

TMS522

22 TON CAPACITY
28 ft. - 70 ft. BOOM (FULL POWER)

6x6 CARRIER
PCSA CLASS 10-62
85% OF TIPPING

JIB CAPACITIES IN POUNDS

23 ft. - 38 ft. TELE. JIB
On Outriggers - Over Side & Rear
Without Front Jack

Main Boom Angle	23 ft. JIB LENGTH (fully ret.)						33 ft. JIB LENGTH						38 ft. JIB LENGTH (fully ext.)					
	0° OFFSET		15° OFFSET		30° OFFSET		0° OFFSET		15° OFFSET		30° OFFSET		0° OFFSET		15° OFFSET		30° OFFSET	
	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.
75°	27.5	12,500	31.4	7,300	35.0	4,500	29.0	7,600	35.3	4,900	41.5	2,900	31.0	5,000	39.0	3,750	45.4	2,230
70	33.3	7,990	37.8	6,390	40.6	4,150	35.9	6,290	42.5	4,270	48.8	2,650	37.9	4,650	45.6	3,300	51.8	1,990
65	40.2	5,870	44.7	5,070	47.2	3,900	43.9	4,750	50.2	3,600	56.1	2,440	46.3	4,230	53.7	2,950	59.3	1,870
60	47.0	3,980	51.3	3,740	53.6	3,310	51.6	3,370	57.5	2,790	62.8	2,330	54.3	3,150	61.2	2,640	66.4	1,770
55	53.2	2,760	57.3	2,760	59.5	2,460	58.8	2,480	64.3	2,150	69.2	1,770	62.0	2,460	68.4	1,890	72.9	1,680
50	59.2	2,120	62.9	2,040	65.1	1,860	65.7	1,780	70.7	1,580	74.9	1,330	69.2	1,780	75.0	1,420	78.9	1,290
45	64.7	1,570	68.0	1,450	69.9	1,410	71.9	1,290	76.5	1,150	80.2	1,050	75.8	1,290	81.1	1,050	84.3	980
40	69.6	1,110	72.6	1,050	74.2	1,020	77.7	910					81.8	910				

A6-829-005790

No Load Stability On Outriggers Side & Rear With 23' - 38' Tele. Jib Installed:

	Tele. Jib Fully Retracted	33' Tele Jib Length	Tele. Jib Fully Extended
Minimum Boom Angle for Indicated Boom Length	93'	103'	108'
Maximum Boom Length Including Jib for 0° Boom Angle	7.5'	10'	11.5'
	92.0'	101.0'	105.5'

23 ft. - 38 ft. TELE. JIB
On Outriggers - 360°
With Front Jack

Main Boom Angle	23 ft. JIB LENGTH (fully retracted)						33 ft. JIB LENGTH						38 ft. JIB LENGTH (fully extended)					
	0° OFFSET		15° OFFSET		30° OFFSET		0° OFFSET		15° OFFSET		30° OFFSET		0° OFFSET		15° OFFSET		30° OFFSET	
	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.
75°	27.5	12,500	31.4	7,300	35.0	4,500	29.0	7,600	35.3	4,900	41.5	2,900	31.0	5,000	39.0	3,750	45.4	2,230
70	33.3	9,370	37.8	6,390	40.6	4,150	35.9	6,500	42.5	4,270	48.8	2,650	37.9	4,650	45.6	3,300	51.8	1,990
65	40.2	6,620	44.7	5,750	47.2	3,900	43.9	5,300	50.2	3,820	56.1	2,440	46.3	4,470	53.7	2,950	59.3	1,870
60	47.0	4,760	51.3	4,490	53.6	3,680	51.6	3,900	57.5	3,450	62.8	2,330	54.3	3,550	61.2	2,640	66.4	1,770
55	53.2	3,640	57.3	3,570	59.5	3,120	58.8	3,000	64.3	2,770	69.2	2,230	62.0	2,820	68.4	2,450	72.9	1,680
50	59.2	2,750	62.9	2,750	65.1	2,510	65.7	2,350	70.7	2,180	74.9	1,910	69.2	2,330	75.0	2,030	78.9	1,620
45	64.7	2,160	68.0	2,160	69.9	2,050	71.9	1,880	76.5	1,720	80.2	1,500	75.8	1,850	81.1	1,660	84.3	1,500
40	69.6	1,700	72.6	1,700	74.2	1,630	77.7	1,480	81.7	1,390	84.7	1,270	81.8	1,410	86.4	1,360	89.0	1,240
35	74.0	1,370	76.6	1,370	77.9	1,330	82.8	1,150	86.2	1,140	88.6	1,040	87.2	1,080	91.2	1,020	93.0	980
30	77.8	1,090	80.1	1,090	81.0	1,090	87.3	930	90.2	930	91.8	920						

A6-829-005851

No Load Stability On Outriggers 360° With 23' - 38' Tele. Jib Installed:

	Tele. Jib Fully Retracted	33' Tele. Jib Length	Tele. Jib Fully Extended
Minimum Boom Angle for Indicated Boom Length	93'	103'	108'
Maximum Boom Length Including Jib for 0° Boom Angle	0'	0'	0'
	93'	103'	108'

JIB CAPACITY NOTES

- 23' (7.1m) Tele. Jib length may be used for double line lifting service. 33' (10.1m) and 38' (11.6m) jib lengths may be used for single line lifting service only. Capacities are based on structural strength of 23'-38' (7.1m-11.6m) Tele. Jib at a given main boom angle regardless of main boom length.
- WARNING:** Operation of machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with jib occurs rapidly and without advance warning.
- Capacities listed are with fully extended outriggers only.
- WARNING:** Lifting on rubber with jib is prohibited.
- Reference radii listed are for fully extended boom only 70' (21.2m).

WEIGHT REDUCTIONS FOR LOAD HANDLING DEVICES

23 ft. JIB with 28-70 ft. BOOM	
*Stowed	- 250 lbs.
*Erected	- 1,985 lbs.

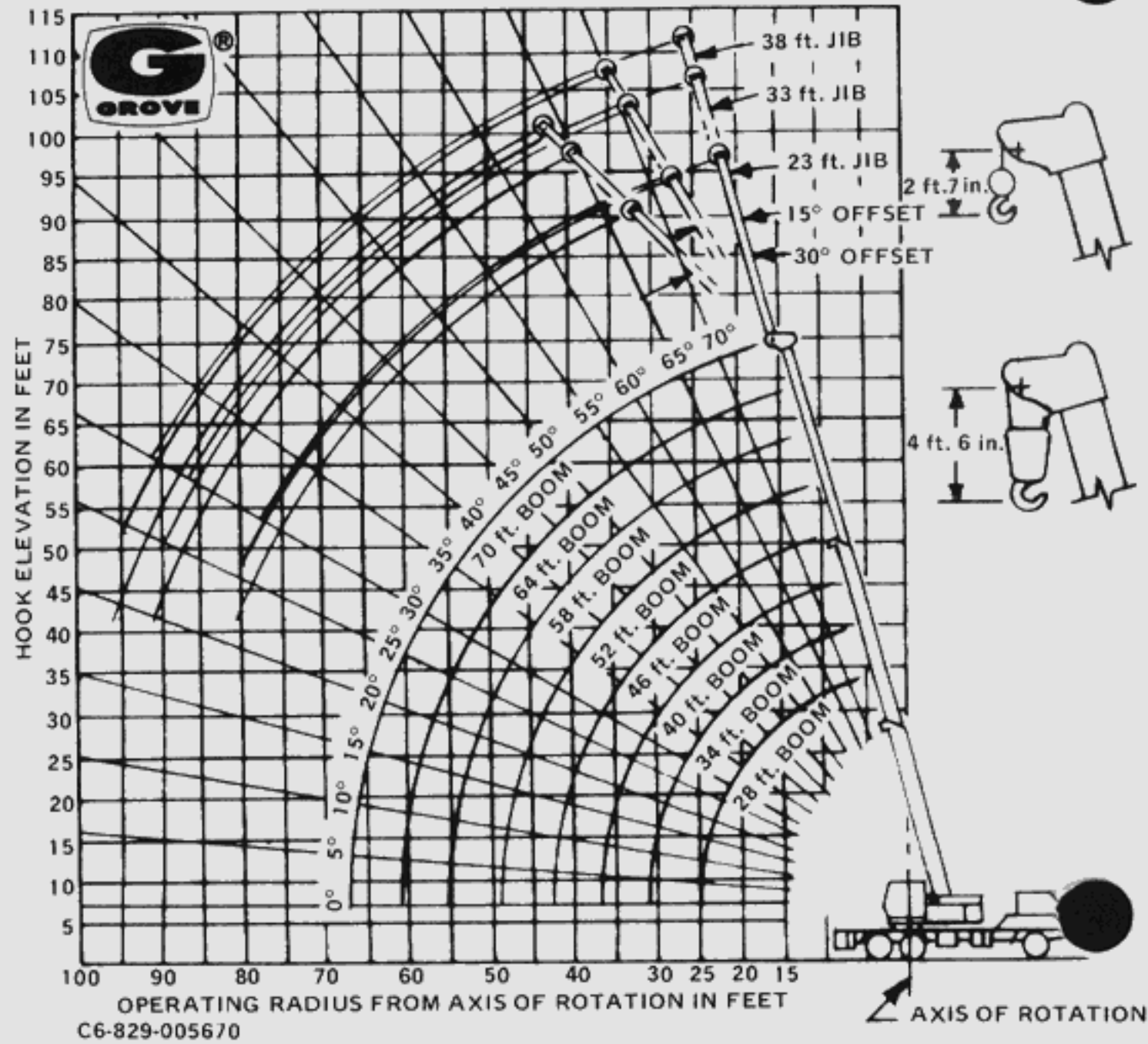
23-38 ft. TELE. JIB with 28-70 ft. BOOM	
*Stowed	- 414 lbs.
*Erected (Retracted)	- 3,659 lbs.
*Erected (Extended)	- 4,611 lbs.

*Reduction of main boom capacities.

HOOKBLOCKS	
22 Ton, 3 Sheave 455 lbs.
15 Ton, 2 Sheave 292 lbs.
12 Ton, 1 Sheave 360 lbs.
Auxiliary Boom Head 100 lbs.
5 Ton Headache Ball 172 lbs.

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.

RANGE DIAGRAM



23 ft. "A" FRAME JIB On Outriggers - Over Side & Rear Without Front Jack

Main Boom Angle	0° OFFSET		15° OFFSET		30° OFFSET	
	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.
75°	27.0	12,000	32.5	7,700	35.7	5,070
70	33.3	8,100	38.1	7,000	41.2	4,800
65	40.2	5,980	44.9	5,160	47.8	4,260
60	47.0	4,420	51.3	3,800	54.0	3,550
55	53.2	3,350	57.3	2,970	59.8	2,830
50	59.2	2,710	62.9	2,300	65.1	2,240
45	64.7	2,090	68.0	1,820	69.9	1,800
40	69.6	1,550	72.6	1,440	74.2	1,400
35	74.0	1,270	76.6	1,180	77.9	1,140
30	77.8	1,060	80.1	990	81.0	910

A6-829-005788

23 ft. "A" FRAME JIB On Outriggers - 360° With Front Jack

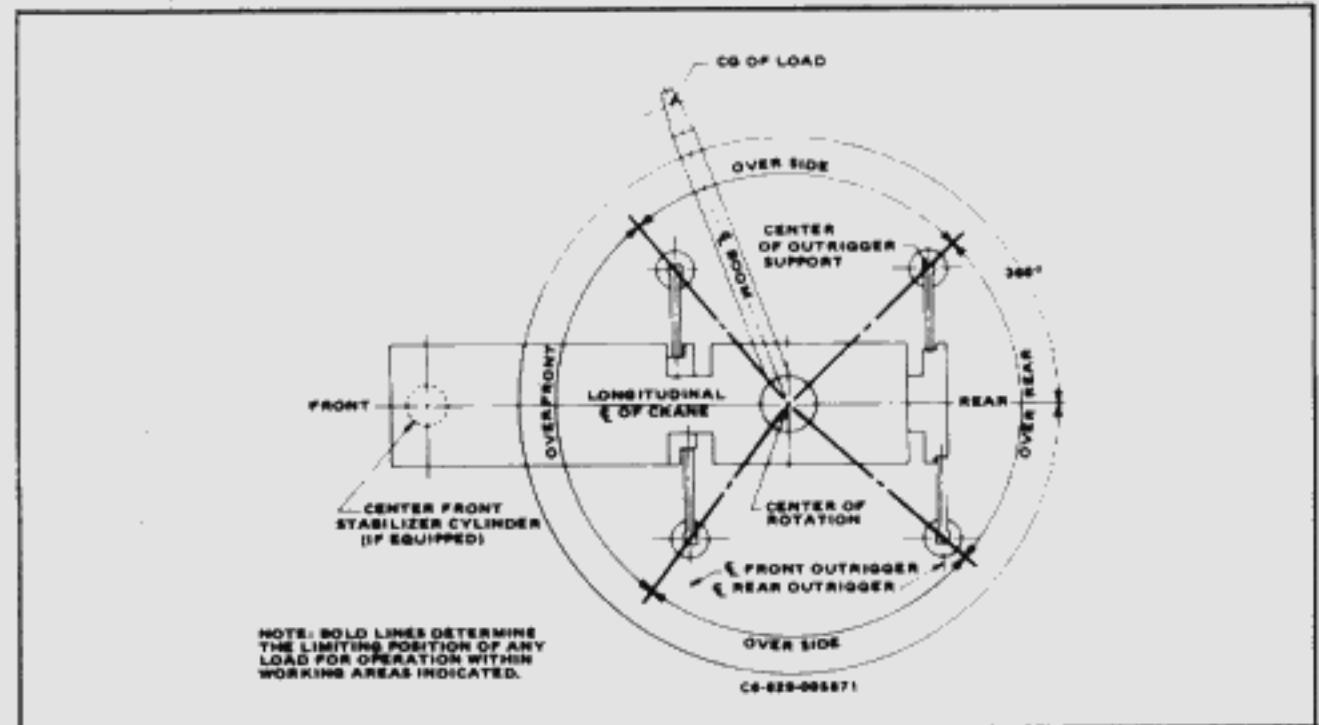
Boom Angle	0° OFFSET		15° OFFSET		30° OFFSET	
	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.	Rad. Ref. ft.	Cap. lbs.
75°	27.0	12,000	32.5	7,700	35.7	5,070
70	33.3	9,440	38.1	7,000	41.2	4,800
65	40.2	7,100	44.9	5,700	47.8	4,500
60	47.0	5,340	51.3	4,610	54.0	4,110
55	53.2	4,230	57.3	3,670	59.8	3,450
50	59.2	3,360	62.9	3,000	65.1	2,870
45	64.7	2,720	68.0	2,400	69.9	2,360
40	69.6	2,230	72.6	2,090	74.2	2,070
35	74.0	1,870	76.6	1,800	77.9	1,700
30	77.8	1,580	80.1	1,570	81.0	1,480

A6-829-005849

JIB CAPACITY NOTES:

- All capacities are in pounds. 23 ft. jib may be used for double line lifting service. Capacities are based on structural strength of 23 ft. jib at a given main boom angle regardless of main boom length.
- WARNING:** Operation of machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with jib occurs rapidly and without advance warning.
- Capacities listed are with fully extended outriggers only.
- WARNING:** Lifting on rubber with jib is prohibited.
- Reference radii listed are for fully extended main boom only.
- No load stability on outriggers with 23 ft. jib installed:
 - Minimum boom angle for fully extended main boom = 0°.
 - Maximum boom length at 0° main boom angle = 93 ft.

LIFTING AREA DIAGRAM



GROVE MANUFACTURING COMPANY

Division of Kidde, Inc.

KIDDE

Box 21, Shady Grove, Pennsylvania 17256

Phone: (717) 597-8121 Telex: 842308 Cable: GROVE MFG

Distributed by:

3522

CAPACITY
 OM (FULL POWER)

CARRIER
 ASS 10-62
 TIPPING

GROVE®

FULL HYDRAULIC

CARRIER-MOUNTED CRANE

CAPACITIES IN POUNDS
 FULLY EXTENDED

Without Front Jack

360° – With Front Jack

Length in Feet	Main Boom Length in Feet			
	52	58	64	70
10				
12				
15	29,150 (72)	28,600 (74.5)		
20	23,000 (66)	22,600 (69.5)	22,150 (72)	20,500 (74)
25	17,950 (60)	17,950 (64)	17,950 (67)	17,650 (69.5)
30	14,480 (53)	14,480 (58)	14,480 (62)	14,480 (65)
35	11,230 (45.5)	11,230 (51.5)	11,230 (56.5)	11,230 (60)
40	9,120 (36.5)	9,120 (45)	9,120 (50.5)	9,120 (55)
45	7,500 (25)	7,500 (37)	7,500 (44.5)	7,500 (49.5)
50		6,220 (26.5)	6,220 (37)	6,220 (43.5)
55		5,250 (3.5)	5,250 (28)	5,250 (37)
60			4,450 (13)	4,450 (28.5)
65				3,810 (15.5)
Height (no load)	0			
Angle (no load)	70			

A6-829-005756 & -003716D

Radius in Feet	Main Boom Length in Feet							
	28	34	40	46	52	58	64	70
10	44,000 (64)	36,000 (69)	36,000 (73)					
12	40,000 (59.5)	36,000 (65.5)	36,000 (70)	35,000 (73)				
15	31,000 (51.5)	31,000 (59.5)	30,700 (65)	29,850 (69)	29,150 (72)	28,600 (74.5)		
20	23,200 (36.5)	23,200 (49)	23,200 (57)	23,200 (62)	23,000 (66)	22,600 (69.5)	22,150 (72)	20,500 (74)
25	17,950 (6)	17,950 (36)	17,950 (47.5)	17,950 (54.5)	17,950 (60)	17,950 (64)	17,950 (67)	17,650 (69.5)
30		12,520 (15.5)	12,520 (36.5)	12,520 (46.5)	12,520 (53)	12,520 (58)	12,520 (62)	12,520 (65)
35	See Warning Note 16		9,700 (20)	9,700 (36.5)	9,700 (45.5)	9,700 (51.5)	9,700 (56.5)	9,700 (60)
40				7,680 (23)	7,680 (36.5)	7,680 (45)	7,680 (50.5)	7,680 (55)
45					6,100 (25)	6,100 (37)	6,100 (44.5)	6,100 (49.5)
50						4,970 (26.5)	4,970 (37)	4,970 (43.5)
55						4,140 (3.5)	4,140 (28)	4,140 (37)
60							3,340 (13)	3,340 (28.5)
65								2,750 (15.5)
Min. boom angle (deg.) for indicated length (no load)	0							
Max. boom length (ft.) at 0 deg. boom angle (no load)	70							

NOTE: Boom angles are in degrees.

A6-829-005793 & -003716C

- Rated loads do not account for wind on lifted load or boom. It is recommended when wind velocity is above 20 mph (32 km/h), rated loads and boom lengths be appropriately reduced.
- Rated loads are for lift crane service only.
- Do not operate at a radius or boom length where capacities are not listed. At these positions, the crane may overturn without any load on the hook.
- The maximum load which can be telescoped is not definable because of variations in loadings and crane maintenance, but it is safe to attempt retraction and extension within the limits of the capacity chart.
- When either boom length or radius or both are between values listed, the smallest load shown at either the next larger radius or boom length shall be used.
- For safe operation, the user shall make due allowances for his particular job conditions, such as; soft or uneven ground, out of level conditions, high winds, side loads, pendulum action, jerking or sudden stopping of loads, hazardous conditions, experience of personnel, two machine lifts, traveling with loads, electric wires, etc. Side pull on boom or jib is extremely dangerous.
- Power telescoping boom sections must be extended equally at all times.
- Handling of personnel from the boom is not authorized except with equipment furnished and installed by Grove Manufacturing Company.
- Keep load handling devices a minimum of 18 inches (45.7 cm) below boom head at all times.
- The boom angle before loading should be greater than the loaded boom angle to account for deflection.
- Capacities appearing above the bold line are based on structural strength and tipping should not be relied upon as a capacity limitation.
- Capacities for the 28 ft. (8.6m) boom length shall be lifted with the boom fully retracted. If boom is not fully retracted, capacities shall not exceed those shown for the 34 ft. (10.4m).
- Radii less than 35 feet or 12 meters not recommended when lifting over front on machine. (Only applicable to machines equipped with front jack cylinder.)

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 with the rated boom length.
- 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: An unbalanced load applied to the lift cable.



OVER SIDE – Without Front Jack

Radius in Feet	Main Boom Length in Feet							
	28	34	40	46	52	58	64	70
10	44,000 (64)	36,000 (69)	36,000 (73)					
12	40,000 (59.5)	36,000 (65.5)	36,000 (70)	35,000 (73)				
15	31,000 (51.5)	31,000 (59.5)	30,700 (65)	29,850 (69)	29,150 (72)	28,600 (74.5)		
20	23,200 (36.5)	23,200 (49)	23,200 (57)	23,200 (62)	23,000 (66)	22,600 (69.5)	22,150 (72)	20,500 (74)
25	16,760 (6)	16,760 (36)	16,760 (47.5)	16,760 (54.5)	16,760 (60)	16,760 (64)	16,760 (67)	16,760 (69.5)
30		11,330 (15.5)	11,330 (36.5)	11,330 (46.5)	11,330 (53)	11,330 (58)	11,330 (62)	11,330 (65)
35	See Warning Note 16		8,330 (20)	8,330 (36.5)	8,330 (45.5)	8,330 (51.5)	8,330 (56.5)	8,330 (60)
40				6,170 (23)	6,170 (36.5)	6,170 (45)	6,170 (50.5)	6,170 (55)
45					4,810 (25)	4,810 (37)	4,810 (44.5)	4,810 (49.5)
50						3,730 (26.5)	3,730 (37)	3,730 (43.5)
55						2,830 (3.5)	2,830 (28)	2,830 (37)
60							2,200 (13)	2,200 (28.5)
65								1,760 (15.5)
Min. boom angle (deg.) for indicated length (no load)								0
Max. boom length (ft.) at 0 deg. boom angle (no load)								70

NOTE: Boom angles are in degrees.

A6-829-005762 & -003716D

LIFTING CAPACITY NOTES:

GENERAL:

- Rated loads as shown on capacity chart pertain to this crane as originally manufactured and equipped. Modifications to the crane or use of optional equipment other than that specified can result in a reduction of capacity. Use only the jib or boom extension supplied with this crane, do not substitute jibs or boom extensions without the written approval of Grove Mfg. Co.
- Construction equipment can be hazardous if improperly operated or maintained. Operation and maintenance shall be in compliance with the information in the Operator's and Safety Handbooks, Service and Parts Manuals supplied with this crane. If these manuals are missing, order replacements from the manufacturer.
- The operator and other personnel associated with this crane shall fully acquaint themselves with the latest applicable American National Standards Institute (ANSI) Safety Standards for cranes.

SETUP:

- The crane shall be leveled on a firm supporting surface. Depending on the nature of the supporting surface, it may be necessary to have structural supports of sufficient strength 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.
- When equipped with front jack cylinder, the front jack cylinder shall be set in accordance with the written procedure.
- When 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.
- Rotation resistant wire rope is best suited for single line lifting operations. Consult the wire rope manufacturer for specific recommendations concerning multiple part reeving.
- Do not transport crane with boom extension or jib erected.

OPERATION:

- Rated loads at rated radius shall not be exceeded. Do not tip the machine to determine allowable loads. For clamshell operation, weight of load must not exceed 80% of rated lifting capacities.
- Rated loads do not exceed 85% of the tipping load as determined by SAE Crane Stability Test Code J-765a.
- Rated loads include the weight of hook block, slings and auxiliary lifting devices and their combined weights shall be subtracted from the listed ratings to obtain the net load which may be lifted.
- Load ratings are based on freely suspended loads. No attempt shall be made to move a load horizontally on the ground in any direction.

TMS522

22 TON CAPACITY

28 ft. - 70 ft. BOOM (FULL POWER)

6x6 CARRIER

PCSA CLASS 10-62

85% OF TIPPING

**RATED LIFTING CAPACITIES IN POUNDS
ON OUTRIGGERS FULLY EXTENDED**

OVER REAR – With or Without Front Jack

Radius in Feet	Main Boom Length in Feet							
	28	34	40	46	52	58	64	70
10	44,000 (64)	36,000 (69)	36,000 (73)					
12	40,000 (59.5)	36,000 (65.5)	36,000 (70)	35,000 (73)				
15	31,000 (51.5)	31,000 (59.5)	30,700 (65)	29,850 (69)	29,150 (72)	28,600 (74.5)		
20	23,200 (36.5)	23,200 (49)	23,200 (57)	23,200 (62)	23,000 (66)	22,600 (69.5)	22,150 (72)	20,500 (74)
25	17,950 (6)	17,950 (36)	17,950 (47.5)	17,950 (54.5)	17,950 (60)	17,950 (64)	17,950 (67)	17,650 (69.5)
30		14,480 (15.5)	14,480 (36.5)	14,480 (46.5)	14,480 (53)	14,480 (58)	14,480 (62)	14,480 (65)
35	See Warning Note 16		11,230 (20)	11,230 (36.5)	11,230 (45.5)	11,230 (51.5)	11,230 (56.5)	11,230 (60)
40				9,120 (23)	9,120 (36.5)	9,120 (45)	9,120 (50.5)	9,120 (55)
45					7,500 (25)	7,500 (37)	7,500 (44.5)	7,500 (49.5)
50						6,220 (26.5)	6,220 (37)	6,220 (43.5)
55						5,250 (3.5)	5,250 (28)	5,250 (37)
60							4,450 (13)	4,450 (28.5)
65								3,810 (15.5)
Min. boom angle (deg.) for indicated length (no load)								0
Max. boom length (ft.) at 0 deg. boom angle (no load)								70

NOTE: Boom angles are in degrees.

A6-829-005756 & -003716D