



336 cubic inch, 88 hp Case diesel engine  
Synchromesh 4-speed transmission with full power shuttle  
16' twin boom cylinder, integral overcenter backhoe  
Optional 16' to 20' Extendahoe  
5550 lb capacity self-leveling loader. 9'7" dump clearance at 45°  
Tandem-pump, high-pressure hydraulics  
Individual or simultaneous air-operated brakes. Air-released parking brake  
Outboard planetary rear axle with torque proportioning differential

# 680 E Construction King

## Features

**Basic Tractor** — Case-built open chamber direct injection diesel engine. Rubber mounted to reduce noise and vibration. Fast, responsive power. Naturally aspirated design provides clean burning; high-altitude operation.

Synchromesh 4-speed forward and reverse, full power shuttle transmission. Eliminates clutching.

Torque converter instantly and automatically adjusts speed and power to load requirements. Less wheel slippage.

Full-time Hydrostatic power steering lets operator maneuver with ease.

Turn-around seat adjusts forward or aft and horizontally, right or left of backhoe boom for optimum digging visibility.

Massive front axle with heavy-duty spindles and bearings for heavy load carrying ability.

Heavy-duty outboard planetary rear axle with torque proportioning differential.

Operator comfort and convenience is built into the 680E. Optional Case-built ROPS cab and canopy.

Noise abatement package available to meet OSHA Standards as known.

**Backhoes** — 16' standard backhoe or optional 16' to 20' telescoping Extendahoe are integral to main frame of the 680E.

Twin boom cylinders provide exceptional craning power and permit carrying the backhoe in an over-center position for greater stability in roading. Backhoe transport lock and overcenter latch are operated from operator's platform.

Optional Extendahoe hydraulically telescopes to extend or retract dipper 4' to give added reach for piling spoil well away from trench sides, reaching over and under obstructions, loading high-sided trucks, digging square holes straight down.

Fast, accurate 190° swing with choice of foot swing or optional dual-lever controls. Hydraulic cushioning protects unit on full swings.

Wide range of trenching and bellhole buckets matched to big production excavating jobs.

**Loader** — Self-leveling loader design automatically keeps the bucket level from ground to full lift. Return-to-dig returns the bucket to its proper digging position after the load is dumped. Frees the operator so he can concentrate on maneuvering.

Power linkage mounting of cylinders provides exceptional breakout force, bucket rollback and grading angle. While grading or dozing, bucket cylinders are retracted to reduce rod deflection.

Unitized loader - main frame - prime mover design. Built specifically for high production loading. Choice of 1¼ or 1¾ cu. yd. general purpose buckets.

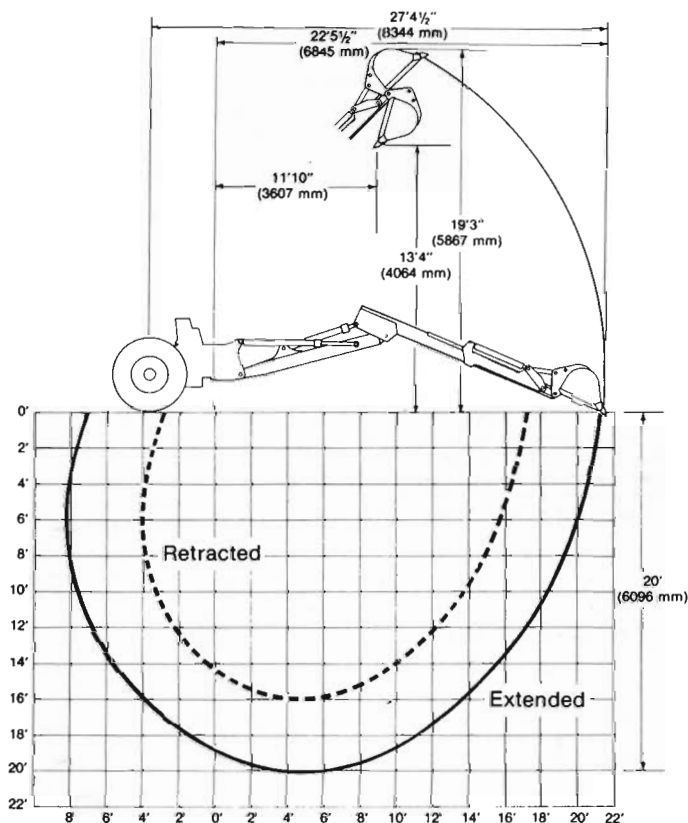
Optional 1¼ cu. yd. 4-in-1 multi-purpose bucket for 680E extends versatility. Loads, dozes, scrapes, clams, bottom dumps.

Unit shown is equipped with optional equipment. J I Case Company, Racine Wisconsin USA 53404.

**J I Case**  
A Tenneco Company



## 16 ft (4877 mm) to 20 ft (6096 mm) Extendahoe



### Operating Data

Unit equipped with 11.00 x 16 front and 16.9 x 24 rear tires.  
The 680E Telescoping Hydraulic Extendahoe is optional equipment.

	Retracted	Extended
Digging depth IEMC rated	16 ft (4877 mm)	20 ft (6096 mm)
Max. dig depth (With teeth)	16 ft 9 1/2 in (5118 mm)	20 ft 9 1/2 in (6337 mm)
Swing arc	190°	190°
Digging radius from swing pivot	19 ft 11 in (6071 mm)	23 ft 7 1/2 in (7201 mm)
Reach from centerline, rear axle	23 ft 8 in (7214 mm)	27 ft 4 1/2 in (8344 mm)
Bucket rotation	141°	141°
Loading height	10 ft 11 1/4 in (3335 mm)	13 ft 4 in (4064 mm)
Loading reach at full height	8 ft 11 in (2718 mm)	11 ft 10 in (3607 mm)
Stabilizer spread		
Operating position	10 ft 10 in (3302 mm)	10 ft 10 in (3302 mm)
Transport (Std pad position)	7 ft 3 1/2 in (2223 mm)	7 ft 3 1/2 in (2223 mm)
Transport (Reverse pad position)	7 ft 10 in (2388 mm)	7 ft 10 in (2388 mm)
Maximum slope on which backhoe will make vertical cut	8°	9°
Digging force		
Bucket cylinder	11800 lb (5352 kg)	11800 lb (5352 kg)
Dipper cylinder	8200 lb (3719 kg)	8200 lb (3719 kg)

### Dimensions - Standard bucket and tires

Overall height		
Maximum dipper extended	19 ft 3 in (5867 mm)	
Top of Extendahoe overcenter	12 ft 6 1/2 in (3823 mm)	
Overall width - stabilizers in transport position	7 ft 3 1/2 in (2223 mm)	
Overall length - bucket flat on ground	22 ft 5 1/2 in (6845 mm)	
Ground clearance at backhoe	1 ft 4 in (409 mm)	

### Extendahoe Hydraulic System

See standard 16 ft backhoe section for details.

### Extendahoe Cylinders

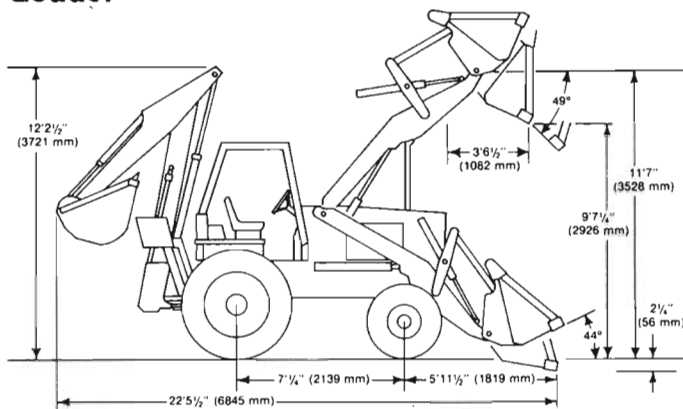
Boom (2)	4 in dia x 41 1/4 in stroke x 2 1/4 rod (101 mm dia x 1046 mm stroke x 57 mm rod)
Dipper (1)	4 1/2 in dia x 40 5/8 in stroke x 2 1/2 in rod (114 mm dia x 1019 mm stroke x 63 mm rod)
Bucket (1)	4 in dia x 27 1/4 in stroke x 2 1/4 in rod (101 mm dia x 692 mm stroke x 57 mm rod)
Swing (2)	4 in dia x 11 1/4 in stroke x 2 in rod (101 mm dia x 284 mm stroke x 51 mm rod)
Stabilizer (2)	4 1/2 in dia x 21 3/8 in stroke x 2 in rod (114 mm dia x 543 mm stroke x 51 mm rod)
Dipper extension (1)	3 in dia x 48 in stroke x 1 1/2 in rod (76 mm dia x 1219 mm stroke x 38 mm rod)

### Extendahoe Buckets

Width	Type	Weight	
		lb	kg
18 in (457 mm)	Trenching	258	117
24 in (610 mm)	Hi-Capacity	486	220
30 in (762 mm)	Hi-Capacity	548	249
36 in (914 mm)	Hi-Capacity	620	281
16 in (406 mm)	Bellhole	151	68
30 in (762 mm)	Bellhole	217	98
36 in (914 mm)	Bellhole	256	116



## Loader



### Dimensions

(With standard bucket, tires and backhoe or Extendahoe)

Overall length — bucket flat on ground	22 ft 5 1/2 in (6845 mm)
Overall width	
At stabilizers, std. transport position	7 ft 3 1/2 in (2223 mm)
At rear wheels	6 ft 11 in (2108 mm)
Across front tires	6 ft 10 1/2 in (2096 mm)
Wheelbase	7 ft 1/4 in (2139 mm)
Tread width	
Front	6 ft (1829 mm)
Rear	5 ft 6 in (1680 mm)
Overall height	
Top of exhaust stack	8 ft 9 in (2667 mm)
Top of ROPS canopy	8 ft 10 in (2692 mm)
Top of steering wheel	6 ft 5 1/4 in (1963 mm)
Ground clearance	
Bottom of rear axle	1 ft 3 1/4 in (386 mm)
Bottom of front axle	1 ft 1 in (330 mm)
Bottom of swing tower	1 ft 4 in (409 mm)
Curb clearance circle (outside corner)	
With brakes	34 ft (10363 mm)
Without brakes	35 ft (10668 mm)
Overall height	
Top of backhoe (overcenter)	12 ft 2 1/2 in (3721 mm)
Top of Extendahoe (overcenter)	12 ft 6 1/2 in (3823 mm)

### Loader Operating Data

(Loader specifications per SAE J732c based upon unit equipped with 11.00 x 16 front and 16.9 x 24 rear tires with 1 1/4 yd<sup>3</sup> (.97m<sup>3</sup>) general purpose bucket.)

Lift capacity to full height	5550 lb (2517 kg)
Bucket hinge pin @ full height	11 ft 7 in (3528 mm)
Maximum dump angle @ full height	49°
Dump clearance @ full height, 45° dump	9 ft 7 1/4 in (2926 mm)
Bucket rollback:	
Arm at maximum reach	65°
At ground line	44°
Arm fully raised	58°
Digging depth:	
Below ground line - bucket flat	2 1/4 in (56 mm)
At 8° angle	6 1/4 in (157 mm)
Grading angle	Up to 108°
Reach:	
Bucket on ground	5 ft 11 1/2 in (1819 mm)
Dump reach (7 ft height, 45° dump, from hood)	4 ft 1 in (1247 mm)
Reach from centerline of tire, 45° discharge - max distance	5 ft 2 3/4 in (1595 mm)
Reach from front of tractor, 45° discharge - max height	3 ft 6 1/2 in (1082 mm)
Breakout force, maximum	11300 lb (5126 kg)
Cycle times @ 27.5 gpm (104.1 lit/min) pump:	
Raising time to full height	4.8 sec
Dumping time	1.3 sec
Lowering time (power down)	2.5 sec
Lowering time (float down)	3.4 sec
Rollback from full dump	2.3 sec



## 4-in-1 Bucket Operating Data

(Specifications for unit equipped with 11.00 x 16 front and 16.9 x 24 rear tires and 4-in-1 bucket)	
Lift capacity to full height	4800 lb (2177 kg)
Maximum dump angle @ full height	43°
Dump clearance @ full height with clam	11 ft 2 1/4 in (3409 mm)
Bucket rollback @ ground line	47°
Digging depth:	
Below ground line - bucket flat	2 3/4 in (70 mm)
Using clam	3 ft. 3 in (991 mm)
Grading angle	Up to 106°
Reach:	
Full height, 45° dump	3 ft 9 1/2 in (1158 mm)
Bucket on ground	6 ft 3 3/4 in (1925 mm)
Dozing depth	1 in (25 mm)
Width of dozer cutting edge	6 ft 11 in (2112 mm)
Moldboard height	3 ft 1 in (940 mm)
Maximum clam opening	3 ft 8 in (1118 mm)
Breakout force, maximum	9900 lb (4491 kg)
Cycle times @ 27.5 gpm (104.1 lit/min) pump:	
Raising time to full height	4.8 sec
Dumping time	1.3 sec
Lowering time (power down)	2.5 sec
Lowering time (float down)	3.4 sec
Rollback from full dump	2.3 sec

### Loader Hydraulic System

Pump: Tandem type: 27.5 gpm (104.1 lit/min) @ 2350 rpm (2350 r/min) @ 2000 psi (13790 kPa)

Pump type: Front-mounted, direct drive, positive displacement, gear type, relief valve.

Loader/pressure setting: 2450 ± 50 psi (16892 kPa ± 345 kPa)

Filtration: Suction filter, 20 micron full flow replaceable cartridge.

Cylinder design: Right and left cylinders interchangeable. Hardened and chrome plated rods. Cylinders equipped with two-way, triple-seal packing and metal guide rings for positive action. Nylon wiper rings and self-locking cap screw on rod with "U" cup packing.

Cylinders:

Lift (2)	3 1/2 in dia x 31 in stroke x 2 in rod (89 mm dia x 787 mm stroke x 51 mm rod)
Bucket (2)	3 in dia x 23 1/16 in stroke x 1 1/4 in rod (76 mm dia x 598 mm stroke x 44 mm rod)
Clam, 4-in-1 only (2)	3 in dia x 10 1/2 in stroke x 1 1/2 in rod (76 mm dia x 267 mm stroke x 38 mm rod)

Valves: Series-parallel type. Two lever control, one lever per spool. Lift, neutral, down, float positions. Spring return to center with detent in hoist and float. Dump spring centered, electro-magnetic detent on rollback.

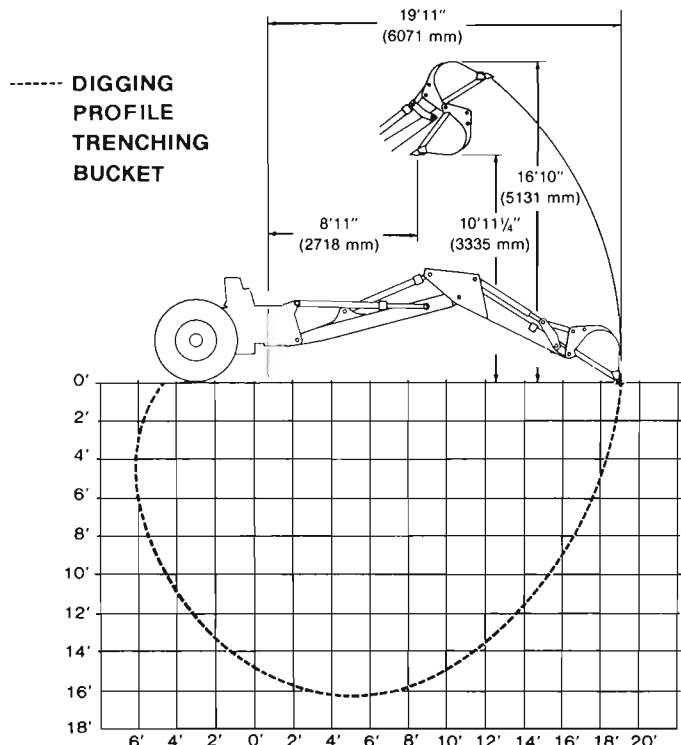
### Loader Buckets - per SAE J742b

Type	Capacity Heaped	Capacity Struck	Overall Width
	yd <sup>3</sup>	m <sup>3</sup>	in mm
Standard, GP	1 1/4	.97	86 2184
Optional, GP	1 3/4	1.34	96 2438
4-in-1	1 1/4	.97	85 2159





## 16 ft (4877 mm) Backhoe



### Operating Data

Unit equipped with 11.00 x 16 front and 16.9 x 24 rear tires. The 16 ft 680E Backhoe is standard equipment.

Digging depth	
IEMC rated	16 ft (4877 mm)
Max. dig depth (with teeth)	16 ft 9 1/2 in (5118 mm)
Swing arc	190°
Digging radius from swing pivot	19 ft 11 in (6071 mm)
Reach from centerline, rear axle	23 ft 8 in (7214 mm)
Bucket rotation	160°
Loading height	10 ft 11 1/4 in (3335 mm)
Loading reach at full height	8 ft 11 in (2718 mm)
Stabilizer spread	
Operating position	10 ft 10 in (3302 mm)
Transport (Std pad position)	7 ft 3 1/2 in (2223 mm)
Transport (Rev pad position)	7 ft 10 in (2388 mm)
Maximum slope on which backhoe will make vertical cut	8°
Digging force	
Bucket cylinder	11800 lb (5352 kg)
Dipper cylinder	8200 lb (3719 kg)

### Dimensions - Standard bucket and tires.

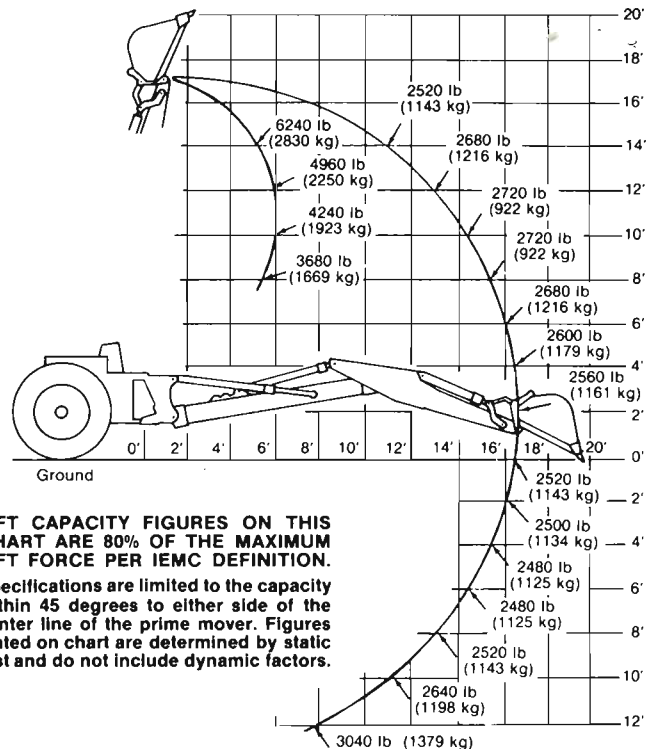
Overall height	
Maximum	16 ft 10 in (5131 mm)
Top of backhoe overcenter	12 ft 2 1/2 in (3721 mm)
Overall width - stabilizers in	
transport position - pads reversed	7 ft 10 in (2388 mm)
Overall length - bucket flat on ground	22 ft 5 1/2 in (6845 mm)
Ground clearance - at backhoe	1 ft 4 in (409 mm)

### Dual Hydraulic System

Positive, no-lag response and maximum operating speed to assure top production output in even the toughest digging.

The system features two hydraulic circuits. One is powered by a 27.5 gpm (104.1 lit/min) pump. The other has a 18 gpm (68.1 lit/min) pump. These pumps are tandem mounted, producing a combined flow of 45.5 gpm which operate bucket, boom and crowd to give the 680E maximum available speed when it's needed most — during the dig-lift cycle!

At the end of the dig-lift cycle the system automatically splits. To provide the optimum hydraulic power and speed for all circuits.



LIFT CAPACITY FIGURES ON THIS CHART ARE 80% OF THE MAXIMUM LIFT FORCE PER IEMC DEFINITION.

Specifications are limited to the capacity within 45 degrees to either side of the center line of the prime mover. Figures stated on chart are determined by static test and do not include dynamic factors.

NOTE: Maximum craning capacity with dipper 7000 lb (3175 kg); with boom 3400 lb (1542 kg).

### Backhoe Hydraulic System

Pump capacity: Tandem pump combines 27.5 gpm (104.1 lit/min) and 18 gpm (68.1 lit/min) @ 2350 rpm (2350 r/min) @ 2000 psi (13790 kPa) for a total backhoe system output of 45.5 gpm.

Pump type: Front-mounted, direct drive, positive displacement, gear type.

Backhoe relief valve pressure setting: 2725 + 100 psi (18788 kPa + 689 kPa) - 0 kPa

Filtration: Suction filter, 20 micron full flow replaceable cartridge.

System capacity: (Including cylinder fill)

  With backhoe 35.0 gal (132.5 lit)

  With Extendahoe 36.5 gal (138.2 lit)

Hydraulic pressure lines: Steel tubing with brazed or flared fittings and wire braid, high pressure hose with crimped full-flow fittings.

Cylinder design and packing: Double acting with hardened and chrome-plated rods to resist damage, increase strength and resist corrosion. Easy to service with threaded end cap. Polyurethane wiper rings and self locking cap screw on rod with "U" cup packing. Cylinders have micro-smooth bore for long packing life.

Backhoe valves: Case built, low effort dual system valves with open center parallel circuit multi-section. Foot swing controls.

Hydraulic cushioned stops.

Cylinders:

Boom (2)

4 in dia x 41 1/4 in stroke x 2 1/4 in rod (101 mm dia x 1046 mm stroke x 57 mm rod)

Dipper (1) 4 1/2 in dia x 40 1/8 in stroke x 2 1/2 in rod (114 mm dia x 1019 mm stroke x 63 mm rod)

Bucket (1) 4 in dia x 27 1/4 in stroke x 2 1/4 in rod (101 mm dia x 692 mm stroke x 57 mm rod)

Swing (2) 4 in dia x 11 1/4 in stroke x 2 in rod (101 mm dia x 284 mm stroke x 51 mm rod)

Stabilizers (2) 4 1/2 in dia x 21 3/8 in stroke x 2 in rod (114 mm dia x 543 mm stroke x 51 mm rod)

### Backhoe Buckets

Width	Type	Weight	
		lb	kg
12 in (305 mm)	Trenching	217	98
18 in (457 mm)	Trenching	258	117
24 in (610 mm)	Hi-Capacity	486	220
30 in (762 mm)	Hi-Capacity	548	249
36 in (914 mm)	Hi-Capacity	620	281
12 in (305 mm)	Bellhole	122	55
16 in (406 mm)	Bellhole	151	68
30 in (762 mm)	Bellhole	217	98
36 in (914 mm)	Bellhole	256	116

### 680E Shipping Weights

Approximate operating weights with loader and backhoe buckets.

	Front Total	Per Tire	Rear Total	Per Tire	Total
Empty (lb)	5350	2675	9350	4675	14700
(kg)	2427	1213	4241	2121	6668
Loader Max. (lb)	11420	5710	7030	3515	18450
(kg)	5180	2590	3189	1594	8369

The above weights include a 1¼ yd³ (.97 m³) loader bucket and a 24 in (610 mm) Hi-Capacity backhoe bucket.

Approximate operating weights with 4-in-1 loader and backhoe buckets.

	Front Total	Per Tire	Rear Total	Per Tire	Total
Empty (lb)	5540	2770	9030	4515	14520
(kg)	2513	1256	4096	2048	6586
Loader Max. (lb)	11605	5803	6715	3358	18320
(kg)	5264	2632	3046	1523	8310

The above weights include a 1¼ yd³ (.97 m³) 4-in-1 bucket and a 24 in (610 mm) Hi-Capacity backhoe bucket.

Approximate operating weights with loader and backhoe buckets and Extendahoe option:

	Front Total	Per Tire	Rear Total	Per Tire	Total
Empty (lb)	5280	2640	10900	5450	16180
(kg)	2395	1197	4944	2472	7339
Loader Max. (lb)	11350	5675	8580	4290	19930
(kg)	5148	2574	3892	1946	9040

Loader max. weight figured with 3750 lb (1701 kg) bucket load @ 52 in (1320 mm) front axle to c.g. of bucket.

### Standard Equipment

Dry type air cleaner. 35 amp alternator. Anti-freeze solution to -20° F. Rear axle: planetary torque proportioning type. Air brakes with spring applied, air released parking brake. 24 volt electrical system. Engine: Case 336 cubic inch naturally aspirated diesel. Engine oil and fuel filters. Suction type fan. Rear wheel fenders. Hand and foot throttles. Heavy duty front axle with 72 inch tread. Full time hydrostatic steering. Instruments: fuel level gauge, tachometer and hourmeter, air pressure gauge with warning buzzer. Converter oil temperature gauge, engine water temperature gauge; warning lights: for alternator, engine oil pressure, clutch pressure and air cleaner restriction indicator. Hydraulic sight level gauge. Lights: 2 headlights, 2 rear flood lights, 2 rear tail and stop lights. Self-leveling loader with return-to-dig (less bucket). Muffler. Neutral start switch with key. Adjustable bucket type seat. 16 foot (IEMC) backhoe with foot swing control and cleated stabilizer pads (less bucket). Four speed synchromesh transmission with power reversing shuttle. Clutch cutout lever and button. Torque converter. Tool box.

### Optional Equipment

ROPS cab with seat belt. ROPS canopy with seat belt. Wide choice of tires, front and rear. Loader buckets: 1¼ cubic yard (86 inch wide), 1¼ cubic yard (96 inch wide), 1¼ cubic yard 4-in-1 (85 inch wide). Backhoe buckets: 12 and 18 inch trenching; 24, 30, 36 inch high capacity; 12, 16, 30, 36 inch bellholes. Ripper tooth frost point. Tractor accessories: anti-freeze to -40° F, spark arresting muffler, engine side panels, seat belt, lockup kit, emergency flashers, pusher fan, backup alarm, slow moving vehicle emblem. Cab accessories: heater and front window defroster, rear window defroster. Loader accessories: 8 teeth for 1¼ cubic yard bucket, 7 teeth for 4-in-1 bucket, hydraulics for 4-in-1 bucket. Backhoe accessories: 20 foot Extendahoe (1LO 16 foot), dual lever swing controls, dipper light, flat cemetery stabilizer pads, heavy duty rubber pads, special paint. Noise suppression kit.

Note: All specifications are stated in accordance with IEMC or SAE Standards where applicable.

### Important

J I Case Company reserves the right to change these specifications without notice and without incurring any obligation relating to such changes.

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