

GROVE[®] TMS475LP

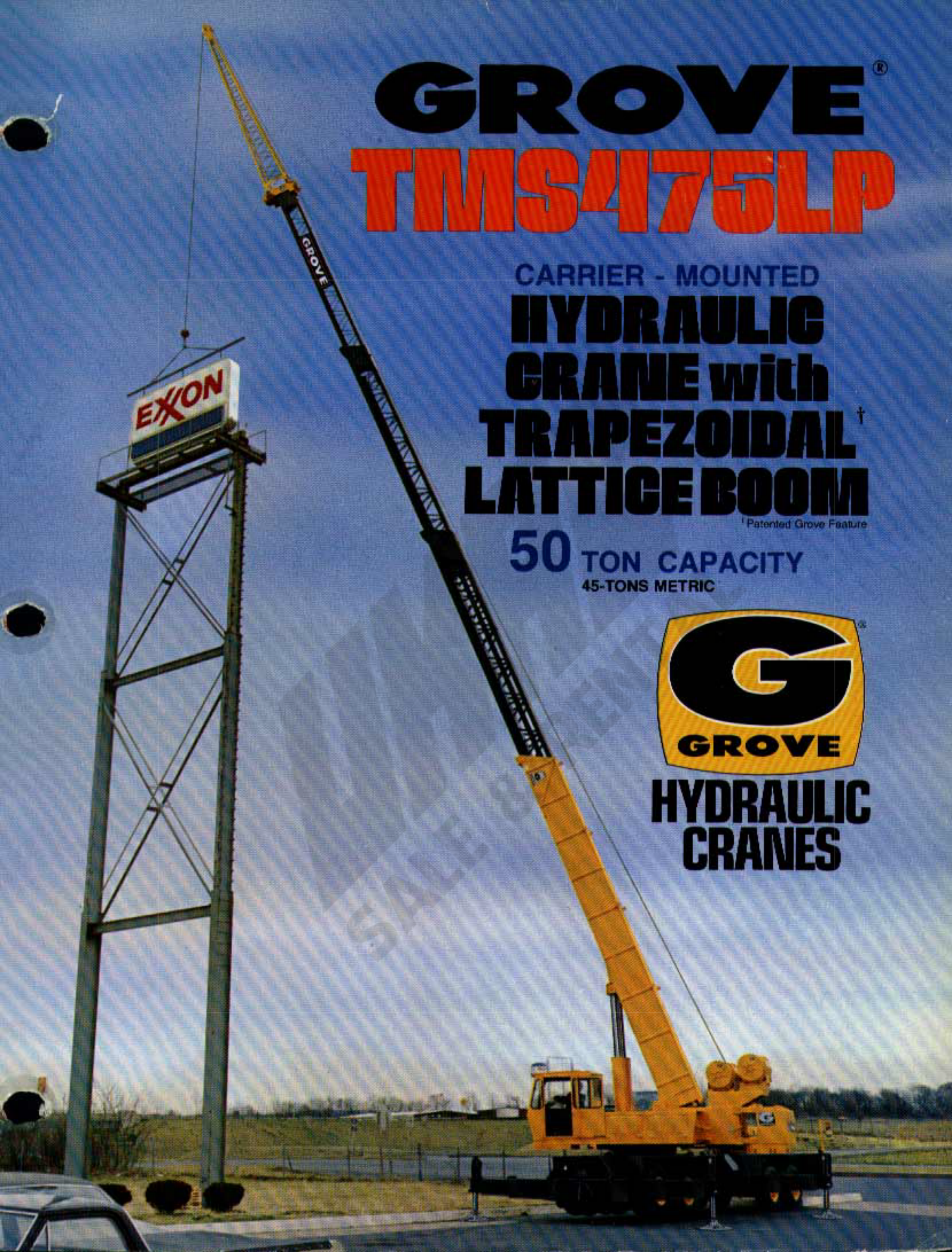
CARRIER - MOUNTED
**HYDRAULIC
CRANE with
TRAPEZOIDAL
LATTICE BOOM** †

† Patented Grove Feature

50 TON CAPACITY
45-TONS METRIC



**HYDRAULIC
CRANES**



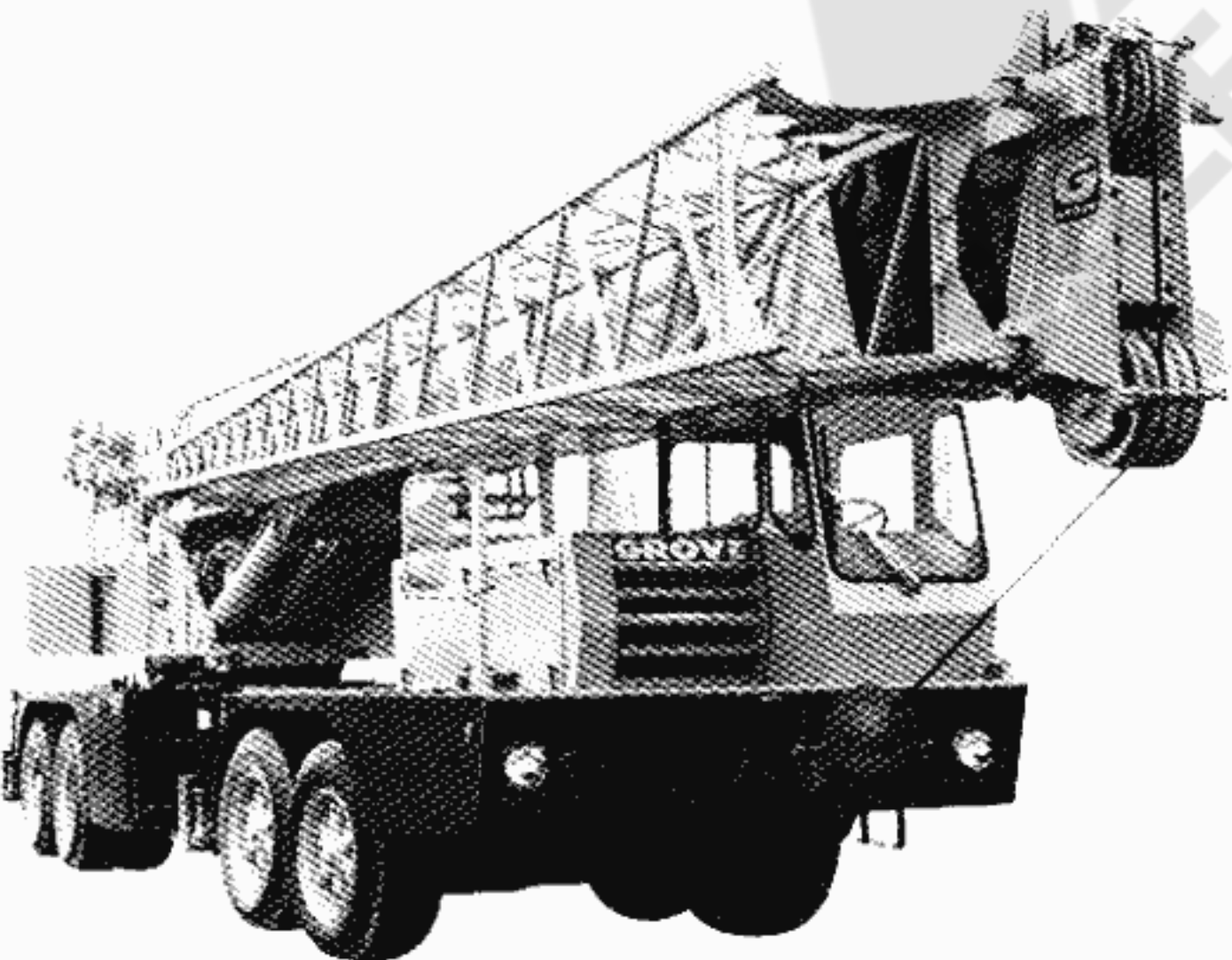
THE GROVE LATTICE TRAPEZOIDAL[†] BOOM

An advanced concept in design to provide superior reach and long-boom capacity!

The lattice design trapezoidal boom is the strongest, lightest, long-reach telescoping boom in the industry. We've taken the superior advantages of the trapezoidal design and combined them with lattice fabrication and very high strength steel to provide a deeper, wider and lighter boom structure with greater resistance to lateral and vertical deflection. It presents the optimum strength-to-weight ratio for hydraulic crane operation and gives you more capacity where you need it most.

"Swingaway" Lattice Boom Extension

The fifth section of the TMS475LP boom is a 32 ft. (9.75m) "Swingaway" lattice extension which stores laterally along-side the boom base section and swings quickly into working position.



[†] Patented Grove Feature



6,000 lbs. (2722kg)
@ 170' TIP HEIGHT
(51.82m)

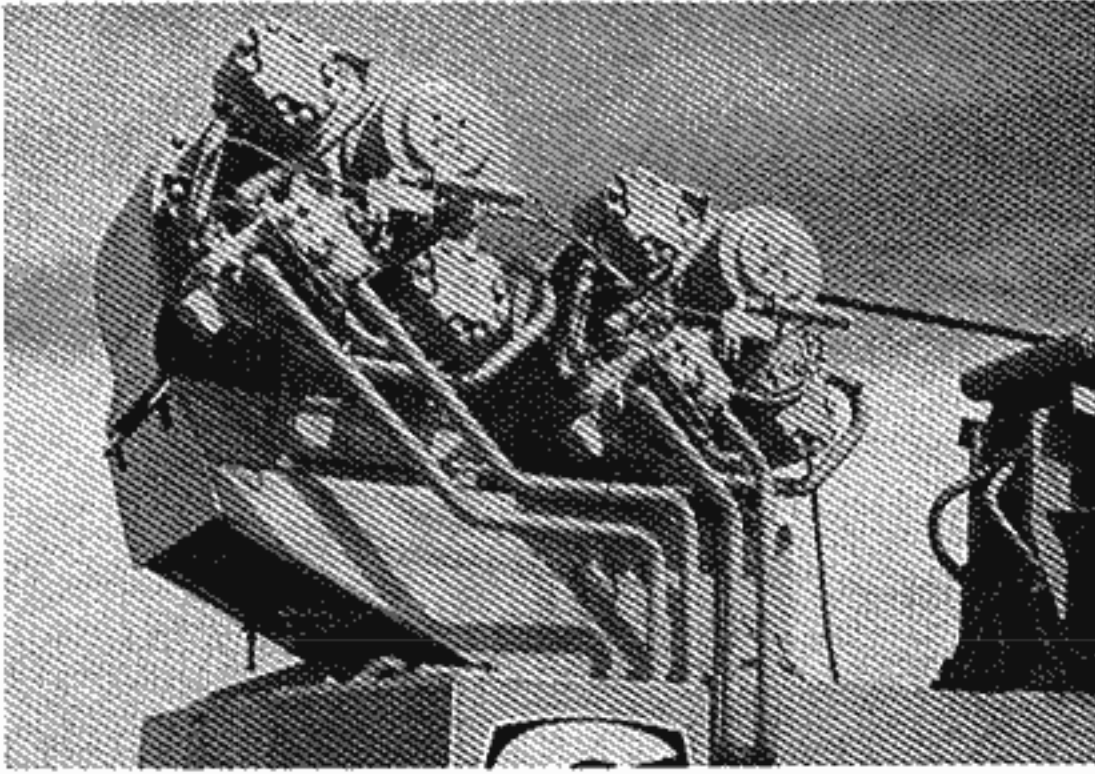
Jib offsets 5°, 17° or 30°

9,600 lbs. (4355kg)
@ 145' TIP HEIGHT
(44.2m)

20,000 lbs. (9072kg)
@ 115' TIP HEIGHT
(35.05m)



FEATURES



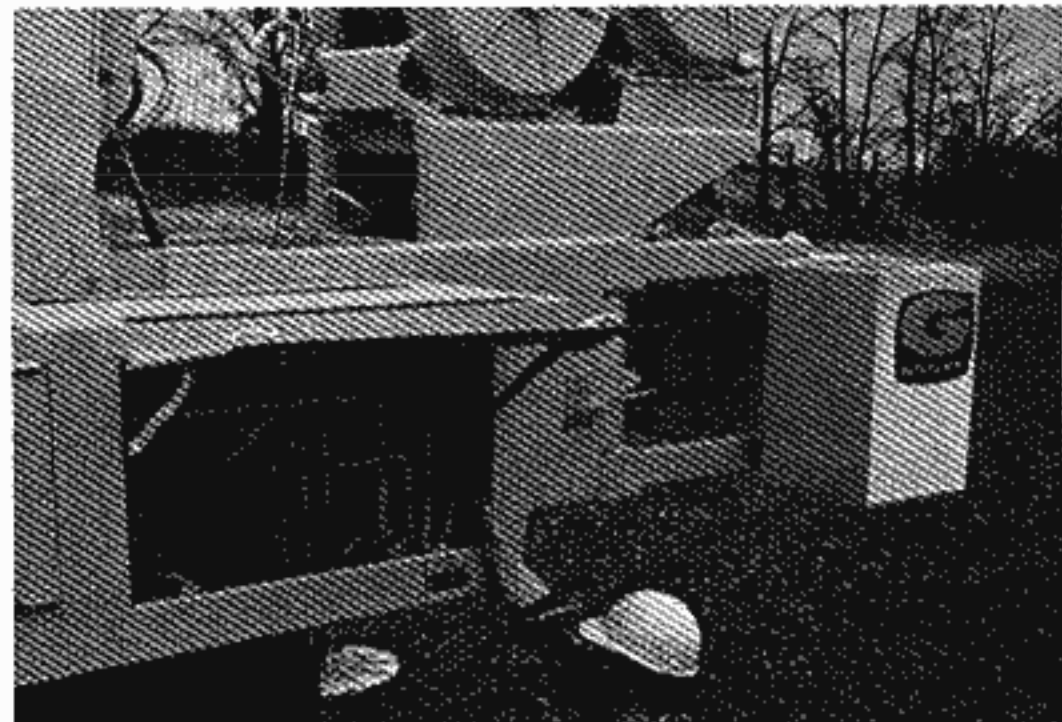
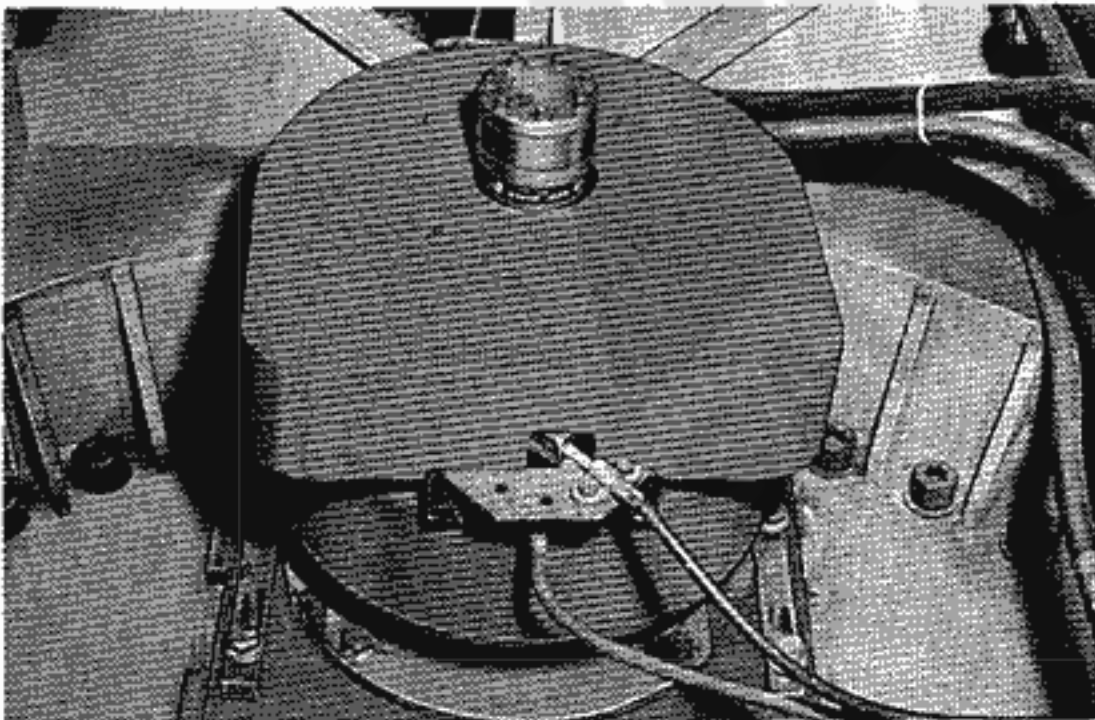
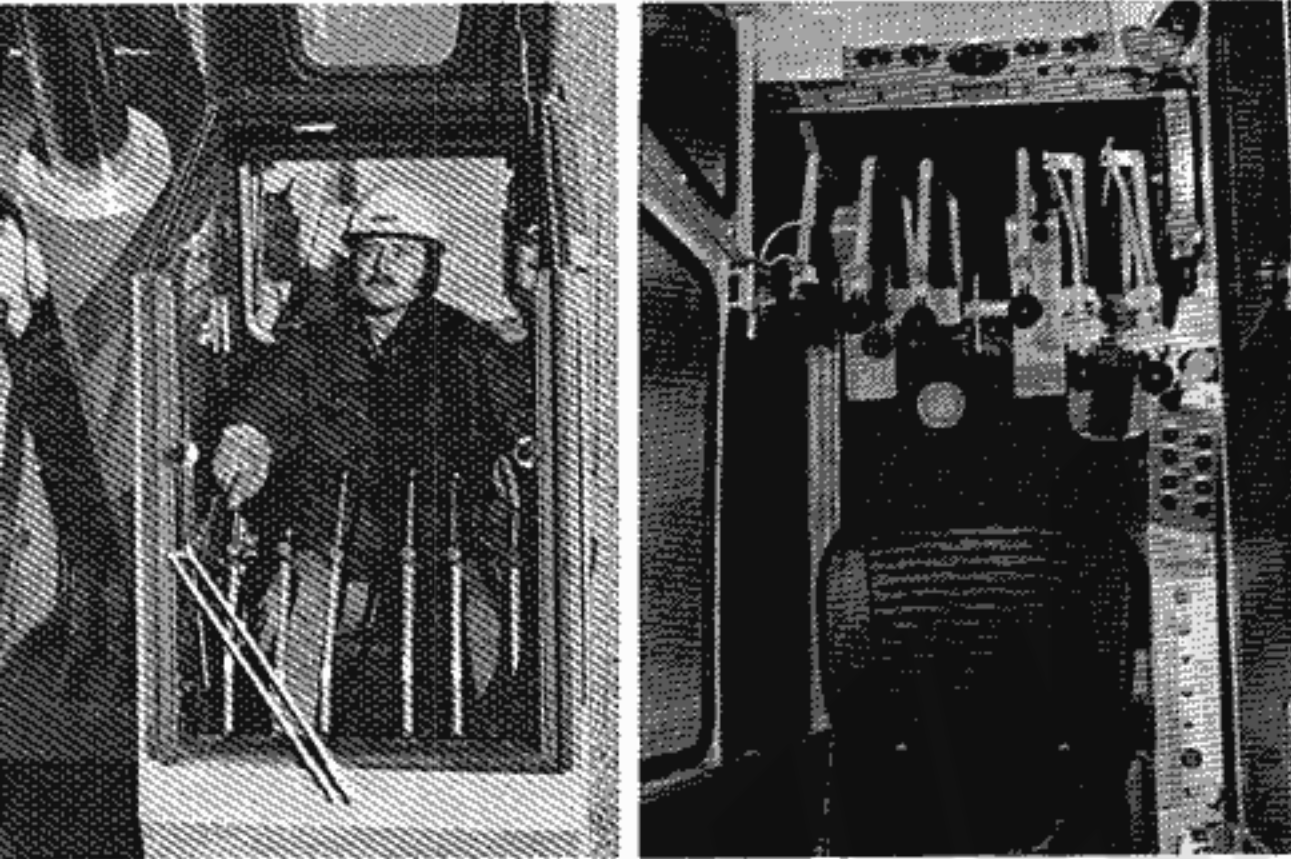
GROVE HOISTS[†] . . . The model 32S-1716A, the standard main hoist, is also available as the optional auxiliary hoist. This is the Grove-designed and manufactured two-speed hoist which permits both high line-pull and high line-speed without changes in lagging or gearing. At the flick of the electro-pneumatic switch, the operator can change from maximum line-pull (16,800 lbs.) (7621kg) to top line-speed (525 fpm) (160.02m/min).

OPERATOR CONVENIENCE AND SAFETY. . . . are features of the all-steel, acoustically treated cab. When the skylight is raised and the windshield removed, there are no overhead cross-members to interfere with visibility. Other features include adjustable full length control levers, adjustable operator's seat with headrest, complete engine controls and instrumentation, sliding door, laminated safety glass, electronic boom angle indicator and sight leveling bubble.

GROVE "PLANETARY GLIDE SWING" . . . Smooth, precise continuous swing is assured with a large anti-friction bearing swing circle and the Grove "Planetary Glide Swing" gear box. Swing action is accurate and instantaneous to the touch of the combination hand/foot controls. Glide swing with foot-actuated disc brake is standard.

EASIER REEVING . . . negative boom angle (-6°) 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.





CARRIER SPECIFICATIONS

GROVE CARRIER 8 x 4 50 TON

OUTRIGGERS – Hydraulic double box 2-stage telescoping beam outriggers, integral welded boxes, removable beams, vertical jack cylinders with integral holding valves and 30½ in. (775mm) diameter aluminum floats. Beams extend to 20 ft. (6.10m) centerline to centerline, retract to 8 ft. (2.44m) overall width. Mechanical spin locks on each vertical jack to secure outriggers at any level. Controls and sight leveling bubble in superstructure cab. Powered by carrier engine.

FRAME – High-strength steel, all-welded construction with box type design and integral welded outrigger boxes.

STEERING GEAR – Ross TE-70 cam and lever type with Garrison hydraulic power assist.

CLUTCH – Lipe Rollway 14 in. (356mm), two plate dry disc. Total area: 428 sq. in. (2761cm²)

TRANSMISSION – Fuller Roadranger (RTO613), 13 speeds forward and 3 reverse.

UNIVERSAL JOINTS – Needle bearing type.

AXLES – Front: (2) Rockwell FL-901, 81 in. (2.06m) track, 36,000 lb. (16 330kg) capacity. Rear: (2) Rockwell SSHD, 72 in. (1.83m) track, 46,000 lb. (20 866kg) capacity with inter-axle differential and dash mounted control.

SUSPENSION – Front: Reyco 21B spring mounted tandem. Rear: Hendrickson R441 solid mounted tandem.

FUEL TANK – Single 90 gallon (341 liter) capacity mounted on left side of frame.

TIRES – Front: 15x22.5 – 16 ply Duplex Hiway tread. Rear: 11.00x20 – 14 ply NDM&S tread, tube type.

WHEELS – Front: Steel spoke 12.25 in. x 22.5 in. Rear: Steel spoke 8 in. x 20 in.

BRAKES – Full air on all 8 wheels. 12 CFM compressor. Total lining area: 1508 sq. in. (9730cm²). Front: 15 in. x 5 in. (381mm x 127mm). Rear: 15 in. x 7 in. (381mm x 178mm)

PARKING BRAKE – Spring set 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 – Low profile, one man, all-steel, with acoustical treatment, laminated safety glass windshield and windows; windshield washer and electric wiper, door and window locks. Bostrom "T" bar seat, seat belt, dual West Coast mirrors, domelight, dashlight, hot water heater, defroster fan, electric horn, traffic hazard warning switch (four-way flasher), full engine instruments and carrier controls, 2¼ lb. (1.25kg) dry type fire extinguisher. (Air conditioning available)

CAB INSTRUMENTATION – Tachometer, engine oil pressure gauge, voltmeter, speedometer, air pressure gauge, electric fuel gauge, engine water temperature gauge, high beam indicator, low air pressure audio-visual warning, ignition-on indicator.

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

SPEED AND GRADEABILITY

Engine	Speed Ranges (@ Max. Governed RPM)	% of Gradeability (@ Max. Torque)
GM6-71N	2.87 to 51.36 MPH (5 to 83 Km/h)	35.75 to 0.58%
*Cummins NHF-240	3.14 to 56.26 MPH (5 to 91 Km/h)	35.12 to 0.55%

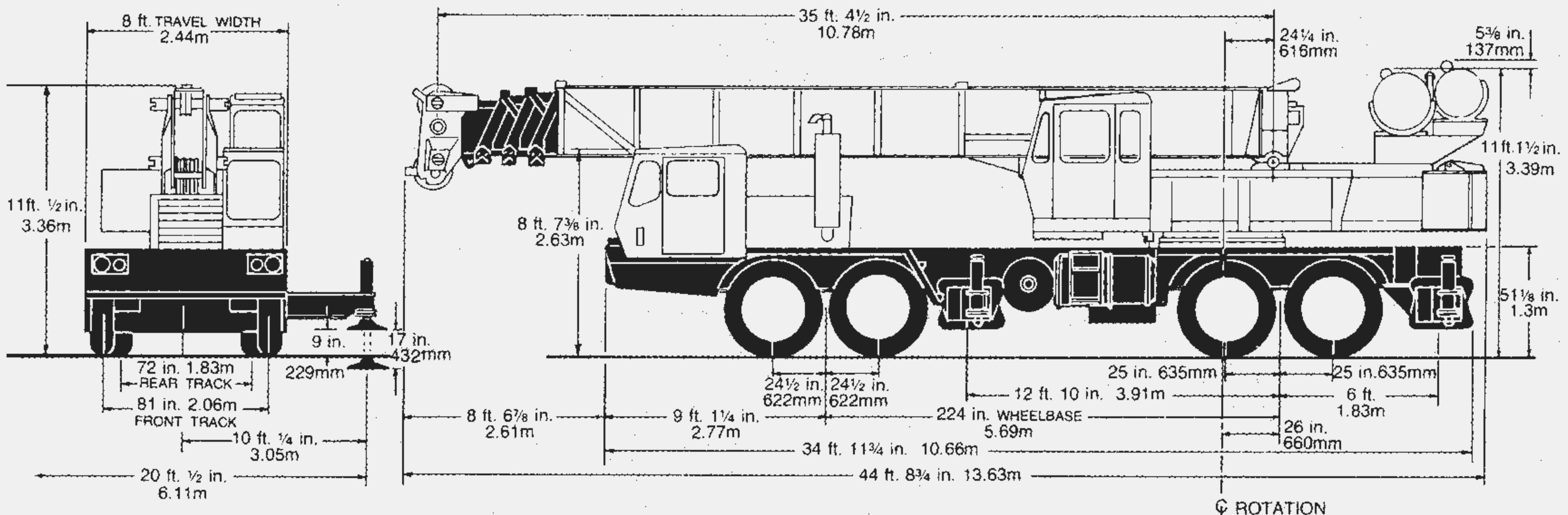
NOTE: Performance based on 75,000 lb. (34 020kg) GVW and standard SAE engine rating conditions using standard tires, transmissions and axles. Performance data may vary plus or minus 10% due to variations in engine performance and vehicle weights.

ENGINE SPECIFICATIONS

MAKE & MODEL	GM6-71N	*Cummins NHF-240
TYPE	6 Cylinder Diesel	6 Cylinder Diesel
BORE & STROKE	4.25 in. x 5 in. (108mm x 127mm)	5.5 in. x 6 in. (140mm x 152mm)
DISPLACEMENT	426 cu. in. (6982cm ³)	855 cu. in. (14 013cm ³)
HORSEPOWER (NET)	213 (@ 2100 RPM)	205 (@ 2300 RPM)
GOVERNED RPM	2100 RPM	2300 RPM
TORQUE (NET)	582 lb. ft. (@ 1400 RPM)	548 lb. ft. (@ 1500 RPM)
ELECTRICAL SYSTEM	12-volt, negative ground	12-volt, negative ground
COMBUSTION SYSTEM	2 cycle, with blower	4 cycle, naturally aspirated
COOLING SYSTEM	Liquid	Liquid
FUEL CAPACITY	90 Gallons (341 liters)	90 Gallons (341 liters)
ALTERNATOR	62 AMP, 12-volt	60 AMP, 12-volt
BATTERY	(2) 204 A.H., 12-volt	(2) 204 A.H., 12-volt
AIR CLEANER	Dry Type	Dry Type
AIR COMPRESSOR	12 CFM	12 CFM
HOURMETER	Yes	Yes

*Denotes Optional Equipment

DIMENSIONS



TURNING RADIUS 41 ft. 9 in. (12.73m)
 GROUND CLEARANCE 10½ in. (267mm) (with float removed)
 TAIL SWING 10 ft. (3.05m) – Counterweight in travel position
 TAIL SWING 12 ft. (3.66m) – Counterweight in working position

Meets requirements of P.C.S.A. Standard No. 2

Constant improvement and engineering progress makes it necessary that we reserve the right to make specification, equipment, and price changes without notice.

SUPERSTRUCTURE SPECIFICATIONS

BOOM – 35 ft. – 142 ft. (10.67 – 43.28m), 5 section boom; 2 full power and 1 power pinned lattice trapezoidal sections to 110 ft. (33.53m) plus a 32 ft. (9.75m) "Swingaway" extension. Integral check valves on each telescope cylinder. Boom telescope sections are individually controlled and supported on graphite impregnated nylatron wear pads.

BOOM NOSE – Four sheaves mounted on heavy duty 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 –6° to 76°. Combination controls provided for hand or foot operation.

***LOAD MOMENT AND ANTI-TWO BLOCK SYSTEM (KRUGER)** – Audio-visual warning in combination with Grove control lever lockout of: hoist up, telescope out and boom down functions.

***JIB** – A 24 ft. (7.32m) A-frame section which attaches to the sheave shaft of the 32 ft. (9.75m) swingaway lattice boom extension. The jib can be offset from a minimum of 5° to a maximum of 30° and includes mast, pendant lines, single-rope self-equalizing suspension; stows on right side of carrier deck for travel.

CAB – Full vision, all-steel, fully enclosed with acoustical treatment, laminated safety glass windows throughout, removable windshield with storage provisions, 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. Complete engine instrumentation and controls. Neutral safety start. Combination hand and foot throttle. All crane superstructure and outrigger controls, sight leveling bubble, electronic boom angle indicator, propane heater, defroster fan, electric windshield wiper, swing horn, door and window locks, dome light, dash light, 2¾ lbs. (1.25kg) dry type fire extinguisher. (Air conditioning available)

SWING – Ball bearing swing circle, 360° continuous rotation. "Grove Planetary Glide Swing" with foot actuated disc swing brake, hand operated turntable brake and hand operated positive (plunger type) turntable lock. Combination controls provided for hand or foot operation. Swing speed 2.6 RPM.

CAB INSTRUMENTATION – Engine oil pressure gauge, engine water temperature gauge, voltmeter, tachometer, fuel gauge, ignition-on indicator light.

OUTRIGGER CONTROLS – Independently controlled in-out-up and down, from superstructure cab. Sequence control arrangement eliminates accidental outrigger actuation.

COUNTERWEIGHT – 7500 lb. (3402kg) turntable mounted, power installed and removed, hydraulically extended to working position and retracted to stowed or travel position. (Refer to axle weight distribution chart for counterweight selection for auxiliary hoist.)

HYDRAULIC SYSTEM:

RESERVOIR – 127 gallon (481 liter) all-steel welded construction with integral baffles, clean out access and exterior oil sight level.

FILTER – Return line type, full flow with by-pass protection and filter by-pass indicator, replaceable cartridge. 25 micron rating.

PUMPS – Four section, gear type driven from front of carrier engine; manual pump disconnect operated from carrier cab, combined capacity 146 GPM (55 lpm).

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 (175kg/cm²).

OIL COOLER – Full flow, fin and tube, oil to air.

POWER DISTRIBUTION – (Main hoist, Auxiliary hoist boost) (Outer mid telescope, lift boost) (Auxiliary hoist, boom elevation, inner mid telescope, main hoist boost) (Swing).

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 and/or *AUX. HOIST Grove Model 32S-1716A	*AUXILIARY HOIST Grove Model 15S-16A	*AUXILIARY HOIST (FREE FALL) Model 40 SGEGR
Drum Dimensions	16 in. dia. (406mm) 16 in. length (406mm) 24 in. dia. flange (610mm)	12 in. dia. (305mm) 16 in. length (406mm) 17.5 in. dia. flange (445mm)	9 in. dia. (229mm) 13 in. length (330mm) 17.5 in. dia. flange (445mm)
Performance: Max. Single Line Speed Max. Single Line Pull	Hi-Speed Range 525 FPM (160.02m/min) 8,400 lbs. (3810kg)	Lo-Speed Range 265 FPM (80.77m/min) 16,800 lbs. (7621kg)	200 FPM (60.96m/min) 9165 lbs. (4157kg)
Drum Rope Storage Capacity	**650 ft. of ¾ in. dia. rope (198.12m of 19mm)	720 ft. of ½ in. dia. rope (219.45m of 13mm) 480 ft. of ⅝ in. dia. rope (146.30m of 16mm)	675 ft. of ½ in. dia. rope (205.74m of 13mm)
Permissible Single Line Rope Pull	¾ in. (19mm) 6x41 class - 14,605 lbs. (6625kg) ¾ in. (19mm) 19x7 class - 13,700 lbs. (6214kg)	½ in. (13mm) 19x7 class - 6,150 lbs. (2790kg) ½ in. (13mm) 6x37 class - 7,200 lbs. (3266kg) ⅝ in. (16mm) 19x7 or 6x41 class - 7,680 lbs. (3484kg)	½ in. (13mm) 19x7 class - 6,150 lbs. (2790kg) ½ in. (13mm) 6x37 class - 7,200 lbs. (3266kg)

*Denotes optional equipment

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

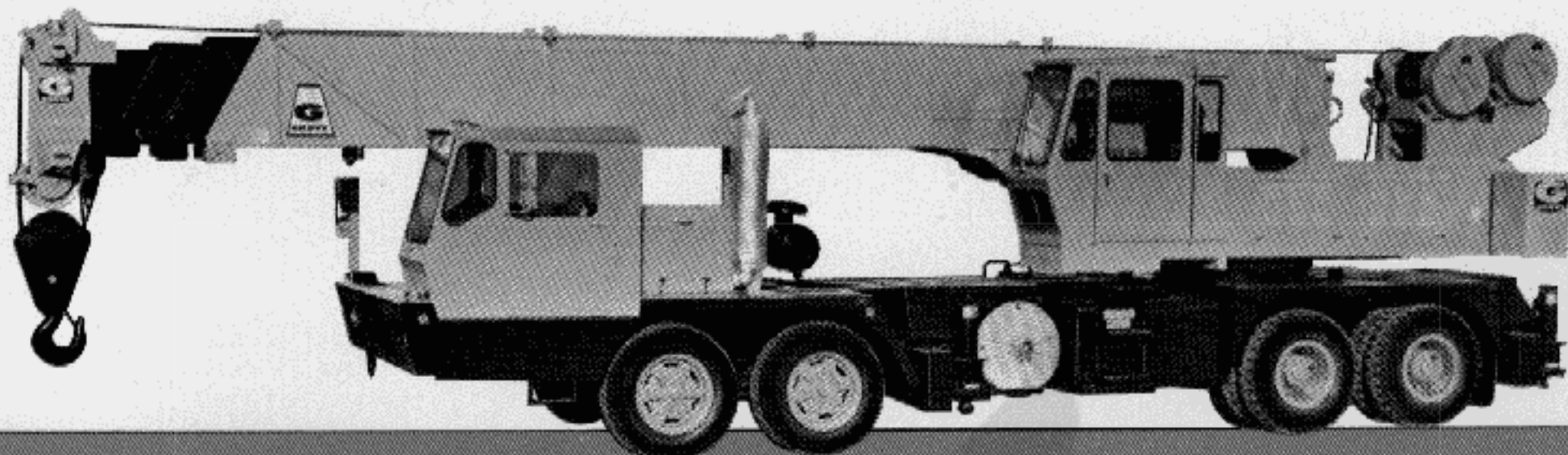
AXLE WEIGHT DISTRIBUTION CHART

ITEM	POUNDS			KILOGRAMS		
	GROSS	FRONT	REAR	GROSS	FRONT	REAR
Basic standard machine to include: 35 to 110 ft. (10.67 to 33.53m) open lattice trapezoidal boom plus a 32 ft. (9.75m) swingaway extension, Grove model 32S-1716A main hoist w/500 ft. of ¾ rope, less counterweight, Grove model 8x4-50 carrier, GM6-71N (Carrier Engine), Roadranger transmission.	69,818	35,188	34,630	31 669	15 961	15 708
*7500 lbs. (3402kg) counterweight	+7,500	-2,662	+10,162	+3 402	-1 208	+4 610
**7000 lbs. (3175kg) counterweight	+7,000	-2,484	+9,484	+3 175	-1 127	+4 302
***6100 lbs. (2767kg) counterweight	+6,100	-2,165	+8,265	+2 767	-982	+3 749
50 Ton (45 metric ton), 4 sheave hook block (stowed)	+700	+1,134	-434	+318	+514	-197
Auxiliary boom head	+200	+393	-193	+91	+178	-88
Model 15S-16A auxiliary hoist with 400 ft. (121.92m) of ⅝ in. (16mm) rope	+945	-365	+1,310	+429	-166	+594
Model 40 SGEGR auxiliary hoist with 400 ft. (121.92m) of ½ in. (13mm) rope	+944	-364	+1,308	+428	-165	+593
Model 32S-1716A auxiliary hoist with 400 ft. (121.92m) of ¾ in. (19mm) rope	+1,978	-732	+2,710	+897	-332	+1 229
Substitute NHF240 engine (carrier)	+310	+310	—	+141	+141	—
24 ft. (7.32m) jib (stowed)	+960	+730	+230	+435	+331	+104
Remove 32 ft. (9.75m) swingaway extension	-1,400	-1,321	-79	-635	-599	-36
Remove std. main hoist with rope	-2,062	+516	-2,578	-935	+234	-1 169
Remove (2) front outrigger beams & jacks	-3,000	-2,023	-973	-1 361	-936	-441
Remove (2) rear outrigger beams & jacks	-3,000	+964	-3,964	-1 361	+437	-1 798

*Use 7500 lb. (3402kg) counterweight without auxiliary hoist

**Use 7000 lb. (3175kg) counterweight with model 15S-16A or 40 SGEGR auxiliary hoist

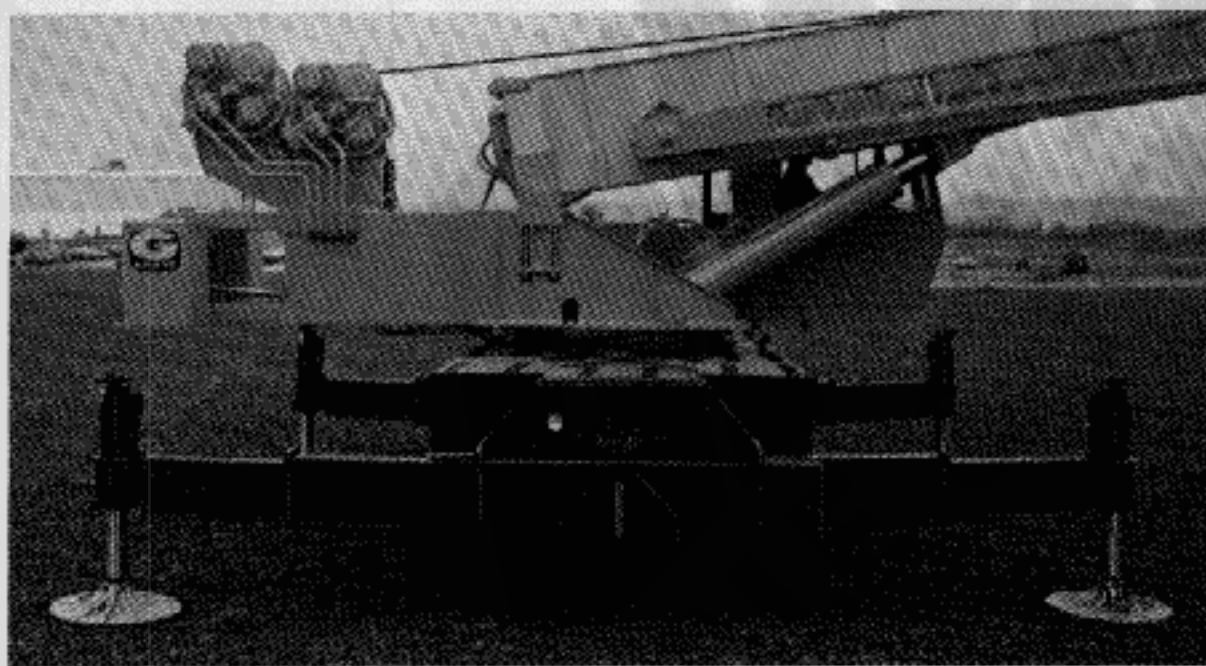
***Use 6100 lb. (2767kg) counterweight with model 32S-1716A auxiliary hoist



THE GROVE CARRIER

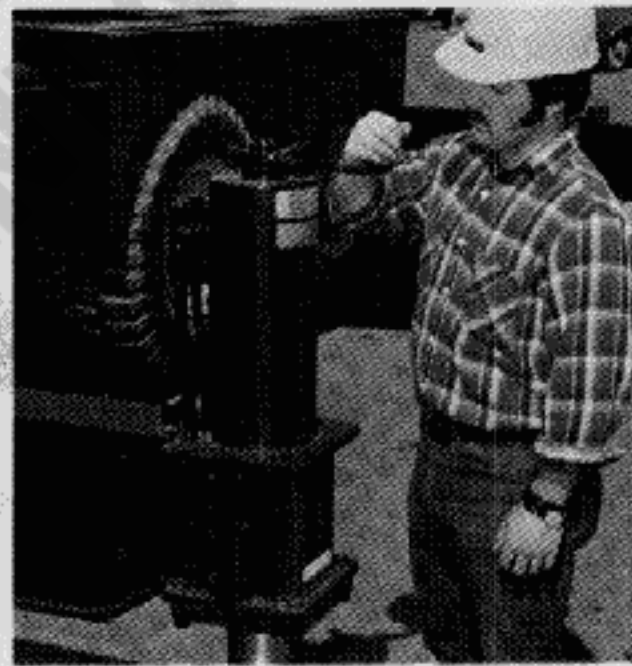
The newly designed diesel powered carrier is manufactured by Grove to match the particular requirements of the TMS475LP and its long boom capability. The all-welded, box-beam design steel frame in combination with the 20-foot (6.1m) outrigger spread provides an exceptionally stable lifting base.

Only 8-feet (2.44m) wide with a 224-inch (5.69m) wheelbase, the carrier is extremely maneuverable and roadworthy for a high capacity crane. In fact, the TMS475LP is the largest capacity hydraulic crane that can be put on the highway "ready-to-work." The unit meets axle-load limits for most states and also has trailing boom capability for those areas where it is desired.



TWO-STAGE TELESCOPING OUTRIGGERS

Two-stage telescoping beam outriggers which extend to 20' (6.1m) and retract to 8' (2.44m) for travel greatly extend the working radii of the 8' (2.44m) wide carrier.



VERTICAL JACK SPIN-LOCKS¹

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

¹The Grove Trapezoidal Boom, Two Speed Hoist, Extendible Counterweight and Vertical Jack Lock are patented Grove features.



HYDRAULIC CRANES

GROVE MANUFACTURING COMPANY

Division of Walter Kidde & Company, Inc.
SHADY GROVE, PA. 17256 U.S.A.

GROVE®

FULL HYDRAULIC CARRIER-MOUNTED CRANE

TMS475LP

50 TON CAP.

PCSA CLASS 10-148

RATED LIFTING CAPACITIES IN POUNDS

35 ft. - 142 ft. BOOM

ON OUTRIGGERS FULLY EXTENDED - OVER SIDE

Radius in Feet	Trapezoidal Boom Length in Feet Power Pinned Fly Retracted							Power Pin. Fly & 85 ft. **110	32 ft. Ext. & 110 ft. **142
	*35	40	45	55	65	75	85		
10	100,000	74,000	72,000						
12	90,000	70,000	67,500	64,000					
15	72,000	63,700	61,000	55,000	44,700				
20	53,000	52,200	49,800	44,000	37,900	35,000	31,000		
25	38,630	38,630	38,630	36,300	31,900	29,200	27,500	20,000	
30	27,010	27,010	27,010	27,010	27,000	25,000	23,900	17,700	
35		19,610	19,610	19,610	19,610	19,610	19,610	15,200	9,600
40			14,790	14,790	14,790	14,790	14,790	13,200	8,340
45				11,770	11,770	11,770	11,770	11,600	7,540
50				9,220	9,220	9,220	9,220	10,300	6,830
55					7,540	7,540	7,540	9,200	6,240
60					6,010	6,010	6,010	7,910	5,710
65						4,720	4,720	6,430	5,240
70						3,680	3,680	5,150	4,800
75							2,750	4,070	4,420
80							1,920	3,250	4,070
85								2,590	3,640
90								1,960	2,960
95								1,360	2,350
100									1,760
105									1,090

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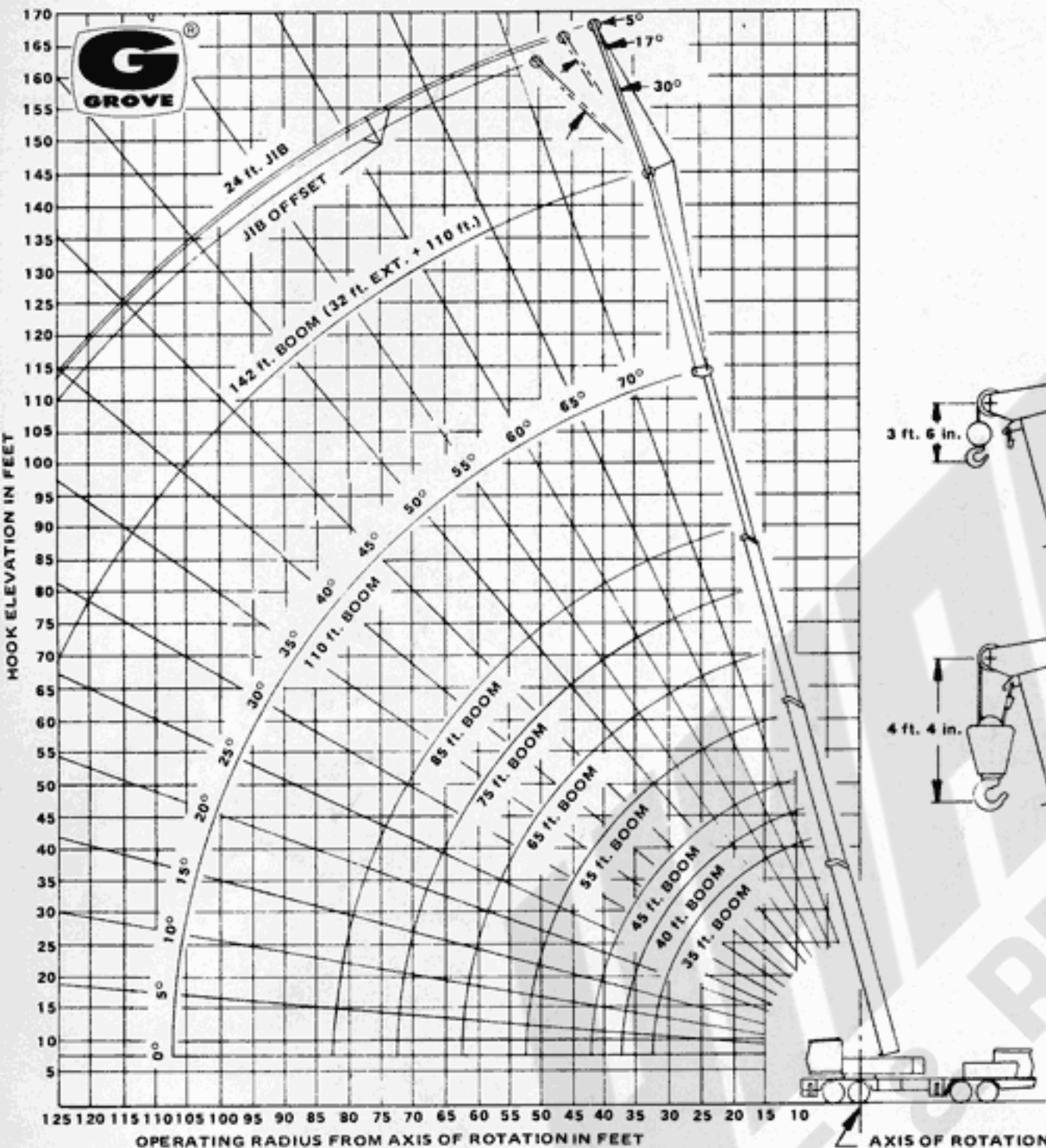
ON OUTRIGGERS FULLY EXTENDED - OVER REAR

Radius in Feet	Trapezoidal Boom Length in Feet Power Pinned Fly Retracted							Power Pin. Fly & 85 ft. **110	32 ft. Ext. & 110 ft. **142
	*35	40	45	55	65	75	85		
10	100,000	74,000	72,000						
12	90,000	70,000	67,500	64,000					
15	72,000	63,700	61,000	55,000	44,700				
20	53,000	52,200	49,800	44,000	37,900	35,000	31,000		
25	39,150	39,150	39,150	36,300	31,900	29,200	27,500	20,000	
30	27,300	27,300	27,300	27,300	27,000	25,000	23,900	17,700	
35		20,900	20,900	20,900	20,900	20,900	20,500	15,200	9,600
40			16,850	16,850	16,850	16,850	16,850	13,200	8,340
45				13,430	13,430	13,430	13,430	11,600	7,540
50				10,920	10,920	10,920	10,920	10,300	6,830
55					8,930	8,930	8,930	9,200	6,240
60					7,330	7,330	7,330	8,250	5,710
65						5,870	5,870	7,420	5,240
70						4,530	4,530	6,360	4,800
75							3,360	5,290	4,420
80							2,260	4,350	4,070
85								3,650	3,740
90								3,020	3,440
95								2,460	3,160
100								1,900	2,620
105								1,430	2,120
110									1,730
115									1,380
120									1,040

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Capacities appearing in shaded area are based on structural strength and tipping should not be relied upon as a capacity limitation.
 *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 40 ft. boom length.
 **Boom must be fully extended when lifting with extended power pinned section or with 32 ft. extension.
 Capacities do not exceed 85% of tipping loads with counterweight fully extended as determined by test in accordance with SAE J-765.
 Do not exceed any rated load when lifting regardless of whether it is based on structural strength or stability.

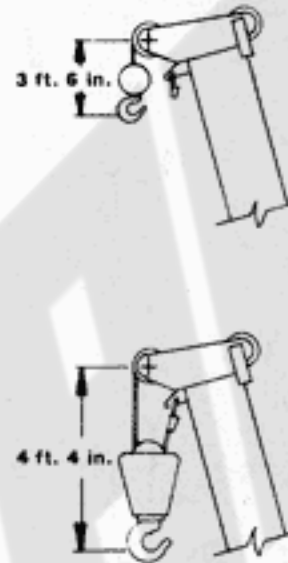
RANGE DIAGRAM



JIB CAPACITIES IN POUNDS 24 ft. JIB and 32 ft. Boom Extension Combination

Min. Main Boom Angle	Min. 5° Offset	17° Offset	Max. 30° Offset
76°	6,000	5,200	4,600
70	4,300	3,940	3,650
65	3,430	3,200	3,010
60	2,760	2,600	2,470
55	2,220	2,110	2,020

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- 24 ft. jib and 32 ft. boom extension combination may be used for single line lifting crane service only. Capacities are based on structural strength of 24 ft. jib and 32 ft. boom extension combination at given main boom angle. When lifting with 24 ft. and 32 ft. boom extension, capacities must not exceed structural capacity of jib combination at given main boom angle or stability capacity of applicable boom length listed in boom capacity chart for actual working radius, whichever is less.
- Maximum total length of boom including 32 ft. boom extension for purpose of erecting 24 ft. jib below 10° is 92 ft.
- WARNING:** Operation of machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with jib occurs rapidly and without advance warning.
- 24 FT. JIB WARNING:** For total boom length including 32 ft. boom extension greater than 92 ft. with 24 ft. jib in working position the boom angle must not be less than 50° since loss of stability will occur causing a tipping condition.

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.) on a smooth and level surface only.
- Jibs may be used for lifting crane service only. Jib capacities are based on structural strength of jib or main boom and on main boom angle regardless of boom length.
- 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 12,500 lbs. of load.
- All load handling devices and/or boom attachments are considered part of the load and suitable allowances must be made.



GROVE MANUFACTURING COMPANY

A DIVISION OF WALTER KIDDE & COMPANY, INC.

SHADY GROVE • PENNSYLVANIA 17256

MEMBER: POWER CRANE & SHOVEL ASSOCIATION

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