

GROVE[®] TM 1075

**HYDRAULIC CRANE with
TRAPEZOIDAL[†] BOOM**

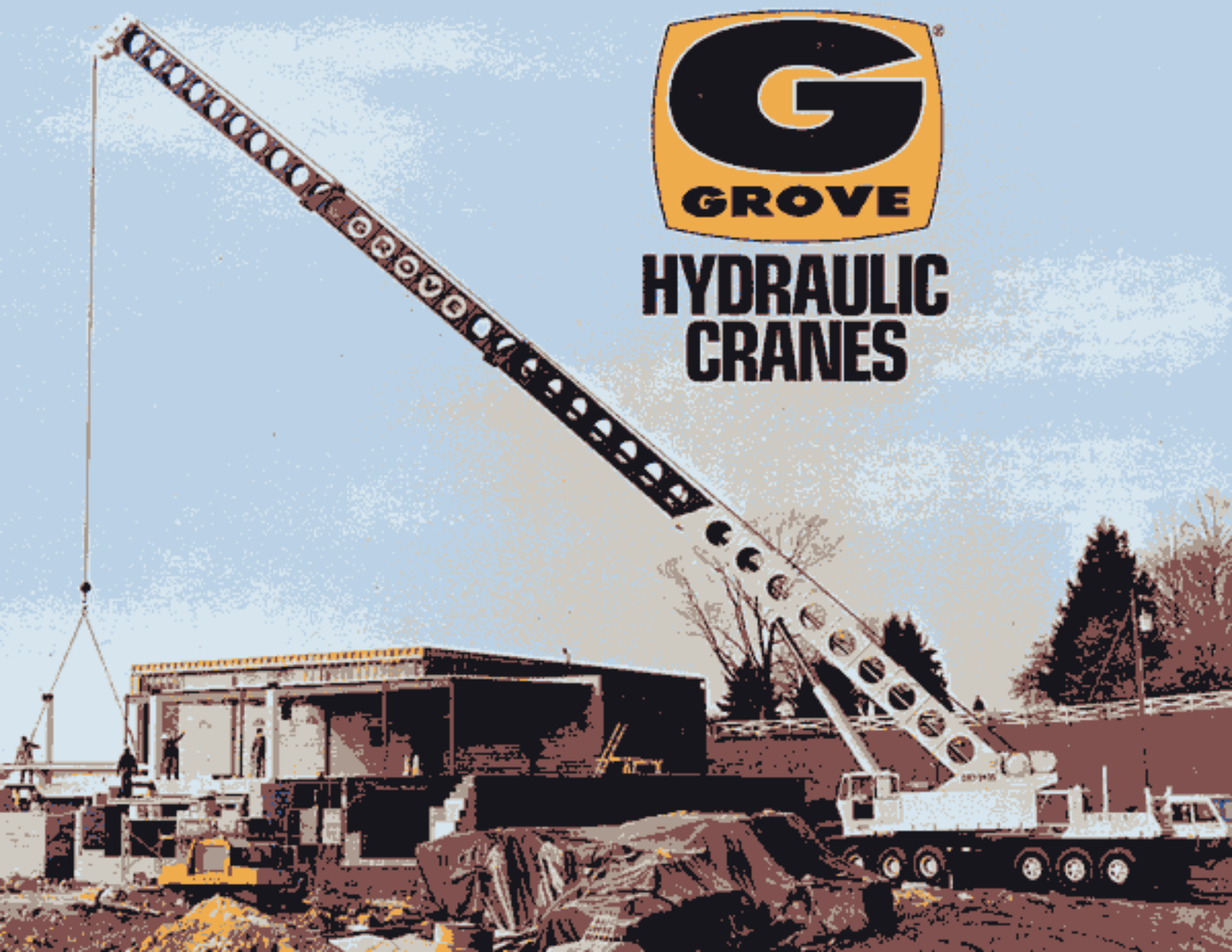
100-TON CAPACITY

90 - TONS METRIC

† Patented Grove Feature



**HYDRAULIC
CRANES**



THE GROVE TRAPEZOIDAL BOOM †

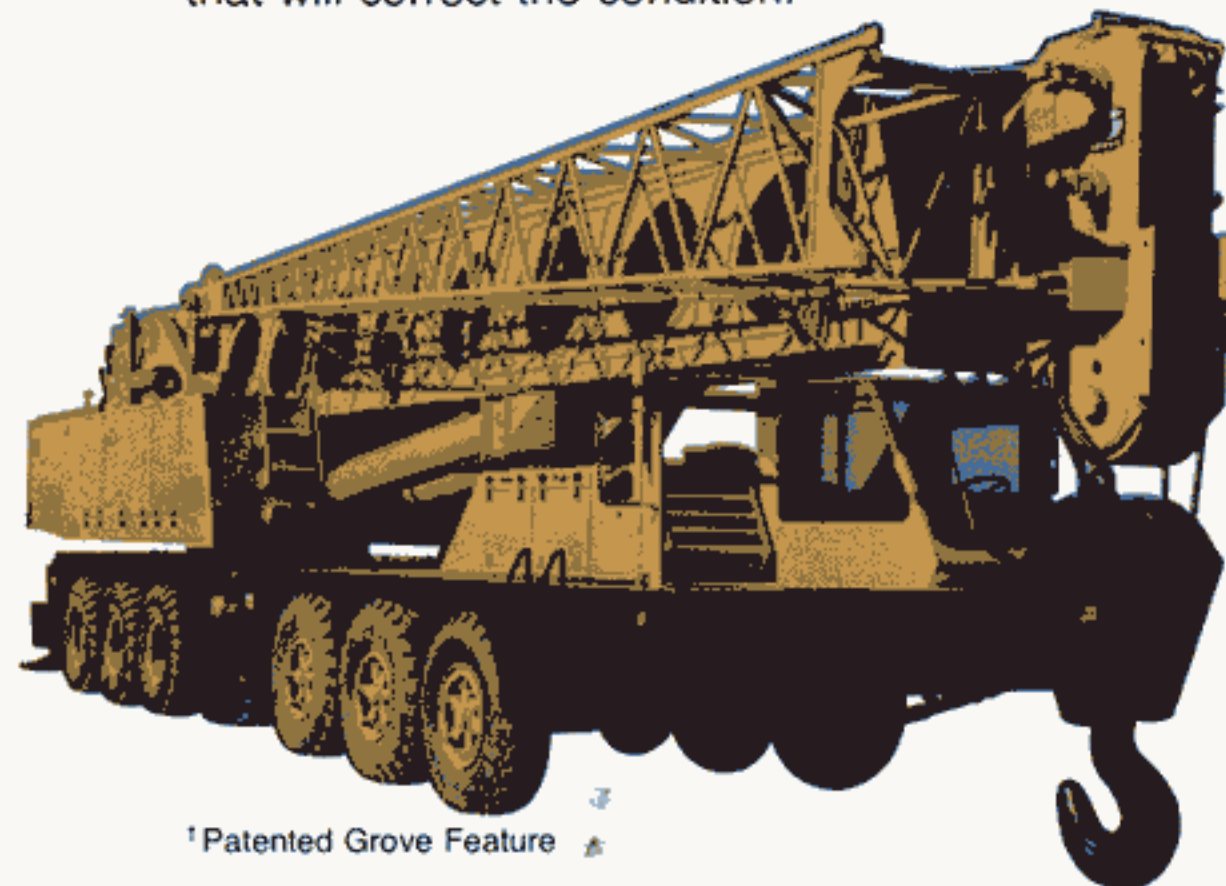
A major accomplishment in hydraulic telescoping boom design.

Grove has perfected several versions of the basic Trapezoidal Boom design, and as first introduced, the trapezoidal design provided far more strength and rigidity at longer reaches and higher capacities than a conventional design, with no increase in boom weight.

The search for a new approach to still stronger and lighter booms led to the design introduced on the Model TM1075 Crane. Sideplate holes provide reduction in boom weight and specially welded-in reinforcing rings provide the stiffening for added strength.

A "swing-around" boom section which stows laterally alongside the base section is standard on the TM1075. In working position it provides a tip height of 180 ft. (54.9m). Additional inserts may be added to create an 88 ft. (26.8m) jib reaching to a tip height of 234 ft. (71.3m). The jib is cable suspended and offset from a minimum of 5° to a maximum of 30°.

THE LOAD MOMENT AND ANTI-TWO BLOCK SYSTEM measures critical operational factors relative to rated capacity and gives the operator a continuous visual display of conditions for the load he is handling. An easy-to-read gauge indicates the approach of an overload or two-block condition and should overload or two-block occur, an audio-visual warning alerts the operator; the Grove "control lever lockout system" returns the control levers to the neutral position and permits the use of only those crane functions that will correct the condition.



† Patented Grove Feature

With 88' jib
7630 lbs.
(3461kg)
@ 234'
(71.3m)

24,000 lbs. @ 180' TIP HEIGHT
(10 886kg) (54.9m)

42,000 lbs. @ 149' TIP HEIGHT
(19 051kg) (45.4m)





SUPERSTRUCTURE SPECIFICATIONS

BOOM – 44 ft. – 172 ft. (13.4m – 52.4m), 5 section; 2 full power and 1 power pinned trapezoidal sections to 140 ft. (42.7m) plus a 32 ft. (9.7m) "Swing-away" lattice extension (2° offset). Integral check valves on each telescoping cylinder. Boom telescope sections are individually controlled and supported on graphite impregnated nylatron wear pads.

BOOM NOSE – Six 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 -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.

JIBS – 14 ft. (4.3m) lattice base section combines with the standard 32 ft. (9.7m) "Swingaway" boom section to make basic 46 ft. (14.0m) jib. Additional 14 ft. (4.3m) pinned inserts available to make 60 ft. (18.3m), 74 ft. (22.6m), and 88 ft. (26.8m) jib lengths. Mast, pendant lines, attaching hardware and backstops included in the makeup of all jib lengths. Jib sheave mounted on tapered roller bearings. The jib is cable suspended and offset from a minimum of 5° to a maximum of 30°.

CAB – Full vision, all-steel, fully enclosed with acoustical treatment, laminated safety glass throughout; removable windshield with storage provisions, hinged tinted skylight, sliding left side door, rear vent window, sliding right side glass, door and window locks; fully adjustable operator's seat with head rest, hot water heater, electric windshield wiper and defroster fan, swing horn, domelight, dashlight; complete engine instrumentation and crane operating controls, outrigger control panel, adjustable full length control levers, combination hand/foot controls for swing, boom elevation and engine throttle. Hoist drum rotation indicators for main and auxiliary hoist, sight leveling bubble, electronic boom angle indicator, 3¼ lb. (1.7kg) 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, hydraulic oil bypass indication light, main hoist disengaged indicator light.

SWING – Roller bearing swing circle, 360° continuous rotation. Rockwell planetary "glide swing" with foot actuated disc swing brake, hand operated turntable brake and 360° position positive turntable lock. Combination controls provided for hand or foot operation. Swing speed 1.9 RPM.

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

COUNTERWEIGHT – 13,350 lb. (6056kg) turntable mounted, power installed and removed, hydraulically extended to working position and retracted to stowed or travel position. (15,000 lb. (6804kg) counterweight used without auxiliary hoist).

HYDRAULIC SYSTEM:

RESERVOIR – 300 gallon (1136 liters), 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 – Six section, gear-type driven by superstructure engine. Manual pump disconnect located on lower right side of superstructure. Combined capacity 349 GPM (1321 lpm).

CONTROL VALVES – Precision four-way, double acting with integral load check, main and circuit relief valves. Six individual valve banks permit simultaneous independent control of five crane functions. Maximum system operating pressure 2500 PSI (175.8kg/cm²).

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

POWER DISTRIBUTION – (Auxiliary hoist boost, inner mid telescope) (Swing) (Lift) (Lift boost, main hoist boost) (Outer mid telescope, auxiliary hoist) (Main hoist)

*Denotes Optional Equipment

HOIST SPECIFICATIONS

DESCRIPTION: Two speed and pull, planetary drive, power up and down with integral automatic brake.		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.	
HOIST DATA	MAIN HOIST Gearmatic Model 44 (see note below)	AUXILIARY HOIST Grove Model 32S-1716A	
Drum Dimensions	20 in. diameter (508mm) 26 in. length (660mm) 30 in. dia. flange (762mm)	16 in. diameter (406mm) 16 in. length (406mm) 24 in. dia. flange (610mm)	
Performance: Max. Single Line Speed Max. Single Line Pull	Hi-Speed Range 355 FPM (108.2m/min) 14,000 lbs. (6350kg) Lo-Speed Range 177 FPM (53.9m/min) 28,000 lbs. (12 700kg)	575 FPM (175.3m/min) 8,400 lbs. (3810kg)	290 FPM (88.4m/min) 16,800 lbs. (7620kg)
Drum Rope Storage Capacity	**1140 ft. of ¾ in. dia. rope (347.5m of 22mm) <i>800' of 1" 14e (243.8m of 25mm)</i>	††650 ft. of ¾ in. dia. rope (198.1m of 19mm)	
Permissible Single Line Rope Pull	¾ in. (22mm) 8x25 class - 20,000 lbs. (9072kg) ¾ in. (22mm) 19x7 class - 18,550 lbs. (8414kg)	¾ in. (19mm) 8x25 class - 14,605 lbs. (6624kg) ¾ in. (19mm) 19x7 class - 13,700 lbs. (6214kg)	

*Denotes Optional Equipment

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

††6th layer of rope not recommended for hoisting operations.

NOTE: The Gearmatic Model 44 hoist with controlled free fall is available as the optional main hoist with the same specifications as shown above.

SUPERSTRUCTURE ENGINE SPECIFICATIONS

MAKE & MODEL	Cummins V555-C230	*GM 6V-53N	*Caterpillar 3208
TYPE	8 Cylinder O.H.V.	6 Cylinder O.H.V.	8 Cylinder O.H.V.
BORE & STROKE	4.625 in. x 4.125 in. (117mm x 105mm)	3.875 in. x 4.5 in. (98mm x 114mm)	4.5 in. x 5.0 in. (114mm x 127mm)
DISPLACEMENT	555 cu. in. (9096cm ³)	318 cu. in. (5212cm ³)	636 cu. in. (10 424cm ³)
HORSEPOWER (NET)	212 @ 3300 RPM	199 @ 2800 RPM	199 @ 2800 RPM
GOVERNED RPM	3300 RPM	2800 RPM	2800 RPM
TORQUE (NET)	394 lbs. ft. @ 1800 RPM	412 lbs. ft. @ 1500 RPM	450 lbs. ft. @ 1400 RPM
ELECTRICAL SYSTEM	12 volt neg. ground	12 volt neg. ground	12 volt neg. ground
COMBUSTION SYSTEM	4 cycle naturally aspirated	2 cycle with blower	4 cycle naturally aspirated
COOLING SYSTEM	Liquid	Liquid	Liquid
FUEL CAPACITY	60 Gallons (227 liters)	60 Gallons (227 liters)	60 Gallons (227 liters)
ALTERNATOR	58 Amp 12 volt	62 Amp 12 volt	55 Amp 12 volt
BATTERY	(2) 204 A.H. 12 volt	(2) 204 A.H. 12 volt	(2) 204 A.H. 12 volt
AIR CLEANER	Dry Type	Dry Type	Dry Type
HOURMETER	Yes	Yes	Yes

Note: With air conditioning, engine horsepower and performance will be slightly reduced.

CARRIER SPECIFICATIONS



OUTRIGGERS - Hydraulic Double Box 2-Stage Telescoping beam outriggers, integral welded boxes, removable beams, vertical jack cylinders with integral holding valves and 30½" (775mm) diameter steel floats. Beams extend to 25' 5¼" (7.8m) centerline to centerline retract to 9' 10" (3.0m) overall width. Mechanical spin locks on each vertical jack to secure outriggers at any level. Controls and sight leveling bubble located in superstructure cab and each side of carrier frame. Powered by superstructure engine.

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

STEERING GEAR - Ross TE-72740 Cam and lever type with Garrison hydraulic power assist.

CLUTCH - Lipe Rollway 15½" (394mm), two plate dry disc.

TRANSMISSION - Fuller Roadranger (RT009513) 13 speeds forward and 2 reverse.

UNIVERSAL JOINTS - Needle bearing type.

AXLES - Front: (3) Shuler tubular steering DCB34-L-7, 100" (2.5m) track, 66,750 lb. (30 277kg) capacity.

Rear: (3) Clark BD50-60 Planetary drive, 85 in. (2.2m) track 108,000 lb. (48 989kg) capacity.

SUSPENSION - Front: Reyco 21B spring mounted tridem, 66,000 lb. (29 937kg) capacity. Rear: Hendrickson Tri-axle equalizing beam with solid steel saddles, 108,000 lb. (48 989kg) capacity.

FUEL TANK - Single 100 gallon (379 liter) capacity mounted on right side of frame.

TIRES - 14:00x20 - 20 ply Tube-type, Hi-way tread front, ND-M & S tread rear.

WHEELS - Steel spoke 10 in. x 20 in. (254mm x 508mm).

BRAKES - Full air on all wheels, Front: 17¼ in. x 4 in. (438mm x 102mm). Rear: 16½ in. x 7 in. (419mm x 178mm). Total lining area: 2130 sq. in. (13 743cm²).

PARKING BRAKE - Maxi-type, spring set emergency chambers on all rear axles with emergency release kit.

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

CAB - Two-man, low profile design, all steel with acoustical treatment, laminated safety glass windshield and windows throughout; windshield washer and electric wiper, door and window locks. Bostrom "T" bar drivers seat and Bostrom companion seat, seat belts, heater, defroster fan, dual West Coast mirrors, dome light, dashlight, electric horn, traffic hazard warning switch (4-way flasher), complete instrumentation and driving controls, sliding right side and roll-down left side glass for ventilation, 3¼ lb. (1.7kg) dry type fire extinguisher. (Air conditioning available)

CAB INSTRUMENTATION - Engine oil pressure gauge, speedometer, air pressure gauge, fuel level gauge, engine water temperature gauge, voltmeter, tachometer, low air pressure audio-visual warning device, high beam indicator, ignition-on indicator.

MISCELLANEOUS STANDARD EQUIPMENT - Wheel nut wrench and handle, channel type front bumper, two front and rear towing loops, front and rear fenders, ether injection starting aid (less canister) mud flaps, tool storage compartment. Front deck hookblock storage trough.

SPEED AND GRADEABILITY

Engine	Speed Ranges @ Max. Governed RPM	% of Gradeability @ Max. Torque
Cummins NTC350	2.35 to 45.84 MPH (4 to 74 Km/h)	36.10 to .43%
*GM8V-71T	2.35 to 45.84 MPH (4 to 74 Km/h)	35.26 to .38%
*Caterpillar 3406TA	2.35 to 45.84 MPH (4 to 74 Km/h)	36.59 to .45%

NOTE: Performance based on 145,000 lb. (65 772kg) 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.

CARRIER ENGINE SPECIFICATIONS

MAKE & MODEL TYPE	Cummins NTC350	*GM8V-71T	*Caterpillar 3406TA
BORE & STROKE	6 cylinder O.H.V. 5.5 in. x 6 in. (140mm x 152mm)	8 cylinder O.H.V. 4.25 in. x 5 in. (108mm x 127mm)	6 cylinder O.H.V. 5.4 in. x 6.5 in. (137mm x 165mm)
DISPLACEMENT	855 cu.in. (14 013cm³)	568 cu. in. (9310cm³)	893 cu. in. (14 636cm³)
HORSEPOWER (NET)	315 @ 2100 RPM	315 @ 2100 RPM	325 @ 2100 RPM
GOVERNED RPM	2100	2100	2100
TORQUE (NET)	903 lbs. ft. @ 1500 RPM	870 lbs. ft. @ 1600 RPM	900 lbs. ft. @ 1400 RPM
ELECTRICAL SYSTEM	12 volt neg. ground	12 volt neg. ground	12 volt neg. ground
COMBUSTION SYSTEM	4 cycle turbocharged	2 cycle turbocharged	4 cycle turbocharged
COOLING SYSTEM	Liquid	Liquid	Liquid
FUEL CAPACITY	100 Gallons (379 liters)	100 Gallons (379 liters)	100 Gallons (379 liters)
ALTERNATOR	53 Amp 12 volt	75 Amp 12 volt	65 Amp 12 volt
BATTERY	(2) 204 A.H. 12 volt	(2) 204 A.H. 12 volt	(2) 204 A.H. 12 volt
AIR CLEANER	Dry Type	Dry Type	Dry Type
AIR COMPRESSOR	15 CFM	12 CFM	12 CFM
HOURMETER	Yes	Yes	Yes
STARTING SYSTEM	24 volt	24 volt	24 volt

Note: (1) GM and Cummins engines equipped with Jacobs engine brake. Units with Caterpillar engine are equipped with a drive line retarder.

(2) With air conditioning, engine horsepower and performance will be slightly reduced.

*Denotes Optional Equipment

AXLE WEIGHT DISTRIBUTION CHART

ITEM	POUNDS			KILOGRAMS		
	GROSS	FRONT	REAR	GROSS	FRONT	REAR
Basic standard machine to include: 44 to 140 ft. (13.4m - 42.7m) trapezoidal boom plus a 32 ft. (9.7m) swingaway extension, Gearmatic model 44 main hoist with 800 ft. of ¾" (243.8m of 22mm) rope, Grove model 32S-1716A auxiliary hoist w/650 ft. of ¾" (198.1m of 19mm) rope, 13,350 lbs. counterweight, Grove model 12x6-100 carrier, Cummins NTC350 (Carrier Engine), Cummins V555-C230 (superstructure engine).	147,367	43,008	101,359	66 845	19 508	45 976
*Remove std. 13,350 lbs. (6056kg) counterweight	-13,350	+6,693	-20,043	-6055	+3035	-9091
100 ton (90t), 6 sheave hook block (stowed)	+2,450	+4,215	-1,765	+1111	+1911	-800
Auxiliary boom head	+245	+476	-231	+111	+215	-104
Substitute model 44 free fall main hoist with 800 ft. of ¾" (243.8m of 22mm) rope	+270	-99	+369	+122	-44	+167
**Substitute 15,000 lbs. (6840kg) counterweight & remove std. Model 32S-1716A auxiliary hoist w/rope	-901	+432	-1,333	-408	+195	-604
Substitute GM8V-71T engine (carrier)	-400	-447	+47	-181	-203	+21
Substitute CAT3406TA engine (carrier)	+70	+78	-8	+32	+35	-4
Substitute GM6V-53N engine (superstructure)	-170	-52	-118	-77	-23	-53
Substitute CAT3208 engine (superstructure)	-298	-91	-207	-135	-41	-94
Remove std. 32 ft. (9.7m) swingaway extension	-1,703	-1,829	+126	-772	-830	+57
Remove std. main hoist with rope	-3,736	+1,369	-5,105	-1695	+621	-2316
Remove (2) front outrigger beams & jacks	-5,600	-3,302	-2,298	-2540	-1498	-1042
Remove (2) rear outrigger beams & jacks	-5,600	+2,253	-7,853	-2540	+1022	-3562

*Use 13,350 lbs. (6056kg) c/wgt. with standard model 32S-1716A auxiliary hoist.

**Use 15,000 lbs. (6840kg) c/wgt. without auxiliary hoist.



FEATURES

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

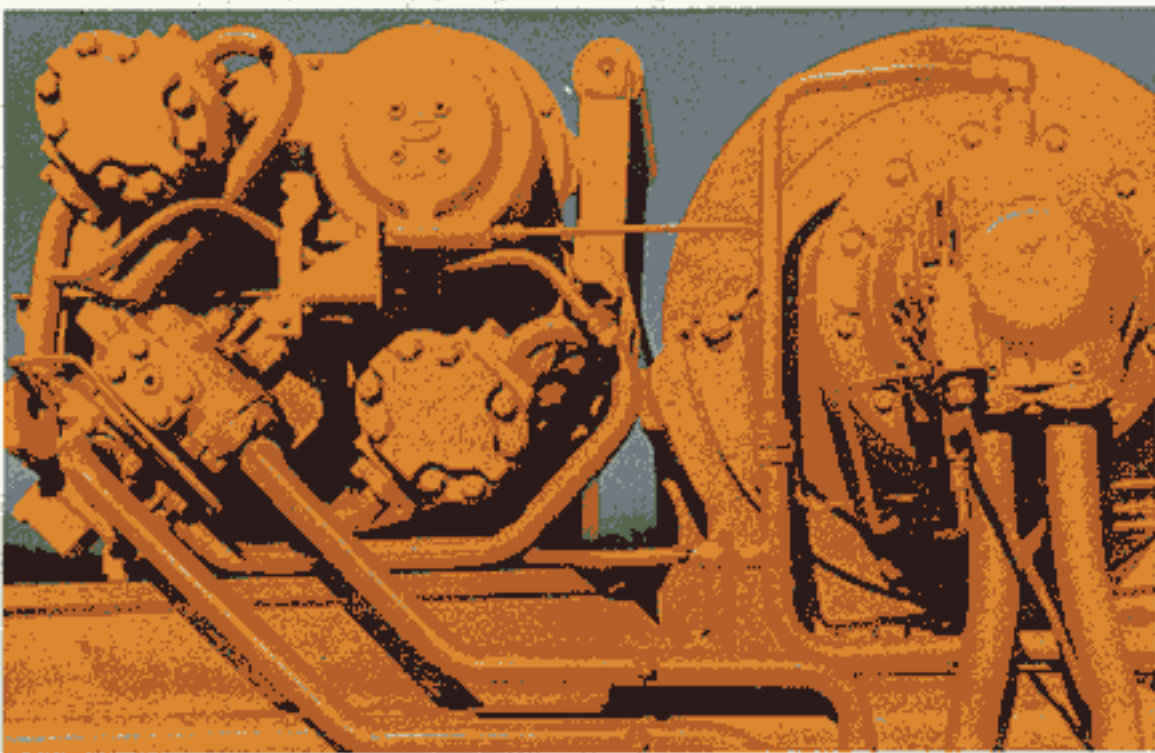
OPERATOR CONVENIENCE is another feature of the all steel acoustically treated cab. Notice that the full-length control levers are adjustable and combination hand and foot controls are provided for swing, boom elevation and throttle. Other features include complete engine controls and instrumentation,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

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 travel lock.

HOISTS: The main hoist is a Gearmatic Model 44, a two speed hoist providing both high line pull and speed ranges. Drive is planetary, power up and down with integral automatic brake. The auxiliary hoist is a Grove Model 32S-1716A[†] two speed hoist featuring two motors providing both high line pull and speed ranges. Drive is planetary reduction with integral automatic brake.

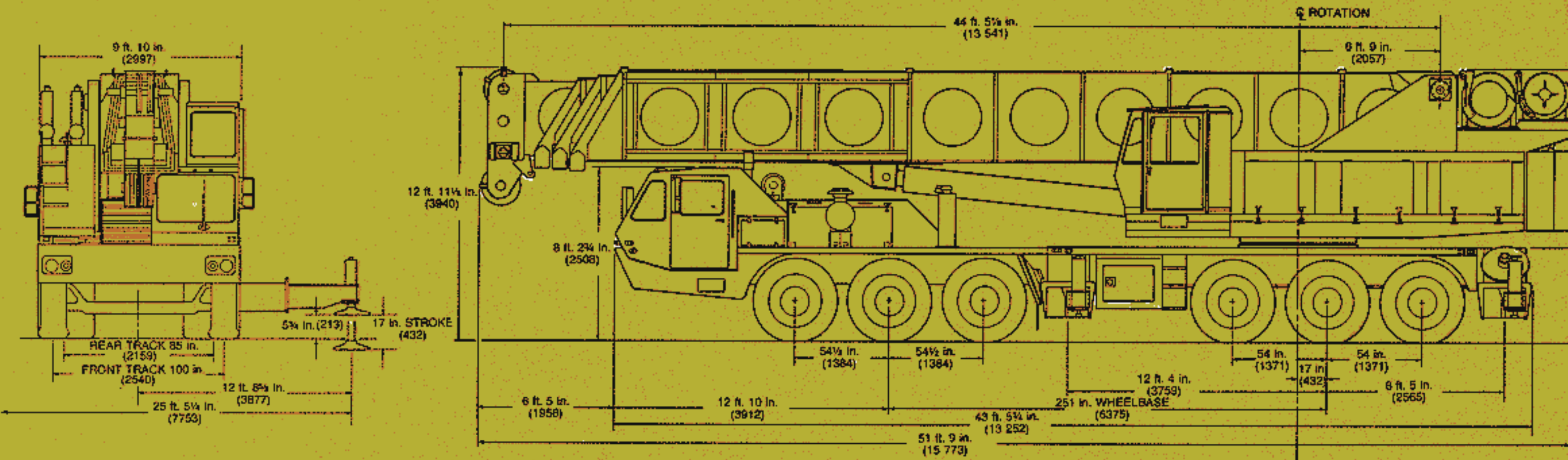
TWO-STAGE TELESCOPING OUTRIGGERS – Double box two-stage telescoping beam outriggers with integral welded boxes and removable beams extend to 25' 5¼" (7.8m), greatly increasing the working radii of the 9' 10" (3m) wide carrier.

VERTICAL JACK SPIN-LOCKS[†] – In addition to integral holding valves, exclusive Grove spinlocks provide positive locks for the jacks in any position.



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

DIMENSIONS



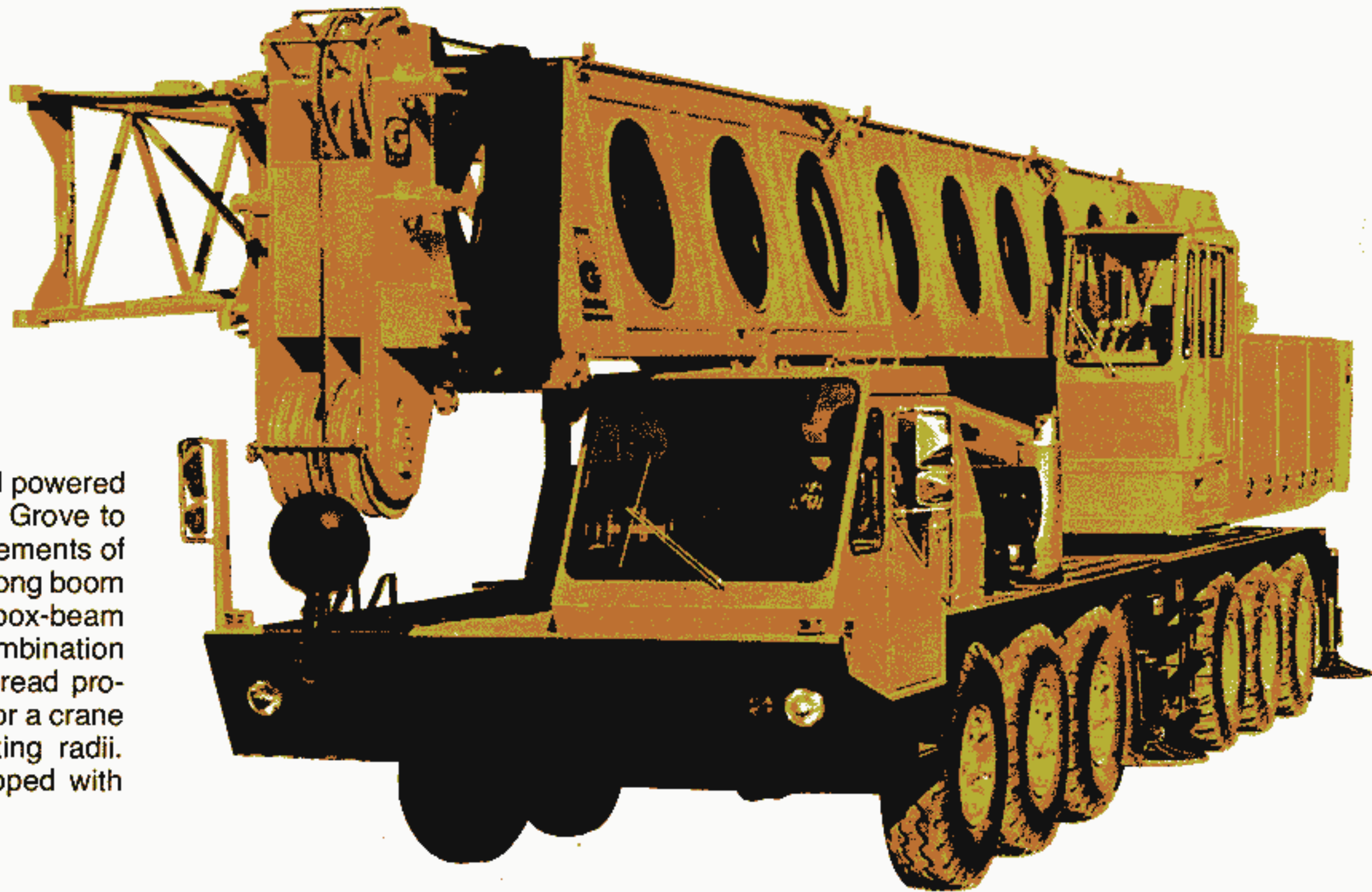
TURNING RADIUS 51 ft. 15.54m
 GROUND CLEARANCE 10 1/4 in. (outrigger float removed) 365mm
 TAIL SWING 13 ft. 1 3/8 in. (cwt. in travel position) 4.00m
 TAIL SWING 16 ft. 1 3/8 in. (cwt. in working position) 4.91m

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

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

THE GROVE CARRIER

The Grove designed diesel powered carrier is manufactured by Grove to match the particular requirements of the TM1075 crane and its long boom capability. The all-welded box-beam design steel frame in combination with the wide outrigger spread provides a stable lifting base for a crane of this capacity and working radii. The 12 x 6 carrier is equipped with a two-man cab.



HYDRAULIC CRANES

GROVE MANUFACTURING CO.

Division of Walter Kidde & Company, Inc.
 SHADY GROVE, PA. 17256 USA