



RT520

20 TON CAPACITY
28 ft. - 70 ft. BOOM
 (FULL POWER)
 PCSA CLASS 12-80
 85% OF TIPPING

RATED LIFTING CAPACITIES IN POUNDS 28 ft. - 70 ft. BOOM

ON OUTRIGGERS FULLY EXTENDED - 360°

Radius in Feet	Boom Length in Feet							
	28	34	40	46	52	58	64	70
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		13,470 (15.5)	13,470 (36.5)	13,470 (46.5)	13,470 (53)	13,470 (58)	13,470 (62)	13,470 (65)
35			10,220 (20)	10,220 (36.5)	10,220 (45.5)	10,220 (51.5)	10,220 (56.5)	10,220 (60)
40	See Warning Note 16			8,010 (23)	8,010 (36.5)	8,010 (45)	8,010 (50.5)	8,010 (55)
45					6,530 (25)	6,530 (37)	6,530 (44.5)	6,530 (49.5)
50						5,430 (26.5)	5,430 (37)	5,430 (43.5)
55						4,440 (3.5)	4,440 (28)	4,440 (37)
60							3,620 (13)	3,620 (28.5)
65								2,980 (15.5)
Min. boom angle (deg.) for indicated length [No Load]								0
Max. boom length (ft.) at 0 degree boom angle [No Load]								70.0

NOTE: Boom Angles are in degrees.

A6-829-003740&-003742A

14.00x24 TIRES

Radius in Feet	Stationary Capacity		Pick & Carry Capacity Up to 2.5 MPH Boom Centered Over Front (7)
	Defined Arc Over Front (3)	360° Arc	
10	25,600 (a)	21,830 (a)	21,610 (a)
12	21,500 (a)	17,890 (a)	18,520 (a)
15	17,770 (a)	11,830 (b)	15,050 (a)
20	12,840 (b)	6,750 (c)	12,060 (a)
25	9,610 (b)	4,050 (d)	8,740 (b)
30	7,060 (c)	2,630 (e)	6,970 (c)
35	5,280 (d)	1,670 (f)	5,280 (d)
40	3,990 (e)	1,040 (f)	3,000 (d)
45	3,020 (f)		2,270 (e)
50	2,290 (g)		1,680 (f)
55	1,730 (g)		1,220 (f)
60	1,280 (h)		
65	1,000 (h)		

A6-829-003762C

Maximum Permissible Boom Length:

- (a) 28 ft. (e) 52 ft.
- (b) 34 (f) 58
- (c) 40 (g) 64
- (d) 46 (h) 70

		Main Boom 70 ft.	Main Boom w/23 ft. Jib
Front (No Load)	Min. Boom Angle (deg.) for Indicated Boom Length	0	0
	Max. Boom Length (ft.) at 0 degree Boom Angle	70	93
360° (No Load)	Min. Boom Angle (deg.) for Indicated Boom Length	42	51
	Max. Boom Length (ft.) at 0 degree Boom Angle	52	57

NOTES FOR

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LIFTING

ON OUTRIGGERS FULLY EXTENDED - OVER FRONT

Radius in Feet	Boom Length in Feet							
	28	34	40	46	52	58	64	70
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		15,350 (15.5)	15,350 (36.5)	15,350 (46.5)	15,350 (53)	15,150 (58)	14,950 (62)	14,750 (65)
35			11,900 (20)	11,900 (36.5)	11,900 (45.5)	11,900 (51.5)	11,900 (56.5)	11,900 (60)
40	See Warning Note 16			9,410 (23)	9,410 (36.5)	9,410 (45)	9,410 (50.5)	9,410 (55)
45					7,720 (25)	7,720 (37)	7,720 (44.5)	7,720 (49.5)
50						6,410 (26.5)	6,410 (37)	6,410 (43.5)
55						5,410 (3.5)	5,410 (28)	5,410 (37)
60							4,530 (13)	4,530 (28.5)
65								3,780 (15.5)
Min. boom angle (deg.) for indicated length [No Load]								0
Max. boom length (ft.) at 0 degree boom angle [No Load]								70.0

NOTE: Boom Angles are in degrees.

A6-829-003738&-003742A

GENERAL:

1. 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.
2. 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.
3. The operator and other personnel associated with this machine shall fully acquaint themselves with the latest applicable American National Standards Institute Safety Standards for cranes.

SETUP:

1. 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.
2. For outrigger operation, outriggers shall be fully extended with tires raised to support crane weight before operating the boom or lifting loads.
3. If machine is equipped with front jack cylinder, the front jack cylinder shall be operated in accordance with written procedure.
4. If machine is equipped with extendable counterweight, the counterweight shall be fully extended before operation.
5. Tires shall be inflated to the recommended pressure before lifting on rubber.
6. With certain boom and hoist tackle combinations, maximum capacities may be obtainable with standard cable lengths.

OPERATION:

1. Rated loads at rated radius shall not be exceeded. Do not tip the machine. Determine allowable loads. For clamshell or concrete bucket operation, weight of bucket and load must not exceed 80% of rated lifting capacities.
2. Rated loads do not exceed 85% of the tipping load as determined by SA Stability Test Code J-765a.
3. Rated loads include the weight of hook block, slings and auxiliary lifting devices. Their weights shall be subtracted from the listed ratings to obtain the net load lifted.
4. Load ratings are based on freely suspended loads. No attempt shall be made to lift a load horizontally on the ground in any direction.
5. Rated loads do not account for wind on lifted load or boom. It is recommended that when wind velocity is above 20 mph (32 km/h), rated loads and boom length be appropriately reduced.

GROVE®

FULL HYDRAULIC

SELF-PROPELLED CRANE

CAPACITIES IN POUNDS

FROM

ON RUBBER CAPACITIES

16.00x25 TIRES

Radius in Feet	Stationary Capacity		Pick & Carry Capacity Up to 2.5 MPH Boom Centered Over Front (7)
	Defined Arc Over Front (3)	360° Arc	
10	29,150 (a)	22,260 (a)	30,460 (a)
12	24,030 (a)	16,550 (a)	26,320 (a)
15	20,150 (a)	11,780 (b)	21,670 (a)
20	14,650 (b)	6,780 (c)	15,130 (a)
25	9,760 (b)	3,970 (d)	8,290 (b)
30	7,130 (c)	2,450 (e)	6,550 (c)
35	5,270 (d)	1,630 (f)	5,140 (d)
40	4,110 (e)	920 (f)	4,110 (d)
45	3,180 (f)		3,180 (e)
50	2,410 (g)		2,410 (f)
55	1,850 (g)		1,850 (f)
60	1,410 (h)		
65	1,090 (h)		

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20.5x25 TIRES

Radius in Feet	Stationary Capacity		Pick & Carry Capacity Up to 2.5 MPH Boom Centered Over Front (7)
	Defined Arc Over Front (3)	360° Arc	
10	28,380 (a)	27,150 (a)	26,020 (a)
12	23,800 (a)	19,490 (a)	22,420 (a)
15	19,100 (a)	13,200 (b)	18,380 (a)
20	15,320 (b)	8,140 (c)	14,170 (a)
25	10,390 (b)	4,910 (c)	10,390 (b)
30	7,530 (c)	3,330 (d)	4,830 (c)
35	5,780 (d)	2,270 (e)	3,790 (d)
40	4,560 (e)	1,560 (f)	3,020 (d)
45	3,560 (f)	1,000 (g)	2,310 (e)
50	2,760 (g)		1,710 (f)
55	2,110 (g)		1,210 (f)
60	1,640 (h)		
65	1,250 (h)		

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NOTES FOR RUBBER CAPACITIES

- Capacities do not exceed 85% of tipping loads as determined by test in accordance with SAE J-765.
- Capacities are applicable to machines equipped with:

14:00x24 (20 ply)	Cold Inflation	2.5 MPH
16.00x25 (20 ply)	115 PSI	110 PSI
20.5x25 (20 ply)	95 PSI	80 PSI
	80 PSI	65 PSI

- Defined Arc - Over front includes $\pm 6^\circ$ on either side of longitudinal centerline of machine.
- Capacities appearing above bold line are based on structural strength and tipping should not be relied upon as a capacity limitation.
- Capacities are applicable only with machine on a firm level surface.
- On rubber lifting with jib not permitted.
- For pick and carry operation, boom must be centered over front of machine and mechanical swing lock engaged. When handling loads in the structural range with capacities close to maximum ratings, travel should be reduced to creep speed.
- Axle lockouts must be functioning before lifting on rubber. (Check automatic lockout system for proper functioning: Refer to "Operation and Maintenance Manual" for description of a proper functioning axle lockout system).
- All lifting depends on proper tire inflation, capacity and condition. Capacities must be reduced for lower tire inflation pressures. See lifting capacity chart for tire used. Damaged tires are hazardous to safe operation of crane.

LIFTING CAPACITY NOTES

- 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 machine 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 12 inches (30 cm) below boom head when lowering or extending boom.
- Loaded boom angles give 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 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) boom length.

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.

Main Boom
23 ft. Jib
0
93
51
57

line as originally manufactured
optional equipment other than

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be in compliance with the
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Do not tip the machine to
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RT520

**20 TON CAPACITY
28 ft. - 70 ft. BOOM**

**(FULL POWER)
PCSA CLASS 12-80
85% OF TIPPING**

JIB CAPACITIES IN POUNDS

23 ft. "A" FRAME JIB

MAIN BOOM ANGLE	0° OFFSET		15° OFFSET		30° OFFSET	
	Radius (Ref.)	Cap. lbs.	Radius (Ref.)	Cap. lbs.	Radius (Ref.)	Cap. lbs.
75°	27.0	12,000	32.5	7,700	35.7	5,070
70	33.3	10,400	38.1	7,000	41.2	4,800
65	40.2	8,300	44.9	6,300	47.8	4,500
60	47.0	5,870	51.3	5,450	54.0	4,300
55	53.2	4,450	57.3	4,080	59.8	3,690
50	59.2	3,560	62.9	3,170	65.1	3,030
45	64.7	2,910	68.0	2,610	69.9	2,590
40	69.6	2,400	72.6	2,230	74.2	2,160
35	74.0	2,020	76.6	1,920	77.9	1,880
30	77.8	1,730	80.1	1,680	81.0	1,670

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23 ft. - 38 ft. TELE. JIB

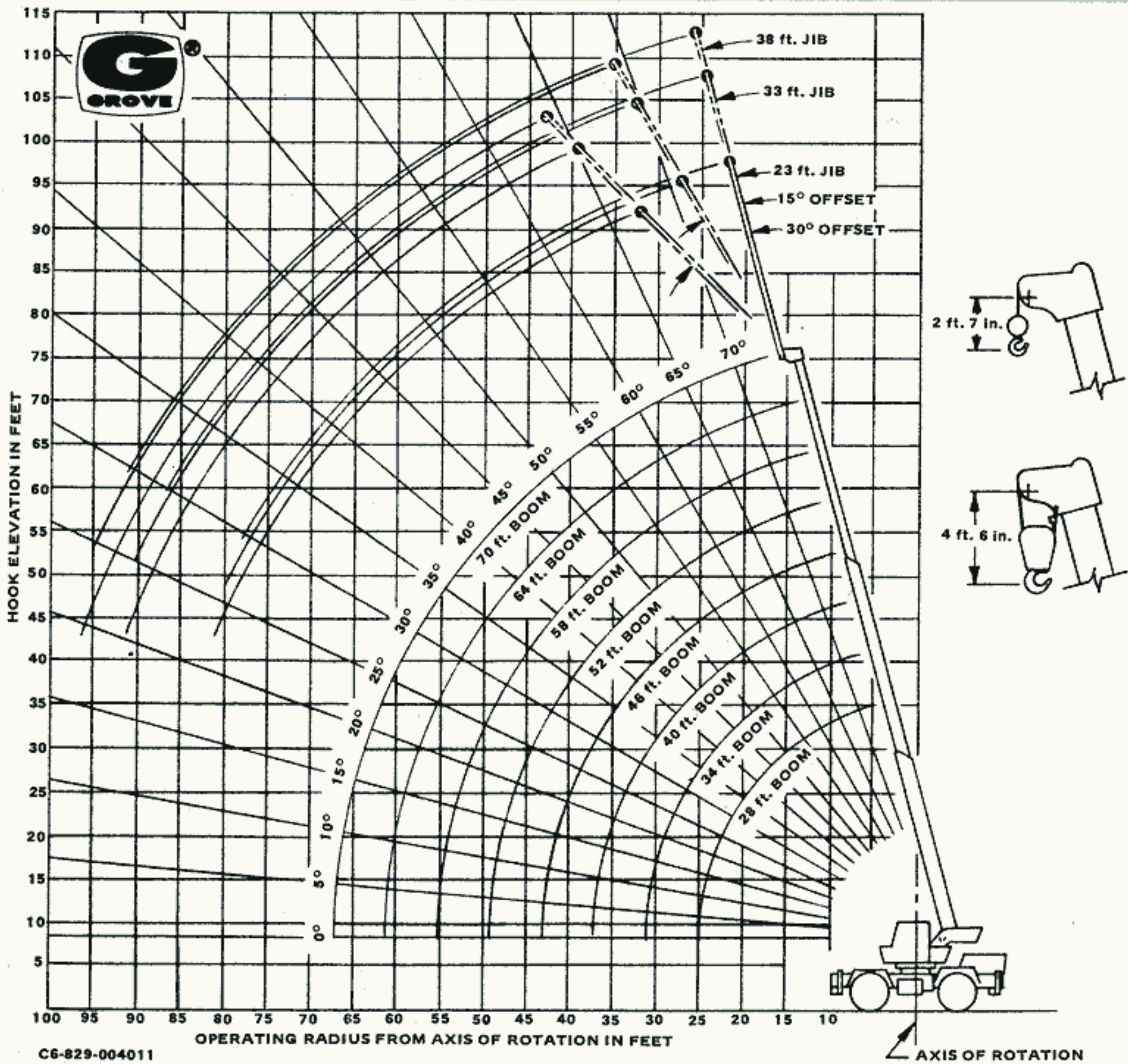
Loaded Boom Angle	23 ft. TELE. JIB			33 ft. TELE. JIB			38 ft. TELE. JIB		
	0° Offset	15° Offset	30° Offset	0° Offset	15° Offset	30° Offset	0° Offset	15° Offset	30° Offset
75°	12,500	7,300	4,500	7,600	4,900	2,900	5,000	3,750	2,230
70	9,390	6,390	4,150	6,500	4,270	2,650	4,650	3,300	1,990
65	6,670	5,750	3,900	5,300	3,820	2,440	4,470	2,950	1,870
60	5,020	4,630	3,680	4,300	3,450	2,330	3,550	2,640	1,770
55	3,860	3,420	3,120	3,320	2,770	2,230	2,910	2,450	1,680
50	3,080	2,790	2,650	2,590	2,190	1,910	2,430	2,030	1,620
45	2,450	2,280	2,180	2,060	1,730	1,600	1,920	1,660	1,500
40	1,980	1,870	1,750	1,640	1,400	1,360	1,480	1,360	1,240
35	1,580	1,530	1,440	1,300	1,150	1,130	1,080	1,020	980
30	1,290	1,270	1,230	1,020	940	920	860	840	830

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NOTES FOR JIB CAPACITIES

- 23 ft. jib and 23 ft. tele. jib length may be used for double lifting service. 33 ft. and 38 ft. tele. jib lengths may be used for single lifting service only. Capacities are based on structural strength of every 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.
 - 23 ft. - 38 ft. Tele. Jib Installed —
 - 23 ft. Tele. Jib
 - Minimum main boom angle for fully extended main boom (70 ft.) with fully retracted tele. jib (23 ft.) = 0°
 - Maximum main boom length at 0° main boom angle = 93 ft. (includes 23 ft. jib length)
 - 33 ft. Tele. Jib
 - Minimum main boom angle for fully extended main boom (70 ft.) with 33 ft. tele. jib = 0°
 - Maximum main boom length at 0° main boom angle = 103 ft. (includes 33 ft. jib length)
 - 38 ft. Tele. Jib
 - Minimum main boom angle for fully extended main boom (70 ft.) with fully extended tele. jib (38 ft.) = 0°
 - Maximum main boom length at 0° main boom angle = 108 ft. (includes 38 ft. jib length)

RANGE DIAGRAM



WEIGHT REDUCTIONS FOR LOAD HANDLING DEVICES

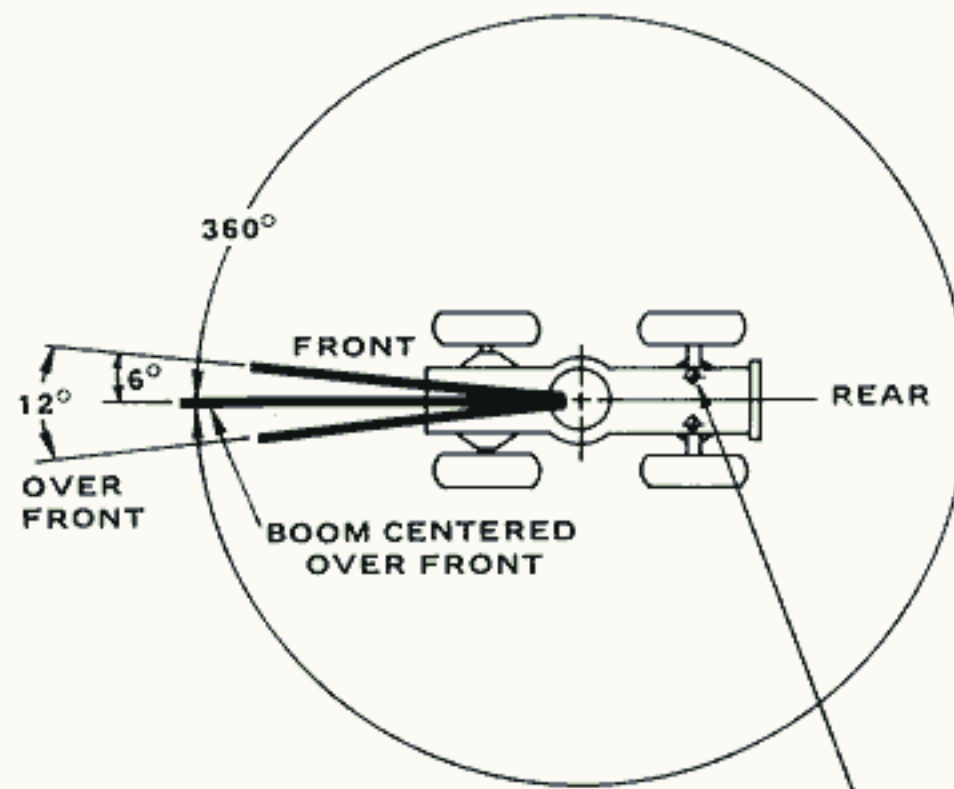
23 ft. JIB
with 28-70 ft. BOOM
*Stowed - 381 lbs.
*Erected - 1,950 lbs.

23-38 ft. TELE. JIB
with 28-70 ft. BOOM
*Stowed - 604 lbs.
*Erected (Retracted) - 3,659 lbs.
*Erected (Extended) - 4,583 lbs.
*Reduction of main boom capacities.

HOOKBLOCKS
22 Ton, 3 Sheave 455 lbs.
15 Ton, 2 Sheave 292 lbs.
12 Ton, 1 Sheave (15 7/8" OD). 360 lbs.
12 Ton, 1 Sheave (12 1/8" OD). 270 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.

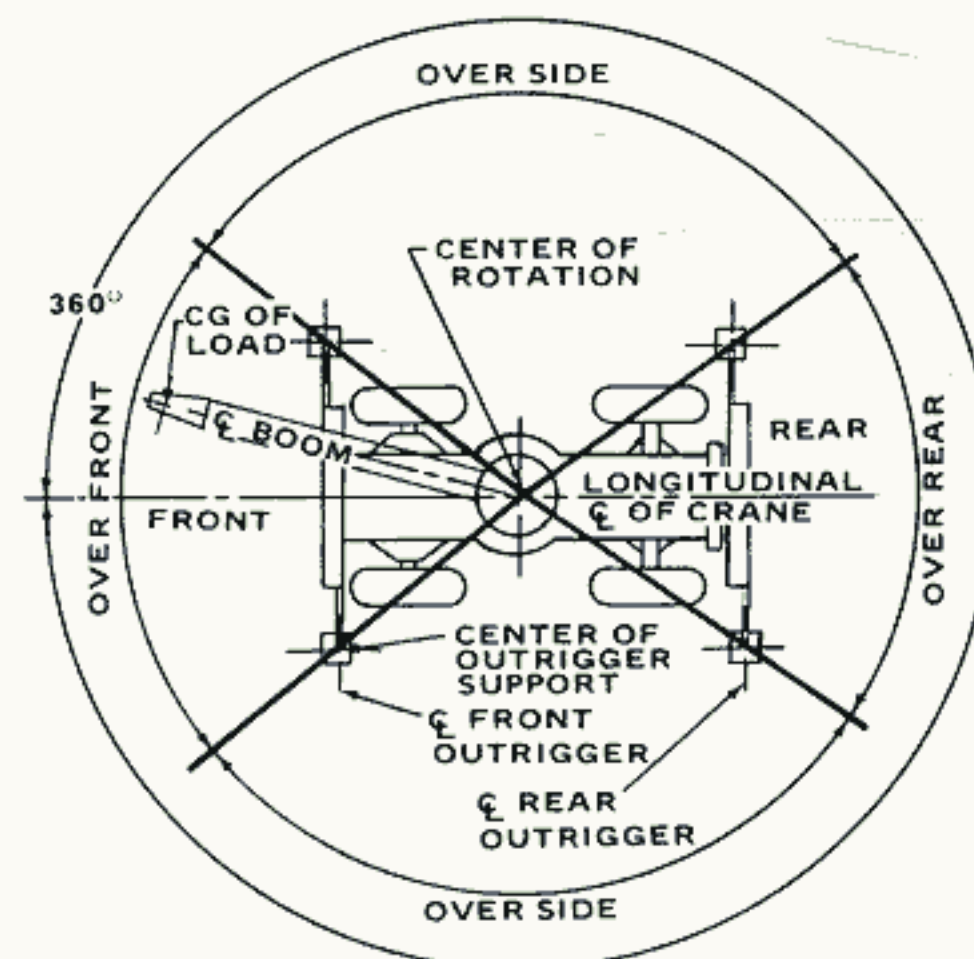
LIFTING AREA DIAGRAMS



REAR AXLE OSCILLATION LOCKOUTS MUST BE SET TO MAINTAIN 360° CAPACITIES.

NOTE: BOLD LINES DETERMINE THE LIMITING POSITION OF ANY LOAD FOR OPERATION WITHIN ANY WORKING AREAS INDICATED.

C6-829-003529



NOTE: BOLD LINES DETERMINE THE LIMITING POSITION OF ANY LOAD FOR OPERATION WITHIN WORKING AREAS INDICATED.

NOTE: OVER SIDE CAPACITIES CAN BE LIFTED IN THE OVER REAR AREA.

C6-829-001159