

CAB

All-weather cab with safety-glass windows, skylight, acoustical treatment, heater and defroster. Front window removable, stored in cab.

CONTROLS

Two joysticks (hoist & bucket, telescope & swing), one rocker pedal (tilt) control upperstructure. Joysticks mounted on movable console, adjustable for individual operator convenience.

One joystick on fixed console for crawler operation.

Pump selector valve, foot selector for travel speed. Joysticks and rocker pedal are self-centering: when controls are released, power for movement disengages.

Engine controls: key-operated ignition/starter switch with key-on warning light, throttle. Oil pressure and water temperature gauges, voltmeter, hour meter.

CRAWLER

Tractor-type crawler with triple-grouser pads. Automatic digging brake, spring set, hydraulic release. Lifetime lubricated sealed rollers, hydraulic track adjustment. Track guides.

Track length: 12' (3.7 m)

Pad width: 24" (61 cm) or 30" (76 cm)

Overall width: 9'2" (2.8 m), either pad size

Ground clearance: 15" (38 cm)

DRIVE

Two-section hydraulic motor, 73 hp (54 kW), powers each track; all-gear drive.

Travel speed — mph (km/hr):

Speed Selector	Pump Flow	
	High	Low
High	2.2 (3.5)	1.3 (2.1)
Low	1.1 (1.8)	.65 (1.0)

Travel speed can be shifted while moving.

Gradeability: Low speed, 60%, limited by engine lubrication requirements; high speed, 37%.

Drawbar pull: 33,284 lb (148 kN) maximum.

STEERING

Individual track control with single joystick. Tracks counter-rotate to pivot machine around on centerline.

TRAVEL ALARM

Electrically operated travel alarm mounted in counterweight area signals crawler movement in either direction. Meets SAE J-994b Type B classification.

WEIGHT

Approximate working weight, including 36" (91 cm) bucket, full fuel tanks —

	24" (61 cm) Pads	30" (76 cm) Pads
Weight	45,600 lb 20,684 kg	46,500 lb 21,092 kg
Bearing Pressure	7.76 psi 54 kPa	6.32 psi 44 kPa

Above weights include 2400 lb (1089 kg) counterweight.

OPTIONAL EQUIPMENT

Work lights: 2 floodlights on top of boom cradle, 1 floodlight and 1 spotlight on top of cab.

Windshield wiper.

Heat resistant glass.

Fuel gauge.

Engine alarms: lights and buzzer in cab, to warn of low oil pressure or high water temperature in engine.

Engine pre-cleaner.

Single-point lifting yoke.

High boom cradle adapter: Raises boom pivot 4' (1.2 m) higher than standard, for increased above-ground reach as may be needed for certain industrial and mine scaling applications. Boom raise and lower with high cradle: 50° above level, 70° below level.

Vandalism protection kit: Lexan glass in cab windows, locking bars for engine covers, locking cover on hydraulic reservoir, locking fuel cap, battery cover lock.

Spark arrestor.

ATTACHMENTS

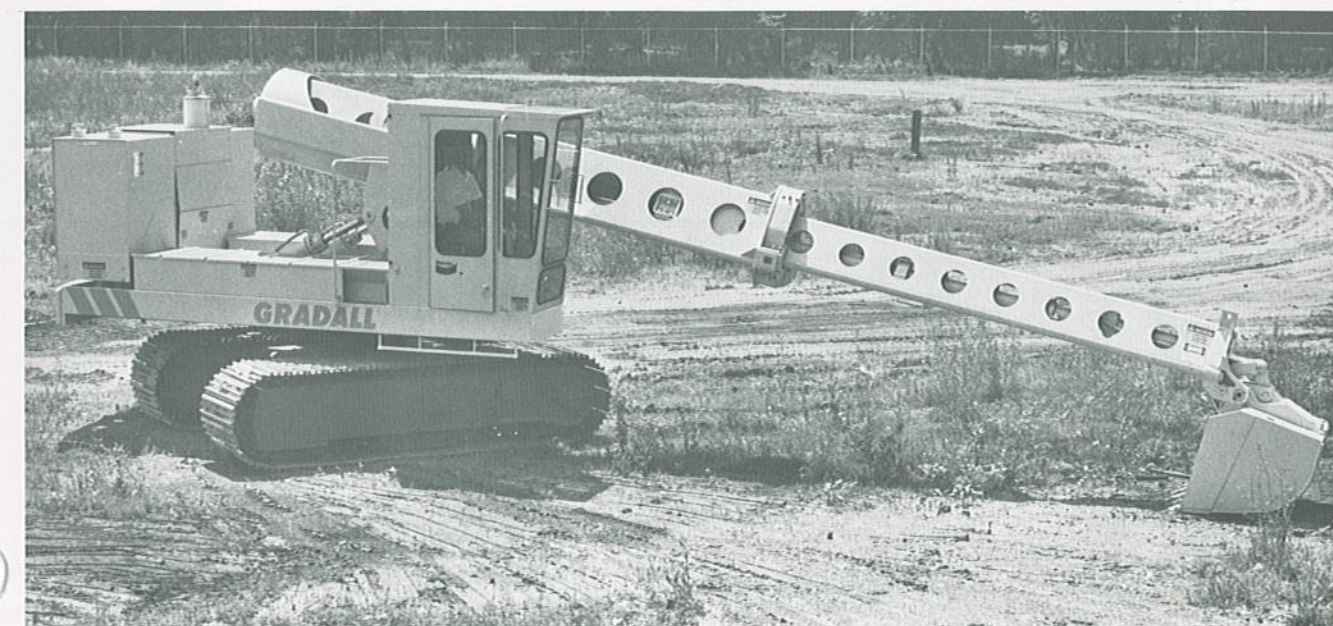
- 8365-6004 36" (91 cm) Excavating bucket
- 8365-6006 48" (122 cm) Excavating bucket
- 8365-6003 42" (107 cm) Excavating bucket
- 8365-6007 30" (76 cm) Excavating bucket
- 8365-6005 24" (61 cm) Excavating bucket
- 8365-6011 21" (53 cm) Trenching bucket
- 8365-6012 15" (38 cm) Trenching bucket
- 8365-6009 40" (102 cm) Pavement removal bucket
- 8365-6008 60" (152 cm) Ditching bucket
- 8665-6085 72" (183 cm) Dredging bucket
- 8365-6013 Single-tooth ripper
- 8365-6014 Industrial hook
- 8365-6010 8' (2.4 m) Grading blade
- 8665-5003 4' (1.2 m) Boom extension
- 8665-5010 6' (1.8 m) Boom extension
- 8665-5002 8' (2.4 m) Boom extension
- 8665-5004 12' (3.7 m) Tubular boom extension

Fluid capacities in U.S. gallons. Specifications subject to change without notice.

G660C

GRADALL®

Hydraulic Excavators



CRAWLER



Specifications, Operating Ranges

Form EE-18303

MAKING THE BEST EVEN BETTER

GRADALL®
Hydraulic Excavators

New Philadelphia OH 44663

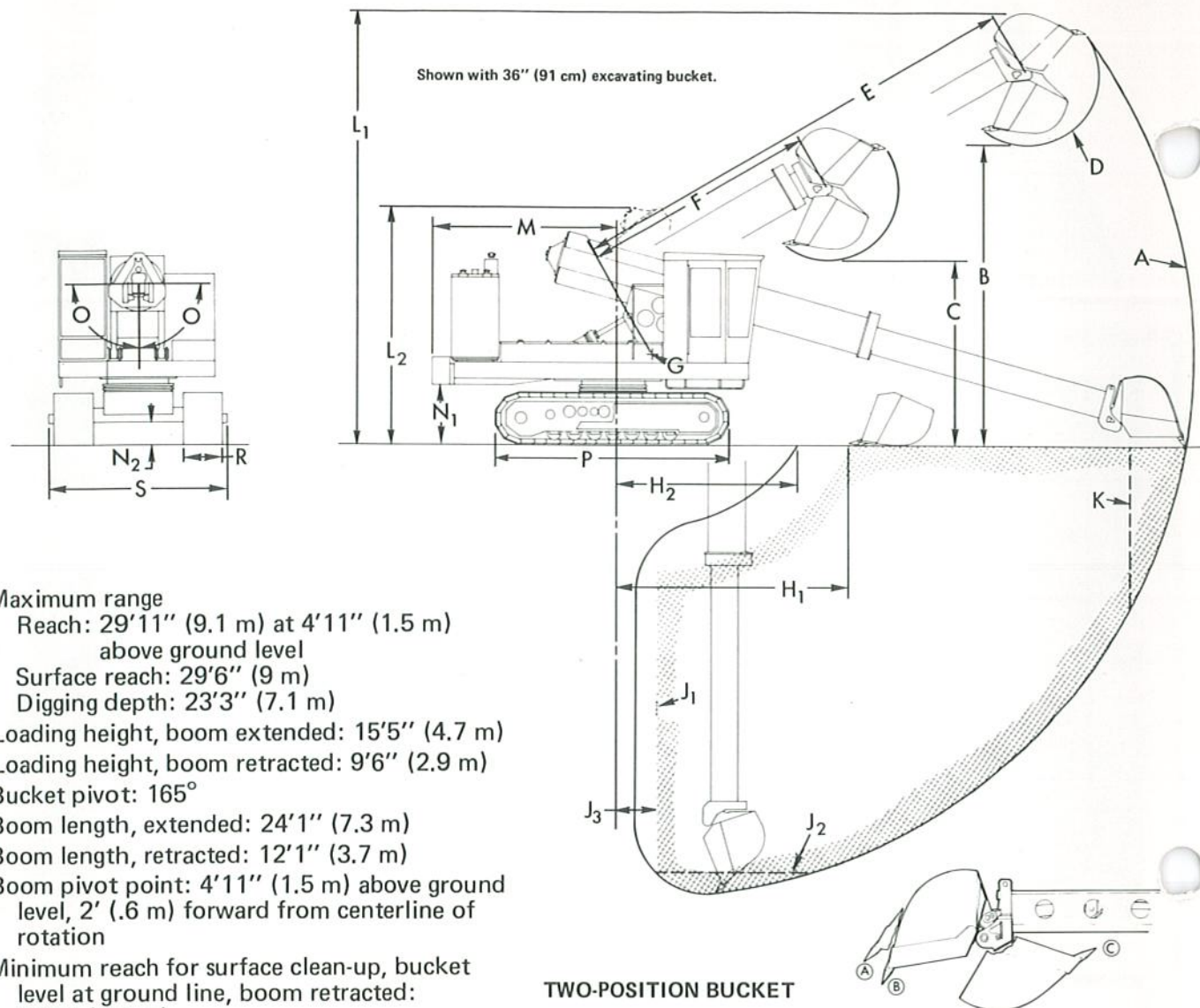


1/83-15MC
Printed in U.S.A.



Warner & Swasey

Form EE-18303
(Replaces 8203)



- A — Maximum range
Reach: 29'11" (9.1 m) at 4'11" (1.5 m) above ground level
Surface reach: 29'6" (9 m)
Digging depth: 23'3" (7.1 m)
 - B — Loading height, boom extended: 15'5" (4.7 m)
 - C — Loading height, boom retracted: 9'6" (2.9 m)
 - D — Bucket pivot: 165°
 - E — Boom length, extended: 24'1" (7.3 m)
 - F — Boom length, retracted: 12'1" (3.7 m)
 - G — Boom pivot point: 4'11" (1.5 m) above ground level, 2' (.6 m) forward from centerline of rotation
 - H₁ — Minimum reach for surface clean-up, bucket level at ground line, boom retracted: 12'3" (3.7 m)
 - H₂ — Minimum surface reach, digging: 9'7" (2.9 m)
 - J₁ — Level cut range
 - J₂ — Maximum depth for 8' (2.4 m) level cut: 22'1" (6.7 m)
 - J₃ — Minimum radius of level cut range: 2'4" (.7 m)
 - K — Maximum depth of vertical wall cut: 8'6" (2.6 m)
 - L₁ — Maximum working height: 22'4" (6.8 m)
 - L₂ — Maximum working height with bucket below ground level: 12'3" (3.7 m)
 - M — Tail swing: 9'4" (2.8 m)
 - N₁ — Upperstructure ground clearance: 3'1" (.9 m)
 - N₂ — Crawler ground clearance: 15" (38 cm)
 - O — Boom tilt: 90° each way, total 180°
 - P — Crawler length: 12' (3.7 m)
 - R — Pad width: 24" (61 cm) or 30" (76 cm)
 - S — Overall width, either pad size: 9'2" (2.8 m)
- Boom raise and lower
Above level 30°
Below level 90°
Total arc 120°
- Boom telescoping action: 12' (3.7 m)
Swing: continuous

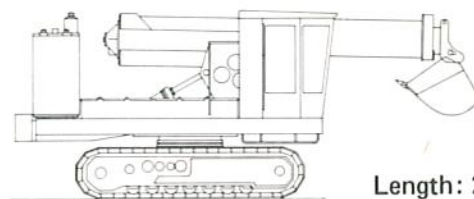
TWO-POSITION BUCKET

- A — Bucket open, lower pin position, for vertical walls or deep excavating. Bucket pivot 165°.
- B — Bucket open, upper pin position, for most applications. Bucket pivot 148°.
- C — Bucket closed, either pin position.

ABOVE-GROUND REACH

From ground level to attachment pivot point, with boom full up and extended:

	Without Boom Extension	With 4' (1.2 m) Boom Extension	With 8' (2.4 m) Boom Extension
Standard Boom Cradle Mounting	19'6" (5.9 m)	21'6" (6.6 m)	23'6" (7.2 m)
With Optional High Cradle Adapter	29'2" (8.9 m)	32'3" (9.8 m)	35'4" (10.8 m)



TRANSPORT POSITION

Length: 24'7½" (7.5 m)
Height: 10'2" (3.1 m)
Width: 9'2" (2.8 m)

Gradall is a registered trademark for hydraulic excavators built by The Warner & Swasey Co., a subsidiary of The Bendix Corporation.

OPERATING RANGES WITH BOOM EXTENSIONS

	4' (1.2 m) Extension & 30" (76 cm) Bucket	6' (1.8 m) Extension & 30" (76 cm) Bucket	8' (2.4 m) Extension & 30" (76 cm) Bucket	8' (2.4 m) Extension & Grading Blade
Surface Reach	33'6" (10.2 m)	35'6" (10.8 m)	37'6" (11.4 m)	36'3" (11 m)
Digging Depth	27'3" (8.3 m)	29'3" (8.9 m)	31'3" (9.5 m)	
Depth of 8' (2.4 m) level cut	26'1" (8 m)	28'3" (8.6 m)	30'3" (9.2 m)	
Loading Height, boom extended	17'5" (5.3 m)	18'5" (5.6 m)	19'5" (5.9 m)	

RATED LIFT CAPACITY OVER END OR SIDE — Lb (kg)

LOAD POINT HEIGHT	LOAD RADIUS						
	5' (1.5 m)	10' (3 m)	14'½" (4.3 m)	15' (4.6 m)	20' (6.1 m)	25' (7.6 m)	Maximum Radius
Above Ground Level	15' (4.6 m)			4664 (2115)	3237 (1468)		
	10' (3 m)			6918 (3137)	4292 (1946)	2756 (1250)	2585 @ 25'8" (1172) (7.8 m)
	Boom Level 7'6" (2.3 m)		Minimum Reach 8262 (3747)	7467 (3386)	4554 (2065)	2908 (1319)	2641 @ 26'1" (1198) (8 m)
	5' (1.5 m)			7637 (3463)	4686 (2125)	3004 (1362)	2690 @ 26'3" (1220) (8 m)
At Ground Level				6793 (3081)	4430 (2009)	2924 (1326)	2748 @ 25'8" (1246) (7.8 m)
Below Ground Level	5' (1.5 m)		7810 (3542)	5527 (2507)	3842 (1742)		
	10' (3 m)	11,150 (5057)	6279 (2848)	4469 (2027)	3209 (1455)		
	15' (4.6 m)	11,080 (5025)	5369 (2435)	3692 (1674)			

All loads shown are limited by hydraulic lift capacity rather than stability.

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.

Counterweight: 2400 lbs (1089 kg)

The rated lift capacity is based on the machine equipped with 8365-6004 36" (91 cm) excavating bucket weighing 690 lbs (313 kg). For other buckets, adjust the listed capacities as follows:

- 8365-6005 24" (61 cm) excavating — add 190 lbs (86 kg)
- 8365-6007 30" (76 cm) excavating — add 70 lbs (32 kg)
- 8365-6003 42" (107 cm) excavating — subtract 70 lbs (32 kg)
- 8365-6006 48" (122 cm) excavating — subtract 130 lbs (59 kg)
- 8365-6008 60" (152 cm) ditching — add 30 lbs (14 kg)
- 8365-6009 40" (102 cm) pavement removal — subtract 210 lbs (95 kg)

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.

ENGINE

GM 4-71N diesel, 160 hp (119 kW) at 2300 rpm (operating), 2 cycle, 4 cylinders, 284 cid (4.7 L), 4¼" bore x 5" stroke (108 mm x 127 mm), 18.7:1 compression ratio, 400 ft-lb (542 Nm) max. torque at 1600 rpm. Fuel tank capacity: 60 gal (227 L).

Electric starter, 55 amp alternator, dry type air cleaner with service indicator, oil filter.

Optional: Duetz F6L413FR diesel, 158 hp (118 kW) at 2300 rpm (operating), 6 cylinders, air cooled, 580 cid (9.5 L), 4.9" bore x 5.1" stroke (124 mm x 130 mm), 18:1 compression ratio, 450 ft-lb (610 Nm) max. torque at 1600 rpm.

V-HP HYDRAULIC SYSTEM

Two gear-type pumps (one 3-section, one 2-section) on gear box, mounted on engine, with clutch for cold-weather starting. Pressure-sensing unloader valve built into each pump to produce variable-flow output: minimum 102 gpm (386 L/min), maximum 150 gpm (563 L/min) total at 2300 rpm, 120°F (48.9°C).

Auxiliary pump, 5 gpm (19 L/min), mounted on engine.

Four double-acting cylinders —

- 2 boom hoist: 5" I.D., 2½" rod (127 mm x 70 mm)
- 1 tool: 5" I.D., 3" rod (127 mm x 76 mm)
- 1 telescoping: 4¾" I.D., 3" rod (121 mm x 76 mm)

Two hydraulic motors: swing, 44 hp (33 kW); tilt, 48 hp (36 kW).

Operating pressures —

- Hoist: 2500 psi (17,237 kPa)
- Tilt, tool: 2750 psi (18,961 kPa)
- Swing: 2500 psi (17,237 kPa)
- Boom: 1500 psi (10,342 kPa)
- Crawler: 2200 psi (15,169 kPa)
- Joysticks: 500 psi (3447 kPa)

Oil capacity: reservoir 100 gal (379 L), system 120 gal (454 L). Visual oil level gauges on reservoir.

Filtration system, built into reservoir: six filter elements (10 micron) with visual indicators, strainer on by-pass; magnet clusters built into filter housings; air filter on reservoir breather. Fin and tube type oil cooler, with thermostat-controlled valve. Pump relief valves on all circuits. Hose relief valves on hoist, telescope, swing, travel, and tool circuits.