

Manitex



TC400-TC450

40-Ton (36,3 mt) 45-Ton (40,8 mt) TELESCOPIC CRANE
TC400-TC450 SERIES PRODUCT GUIDE

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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 TC400-TC450 SERIES TELESCOPIC CRANES

Versatile. Affordable. User friendly.

The TC400-TC450 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 40-45-ton line of telescopic cranes are designed to get you to the job quickly.

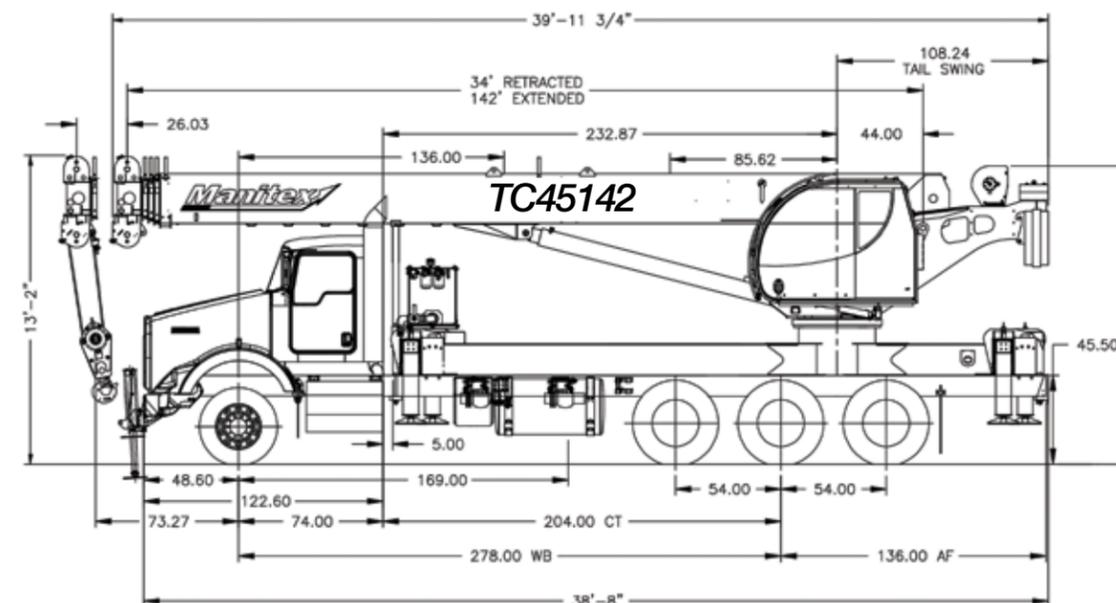
With it, you can:

- Travel to and from job sites at highway speed on a commercial chassis
- Set up quickly with radio outrigger controls
- Operate comfortably and with confidence in its tiltable cab

Other features include:

- 45-ton capacity @7 ft. radius
- 40-ton capacity @7 ft. radius
- Optional telescopic jib
- 152' (46,3 m) maximum boom tip height
- Out and down outriggers

TC450 SERIES CHASSIS DATA



CHASSIS DATA

Model	TC45142
Wheel Base (WB)	278 in. (7,061 mm)
Cab to Tridem (CT)	204 in. (5281.6 mm)
Frame section modulus at 360° area of operation	27.0 in ³ , 110,000 psi, 758,422 kPa
Cab to End of Frame (EOF)	316 in. (8026 mm)
Nominal Frame Width	34 in. (864 mm)

CRANE WEIGHTS

Model	TC45142
Crane with cab	45,550 lb. (18,8847 kg)
Aluminum Platform	621 lb. (282 kg)
Tele Jib	1620 lb. (735 kg)

TRUCK AXLE WEIGHTS

Model	TC45142
Front axle (GW)	20,000 lb. (9,790 kg)
Rear axle	40,000 lb. (19,580 kg)
Tag Axle Rating	12,500 lb. (5669 kg)
Min. truck axle W - Front**	9,000 lb. (4082 kg)
Min. truck axle W - Rear**	9,600 lb. (4354 kg)

** Minimum chassis weight is required to meet 85% stability requirements. Chassis data is general - not for engineering. Some dimensions depend on truck selection. Data published herein is intended as a guide only. Crane operation is subject to machine specific load charts and information.

NEW COMBINED RADIO REMOTE



RADIO OUTRIGGER CONTROLS

One control to operate the outriggers, winch controls and the boom.

Operate the outriggers remotely, with a clear view of the machine, using radio remote controls.

CAB UPGRADES



All cabs now come equipped with Heat and AC with more air flow. Adjustable cab tilt speed and crane functions. USB ports for quick software updates or phone charging.

More leg space and only one display unit needed for both crane and chassis monitoring.

TELEMATICS



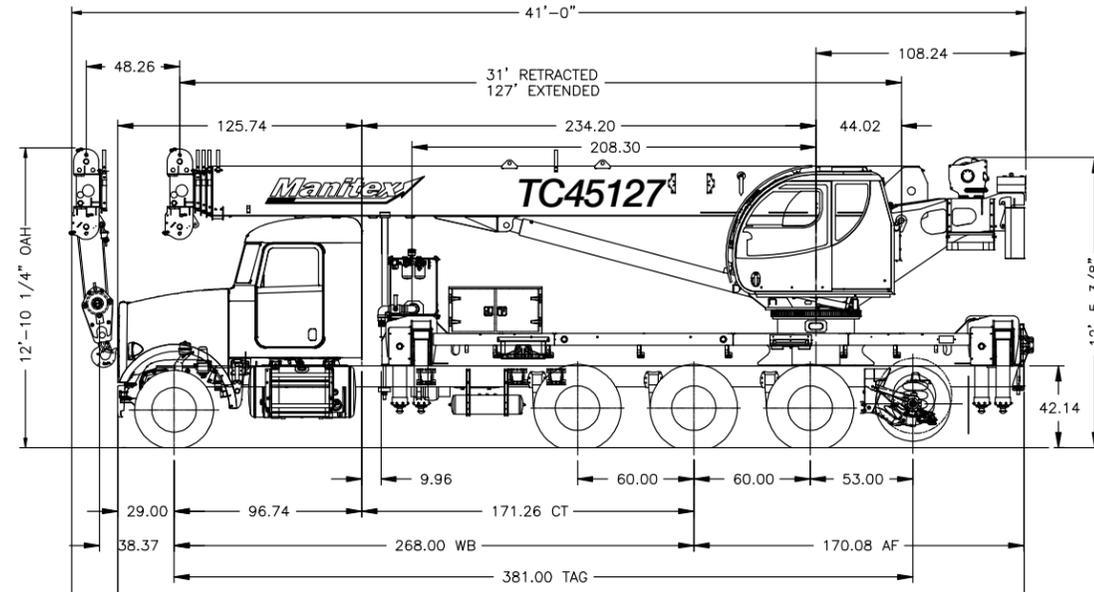
A modem has been added to the crane PLC system to aid troubleshooting machines in the field. Crane software updates can now be uploaded to the machine without having to send a technician to the field! GPS ready for tracking through the ManiTex web portal.

OPERATOR AIDS



TC400-TC450 with LMI system for crane function cut-offs for overload protection. color graphic display, event recorder, WADS-Work Definition System.

TC450 SERIES CHASSIS DATA



CHASSIS DATA

Model	TC45127
Wheel Base (WB)	268"
Cab to Tandem (CT)	181"
Frame section modulus at 360° area of operation	27.0 in ³ , 110,000 psi, 758,422 kPa
Cab to End of Frame (EOF)	346"
Nominal Frame Width	34"

CRANE WEIGHTS

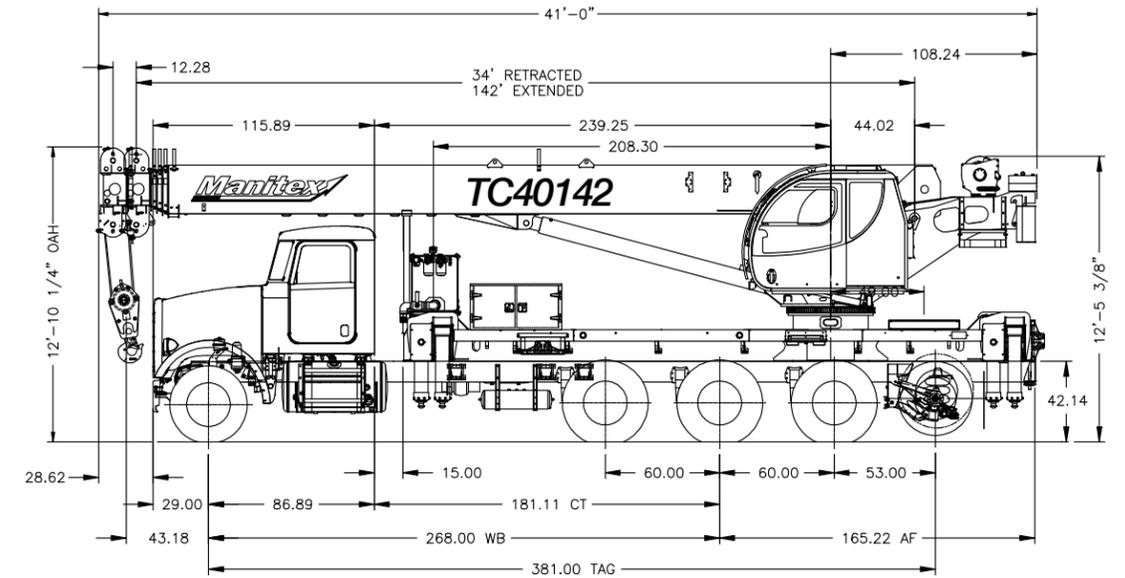
Model	TC45127
Crane with cab	40,738 lb. (18,479 kg)
Aluminum Platform	621 lb. (282 kg)
Tele Jib	1,620 lb. (735 kg)

TRUCK AXLE WEIGHTS

Model	TC45127
Front axle (GAWR)	20,000 lb. (9,790 kg)
Rear axle (GAWR)	40,000 lb. (19,580 kg)
Tag axle (GAWR)	12,500 lb. (5669 kg)
Min. truck axle W - Front**	9,000 lb. (4082 kg)
Min. truck axle W - Rear**	9,600 lb. (4354 kg)

** Minimum chassis weight is required to meet 85% stability requirements. Chassis data is general - not for engineering. Some dimensions depend on truck selection. Data published herein is intended as a guide only. Crane operation is subject to machine specific load charts and information.

TC400 SERIES CHASSIS DATA



CHASSIS DATA

Model	TC40142
Wheel Base (WB)	268"
Cab to Tandem (CT)	181"
Frame section modulus at 360° area of operation	27.0 in ³ , 110,000 psi, 758,422 kPa
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CRANE WEIGHTS

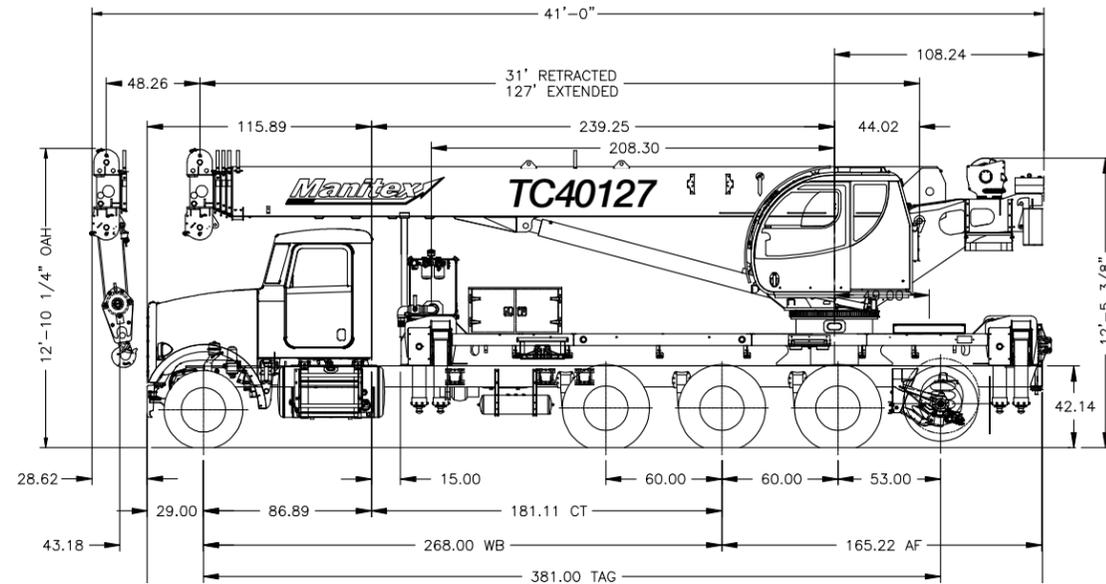
Model	TC40142
Crane with cab	39,500 lb. (17,917 kg)
Aluminum Platform	621 lb. (282 kg)
Tele Jib	1620 lb. (735 kg)

TRUCK AXLE WEIGHTS

Model	TC40142
Front axle (GAWR)	20,000 lb. (9,790 kg)
Rear axle (GAWR)	40,000 lb. (19,580 kg)
Tag axle (GAWR)	12,500 lb. (5669 kg)
Min. truck axle W - Front**	9,000 lb. (4082 kg)
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** Minimum chassis weight is required to meet 85% stability requirements. Chassis data is general - not for engineering. Some dimensions depend on truck selection.

TC400 SERIES CHASSIS DATA



CHASSIS DATA

Model	TC40127
Wheel Base (WB)	268"
Cab to Tandem (CT)	181"
Frame section modulus at 360° area of operation	27.0 in ³ , 110,000 psi, 758,422 kPa
Cab to End of Frame (EOF)	346"
Nominal Frame Width	34"

CRANE WEIGHTS

Model	TC40127
Crane with cab	38,738 lb. (17,592 kg)
Aluminum Platform	621 lb. (282 kg)
Tele Jib	1,620 lb. (735 kg)

TRUCK AXLE WEIGHTS

Model	TC40127
Front axle (GAWR)	20,000 lb. (9,790 kg)
Rear axle (GAWR)	40,000 lb. (19,580 kg)
Tag axle (GAWR)	12,500 lb. (5669 kg)
Min. truck axle W - Front**	9,000 lb. (4082 kg)
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REEVING DIAGRAMS

TC450

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	8 PART LINE	9 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.	
9500 LBS	19000 LBS	28500 LBS	38000 LBS	47500 LBS	57000 LBS	66500 LBS	76000 LBS	85500 LBS		5/8" ROT RESISTANT (5.0:1 SF) - 47500 LBS MIN BREAKING STRENGTH
10000 LBS	20000 LBS	30000 LBS	40000 LBS	50000 LBS	60000 LBS	70000 LBS	80000 LBS	90000 LBS		5/8" 6 X 25 IWRC (3.5:1 SF) - 35000 LBS MIN BREAKING STRENGTH

TC400

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	8 PART LINE	9 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.	
9500 LBS	19000 LBS	28500 LBS	38000 LBS	47500 LBS	57000 LBS	66500 LBS	76000 LBS	80000 LBS		5/8" ROT RESISTANT (5.0:1 SF) - 47500 LBS MIN BREAKING STRENGTH
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Deductions from rated loads for load handling devices supplied by Manitex

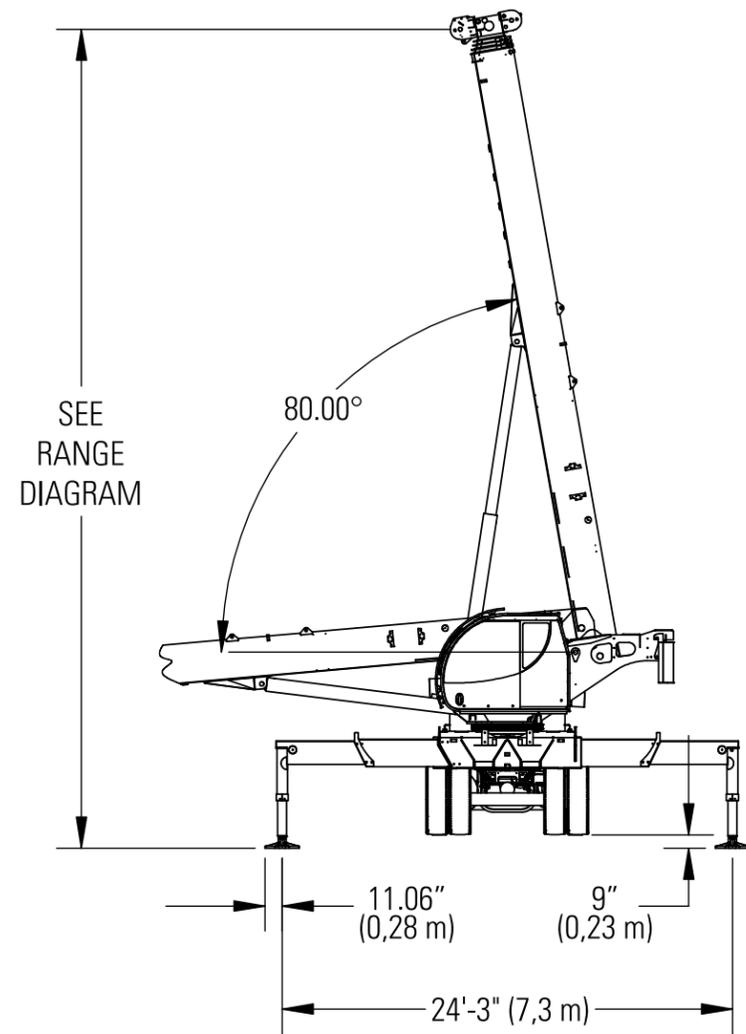
Auxiliary block	50 lbs. (22.7 kg)
Overhaul ball	See overhaul ball mfg. nameplate
Load blocks	See load block mfg. nameplate
Swing around jib (stowed)	See load chart

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

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

OUTRIGGERS

Full Extension



SUBFRAME

- 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 underride protection: Standard on factory mounted cranes.

ELECTRICAL SYSTEM

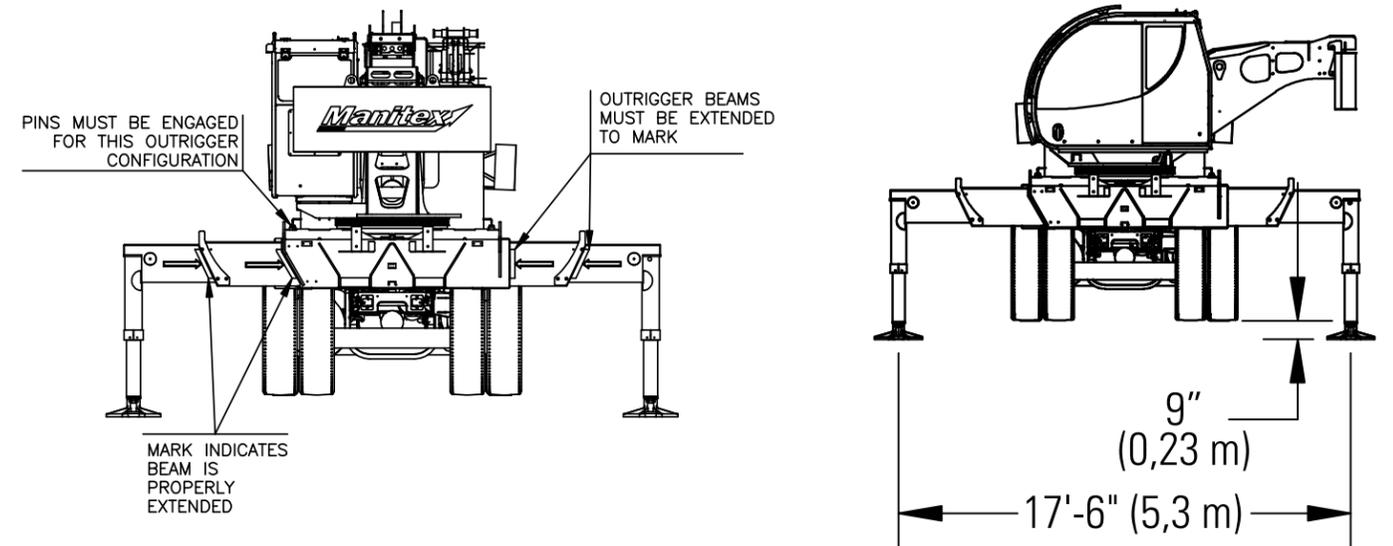
- State-of-the-art weather-resistant components throughout.
- Hermetically sealed enclosure includes power in relays and circuit status LEDs.
- 12-24 Volt Capability.
- PLC/CANBUS Technology

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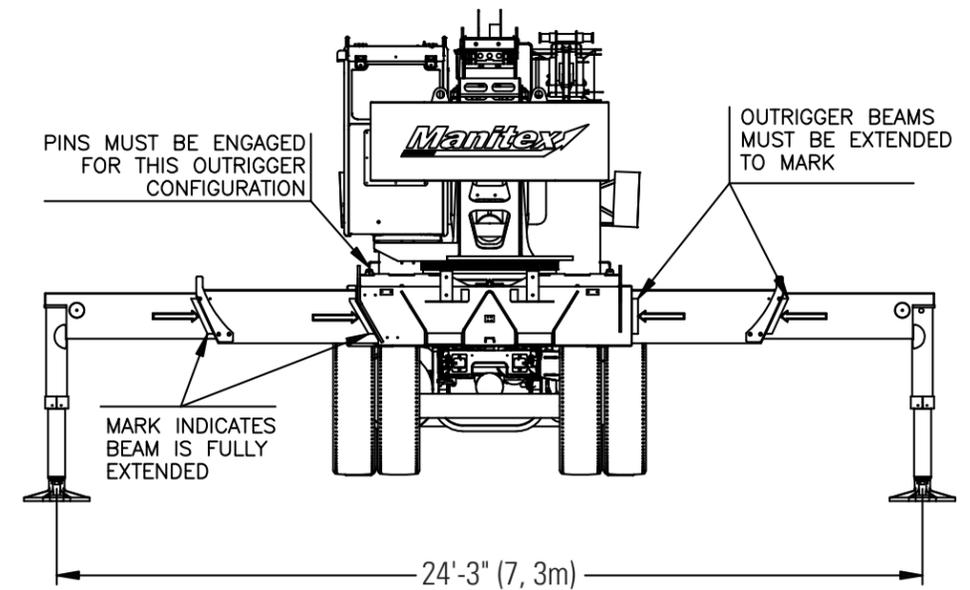


OUTRIGGERS

Intermediate Spread



Fully Retracted Spread



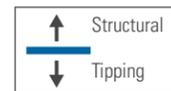
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TC40142 LOAD CHART: Main Boom & Jib

Lifting Capacities 5 section Boom 142 ft. 43,3 m
Full Outrigger Extension



MAIN BOOM RATED LOADS LMI CODES 3																			
Load radius ∠°	34 ft.		47 ft. (A)		61 ft. (B)		74 ft. (C)		88 ft. (D)		101 ft. (E)		115 ft. (F)		128 ft. (G)		142 ft. (H)		Load radius ∠°
	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	(deg)	Load Capacity (lbs.)	
7	73	80,000																	7
8	71	80,000	77	42,000															8
10	67	70,500	74	42,000	79	42,000													10
12	64	61,000	72	42,000	77	42,000	80	35,700											12
15	58	47,890	68	42,000	74	40,960	78	35,700	80	24,200									15
20	47	34,460	61	35,060	69	35,380	74	30,970	77	24,200	79	17,550							20
25	33	26,210	54	26,850	64	27,180	70	27,360	74	21,730	76	16,210	79	13,650					25
30	9	19,380	46	21,310	58	21,650	65	21,830	70	19,680	74	15,010	77	12,750	79	10,050	80	8,000	30
35			36	17,290	52	17,660	61	17,850	67	17,060	71	13,860	74	11,700	76	9,800	78	7,800	35
40			23	14,240	46	14,640	56	14,840	63	14,970	68	12,810	71	10,920	74	9,400	76	7,600	40
45					39	12,280	51	12,480	59	12,620	64	11,440	69	10,230	72	8,800	74	7,350	45
50					30	10,370	46	10,590	55	10,730	61	10,200	66	9,550	69	8,300	72	7,050	50
55					18	8,470	40	8,770	51	8,940	58	9,050	63	8,260	67	7,900	70	6,800	55
60							33	7,250	47	7,430	54	7,540	60	7,620	64	7,450	68	6,500	60
65							24	5,770	42	5,980	50	6,110	57	6,390	62	6,440	66	6,100	65
70							8	4,630	36	4,890	46	5,020	54	5,110	59	5,170	64	5,220	70
75									30	3,990	42	4,120	51	4,200	56	4,270	61	4,320	75
80									21	3,220	37	3,360	47	3,450	54	3,510	59	3,560	80
85											32	2,710	43	2,810	51	2,870	56	2,910	85
90											25	2,140	39	2,250	47	2,300	54	2,350	90
95											17	1,630	35	1,750	44	1,820	51	1,870	95
100													30	1,320	40	1,390	48	1,440	100
105													23	940	36	1,000	45	1,050	105
110																	42	710	110
115																			115
120																			120
		840 lbs.		560 lbs.		450 lbs.		380 lbs.		330 lbs.		290 lbs.		260 lbs.		230 lbs.		210 lbs.	



NOTES:

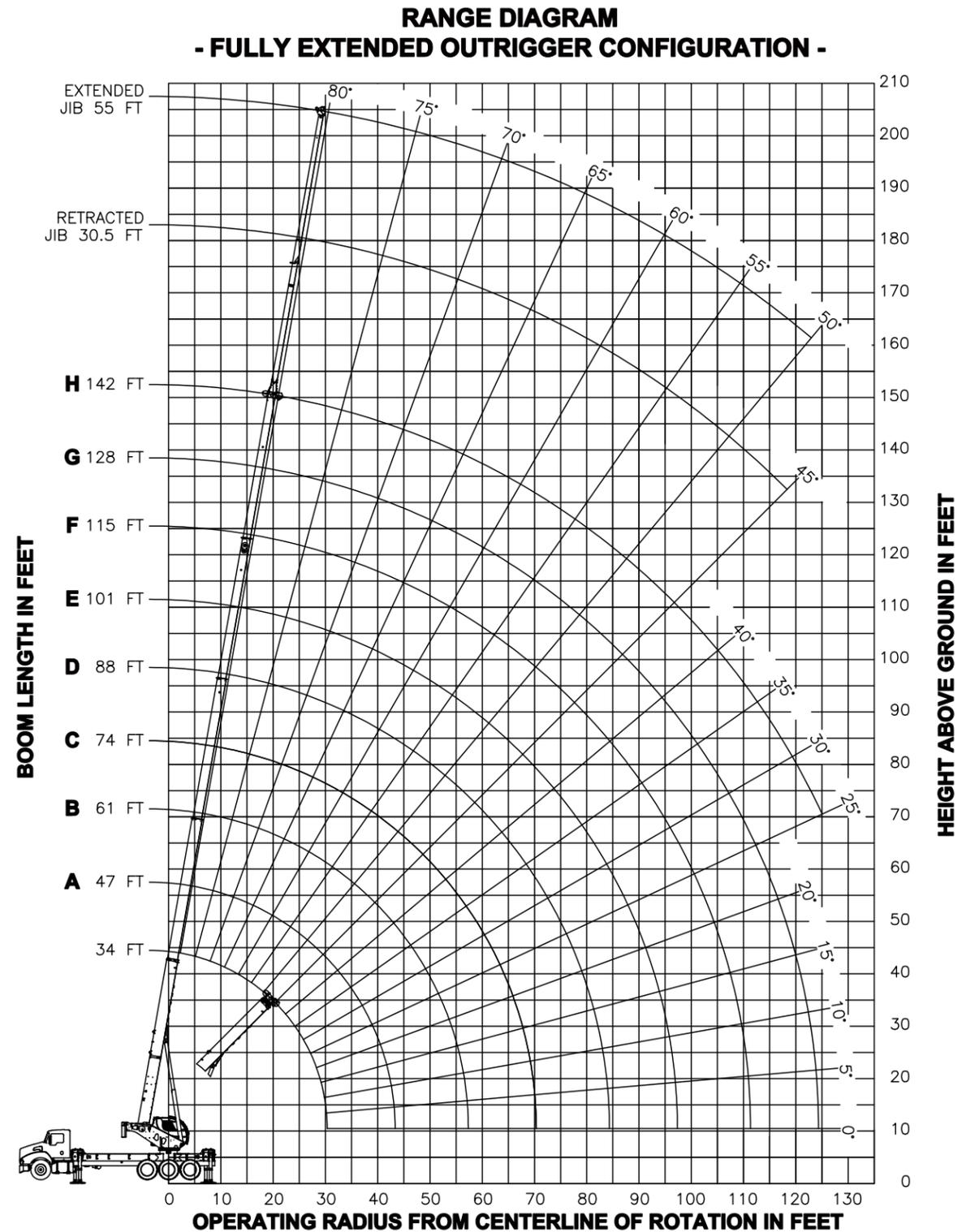
- Loads based on crane on outriggers
- All "on outriggers" loads are based on 85% tipping
- Loads above heavy line are based on structural rating
- Loads below heavy line are based on tipping rating

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

JIB LOAD CAPACITIES					
Load radius ∠°	LMI CODE 7		LMI CODE 13		Load radius ∠°
	30.5 ft. Tele Jib (deg)	Load Capacity (lbs.)	55 ft. Tele. Jib (deg)	Load Capacity (lbs.)	
30					30
35	79.0	3,450			35
40	77.2	3,400	79.4	2,500	40
45	76.1	3,350	78.0	2,250	45
50	74.7	3,330	76.7	2,250	50
55	73.2	3,180	75.6	2,250	55
60	71.5	2,920	74.5	2,250	60

65	69.4	2,760	73.1	2,100	65
70	68.0	2,610	72.1	1,970	70
75	66.3	2,470	70.5	1,860	75
80	64.5	2,340	68.7	1,760	80
85	62.9	2,220	67.1	1,670	85
90	61.1	2,110	66.1	1,590	90
95	59.4	2,010	64.6	1,530	95
100	57.4	1,760	62.9	1,460	100
105	54.5	1,370	61.4	1,400	105
110	52.7	1,020	60.2	1,340	110

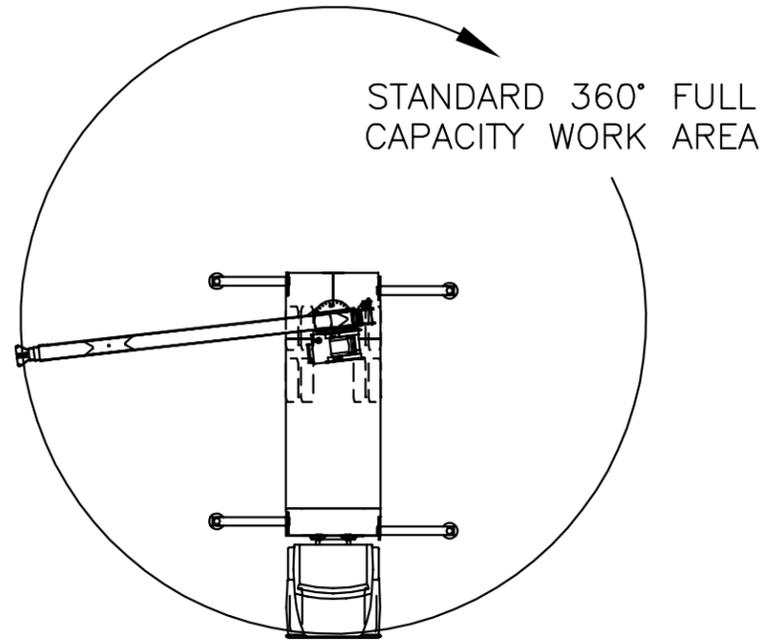
TC40142 BOOM DIAGRAM



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

AREA OF OPERATION

The full length subframe is shown.
The short subframe configuration requires a front bumper stabilizer.



LMI OPERATING CODES

Code	Crane Configuration	Outrigger Configuration
#3	Main Boom	Fully Extended
#7	Telescopic Jib-Retracted	Fully Extended
#13	Telescopic Jib-Extended	Fully Extended
#25	Personnel Lifting Platform on Main Boom	Fully Extended
#26	Personnel Lifting Platform on Telescopic Jib-Retracted	Fully Extended
#29	Personnel Lifting Platform on Telescopic Jib-Extended	Fully Extended
#4	Main Boom	Intermediate

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. Boom must be fully retracted against boom stops at all times when lifting minimum boom length capacity loads.
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 load blocks (See deduction chart on page 8). Weights of slings and all other load handling devices shall be considered a part of the load.
2. Load ratings above the blue line are structurally limited capacities. Load ratings below the blue 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 head by \angle is the included angle between the horizontal and longitudinal axes of the boom base after lifting rated load at rated radius.



TECHNICAL DESCRIPTIONS

Boom



Boom lengths: Proportional boom

- 5-section 142 ft.
- 4-section 127 ft.
- 4-Sheave Load Quick Reeve boom point
- 2-Sheave Idler boom point

Self lubricating slider pads



Maximum Tip Height

- TC45142 152 ft. (46,3 m)
- TC40142 152 ft. (46,3 m)
- TC45127 137 ft. (41,8 m)
- TC40127 137 ft. (41,8 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
Free Swing and Non-Free Swing selection from the operator's keypad.



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: 24' 3" (7,3 m)
Mid extension
• Center to center: 17' 6" (5,3 m)

Operator aids



TC400-TC450 is externally routed A2B cable LMI with crane function cut-offs for overload protection. Color graphic display and HDRI-Hoist Drum Rotation Indicator. Crane is shipped remote ready.

Hoist, Rope and Hook



Maximum theoretical line speed: 300 fpm (91 mpm)

Hoist, Rope and Hook Cont.



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



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



Line length: 500 ft. (152,4 m)



Main winch: Bent axis 2-speed hydraulic motor (activated electrically)
Third Wrap Limiter on both Main and Auxiliary Winch.

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 SAE C output (factory mounted units only)
1-Section Variable Displacement Piston Pump, SAE C input.
Piggy back Fixed Gear Pump
Hydraulic Reservoir Capacity: 155 Gallon
Pump Sections @ 2000 RPM with 100 PSI
• Variable Displacement Pump: 77 GPM (291 lpm)
• Fixed Displacement Gear Pump: 12 GPM (45 lpm)

Tiltable Cab/Cab Controls



Standard features:
Curved glass, 0° to 20° cab tilt, Sliding door, heated cloth seat, 8 seat adjustments, lumbar support, reclining and adjustable head rest, sliding windows, rear pop out window, top hinged hatch, with guard, front and top windshield wiper, heater, air conditioning, 12 volt DC outlet, USB ports, engine monitoring system, E-coated cab (10 year rust warranty)



Controls:
PLC crane controller, CANBUS communication, J1939 truck engine communication, electric hand and foot throttle, twin dual axis joysticks, electric/hydraulic valve actuation, electronic sensor monitoring, Hirschmann/PAT or 3B6 LMI system available, wired ATB and wired wind speed sensors, telematics, GPS monitoring, remote diagnostic capability, Work Area Definition (WADs)

OPTIONS

Boom

Jibs

TC400-TC450
• 2-Section telescoping jib
31' (9,4 m) to 55' (16,8 m)

Maximum Tip Height with Extension



TC40127 - TC45127
• Maximum tip height with extension:
190 ft. (57,9 m)
• Maximum tip height with extension retracted:
165 ft. (50, 3 m)
TC40142 - TC45142
• Maximum tip height with extension:
205 ft. (62,5 m)
• Maximum tip height with extension retracted:
180 ft. (54,9 m)

Tool Boxes

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)

Auxiliary Winch



Auxiliary Winch: Bent axis 2-speed hydraulic motor (activated electrically)
Third Wrap Limiter on winch

Hydraulics



Optional Front Bumper Stabilizer
Optional Hydraulic Tank Heater

Cab



Video camera (1 or 2)
Cab weather band radio system

2-person Basket



Consult Manitex for specific application and rating
• 2-person Steel Gravity Levelled Basket with Friction Brake
• 2-person Aluminum or Steel Quick-Attached Rotating Basket

Operator aids



4-function radio remote crane control system with joy sticks
• 900 Mhz
• 400 Mhz
A92.2 Aerial Lift Manbasket Dual Rating
Wired Wind Speed Sensor

Hoist and Hook



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

Aerial Device A92.2 Option

A92.2 Aerial Lift Manbasket Dual Rating