

UNDERCARRIAGE

Gross Vehicle Weight Rating: 49,000 lb (22,226 kg), axle rating.

Wheelbase: 120" (3 m)

Frame width: 35½" (90 cm)

ENGINE

GM 3-53T turbocharged diesel, 3 cylinder, 159 cid (2.6 L), 125 gross hp (93 kW) at 2500 rpm (max. 2600 rpm with torque converter, no load), 302 ft-lb (409 Nm) gross torque at 1600 rpm, 3.875" bore x 4.5" stroke (98 mm x 114 mm), 18.7:1 compression ratio, 5A60 injectors. Engine rated for 6000' (1829 m) altitude, at 100°F (37.7°C) dry or 65°F (18°C) with 82% relative humidity; de-rate 3% per 1000' (305 m) above 6000' (1829 m).

Full flow oil filter, spin-on cartridge.

Two-stage dry-type air cleaner: 1st stage pre-cleaner with angled vanes; 2nd stage primary element. Vacuum valve, service indicator.

Mechanical fuel pump on engine, primary and secondary fuel filters, 75 gal (284 L) fuel tank.

12 volt electrical system; 42 amp alternator with integral voltage regulator. Battery: SAE #8D CIM-900.

Fin and tube type radiator, 5-blade fan, fan shroud.

Mechanical variable speed governor, 2600 rpm.

Optional: Spark arrestor.

TORQUE CONVERTER

Clark 2262, 12.6" (320 mm), 2.29:1 stall torque ratio, 12" (305 mm) circuit diameter.

TRANSMISSION

Clark R-18627, 6-speed. 4-wheel drive in low range, 2-wheel drive in high range.

Travel speed — mph (km/h):

	Low Range 4-Wheel Drive	High Range 2-Wheel Drive
1st	3.3 (5.3)	6.3 (10)
2nd	6.4 (10)	12 (19)
3rd	14 (23)	22 (35)

UNIVERSAL JOINTS

Spicer 1550 and 1610 series.

AXLES

Front: Rockwell PSM824, 27,000 lbs (12,247 kg)

Rear: Rockwell PRM672, 22,000 lbs (9979 kg)

Planetary reduction axles, Hi-Traction differential. Total reduction 16.65:1.

Optional: No-spin differential on rear axle.

FRAME

Boxed C-channel construction, 15" (38 cm), 40 lbs/ft (60 kg/m). All welded.

SUSPENSION

Front axle pinned in center, with automatic oscillation lock-out cylinder for each front wheel. 12" (30 cm) oscillation.

Rear axle solid mounted.

BRAKES

4-wheel air over hydraulic, split hydraulic system, with Rockwell hydraulic brakes. 17¼" x 4" (438 mm x 102 mm) drum all wheels.

Spring set emergency and parking brake on transmission output shaft.

Automatic moisture valves with thermostat-controlled heaters on air tanks.

7½ cfm (3.4 L/sec) air compressor.

WHEELS

Disc type.

TIRES

14.00 x 24 12-ply rating, with traction tread.

Optional: 17.5 x 25 14-ply rating, super ground grip tread.

STEERING

Char-Lynn control unit, Hydrostatic power steering, completely fluid linked. Turning radius: 29'6" (9 m) outside circle.

STABILIZERS

Individually controlled stabilizers on rear, 15" x 15" (38 cm x 38 cm) pads.

STANDARD EQUIPMENT

Sealed beam headlights, tail/stop lights, tail/turn lights, back-up lights, clearance lights, identification lights, turn signals, hazard warning lights, instrument lights.

Travel alarm: electrically operated, signals undercarriage movement in low range in either direction. Meets SAE J-994b Type B classification.

Front tow eyes, fire extinguisher.

WEIGHT

Approximate working weight, with 30" (76 cm) excavating bucket, full fuel tank: 36,000 lbs (16,330 kg).

ATTACHMENTS

8345-6002 30" (76 cm) Excavating bucket

8345-6003 24" (61 cm) Excavating bucket

8345-6006 36" (91 cm) Excavating bucket

8345-6005 30" (76 cm) Pavement removal bucket

8345-6018 60" (152 cm) Ditching bucket

8345-6019 66" (168 cm) Ditch cleaning bucket

8345-6015 Single-tooth ripper

8345-6004 8' (2.4 m) Grading blade

7715-5001 4' (1.2 m) Boom extension

7715-5003 Material handling extension

Fluid capacities in U.S. gallons.

Specifications subject to change without notice.

G3R

GRADALL®

Hydraulic Excavators



Rough Terrain



Specifications, Operating Ranges

m No. 8213

MAKING THE BEST EVEN BETTER

GRADALL®
Hydraulic Excavators

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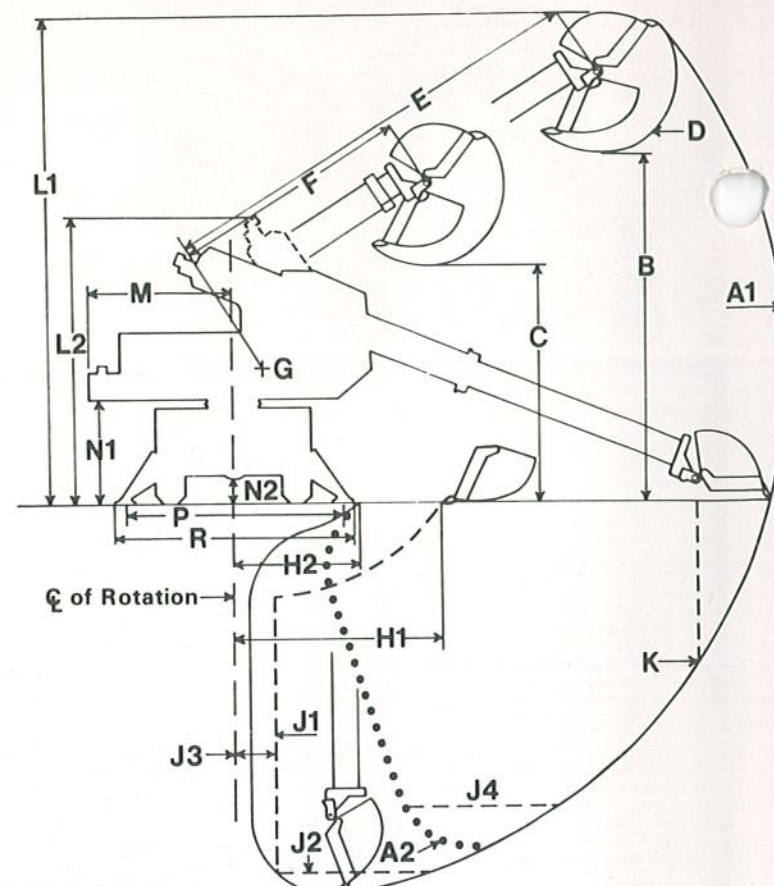
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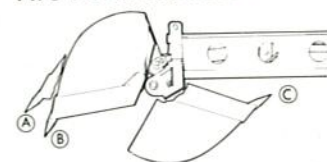
**Warner &
Swasey**

Operating ranges shown are for machine equipped with 30" (76 cm) excavating bucket, standard 14.00 x 24 tires, hoist pin position A.

- A₁ — Maximum range
Reach: 28'2" (8.6 m) at 6'8" (2 m) above ground level
Surface reach: 27'4" (8.3 m)
Digging depth, over side: 19'9" (6.0 m)
 - A₂ — Digging depth, over rear: 17'4" (5.3 m)
 - B — Loading height, boom extended: 17'4" (5.3 m)
 - C — Loading height, boom retracted: 11'9" (3.6 m)
 - D — Bucket pivot: 170°
 - E — Boom length, extended: 22'6" (6.9 m)
 - F — Boom length, retracted: 12' (3.7 m)
 - G — Boom pivot point, 6'8" (2 m) above ground level, 1'6" (0.5 m) forward from centerline of rotation.
 - H₁ — Minimum reach for surface clean-up, bucket level at ground line, boom retracted: 10'9" (3.3 m)
 - H₂ — Minimum surface reach, digging: 6'6" (2.0 m)
 - J₁ — Level cut range
 - J₂ — Maximum depth 8' (2.4 m) level cut: 18'4" (5.6 m)
 - J₃ — Minimum radius of level cut range: 2'6" (0.8 m)
 - J₄ — Maximum depth 8' (2.4 m) level cut, over rear: 14'9" (4.5 m)
 - K — Maximum depth of vertical wall cut: 8'2" (2.5 m)
 - L₁ — Maximum working height: 24'3" (7.4 m)
 - L₂ — Maximum working height with bucket below ground level: 14'4" (4.4 m)
 - M — Tail swing: 7'6" (2.3 m)
 - N₁ — Upperstructure ground clearance: 5'2" (1.6 m)
 - N₂ — Undercarriage ground clearance: 15" (38.1 cm)
 - P — Effective spread of stabilizers at ground level: 10'8" (3.3 m)
 - R — Overall width at ground level, stabilizers down: 11'11" (3.6 m)
- Boom telescoping action: 10'6" (3.2 m)
Boom tilt: 180°
Swing: continuous



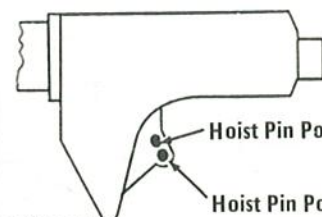
TWO-POSITION BUCKET



- A — Bucket open, lower pin position, for vertical walls or deep excavating. Bucket pivot 170°.
- B — Bucket open, upper pin position, for most applications. Bucket pivot 150°.
- C — Bucket closed, either pin position.

Boom Raise and Lower

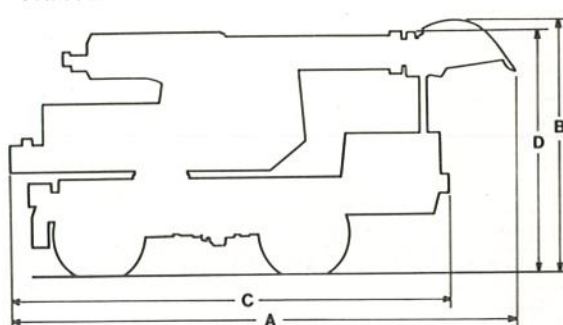
	Over Side	Over Rear
Above Level	32°	32°
Below Level	90°	71°
Total arc	122°	103°



Operating ranges will vary according to pivot radius of attachment used.

Attachment	Pivot Radius
8345-6002 30" (76 cm) Excav. Bucket	48" (122 cm)
8345-6003 24" (61 cm) Excav. Bucket	33" (84 cm)
8345-6006 36" (91 cm) Excav. Bucket	43" (109 cm)
8345-6005 30" (76 cm) Pavement Removal Bckt.	42" (107 cm)
8345-6018 60" (152 cm) Ditching Bucket	36" (91 cm)
8345-6019 66" (168 cm) Ditch Cleaning Bckt.	30" (76 cm)
8345-6015 Single-tooth Ripper	27" (69 cm)
8345-6004 8' (2.4 m) Grading Blade	30" (76 cm)

TRAVEL POSITION



- A — Overall length, with bucket: 23'6" (7.2 m)
 - B — Overall height, with bucket: 12'7" (3.8 m)
 - C — Overall length, without bucket: 21'5" (6.5 m)
 - D — Overall height, without bucket: 12' (3.7 m)
- Overall width, stabilizers up: 8' (2.4 m)

RATED LIFT CAPACITY, OVER SIDE OR REAR Lb (kg)

The above loads are in compliance with SAE Standard J-1097. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.

All loads with an asterisk (*) indicate the load is limited by hydraulic rather than tipping capacity.

The rated lift is based on the machine being equipped with 2800 lb (1270 kg) counterweight and 8345-6002 30" (76 cm) excavating bucket weighing 620 lb (281 kg), with stabilizers applied. If other attachments are used, the rated lift capacity must be adjusted.

The load point is located on the bucket pivot point, including loads listed for maximum radius. Do not attempt to gain additional radius by wrapping the load line around the back of the bucket.

Do not attempt to lift or hold any load greater than these rated values at specified load radii and heights. The weight of slings and any auxiliary lifting devices must be deducted from the rated load to determine the net load that may be lifted.

CAUTION: All rated loads are based on the machine being level on a firm supporting surface. For safe working loads, the user is expected to make due allowance for his particular job conditions, such as soft or uneven ground, out of level conditions, side loads, hazardous conditions, experience of personnel, etc. The operator and other personnel should fully acquaint themselves with the Operator's Manual furnished by the manufacturer before operating this machine, and rules for safe operation of equipment should be adhered to at all times.

HOIST PIN POSITION B

LOAD POINT HEIGHT	LOAD RADIUS					
	5' (1.5 m)	10' (3.0 m)	13'6" (4.1 m)	15' (4.6 m)	20' (6.1 m)	Maximum Radius
Above Ground Level	15' (4.6 m)			*5564 (2523)	*3598 (1631)	*2892 @ 22'8" (1311) (6.9 m)
	10' (3.0 m)			*6098 (2765)	*3804 (1725)	*2705 @ 24'0" (1227) (7.3 m)
	Boom Level 9'10" (3.0 m)		*7157 (3246)	*6096 (2765)	*3803 (1725)	*2702 @ 24'0" (1225) (7.3 m)
	5' (1.5 m)			*5465 (2478)	*3538 (1604)	*2511 @ 24'2" (1139) (7.4 m)
At Ground Level						
Below Ground Level	5' (1.5 m)		*3908 (1772)	*3144 (1426)	*2336 (1059)	*2187 @ 20'10" (991) (6.3 m)
	10' (3.0 m)		*2884 (1308)	*2325 (1054)		

HOIST PIN POSITION A

LOAD POINT HEIGHT	LOAD RADIUS					
	5' (1.5 m)	10' (3.0 m)	13'6" (4.1 m)	15' (4.6 m)	20' (6.1 m)	Maximum Radius
Above Ground Level	15' (4.6 m)			*4402 (1996)	*2819 (1278)	*2233 @ 22'8" (1013) (6.9 m)
	10' (3.0 m)			*5328 (2416)	*3244 (1471)	*2245 @ 24'0" (1018) (7.3 m)
	Boom Level 9'10" (3.0 m)		*6299 (2856)	*5333 (2418)	*3246 (1472)	*2245 @ 24'0" (1018) (7.3 m)
	5' (1.5 m)			*5094 (2310)	*3194 (1448)	*2201 @ 24'2" (998) (7.4 m)
At Ground Level						
Below Ground Level	5' (1.5 m)		*4343 (1969)	*3231 (1465)	*2294 (1040)	*2130 @ 20'10" (966) (6.3 m)
	10' (3.0 m)		*5439 (2467)	*3422 (1552)		
	15' (4.6 m)		*5364 (2433)	*2515 (1141)		

G3R SPECIFICATIONS

HYDRAULIC SYSTEM

Main Pump: 3-section tandem gear pump, flange-mounted to torque converter. 70 gpm (265 L/min) at 2200 rpm.

Auxiliary Pump: 1-section gear pump, flange-mounted to engine accessory pad. 13 gpm (49 L/min) at 2500 rpm.

Cylinders:

	Bore	Rod	Stroke
Boom Hoist (1)	6" 152 mm	3" 76 mm	42" 1067 mm
Boom Telescope (1)	3.5" 89 mm	2.25" 57 mm	126" 3200 mm
Tool (1)	5" 127 mm	3" 76 mm	19.6" 498 mm
Axle Oscillation (2)	5" 127 mm	2.25" 57 mm	7.5" 191 mm
Stabilizer (2)	5" 127 mm	2.25" 57 mm	18.5" 470 mm

Hydraulic Motors:

	Type	Displacement —/Revolution
Swing	Piston	3.72 cu in (61 cm ³)
Boom Tilt	Piston	2.5 cu in (41 cm ³)

Operating Pressures —

Hoist, tool, and travel: 2650 psi (18,271 kPa)

Telescope and tilt: 2550 psi (17,582 kPa)

Swing: 2400 psi (16,548 kPa)

Control Valves: 3 monoblock, pilot-operated, directional control valves with pump relief valves. Hoist and tool, telescope and tilt, swing.

Oil Capacity: Reservoir, 75 gal (284 L), with visual oil level gauges; system, 90 gal (341 L).

Filtration: In-line return filter, 10 micron, with electric indicator; in-line pressure filter, 5 micron, with electric indicator.

Heat exchanger: Fin and tube type.

Closed system, with reservoir pressurized to 5 psi (34 kPa).

CAB

All steel fully-enclosed cab with tinted glass windows, skylight, acoustical treatment, lighter, ash tray. Front window removable, stored in cab. Rear window slides open. Windshield wiper, washer.

Optional: diesel-fired hot air heater.

CONTROLS AND INSTRUMENTS

Two joysticks for all upperstructure operations: right joystick controls swing and boom telescoping, with rocker switch for boom tilt; left joystick controls boom hoist and tool, with rocker switch for horn. Dead-man type are self-centering: when controls are released, power for movement disengages.

Foot pedals: throttle and service brakes.

Key-operated ignition/starter switch with key-on light, 4-position dig throttle switch, joystick on-off switch with automatic joystick kill switch in seat, 2 stabilizer control switches, parking brake button, dig brake switch with brake-on light, air pressure gauge with low-air warning light and buzzer, volt meter, hour meter. Warning lights for brake condition and hydraulic filters.

Three transmission control switches: three-position gear selector, hi-low rocker switch, forward-neutral-reverse switch.

Undercarriage gauges on engine housing: engine oil pressure, water temperature, fuel, transmission oil pressure, torque converter temperature. Engine oil pressure and water temperature gauges linked to alert buzzer and light in cab.