

# GROVE<sup>®</sup> TMS300

TRANSPERSONAL  
DOWN

**35** TON  
CAPACITY  
30-TONS METRIC  
(Patented Grove Feature)



**HYDRAULIC  
CRANES**

CONSTANT IMPROVEMENT AND ENGINEERING PROGRESS MAKE IT NECESSARY THAT WE RESERVE THE RIGHT TO MAKE SPECIFICATION, EQUIPMENT AND PRICE CHANGES WITHOUT NOTICE. ILLUSTRATIONS SHOWN MAY INCLUDE OPTIONAL EQUIPMENT AND ACCESSORIES AND MAY NOT INCLUDE ALL STANDARD EQUIPMENT. OPTIONAL EQUIPMENT IS DESIGNATED BY (\*) IN SPECIFICATIONS FOLDER.





# THE GROVE® TRAPEZOIDAL BOOM

8,000 lbs. @ 164' TIP HEIGHT  
(3672 kg) (49.9 m)

9,600 lbs. @ 140' TIP HEIGHT  
(4354 kg) (42.7 m)

20,000 lbs. @ 109' TIP HEIGHT  
(9072 kg) (33.2 m)

28,700 lbs. @ 86' TIP HEIGHT  
(13 018 kg) (26.2 m)

## *A Long Reach Boom of Superior Strength and Capacity*

The TMS300 provides reach and capacities far superior to any other 35-ton crane (30 mt). That's because the Trapezoidal Boom offers the optimum strength-to-weight ratio for hydraulic crane operation. 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 and results in greater capacities at full boom operation. The tip section of the TMS300 boom is a 32' (9.7 m) "Swingaway" lattice extension which stows laterally along-side the boom base section and swings quickly into working position.



|Patented Grove Feature





# SUPERSTRUCTURE SPECIFICATIONS

**BOOM** – 33 ft. – 112 ft. (10.1 m – 34.1 m) total length; 3 section trapezoidal main boom consisting of base section and 2 full power sections to 80 ft. (24.4 m) and a 32 ft. (9.7 m) "Swingaway" lattice extension to 112 ft. (34.1 m).

\*34 ft. – 136 ft. (10.4 m – 41.5 m) total length; 4 section trapezoidal main boom consisting of base section, 2 full power sections and 1 power pinned section to 104 ft. (31.7 m) and a 32 ft. (9.7 m) "Swingaway" lattice extension to 136 ft. (41.5 m). Integral holding valves on each 5½ in. (139.7 mm) dia. bore telescoping cylinder. Boom sections are individually controlled and supported on graphite impregnated Nylatron wear pads.

**BOOM NOSE** – Three 15 in. (381 mm) tread diameter 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. \*18 in. (457 mm) tread diameter sheaves available for export requirement.

**AUXILIARY BOOM NOSE** – Single 15 in. (381 mm) tread diameter sheave mounted to the main boom nose (removable) for single line work. Removable pin type rope guards. \*18 in. (457 mm) sheave available for export requirement.

**BOOM ELEVATION** – Dual double acting 8¼ in. (209.5 mm) bore hydraulic cylinders with integral holding valves. Elevation from –3° to 80°. Combination controls provided for hand or foot operation.

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

\***JIB** – A 24 ft. (7.3 m) A-frame section which attaches to the sheave shaft of the 32 ft. (9.7 m) 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, tinted safety glass windows throughout, removable windshield with storage provisions, hinged skylight, sliding left side door and right side window, adjustable full length control levers. Combination hand and foot controls for swing, boom elevation and throttle. Fully adjustable operator's seat with headrest. Complete engine instrumentation and controls. Neutral safety start. All crane

superstructure and outrigger controls, sight leveling bubble, electronic boom angle indicator, 20,000 BTU/hr. Diesel heater, defroster fan, electric windshield wiper, swing horn, door and window locks, domelight, dashlight, 3¼ lb. (1.7 kg) dry type fire extinguisher. (Air conditioning available)

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

**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 for hand or foot operation. Swing speed 2.6 RPM.

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

**COUNTERWEIGHT** – 9,500 lbs. (4309 kg) turntable mounted, stationary, power installed and removed. 8,500 lbs. (3856 kg) counterweight used with auxiliary hoist.

**HYDRAULIC SYSTEM:**

**RESERVOIR** – 127 gallon (481 liters), all-steel welded construction with integral baffles, clean out access, magnetic drain plug and exterior oil sight level. Strap-mounted on right side of frame.

**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 (553 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 (176 kg/cm<sup>2</sup>).

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

**POWER DISTRIBUTION** – (Main hoist) (Outer mid telescope, lift boost outriggers) (Boom elevation, inner mid telescope, auxiliary hoist, 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.

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HOIST DATA	MAIN HOIST Grove Model 32S-1716B		*AUXILIARY HOIST Grove Model 15S-16B	*AUXILIARY HOIST (FREE FALL) Model 11 SGEGR
Drum Dimensions	16 in. dia. (406 mm) 16 in. length (406 mm) 24 in. dia. flange (610 mm)		12 in. dia. (305 mm) 16 in. length (406 mm) 17.5 in. dia. flange (445 mm)	9 in. dia. (229 mm) 13 in. length (330 mm) 17.5 in. dia. flange (445 mm)
Performance: Max. Single Line Speed Max. Single Line Pull	Hi-Speed Range 525 FPM (160.0 m/min) 8,400 lbs. (3810 kg)	Lo-Speed Range 265 FPM (80.8 m/min) 16,800 lbs. (7620 kg)	200 FPM (61.0 m/min) 9,165 lbs. (4157 kg)	290 FPM (88.4 m/min) 9,145 lbs. (4148 kg)
Drum Rope Storage Capacity	**650 ft. of ¾ in. dia. rope (198.1 m of 19 mm)		**720 ft. of ½ in. dia. rope (219.5 m of 13 mm) 480 ft. of 5/8 in. dia. rope (146.3 m of 16 mm)	**675 ft. of ½ in. dia. rope (205.7 m of 13 mm)
Permissible Single Line Rope Pull	¾ in. (19 mm) 6x41 class 14,605 lbs. (6625 kg) ¾ in. (19 mm) 19x7 class 13,700 lbs. (6214 kg)		½ in. (13 mm) 19x7 class 6,150 lbs. (2790 kg) ½ in. (13 mm) 6x37 class 7,600 lbs. (3447 kg) 5/8 in. (16 mm) 19x7 or 6x41 class 7,926 lbs. (3595 kg)	½ in. (13 mm) 19x7 class 6,150 lbs. (2790 kg) ½ in. (13 mm) 6x37 class 7,600 lbs. (3447 kg)

\*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 machine to include 33 ft. - 80 ft. (10.1 m-24.4 m) trapezoidal boom plus a 32 ft. (9.7 m) swingaway lattice boom extension, Grove Model 32S-1716B main hoist, 450 ft. (137.2 m) of 3/4 in. (19 mm) dia. rope, Grove 8x4, 224 in. (5.7 m) wheelbase carrier with GM6-71N diesel, Roadranger transmission, less counterweight.	59,876	29,186	30,690	27 160	13 239	13 921
Substitute 34 ft.-104 ft. (10.4 m-31.7 m) 4-section boom	+2,414	+2,446	-32	+1095	+1109	-14
•9,500 lbs. (4309 kg) counterweight	+9,500	-3,625	+13,125	+4309	-1644	+5953
••8,500 lbs. (3855.6 kg) counterweight	+8,500	-3,244	+11,744	+3855	-1472	+5327
35-Ton (30 tm), 3 sheave hook block (travel position)	+600	+943	-343	+272	+427	-155
Auxiliary boom head	+190	+350	-160	+86	+158	-72
••Model 11 SGEGR auxiliary hoist with 400 ft. (121.9 m) of 1/2 in. (13 mm) dia. rope	+1,121	-415	+1,536	+508	-188	+697
••Model 15S-16B auxiliary hoist with 400 ft. (121.9 m) of 3/8 in. (16 mm) dia. rope	+1,059	-392	+1,451	+480	-178	+658
Substitute Cummins NTCC-230 diesel engine in carrier	+440	+440	---	+200	+200	---
Remove 32 ft. (9.7 m) swingaway lattice boom extension (4-section boom)	-1,405	-1,206	-199	-637	-547	-90
Remove 32 ft. (9.7 m) swingaway lattice boom extension (3-section boom)	-1,405	-1,127	-278	-637	-511	-126
Remove (2) rear outrigger beams and jacks	-2,000	+643	-2,643	-907	+292	-1199
Remove (2) front outrigger beams and jacks	-2,000	-1,375	-625	-907	-624	-283

•Use 9,500 lbs. (4309 kg) counterweight without auxiliary hoist

••Use 8,500 lbs. (3856 kg) counterweight with auxiliary hoist

## CARRIER SPECIFICATIONS

### GROVE CARRIER 8 x 4

**OUTRIGGERS** - Hydraulic, double-box telescoping beam outriggers. Removable beams, 6 in. (152.4 mm) bore double-acting vertical jack cylinder with integral holding valves and 24 in. (610 mm) dia. steel floats. Beams extend to 18 ft. (5.5 m) centerline to centerline, retract to 8 ft. (2.4 m) overall width by 3 in. (76.2 mm) bore double-acting cylinders. In addition to the standard integral holding valves and for added security, the exclusive Grove spinlock is standard, which permits the outrigger vertical jack to be mechanically locked in any position throughout its stroke. Full controls and sight leveling bubble located in superstructure cab. Powered by carrier engine.

**\*FRONT END STABILIZER** - A fifth hydraulic vertical outrigger jack cylinder with integral holding valve can be mounted to the front frame section of the chassis to permit 360° lifting capabilities. 15 in. (381 mm) dia. steel float is permanently attached. Controls located in superstructure cab.

**FRAME** - High-strength steel, all welded construction with triple 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. (356 mm), two plate dry disc. Lining area: 428 sq. in. (2761 cm²).

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

**UNIVERSAL JOINTS** - Needle bearing type.

**AXLES** - Front: (2) Rockwell, FL-931, 36,000 lbs. (16 330 kg) capacity.  
Rear: (2) Rockwell SSHD, 44,000 lbs. (19 958 kg) capacity with interaxle differential and dash mounted control.

**SUSPENSION** - Front: Reyco 21B spring mounted tandem, 36,000 lbs. (16 330 kg) capacity.

Rear: Hendrickson R440 solid mounted tandem, 44,000 lbs. (19 958 kg).

**FUEL TANK** - Single 90 gallon (341 liters) capacity, strap mounted on left side of frame.

**TIRES** - Front: 12.00 x 20-16 PR hiway tread. 15x22.5-16 PR hiway tread optional.

Rear: 11.00 x 20-14 PR NDM & S tread, tube type.

**WHEELS** - Front: Steel spoke 8 1/2 in. x 20 in. (216 mm x 508 mm). Optional 12 1/4 in. x 22 1/2 in. (311 mm x 571 mm).

Rear: Steel spoke 8 in. x 20 in. (203 mm x 508 mm)

**BRAKES** - Stopmaster wedge type with full air on all wheels. Total lining area: 1,632 sq. in. (10 530 cm²)

Front: 15 in. x 6 in. (381 mm x 152 mm)

Rear: 15 in. x 7 in. (381 mm x 178 mm)

Air dryer prevents moisture in the system for maximum braking efficiency.

**PARKING BRAKE** - Spring set emergency chambers on both rear axles with emergency release kit.

**ELECTRICAL SYSTEM** - 12-volt lighting. 24-volt starting. Federal safety standard lights and reflectors.

**CAB** - Low-profile, one man, all-steel with acoustical treatment, tinted 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, 3 3/4 lbs. (1.7 kg) dry type fire extinguisher. (Air conditioning available)

**CAB INSTRUMENTATION** - Electric tachometer, engine oil pressure gauge, voltmeter, speedometer, air pressure gauge, electric fuel gauge, engine water temperature gauge, high beam indicator, low air pressure audiovisual warning, ignition-on indicator.

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

### SPEED AND GRADEABILITY

Engine	Speed Ranges	% of Gradeability @ Max. Torque
GM6-71N	2.86 to 51.16 MPH (5 to 84.7 Km/h)	40.99 to .88%
*Cummins NTCC-230	2.85 to 51.05 MPH (5 to 82 Km/h)	40.89 to .869%

**NOTE:** Performance based on 66,000 lbs. (29 938 kg) 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 NTCC-230††
TYPE	6 Cylinder Diesel	6 Cylinder Diesel
BORE & STROKE	4.25 in. x 5 in. (108 mm x 127 mm)	5.5 in. x 6 in. (140 mm x 152 mm)
DISPLACEMENT	426 cu. in. (6982 cm³)	855 cu. in. (14 013 cm³)
NET HORSEPOWER	203 @ 2100 RPM	205 @ 2100 RPM
GOVERNED RPM	2100	2100
NET TORQUE	551 lb. ft. (76.2 kg.m) @ 1600 RPM	588 lb. ft. (81.3 kg.m) @ 1300 RPM
ELECTRICAL SYSTEM	12-volt, negative ground w/24 volt start	12-volt, negative ground w/24 volt start
COMBUSTION SYSTEM	2 cycle, w/blower	4 cycle, turbo charged
COOLING SYSTEM	Liquid	Liquid
FUEL CAPACITY	90 Gallon (341 liters)	90 Gallon (341 liters)
ALTERNATOR	90 AMP, 12/24-volt	90 AMP, 12/24 volt
BATTERY	(4) 12 volt w/475 CCA @ 0°F	(4) 12 volt w/475 CCA @ 0°F
AIR CLEANER	Dry Type	Dry Type
AIR COMPRESSOR	12 CFM (5.7 L/sec)	13.2 CFM (6.2 L/sec)
HOURMETER	Yes	Yes

\*Denotes Optional Equipment

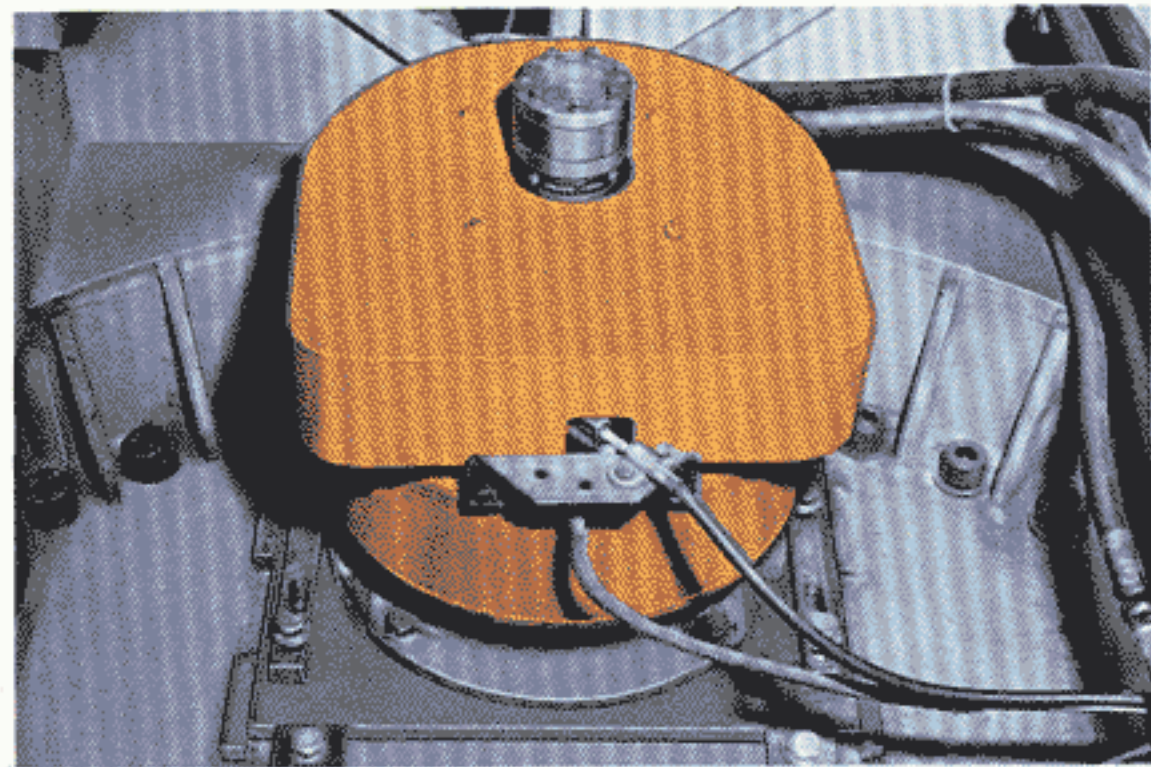
††Approved by California Air Resources Board (CARB) for 1978 & 1979



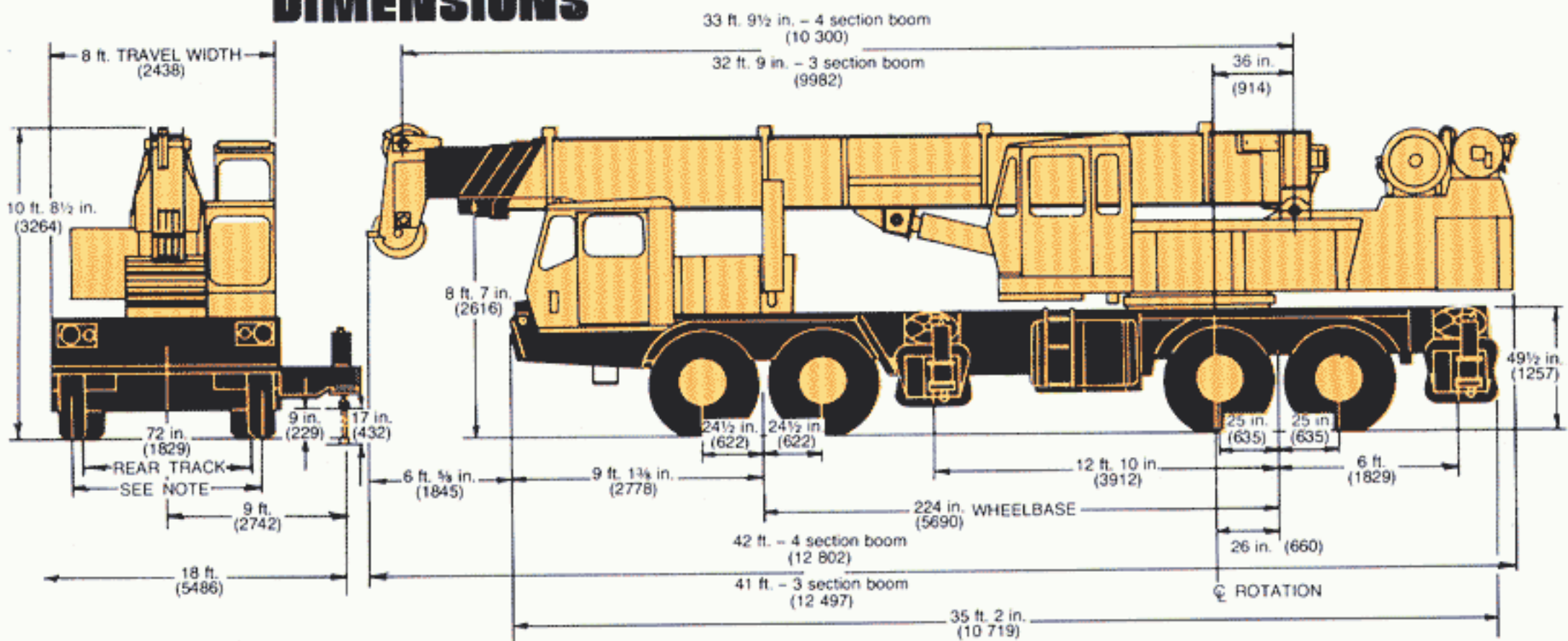
**IN COMMAND** . . . no barriers to operator's visibility when placing loads at high elevation. Windshield is easily removed and stored and skylight raises to provide unobstructed view.

**GROVE HOISTS** . . . Both main and auxiliary hoists are of Grove design and manufacture except for the optional free fall hoist. The main hoist is the Grove two-speed which permits both high line pull and high line speed without changes in lagging or gearing. At the flick of the electro-pneumatic speed-shift, the operator can change from maximum line pull of 16,800 lbs. (7621 kg) to top line speed of 525 fpm (160 m/min).

**GROVE PLANETARY "GLIDE SWING"** . . . Smooth, precise continuous swing is assured with a large antifriction 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.



## DIMENSIONS



NOTE:

FRONT TIRE SIZE	FRONT TRACK	TURNING RADIUS
12:00X20, 16 ply	78½" (1997)	39' 4" (11 989)
*15X22.5, 16 ply	81½" (2080)	41' 9" (12 725)

**TAIL SWING 10 ft. 5½ in. (3188)**

Note: Dimensions in parenthesis ( ) are millimeters (mm)

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





## THE GROVE CARRIER

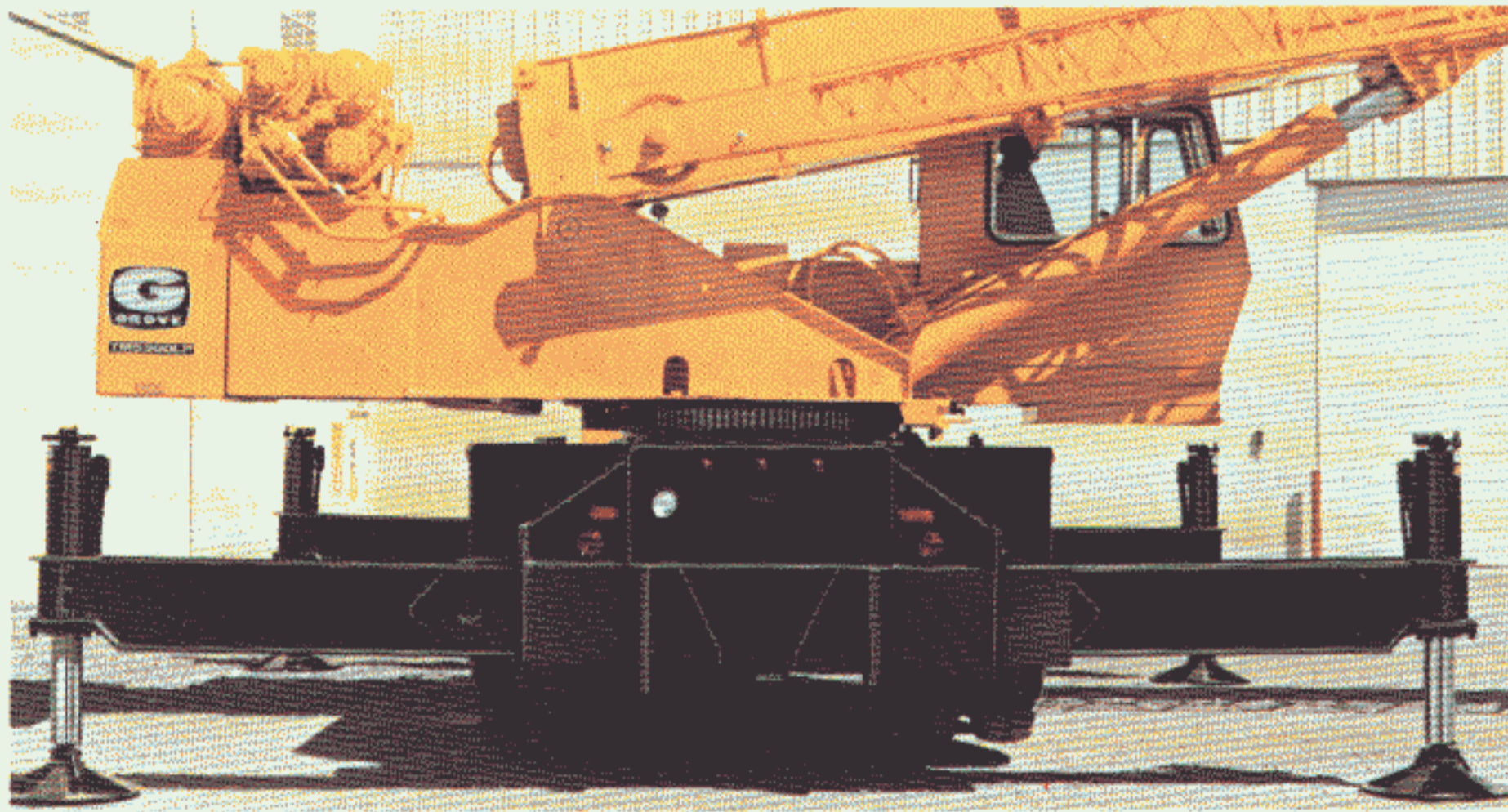
The TMS300 features a Grove designed and built diesel powered carrier, matched to the particular requirements of this outstanding 35-ton crane (30 mt). The 8 foot (2.4 m) wide carrier has a wheelbase of 224 inches (5.7 m) and a turning radius of under 40 feet (12.2 m). The all-welded steel frame in combination with the 18 foot (5.5 m) outrigger spread provides an exceptionally stable lifting base.



### EXCLUSIVE GROVE SCREW-LOCK†

permits the outrigger jacks to be locked in any position. Long thrust vertical jacks assure quick, easy leveling on uneven terrain. Jacks are also fitted with integral check valves.

†Patented Grove Feature



### DOUBLE-BOX BEAM OUTRIGGERS,

integral with the frame, provide an 18 foot (5.5 m) spread for maximum stability. Beams and jacks are independently controlled from superstructure cab. Stowable, 24 inch (610 mm) diameter steel outrigger pads combine lightweight ease of handling with excellent flotation.



WORLD LEADER IN

HYDRAULIC CRANES

## GROVE MANUFACTURING COMPANY

Division of Walter Kidde & Company, Inc.

**KIDDE**

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