



CARRIER SPECIFICATIONS

GROVE CARRIER, 8 x 4, 45 TON

OUTRIGGERS — Hydraulic, double box 2 stage telescoping beam outriggers. Removable beams, vertical jack cylinders with integral holding valves and 30½ in. (77.5cm) diameter aluminum floats. Mechanical spin locks on each vertical jack to secure outriggers at any level. Beams extend to 20 ft. (6.10m) centerline to centerline, retract to 8 ft. (2.44m) overall width. Full controls located in superstructure cab. Sight leveling bubble located in superstructure cab. Powered by carrier engine.

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

STEERING GEAR — Ross cam and lever type with Garrison hydraulic power assist.

CLUTCH — Lipe Rollway 14 in. two plate dry disc.
Area: 428 sq. in.

TRANSMISSION — Fuller roadranger (RTO-613), 13 speeds forward and 3 reverse.

UNIVERSAL JOINTS — Needle bearing type.

AXLES — Front: (2) Rockwell, 79 in. track, 33,000 lbs. capacity. Rear: (2) Rockwell S.R.H.D., 72 in. track, 44,000 lbs. capacity with interaxle differential and dash mounted control.

SUSPENSION — Front: Reyco spring mounted tandem; 49 in. spacing. Rear: Hendrickson solid mounted tandem, 50½ in. spacing.

FUEL TANK — Single 90 gallon mounted on left side of frame.

TIRES — Front: 12:00x20, 16 ply, Highway Tread. Rear: 11:00x20, 12 ply NDM&S Tread.

WHEELS — Front: Steel spoke 8½ in. x 20 in. Rear: Steel Spoke 8 in. x 20 in.

BRAKES — Stopmaster wedge type with full air on all eight wheels, 12 CFM compressor.

Total lining area 1508 sq. in.

Front: 15 in. x 5 in.

Rear: 15 in. x 7 in.

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, all steel, one man, 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, 2¾ lb. dry type fire extinguisher.

CAB INSTRUMENTATION — Electric tachometer, engine oil pressure gage, voltmeter, water temperature gage, speedometer, air pressure gage, electric fuel gage, high beam indicator, low air pressure audio-visual warning, low oil pressure warning light, hydraulic pump engaged warning light, rear axle lockout warning light, ignition-on indicator, parking brake visual 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

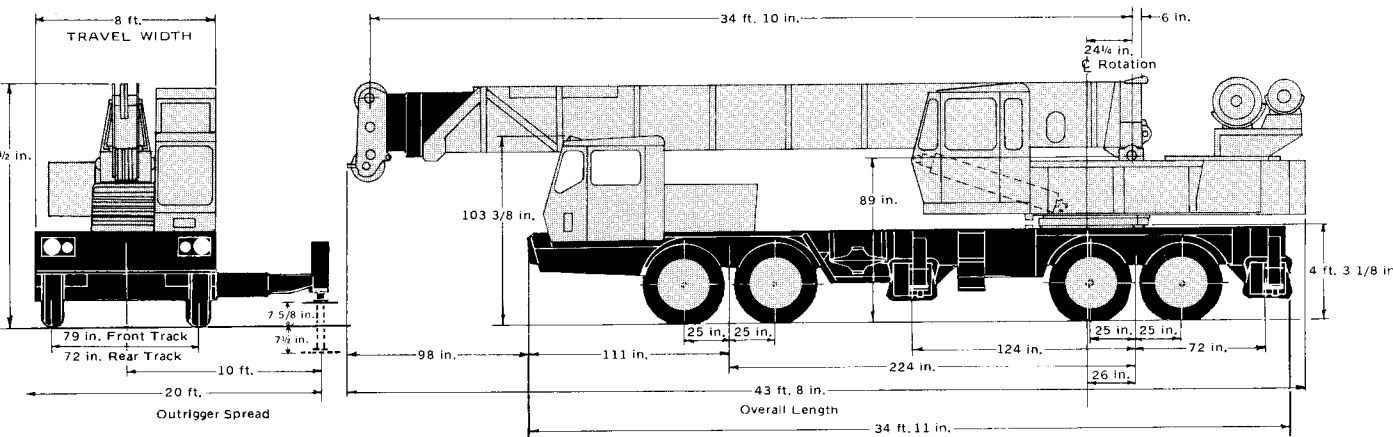
ROADRANGER TRANSMISSION (RTO 613)		
ENGINE	SPEED RANGES	% of Gradeability (@ Max. Torque)
GM6-71N	2.87 to 51.2 MPH	37.3 to .7%
Cummins NHF 240	3.13 to 56.04 MPH	36.79 to .64%

NOTE: Performance based on 72,000 lb. 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 NHF240
TYPE	6 Cylinder Diesel	6 Cylinder Diesel
BORE & STROKE	4.25 in. x 5 in.	5.5 in. x 6 in.
DISPLACEMENT	426 cu. in.	855 cu. in.
HORSEPOWER (NET)	213 @ 2100 RPM	205 @ 2300 RPM
GOVERNED RPM	2100 RPM	2300 RPM
TORQUE (NET)	582 lbs. ft. @ 1400 RPM	548 lbs. ft. @ 1500 RPM
ELECTRICAL SYSTEM	12 volt, negative ground	12 volt, negative ground
COMBUSTION SYSTEM	2 cycle, naturally aspirated	4 cycle, naturally aspirated
COOLING SYSTEM	Liquid	Liquid
FUEL CAPACITY	90 gallons	90 gallons
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

DIMENSIONS



TURNING RADIUS — 39 ft. 4 in.

GROUND CLEARANCE — 14 in.

TAIL SWING 10' — Counterweight in travel position

TAIL SWING 12' — Counterweight in working position

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



SUPERSTRUCTURE SPECIFICATIONS

TRAPEZOIDAL BOOM

BOOM — 35 ft. — 121 ft. (10.7m to 36.9m), 4 section, two full power telescoping trapezoidal sections to 89 ft. (27.1m) with integral check valves on each telescoping cylinder and a 32 ft. (9.75m) "Swingaway" lattice boom extension. Boom telescope sections are individually controlled. Each boom section is supported on graphite impregnated nylon 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 control lever provided for hand or foot operation.

JIB — 28 ft. (8.5m) jib section and 32 ft. (9.75m) "Swingaway" boom extension combine to make 60 ft. (18.3m) jib. Jib mast, guy mast, guy ropes and backstops included in jib make up. Jib sheave mounted on tapered roller bearings. 60 ft. jib may be offset 7½°.

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

CAB — Full vision, all steel, fully enclosed, laminated safety glass windows throughout, removable windshield with storage provision, 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, boom angle indicator, propane heater, defroster fan, electric windshield wiper, swing horn, door and window locks, domelight, dashlight, 2¾ lb. dry type fire extinguisher.

CAB INSTRUMENTATION — Engine oil pressure gage, engine water temperature gage, voltmeter, electric tachometer, electric fuel gage, ignition-on indicator light.

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

COUNTERWEIGHT — 7,500 lb. turntable mounted, power installed and removed, hydraulically extended to working position and retracted to stowed or travel position.

HYDRAULIC SYSTEM:

RESERVOIR — 140 gallon (530 liter), steel welded construction with integral baffles and clean out access, and oil level dipstick.

FILTER — Return line type, full flow with bypass protection, replaceable cartridge.

PUMPS — Four section gear, driven from front of carrier engine manual pump disconnect operated from carrier cab. 146 GPM capacity.

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.

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

POWER DISTRIBUTION — (swing) (main hoist, auxiliary hoist) (boom elevation, main hoist boost, mid telescope, accessory) (fly telescope, boom elevation boost).

*Denotes Optional Equipment

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-16	AUXILIARY HOIST (FREE FALL) Gearmatic Model 40SGEGR
Drum Dimensions (cm)	16 in. diameter (41cm) 16 in. length (41cm) 24 in. flange dia. (61cm)	12 in. diameter (31cm) 16 in. length (41cm) 17.5 in. flange dia. (45cm)	9 in. diameter (23cm) 13 in. length (33cm) 17.5 in. flange dia. (45cm)
Performance:	Hi-Speed Range Lo-Speed Range		
Max. Single Line Speed (mpm)	525 FPM (160 mpm)	265 FPM (80 mpm)	290 FPM (88.3 mpm)
Max. Single Line Pull (kgs)	7560 lbs. (3429 kgs)	15,120 lbs. (6858 kgs)	9145 lbs. (4148.6 kgs)
Drum Rope Storage Capacity	**650 ft. of ¾ in. dia. rope (198.1m of 1.9cm)	720 ft. of ½ in. dia. rope (219.5m of 1.3cm) 480 ft. of ⅝ in. dia. rope (146.3m of 1.6cm)	675 ft. of ½ in. dia. rope (205.7m of 1.3cm)
Permissible Single Line Rope Pull (kgs)	¾ in. 6x41 class - 13,145 lbs. (5962.5 kgs) ¾ in. 19x7 class - 13,145 lbs. (5962.5 kgs)	½ in. 6x37 class - 6,970 lbs. (3161.6 kgs) ½ in. 19x7 class - 6,150 lbs. (2789.6 kgs) ⅝ in. 6x41 class - 6,900 lbs. (3129.8 kgs)	½ in. 19x7 class - 6,150 lbs. (2789.6 kgs) ½ in. 6x37 class - 7,200 lbs. (3265.8 kgs)

*Denotes Optional Equipment

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

AXLE WEIGHT DISTRIBUTION CHART

ITEM	GROSS LBS.	FRONT LBS.	REAR LBS.
Basic machine including 4 section 35 ft. — 121 ft. (10.7m to 36.9m) boom, two trapezoidal telescoping full power sections and a 32 ft. (9.75m) "Swingaway" boom extension, 7500 lb. counterweight retracted, GM6-71N engine, Roadranger RTO-613 Transmission, Reyco front suspension, Grove Model 30A main hoist, 500 ft. of ¾ in. dia. rope and front mounted pumps.	74,160	30,300	43,860
*Remove 7500 lb. counterweight	-7,500	+2,678	-10,178
Remove 32 ft. "swingaway" boom extension	-1,300	-1,200	-100
Add 45 ton, 4 sheave hook block (stowed position)	+700	+1,113	-413
Add auxiliary boom head	+190	+351	-161
**Model 40 SGEGR Auxiliary hoist with 450 ft. of ½ in. dia. rope	+976	-356	+1,332
**Model 15S-16 Auxiliary hoist with 450 ft. of ⅝ in. dia. rope	+981	-359	+1,340
Substitute Cummins NHF-240	+310	+310	
Remove (2) front outrigger beams	-3,000	-1,661	-1,339
Remove (2) rear outrigger beams	-3,000	-964	-3,964
**Remove 6800 lb. counterweight	-6,800	+2,428	-9,228

*Use 7500 lb. counterweight without auxiliary hoist

**Use 6800 lb. counterweight with auxiliary hoist

GROVE®

FULL HYDRAULIC CARRIER-MOUNTED CRANE

TMS 375LP

45 TON CAP.

PCSA CLASS 10-157

RATED LIFTING CAPACITIES 35 ft. - 121 ft. BOOM WITH FULLY EXTENDED OUTRIGGERS

ON OUTRIGGERS OVER SIDE

Radius in Feet	Trapezoidal Boom Length in Feet					89 + 32 Ext.
	*35	49	62	76	89	121
10	90,000					
12	80,000	56,000				
15	69,000	54,400	48,000			
20	53,000	49,800	44,300	35,000		
25	38,600	38,600	38,600	34,200	24,700	
30	25,900	25,900	25,900	25,900	23,700	17,500
35		19,500	19,500	19,500	19,500	15,000
40		15,700	15,700	15,700	15,700	13,000
45		12,500	12,500	12,500	12,500	11,550
50			10,100	10,100	10,100	10,400
55			8,300	8,300	8,300	9,400
60			6,800	6,800	6,800	8,060
65				5,600	5,600	6,780
70				4,600	4,600	5,700
75				3,750	3,750	4,800
80					3,000	4,050
85					2,400	3,425
90						2,850
95						2,350
100						1,900
105						1,500
110						1,150
115						850

**32 ft. Ext. Capacities	
Boom Angle	Capacity
76°	17,500
74°	15,000
72°	13,000
69°	11,550
67°	10,400
64°	9,400
61°	8,600
59°	7,900
56°	7,300
53°	6,800
49°	6,300
46°	5,900
42°	5,600
39°	5,300
34°	5,000
29°	4,700
24°	4,500
15°	4,300

Radius in Feet	60 ft. JIB CAPACITIES	
	No Offset	7½° Offset
10		
12		
15		
20		
25		
30		
35		
40		
45		
50	76.0°	11,000
55	74.0°	9,700
60	72.0°	8,500
65	70.5°	7,450
70	68.0°	6,550
75	66.5°	5,800
80	64.0°	5,300
85	62.0°	4,800
90	59.5°	4,050
95	57.5°	3,425
100	55.0°	2,850
105	52.5°	2,350
110	49.5°	1,900
115	47.0°	1,500
	44.0°	1,150
	40.5°	850

ON OUTRIGGERS OVER REAR

Radius in Feet	Trapezoidal Boom Length in Feet					89 + 32 Ext.
	*35	49	62	76	89	121
10	90,000					
12	80,000	56,000				
15	69,000	54,400	48,000			
20	53,000	49,800	44,300	35,000		
25	40,500	40,500	39,200	34,200	24,700	
30	27,100	27,100	27,100	27,100	23,700	17,500
35		20,500	20,500	20,500	20,500	15,000
40		17,000	17,000	17,000	17,000	13,000
45		13,800	13,800	13,800	13,800	11,550
50			11,400	11,400	11,400	10,400
55			9,550	9,550	9,550	9,400
60			8,000	8,000	8,000	8,600
65				6,800	6,800	7,600
70				5,750	5,750	6,500
75					4,850	5,600
80					4,000	4,800
85					3,400	4,150
90						3,550
95						3,050
100						2,550
105						2,150
110						1,800
115						1,450

**32 ft. Ext. Capacities	
Boom Angle	Capacity
76°	17,500
74°	15,000
72°	13,000
69°	11,550
67°	10,400
64°	9,400
61°	8,600
59°	7,900
56°	7,300
53°	6,800
49°	6,300
46°	5,900
42°	5,600
39°	5,300
34°	5,000
29°	4,700
24°	4,500
15°	4,300

Radius in Feet	60 ft. JIB CAPACITIES	
	No Offset	7½° Offset
10		
12		
15		
20		
25		
30		
35		
40		
45		
50	76.0°	11,000
55	74.0°	9,700
60	72.0°	8,500
65	70.5°	7,450
70	68.0°	6,550
75	66.5°	5,800
80	64.0°	5,300
85	62.0°	4,800
90	59.5°	4,050
95	57.5°	3,425
100	55.0°	2,850
105	52.5°	2,350
110	49.5°	1,900
115	47.0°	1,500
	44.0°	1,150
	40.5°	850

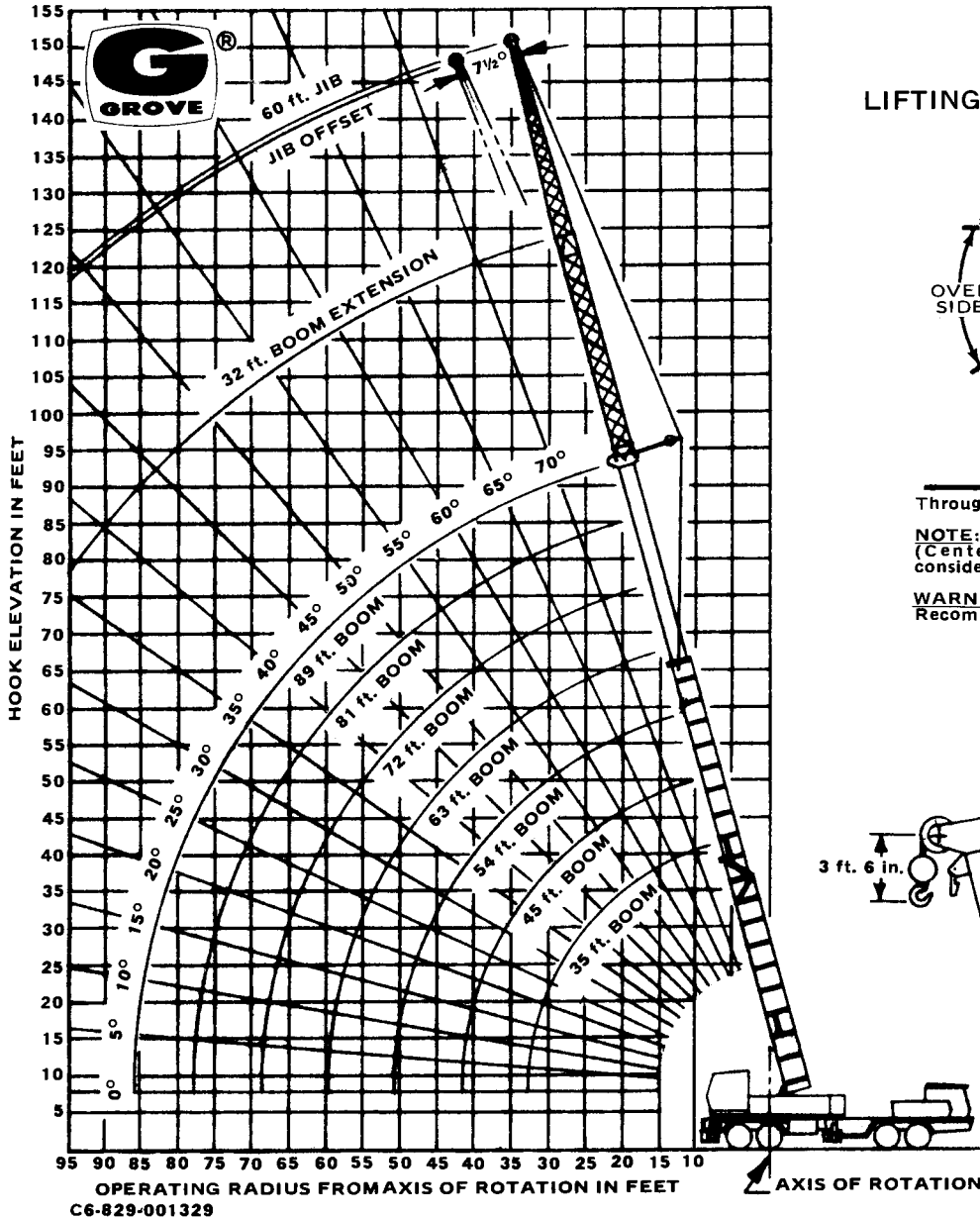
TRAPEZOIDAL BOOM and 32 FT. EXTENSION NOTES

Capacities appearing in shaded area are based upon structural strength and tipping should not be relied upon as a capacity limitation. Capacities are in pounds and do not exceed 85% of tipping loads with counterweight fully extended.
 *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 49 ft. boom length.
 **These capacities are based on structural strength of 32 ft. ext. at listed boom angle regardless of boom length. When lifting with 32 ft. ext. and LESS THAN a fully extended trapezoidal boom, the loads lifted MUST NOT EXCEED the 32 ft. ext. structural capacity at the listed boom angle OR the largest stability capacity listed for the actual working radius, whichever is less.

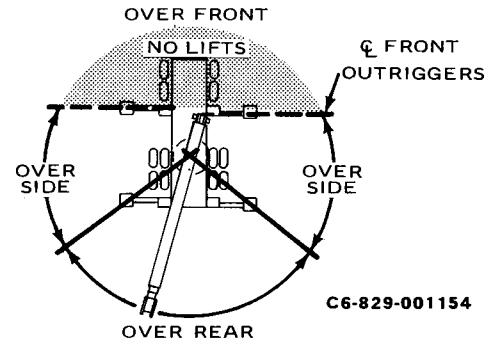
60 FT. JIB NOTES

Capacities appearing in shaded area are based on structural strength of the jib. Capacities below the shaded area are based on stability and do not exceed 85% of tipping loads with counterweight fully extended. Rated load is based on main boom angle regardless of main boom length. Radius in Feet column applies to jib capacities only with main boom fully extended. Maximum length of main boom for purposes of erecting 60 ft. jib is 62 ft.
WARNING: Operation of the machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with 60 ft. jib occurs rapidly and without advance notice. For main boom length greater than 62 ft. with 60 ft. jib in working position, the main boom angle must not be below 37° since loss of stability will occur causing a tipping condition.

RANGE DIAGRAM



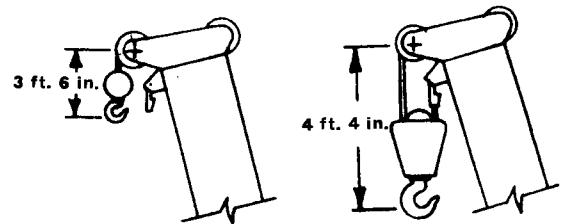
LIFTING AREAS ON OUTRIGGERS



— From Centerline of Rotation Through Centerline of Outrigger Pad.

NOTE: Boom crossing heavy dashed line (Centerline of Front Outriggers) is considered Over-the-Front.

WARNING: No Over-the-Front Lifting Recommended.



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.), if specified as 2.5 MPH loads, 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 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 cylinders may not be possible. Operational safety is not affected by 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 11,250 lbs. of load.
- All load handling devices and/or boom attachments are considered part of the load and suitable allowances must be made.