

GROVE®

TMS9000E

Preliminary

features



- 110 ton (90 metric ton) capacity
- 36-142 ft. (11-43.3 m) 5 section full power boom
- Patented TWIN-LOCK boom pinning system
- 33-56 ft. (10-17 m) manual offset bi-fold swingaway
- Optional 33-56 ft. (10-17 m) hydraulically offset bifold swingaway
- Optional lattice insert extensions for a 237 ft. (72.2 m) maximum tip height
- Tiltable superstructure cab
- Up to 48,500 lb. (21300 kg.) counterweight with hydraulic removal system
- Cummins ISM 450 07, six cylinder turbo-charged after cooled 450 hp (336 kW)



Truck Mounted Crane

Superstructure Specifications

Boom

37 ft. – 142 ft. (11 – 43.2 m) five section, full power boom with TWIN-LOCK boom pinning system.
Maximum tip height: 150.4 ft. (45.8 m)

Boom Nose

Five nylatron sheaves, mounted on heavy duty tapered roller bearings with removable pin-type rope guards. Quick reeve boom nose. Removable auxiliary boom nose with removable pin type rope guard.

Boom Elevation

Single lift cylinder with safety valve provides boom angle from -3° to +82°.

Offsettable Lattice Extension

33 – 56 ft. (10-17 m) bifold lattice swingaway extension, manually offset at 0°, 20° and 40°.
Maximum tip height: 207 ft (63.1 m)

*Offsettable Lattice Extension

33 – 56 ft. (10-17 m) bifold lattice swingaway extension, hydraulically offset from 5° - 40°.
Maximum tip height: 207 ft (63.1 m)

* Lattice Jib Extensions

Two 16 ft. (5 m) inserts for use with lattice swingaway increases length up to 72 ft. (21.9 m) or 88 ft. (26.8 m).
Maximum tip height: 237 ft (72.2 m)

Load Moment & Anti-Two Block System

Load moment and anti-two block system with audio/visual warning and control lever lockout provides electronic display of boom angle, length, radius, tip height, relative load moment, maximum permissible load, load indication and warning of impending two-block condition.

Cab

All aluminum construction cab with acoustical lining, hydraulically tiltable to +20° and includes tinted safety glass, adjustable operator's seat with hydraulic suspension, sliding windows in side and cab rear, hinged front window with wiper, sunvisor and window shade. Other features include diesel heater/defroster, armrest integrated crane controls, and ergonomically arranged instrumentation.

Crane Control System

Full control of all crane movements using electrical control levers with automatic reset to zero. Controls are integrated with the LMI and engine management system by CAN-BUS. ECOS system with graphic display

Swing

2 planetary gear boxes with axial piston fixed displacement motors. Infinitely variable to 1.7 rpm. Holding brake and service brake.

Counterweight

16,000 lb. (7258 kg.) consisting of various sections with hydraulic installation/removal system operated from the cab.

*Optional "Heavy Lift" counterweight package consisting of (2) 10,000 lb. (4636 kg.) sections in addition to standard, for a total of 36,000 lb. (16329 kg.).

* Optional "XL" counterweight package consisting of (2) 4,000 lb. (1814 kg.) and (2) 2,250 lb.(1021 kg.) wing sections in addition to standard and "Heavy Lift" package, for a total of 48,500 lb. (21300 kg.).

Hydraulic System

2 separate circuits, 1 axial piston variable displacement pump (load sensing) with electronic power limiting control and 1 gear pump for swing.

2 thermostatically controlled oil coolers keep oil at optimum operating temperature.

Tank capacity: 134 gal. (508 l)

Hoist

Main and auxiliary hoist are powered by axial piston motor with planetary gear and brake. "Thumb-thumper" hoist drum rotation indicator alerts operator of hoist movement.

Hoist Line Pull:

1st Layer: 22,122 lb. (10034 kg.)

3rd Layer: 18,665 lb. (8466 kg.)

5th Layer: 16,142 lb. (7322 kg.)

Maximum Line Speed:

365 fpm (111 m/min)

Maximum Permissible Line Pull:

15,700 lb.(7621 kg.) Casar Eurolift

Optional 17,160 lb.(7784 kg.) 35X7 Flex-x

Rope Diameter:

¾" (19 mm)

Rope Length:

738 ft. (225 m) Casar Eurolift

702 ft. (214 m) 35X7 Flex-x

Maximum Rope Storage:

984 ft. (300 m)

Carrier Specifications

Chassis

Triple box section, four-axle carrier, fabricated from high-strength, low alloy steel with towing and tie-down lugs.

Outrigger System

Four hydraulic telescoping, two-stage, double box beam outriggers with inverted jack and integral holding valves. Quick release type outrigger floats 24 in. (610 mm) diameter. Three position settings with fully extended, intermediate (50%) extended and fully retracted capacities.

Maximum outrigger pad load: **TBD** lb.

Outrigger Controls

Located in the superstructure cab and on either side of carrier. Crane level indicators located at all stations. Auto leveling standard.

Engine

Cummins ISM450 07 six cylinder, turbo-charged and after cooled diesel engine, 661 cu. in. (10.8 L), 450 bhp (336 kW) (gross) @ 2000 RPM. Maximum torque 1,440 ft. lbs. (1952 Nm) @ 1400 RPM.

Equipped with engine compression brake, audio-visual engine distress system and ether cold start aid.

Fuel Tank Capacity

100 gallons (376 L).

Transmission

Roadranger 11 speeds forward, 3 reverse.

Steering

Front axles, single circuit, mechanical steering with hydraulic power assist. Turning radius: 45.1 ft.

Axles

Front: (2) beam-type steering axles, 83.4 in. (2.12 m) track.

Rear: (2) single reduction drive axles, 74.5 in. (1.89 m) track. Inter-axle differential locks.

Drive 8 x 4 x 4

Brakes

S-cam, dual air split system operating on all wheels. Spring-applied, air released parking brake acting on rear axles. Air dryer.

ABS with traction control

Suspension

Front: Walking beam with air bags and shock absorbers.

Rear: Walking beam with air bags and shock absorbers.

Tires

Front: 445/65R 22.5 tubeless, mounted on aluminum disc wheels.

Rear: 315/80R 22.5 tubeless, mounted on aluminum disc wheels.

Lights

Full lighting package including turn indicators, head, tail, brake, and hazard warning lights.

Meets FMVSS and CMVSS standards.

Cab

One man design, aluminum fabricated with acoustical lining and tinted safety glass throughout. Deluxe fabric covered seat with air adjustment .

Complete driving controls and engine instrumentation including tilt telescope steering wheel, tachometer, speedometer, voltmeter, water temp., oil pressure, fuel level, air pressure gauge, engine high temp./low oil pressure A/V warning. Other standard items include hot heater, heater/defroster, electric windshield wash/wipe, fire extinguisher, seat belt and door lock.

Electrical System

Two maintenance free batteries provides 24 V electrical system. Standard battery disconnect.

Maximum Speed

65 MPH (105 kph).

Gradeability (Theoretical)

70%.

Miscellaneous Standard Equipment

Aluminum fenders with rear storage compartments; dual rear view mirrors; electronic back-up alarm; sling/tool box; tire inflation kit; air cleaner restriction indicator; headache ball stowage; aluminum wheels;

Optional Equipment

*Flashing Light Package (Includes amber strobe for superstructure and carrier cab).

*Air conditioning.

*Dual boom base mounted floodlights

*Aircraft warning light

*Hookblocks

*Pintle hook (rear).

*Trailing Boom Package

*Aluminum outrigger pads.

*Air horn

*Counterweight packages

*Tow cable

*Wind speed indicator

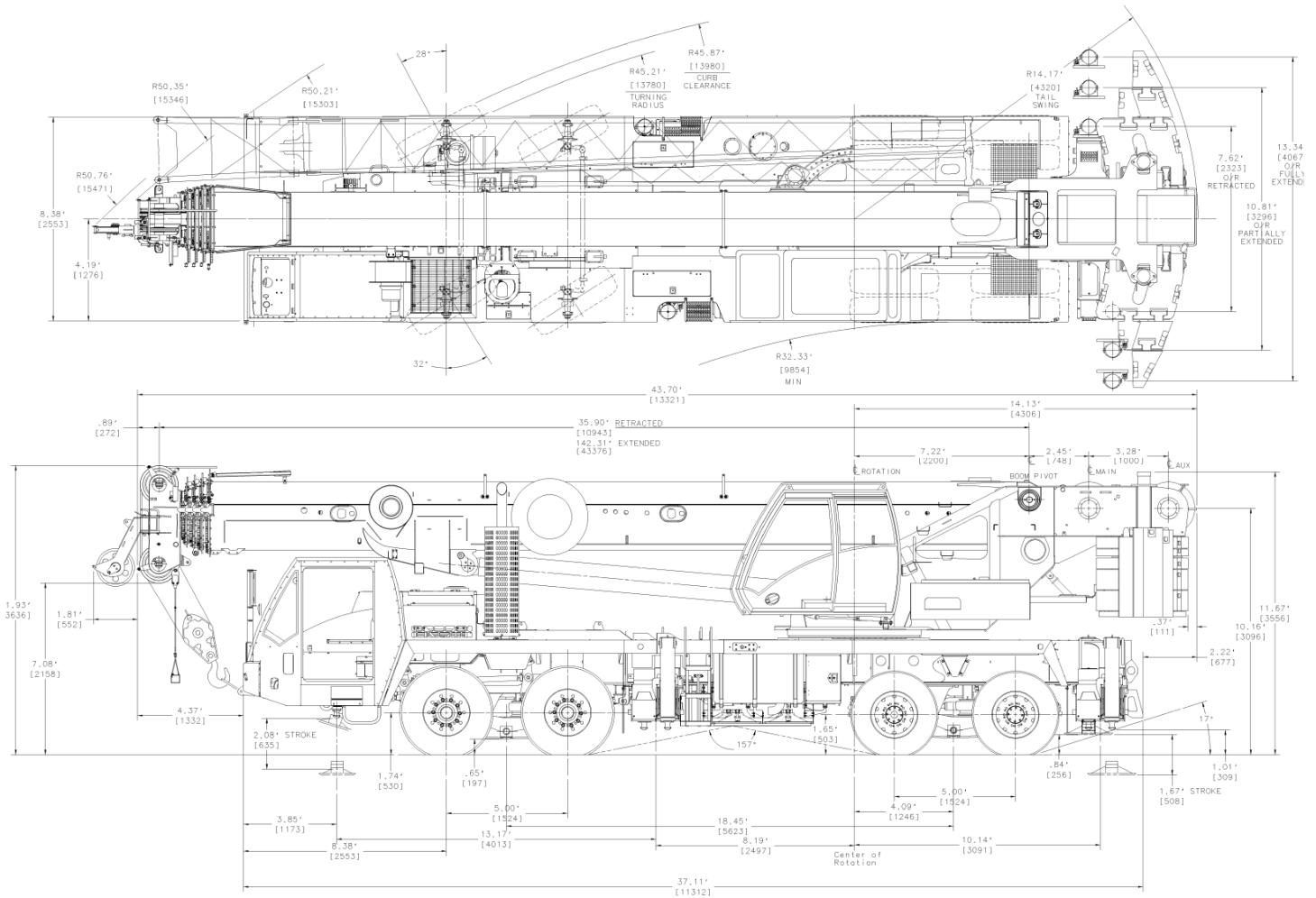
*Winterfront radiator cover

*Additional storage

*Counterweight slings

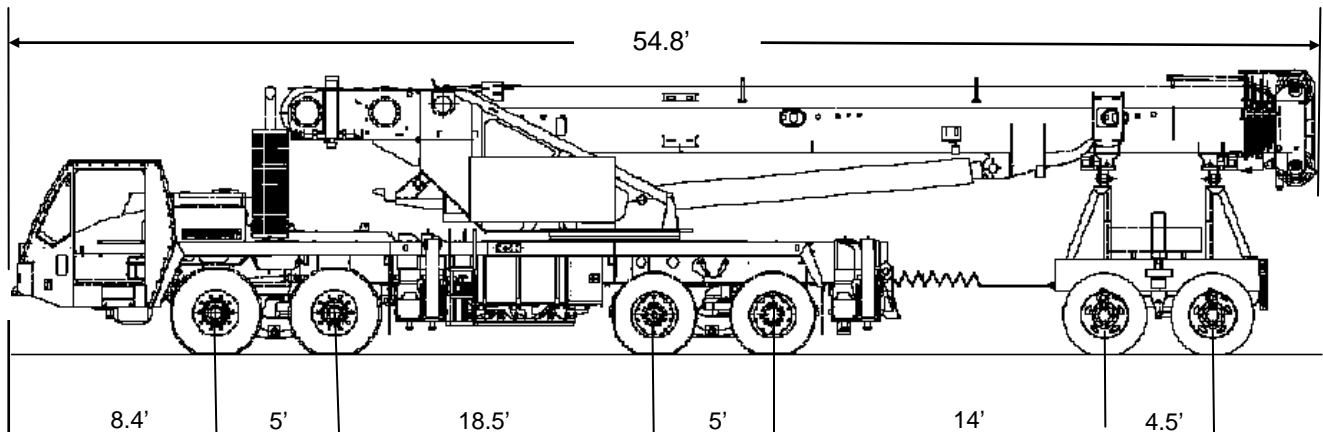
*Denotes optional equipment

Weights and Dimensions



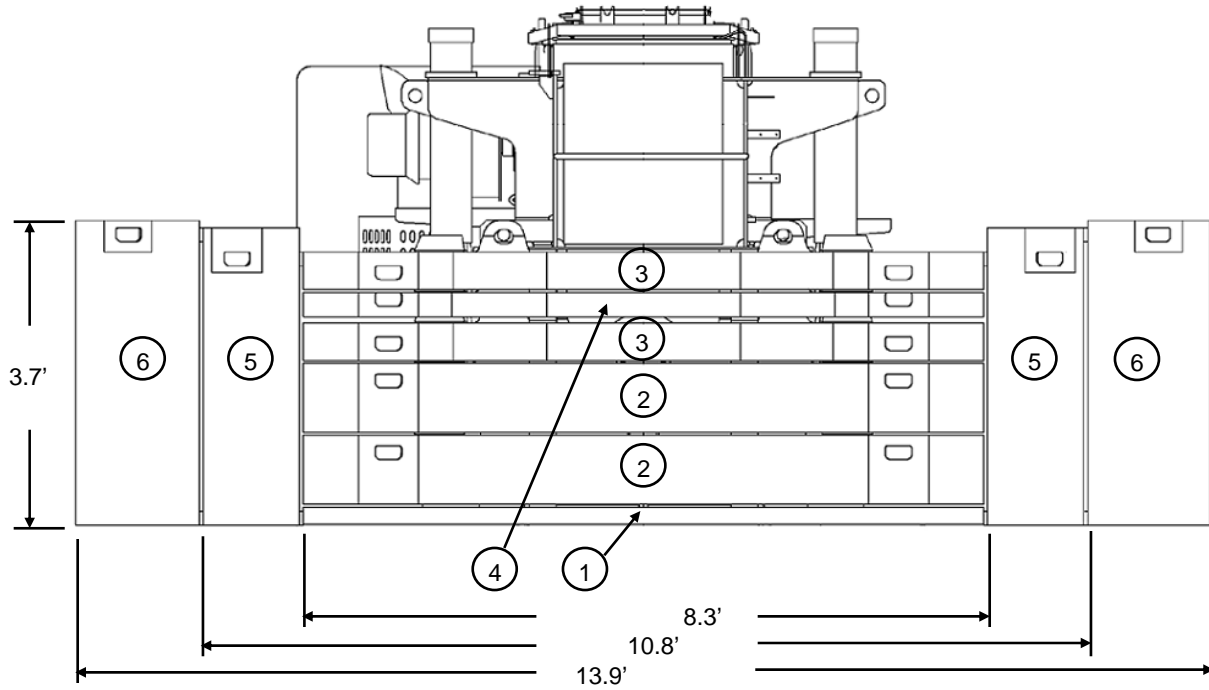
	Front (lb.)	Rear (lb.)	G.V.W. (lb.)
Basic machine: includes main and auxiliary hoists with rope, auxiliary boom nose, manual bifold swingaway, headache ball stowed, 40 ton hookblock at bumper, no countweight and driver.	43,129	40,843	83,972
ADD:			
3,000 lb. cwt. on carrier deck and 3,000 lb. cwt. on superstructure. Total counterweight - 6,000 lb.	44,459	45,532	89,991
6,000 lb. cwt. on carrier deck and 3,000 lb. cwt. on superstructure. Total counterweight - 9,000 lb.	47,087	45,923	93,010
8,000 lb. cwt. on carrier deck and 8,000 lb. cwt. on superstructure. Total counterweight - 16,000 lb.	46,699	53,330	100,029
13,000 lb. cwt. on carrier deck, 13,000 lb. cwt. on superstructure. Boom telescoped 2 feet. Total counterweight 26,000 lb.	50,405	59,624	110,029
Air conditioning - chassis and superstructure cabs.	99	19	118
Hydraulic bi-fold swingaway in lieu of the manual swingaway (includes hose reel)	408	-13	395
Maximum Allowable	49,200	60,000	109,200
Michelin Tires	51,200	60,000	111,200

Weights and Dimensions (Trailing Boom)



	Front (lb.)	Rear (lb.)	Boom Dolly (lb.)	G.V.W. (lb.)
Basic machine: includes main and auxiliary hoists with rope, auxiliary boom nose, manual bifold swingaway, stowed headache ball, 40 ton hookblock hanging at boom nose, no counterweight, driver and 6,000 lb. boom dolly.	35,797	32,223	21,952	89,972
ADD: 6,000 lb. cwt. on carrier deck, 5,000 lb. cwt. on rear chassis carrier, 15,000 lb. on boom dolly. Total counterweight - 26,000 lb.	36,788	39,465	39,971	116,224
8,000 lb. cwt. on carrier deck, 5,000 lb. cwt. on rear chassis carrier, 23,000 lb. on boom dolly. Total counterweight - 36,000 lb.	41,157	40,115	44,990	126,262
Air conditioning - chassis and superstructure cabs.	104	14	-	118
Hydraulic bi-fold swingaway in lieu of the manual swingaway (includes hose reel)	64	39	291	395

Counterweight and Load Chart Configurations



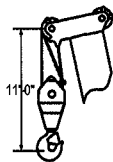
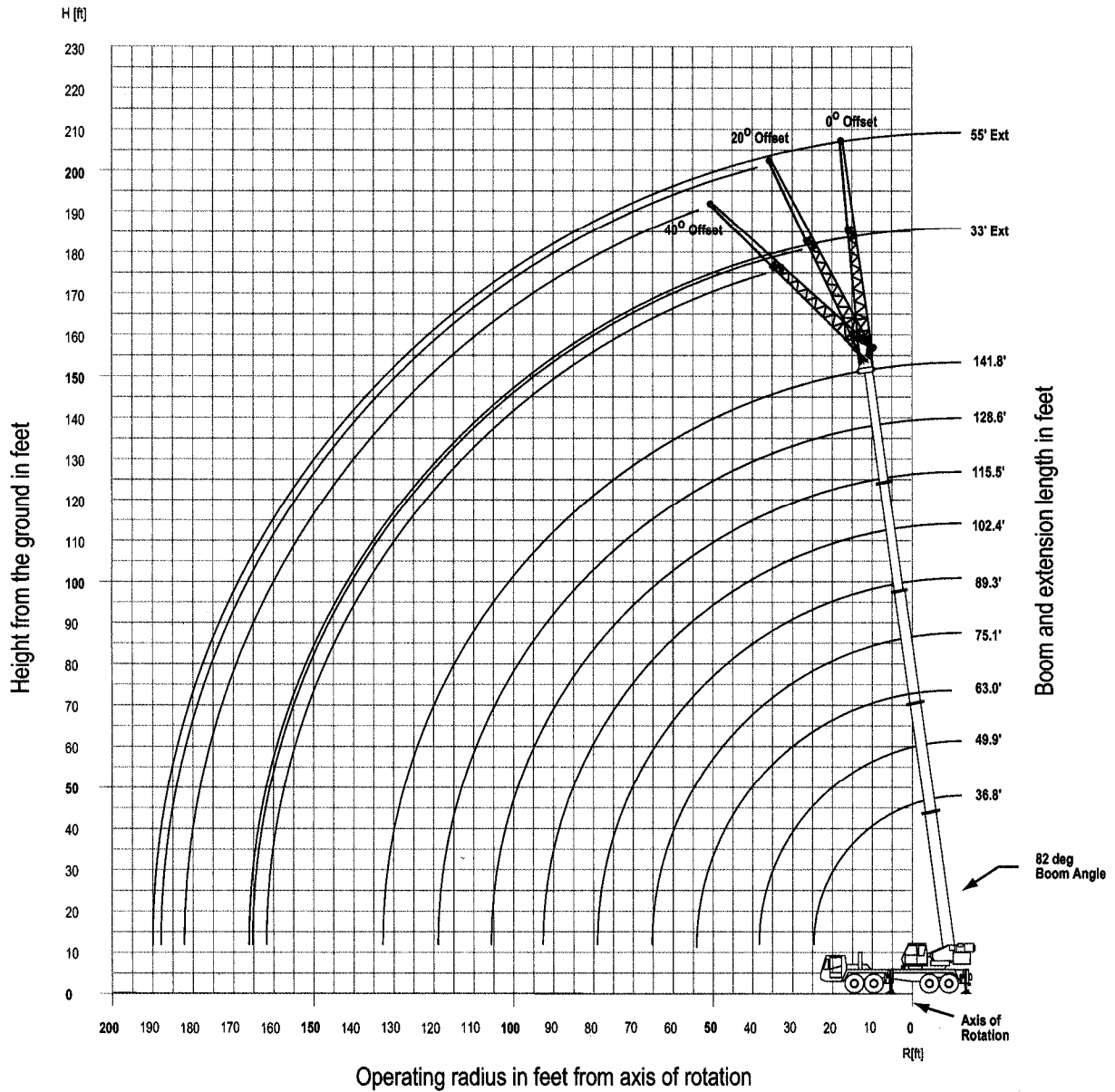
1. 3,000 lb. baseplate
2. 10,000 lb. stackable
3. 5,000 lb. pinned or stackable
4. 3,000 lb. pinned or stackable
5. 4,000 lb. wing
6. 2,250 lb. wing

Load Chart Configurations

	1	2	3	4	5	6
0						
6,000 lb.	x			x		
11,000 lb.	x		x	x		
16,000 lb.	x		2x	x		
21,000 lb.	x	x	x	x		
26,000 lb.	x	x	2x	x		
36,000 lb.	x	2x	2x	x		
44,000 lb.	x	2x	2x	x	2x	
48,500 lb.	x	2x	2x	x	2x	2x

working range

37-142' main boom + 33-56' lattice extension



Dimensions are for largest Grove furnished hookblock and headache ball, with anti-two block activated.

**Fixed Boom Lengths
48,500 lb. Counterweight
Outriggers Fully Extended
360°**

Radius	Boom Length									Radius
	35.9'	49.2'	62.3'	75.6'	88.7'	102.2'	115.7'	129.1'	142.3'	
8	* 220,000									8
9	*185000									9
10	165,000	138,000	130,500	111,000	83,000					10
12	151,000	138,000	129,500	111,000	83,000					12
15	131,500	127,500	122,500	111,000	83,000	60,150				15
20	105,500	105,500	101,000	99,400	81,500	60,150	44,500	33,450		20
25	83,600	85,750	84,300	84,550	73,500	56,750	44,500	33,450	26,700	25
30		70,150	70,600	70,350	65,600	50,100	44,250	33,450	26,700	30
35		58,050	58,600	57,850	59,150	44,700	40,100	33,450	26,700	35
40		48,050	48,950	48,250	49,550	40,150	36,250	32,850	26,700	40
45			41,600	43,050	42,250	36,350	32,400	30,050	26,700	45
50			37,000	37,450	36,600	32,650	29,550	27,550	25,950	50
55			27,450	32,650	31,950	30,250	27,050	25,300	24,100	55
60				28,700	27,950	28,200	24,900	23,350	22,350	60
65				25,350	24,700	25,400	23,000	21,550	20,750	65
70					22,100	22,700	21,200	20,000	19,300	70
75					20,850	20,400	19,500	18,600	18,000	75
80					19,100	18,450	18,400	16,650	16,100	80
85						16,700	16,750	15,550	15,100	85
90						15,250	15,600	14,300	14,150	90
95						11,500	14,250	13,400	13,300	95
100							13,050	12,700	12,350	100
105							12,000	11,950	11,350	105
110								11,000	10,400	110
115								10,100	9,570	115
120								9,360	8,780	120
125									8,070	125
130									7,420	130
135									4,980	135
140										140

* Requires special equipment

**Fixed Boom Lengths
44,000 lb. Counterweight
Outriggers Fully Extended
360°**

Boom Length										
Radius	35.9'	49.2'	62.3'	75.6'	88.7'	102.2'	115.7'	129.1'	142.3'	Radius
10	165,000	138,000	130,500	111,000	83,000					10
12	151,000	138,000	129,500	111,000	83,000					12
15	131,500	127,500	122,500	111,000	83,000	60,150				15
20	105,500	105,500	101,000	99,400	81,500	60,150	44,500	33,450		20
25	82,900	84,900	83,600	84,550	73,500	56,750	44,500	33,450	26,700	25
30		68,050	68,650	68,200	65,600	50,100	44,250	33,450	26,700	30
35		56,000	56,450	55,700	57,050	44,700	40,100	33,450	26,700	35
40		46,500	47,100	47,450	47,700	40,150	36,250	32,850	26,700	40
45			40,300	41,500	40,650	36,350	32,400	30,050	26,700	45
50			35,600	35,550	34,700	32,650	29,550	27,550	25,950	50
55			27,450	30,800	30,050	30,250	27,050	25,300	24,100	55
60				27,000	26,250	27,000	24,900	23,350	22,350	60
65				23,850	23,550	23,850	22,350	21,550	20,750	65
70					22,050	21,300	20,700	20,000	19,300	70
75					19,800	19,100	19,400	18,050	18,000	75
80					17,900	17,250	17,500	16,150	16,100	80
85						15,650	15,950	15,050	15,100	85
90						14,250	14,550	14,200	13,800	90
95						11,500	13,250	13,150	12,550	95
100							12,150	12,050	11,450	100
105							11,100	11,050	10,450	105
110								10,150	9,570	110
115								9,330	8,760	115
120								8,590	8,010	120
125									7,330	125
130									6,720	130
135									4,980	135
140										140

**Fixed Boom Lengths
26,000 lb. Counterweight
Outriggers Fully Extended
360°**

		Boom Length									
Radius		35.9'	49.2'	62.3'	75.6'	88.7'	102.2'	115.7'	129.1'	142.3'	Radius
10		165,000	138,000	130,500	111,000	83,000					10
12		151,000	138,000	129,500	111,000	83,000					12
15		128,500	127,500	122,500	111,000	83,000	60,150				15
20		95,750	97,750	96,300	97,600	81,500	60,150	44,500	33,450		20
25		72,700	74,650	75,250	74,750	73,500	56,750	44,500	33,450	26,700	25
30			58,850	59,100	59,700	59,750	50,100	44,250	33,450	26,700	30
35			46,850	47,850	47,700	46,800	44,700	40,100	33,450	26,700	35
40			37,500	38,650	38,500	37,650	38,350	36,250	32,850	26,700	40
45				32,100	31,950	31,900	32,000	30,300	30,050	26,700	45
50				27,150	27,100	27,850	27,050	27,350	25,900	25,950	50
55				21,850	24,250	24,050	23,250	23,550	23,350	22,700	55
60					21,300	20,950	21,250	20,500	20,350	19,700	60
65					18,750	18,450	18,700	18,300	17,850	17,200	65
70						16,400	16,600	16,200	15,900	15,250	70
75						14,750	14,950	14,550	14,150	13,500	75
80						13,350	13,400	13,000	12,600	11,950	80
85							12,050	11,650	11,250	10,600	85
90							10,900	10,500	10,100	9,470	90
95							7,430	9,480	9,070	8,450	95
100								8,580	8,170	7,550	100
105								7,770	7,360	6,740	105
110									6,640	6,020	110
115									6,000	5,380	115
120									5,400	4,790	120
125										4,260	125
130										3,770	130
135										3,330	135
140											140

**Fixed Boom Lengths
11,000 lb. Counterweight
Outriggers Fully Extended
360°**

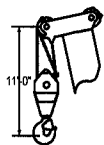
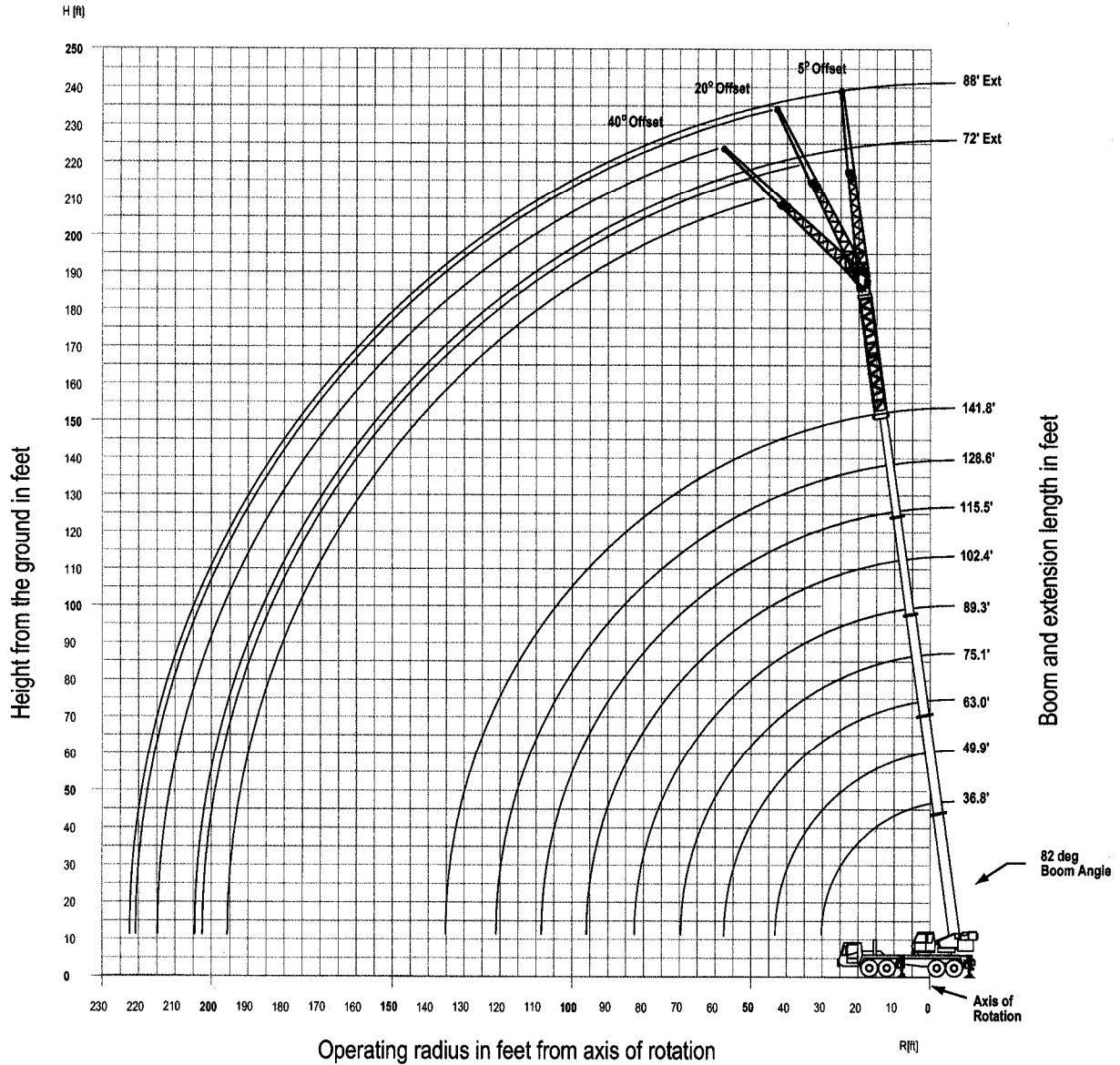
Boom Length										
Radius	35.9'	49.2'	62.3'	75.6'	88.7'	102.2'	115.7'	129.1'	142.3'	Radius
10	164,000	138,000	130,500	111,000	83,000					10
12	147,000	138,000	129,500	111,000	83,000					12
15	120,500	123,000	121,000	111,000	83,000	60,150				15
20	84,900	86,900	87,500	86,750	81,500	60,150	44,500	33,450		20
25	61,950	63,550	63,850	65,650	64,500	56,750	44,500	33,450	26,700	25
30		46,400	47,550	47,400	46,400	45,400	44,250	33,450	26,700	30
35		35,500	36,500	36,350	37,300	36,350	35,850	33,450	26,700	35
40		28,100	29,250	30,400	30,000	30,000	29,500	29,350	26,700	40
45			24,100	25,000	24,650	24,950	24,500	23,950	23,200	45
50			20,000	20,900	20,850	20,800	20,350	19,900	19,150	50
55			15,200	17,750	17,650	17,650	17,200	16,750	16,000	55
60				15,300	15,250	15,250	14,800	14,350	13,700	60
65				13,250	13,200	13,200	12,800	12,350	11,700	65
70					11,500	11,500	11,100	10,700	10,050	70
75					10,100	10,100	9,730	9,310	8,660	75
80					8,920	8,930	8,530	8,110	7,470	80
85						7,890	7,500	7,080	6,450	85
90						7,000	6,600	6,190	5,560	90
95						3,750	5,810	5,400	4,770	95
100							5,120	4,700	4,080	100
105							4,490	4,090	3,470	105
110								3,530	2,910	110
115								3,040	2,420	115
120								2,580	1,970	120
125									1,560	125
130									1,190	130
135										135
140										140

**Fixed Boom Lengths
0 lb. Counterweight
Outriggers Fully Extended
360°**

Boom Length										
Radius	35.9'	49.2'	62.3'	75.6'	88.7'	102.2'	115.7'	129.1'	142.3'	Radius
10	158,000	138,000	130,500	111,000	83,000					10
12	141,500	138,000	129,500	111,000	83,000					12
15	110,000	112,000	111,500	111,000	83,000	60,150				15
20	75,800	77,850	78,200	78,900	79,000	60,150	44,500	33,450		20
25	48,000	50,650	51,950	51,750	50,650	49,800	44,500	33,450	26,700	25
30		35,900	37,100	38,400	37,950	37,550	37,350	33,450	26,700	30
35		26,450	27,850	28,900	28,850	28,850	28,300	27,750	26,700	35
40		20,350	21,600	22,600	22,550	22,550	22,050	21,500	20,700	40
45			17,300	18,200	18,150	18,150	17,700	17,150	16,400	45
50			14,150	15,050	15,000	15,000	14,550	14,100	13,350	50
55			10,000	12,550	12,500	12,500	12,100	11,650	10,950	55
60				10,600	10,550	10,550	10,150	9,710	9,030	60
65				9,040	8,980	8,980	8,570	8,140	7,470	65
70					7,670	7,670	7,260	6,840	6,180	70
75					6,570	6,560	6,160	5,740	5,090	75
80					5,620	5,620	5,230	4,810	4,170	80
85						4,820	4,420	4,010	3,370	85
90						4,120	3,720	3,310	2,680	90
95						1,050	3,100	2,690	2,070	95
100							2,560	2,150	1,530	100
105							2,070	1,670	1,050	105
110								1,240		110
115										115
120										120

working range

33-56' lattice extension with 16' inserts



Dimensions are for largest Grove furnished hookblock and headache ball, with anti-two block activated

**Hydraulic Luffing Swingaway (Stationary)
48,500 lb. Counterweight
Outriggers Fully Extended**

Swingaway Length													
Radius	142.3' + 33'			142.3' + 56'			142.3' + 72'			142.3' + 88'			Radius
	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	
35	13,800												35
40	13,800			8,600									40
45	13,800	13,800		8,600									45
50	13,800	13,800	12,200	8,600			7,000			5,520			50
55	13,800	13,800	12,000	8,600	8,600		7,000			5,520			55
60	13,800	13,800	12,200	8,600	8,600		7,000	7,000		5,520			60
65	13,800	13,800	12,200	8,600	8,600		7,000	7,000		5,520			65
70	13,800	13,800	12,200	8,600	8,380		7,000	7,000		5,520	5,520		70
75	13,600	13,450	12,200	8,600	8,160	6,750	7,000	7,000	6,360	5,520	5,520		75
80	12,900	12,850	12,200	8,600	7,930	6,640	7,000	7,000	6,360	5,520	5,520	5,300	80
85	12,200	12,200	12,200	8,600	7,720	6,530	7,000	7,000	6,360	5,520	5,460	5,300	85
90	11,550	11,550	11,550	8,600	7,530	6,440	7,000	7,000	6,360	5,520	5,400	5,300	90
95	10,950	10,950	11,000	8,600	7,340	6,350	7,000	7,000	6,350	5,520	5,330	5,300	95
100	10,400	10,400	10,450	8,370	7,170	6,270	7,000	7,000	6,270	5,440	5,270	5,270	100
105	9,870	9,870	9,940	8,130	7,010	6,200	7,000	7,000	6,200	5,350	5,210	5,210	105
110	9,290	9,290	9,460	7,890	6,870	6,140	7,000	6,810	6,140	5,270	5,140	5,140	110
115	8,750	8,750	8,930	7,670	6,730	6,090	6,800	6,600	6,090	5,180	5,080	5,080	115
120	8,250	8,250	8,420	7,460	6,610	6,050	6,580	6,400	6,040	5,100	5,020	5,020	120
125	7,780	7,780	7,940	7,260	6,490	6,010	6,360	6,200	6,000	5,020	4,970	4,970	125
130	7,280	7,280	7,460	7,080	6,390	5,990	6,160	6,020	5,970	4,940	4,890	4,890	130
135	6,680	6,680	6,840	6,760	6,260	5,970	5,960	5,840	5,840	4,860	4,820	4,820	135
140	6,130	6,130	6,260	6,470	6,200	5,970	5,730	5,680	5,680	4,760	4,720	4,720	140
145	5,620	5,620	5,720	6,150	6,130	5,970	5,460	5,460	5,520	4,600	4,570	4,570	145
150	5,150	5,150	5,180	5,660	5,660	5,950	5,210	5,210	5,370	4,450	4,420	4,420	150
155	4,710	4,710	4,680	5,210	5,210	5,470	4,970	4,970	5,130	4,300	4,280	4,280	155
160	4,310	4,310	4,170	4,790	4,790	5,020	4,630	4,630	4,890	4,160	4,150	4,150	160
165	3,940	3,890		4,400	4,400	4,590	4,240	4,240	4,500	4,020	4,020	4,020	165
170				4,040	4,040	4,170	3,870	3,870	4,100	3,800	3,800	3,910	170
175				3,690	3,690	3,720	3,520	3,520	3,720	3,450	3,450	3,710	175
180				3,370	3,370	3,150	3,200	3,200	3,370	3,120	3,120	3,350	180
185				3,040	3,040		2,860	2,860	2,960	2,790	2,790	3,020	185
190				1,610			2,540	2,540	2,530	2,460	2,460	2,660	190
195							2,230	2,230	2,060	2,160	2,160	2,330	195
200							1,940	1,940		1,870	1,870	1,960	200
205							1,660			1,590	1,590	1,590	205
210										1,330	1,330	1,190	210
215										1,080	1,080		215

**Hydraulic Luffing Swingaway (Loads Luffing)
48,500 lb. Counterweight
Outriggers Fully Extended**

Swingaway Length									
Radius	142.3' + 33'		142.3' + 56'		142.3' + 72'		142.3' + 88'		Radius
	5°-20°	20°-40°	5°-20°	20°-40°	5°-20°	20°-40°	5°-20°	20°-40°	
35									35
40									40
45	13,800								45
50	13,800	12,200							50
55	13,800	12,200	8,130						55
60	13,800	11,950	7,790		7,000				60
65	13,350	11,700	7,490		7,000				65
70	12,900	11,500	7,210		6,810		5,520		70
75	12,450	11,350	6,940	6,000	6,600	5,470	5,520		75
80	12,100	11,150	6,690	5,880	6,410	5,380	5,520	4,960	80
85	11,750	11,000	6,460	5,760	6,230	5,290	5,460	4,890	85
90	11,400	10,850	6,260	5,660	6,050	5,210	5,400	4,820	90
95	10,950	10,750	6,060	5,550	5,880	5,140	5,330	4,760	95
100	10,400	10,450	5,880	5,460	5,730	5,070	5,270	4,700	100
105	9,870	9,940	5,700	5,380	5,580	5,000	5,210	4,640	105
110	9,290	9,460	5,550	5,300	5,450	4,940	5,140	4,590	110
115	8,750	8,930	5,400	5,230	5,320	4,880	5,080	4,540	115
120	8,250	8,420	5,260	5,170	5,200	4,830	5,020	4,500	120
125	7,780	7,940	5,130	5,110	5,080	4,780	4,970	4,450	125
130	7,280	7,460	5,010	5,010	4,970	4,730	4,890	4,410	130
135	6,680	6,840	4,900	4,900	4,870	4,690	4,810	4,380	135
140	6,130	6,260	4,780	4,790	4,780	4,660	4,720	4,340	140
145	5,620	5,720	4,630	4,690	4,690	4,620	4,570	4,310	145
150	5,150	5,180	4,480	4,610	4,540	4,600	4,420	4,290	150
155	4,710	4,680	4,340	4,520	4,410	4,520	4,280	4,260	155
160	4,310	4,170	4,220	4,450	4,290	4,450	4,150	4,150	160
165	3,890		4,090	4,390	4,170	4,380	4,020	4,020	165
170			3,980	4,170	3,870	4,100	3,800	3,910	170
175			3,690	3,720	3,520	3,720	3,450	3,710	175
180			3,370	3,150	3,200	3,370	3,120	3,350	180
185			3,040		2,860	2,960	2,790	3,020	185
190					2,540	2,530	2,460	2,660	190
195					2,230	2,060	2,160	2,330	195
200					1,940		1,870	1,960	200
205							1,590	1,590	205
210							1,330	1,190	210
215							1,080		215

**Hydraulic Luffing Swingaway (Stationary)
44,000 lb. Counterweight
Outriggers Fully Extended**

Swingaway Length													
Radius	142.3' + 33'			142.3' + 56'			142.3' + 72'			142.3' + 88'			Radius
	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	
35	13,800												35
40	13,800			8,600									40
45	13,800	13,800		8,600									45
50	13,800	13,800	12,200	8,600			7,000			5,520			50
55	13,800	13,800	12,200	8,600	8,600		7,000			5,520			55
60	13,800	13,800	12,200	8,600	8,600		7,000	7,000		5,520			60
65	13,800	13,800	12,200	8,600	8,600		7,000	7,000		5,520			65
70	13,800	13,800	12,200	8,600	8,380		7,000	7,000		5,520	5,520		70
75	13,600	13,450	12,200	8,600	8,160	6,750	7,000	7,000	6,360	5,520	5,520		75
80	12,900	12,850	12,200	8,600	7,930	6,640	7,000	7,000	6,360	5,520	5,520	5,300	80
85	12,200	12,200	12,200	8,600	7,720	6,530	7,000	7,000	6,360	5,520	5,460	5,300	85
90	11,550	11,550	11,550	8,600	7,530	6,440	7,000	7,000	6,360	5,520	5,400	5,300	90
95	10,950	10,950	11,000	8,600	7,340	6,350	7,000	7,000	6,350	5,520	5,330	5,300	95
100	10,400	10,400	10,450	8,370	7,170	6,270	7,000	7,000	6,270	5,440	5,270	5,270	100
105	9,870	9,870	9,940	8,130	7,010	6,200	7,000	7,000	6,200	5,350	5,210	5,210	105
110	9,290	9,290	9,460	7,890	6,870	6,140	7,000	6,810	6,140	5,270	5,140	5,140	110
115	8,630	8,630	8,890	7,670	6,730	6,090	6,800	6,600	6,090	5,180	5,080	5,080	115
120	7,880	7,880	8,110	7,460	6,610	6,050	6,580	6,400	6,040	5,100	5,020	5,020	120
125	7,200	7,200	7,400	7,260	6,490	6,010	6,360	6,200	6,000	5,020	4,970	4,970	125
130	6,580	6,580	6,750	7,080	6,390	5,990	6,160	6,020	5,970	4,940	4,890	4,890	130
135	6,000	6,000	6,160	6,560	6,290	5,970	5,960	5,840	5,840	4,860	4,820	4,820	135
140	5,480	5,480	5,610	6,020	6,020	5,970	5,730	5,680	5,680	4,760	4,720	4,720	140
145	4,990	4,990	5,090	5,520	5,520	5,850	5,370	5,370	5,520	4,600	4,570	4,570	145
150	4,540	4,540	4,580	5,060	5,060	5,350	4,910	4,910	5,260	4,450	4,420	4,420	150
155	4,130	4,130	4,090	4,630	4,630	4,890	4,470	4,470	4,790	4,300	4,280	4,280	155
160	3,740	3,740	3,600	4,230	4,230	4,450	4,070	4,070	4,360	4,010	4,010	4,150	160
165	3,390	3,360		3,860	3,860	4,050	3,690	3,690	3,950	3,630	3,630	3,930	165
170				3,510	3,510	3,640	3,340	3,340	3,570	3,270	3,270	3,550	170
175				3,180	3,280	3,210	3,010	3,010	3,210	2,940	2,940	3,190	175
180				2,880	2,880	2,720	2,700	2,700	2,870	2,620	2,620	2,860	180
185				2,590	2,590		2,410	2,410	2,530	2,330	2,330	2,540	185
190				1,610			2,130	2,130	2,160	2,050	2,050	2,230	190
195							1,880	1,880	1,720	1,790	1,790	1,950	195
200							1,600	1,600		1,530	1,530	1,620	200
205							1,330			1,260	1,260	1,260	205
210										1,010	1,010		210

**Hydraulic Luffing Swingaway (Loads Luffing)
44,000 lb. Counterweight
Outriggers Fully Extended**

		Swingaway Length								
Radius	142.3' + 33'		142.3' + 56'		142.3' + 72'		142.3' + 88'		Radius	
	5°-20°	20°-40°	5°-20°	20°-40°	5°-20°	20°-40°	5°-20°	20°-40°		
35									35	
40									40	
45	13,800								45	
50	13,800	12,200							50	
55	13,800	12,200	8,130						55	
60	13,800	11,950	7,790		7,000				60	
65	13,350	11,700	7,490		7,000				65	
70	12,900	11,500	7,210		6,810		5,520		70	
75	12,450	11,350	6,940	6,000	6,600	5,470	5,520		75	
80	12,100	11,150	6,690	5,880	6,410	5,380	5,520	4,960	80	
85	11,750	11,000	6,460	5,760	6,230	5,290	5,460	4,890	85	
90	11,400	10,850	6,260	5,660	6,050	5,210	5,400	4,820	90	
95	10,950	10,750	6,060	5,550	5,880	5,140	5,330	4,760	95	
100	10,400	10,450	5,880	5,460	5,730	5,070	5,270	4,700	100	
105	9,870	9,940	5,700	5,380	5,580	5,000	5,210	4,640	105	
110	9,290	9,460	5,550	5,300	5,450	4,940	5,140	4,590	110	
115	8,630	8,890	5,400	5,230	5,320	4,880	5,080	4,540	115	
120	7,880	8,110	5,260	5,170	5,200	4,830	5,020	4,500	120	
125	7,200	7,400	5,130	5,110	5,080	4,780	4,970	4,450	125	
130	6,580	6,750	5,010	5,010	4,970	4,730	4,890	4,410	130	
135	6,000	6,160	4,900	4,900	4,870	4,690	4,810	4,380	135	
140	5,480	5,610	4,780	4,790	4,780	4,660	4,720	4,340	140	
145	4,990	5,090	4,630	4,690	4,690	4,620	4,570	4,310	145	
150	4,540	4,580	4,480	4,610	4,540	4,600	4,420	4,290	150	
155	4,130	4,090	4,340	4,520	4,410	4,520	4,280	4,260	155	
160	3,740	3,600	4,220	4,450	4,070	4,360	4,010	4,150	160	
165	3,360		3,860	4,050	3,690	3,950	3,630	3,930	165	
170			3,510	3,640	3,340	3,570	3,270	3,550	170	
175			3,180	3,210	3,010	3,210	2,940	3,190	175	
180			2,880	2,720	2,700	2,870	2,620	2,860	180	
185			2,590		2,410	2,530	2,330	2,540	185	
190					2,130	2,160	2,050	2,230	190	
195					1,880	1,720	1,790	1,950	195	
200					1,600		1,530	1,620	200	
205							1,260	1,260	205	
210							1,010		210	

Hydraulic Luffing Swingaway (Stationary)
26,000 lb. Counterweight
Outriggers Fully Extended

Swingaway Length													
Radius	142.3' + 33'			142.3' + 56'			142.3' + 72'			142.3' + 88'			Radius
	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	5°	5°-20°	20°-40°	
35	13,800												35
40	13,800			8,600									40
45	13,800	13,800		8,600									45
50	13,800	13,800	12,200	8,600			7,000			5,520			50
55	13,800	13,800	12,200	8,600	8,600		7,000			5,520			55
60	13,800	13,800	12,200	8,600	8,600		7,000	7,000		5,520			60
65	13,800	13,800	12,200	8,600	8,600		7,000	7,000		5,520			65
70	13,800	13,800	12,200	8,600	8,380		7,000	7,000		5,520	5,520		70
75	13,550	13,450	12,200	8,600	8,160	6,750	7,000	7,000	6,360	5,520	5,520		75
80	12,000	12,000	12,200	8,600	7,930	6,640	7,000	7,000	6,360	5,520	5,520	5,300	80
85	10,650	10,650	11,150	8,600	7,720	6,530	7,000	7,000	6,360	5,520	5,460	5,300	85
90	9,490	9,490	9,930	8,600	7,530	6,440	7,000	7,000	6,360	5,520	5,400	5,300	90
95	8,450	8,450	8,850	8,600	7,340	6,350	7,000	7,000	6,350	5,520	5,330	5,300	95
100	7,520	7,520	7,880	8,220	7,170	6,270	7,000	7,000	6,270	5,440	5,270	5,270	100
105	6,690	6,690	7,020	7,370	7,010	6,200	7,000	7,000	6,200	5,350	5,210	5,210	105
110	5,950	5,950	6,250	6,610	6,610	6,140	6,510	6,510	6,140	5,270	5,140	5,140	110
115	5,280	5,280	5,550	5,920	5,920	6,090	5,810	5,810	6,090	5,180	5,080	5,080	115
120	4,680	4,680	4,910	5,300	5,300	5,820	5,180	5,180	5,760	5,100	5,020	5,020	120
125	4,130	4,130	4,330	4,730	4,730	5,210	4,610	4,610	5,140	4,580	4,580	4,970	125
130	3,620	3,620	3,810	4,210	4,210	4,650	4,090	4,090	4,580	4,050	4,050	4,580	130
135	3,160	3,160	3,320	3,740	3,740	4,140	3,610	3,610	4,060	3,570	3,570	4,060	135
140	2,740	2,740	2,870	3,300	3,300	3,670	3,170	3,170	3,590	3,120	3,120	3,580	140
145	2,350	2,350	2,450	2,900	2,900	3,230	2,760	2,760	3,140	2,710	2,710	3,140	145
150	1,990	1,990	2,030	2,520	2,520	2,820	2,380	2,380	2,730	2,330	2,330	2,730	150
155	1,660	1,660	1,620	2,180	2,180	2,440	2,030	2,030	2,350	1,980	1,980	2,340	155
160	1,350	1,350	1,210	1,850	1,850	2,080	1,700	1,700	1,990	1,650	1,650	1,990	160
165	1,070	1,050		1,550	1,550	1,740	1,400	1,400	1,660	1,340	1,340	1,650	165
170				1,270	1,270	1,410	1,110	1,110	1,340	1,050	1,050	1,340	170
175				1,010	1,010	1,040			1,050			1,040	175

**Hydraulic Luffing Swingaway (Loads Luffing)
26,000 lb. Counterweight
Outriggers Fully Extended**

Swingaway Length									
Radius	142.3' + 33'		142.3' + 56'		142.3' + 72'		142.3' + 88'		Radius
	5°-20°	20°-40°	5°-20°	20°-40°	5°-20°	20°-40°	5°-20°	20°-40°	
35									35
40									40
45	13,800								45
50	13,800	12,200							50
55	13,800	12,200	8,130						55
60	13,800	11,950	7,790		7,000				60
65	13,350	11,700	7,490		7,000				65
70	12,900	11,500	7,210		6,810		5,520		70
75	12,450	11,350	6,940	6,000	6,600	5,470	5,520		75
80	12,000	11,150	6,690	5,880	6,410	5,380	5,520	4,960	80
85	10,650	11,000	6,460	5,760	6,230	5,290	5,460	4,890	85
90	9,490	9,930	6,260	5,660	6,050	5,210	5,400	4,820	90
95	8,450	8,850	6,060	5,550	5,880	5,140	5,330	4,760	95
100	7,520	7,880	5,880	5,460	5,730	5,070	5,270	4,700	100
105	6,690	7,020	5,700	5,380	5,580	5,000	5,210	4,640	105
110	5,950	6,250	5,550	5,300	5,450	4,940	5,140	4,590	110
115	5,280	5,550	5,400	5,230	5,320	4,880	5,080	4,540	115
120	4,680	4,910	5,260	5,170	5,180	4,830	5,020	4,500	120
125	4,130	4,330	4,730	5,110	4,610	4,780	4,580	4,450	125
130	3,620	3,810	4,210	4,650	4,090	4,580	4,050	4,410	130
135	3,160	3,320	3,740	4,140	3,610	4,060	3,570	4,060	135
140	2,740	2,870	3,300	3,670	3,170	3,590	3,120	3,580	140
145	2,350	2,450	2,900	3,230	2,760	3,140	2,710	3,140	145
150	1,990	2,030	2,520	2,820	2,380	2,730	2,330	2,730	150
155	1,660	1,620	2,180	2,440	2,030	2,350	1,980	2,340	155
160	1,350	1,210	1,850	2,080	1,700	1,990	1,650	1,990	160
165	1,050		1,550	1,740	1,400	1,660	1,340	1,650	165
170			1,270	1,410	1,110	1,340	1,050	1,340	170
175			1,010	1,040		1,050		1,040	175

GROVE®

The new Grove MEGAFORM™ boom shape eliminates weight and increases capacity compared to conventional shapes.

The unique TWIN-LOCK™ boom pinning system automatically pins the sections in position using two horizontal large diameter pins. A single cylinder inside the boom reduces weight which has been used else-where to strengthen the machine



For improved up-and-over reach, a power luffing extension is available on the TMS9000E with hydraulically offsettable from the superstructure cab from 5° to 40°



Electronically controlled Cummins ISM450 diesel engine provides plenty of power, on highway and at the jobsite

Standard front and rear air ride suspension provides comfortable ride at 65 mph

Coming Soon to:
www.manitowoccranegroup.com

Revision - 10/26/07

Constant improvement and engineering progress make it necessary that we reserve the right to make specification, equipment, and price changes without notice. Illustrations shown may include optional equipment and accessories and may not include all standard equipment.

GROVE and GROVE LOGO are registered trademarks of GROVE in the U.S. and/or other countries. Copyright 2002 GROVE. All rights reserved.

Grove Worldwide--Headquarters
1565 Buchanan Trail East
P.O. Box 21
Shady Grove, Pennsylvania 17256-0021
USA
Tel: (717)597-8121
Fax: (717)597-0462
www.manitowoccranegroup.com