

# GROVE<sup>®</sup> TMS 300LP

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

**35** TON CAPACITY  
30-TONS METRIC

<sup>†</sup>Patented Grove Feature



HYDRAULIC  
CRANES



# THE **GROVE**® **TRAPEZOIDAL**† **BOOM**

9,600 lbs. @ 140' TIP HEIGHT  
(4354.6kgs) (42.67m)

20,000 lbs. @ 109' TIP HEIGHT  
(9072.0kgs) (33.22m)

28,700 lbs. @ 86' TIP HEIGHT  
(13018.3kgs) (26.21m)

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

The TMS300LP provides reach and capacities far superior to any other 35-ton crane (30-ton metric). 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 fifth section of the TMS300LP boom is a 32' (9.75m) "Swingaway" lattice extension which stows laterally along-side the boom base section and swings quickly into working position.



†Patented Grove Feature



# SUPERSTRUCTURE SPECIFICATIONS

**BOOM** - 34 ft. - 136 ft. (10.36m to 41.45m), 5 section boom; 2 full power and 1 power pinned trapezoidal sections to 104 ft. (31.7m) plus a 32 ft. (9.7m) "Swingaway" lattice extension. Integral check valves on each telescope cylinder. Boom telescope sections are individually controlled and supported on graphite impregnated nylatron wear pads.

**BOOM NOSE** - Three 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 78°. 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.

**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, 2 3/4 lbs. (1.25kg) 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 provided 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 lb. (4309kg) turntable mounted, stationary, power installed and removed. 8,500 lb. (3856kg) 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.

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

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

**POWER DISTRIBUTION** - (Main hoist) (Outer mid telescope, lift boost) (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.		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-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	<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. (7620kg)	200 FPM (60.96m/min) 9165 lbs. (4157kg)	290 FPM (88.39m/min) 9,145 lbs. (4148kg)
Drum Rope Storage Capacity	**650 ft. of 3/4 in. dia. rope (198.12m of 19mm)	720 ft. of 1/2 in. dia. rope (219.45m of 13mm) 480 ft. of 3/8 in. dia. rope (146.30m of 16mm)	675 ft. of 1/2 in. dia. rope (205.74m of 13mm)
Permissible Single Line Rope Pull	3/4 in. (19mm) 6x41 class - 14,605 lbs. (6625kg) 3/4 in. (19mm) 19x7 class - 13,700 lbs. (6214kg)	1/2 in. (13mm) 19x7 class - 6,150 lbs. (2790kg) 1/2 in. (13mm) 6x37 class - 7,200 lbs. (3266kg) 3/8 in. (16mm) 19x7 or 6x41 class - 7,680 lbs. (3484kg)	1/2 in. (13mm) 19x7 class - 6,150 lbs. (2790kg) 1/2 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 machine to include 34-104 ft. (10.36m - 31.70m) trapezoidal boom plus a 32 ft. (9.75m) swingaway lattice boom extension, Grove Model 32S-1716A main hoist, 450 ft. (137.16m) of 3/4 in. (19mm) dia. rope, Grove 8x4, 224 in. (5.69m) wheelbase carrier with GM6-71N diesel, Roadranger transmission, less counterweight.	60,984	30,903	30,081	27 663	14 018	13 645
●9,500 lb. (4309kg) counterweight	+ 9,500	- 3,625	+13,125	+4 309	-1 644	+5 953
35-Ton (30tm), 3 sheave hook block (travel position)	+ 600	+ 943	- 343	+ 272	+ 427	- 155
Auxiliary boom head	+ 190	+ 350	- 160	+ 86	+ 158	- 72
●●Model 40 SGEGR auxiliary hoist with 400 ft. (121.92m) of 1/2 in. (13mm) dia. rope	+ 945	- 350	+ 1,295	+ 429	- 158	+ 587
●●Model 15S-16A auxiliary hoist with 400 ft. (121.92m) of 3/8 in. (13mm) dia. rope	+ 945	- 350	+ 1,295	+ 429	- 158	+ 587
Substitute Cummins NHF-240 diesel engine in carrier	+ 310	+ 310	-	+ 141	+ 141	-
Remove 32 ft. (9.75m) swingaway lattice boom extension	- 1,400	- 1,143	- 257	- 635	- 518	- 117
Remove (2) rear outrigger beams and jacks	- 2,500	+ 804	- 3,304	-1 134	+ 364	-1 498
Remove (2) front outrigger beams and jacks	- 2,500	- 1,719	- 781	-1 134	- 780	- 354
●●8,500 lb. (3855.6kgs) counterweight	+ 8,500	- 3,244	+11,744	+3 855	-1 472	+5 327

●Use 9,500 lb. (4309kg) counterweight without auxiliary hoist

●●Use 8,500 lb. (3856kg) counterweight with auxiliary hoist



# CARRIER SPECIFICATIONS

## GROVE CARRIER 8 x 4

**OUTRIGGERS** - Hydraulic, double-box telescoping beam outriggers. Removable beams, vertical jack cylinders with integral holding valves and 24 in. (610mm) dia. aluminum floats. Mechanical spin locks on each vertical jack to secure outriggers at any level. Beams extend to 18 ft. (5.49m) centerline to centerline, retract to 8 ft. (2.44m) overall width. Full controls and sight leveling bubble located 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. Lining 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, FH-901, 33,000 lb. (24 969kg) capacity. Rear: (2) Rockwell SSHD, 72 in. (1.83m) track, 44,000 lb. (19 958kg) capacity with inter-axle differential and dash mounted control.

**SUSPENSION** - Front: Reyco 21B spring mounted tandem. Rear: Hendrickson R440 solid mounted tandem.

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

**TIRES** - Front: 12.00 x 20-16 ply hiway tread. Rear: 11.00 x 20-14 ply NDM & S tread, tube type.

**WHEELS** - Front: Steel spoke 8½ in. x 20 in. (216mm x 508mm). Rear: Steel spoke 8 in. x 20 in. (203mm x 508mm).

**BRAKES** - Stopmaster wedge type with full air on all wheels. 12 CFM compressor.

Total lining area: 1,508 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** - Electric 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 shutters, 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 82 Km/h)	40.99 to .88%
*Cummins NHF-240	3.13 to 56.04 MPH (5 to 90 Km/h)	40.27 to .84%

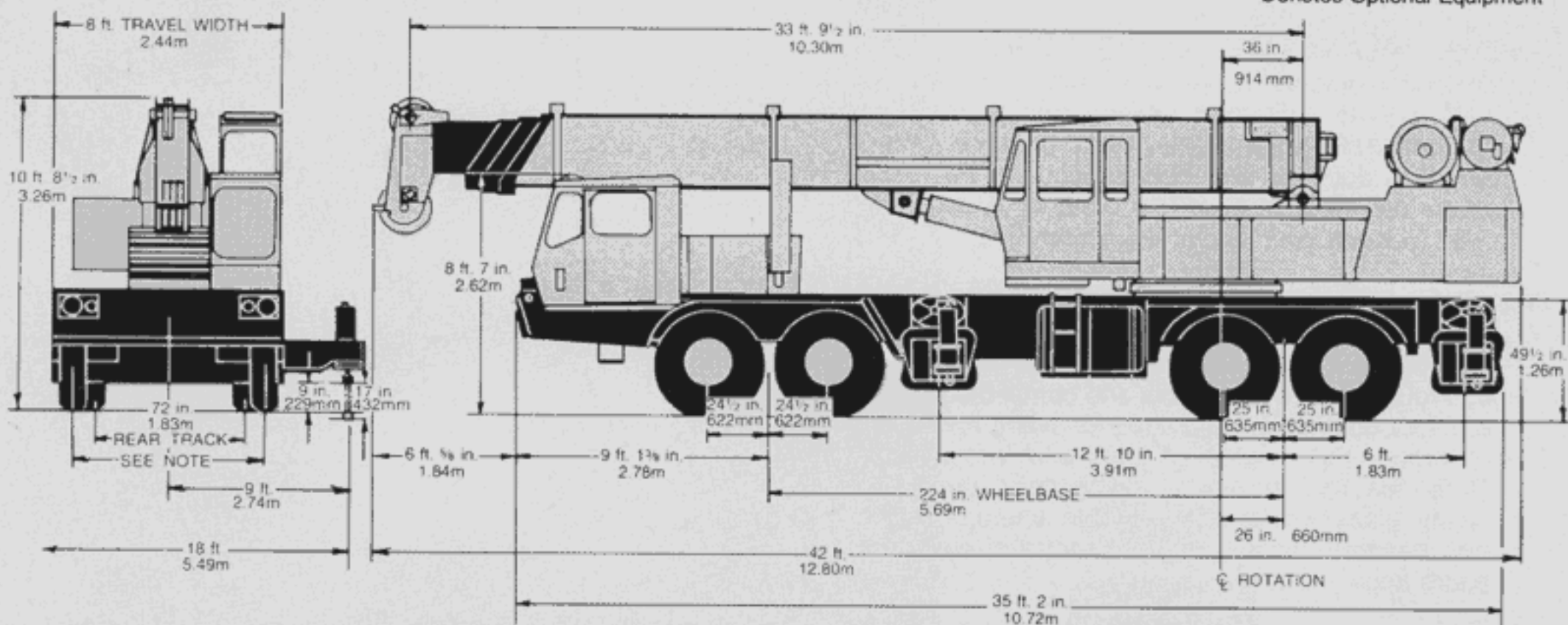
**NOTE:** Performance based on 66,000 lb. (29 938kg) GVW and standard SAE engine rating conditions using standard tires, transmissions and axles. Performance data may vary plus or minus 10% due to variations in engine performance and vehicle weights.

### 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> )
NET HORSEPOWER	213 @ 2100 RPM	205 @ 2300 RPM
GOVERNED RPM	2100 RPM	2300 RPM
NET TORQUE	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



**NOTE:**

FRONT TIRE SIZE	FRONT TRACK	TURNING RADIUS
12:00X20, 16 ply	78 5/8" (1.99m)	39 1/2" (11.89m)
15X22.5, 16 ply	81" (2.06m)	41'9" (12.73m)

TAIL SWING 10 ft. 5½ in.  
3.19m

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

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

**IN COMMAND . . .** no barriers to operator's visibility when placing loads at high elevation. Windshield is easily removed and stored and tinted 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. (7621kg) 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.

**DESIGNED FOR SAFETY AND EFFICIENCY . . .** The interior of the all-steel cab is designed for operator convenience, efficiency and safety. Full length control levers are adjustable and combination hand and foot controls are provided for swing and boom elevation. Full engine controls and instruments. Other features include a sliding door, laminated safety glass windows, adjustable operator's seat with headrest, acoustical treatment and electronic boom angle indicator.





## THE GROVE CARRIER

The TMS300LP features a Grove designed and built diesel powered carrier, matched to the particular requirements of this outstanding 35-ton crane (30-ton metric). The 8 foot (2.44m) wide carrier has a wheelbase of 224 inches (5.69m) and a turning radius of under 40 feet (12.19m). The all-welded steel frame in combination with the 18 foot (5.49m) 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 (5.49m) spread for maximum stability. Beams and jacks are independently controlled from superstructure cab which permits variable outrigger positioning for working in tight quarters. Stowable, 24-inch (610mm) diameter, aluminum alloy outrigger pads combine lightweight ease of handling with excellent flotation.



## HYDRAULIC CRANES

**GROVE MANUFACTURING COMPANY**

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