

CAB

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

CONTROLS

3 levers, 2 pairs of pedals for all boom and upperstructure movements.

2 propel levers, one per track.

All controls are self-centering: when controls are released, power for movement disengages.

Foot selector for travel speed.

Engine controls: key-operated ignition/starter switch, throttle.

Engine gauges for oil pressure, water temperature; 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, 67 hp (50 kW), powers each track; all-gear drive.

Travel speed, forward or reverse:

With 4-53N engine — .9 mph (1.4 km/hr) or
1.9 mph (3.1 km/hr)

With 4-71N engine — 1 mph (1.6 km/hr) or
2 mph (3.2 km/hr)

Travel speed can be shifted while moving.

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

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

STEERING

Individual track control. Each track operated by separate lever.

Tracks counter-rotate to pivot machine around on centerline.

WEIGHT

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

	24" (61 cm) Pads	30" (76 cm) Pads
Weight	45,500 lbs 20,639 kg	46,400 lbs 21,047 kg
Bearing Pressure	7.74 psi 53 kPa	6.31 psi 44 kPa

Above weights include counterweight —

With 4-53N engine: 2750 lbs (1247 kg)

With 4-71N engine: 2400 lbs (1089 kg)

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 point 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 all cab windows, locking bars for engine covers, locking cover on hydraulic reservoir, locking fuel cap, battery cover lock.

Spark arrestor.

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

ATTACHMENTS

36" (91 cm) Excavating bucket	8' (2.4 m) Grading blade
48" (122 cm) Excavating bucket	4' (1.2 m) Boom extension
42" (107 cm) Excavating bucket	6' (1.8 m) Boom extension
30" (76 cm) Excavating bucket	8' (2.4 m) Boom extension
24" (61 cm) Excavating bucket	
40" (102 cm) Pavement removal bucket	
60" (152 cm) Ditching bucket	

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

G660

GRADALL®

Hydraulic Excavators

CRAWLER



Specifications, Operating Ranges

Form No. 8034

MAKING THE BEST EVEN BETTER

GRADALL®
Hydraulic Excavators

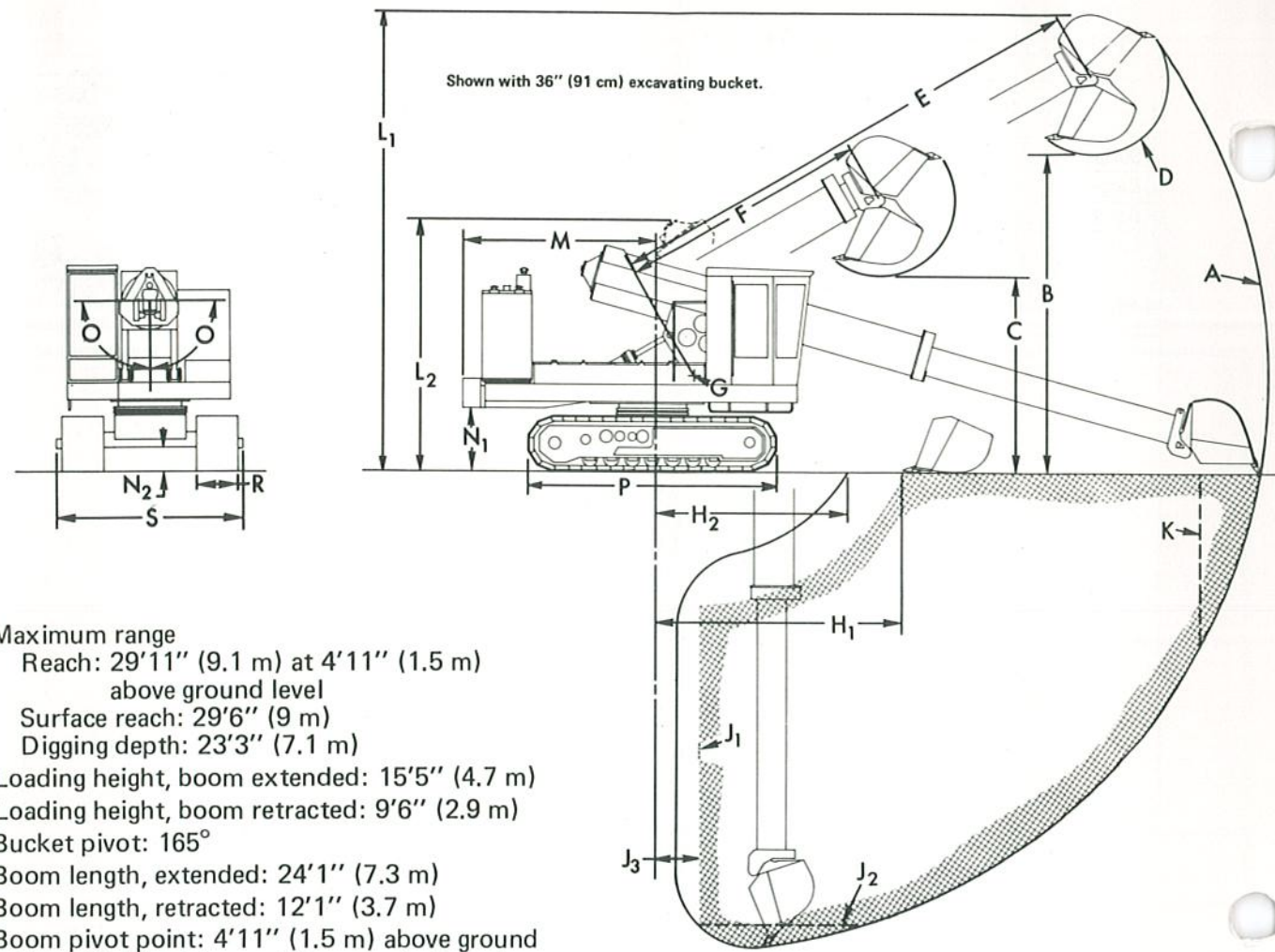


New Philadelphia OH 44663

12/80-15MC
Printed in U.S.A.

Form No. 8034
(Replaces 7839)

Bendix



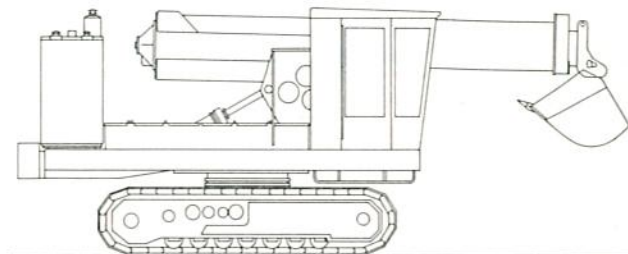
Shown with 36" (91 cm) excavating bucket.

- 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)

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						Maximum 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)	
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:
2750 lbs (1247 kg) on machine with GM 4-53 engine
2400 lbs (1089 kg) on machine with GM 4-71N engine

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 4-53N diesel, 123 hp (92 kW) at 2400 rpm (operating), 4-valve head, 212 cid (3.5 L), 3-7/8" bore x 4½" stroke (98 mm x 114 mm), 17:1 compression ratio, 282 ft-lbs (382 Nm) max. torque at 1800 rpm, cam-operated unit type injectors.
Fuel tank capacity: 60 gal (227 L)
Electric starter, 55 amp alternator, dry-type air cleaner with service indicator, oil filter, permanent anti-freeze.
~~Optional 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-lbs (542 Nm) max. torque at 1600 rpm.~~

HYDRAULIC SYSTEM

Three-section tandem pump, flange-mounted to engine, with clutch for cold-weather starting. With 4-53 engine, 115 gpm (435 L/min) at 2400 rpm; with 4-71N engine, 127 gpm (481 L/min) at 2300 rpm.

Four double-acting cylinders:

- 2 boom hoist: 5" ID, 2½" rod (127 mm x 70 mm)
 - 1 telescoping: 4¾" ID, 3" rod (121 mm x 76 mm)
 - 1 tool: 5" ID, 3" rod (127 mm x 76 mm)
- Two 30 hp hydraulic motors: swing and boom tilt.

Operating pressures:

- Hoist, tilt, swing, tool: 2400 psi (16,548 kPa)
- Boom: 1500 psi (10,342 kPa)
- Crawler: 2200 psi (15,169 kPa)

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

Filtration system, built into reservoir: Four filter elements (15 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, and tool circuits.