

# GROVE®

## FULL HYDRAULIC CARRIER-MOUNTED CRANE

# TM650

### JIB CAPACITIES WITH 35 ft. - 119 ft. BOOM OUTRIGGERS FULLY EXTENDED

Radius in Feet	46 ft. JIB CAPACITIES				60 ft. JIB CAPACITIES				74 ft. JIB CAPACITIES				88 ft. JIB CAPACITIES			
	No Offset		7½° Offset		No Offset		7½° Offset		No Offset		7½° Offset		No Offset		7½° Offset	
	Boom Angle		Boom Angle		Boom Angle		Boom Angle		Boom Angle		Boom Angle		Boom Angle		Boom Angle	
25	80°	19,000														
30	78	17,800	80°	15,400	80°	15,000			80°	10,000						
35	75.5	16,400	78	14,200	77.5	13,150	80°	11,000	78.5	9,400						
40	73	14,900	75.5	13,000	75	11,900	78	9,910	77	8,900	80°	9,000	80°	8,000		
45	71	13,800	73.5	11,800	73	10,650	76	8,850	75	8,200	78.5	8,000	78	7,300	80°	6,400
50	68.5	12,350	71	10,600	71	9,700	74	8,050	73.5	7,700	76.5	7,200	76.5	6,800	79.5	6,050
55	66	10,900	68.5	9,500	69	8,800	72	7,350	72	7,250	74.5	6,500	75	6,300	78	5,350
60	64	9,800	66	8,300	67	8,000	70	6,700	70	6,650	73	5,900	73	5,700	76	4,600
65	61.5	8,400	63.5	7,300	65	7,200	68	6,050	68	6,100	71	5,300	71.5	5,250	74.5	4,150
70	59	7,200	61	6,400	63	6,550	65.5	5,400	66	5,550	69	4,700	69.5	4,700	72.5	3,700
75	56	6,000	58.5	5,500	61	5,900	63	4,750	64	5,050	67	4,100	68	4,300	71	3,350
80	53.5	5,100	56	4,700	59	5,300	61	4,150	62	4,600	65	3,650	66	3,800	69	2,950
85	50.5	4,200	53	3,900	56.5	4,700	58.5	3,540	60	4,150	62.5	3,100	64	3,400	67	2,600
90	47.5	3,500	50	3,250	54.5	4,150	56	2,950	58	3,800	60.5	2,650	62	3,000	65.5	2,300
95	44.5	2,900	47	2,550	52	3,600	53	2,380	56	3,400	58	2,200	60	2,700	63.5	2,000
100	41	2,300	43.5	1,950	49	3,050	51	1,850	53.5	2,950	56	1,750	58	2,350	61.5	1,650
105	37.5	1,750	40	1,400	46	2,560	48.5	1,400	51	2,550	53.5	1,350	56	2,050	59.5	1,350
110	33.5	1,300	36.5	995	43	2,110	46	995	48.5	2,100	51	995	54	1,800	57	995
115	29	800			40	1,700			46	1,650			52	1,500		
120					36	1,300			43	1,280			49.5	1,250		

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### JIB CAPACITY NOTES

- Radius in Feet applies to jib capacities with boom fully extended.
- All jib capacities are based on structural strength and do not exceed 85% of tipping loads with counterweight fully extended in accordance with SAE J-765.
- For 7½° Offset, jibs must be used for single line lifting crane service only.
- Rated load is based on main boom angle regardless of main boom length.
- Maximum length of main boom for purposes of erecting jib below 10° elevation is:

46 ft. Jib	-	76 ft.
60 ft. Jib	-	71 ft.
74 ft. Jib	-	66 ft.
88 ft. Jib	-	60 ft.

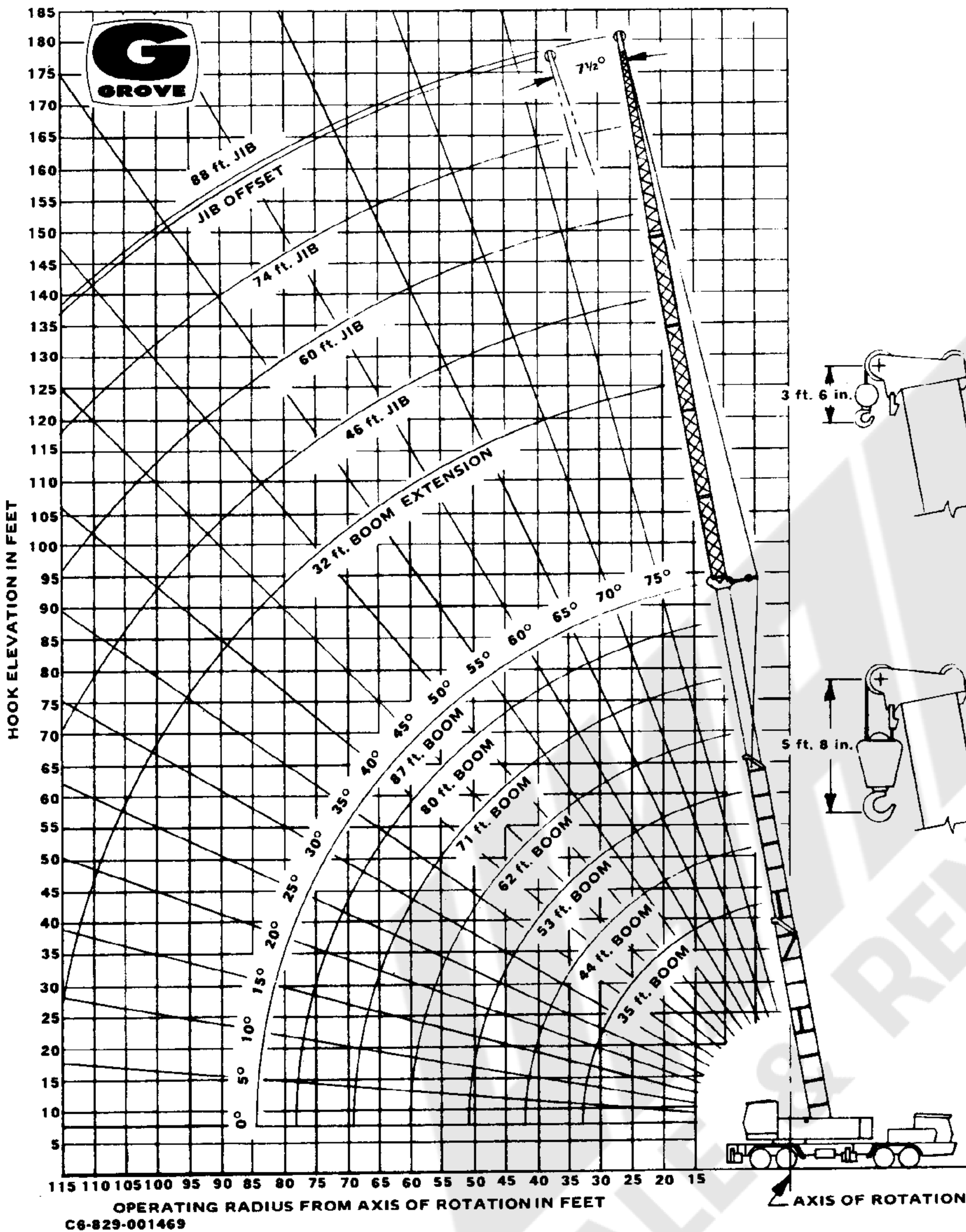
**WARNING:** Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with every jib occurs rapidly and without advance warning.

**60 ft. JIB WARNING:** For main boom length greater than 71 ft. with 60 ft. jib in working position, the boom angle must not be less than 10° (12° for 7½° Offset) since loss of stability will occur causing a tipping condition.

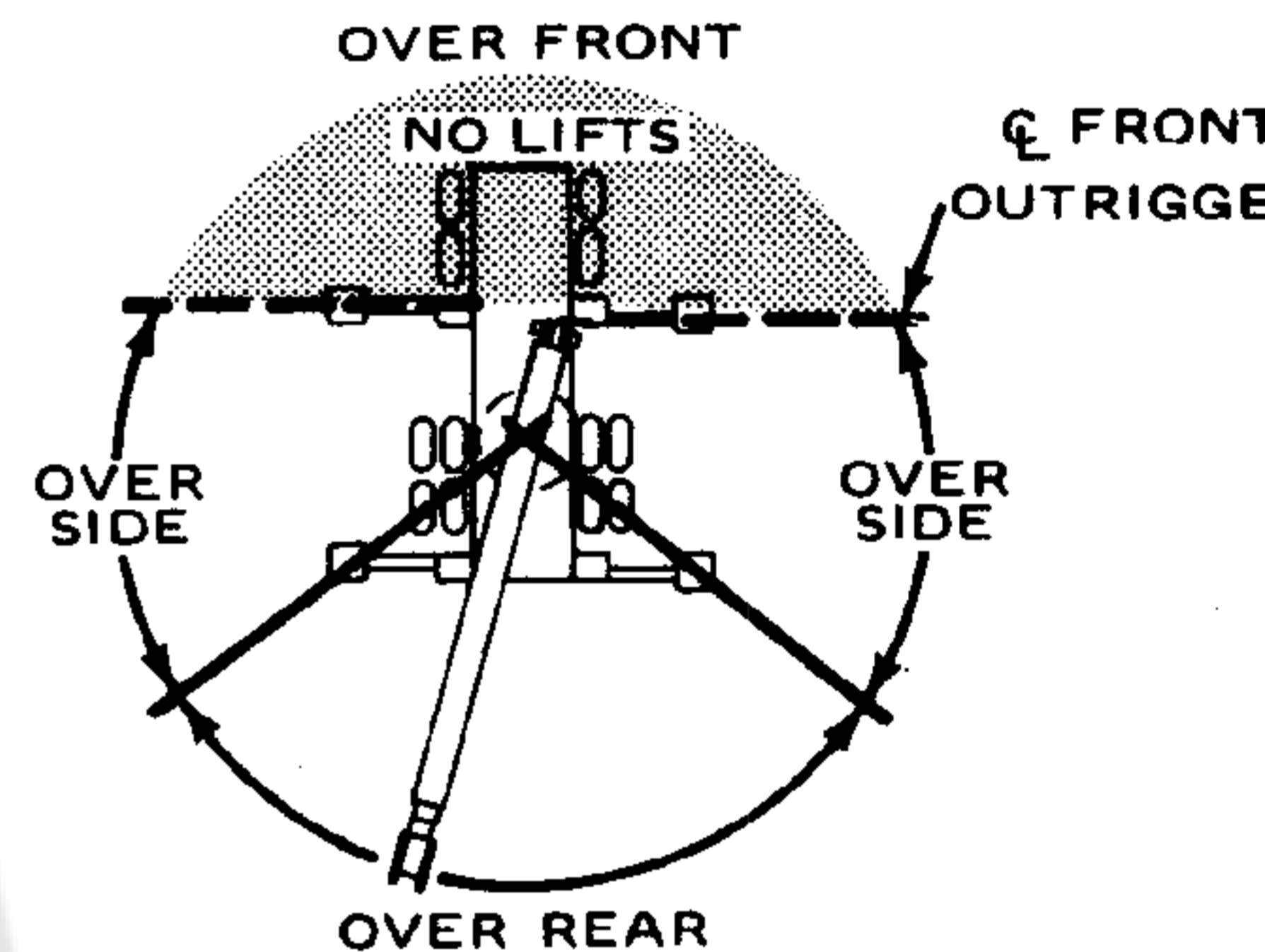
**74 ft. JIB WARNING:** For main boom length greater than 66 ft. with 74 ft. jib in working position, the boom angle must not be less than 23° (25° for 7½° Offset) since loss of stability will occur causing a tipping condition.

**88 ft. JIB WARNING:** For main boom length greater than 60 ft. with 88 ft. jib in working position, the boom angle must not be less than 32° (34° for 7½° Offset) since loss of stability will occur causing a tipping condition.

## RANGE DIAGRAM



## LIFTING AREAS ON OUTRIGGERS



— From Centerline of Rotation Through Centerline of Outrigger Pad.

**NOTE:** Boom crossing heavy dashed line (Centerline of Front Outriggers) is considered Over-the-Front.

**WARNING:** No Over-the-Front Lifting Recommended.



**GROVE MANUFACTURING COMPANY**

A DIVISION OF WALTER KIDDE & COMPANY, INC.

SHADY GROVE • PENNSYLVANIA 17256

MEMBER: POWER CRANE & SHOVEL ASSOCIATION

Form 8351074-1M

Printed in U.S.A.

Distributed by:

# GROVE®

## FULL HYDRAULIC CARRIER-MOUNTED CRANE

# TM650

## 65 TON CAP.

PCSA CLASS 12-265

### RATED LIFTING CAPACITIES IN POUNDS 35 ft. - 119 ft. BOOM OVER SIDE AND REAR WITH FULLY EXTENDED OUTRIGGERS

Radius in Feet	Trapezoidal Boom Length in Feet					87 + 32 Ext.
	*35	48	61	74	87	119
12	130,000	97,000	81,200			
15	110,000	88,000	74,000	62,000	50,000	
20	84,000	74,000	63,200	52,500	42,500	30,000
25	63,500	63,500	54,000	45,000	37,000	27,700
30	43,900	43,900	43,900	39,000	32,300	25,250
35		33,100	33,100	33,100	28,200	22,600
40		26,500	26,500	26,500	24,500	19,900
45			21,500	21,500	21,500	17,100
50			17,450	17,450	17,450	15,000
55			14,500	14,500	14,500	13,500
60				12,450	12,450	12,500
65				10,500	10,500	11,600
70				9,000	9,000	10,500
75					7,500	9,500
80					6,400	8,100
85						7,050
90						6,120
95						5,300
100						4,640
105						4,000
110						3,450
115						2,825
120						

**32 ft. Ext. Capacities	
BOOM ANGLE	
80.0°	30,000
78.3°	27,700
76.0°	25,250
73.5°	22,600
71.0°	19,900
68.5°	17,100
65.5°	15,000
63.0°	13,500
60.0°	12,500
57.0°	11,600
53.0°	10,500
50.0°	9,700
46.0°	8,900
42.0°	8,250
38.0°	7,750
34.0°	7,300
30.0°	6,900
25.0°	6,500
18.0°	6,200
5.0°	5,800

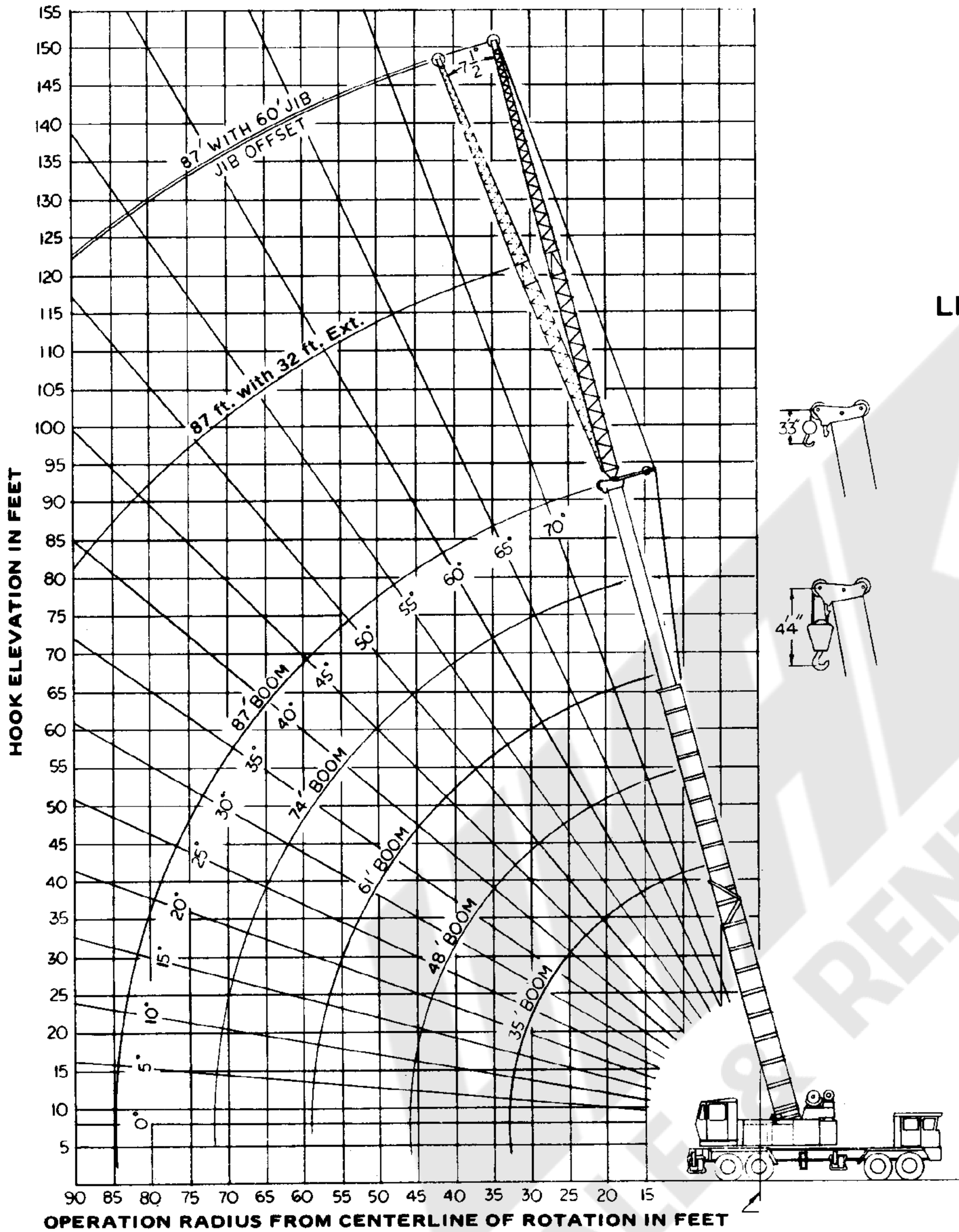
#### TRAPEZOIDAL BOOM and 32 FT. EXT. NOTES

Capacities appearing in shaded area are based upon structural strength and tipping should not be relied upon as a capacity limitation. Capacities do not exceed 85% of tipping loads with counterweight fully extended as determined by test in accordance with SAE Recommended Practice - Crane Load Stability Test Code - SAE J-765. \*Capacities in shaded area for 35 ft. boom length shall be lifted with boom fully retracted. If boom is not fully retracted, capacities shall not exceed those shown for 48 ft. boom length. \*\*These capacities are based on structural strength of 32 ft. ext. at listed boom angle regardless of boom length. When lifting with 32 ft. ext. and LESS THAN a fully extended trapezoidal boom, the loads lifted MUST NOT EXCEED the 32 ft. ext. structural capacity at the lifted boom angle OR the largest stability capacity listed for the actual working radius, whichever is less.

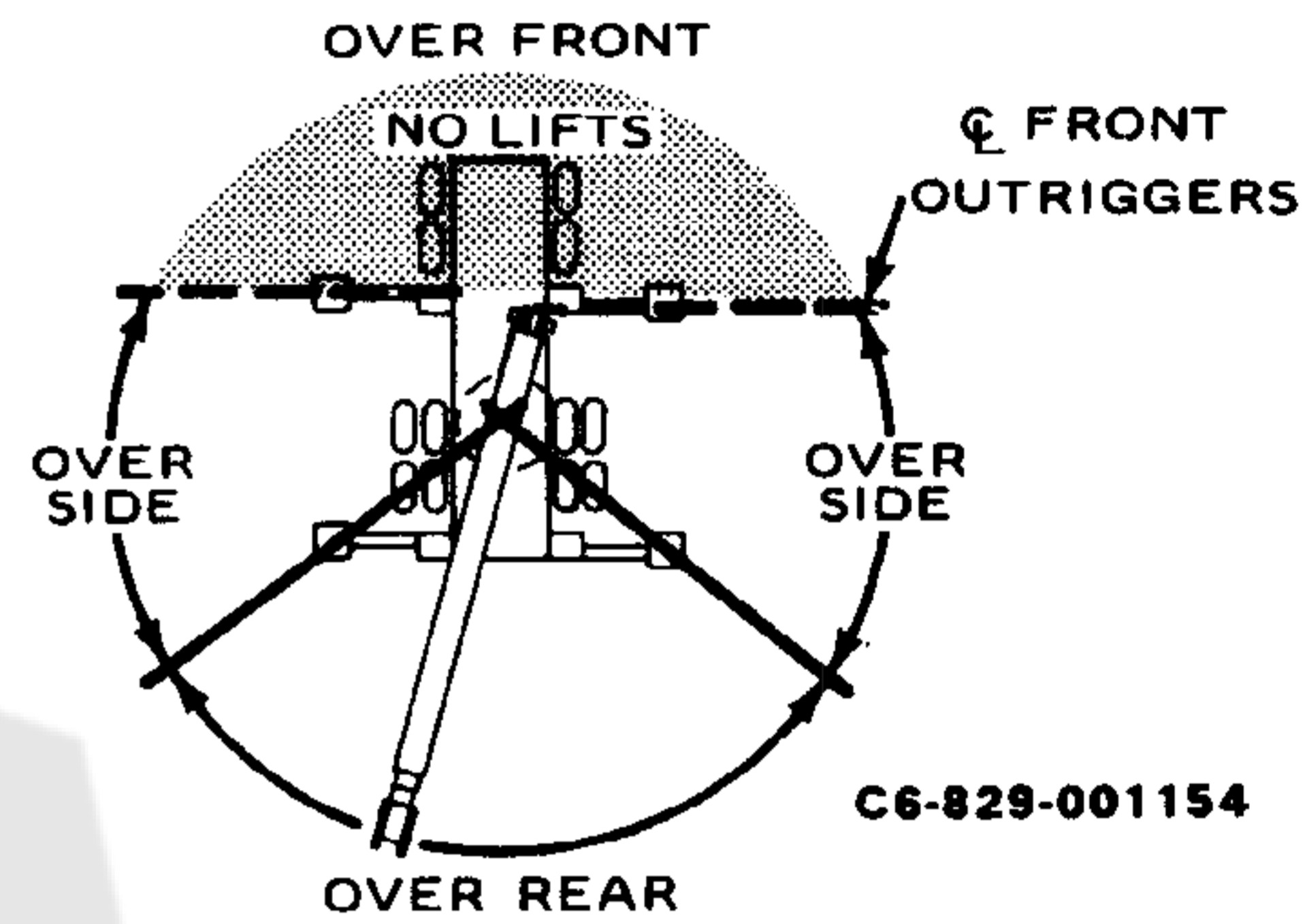
#### NOTES TO LIFTING CAPACITIES

- Rated lifting capacities are based on freely suspended loads. They are the maximum covered by the manufacturer's warranty with the machine leveled and standing on a firm supporting surface. Ratings with outriggers are based on outriggers being extended to their maximum positions.
- Practical working loads for each particular job shall be established by the user depending on operating conditions; including the supporting surface, wind and other factors affecting stability, hazardous surroundings, experience of personnel, handling of load, etc. Operating radius is the horizontal distance from the axis of rotation to the centerline of the hoist line or tackle with loads applied.
- "On Rubber" lifting (if permitted) depends on proper tire inflation, capacity, and condition. "On Rubber" loads may be transported at a maximum vehicle speed of 2.5 mi/hr. (4 km/hr.), if specified as 2.5 MPH loads, on a smooth and level surface only.
- Jibs may be used for single line lifting crane service only. Jib capacities are based on structural strength of jib or main boom. Jib loads must not exceed main boom lifting capacities for the actual operating radius.
- Operation is not intended or approved for any conditions outside of those shown hereon. Handling of personnel from the boom is not authorized except with equipment furnished and installed by Grove Manufacturing Company.
- For clamshell or concrete bucket operation, weight of bucket and load must not exceed 90% of rated lifting capacities.
- Power-telescoping boom sections must be extended equally at all times. Long cantilever booms can create a tipping condition when in extended and lowered position.
- The maximum load which may be telescoped is limited by hydraulic pressure, boom angle, boom lubrication, etc. It is safe to attempt to telescope any load within the limits of rated lifting capacity chart.
- With certain boom and hoist tackle combinations, maximum capacities may not be obtainable with standard rope lengths.
- With certain boom and load combinations, raising of load with boom lift cylinders may not be possible. Operational safety is not affected by this condition.
- Keep load handling devices a minimum of 12 inches (30 CM) below boom head when lowering or extending boom.
- For multiple part reeving, use one part of line for each 13,000 lbs. of load.
- All load handling devices and/or boom attachments are considered part of the load and suitable allowances must be made.

## RANGE DIAGRAM



## LIFTING AREAS ON OUTRIGGERS



— From Centerline of Rotation Through Centerline of Outrigger Pad.

**NOTE:** Boom crossing heavy dashed line (Centerline of Front Outriggers) is considered Over-the-Front.

**WARNING:** No Over-the-Front Lifting Recommended.



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# GROVE<sup>®</sup> TMG50

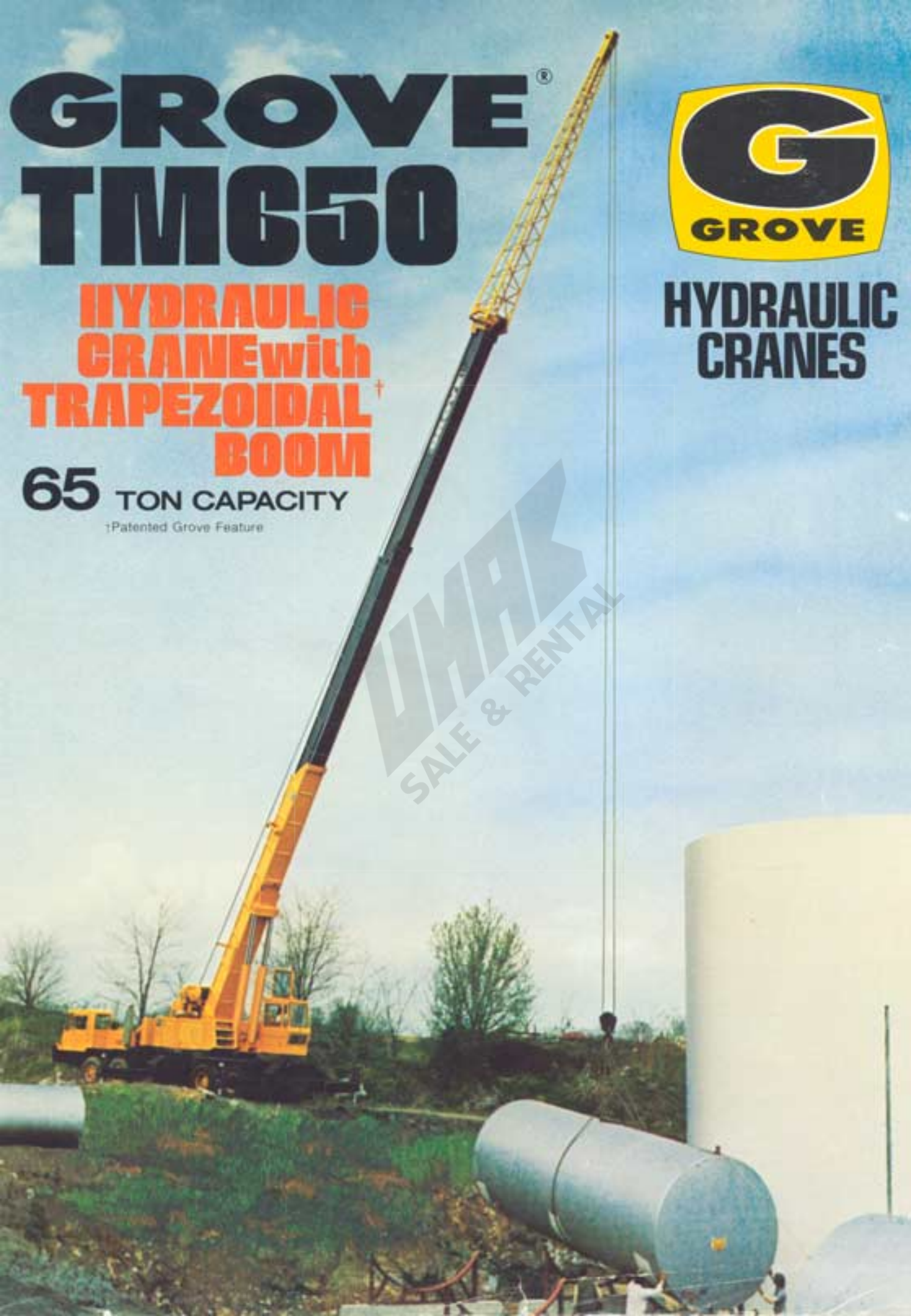
**HYDRAULIC  
CRANE with  
TRAPEZOIDAL<sup>†</sup>  
BOOM**

**65 TON CAPACITY**

†Patented Grove Feature



**HYDRAULIC  
CRANES**



**WMAK**  
SALE & RENTAL

8,000 lbs. @ 178'

TIP HEIGHT

# THE GROVE<sup>®</sup> TRAPEZOIDAL<sup>†</sup> BOOM

## A LONG REACH BOOM OF SUPERIOR STRENGTH AND CAPACITY

30,000 lbs. @ 122'

TIP HEIGHT

50,000 lbs. @ 90'

TIP HEIGHT

The Grove Trapezoidal Boom, a major engineering accomplishment in telescoping hydraulic boom design, represents the optimum strength-to-weight ratio for hydraulic crane operation. Compared to conventional hydraulic booms, the Trapezoidal boom provides greater reach and tons greater capacity at full boom and at any working radii. The superior strength and rigidity are directly attributable to the trapezoidal design and the use of very high strength steels. This permits a deeper, wider and lighter boom with greater resistance to lateral and vertical deflection.

### "SWINGAWAY" BOOM EXTENSION

The "Swingaway" boom extension for the TM650 stores laterally along-side the boom base section and swings quickly into working position to provide 122' tip height. Additional 14' inserts may be added to create an 88' jib which provides a maximum tip height of 178'. The 88' jib section may be offset 7½°.

†Patented Grove Feature

### COMPARE PHYSICAL SIZE



CONVENTIONAL BOOM



**DEEPER**

MORE CAPACITY  
MORE RIGIDITY  
LESS DEFLECTION

**WIDER**

LESS SIDE DEFLECTION  
WITH NO INCREASE IN WEIGHT



# FEATURES



**"UP-FRONT VISIBILITY"** and an unobstructed view of the load are provided by the forward placement of the operator's cab and the fact that when the tinted skylight is raised and windshield removed there is nothing to interfere with visibility.

**OPERATOR CONVENIENCE** is another feature of the all-steel cab. Notice that the full-length control levers are adjustable and combination hand and foot controls are provided for swing and boom elevation functions. Other features include complete engine controls and instrumentation, sliding door, laminated safety glass, boom angle indicator, sight leveling bubble and adjustable operator's seat with headrest.

**EASIER REEVING**... negative boom angle permits ground level reeving. Removable pin-type rope guards make it quick and easy.

**GROVE EXTENDIBLE COUNTERWEIGHT** is hydraulically extended to working position to provide improved capacities with a minimum of weight. Power installed and removed, it is also equipped with an automatic travel lock.

**GROVE TWO-SPEED HOIST**† provides both high-line-pull and high-line-speed without changes in lagging or gearing. Line speed, 560 fpm maximum. Single-line-pull, 16,800 lbs. maximum.



†The Grove Trapezoidal Boom, Two Speed Hoist, Extendible Counterweight and Vertical Jack Lock are patented Grove features.



# SPECIFICATIONS

**BOOM** — Four section, 35 ft. to 119 ft. (10.7m to 36.27m). Two trapezoidal telescoping full power sections to 87 ft. (26.5m) and a 32 ft. (9.75m) "Swing Away" Boom Extension. Integral check valves on each telescoping cylinder. Boom telescope sections are individually controlled and supported on graphite impregnated nylon wear pads.

**BOOM NOSE** — Five sheaves mounted on tapered roller bearings. Removable pin type rope guards allow easy reeving. Rope dead ends on each side of boom nose.

**BOOM ELEVATION** — Dual double-acting hydraulic cylinders with integral holding valves. Elevation from -4° to 80°. Combination controls provided for hand or foot operation.

**JIBS** — 14 ft. (4.20m) base jib section combines with 32 ft. (9.75m) "Swing Away" Boom Extension to make basic 46 ft. (14.02m) jib. 14 ft. (4.20m) pinned inserts available to make 60 ft. (18.28m), 74 ft. (22.55m) and 80 ft. (26.80m) jib length. Jib mast, pendant lines, and back stops included in the make up of all jibs. Jib sheave mounted on tapered roller bearings. Jib may be offset 7½°.

**SWING** — Bearing swing circle, 360° continuous rotation, "Grove Planetary Glide Swing" with foot actuated disc swing brake, hand-operated turntable brake, and two position positive turntable lock. Combination controls provided for hand or foot operation. Swing speed 2.7 RPM.

**OUTRIGGER CONTROLS** — Independently controlled in-out-up and down, from superstructure cab and from either side of carrier. Sequence control arrangement eliminates accidental outrigger actuation. Sight level bubbles at each outrigger control station.

**COUNTERWEIGHT** — 10,300 lb. turntable-mounted, power installed and removed, hydraulically extended to working position and retracted to stowed or travel position.

**CAB** — Full vision, all steel, fully enclosed, laminated safety glass windows throughout, removable windshield with storage provision, hinged tinted skylight, sliding left side door, rear vent window, adjustable full length control levers, combination hand and foot controls for swing and boom elevation, fully adjustable operator's seat with head rest. Full engine instruments and controls. Combination hand and foot throttle. All crane superstructure and outrigger controls, sight level bubble, boom angle indicator, hot water heater, electric windshield wiper, door and window locks, dome light, dash light, 2¼ lb. dry type fire extinguisher.

**CAB INSTRUMENTATION** — Engine oil pressure gage, engine water temperature gage, ammeter, electric fuel gage, electric tachometer, stalled engine indicator light, ignition-on indicator light and engine oil temperature gage.

## HYDRAULIC SYSTEM:

**RESERVOIR** — 205 gallon (776 liter), steel welded construction with integral baffles and clean out access.

**FILTER** — Return line, full flow with bypass protection, replaceable cartridge.

**PUMPS** — Four-section, gear-type driven from superstructure engine. Combined capacity 194 GPM. Manual control pump disconnect operated from superstructure cab.

**CONTROL VALVES** — Precision four-way double-acting with integral load check, main and circuit relief valves. Four individual valve banks permitting simultaneous, independent control of four crane functions. Maximum operating pressure 2500 PSI (175 kgs. / sq. cm.)

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

**POWER DISTRIBUTION** — (Main hoist) (Boom elevation) (Main hoist boost, mid telescope, auxiliary hoist) (Swing, lift boost, fly telescope, outriggers).

\*Denotes Optional Equipment

## HOIST SPECIFICATIONS

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.		DESCRIPTION: Power up and down, equal speed, planetary reduction with integral automatic brake.		
HOIST DATA	MAIN HOIST Grove Model 32S-1716A	*AUXILIARY HOIST Grove Model 15S-16	*AUXILIARY HOIST Model 40 SGE CR (Free fall)	
Drum Dimensions	16 in. diameter (41 cm) 16 in. length (41 cm) 24 in. diameter flange (61 cm)	12 in. diameter (30.5 cm) 16 in. length (41 cm) 17.5 diameter flange (44.5 cm)	9 in. diameter (23 cm) 13 in. length (33 cm) 17.5 diameter flange (44.5 cm)	
Performance	<b>HIGH SPEED RANGE</b> Single line speed 560 FPM (Max.) (170.6 m) Single line pull 8,400 lbs. (Max.) (3810 kgs)	<b>LOW SPEED RANGE</b> Single line speed 280 FPM (Max.) (85.3 m) Single line pull 16,800 lbs. (Max.) (7620 kgs)	Single line speed 210 FPM (Max.) (64 m) Single line pull 8,880 lbs. (Max.) (4028 kgs)	240 FPM (Max.) (73 m) 9,145 lbs. (Max.) (4148 kgs)
Drum Rope Storage Capacity	**650 ft. of ¾ in. Rope (Max.) (198 m)	720 Ft. of ½ in. Rope (Max.) (219.4 m) 480 ft. of ⅝ in. Rope (Max.) (146.3 m)	675 ft. of ½ in. Rope (Max.) (205.7 m)	
Permissible Single Line Rope Pull	¾ in., 6x41 Class - 14,605 lbs. (6624.8 kgs) ¾ in., 19x7 Class - 13,700 lbs. (6214.3 kgs)	½ in., 19x7 Class - 6,150 lbs. (2789.6 kgs) ½ in., 6x37 Class - 7,200 lbs. (3265.9 kgs) ⅝ in., 19x7 or 6x37 Class - 7,680 lbs. (3483.6 kgs)	½ in., 19x7 Class - 6,150 lbs. (2789.6 kgs) ½ in., 6x37 Class - 7,200 lbs. (3265.9 kgs)	

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

## ENGINE SPECIFICATIONS

MAKE & MODEL	GM6V-53N Diesel	*Cummins V555-C200 Diesel
TYPE	6 cylinder, O.H.V.	8 cylinder, O.H.V.
BORE & STROKE	3.875 in. x 4.50 in.	4.625 in. x 4.125 in.
DISPLACEMENT	318.4 cu. in.	555 cu. in.
NET FLYWHEEL HP	178 @ 2500 RPM	175 @ 2600 RPM
GOVERNED RPM	2500 RPM	2600 RPM
NET FLYWHEEL TORQUE	410 lbs. ft. @ 1200 RPM	394 lbs. ft. @ 1800 RPM
ELECTRICAL SYSTEM	12-volt, Negative Ground	12-volt, Negative Ground
COMBUSTION SYSTEM	2 Cycle, naturally aspirated	4 Cycle, naturally aspirated
COOLING SYSTEM	Liquid	Liquid
FUEL CAPACITY	75 gallons	75 gallons
ALTERNATOR	60 AMP, 12-volt	58 AMP, 12-volt
BATTERY	(2) 204 A.H., 12-volt	(2) 204 A.H., 12-volt
AIR CLEANER	Dry Type	Dry Type
HOURMETER	Yes	Yes



# SPECIFICATIONS

**OVERALL WIDTH** — 10 ft. 8 in. (3.25m)

**WHEELBASE** — 224 in. (5.69m)

**OUTRIGGERS** — Hydraulic double box, telescoping beam outriggers. Removable beams, vertical jack cylinders with integral safety holding valves and 30½ in. (77.5cm) dia. aluminum floats. Mechanical spin locks on each vertical jack to secure outriggers at any level. Beams extend to 21 ft. (6.40m), centerline to centerline retract to 10 ft. 6 in. (3.20m) overall width. Full controls in superstructure cab and both sides of carrier with sight leveling bubble at each station. Powered by superstructure engine.

**FRAME** — High strength constructed; all welded fabrication with box type design and integral welded outrigger boxes.

**STEERING GEAR** — Ross, cam and lever with Garrison hydraulic power assist.

**CLUTCH** — Lipe Rollway 14 in., two plate dry disc; area: 423 sq. in.

**TRANSMISSION** — Fuller RTOO 9513 Roadranger, 13 speeds forward and 2 reverse.

**UNIVERSAL JOINTS** — Needle bearing type.

**AXLES** — Front: (2) Shuler Tubular, 100 in. track, 40,000 lbs. capacity.  
Rear: (2) Clark BD50-60 Planetary 94½ in. track, 70,000 lbs. capacity.

**SUSPENSION** — Front: Reyco Spring type, tandem mounted, 54 in. spacing.  
Rear: Hendrickson T-600, solid mount, 54 in. spacing.

**OVERALL CARRIER LENGTH** — 35 ft. 8 in. (10.87m)

**GROUND CLEARANCE** — 10 in. (25.4cm)

**TURNING RADIUS** — 44 ft. (13.41m)

**TIRES** — Front: 14.00x20-18 Ply, hiway tread.

Rear: 14.00x20-18 Ply, NDM&S.

**WHEELS** — Front: Cast spoke 10 in. x 20 in.

Rear: Integral with axles 10 in. x 20 in.

**BRAKES** — Full air on all eight wheels, 12 CFM compressor.

Total lining area: 1528 sq. in.

Front: 17¼ in. x 4 in.

Rear: 16½ in. x 7 in.

**PARKING BRAKE** — Maxi brake, spring applied emergency chambers on both rear axles with emergency release kit.

**ELECTRICAL SYSTEM** — 12 volt lighting, 12 volt starting. Federal safety standard lights and reflectors.

**CAB** — One-man, safety glass windshield and windows, windshield washer and electric wiper, door and window locks. Bostrom "T" bar seat, seat belt, dual West Coast mirrors, hot water heater, fan defroster, electric horn, traffic hazard warning switch (four-way flasher), full engine instruments and carrier controls. 2¾ lb. dry type fire extinguisher.

**CAB INSTRUMENTATION** — Electric tachometer, engine oil pressure gage, voltmeter, speedometer, air pressure gage, electric fuel gage, engine water temperature gage, high beam indicator, low air pressure audio visual warning.

**MISCELLANEOUS STANDARD EQUIPMENT** — Wheel nut wrench and handle, channel front bumper, two front towing loops, rear fenders, automatic radiator shutters, ether injection starting aid (less bottle), hook block tie down, mud flaps.

## SPEED AND GRADEABILITY ROADRANGER TRANSMISSION (RTOO 9513)

ENGINE	SPEED RANGES	% of Gradeability @ Max. Torque
GM8V-71N	2.3 to 45.6 MPH	40.2 to .64%
CUMMINS NTC-335	2.3 to 45.6 MPH	44.4 to .85%

## ENGINE SPECIFICATIONS

MAKE & MODEL TYPE	GM8V-71N	*Cummins NTC-335
BORE & STROKE	4.25 in. x 5 in.	5.5 in. x 6 in.
DISPLACEMENT	568 cu. in.	855 cu. in.
HORSEPOWER	304 @ 2100 RPM	320 @ 2100 RPM
GOVERNED RPM	2100 RPM	2100 RPM
TORQUE	814 lbs. ft. @ 1400 RPM	895 lbs. ft. @ 1500 RPM
AIR CLEANER	Dry Type	Dry Type
FUEL CAPACITY	60 gallons	60 gallons
ALTERNATOR	62 AMP, 12-volt	53 AMP, 12-volt
BATTERY	(2) 204 A.H., 12-volt	(2) 204 A.H., 12-volt
HOURMETER	Yes	Yes

## AXLE WEIGHT DISTRIBUTION CHART

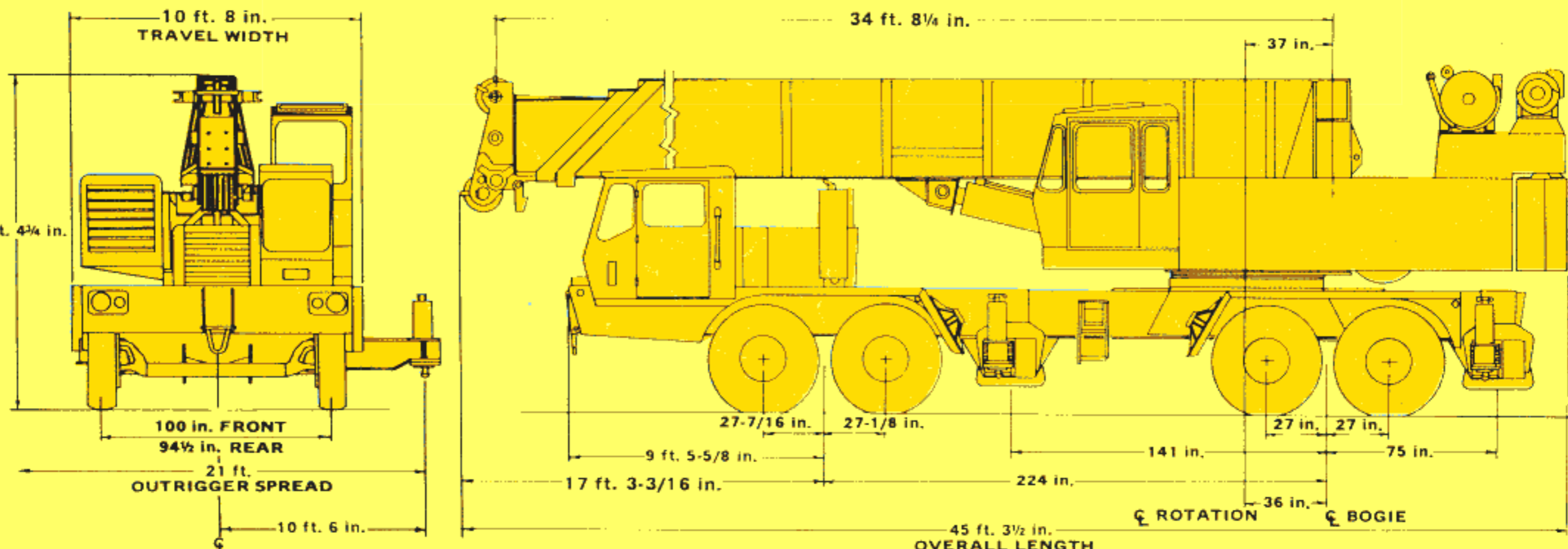
ITEM	GROSS LBS.	FRONT LBS.	REAR LBS.	ITEM	GROSS LBS.	FRONT LBS.	REAR LBS.
Basic TM650 including 35-87 ft. boom, Grove main hoist with 650 ft. of ¾ in. rope, GM8V-71N (carrier engine) GM6V-53N (Superstructure engine)	89,800	36,868	52,932	Auxiliary boom head	+ 230	+ 448	- 218
†10,300 lbs. counterweight (retracted position)	+ 10,300	- 4,140	+ 14,440	30 ton, 3 sheave hookblock - stowed	+ 640	+ 1,235	- 595
32 ft. swingaway boom extension	+ 1,300	+ 1,208	+ 92	8 ton, single sheave hookblock - stowed	+ 190	+ 368	- 178
65 ton, 5 sheave hookblock - stowed	+ 1,100	+ 1,750	- 650	10 ton headache ball - stowed	+ 450	+ 870	- 420
*Model 40 SGEGR auxiliary hoist with 650 ft. of ½ in. rope	+ 1,060	- 430	+ 1,490	5 ton headache ball - stowed	+ 200	+ 376	- 176
*Model 15S-16 auxiliary hoist with 400 ft. of ⅝ in. rope	+ 938	- 380	+ 1,320	Substitute Cummins NTC-335 diesel engine in carrier	+ 365	+ 410	- 45
				Substitute Cummins V555 diesel engine in upper	+ 170	+ 50	+ 120
				Remove (2) rear outrigger beams	- 3,336	+ 1,115	- 4,455
				Remove (2) front outrigger beams	- 3,336	- 2,100	- 1,236
				*9,800 lbs. counterweight (retracted position)	+ 9,800	- 3,938	+ 13,738

\*use 9,800 lbs. counterweight with auxiliary hoist.

†NOTE: 10,300 lbs. counterweight without auxiliary hoist.

TAIL SWING 12' — Counterweight in Stowed Position  
TAIL SWING 14' — Counterweight in Working Position

# DIMENSIONS





### UNIQUE VERTICAL JACK SPIN-LOCKS†

In addition to integral holding valves, exclusive Grove spin-locks provide positive locks for the jacks in any position.

### THE GROVE CARRIER

The Grove-designed and built diesel-powered carrier is matched to the particular requirements of the TM650 and its long boom capability. The all-welded, box-beam design steel frame provides a rugged carrier which is exceptionally light for a crane of this capacity.

**DOUBLE-BOX BEAM OUTRIGGERS**, integral with the frame, provide a lifting base of 21' for this high capacity crane. Stowable, 30 inch diameter, aluminum alloy outrigger pads combine lightweight ease of handling with excellent flotation.



## HYDRAULIC CRANES

GROVE MANUFACTURING COMPANY

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