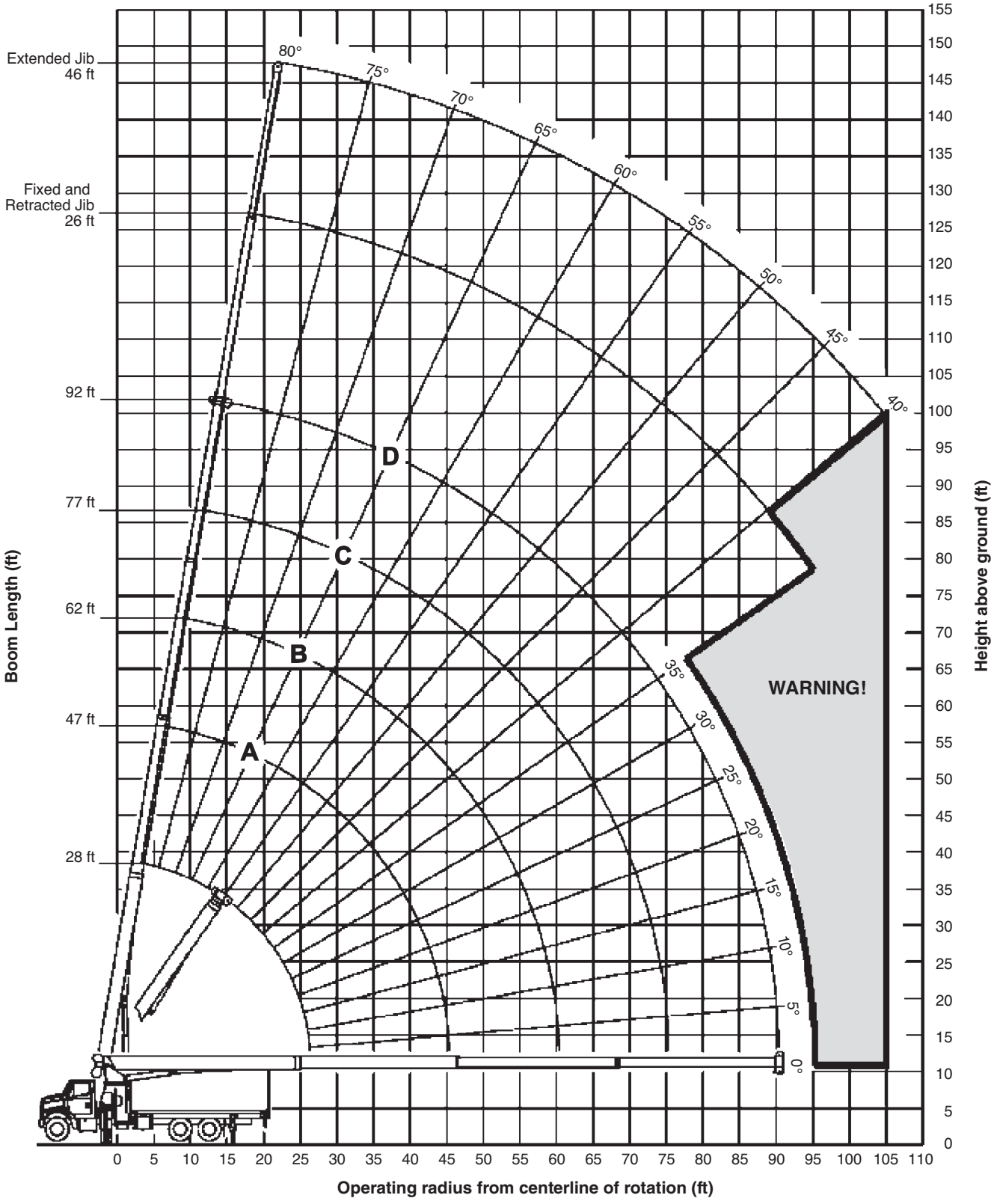
Boom Diagram

Main Boom
Jib

Out and Down Outriggers



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LMI Operating Codes

LMI Operating Codes		
Code	**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 the crane.
2. Positioning or operation of crane beyond areas shown on these charts 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.
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.
11. 360° area of operation is only valid with the use of a front bumper stabilizer.

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 head, is the included angle between the horizontal and longitudinal axes of the boom base after lifting rated load at rated radius.

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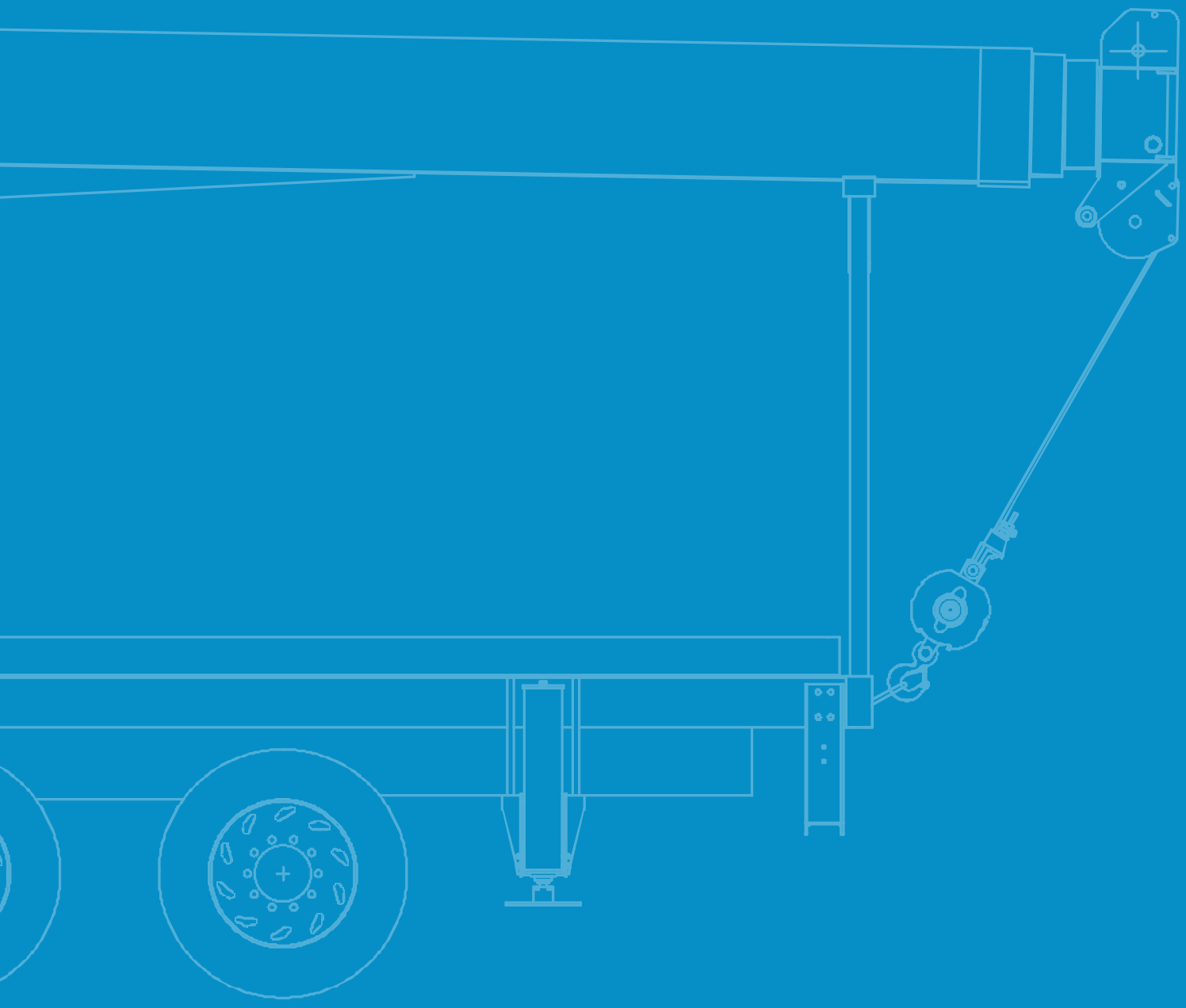
CM 280



Technical Description

Boom

Boom length: Proportional boom
• 4-Section telescopic boom 91.9 ft (28 m)
3-sheave quick reeve boom point

2892C:
Boom max. tip height: 101.7 ft (31 m)
Boom min. tip height: 39.3 ft (12 m)

Boom angle (min./max.):
-10° / 80°

Rotation

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

Slewing brake:
Spring-applied pressure released parking brake

Slewing speed: 0 - 1.5 rpm
Boom rotation: 372° non-continuous

Outriggers

Outriggers A-frame
• A-frame, to outer edge of pad: 23.2 ft (7.07 m)

Outriggers Out-Down
• Out and Down 22 ft (6.7 m)

Stabilizer Out-Down, center to center
• Out and down 13.8 ft (4.2 m)

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)
EIPS IWRC wire rope

Line length:
300 ft (91.44 m)

Main winch motor:
2 speed gear type hydrualic motor activated electrically
Combined flows for high speed operation

Hook and ball:
7 t (6.4 mt) capacity hook with heavy-duty swivel and weight is provided for single line operation

Technical Description

Hydraulics

Direct mounted PTO with SAE B input and SAE BB output

3-Section gear pump standard CCW rotation

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 (79 lpm)
- Cover end pump: 10 gpm (38 lpm)

Operator Aids

LMI with crane functions cut-offs for overload protection
- External wired anti-two block system

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

Technical Description – Options

Flatbeds

- 22 ft (6.7 m) Wood bed
- 22 ft (6.7 m) Steel bed
- 22 ft (6.7 m) Heavy hauler 0.1875 in. – Steel
- 20 ft (6.0 m) Wood bed
- 20 ft (6.0 m) Steel bed

Jib

2892C:

- 1 section fixed jib 26 ft (7.9 m)
- 2 section telescopic jib 26 ft - 46 ft (7.9 m - 14 m)

2892C:

- Max. tip height with extension 148.3 ft (45.2 m)
- Max. tip height with extension retracted 128.6 ft (39.2 m)

Hoist, Rope and Hook

0.5625 in. (14.3 mm) rotation resistant rope

Technical Description – Options

Hydraulics

HYDR

3-section vane pump, CCW or CW
- FBS – Front Bumper Stabilizer
- Hydraulic oil cooler
- Hose reel

2-Person Basket

2-person man basket – Steel
- Non-rotating (600 lbs capacity) – Steel
- 2 person gravity level with hydraulic brake steel (1200 lbs capacity)
- 2 person quick attached aluminum rotating basket (1200 lbs capacity) – Main boom

Radio Remote

4-function radio remote crane control system

Hycas system available with radio load cell for jib overload protection only

Tool Boxes and Bulkhead

Tool Boxes
- 24 in. L x 18 in. W x 18 in. H (610 mm L x 457 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)

Notes

Notes

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