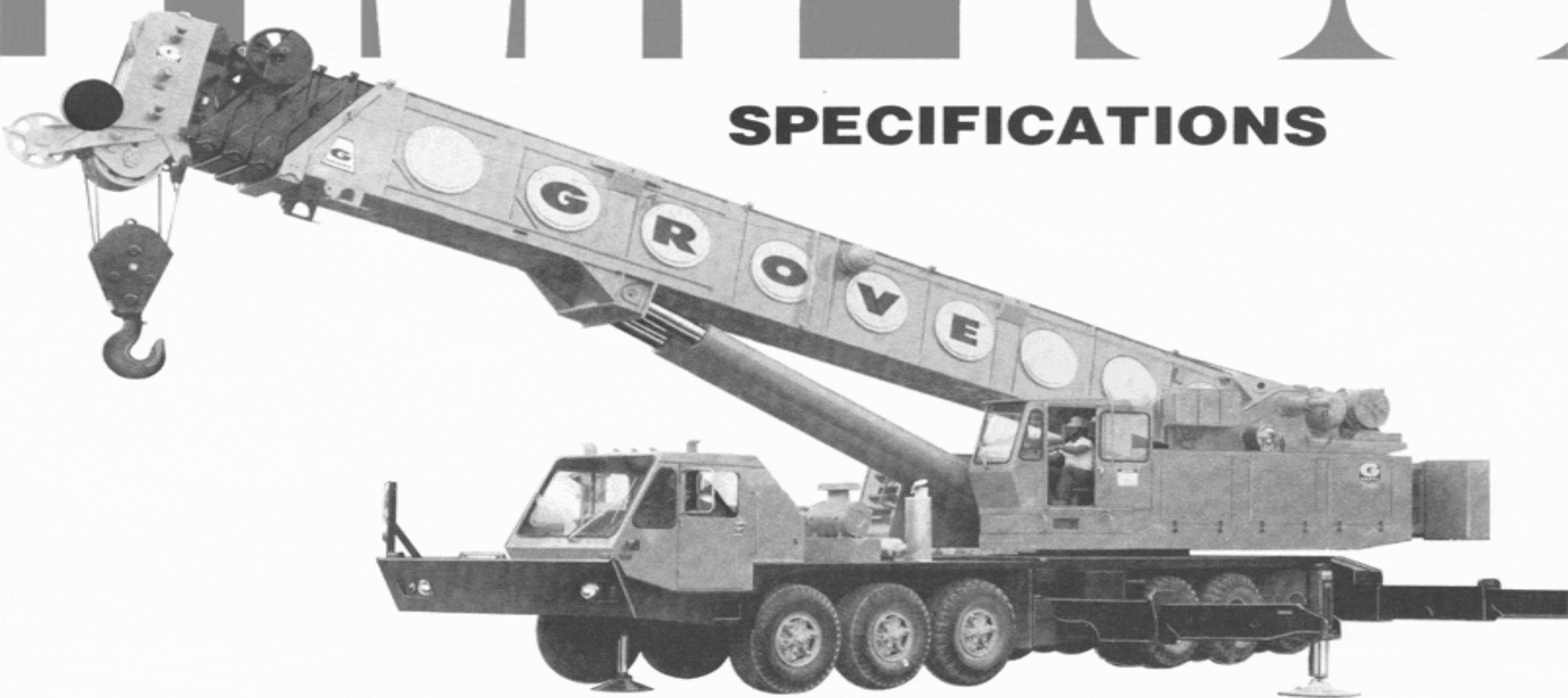


# TMM 2100

## SPECIFICATIONS



**GROVE MANUFACTURING COMPANY**

Division of Kidde, Inc.

**KIDDE**

SHADY GROVE, PA. 17256





## SUPERSTRUCTURE SPECIFICATIONS

**BOOM** – 45 ft. – 173 ft. (13.7 m – 52.7 m) total length; 4-section trapezoidal main boom consisting of base section and 3 full power sections to 141 ft. (43 m) and a 32 ft. (9.8m) "Swingaway" (2° offset) lattice boom extension to 173 ft. (52.7 m).

\*46 ft. – 205 ft. (14.0 m – 62.5 m) total length; 5-section trapezoidal main boom consisting of base section, 3 full power sections and 1 power pinned section to 173 ft. (52.7 m) and a 32 ft. (9.7 m) "Swingaway" lattice boom extension (2° offset) to 205 ft. (62.5 m).

Integral holding valves on each 7 in. (178.8 mm) bore double-acting telescope cylinder. Boom telescope sections are individually controlled and supported on graphite impregnated nylatron wear pads.

**BOOM NOSE** – Seven Metallic sheaves, 22 in. (559 mm) tread diameter, mounted on heavy duty tapered roller bearings. Removable pin type rope guards allow easy reeving. Rope dead ends on each side of boom nose. Removable single sheave 22 in. (559 mm) tread diameter auxiliary boom nose mounted to the main boom nose for single line work.

**BOOM ELEVATION** – Dual double-acting, 13 in. (330 mm) bore, hydraulic cylinders with integral holding valves. Elevation from –3° to 80°. Combination controls provided for hand or foot operation.

**LOAD MOMENT AND ANTI-TWO BLOCK SYSTEM (KRUEGER)** – Audio-visual warning in combination with Grove control lever lockout of; hoist-up, telescope-out and boom-down crane functions. Krueger LMI control console provides operator with selective display of boom length, radius and angle.

**\*POWER LUFFING JIB** – 14 ft. (4.3 m) lattice base section combines with the standard 32 ft. (9.7 m) "Swingaway" boom section to make basic 46 ft. (14.0 m) cable suspended power luffing jib. Additional 14 ft. (4.3 m) pinned insert available to make 60 ft. (18.3 m), 74 ft. (22.6 m) and 88 ft. (26.8 m) jib lengths. Luffing power is supplied from main hoist with 5° to 45° offset capability. Mast, pendant line, attaching hardware and backstops included in the makeup of all jib lengths. (Requires single sheave block for 2 part line operation).

**CAB** – Full vision, all-steel, fully-enclosed with acoustical treatment, tinted tempered safety glass throughout, hinged skylight, sliding left side door, sliding right side glass, door and window locks; fully-adjustable operator's seat with headrest; 12,000 - BTU hot water heater; electric windshield wiper and circulating air fan, swing horn, domelight, dashlight; complete engine instrumentation and crane operating controls with adjustable full-length control levers, combination hand/foot controls for swing, boom

elevation and engine throttle; outrigger control panel, sight leveling bubble; electronic hoist drum rotations indicators for main and auxiliary hoists; Krueger LMI control console provides operator with selective display of boom length, radius and boom/jib angle; 3¾ lb. (1.7 kg) dry type fire extinguisher.

**CAB INSTRUMENTATION** – Engine oil pressure gauge, engine water temperature gauge, voltmeter, tachometer, fuel level gauge, ignition-on indicator light, hydraulic oil bypass indicator light, main hoist disengaged indicator light. Kruger control panel.

**SWING** – Roller bearing swing circle, 360° continuous rotation. Rockwell planetary "glide swing" with foot actuated disc swing brake electric/hydraulic swing parking brake and 360° position positive turntable lock. Combination controls provided for hand or foot operation. Swing speed 1.9 RPM.

**OUTRIGGER CONTROLS** – Independently controlled in-out-up and down, from superstructure cab and either side of carrier frame. Required sequence control arrangement eliminates unintentional outrigger actuation. To insure proper outrigger retraction sequence, front jack cylinder retracts first when master switch is activated from any control station.

**COUNTERWEIGHT** – 15,700 lbs. (7121 kg) turntable mounted, power installed and removed, hydraulically extended to working position and retracted to stowed or travel position. (17,400 lbs. (7892 kg) counterweight used without auxiliary hoist).

### HYDRAULIC SYSTEM:

**RESERVOIR** – 420 gallons (1589.7 liters) – all-steel welded construction with integral baffles, clean out access and exterior oil sight level gauge.

**FILTER** – Return line type, full flow with bypass protection and filter bypass indicator, replaceable cartridge. 25 micron rating.

**PUMPS** – Six sections, gear-type driven by superstructure engine. Manual pump disconnect located on lower right side of superstructure. Combined capacity 349 GPM (1321 lpm) @ 2400 RPM.

**CONTROL VALVES** – Precision four-way, double acting with integral load check, main and circuit relief valves. Six individual valve banks permit simultaneous independent control of five crane functions. Maximum system operating pressure 2500 PSI (175 kg/cm²).

**OIL COOLER** – Full flow, fin and tube, oil to air.

**POWER DISTRIBUTION** – (Lift boost) (Main hoist) (Aux. hoist and outer mid telescope) (Lift, main hoist boost and mid telescope) (Aux. hoist boost, inner mid telescope) (Swing, counterweight and outriggers).

*\*Denotes optional equipment*



## HOIST SPECIFICATIONS

**DESCRIPTION:** Two speed and pull, planetary drive, power up and down with integral automatic brake.

**DESCRIPTION:** Series parallel circuitry and two motors provide both high line pull and speed ranges. Power up and down, equal speed, planetary reduction with integral automatic brake.

HOIST DATA	MAIN HOIST Gearmatic Model 44 (see note below)		AUXILIARY HOIST Grove Model HO30B-26	
<b>Drum Dimensions</b>	20 in. dia. (508mm) 32 in. length (813mm) 30 in. flange dia. (762mm)		16 in. dia. (406mm) 26 in. length (660mm) 24 in. flange dia. (610mm)	
<b>Performance:</b> <b>Max. Single Line Speed</b> <b>Max. Single Line Pull</b>	<b>Hi-Speed Range</b> 360 FPM (109.7m/min) 14,000 lbs. (6350kg)	<b>Lo-Speed Range</b> 180 FPM (54.9m/min) 28,000 lbs. (12 700kg)	<b>Hi-Speed Range</b> 575 FPM (175.3m/min) 8,400 lbs. (3810kg)	<b>Lo-Speed Range</b> 290 FPM (88.4m/min) 16,800 lbs. (7620kg)
<b>Drum Rope Capacity</b>	**1000 ft. of 1 in. dia. rope (304.8m of 25mm)		**1060 ft. of ¾ in. dia. rope (323.1m of 19mm)	
<b>Permissible Single Line Rope Pull (5:1 safety factor)</b>	1 in. (25mm) 18x19 class EIPS, WSC 20,400 lbs. (9253kg)		¾ in. (19mm) 18x19 class EIPS, WSC 11,500 lbs. (5216kg)	

\*\*6th layer of rope not recommended for hoisting operations.

**NOTE:** The Gearmatic Model 44 hoist with controlled free fall is available as the optional main hoist with the same specifications as shown above.

## SUPERSTRUCTURE ENGINE SPECIFICATIONS

MAKE & MODEL	GM6V-53N	*Cummins V555-C230	*Caterpillar 3208
TYPE	8 Cylinder O.H.V.	6 Cylinder O.H.V.	8 Cylinder O.H.V.
BORE & STROKE	4.625 in. x 4.125 in. (117mm x 105mm)	3.875 in. x 4.5 in. (98mm x 114mm)	4.5 in. x 5.0 in. (114mm x 127mm)
DISPLACEMENT	555 cu. in. (9096cm³)	318 cu. in. (5212cm³)	636 cu. in. (10 424cm³)
HORSEPOWER (NET)	199 @ 3000 RPM	196 @ 2800 RPM	199 @ 2800 RPM
GOVERNED RPM	3000	2800	2800
TORQUE (NET)	394 lbs. ft. (54kg.m) @ 1800 RPM	427 lbs. ft. (59kg.m) @ 1500 RPM	446 lbs. ft. (62kg.m) @ 1400 RPM
ELECTRICAL SYSTEM	12 volt neg. ground	12 volt neg. ground	12 volt neg. ground
COMBUSTION SYSTEM	4 cycle naturally aspirated	2 cycle with blower	4 cycle naturally aspirated
COOLING SYSTEM	Liquid	Liquid	Liquid
FUEL CAPACITY	60 Gallons (227 liters)	60 Gallons (227 liters)	60 Gallons (227 liters)
ALTERNATOR	90 Amp 12 volt	90 Amp 12 volt	90 Amp 12 volt
BATTERY	(4) 12-volt 475 CCA @ 0°F	(4) 12-volt 475 CCA @ 0°F	(4) 12-volt 475 CCA @ 0°F
AIR CLEANER	Dry Type	Dry Type	Dry Type
HOURMETER	Yes (10,000 HR)	Yes (10,000 HR)	Yes (10,000 HR)
STARTING SYSTEM	24 volt	24 volt	24 volt

**NOTE:** Performance data will vary plus or minus 10% due to variations in engine performance & operating conditions.

\*Denotes optional equipment.

The name Grove and the Trapezoidal shape are registered trademarks of Grove Manufacturing Co.



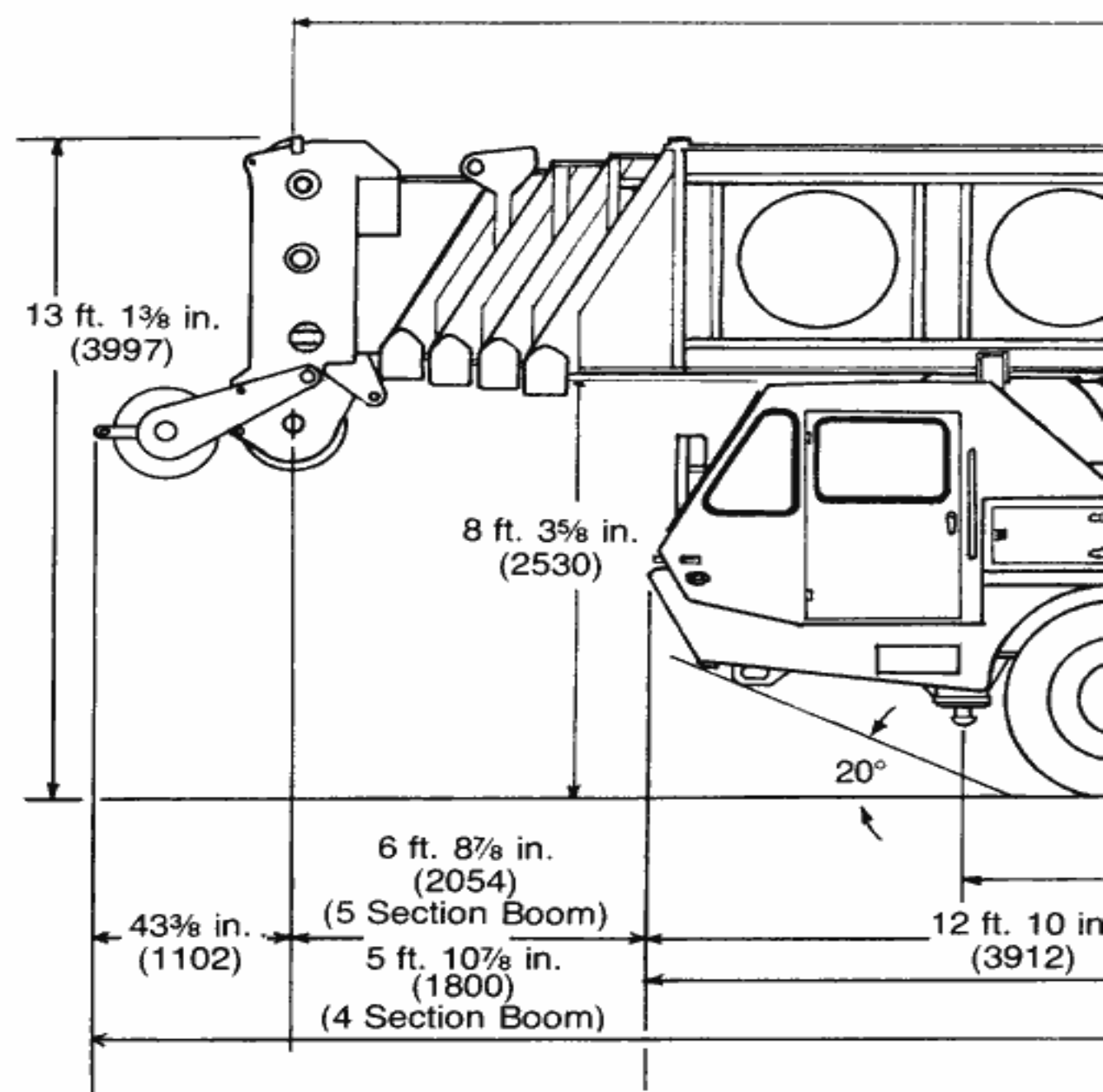
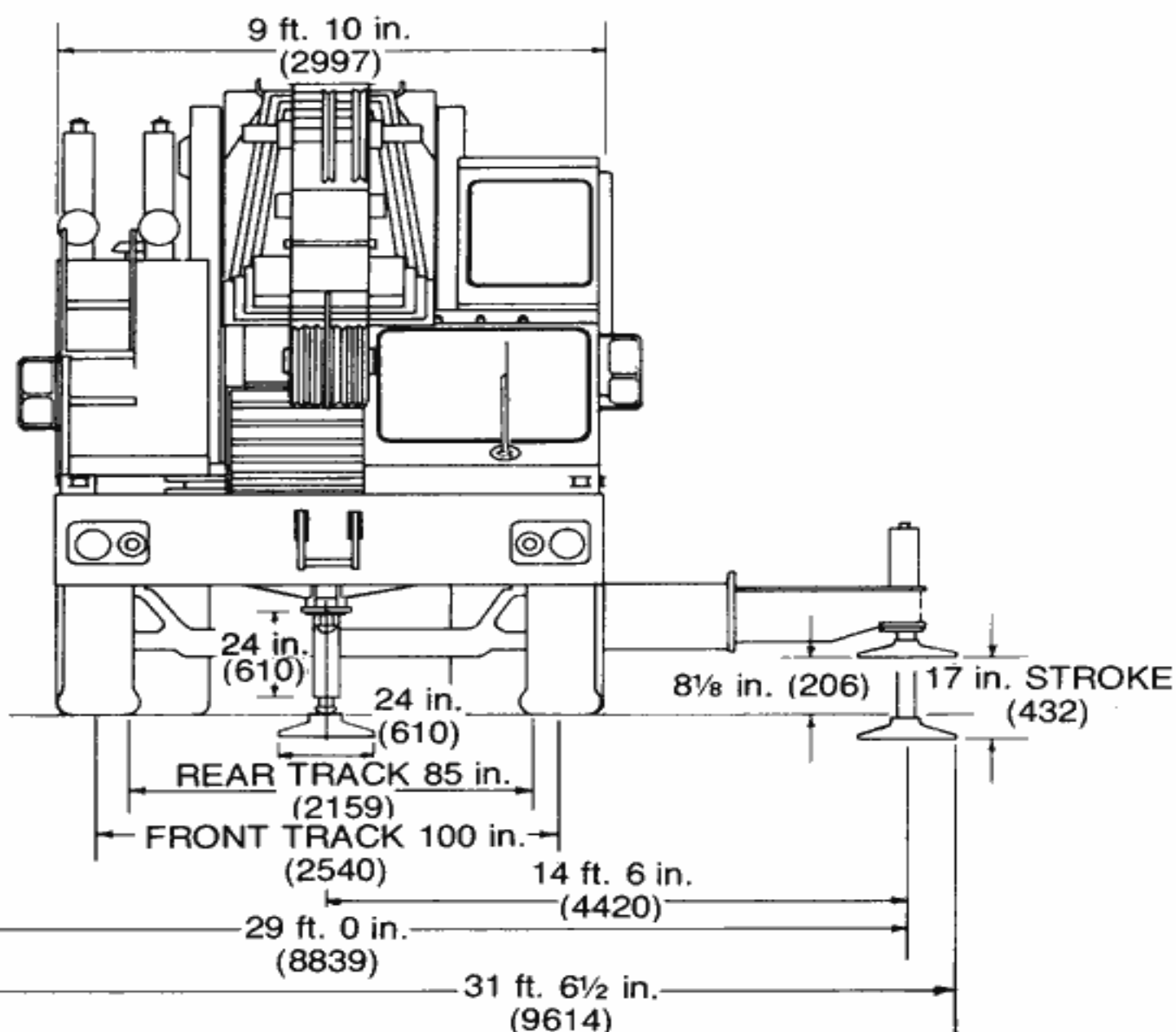
## DIMENSIONS

TURNING RADIUS 51 ft. (15 545)

TAIL SWING 13 ft. 3 $\frac{1}{8}$  in. (4041) (Counterweight in travel position)


TAIL SWING 16 ft. 2 $\frac{3}{4}$  in. (4946) (Counterweight in working position)

*NOTE: Dimensions shown in parenthesis are millimeters (mm).*





**⚠ IMPORTANTE:** este material es para uso informativo únicamente. Para realizar movimientos y maniobras, póngase en contacto con nosotros.

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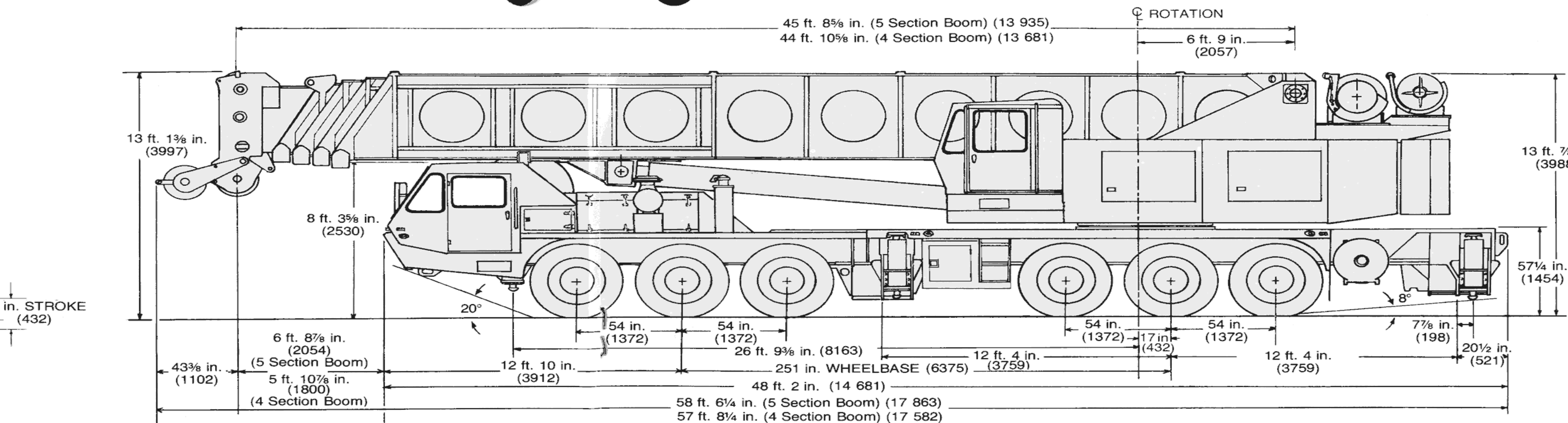
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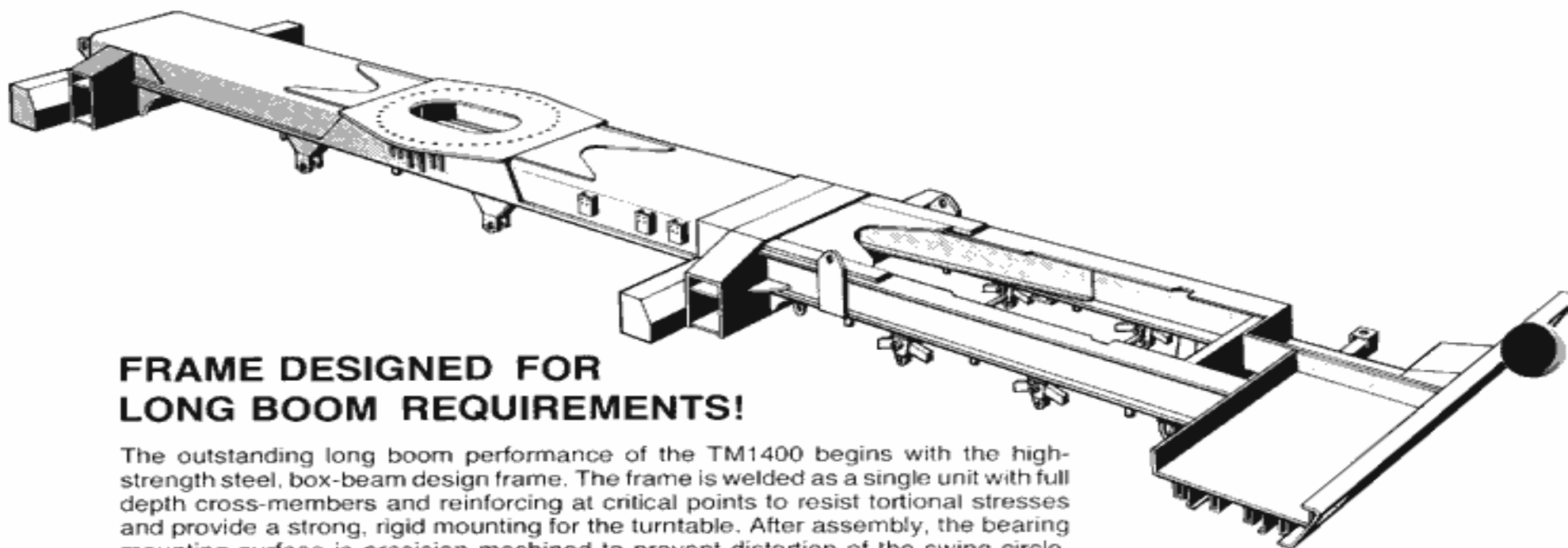


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NOTE: Dimensions shown in parenthesis are millimeters (mm).



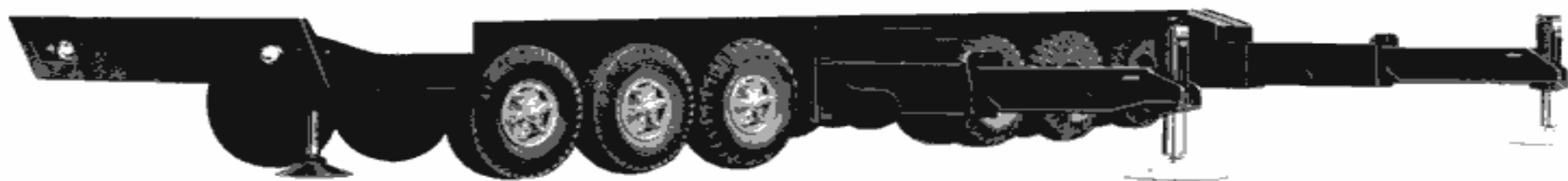
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## FRAME DESIGNED FOR LONG BOOM REQUIREMENTS!

The outstanding long boom performance of the TM1400 begins with the high-strength steel, box-beam design frame. The frame is welded as a single unit with full depth cross-members and reinforcing at critical points to resist torsional stresses and provide a strong, rigid mounting for the turntable. After assembly, the bearing mounting surface is precision machined to prevent distortion of the swing circle. Outrigger boxes are integral with the frame to provide additional strength and stability, especially in long boom operations.



## WIDE OUTRIGGER STANCE ... QUICK-SET-UP ... 360 OPERATION!

Hydraulic double box two-stage telescoping beam outriggers extend to 29 feet, providing the stability for high capacity lifts and long boom operation. Beams and jacks are independently controlled for quick set-up. Controls are located on either side of the chassis and in the superstructure cab, with a leveling bubble at each location. A fifth vertical jack, integral with forward frame members, provides the stability for 360 degree lifts and is standard equipment. All vertical jacks are equipped with holding valves, and those mounted on the beams are also equipped with the Grove Spin-lock† for positive locking of the jacks at any level.

lc p1 (2880x6370x2 bmp)

# TM1400

## 130 METRIC TON CAPACITY

### 13.7m - 52.7m (45 - 172 ft.) BOOM

(FULL POWER)  
85% OF TIPPING

## LUFFING JIB CAPACITIES

### 26.8m (88 ft.)

Jib Angle	14.0m		18.3m		22.6m		26.8m	
	Ref. Radius		Ref. Radius		Ref. Radius		Ref. Radius	
70°	12.0	5,305	13.3	3,835	14.4	2,880	15.4	2,145
65°	13.2	4,850	14.8	3,435	16.2	2,490	17.6	1,765
60°	14.3	4,490	16.2	3,105	17.9	2,175	19.7	1,455
55°	15.4	4,175	17.5	2,825	19.6	1,905	21.7	1,195
50°	16.3	3,920	18.8	2,590	21.1	1,680	23.5	975
45°	17.3	3,690	20.0	2,385	22.6	1,485	25.3	785

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### JIB WARNING NOTES

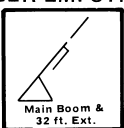
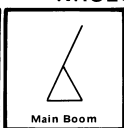
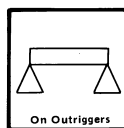
1. All capacities are based on structural strength of jib at given jib angle with reference to ground and do not exceed 85% of tipping loads with counterweight fully extended as determined by test in accordance with SAE J-765.
  2. Capacities for 46 ft., 60 ft., 74 ft., & 88 ft. (14.0, 18.3, 22.6, 26.8 meter) jibs are for two part line lifting crane service only, with Krueger Dynamometer installed at dead end.
  3. Rated load is based on loaded jib angle with reference to ground, regardless of main boom length. (Reference radius in feet is for fully extended boom with fly extended, 140.3 ft. boom length only. The Krueger L.M.I. system will give an accurate radius indication for this condition only).
  4. **WARNING:** Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with every jib configuration occurs rapidly and without advance warning.
  5. Fly must be fully extended and pinned for luffing jib operation. Boom length must be set prior to and maintained while lifting or luffing any load. Do not attempt to change boom length while lifting with luffing jib since jib angle changes with boom length. To extend boom, mechanical lockout bar in cab must be engaged. To retract boom, mechanical lockout bar in cab must be disengaged. Every time bar is reengaged, lockout system must be reset before lifting.
  6. Lifting with other than fully elevated main boom (80° boom angle) is strictly prohibited. (Check and maintain proper lifting configuration at all times: keep lift cylinders fully extended).
  7. Do not attempt to lift any load with main hoist (luffing line) that cannot be lifted with auxiliary hoist (lifting line). **WARNING:** The Krueger L.M.I. system will not provide protection against this condition.
  8. With 46, 60, 74 & 88 ft. (14.0, 18.3, 22.6 & 26.8 meter) jibs in working position, the jib angle with reference to ground must not be less than 45° nor greater than 70°. Exceeding these limits can cause an unsafe condition. The Krueger L.M.I. system will lockout main hoist down at 35° and main hoist up at 70°.
  9. Insure that all safety devices for luffing jibs are properly engaged before lifting a load.
  10. Main hoist must be used to luff jib.
  11. Capacities listed are with outriggers fully extended and front jack cylinder extended according to proper procedure.
- JIB ERECTION NOTES:**
- A. For main boom angle less than 80° (fully elevated), the maximum total length of boom including extended fly, for the purpose of erecting or dismantling the luffing jib over side or rear is:
    - 46 ft. Jib (14.0m) — 120 ft. (36.6m)
    - 60 ft. Jib (18.3m) — 116 ft. (35.3m)
    - 74 ft. Jib (22.6m) — 112 ft. (34.1m)
    - 88 ft. Jib (26.8m) — 105 ft. (32.0m)
- WARNING:** Extending or retracting the main boom equipped with luffing jib at boom lengths greater than the above specified lengths without fully elevating the boom (80° boom angle) is strictly prohibited. Do not attempt to erect jibs over front of machine unless main boom is fully retracted, fly extended.



lc p2 (4136x6536x2 bmp)

## TM1400

130 METRIC TON CAPACITY  
13.7m - 52.7m (45 - 172 ft.) BOO  
(FULL POWER)  
85% OF TIPPING  
KRUEGER LMI SYMBOLS



## RATED LIFTING CAPACITIES IN KILO

OUTRIGGERS FULLY EXTENDED - 360°

Radius in Meters	Main Boom Length in Meters											42.9m + 3.6m Ext. (2° Offset)
	13.7	17.7	21.3	25.0	28.7	32.3	36.0	39.6	42.9	42.9	52.7	
3	130,000 (74.5)											
3.5	127,005 (72.5)	68,035 (76.5)	64,410 (79.0)									
4	122,015 (70.0)	68,035 (74.5)	64,410 (78.0)									
4.5	108,315 (67.5)	68,035 (73.0)	64,410 (76.5)	58,965 (79.0)								
5	97,160 (65.0)	68,035 (71.0)	61,685 (75.0)	56,605 (77.5)								
6	80,105 (60.0)	65,090 (67.5)	56,605 (72.0)	51,300 (75.0)	46,265 (77.5)	40,960 (79.5)						
7	67,675 (55.0)	62,365 (64.0)	52,480 (69.5)	46,390 (73.0)	42,750 (75.5)	37,690 (77.5)	33,430 (79.5)	31,430 (80.0)				
8	58,060 (49.0)	56,970 (60.0)	48,625 (66.5)	43,500 (70.5)	39,190 (73.5)	34,495 (76.0)	32,430 (77.5)	30,480 (79.5)				
9	49,170 (42.5)	49,170 (56.0)	44,925 (63.0)	40,460 (68.0)	36,150 (71.0)	31,795 (74.0)	29,890 (76.0)	28,030 (78.0)	27,215 (79.5)			
10	42,250 (35.0)	42,250 (52.0)	41,935 (60.0)	37,850 (65.0)	33,180 (69.0)	29,210 (72.0)	27,440 (74.5)	25,810 (76.5)	25,150 (78.0)	11,340 (80.0)		
12		32,750 (42.5)	32,750 (53.5)	32,750 (60.0)	28,210 (64.5)	24,835 (68.0)	23,290 (71.0)	22,200 (73.5)	21,115 (75.5)	10,350 (78.0)		
14			25,855 (30.0)	25,855 (45.5)	25,855 (54.0)	24,400 (60.0)	21,520 (64.0)	20,095 (67.5)	19,095 (70.5)	9,060 (72.5)		
16				20,050 (37.0)	20,050 (48.0)	20,050 (55.0)	18,390 (60.0)	17,575 (63.5)	16,395 (67.0)	15,305 (69.5)	8,050 (73.5)	
18					16,045 (24.5)	16,045 (40.5)	15,875 (49.5)	15,510 (55.5)	14,220 (60.0)	13,200 (66.5)	7,235 (71.0)	
20						12,750 (32.0)	12,750 (43.5)	12,750 (50.5)	12,335 (56.0)	11,475 (63.5)	6,575 (68.5)	
23							9,845 (33.0)	9,845 (43.0)	9,845 (49.5)	9,320 (58.5)	5,760 (65.0)	
26								7,270 (33.5)	7,270 (42.5)	7,270 (49.5)	5,125 (53.5)	
29									5,290 (34.0)	5,290 (43.0)	4,600 (48.0)	
32										4,015 (22.5)	4,195 (35.0)	
35											3,830 (25.0)	
38												3,030 (25.5)
41												2,185 (25.5)
44												1,425 (32.0)
47												850 (24.5)
Min. Boom Angle (deg.) for indicated length (no load)											0	0
Max. Boom Length (m) at 0 degree boom angle (no load)											42.9	52.7

NOTE: Boom Angles are in degrees.

A6-829-003369 & -003380

### GENERAL:

- Rated loads as shown on lift chart pertain to this machine as originally manufactured and equipped. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
- Construction equipment can be hazardous if improperly operated or maintained. Operation and maintenance of this machine shall be in compliance with the information in the operator's, parts, and safety manuals supplied with this machine. If these manuals are missing, order replacements from the manufacturer through the distributor.
- The operator and other personnel associated with this machine shall fully acquaint themselves with the latest applicable American National Standards Institute (ANSI) Safety Standards for cranes.

### TIPUP:

- The machine shall be leveled on a firm supporting surface. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the load to a larger bearing surface.
- For outrigger operation, outriggers shall be fully extended with tires raised free of crane weight before operating the boom or lifting loads.
- If machine is equipped with front jack cylinder, the front jack cylinder shall be fully extended before operation.
- If machine is equipped with extendable counterweight, the counterweight shall be fully extended before operation.
- Tires shall be inflated to the recommended pressure before lifting on rubber.
- With certain boom and hoist tackle combinations, maximum capacities may not be obtainable with standard cable lengths.

### OPERATION:

- Rated loads at rated radius shall not be exceeded. Do not tip the machine to determine allowable loads. For clamshell or concrete bucket operation, weight of bucket and load must not exceed 80% of rated lifting capacities.

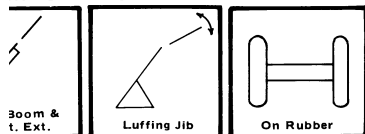
### WARNING NOTE:

- Rated loads do not exceed 85% of the tip Crane Stability Test Code J-765a.
- Rated loads include the weight of hook block, sl and their weights shall be subtracted from the list to be lifted.
- Load ratings are based on freely suspended load; move a load horizontally on the ground in any direction.
- Rated loads do not account for wind on lifted load when wind velocity is above 20 mph (32 km/h) shall be appropriately reduced.
- Rated loads are for lift crane service only.
- Do not operate at a radius or boom length where these positions, the machine may overturn without the maximum load which can be telescoped is not in loadings and crane maintenance, but it is extension within the limits of the capacity chart.
- When either boom length or radius or both are be load shown at either the next larger radius or boom length.
- For safe operation, the user shall make due all conditions, such as: soft or uneven ground, out side loads, pendulum action, jerking or sudden conditions, experience of personnel, two mach electric wires, etc. Side pull on boom or jib is extri
- Power telescoping boom sections must be extende
- Handling of personnel from the boom is not auti furnished and installed by Grove Manufacturing Co
- Keep load handling devices a minimum of 12 inc when lowering or extending boom.
- Loaded boom angles give an approximation of th



**1400**

ON CAPACITY  
5 - 172 ft.) BOOM  
POWER)  
TIPPING  
MI SYMBOLS



lc p3 (4136x6536x2 bmp)

# GROVE

## FULL HYDRAULIC CARRIER-MOUNTED CRAN

**5 IN KILOGRAMS ON OUTRIGGERS**

OUTRIGGERS FULLY EXTENDED - OVER REAR

Radius in Meters	Main Boom Length in Meters										42.9m + 9.8m Ext. (2° Offset)
	13.7	17.7	21.3	25.0	28.7	32.3	36.0	39.6	42.9	52.7	
3	130,000 (74.5)										
3.5	127,005 (72.5)	68,035 (76.5)	64,410 (79.0)								
4	122,015 (70.0)	68,035 (74.5)	64,410 (78.0)								
4.5	108,315 (67.5)	68,035 (73.0)	64,410 (76.5)	58,965 (79.0)							
5	97,160 (65.0)	68,035 (71.0)	61,685 (75.0)	56,605 (77.5)							
6	80,105 (60.0)	65,090 (67.5)	56,605 (72.0)	51,300 (75.0)	46,265 (77.5)	40,960 (79.5)					
7	67,675 (55.0)	62,365 (64.0)	52,480 (69.5)	46,990 (73.0)	42,750 (75.5)	37,690 (77.5)	33,430 (79.5)	31,430 (80.0)			
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10	42,250 (35.0)	42,250 (52.0)	41,935 (60.0)	37,850 (65.0)	33,180 (69.0)	29,210 (72.0)	27,440 (74.5)	25,810 (76.5)	25,150 (78.0)	11,340 (80.0)	
12		32,750 (42.5)	32,750 (53.5)	28,210 (60.0)	24,835 (64.5)	21,520 (68.0)	20,095 (71.0)	19,095 (73.5)	17,915 (75.5)	10,350 (78.0)	
14		25,855 (30.0)	25,855 (43.5)	25,855 (54.0)	24,400 (60.0)	21,520 (64.0)	20,095 (67.5)	19,095 (70.5)	17,915 (72.5)	9,060 (75.5)	
16			21,980 (37.0)	21,980 (48.0)	20,865 (55.0)	18,390 (60.0)	17,575 (63.5)	16,395 (67.0)	15,305 (69.5)	8,050 (73.5)	
18			17,675 (24.5)	17,675 (40.5)	17,675 (49.5)	15,875 (55.5)	15,510 (60.0)	14,220 (64.0)	13,200 (66.5)	7,235 (71.0)	
20				14,460 (32.0)	14,460 (43.5)	13,790 (50.5)	13,560 (56.0)	12,335 (60.5)	11,475 (63.5)	6,575 (68.5)	
23					10,930 (33.0)	10,930 (43.0)	10,930 (49.5)	10,025 (55.0)	9,320 (58.5)	5,760 (65.0)	
26					8,435 (16.0)	8,435 (33.5)	8,435 (42.5)	8,210 (49.5)	7,575 (53.5)	5,125 (61.0)	
29						6,500 (20.0)	6,500 (34.0)	6,500 (43.0)	6,165 (48.0)	4,600 (57.5)	
32							4,990 (22.5)	4,990 (35.0)	4,990 (42.0)	4,195 (53.0)	
35								3,750 (25.0)	3,750 (34.5)	3,830 (48.5)	
38									2,785 (25.5)	3,525 (44.0)	
41										2,995 (38.5)	
44										2,230 (32.0)	
47										1,580 (24.5)	
50										1,030 (11.0)	
Min. Boom Angle (deg.) for indicated length (no load)										0	0
Max. Boom Length (m) at 0 degree boom angle (no load)										42.9	52.7

NOTE: Boom Angles are in degrees.

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### WARNING NOTES

85% of the tipping load as determined by SAE J-765a.  
weight of hook block, slings and auxiliary lifting devices subtracted from the listed ratings to obtain the net load.  
freely suspended loads. No attempt shall be made to in the ground in any direction.  
nt for wind on lifted load or boom. It is recommended ove 20 mph (32 km/h), rated loads and boom lengths rood.  
ne service only.  
us or boom length where capacities are not listed. At ne may overturn without any load on the hook.  
can be telescoped is not definable because of variations aintenance, but it is safe to attempt retraction and s of the capacity chart.  
or radius or both are between values listed, the smallest ext larger radius or boom length shall be used.  
user shall make due allowances for his particular job or uneven ground, out of level conditions, high winds, ion, jerking or sudden stopping of loads, hazardous f personnel, two machine lifts, traveling with loads, ll on boom or jib is extremely dangerous.  
ctions must be extended equally at all times.  
m the boom is not authorized except with equipment Grove Manufacturing Company.  
es a minimum of 12 inches (30 cm) below boom head ig boom.  
an approximation of the operating radius at specified

boom lengths. The boom angle before loading should be greater to account for deflection.

- Capacities appearing above bold line are based on structural strength and tipping should not be relied upon as a capacity limitation.
- Capacities for the 45 ft. (13.7m) boom length shall be lifted with boom fully retracted. If boom is not fully retracted, capacities shall not exceed those shown for the 58 ft. (17.7m) boom length.
- Radi less than 40 feet or 12 meters not recommended when lifting over front o machine.
- For boom lengths less than 172 ft. (52.6m) with 32 ft. (9.8m) boom extension erected, the rated loads are determined by boom angle only, in the column headed by 172 ft. (52.6m). For this load column, the 32 ft. (9.8m) boom extension operation mode is to be selected on the Krueger L.M.I.  
WARNING: The Krueger L.M.I. calibration will apply for fully extended main boom only.

### DEFINITIONS:

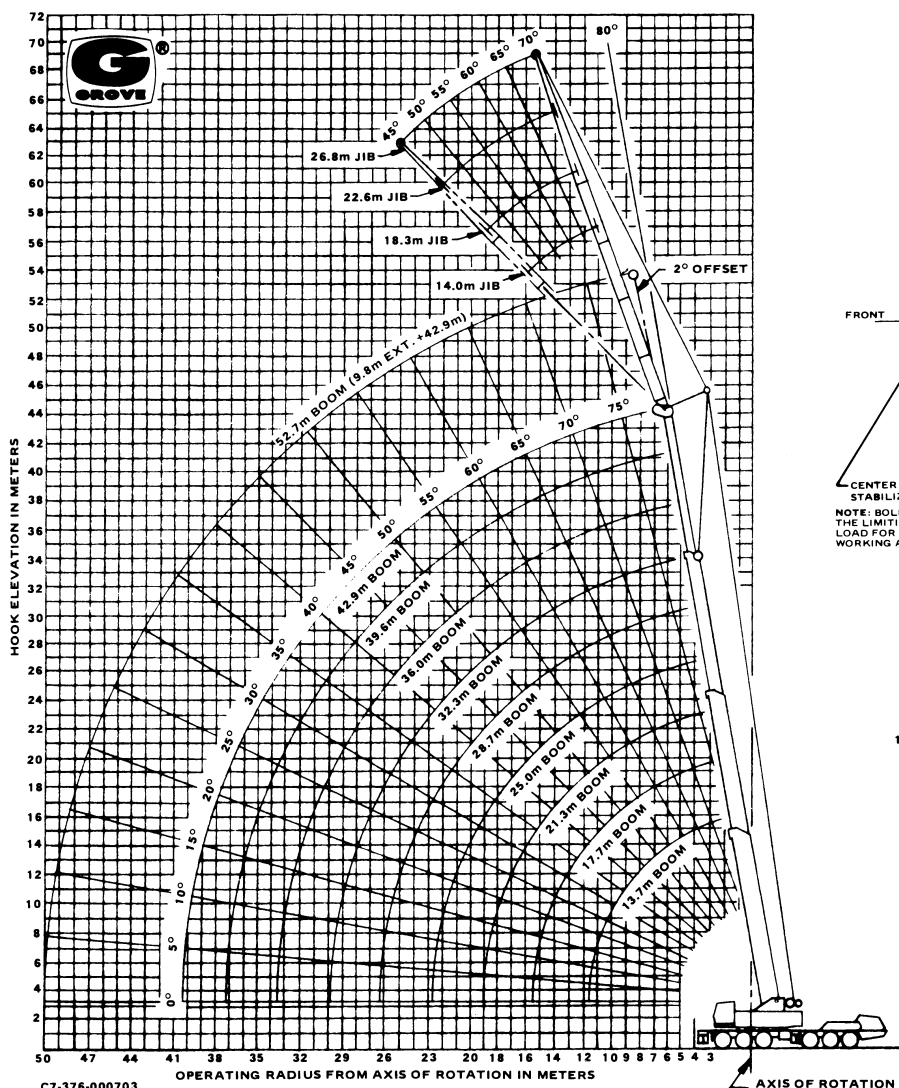
- Operating Radius: Horizontal distance from a projection of the axis of rotation to the supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
- Loaded Boom Angle (Shown in Parenthesis on Main Boom Capacity Chart): is the angle between the boom base section and the horizontal, after lifting the rated load at the rated radius.
- Working Area: Areas measured in a circular arc about the center line of rotation as shown on the working area diagram.
- Freely Suspended Load: Load hanging free with no direct external force applied except by the lift cable.
- Side Load: Horizontal force applied to the lifted load either on the ground or in the air.



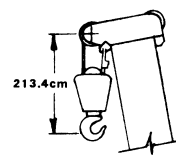
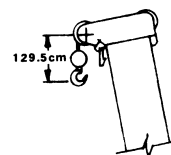
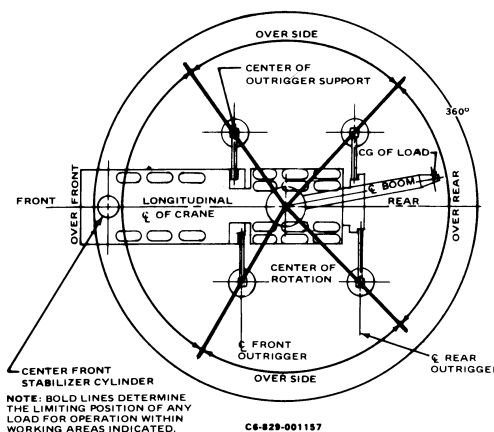
# GROVE®

# TM1400

## HOOK ELEVATION DIAGRAM UNLADEN BOOM



## LIFTING AREA DIAGRAM



## WEIGHT REDUCTION FOR LOAD HANDLING DEVICES

9.8m BOOM EXTENSION with 13.7-42.9m BOOM	
† Stowed -	338 kg
† Erected -	1,258 kg
Luffing Jib Accessories - 254 kg	

13.7 - 42.9m BOOM with	
† 14.0m Jib Erected -	4,319 kg
† 18.3m Jib Erected -	6,535 kg
† 22.6m Jib Erected -	9,158 kg
† 26.8m Jib Erected -	11,723 kg

HOOK BLOCKS	
140 Ton, 7 Sheave . . .	1,564 kg
30 Ton, 1 Sheave . . .	464 kg
Auxiliary Boom Head . . .	115 kg
10 Ton Headache Ball . . .	227 kg
15 Ton Headache Ball . . .	340 kg

NOTE: All Load Handling Devices and Boom Attachments are Considered Part of the Load and Suitable Allowances MUST BE MADE for Their Combined Weights. Weights are for Grove furnished equipment.

† Reduction of main boom capacities.