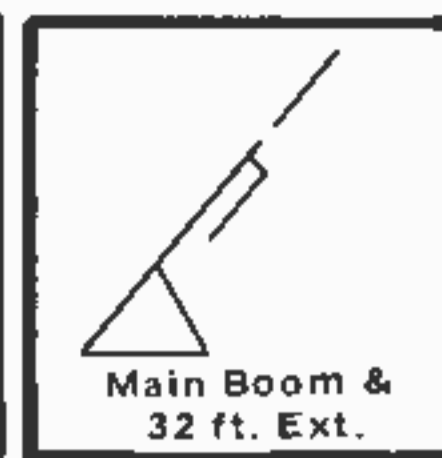
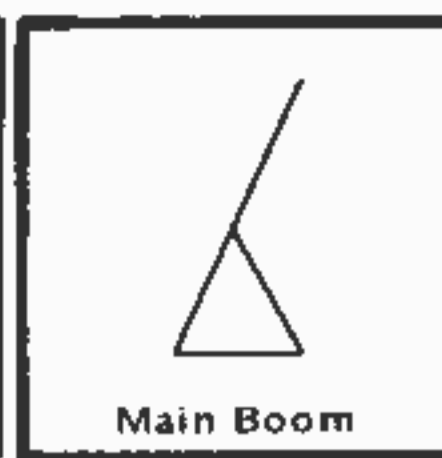
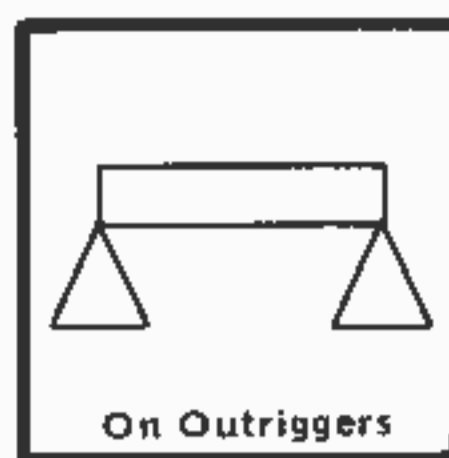




**TM1400 140 TON CAP**  
**45 ft. - 172 ft. BOOM**  
**FULL POWER BOOM**  
**PCSA CLASS 12-7**  
**KRUEGER LMI SYMBOL**



## RATED LIFTING CAPACITIES IN POUNDS

OUTRIGGERS FULLY EXTENDED - 360°

Radius in Feet	Main Boom Length in Feet									
	45.0	58.0	70.0	82.0	94.0	106.0	118.0	130.0	141.0	172.0
12	280,000 (71.5)	150,000 (76.0)	142,000 (79.0)							
15	235,000 (67.5)	150,000 (72.5)	141,500 (76.5)	130,000 (78.5)						
20	173,600 (60.0)	143,500 (67.5)	123,500 (72.0)	112,000 (75.0)	102,000 (77.5)	90,300 (79.5)				
25	135,600 (51.5)	131,500 (61.5)	110,500 (67.5)	98,650 (71.0)	89,250 (74.0)	78,550 (76.5)	73,700 (78.5)	69,300 (80.0)		
30	106,000 (41.5)	106,000 (55.5)	98,000 (63.0)	88,350 (67.5)	78,750 (71.0)	69,250 (73.5)	65,100 (76.0)	61,000 (77.5)	60,000 (79.5)	
35	84,700 (28.5)	84,700 (49.0)	84,700 (58.0)	80,150 (63.5)	69,000 (67.5)	60,750 (70.5)	57,150 (73.0)	54,000 (75.5)	52,150 (77.0)	25,000 (79.5)
40		70,500 (41.0)	70,500 (52.5)	70,500 (59.5)	61,300 (64.0)	54,000 (67.5)	50,600 (70.5)	48,300 (73.0)	45,850 (75.0)	22,500 (77.5)
45		58,850 (32.0)	58,850 (47.0)	58,850 (55.0)	55,000 (60.5)	48,500 (64.5)	45,200 (68.0)	43,050 (71.0)	40,400 (73.0)	20,300 (76.0)
50		48,380 (17.5)	48,380 (40.5)	48,380 (50.5)	48,380 (57.0)	43,050 (61.5)	40,700 (65.0)	38,250 (68.5)	35,750 (70.5)	18,500 (74.5)
60			34,550 (22.5)	34,550 (39.5)	34,550 (48.5)	34,300 (55.0)	33,600 (59.5)	30,750 (63.5)	28,500 (66.0)	15,700 (70.5)
70				24,950 (25.0)	24,950 (39.5)	24,950 (47.5)	24,950 (53.0)	24,750 (58.0)	23,100 (61.5)	13,600 (67.0)
80					18,970 (27.0)	18,970 (39.0)	18,970 (46.5)	18,970 (52.5)	18,700 (56.5)	12,000 (63.5)
90						13,600 (28.0)	13,600 (38.5)	13,600 (46.5)	13,600 (51.0)	10,700 (59.5)
100							10,180 (29.0)	10,180 (39.0)	10,180 (45.0)	9,700 (55.0)
110							7,400 (12.5)	7,400 (30.5)	7,400 (38.5)	8,820 (51.0)
120								5,100 (17.5)	5,100 (30.0)	7,780 (46.0)
130									3,280 (18.0)	5,660 (41.0)
140										3,900 (35.0)
150										2,400 (28.0)
160										1,210 (18.0)
Min. Boom Angle (deg.) for Indicated Length (No Load)									0	0
Max. Boom Length (ft.) at 0 degree Boom Angle (No Load)									141.0	172.0

NOTE: Boom angles are in degrees.

A6-829-003367 & -003379

### WARNING

#### 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 crane operations shall fully acquaint themselves with the standard safety code for cranes, derricks, and hoists, ANSI B30.5.

#### SETUP:

- 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.
- Outriggers beams shall be fully extended and jack cylinders set with tires raised free of crane weight before extending the boom or lifting loads. Front jack cylinder shall be set in accordance with written procedure.
- Counterweight shall be fully extended before operation.
- Tires shall be inflated to the recommended pressure before lifting on rubber.

#### OPERATION:

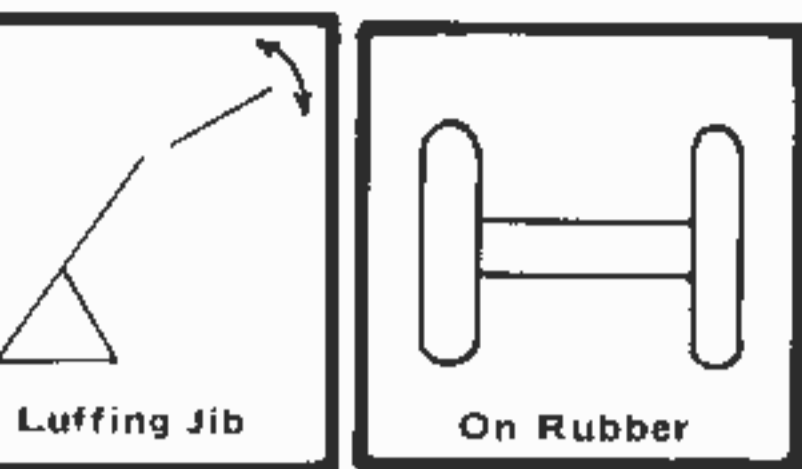
- Rated loads at rated radius shall not be exceeded. Do not tip the machine to determine allowable loads.
- Rated loads do not exceed 85% of the tipping load as determined by S.A.E. Crane Stability Test Code J-765a.
- Rated loads include the weight of hook block, slings and auxiliary lifting devices and their weights shall be subtracted from the listed ratings to obtain the net load to 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.
- When wind velocity is above 20 MPH (32 Km/h), rated loads shall be reduced.
- Rated loads are for liftcrane service only.
- Do not operate at a radius or boom length where capacities are not listed. At these positions, the machine may over turn 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.

CAPACITY  
 DOM  
 DOM  
 705  
 OLS

# GROVE®

## FULL HYDRAULIC

# CARRIER-MOUNTED CRANE



POUNDS ON OUTRIGGERS

OUTRIGGERS FULLY EXTENDED - OVER REAR

Radius in Feet	Main Boom Length in Feet									
	45.0	58.0	70.0	82.0	94.0	106.0	118.0	130.0	141.0	172.0
12	280,000 (71.5)	150,000 (76.0)	142,000 (79.0)							
15	235,000 (67.5)	150,000 (72.5)	141,500 (76.5)	130,000 (78.5)						
20	173,600 (60.0)	143,500 (67.5)	123,500 (72.0)	112,000 (75.0)	102,000 (77.5)	90,300 (79.5)				
25	135,600 (51.5)	131,500 (61.5)	110,500 (67.5)	98,650 (71.0)	89,250 (74.0)	78,550 (76.5)	73,700 (78.5)	69,300 (80.0)		
30	106,000 (41.5)	106,000 (55.5)	98,000 (63.0)	88,350 (67.5)	78,750 (71.0)	69,250 (73.5)	65,100 (76.0)	61,000 (77.5)	60,000 (79.5)	
35	84,700 (28.5)	84,700 (49.0)	84,700 (58.0)	80,150 (63.5)	69,000 (67.5)	60,750 (70.5)	57,150 (73.0)	54,000 (75.5)	52,150 (77.0)	25,000 (79.5)
40		70,500 (41.0)	70,500 (52.5)	70,500 (59.5)	61,300 (64.0)	54,000 (67.5)	50,600 (70.5)	48,300 (73.0)	45,850 (75.0)	22,500 (77.5)
45		58,850 (32.0)	58,850 (47.0)	58,850 (55.0)	55,000 (60.5)	48,500 (64.5)	45,200 (68.0)	43,050 (71.0)	40,400 (73.0)	20,300 (76.0)
50		49,600 (17.5)	49,600 (40.5)	49,600 (50.5)	48,750 (57.0)	43,050 (61.5)	40,700 (65.0)	38,250 (68.5)	35,750 (70.5)	18,500 (74.5)
60			37,720 (22.5)	37,720 (39.5)	37,720 (48.5)	34,300 (55.0)	33,600 (59.5)	30,750 (63.5)	28,500 (66.0)	15,700 (70.5)
70				28,280 (25.0)	28,280 (39.5)	27,800 (47.5)	27,200 (53.0)	24,750 (58.0)	23,100 (61.5)	13,600 (67.0)
80					21,260 (27.0)	21,260 (39.0)	21,260 (46.5)	20,150 (52.5)	18,700 (56.5)	12,000 (63.5)
90						16,400 (28.0)	16,400 (38.5)	16,400 (46.5)	15,150 (51.0)	10,700 (59.5)
100							12,650 (29.0)	12,650 (39.0)	12,300 (45.0)	9,700 (55.0)
110							9,500 (12.5)	9,500 (30.5)	9,500 (38.5)	8,820 (51.0)
120								7,060 (17.5)	7,060 (30.0)	8,090 (46.0)
130									5,010 (18.0)	7,450 (41.0)
140										5,640 (35.0)
150										4,040 (28.0)
160										2,690 (18.0)
Min. Boom Angle (deg.) for indicated length (no load)									0	0
Max. Boom Length (ft.) at 0 degree boom angle (no load)									141.0	172.0

NOTE: Boom angles are in degrees.

A6-829-003373 & -003379

### OPERATING NOTES

- 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, 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 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.
  - Radii less than 40 feet or 12 meters not recommended when lifting over front of 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 operational 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 tack e with load applied.
- Loaded Boom Angle: 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.

# TM1400

45 ft. - 172 ft. BOOM  
FULL POWER BOOM

## LUFFING JIB CAPACITIES

88 ft.

Jib Angle	46 ft.		60 ft.		74 ft.		88 ft.	
	Ref. Radius		Ref. Radius		Ref. Radius		Ref. Radius	
70°	39.5	11,700	43.5	8,460	47.3	6,350	50.5	4,730
65	43.3	10,700	48.5	7,580	53.3	5,500	57.7	3,900
60	47.0	9,900	53.2	6,850	59.0	4,800	64.6	3,210
55	50.5	9,210	57.5	6,230	64.4	4,210	71.1	2,640
50	53.7	8,640	61.7	5,710	69.5	3,710	77.3	2,160
45	56.8	8,140	65.6	5,260	74.1	3,280	83.0	1,740

A6-829-003293C

### 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:

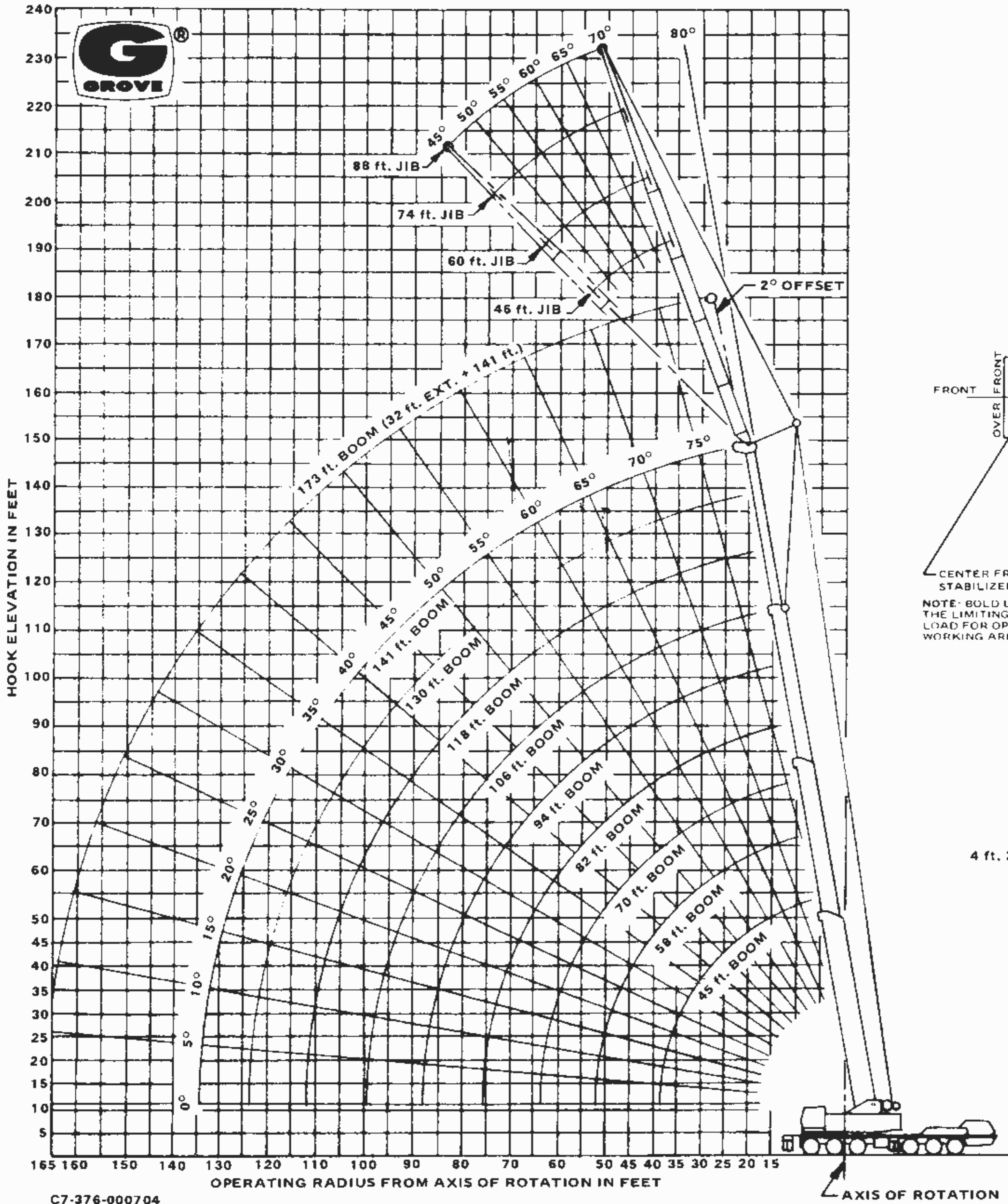
46 ft. Jib (14.0m) — 120 ft. (36.6m)  
60 ft. Jib (18.3m) — 116 ft. (35.3m)  
74 ft. Jib (22.6m) — 112 ft. (34.1m)  
88 ft. Jib (26.8m) — 105 ft. (32.0m)

**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.

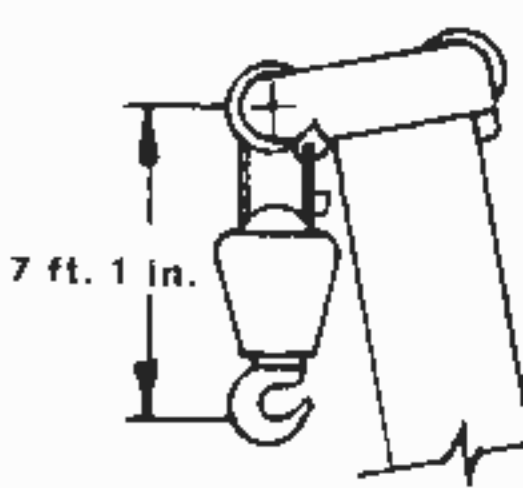
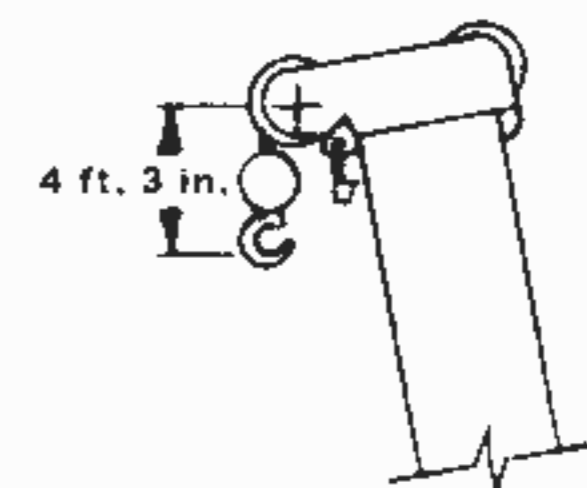
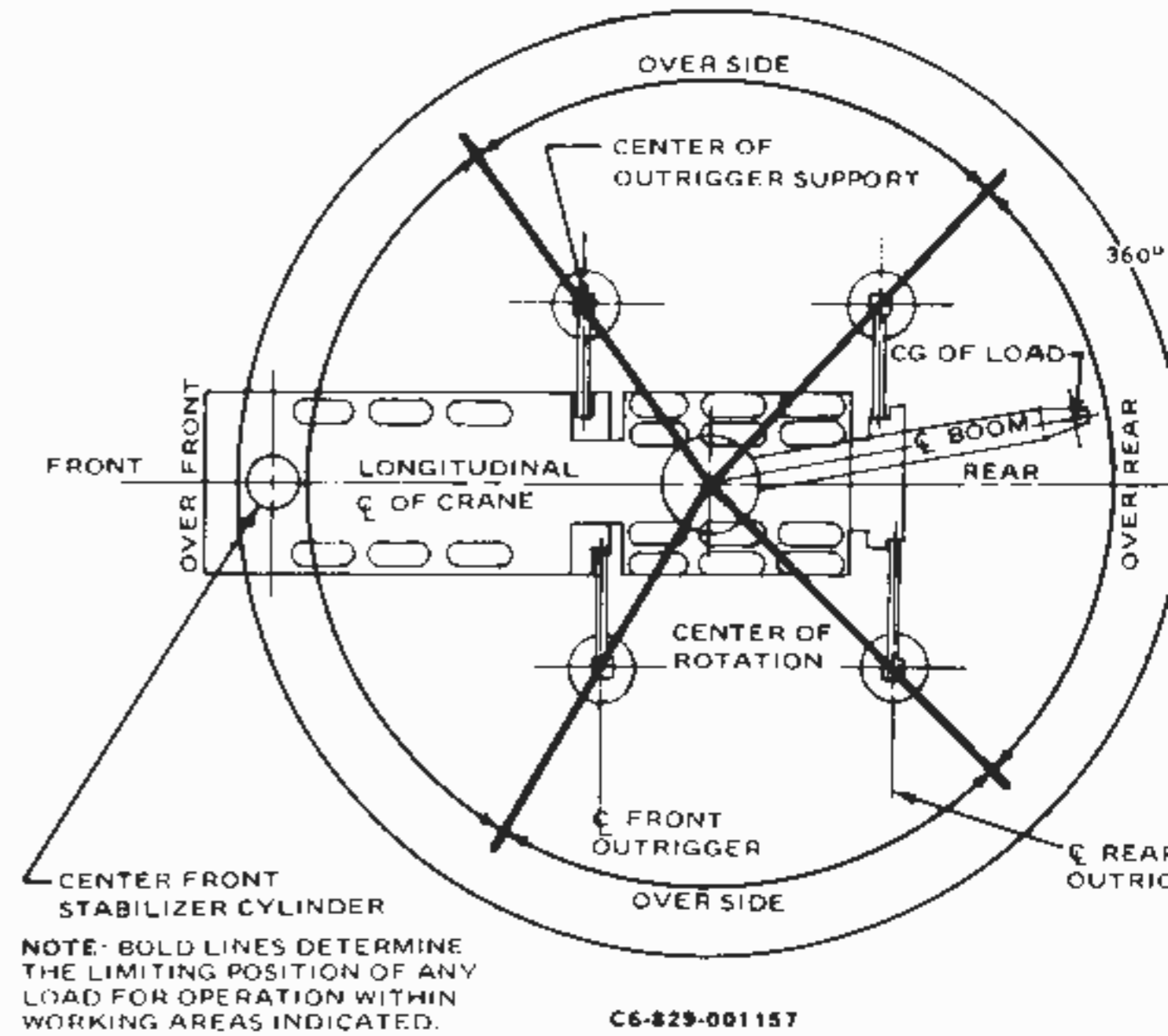
A6-829-003305C



## HOOK ELEVATION DIAGRAM UNLADEN BOOM



## LIFTING AREA DIAGRAM



## WEIGHT REDUCTION FOR LOAD HANDLING DEVICES

32 ft. BOOM EXTENSION with 45 - 141 ft. BOOM	
† Stowed -	625 lbs.
† Erected -	2,450 lbs.
Luffing Jib Accessories - 560 lbs.	

45 - 141 ft. BOOM with	
† 46 ft. Jib Erected -	9,043 lbs.
† 60 ft. Jib Erected -	13,787 lbs.
† 74 ft. Jib Erected -	19,431 lbs.
† 88 ft. Jib Erected -	25,938 lbs.

HOOK BLOCKS	
140 Ton, 7 Sheave . . . . .	3,448 lbs.
30 Ton, 1 Sheave . . . . .	1,022 lbs.
Auxiliary Boom Head . . . . .	253 lbs.
10 Ton Headache Ball . . . . .	500 lbs.
15 Ton Headache Ball . . . . .	750 lbs.

NOTE: All Load Handling Devices and Boom Attachment 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.



**GROVE MANUFACTURING COMPANY**  
Division of Walter Kidde & Company, Inc.  
**KIDDE**

Box 21 SHADY GROVE, PENNA. 17256

Distributed by: