

# GROVE<sup>®</sup>

## TMS475LP

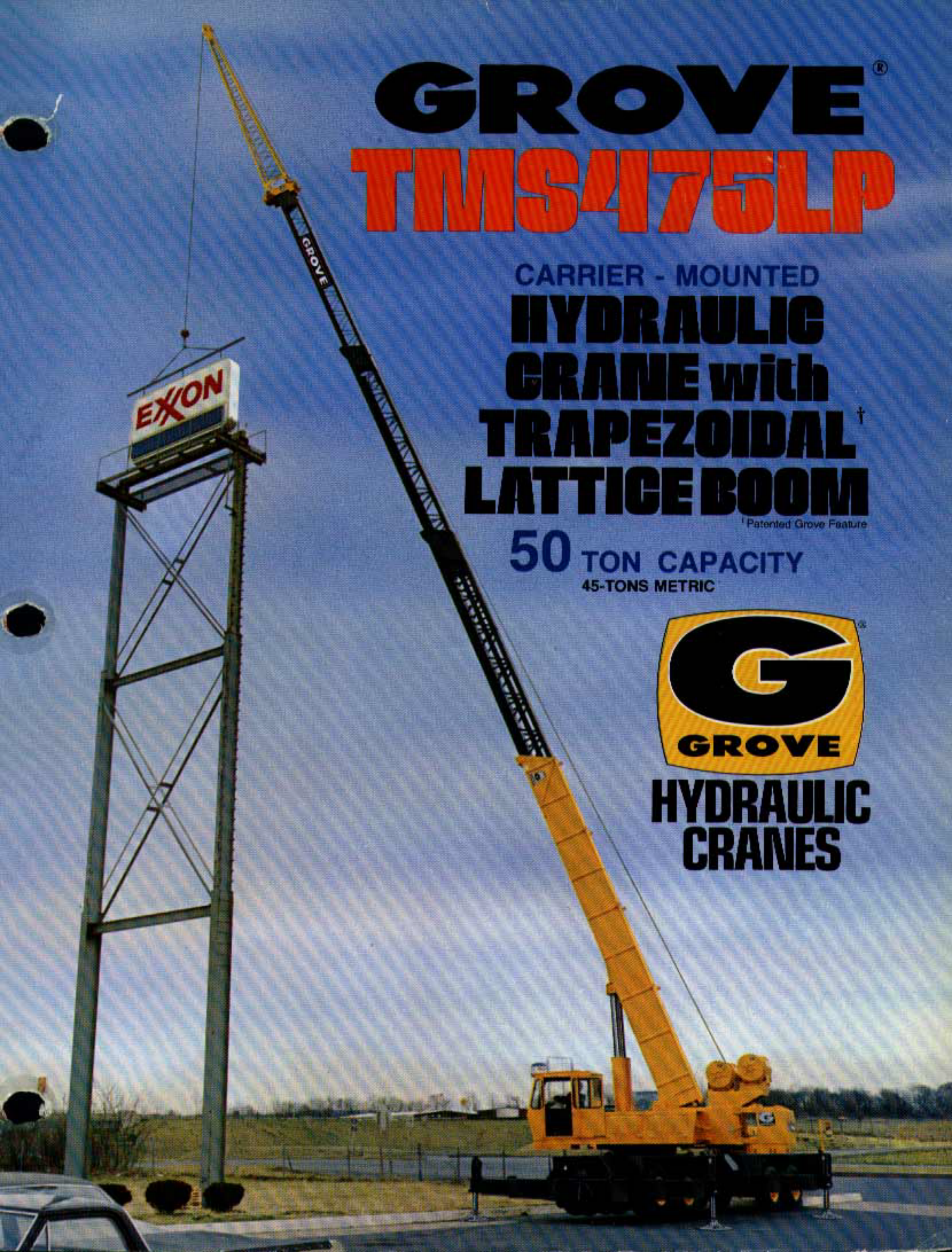
CARRIER - MOUNTED  
**HYDRAULIC  
CRANE with  
TRAPEZOIDAL  
LATTICE BOOM** †

† Patented Grove Feature

**50** TON CAPACITY  
45-TONS METRIC



**HYDRAULIC  
CRANES**



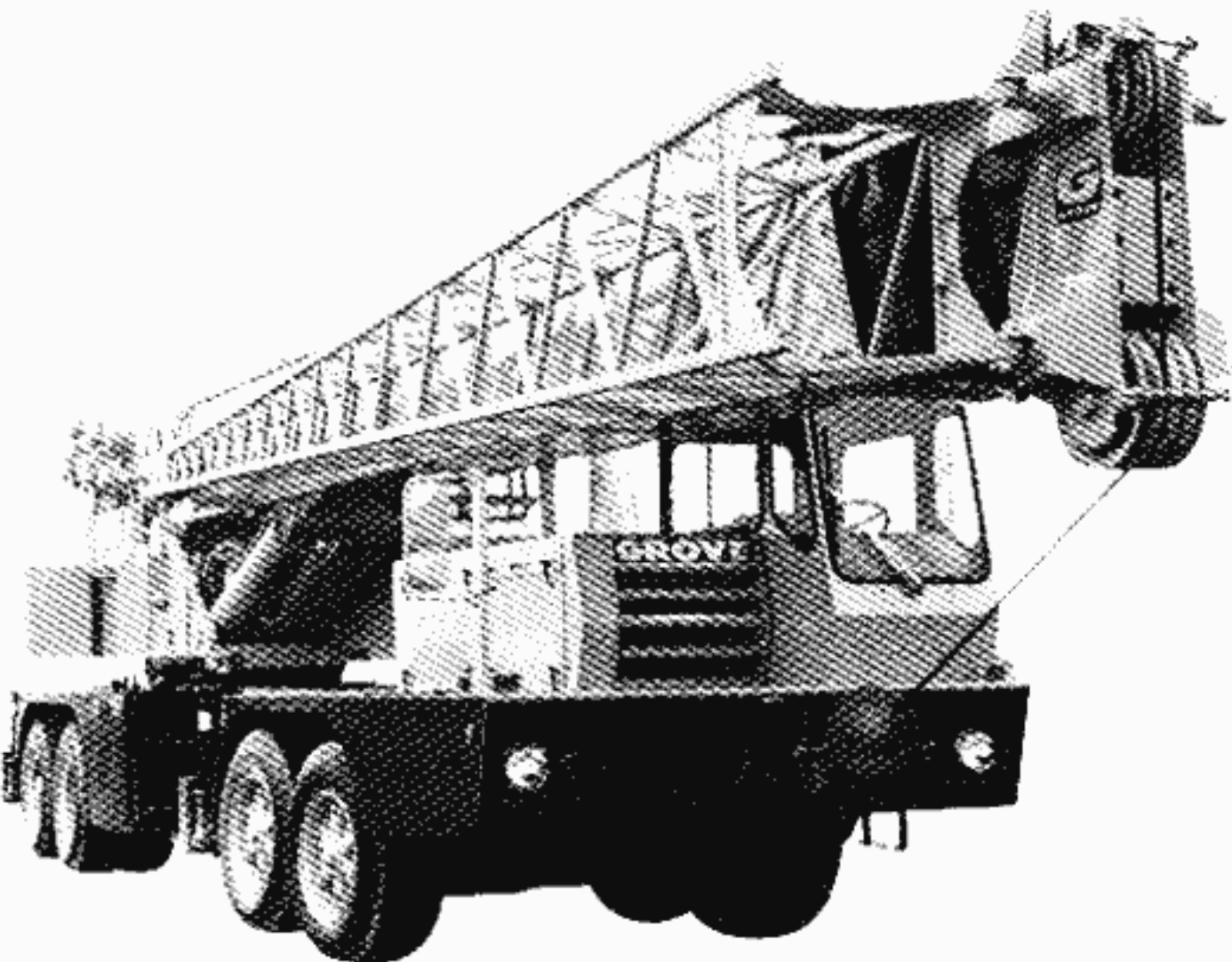
# THE GROVE LATTICE TRAPEZOIDAL<sup>†</sup> BOOM

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

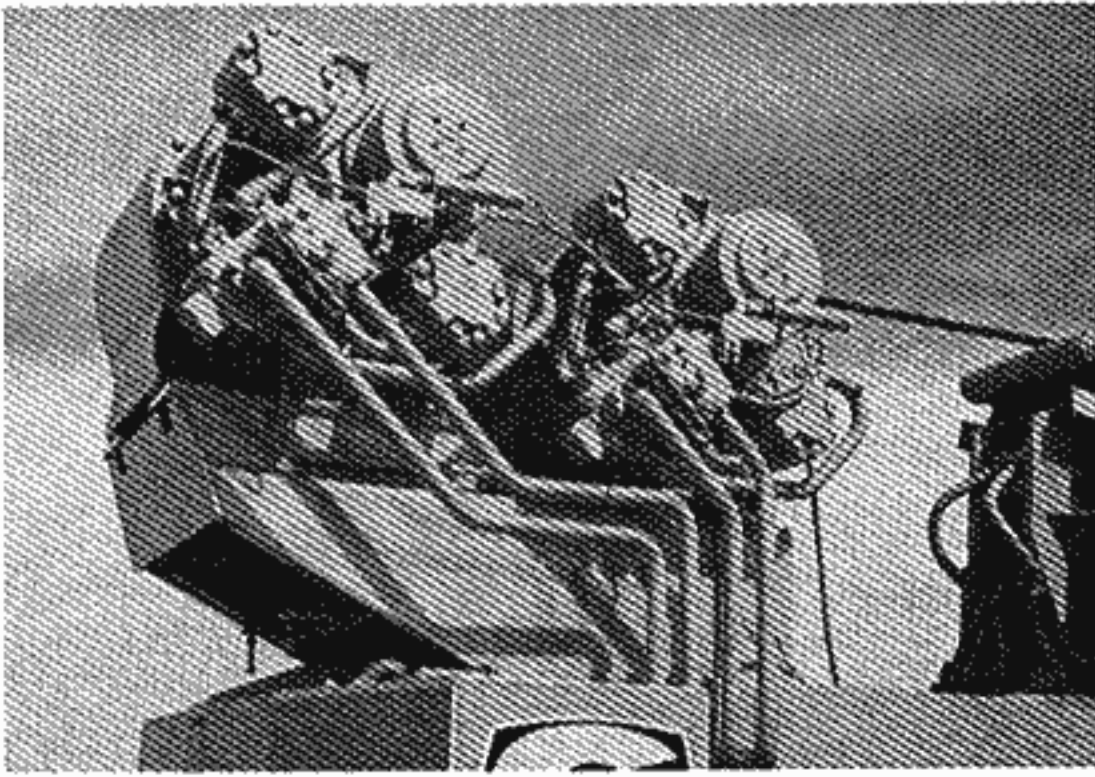
The fifth section of the TMS475LP boom is a 32 ft. (9.75m) "Swingaway" lattice extension which stores laterally along-side the boom base section and swings quickly into working position.



<sup>†</sup> Patented Grove Feature



# FEATURES



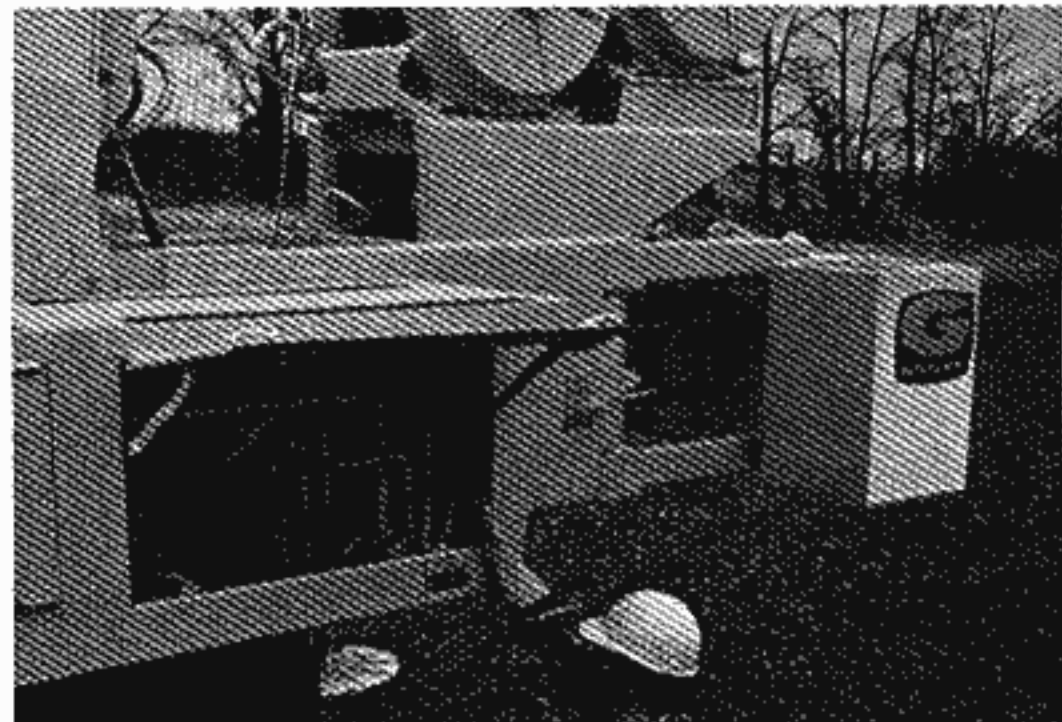
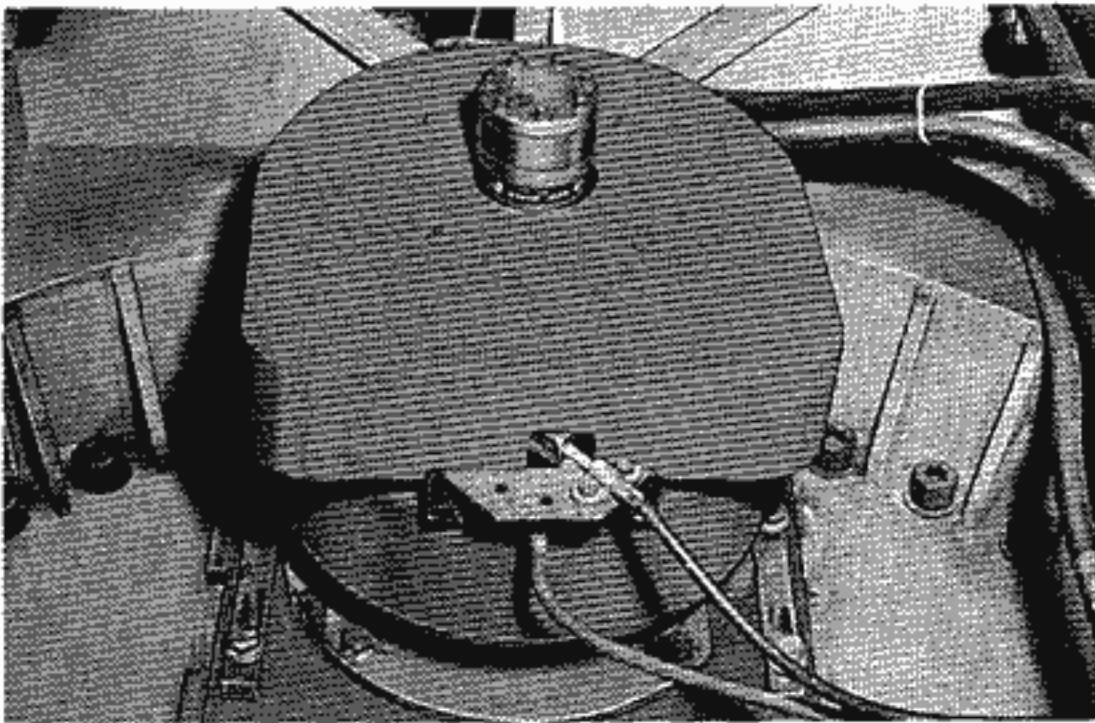
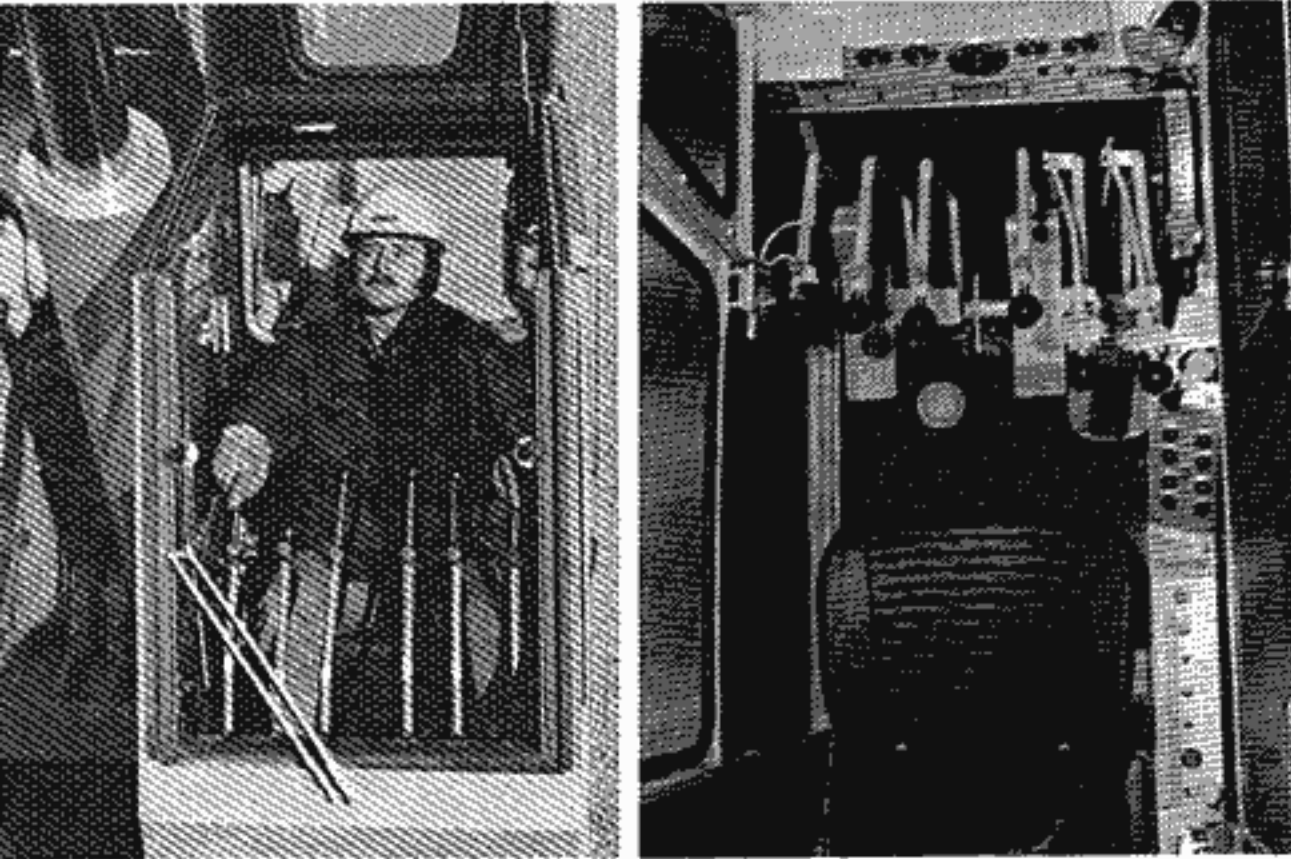
**GROVE HOISTS<sup>†</sup>** . . . The model 32S-1716A, the standard main hoist, is also available as the optional auxiliary hoist. This is the Grove-designed and manufactured two-speed hoist which permits both high line-pull and high line-speed without changes in lagging or gearing. At the flick of 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 ( $-6^{\circ}$ ) permits ground level reeving. Removable pin-type rope guards make it quick and easy.

**GROVE EXTENDIBLE COUNTERWEIGHT<sup>†</sup>** 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. (2761cm<sup>2</sup>)

**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. (9730cm<sup>2</sup>). 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%

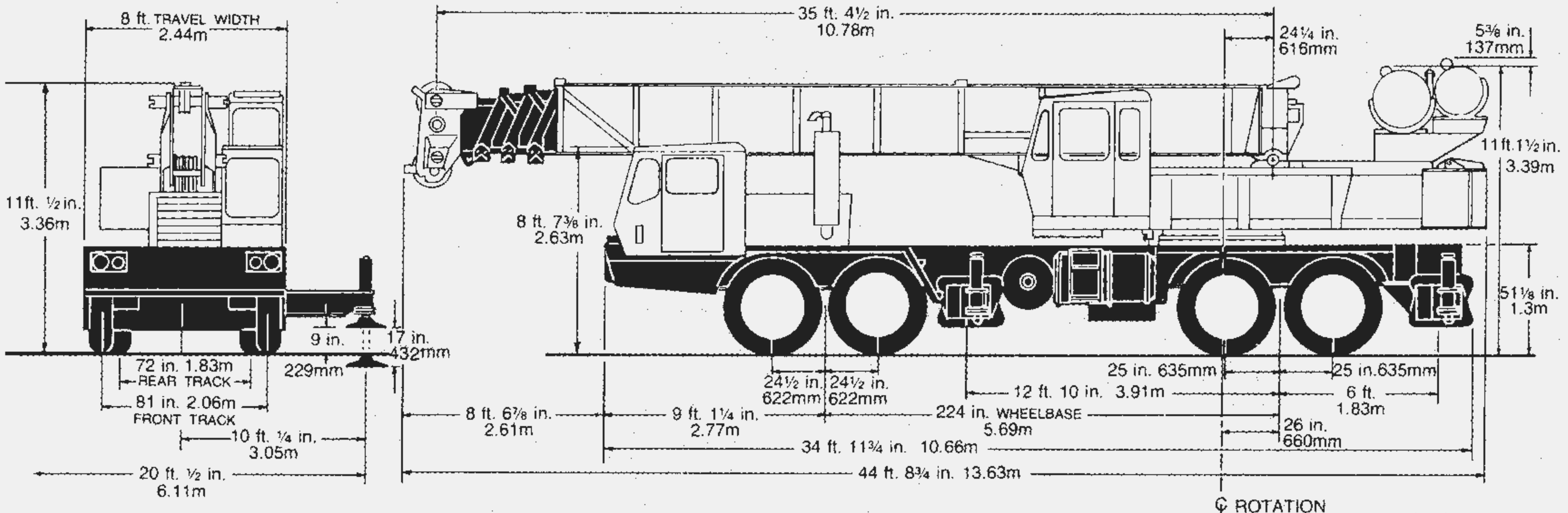
**NOTE:** Performance based on 75,000 lb. (34 020kg) GVW and standard SAE engine rating conditions using standard tires, transmissions and axles. Performance data may vary plus or minus 10% due to variations in engine performance and vehicle weights.

### 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 <sup>3</sup> )	855 cu. in. (14 013cm <sup>3</sup> )
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, domelight, dashlight, 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/cm<sup>2</sup>).

**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
<b>Drum Dimensions</b>	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)
<b>Performance:</b> Max. Single Line Speed Max. Single Line Pull	<b>Hi-Speed Range</b> 525 FPM (160.02m/min) 8,400 lbs. (3810kg)	<b>Lo-Speed Range</b> 265 FPM (80.77m/min) 16,800 lbs. (7621kg)	290 FPM (88.39m/min) 9,145 lbs. (4148kg)
<b>Drum Rope Storage Capacity</b>	**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)
<b>Permissible Single Line Rope Pull</b>	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

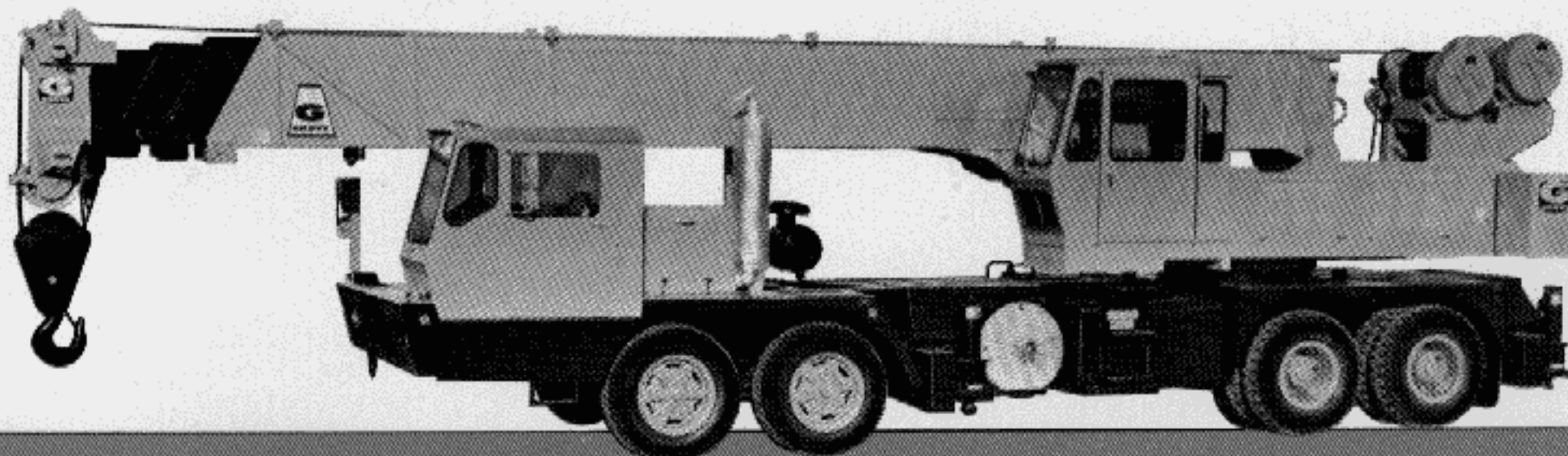
### AXLE WEIGHT DISTRIBUTION CHART

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

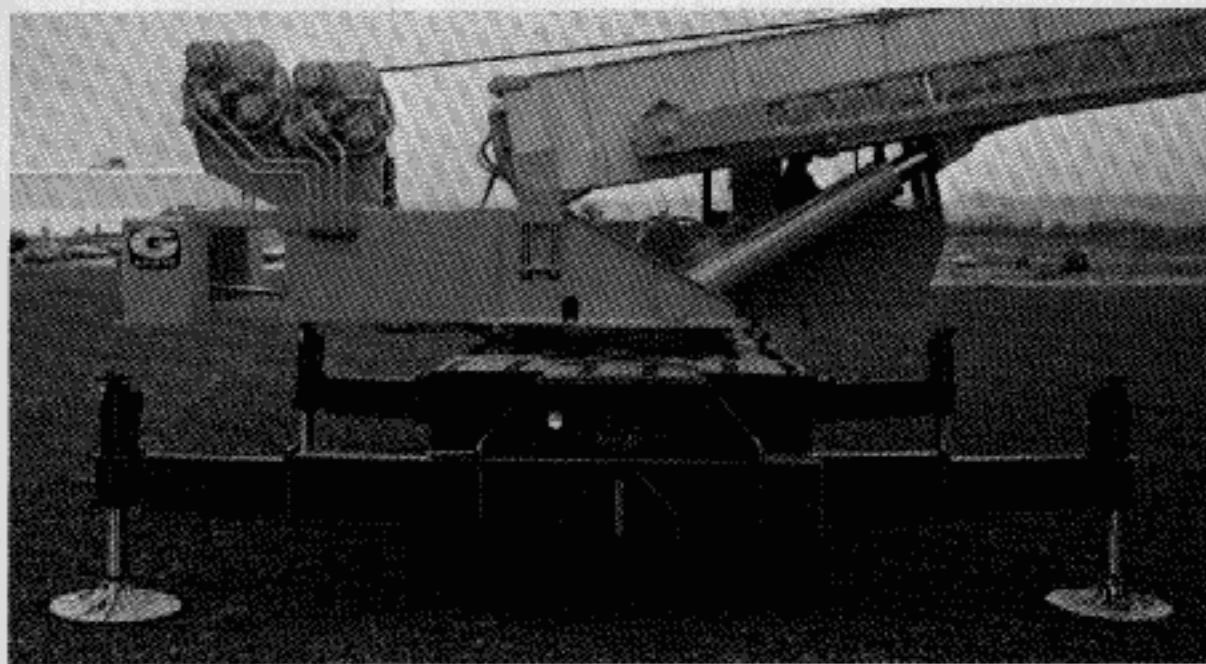
\*\*\*Use 6100 lb. (2767kg) counterweight with model 32S-1716A auxiliary hoist



## THE GROVE CARRIER

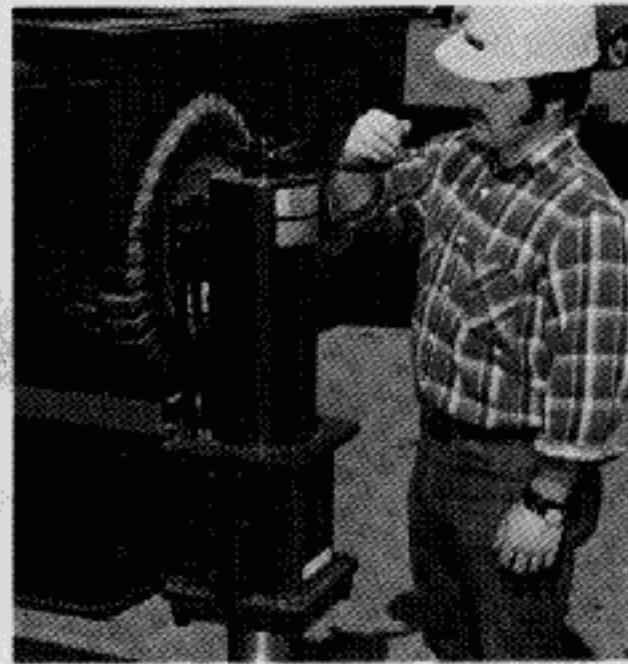
The newly designed diesel powered carrier is manufactured by Grove to match the particular requirements of the TMS475LP and its long boom capability. The all-welded, box-beam design steel frame in combination with the 20-foot (6.1m) outrigger spread provides an exceptionally stable lifting base.

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-LOCKS<sup>1</sup>

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

<sup>1</sup>The 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.