



RT422

22 TON CAPACITY
27 ft. - 70 ft. BOOM

(FULL POWER)
85% OF TIPPING

25 ft. - 43 ft. TELE. BOOM EXTENSION
(ON OUTRIGGERS - 360°)

Radius in Feet	25 ft. LENGTH						34 ft. LENGTH						43 ft. LENGTH					
	0° OFFSET		15° OFFSET		30° OFFSET		0° OFFSET		15° OFFSET		30° OFFSET		0° OFFSET		15° OFFSET		30° OFFSET	
	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.	Boom angle Ref.	Cap. lbs.
20	78.0	*12,500					78.0	*8,500					78.0	*5,000				
25	75.0	10,750	78.0	7,500			77.0	8,030					77.5	4,750				
30	71.5	9,810	74.5	6,870	78.0	*5,500	74.0	7,170	78.0	*5,500			75.0	4,360				
35	68.0	8,930	71.0	6,330	74.5	5,110	71.0	6,390	75.5	4,910	78.0	*3,600	72.0	4,020	78.0	3,000		
40	64.5	7,200	67.5	5,860	71.0	4,770	68.0	5,680	72.5	4,540	76.0	3,290	69.5	3,710	75.5	2,800	78.0	*2,300
45	61.0	5,670	64.0	5,450	67.5	4,490	65.0	5,040	69.0	4,180	72.5	2,930	66.5	3,420	72.5	2,650	76.5	2,210
50	57.0	4,510	60.0	4,510	63.5	4,260	61.5	4,590	66.0	3,840	69.5	2,650	64.0	3,170	70.0	2,510	73.5	2,160
55	53.0	3,600	56.0	3,600	59.5	3,600	58.5	4,010	62.5	3,510	66.0	2,430	61.0	2,940	67.0	2,400	70.5	2,100
60	49.0	2,860	52.0	2,860	55.5	2,860	55.0	3,260	59.0	3,200	62.0	2,250	58.0	2,730	64.0	2,300	67.0	2,030
65	44.0	2,260	47.0	2,260	50.5	2,260	51.0	2,650	55.5	2,650	58.5	2,100	54.5	2,540	60.5	2,210	63.5	1,970
70							47.5	2,130	51.5	2,130	54.0	1,970	51.5	2,360	57.5	2,130	60.0	1,890
75													48.0	2,140	54.0	2,060	56.5	1,820
80													44.0	1,780	50.0	1,780	52.0	1,730

*This capacity is based upon the maximum obtainable boom angle.

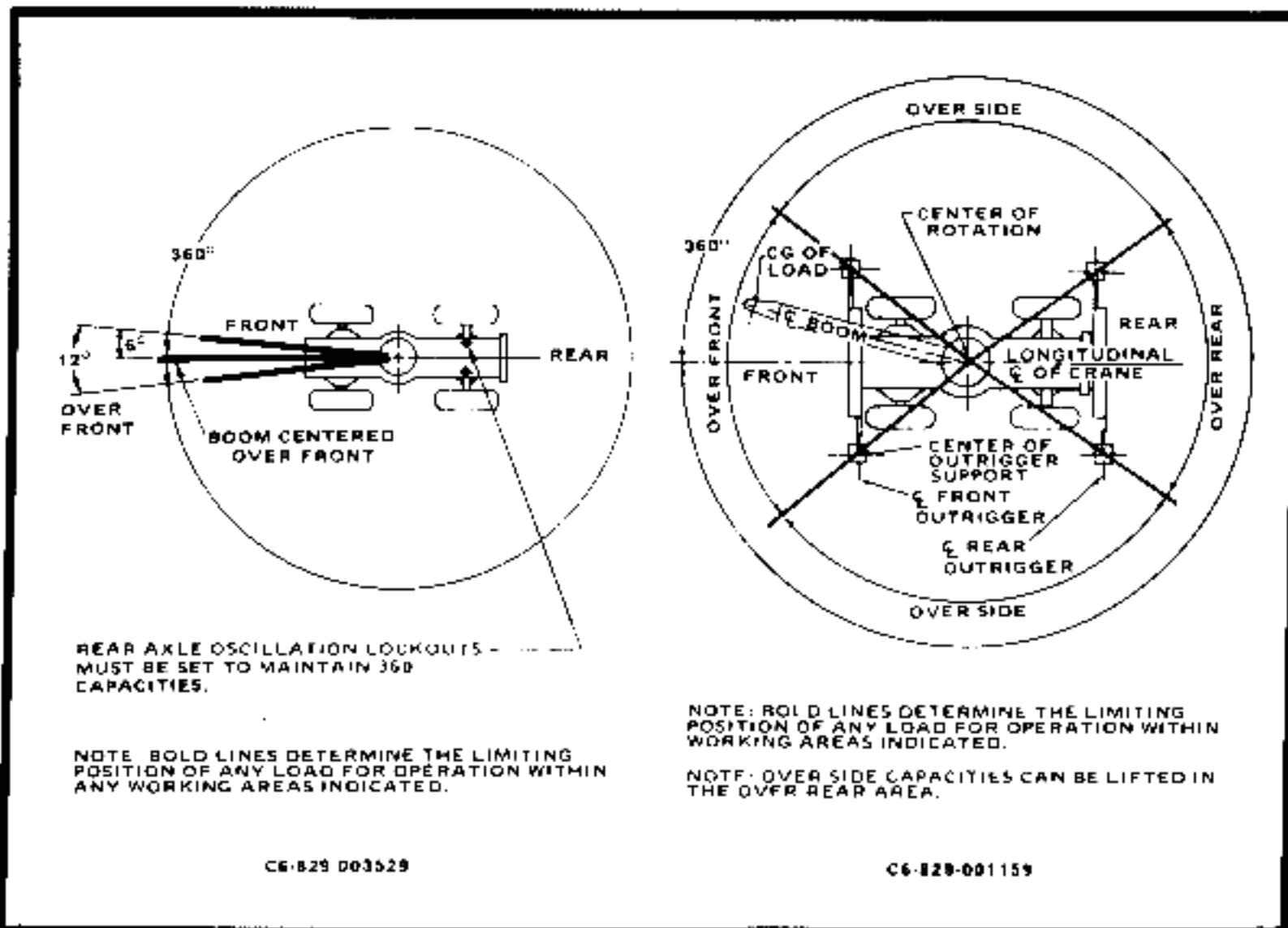
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NOTES FOR LIFTING WITH 25 ft. FIXED EXTENSION OR 25 ft. - 43 ft. TELE. BOOM EXTENSION

1. All capacities above the bold line are based on structural strength of boom extension and do not exceed 85% of tipping load, in accordance with SAE J765 OCT80.
2. 25 ft. (7.6 m), 34 ft. (10.4 m) and 43 ft. (13.1 m) boom extension lengths may be used for double or single line lifting service. Double line lifting service is required when unit is equipped with a Krueger L.M.I.
3. For main boom lengths less than fully extended with the boom extension erected, the rated loads are determined by boom angle. Use only the column which corresponds to the boom extension length and offset for which the machine is set up. For boom angles not shown, use the rating of the next lower boom angle.
WARNING: Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with boom extension occurs rapidly and without advanced warning.
4. Boom angle is the angle above or below horizontal of the longitudinal axis of the boom base section after lifting rated load.
5. **WARNING:** The Krueger L.M.I. will not compensate for reeving/rigging accessories on the main boom nose or auxiliary boom nose when programmed to monitor the boom extension. Remove all reeving/rigging accessories from main boom when using boom extension.
6. Capacities listed are with outriggers fully extended and vertical jacks set only.
7. ***BOOM EXTENSION WARNING:** For main boom length greater than 60 ft. (18.3 m) with 25 ft. - 43 ft. (7.6 - 13.1 m) tele. boom extension in working position, the boom angle must not be less than 30° since loss of stability will occur causing a tipping condition. The boom angle is not restricted for main boom length equal to or less than 60 ft. (18.3 m).

*This warning also applies for boom extension erection purposes.

LIFTING AREA DIAGRAM





ON OUTRIGGERS FULLY EXTENDED - 360°

Radius in Feet	Main Boom Length in Feet					25 ft. Ext. & 70 ft.
	27	40	50	60	70	95
8	44,000 (64)	43,650 (73)	42,450 (76.5)			
9	41,000 (61.5)	41,000 (71.5)	39,850 (75.5)			See Warning Note 17
10	38,000 (59)	38,000 (70)	37,550 (74)			
12	31,450 (54)	31,450 (66.5)	31,450 (71.5)	31,450 (75.5)		
15	24,300 (45)	24,300 (61.5)	24,300 (68)	24,300 (72)	22,000 (76.5)	
20	18,000 (23)	17,650 (52.5)	17,650 (61.5)	17,650 (67)	17,650 (72)	12,500 (78)
25		13,300 (42)	13,300 (54.5)	13,300 (61.5)	13,300 (67)	10,750 (74.5)
30	See Warning Note 16	10,400 (28.5)	10,400 (46.5)	10,400 (55.5)	10,400 (62.5)	9,810 (71)
35			8,370 (37.5)	8,370 (49.5)	8,370 (57.5)	8,930 (67.5)
40			6,630 (25)	6,630 (42.5)	6,630 (52)	7,820 (64)
45				5,370 (34)	5,370 (46)	6,210 (60.5)
50				4,410 (23.5)	4,410 (39.5)	5,040 (57)
55					3,660 (31.5)	4,140 (52.5)
60					3,060 (21.5)	3,430 (48.5)
65						2,860 (44)
Min. boom angle (deg.) for indicated length (No load)					0	0
Max. boom length (ft.) at 0 deg. boom angle (No Load)					70	95

NOTE: Boom angles are in degrees.

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GENERAL:

1. Rated loads as shown on capacity chart pertain to this crane as shown. Modifications to the crane or use of optional equipment other than that shown shall not exceed rated capacity. Use only the jib or boom extension supplied with this crane. Extensions without the written approval of Grove Mfg. Co.
2. Construction equipment can be hazardous if improperly operated or used. It shall be in compliance with the information in the Operator's and Maintenance Manuals supplied with this crane. If these manuals are missing, order them from Grove Mfg. Co.
3. The operator and other personnel associated with this crane shall follow applicable American National Standards Institute (ANSI) Safety Standards.

SETUP:

1. The crane shall be leveled on a firm supporting surface. Depending on the load, it may be necessary to have structural supports of sufficient strength to spread the load to a larger bearing surface.
2. For outrigger operation, outriggers shall be fully extended with the crane operating the boom or lifting loads.
3. When equipped with front jack cylinder, the front jack cylinder shall be extended in accordance with the manufacturer's procedure.
4. When equipped with extendable counterweight, the counterweight shall be extended in accordance with the manufacturer's procedure.
5. Tires shall be inflated to the recommended pressure before lifting on rough ground.
6. With certain boom and hoist tackle combinations, maximum capacities shall be reduced for cable lengths.
7. Rotation resistant wire rope is best suited for single line lifting. Consult the manufacturer for specific recommendations concerning multiple part lifts.
8. Do not transport crane with boom extension or jib erected.

OPERATION:

1. Rated loads at rated radius shall not be exceeded. Do not tip the machine in clamshell operation, weight of load must not exceed 80% of rated lift capacity.
2. All rated loads have been tested to and meet minimum requirements of ASME B30.1 Boom Crane Structures - Method of Test, and do not exceed 80% of rated capacity by SAE J765 OCT80 Crane Stability Test Code.
3. Rated loads include the weight of hook block, slings and auxiliary lifting devices. These shall be subtracted from the listed ratings to obtain the net load which shall not exceed the rated capacity.
4. Load ratings are based on freely suspended loads. No attempt shall be made to lift the ground in any direction.
5. Rated loads do not account for wind on lifted load or boom. It is recommended that in winds over 20 MPH (32 km/h), rated loads and boom lengths be appropriately reduced.

RT422

22 TON CAPACITY 27 ft. - 70 ft. BOOM

(FULL POWER)
85% OF TIPPING

RATED LIFTING CAPACITIES IN POUNDS 27 ft. - 70 ft. BOOM

ON RUBBER TIRES

14:00x24 TIRES

Radius in Feet	Stationary Capacity	Stationary Capacity	Pick & Carry Cap. Up to 2.5 MPH
	Defined Arc (3) Over Front	360° Arc	Boom Centered (7) Over Front
8	27,900 (a)	24,750 (a)	25,200 (a)
9	25,400 (a)	19,950 (a)	23,200 (a)
10	23,300 (a)	16,600 (b)	21,450 (a)
12	20,100 (a)	12,200 (b)	18,600 (a)
15	15,800 (b)	8,410 (b)	15,350 (a)
20	9,650 (c)	4,910 (d)	9,650 (b)
25	6,500 (c)	3,160 (e)	6,500 (c)
30	4,670 (d)	2,120 (e)	4,670 (c)
35	3,440 (e)	1,410 (e)	3,440 (d)
40	2,570 (e)	890 (e)	2,570 (d)
45	1,910 (e)		1,910 (e)
50	1,400 (e)		1,400 (e)
55	980 (e)		980 (e)

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16:00x24 TIRES

Radius in Feet	Stationary Capacity
	Defined Arc (3) Over Front
8	36,350 (a)
9	32,200 (a)
10	29,100 (a)
12	23,500 (a)
15	15,800 (b)
20	9,650 (c)
25	6,500 (c)
30	4,670 (d)
35	3,440 (e)
40	2,570 (e)
45	1,910 (e)
50	1,400 (e)
55	980 (e)

Maximum Permissible Boom Length:

- (a) 27 ft. (d) 60 ft.
(b) 40 ft. (e) 70 ft.
(c) 50 ft.

1. Capacities do not include the weight of the crane.
2. Capacities are for full power operation.

14:00x24
16:00x24
17.5x24

3. Defined Arc - 30° over front.
4. Capacities apply to the main boom only.
5. Capacities are for full power operation.
6. On rubber lifting surfaces, capacities may be reduced.
7. For pick and carry operation, use the Pick & Carry Capacity.
8. Axle lockouts must be functioning. For more information, see the lockout system manual.
9. All lifting devices must be properly maintained.
10. Creep - not over 10 ft.

		Main Boom 70 ft.
Front (No Load)	Min. boom angle (deg.) for indicated length	23
	Max. boom length (ft.) at 0 deg. boom angle	60
360° (No Load)	Min. boom angle (deg.) for indicated length	48
	Max. boom length (ft.) at 0 deg. boom angle	40

NOTES FOR LIFTING CAPACITIES

originally manufactured and equipped. Any modification that specified can result in a reduction of capacity. For safety, do not substitute jibs or boom sections.

maintained. Operation and maintenance instructions are found in the Safety Handbooks, Service and Parts manuals. Replace parts with the manufacturer's recommended parts. Fully acquaint themselves with the latest standards for cranes.

on the nature of the supporting surface, it is recommended that the outrigger floats or tires to be used be checked for proper inflation.

tires raised free of crane weight before operation.

all be set in accordance with the written instructions.

shall be fully extended before operation. For more information, see the rubber tire manual.

ties may not be obtainable with standard tires.

ing operations. Consult the wire rope manual for proper reeving.

achine to determine allowable loads. For more information, see the lifting capacities manual.

nts of SAE J1063 OCT80 - Cantilevered loads shall not exceed 85% of the tipping load as determined by the tipping test.

ifting devices and their combined weights shall not exceed the rated capacity of the crane. Do not attempt to lift a load that may be lifted.

I be made to move a load horizontally on the ground.

commended when wind velocity is above 10 mph. Do not operate in high winds.

6. Rated loads are for lift crane service only.

7. Do not operate at a radius or boom length which would cause the crane to overturn without any load on the hook.

8. The maximum load which can be telescoped is limited by the rated capacity of the crane. Do not attempt to retract the boom without proper maintenance, but it is safe to attempt retraction.

9. When either boom length or radius or both are at the limit, the next larger radius or boom length shall be used.

10. For safe operation, the user shall make due allowance for uneven ground, out of level conditions, high winds, etc. Side pull on boom or jib is extremely dangerous.

11. Power telescoping boom sections must be extended in the correct sequence.

12. Handling of personnel from the boom is not recommended. For more information, see the Grove Manufacturing Company manual.

13. Keep load handling devices a minimum of 18 inches from the load.

14. The boom angle before loading should be greater than the angle after loading.

15. Capacities appearing above the bold line are based upon a capacity limitation.

16. Capacities for the 27 ft. (8.3 m) boom length shall be used for the fully retracted, capacities shall not exceed those for the extended boom.

17. For boom lengths less than 95 ft. (29 m) with a fixed boom, capacities shall be determined by boom angle only in the column for the next larger boom length.

use rating of next lower boom angle. For this purpose, the use of the next lower boom angle is recommended.

mode is to be selected on the Krueger L.M.I. * For more information, see the Krueger L.M.I. manual.

*WARNING: The Krueger L.M.I. readings are accurate only when the crane is in the L.M.I. mode.

DEFINITIONS:

1. Operating Radius: Horizontal distance from a vertical line through the center of the vertical hoist to the center of the hook.

2. Loaded Boom Angle (Shown in parenthesis or in the column for the next larger boom length) is the angle between the base section and the horizontal, after lifting the load.

3. Working Area: Areas measured in a circular area diagram.

4. Freely Suspended Load: Load hanging free with no contact with the ground.

5. Side Load: Horizontal force applied to the lifting device.

GROVE®

FULL HYDRAULIC SELF-PROPELLED CRANE

POUNDS

ON RUBBER CAPACITIES

16:00x24 TIRES

Radius in Feet	Stationary Capacity	Stationary Capacity	Pick & Carry Cap. Up to 2.5 MPH
	Defined Arc (3) Over Front	360° Arc	Boom Centered (7) Over Front
8	36,350 (a)	24,750 (a)	31,750 (a)
9	32,200 (a)	19,950 (a)	30,000 (a)
10	29,100 (a)	16,600 (b)	28,200 (a)
12	23,500 (a)	12,200 (b)	23,500 (a)
15	15,800 (b)	8,410 (b)	15,800 (a)
20	9,650 (c)	4,910 (d)	9,650 (b)
25	6,500 (c)	3,160 (e)	6,500 (c)
30	4,670 (d)	2,120 (e)	4,670 (c)
35	3,440 (e)	1,410 (e)	3,440 (d)
40	2,570 (e)	890 (e)	2,570 (d)
45	1,910 (e)		1,910 (e)
50	1,400 (e)		1,400 (e)
55	980 (e)		980 (e)

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17.5x25 TIRES

Radius in Feet	Stationary Capacity	Stationary Capacity	Pick & Carry Cap. Up to 2.5 MPH
	Defined Arc (3) Over Front	360° Arc	Boom Centered (7) Over Front
8	36,300 (a)	24,750 (a)	28,400 (a)
9	31,950 (a)	19,950 (a)	26,200 (a)
10	27,900 (a)	16,600 (b)	24,250 (a)
12	23,100 (a)	12,200 (b)	21,050 (a)
15	15,800 (b)	8,410 (b)	15,800 (a)
20	9,650 (c)	4,910 (d)	9,650 (b)
25	6,500 (c)	3,160 (e)	6,500 (c)
30	4,670 (d)	2,120 (e)	4,670 (c)
35	3,440 (e)	1,410 (e)	3,440 (d)
40	2,570 (e)	890 (e)	2,570 (d)
45	1,910 (e)		1,910 (e)
50	1,400 (e)		1,400 (e)
55	980 (e)		980 (e)

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NOTES FOR RUBBER CAPACITIES

- Capacities do not exceed 85% of tipping loads as determined by test in accordance with SAE J765 OCT 80.
- Capacities are applicable to machines equipped with:

14:00x24 (16 ply)	Cold Inflation	4.0 KPH
16:00x24 (16 ply)	90 PSI	85 PSI
17.5x25 (20 ply)	80 PSI	65 PSI
	95 PSI	85 PSI
- Defined Arc - Over front includes $\pm 6^\circ$ on either side of longitudinal centerline of machine.
- Capacities appearing above the 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 firm level surface.
- On rubber lifting with boom extension not permitted.
- For pick and carry operation, boom must be centered over front of machine, mechanical swing lock engaged and load restrained from swinging. When handling loads in the structural range with capacities close to maximum ratings, travel should be reduced to creep speeds.
- 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.
- Creep - not over 200 ft. (61 m) of movement in any 30 minute period and not exceeding 1 mph (1.6 kph).

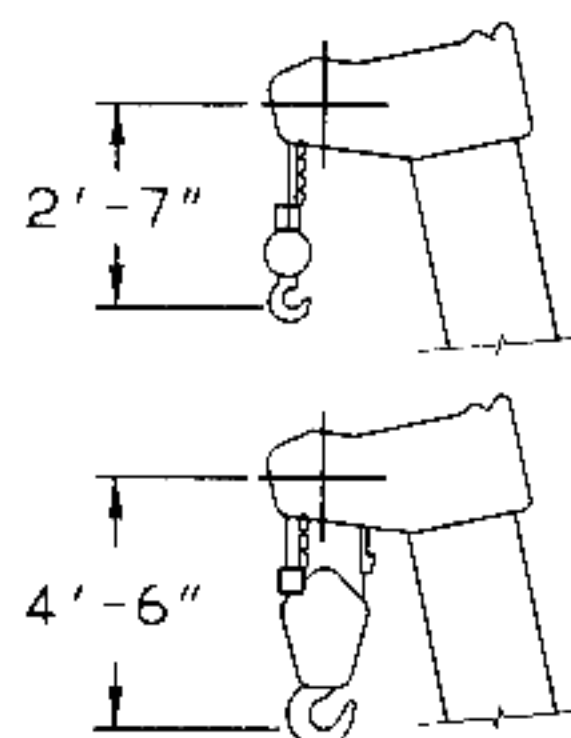
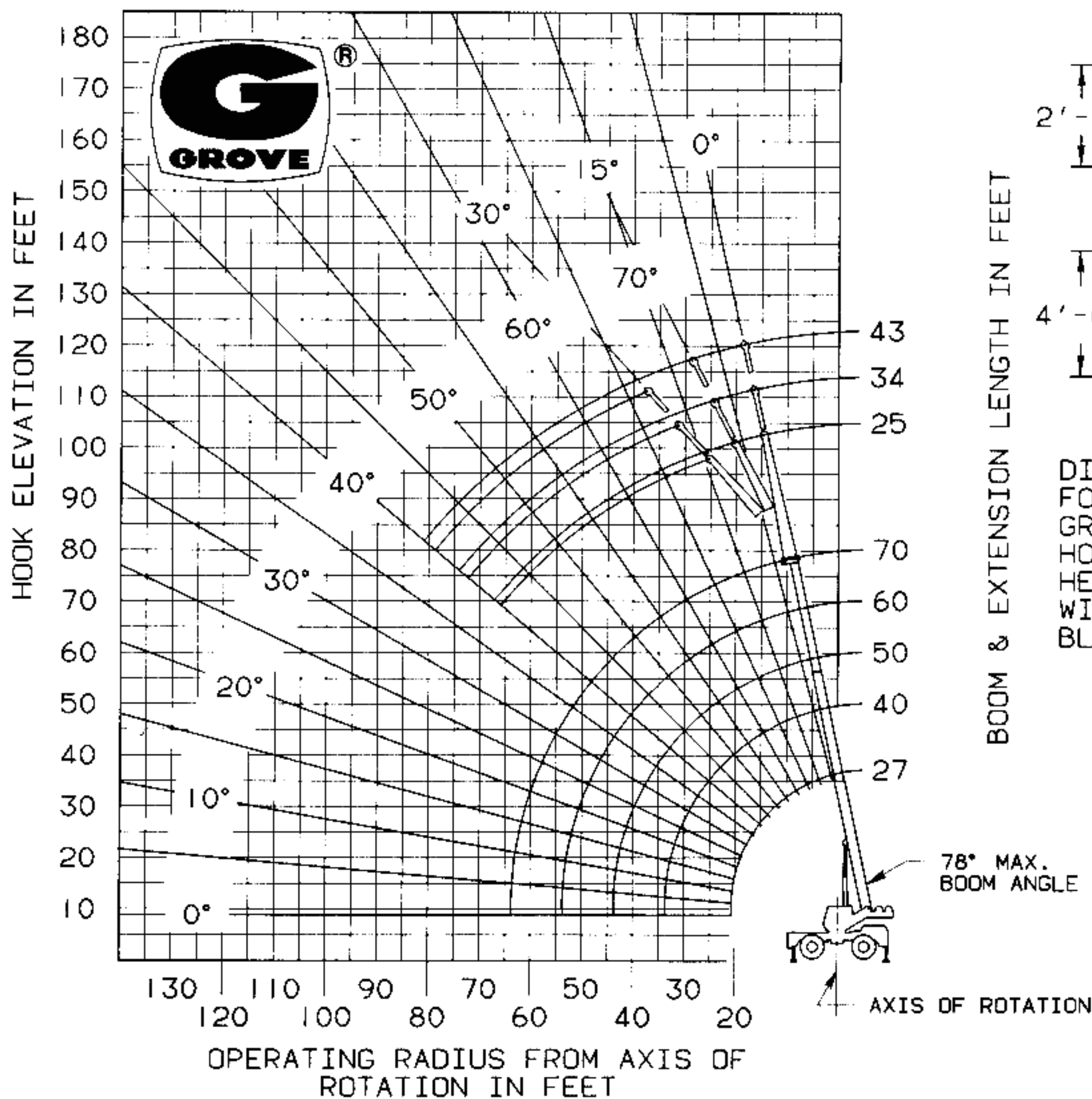
crane service only.
radius or boom length where capacities are not listed. At these positions, the crane may
load on the hook.
which can be telescoped is not definable because of variations in loadings and crane
safe to attempt retraction and extension within the limits of the capacity chart.
length or radius or both are between values listed, the smallest load shown at either the
boom length shall be used.
the user shall make due allowances for his particular job conditions, such as: soft or
level conditions, high winds, side loads, pendulum action, jerking or sudden stopping
conditions, experience of personnel, two machine lifts, traveling with loads, electric
boom or jib is extremely dangerous.
boom sections must be extended equally at all times.
from the boom is not authorized except with equipment furnished and installed by
Company.
provides a minimum of 18 inches (45.7 cm) below boom head at all times.
loading should be greater than the loaded boom angle to account for deflection.
above the bold line are based on structural strength and tipping should not be relied
tation.
1. (8.3 m) boom length shall be lifted with the boom fully retracted. If the boom is not
ies shall not exceed those shown for the 40 ft. (12.2 m) boom length.
than 95 ft. (29 m) with the 25 ft. (7.6 m) boom extension erected, the rated loads are
angle only in the column headed by 95 ft. (29 m) boom. For boom angles not shown
er boom angle. For this load column the 25 ft. (7.6 m) boom extension operational
on the Krueger L.M.I.*
L.M.I. readings are accurate only if all powered boom sections are fully extended.

horizontal distance from a projection of the axis of rotation to the supporting surface
center of the vertical hoist line or tackle with load applied.
Shown in parenthesis on main boom capacity chart): is the angle between the boom
horizontal, after lifting the rated load at the rated radius with the rated boom length.
measured in a circular arc about the center line of rotation as shown on the working

d: Load hanging free with no direct external force applied except by the lift cable.
force applied to the lifted load either on the ground or in the air.

GROVE® RT422

RANGE DIAGRAM



DIMENSIONS ARE FOR LARGEST GROVE FURNISHED HOOK BLOCK AND HEADACHE BALL, WITH ANTI-TWO BLOCK ACTIVATED.

WEIGHT REDUCTION FOR LOAD HANDLING DEVICES

25 ft. FIXED EXTENSION w/27 ft.-70 ft. BOOM	
†Stowed	- 294 lbs.
†Erected	- 1,471 lbs.
25 ft.-43 ft. TELE. BOOM EXTENSION w/27 ft.-70 ft. BOOM	
†Stowed	- 538 lbs.
†Erected (retracted)	- 3,906 lbs.
†Erected (extended)	- 4,995 lbs.

†Reduction of Main Boom Capacities.

HOOKBLOCKS:	
22 Ton, 3 Sheave	499 lbs.
16 Ton, 2 Sheave	462 lbs.
12 Ton, 1 Sheave	360 lbs.
5 Ton Headache Ball	172 lbs.
Auxiliary Boom Head	145 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.



GROVE MANUFACTURING COMPANY

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