



MODEL 780C

# Loader/Backhoe

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Case 112 net horsepower (83.5 kW) diesel

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Digging depth to 22 ft (6.7 m)

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Loader lift capacity 7750 lbs (3515 kg)

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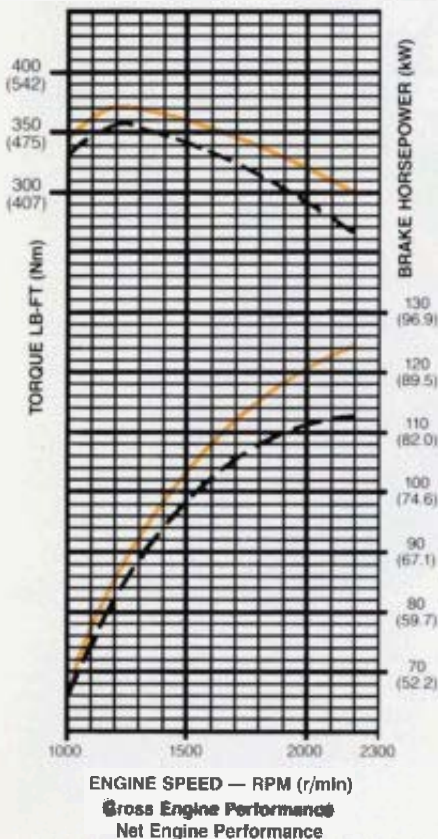


# 780C BASIC TRACTOR

## ENGINE

Make and model ..... Case 6T-590  
 Type of fuel ..... No. 2 diesel  
 No. of cylinders ..... 6  
 Bore and stroke ..... 4.02" x 4.72"  
 (102 mm x 120 mm)  
 Displacement ..... 359 in<sup>3</sup> (5 883 cm<sup>3</sup>)  
 Compression ratio ..... 17.5 to 1  
 Fuel induction ..... Open chamber-  
 direct injection  
 Fuel supply ..... Injection pump  
 Air cleaner ..... Dry type —  
 replacement element  
 Oil filter ..... Replaceable spin-on  
 cartridge, full flow  
 Lubrication ..... Positive pressure  
 Cooling system ..... Pressurized — 14 psi  
 (96 kPa)  
**Horsepower**  
 (1) Gross ..... 124 @ 2200 rpm  
 (92.5 kW @ 2200 r/min)  
 (2) SAE Net ..... 112 @ 2200 rpm  
 (83.5 kW @ 2200 r/min)  
**Max. torque ft-lb**  
 (1) Gross ..... 370 @ 1200 rpm  
 (501.7 Nm @ 1200 r/min)  
 (2) SAE Net ..... 358 @ 1200 rpm  
 (485.4 Nm @ 1200 r/min)  
 (1) Gross engine horsepower or torque at flywheel per  
 SAE Standard J1349.  
 (2) Net engine horsepower or torque at flywheel per  
 SAE Standard J1349.

## POWER CURVE



## ELECTRICAL

System voltage ..... 12-volts,  
 negative ground  
 Battery ..... (2) 12-volt, low maintenance,  
 685 cold cranking amps at 0°F (– 18°C)  
 Alternator ..... 65 amp

## POWER TRAIN

Transmission: 3 speed powershift with  
 power shuttle and torque converter.  
 Torque converter: Single stage hydro-  
 kinetic type (2.85 to 1 ratio).  
 Reversing unit: Full power hydraulic  
 clutches.  
 Brakes: Individual or simultaneous foot  
 actuated, straight air. Brake can be oper-  
 ated with or without interrupting power flow  
 to rear wheels. Automatic, spring applied,  
 air released parking brakes utilizing main  
 brake drums on axle.  
 Rear axle: Outboard planetary with torque  
 proportioning differential.

## AXLE RATINGS (Manufacturers)

Front ..... 14,643 lbs. (6642 kg)  
 Rear ..... 22,074 lbs. (10 013 kg)

## AXLE OSCILLATION

Front ..... 24°  
 Rear ..... Fixed

## STEERING

Power steering ..... Hydrostatic  
 Hydraulic pump ..... Engine mounted,  
 positive displacement, gear type  
 Pump capacity .....  
 27.8 gpm @ 2350 rpm @ 2000 psi  
 (105.2 l/min @ 2350 r/min @ 13 790 kPa)  
 Main relief setting ..... 1750 psi  
 (12 066 kPa)  
 Turning ratio (stop to stop) ..... 3.6 turns  
 Steering cylinders (2)  
 double acting . . . 2.12" dia x 7.5" stroke  
 (54 mm dia x 191 mm stroke)

## SERVICE CAPACITIES

	U.S.	Litres
Cooling system.....	6.75 gal	25.6
Fuel tank.....	43 gal	162.8
Engine oil		
w/filter.....	4 gal	15.1
w/o filter.....	3.75 gal	14.2
Transmission.....	4 gal	15.1
Rear axle		
pinion.....	2 gal	7.6
planetary (ea.).....	2 qt	1.9
Hydraulic reservoir		
w/filter.....	18.9 gal	71.5

## TRAVEL SPEEDS — MPH (km/h)

Engine at full throttle. 18.4 x 24, R4 rear  
 tires.

	FIRST	SECOND	THIRD
Forward or			
Reverse	3.9 (6.3)	7.2 (11.6)	20.0 (32.2)

## TIRES

Size	Ply Rating	Tread	Pressure PSI (kPa)
FRONT			
14 x 17.5	10	F3	70 (483)
REAR			
18.4 x 24	12	R4	32 (221)
18.4 x 28	12	R4	32 (221)
21L x 24	12	R4	30 (207)

## TURNING CLEARANCE CIRCLE

Without brakes..... 41'8" (12.70 m)  
 With brakes..... 39'9" (12.12 m)  
 Unit equipped w/1.75 yd<sup>3</sup> (1.34 m<sup>3</sup>) loader  
 bucket, 24" (610 mm) heavy-duty backhoe  
 bucket, 14 x 17.5, 10 PR front tires and 21L  
 x 24, 12 PR rear tires.

# 780C LOADER

780C 780C 780C

## HYDRAULIC SYSTEM

Hydraulic pump: Transmission-mounted, positive displacement, gear-type.

Pump capacity:

31.5 gpm @ 2350 rpm @ 2000 psi  
(119.2 l/min @ 2350 r/min @ 13 790 kPa)

Main relief pressure . . . . . 2650 psi  
(18 271 kPa)

Filtration: 10 micron, full flow replaceable cartridge on return line. Condition indicator light for filter.

Loader control valve: Mono-cast two or three spool. Single lever control for lift and tilt. Extra lever for 4-in-1 bucket. Lift lever has positive hold "float" position and "return-to-dig" feature.

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

Loader cylinders:

Lift (2) . . . . . 4" dia x 30" stroke, 2.25" rod  
(102 mm dia x 762 mm stroke, 57 mm rod)

Tilt (2) . . . 3.5" dia x 23.4" stroke, 2.0" rod  
(89 mm dia x 594 mm stroke, 51 mm rod)

Clam (2) . . . 4" dia x 10" stroke, 2.0" rod  
(102 mm dia x 254 mm stroke, 51 mm rod)

## LOADER BUCKET SIZES (Capacities SAE)

Width		Type	Heaped		Struck	
In	m		yd <sup>3</sup>	m <sup>3</sup>	yd <sup>3</sup>	m <sup>3</sup>
96	2.44	General Purpose	1.75	1.34	1.44	1.10
96	2.44	4-in-1	1.75	1.34	1.37	1.05



## OPERATIONAL DATA

	General Purpose Bucket 1.75 yd <sup>3</sup> (1.34 m <sup>3</sup> )	4-in-1* Bucket 1.75 yd <sup>3</sup> (1.34 m <sup>3</sup> )
Lift capacity to full height . . . . .	7750 lbs (3515 kg)	6200 lbs (2812 kg)
Height to bucket hinge pin-raised . . . . .	11'8" (3.56 m)	11'8" (3.56 m)
Bucket rollback at groundline . . . . .	40°	41°
Breakout force—Combined . . . . .	12,300 lbf (54 713 N)	11,580 lbf (51 510 N)
Dump angle at full height . . . . .	49°	48°
Grading angle . . . . .	116°	95°
Digging depth below ground line—bucket flat . . . . .	3" (76 mm)	75" (191 mm)
Digging depth—using clam . . . . .	N.A.	53" (1.35 m)
Digging depth—clam open . . . . .	N.A.	10" (254 mm)
Dump clearance at full height—45° dump . . . . .	9'0" (2.74 m)	N.A.
—clam . . . . .	N.A.	11'2" (3.40 m)
—bucket . . . . .	N.A.	9'1" (2.77 m)
Dump reach at full height—45° dump . . . . .	32" (813 mm)	37" (940 mm)
Dump reach @ 7' (2.13 m) height—45° dump . . . . .	49" (1.25 m)	46" (1.17 m)
Width of cutting edge . . . . .	96" (2.44 m)	96" (2.44 m)
Maximum clam opening . . . . .	N.A.	44.5" (1.13 m)
Moldboard height . . . . .	N.A.	43" (1.09 m)
Raising time to full height . . . . .	6.6 sec.	6.8 sec.
Bucket dumping time . . . . .	1.7 sec.	1.7 sec.
Lowering time—power down . . . . .	4.7 sec.	4.7 sec.
Lowering time—return-to-dig . . . . .	2.6 sec.	2.6 sec.

# 780C BACKHOE

## HYDRAULIC SYSTEM

Hydraulic pump: Transmission and engine mounted, positive displacement, gear type.

Pump capacity:

- 31.5 gpm @ 2350 rpm @ 2000 psi  
(119.2 l/min @ 2350 r/min @ 13 790 kPa).
- 27.8 gpm @ 2350 rpm @ 2000 psi  
(105.2 l/min @ 2350 r/min @ 13 790 kPa)

Combined

- 59.3 gpm @ 2350 rpm @ 2000 psi  
(224.5 l/min @ 2350 r/min @ 13 790 kPa).

Main relief pressure: 2850 psi (19 650 kPa).

Filtration: 10 micron, full flow replaceable cartridge on return line. Condition indicator light for filter.

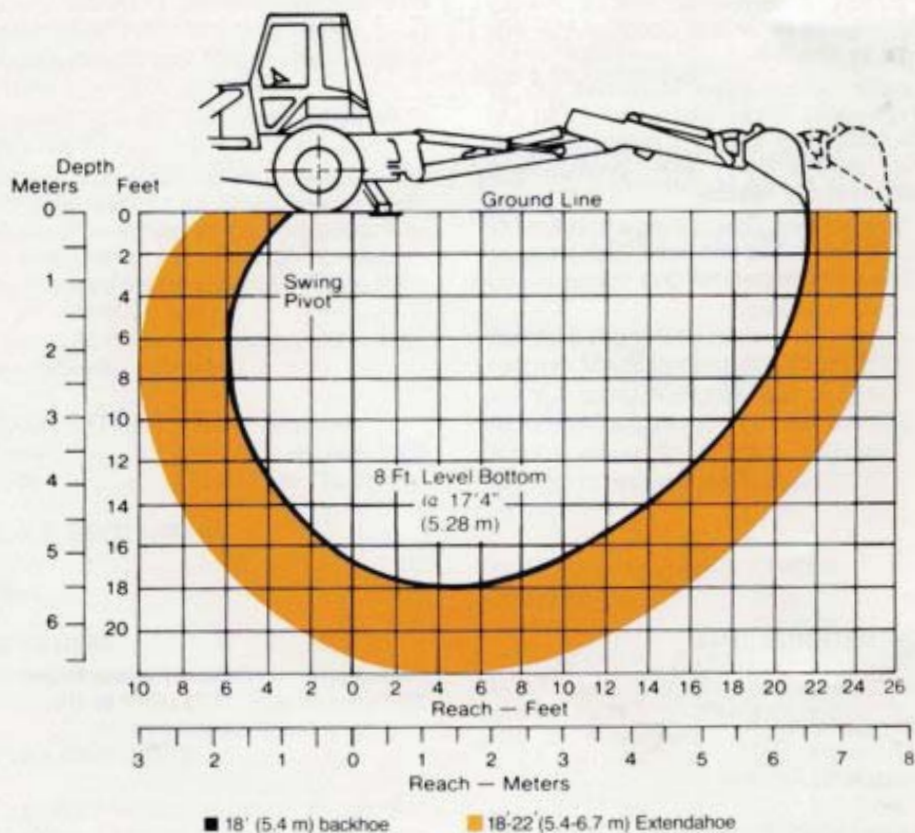
Backhoe control valve: Sectional four spool valve — boom, dipper, bucket, and swing. Foot or optional hand swing. Regeneration and hydraulic cushioned swing stops. Mono-cast two spool stabilizer valve with pilot checks.

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

Backhoe cylinders:

- Stabilizers (2)
  - ... 4.5" dia x 28.5" stroke, 2.25" rod  
(114 mm dia x 724 mm stroke, 57 mm rod)
- Swing (2)
  - ... 4" dia x 14.8" stroke, 2" rod  
(102 mm dia x 376 mm stroke, 51 mm rod)
- Boom (2)
  - ... 4.5" dia x 44.6" stroke, 2.5" rod  
(114 mm dia x 1.13 m stroke, 64 mm rod)
- Dipper (1)
  - ... 5" dia x 45" stroke, 2.75" rod  
(127 mm dia x 1.14 m stroke, 70 mm rod)
- Bucket (1)
  - ... 4.5" dia x 33" stroke, 2.5" rod  
(114 mm dia x 838 mm stroke, 64 mm rod)
- Dipper extension (1)
  - ... 3" dia x 48.5" stroke, 1.5" rod  
(76 mm dia x 1.23 m stroke, 38 mm rod)

## DIG DEPTH



## OPERATIONAL DATA

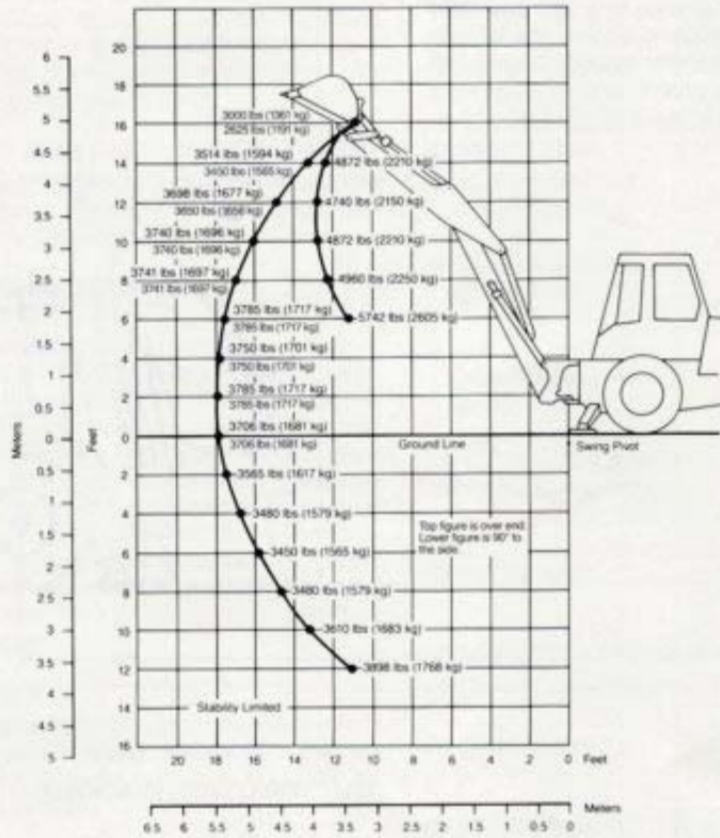
	18' (5.49 m) Backhoe		18'-22' (5.49 m-6.70 m) Extendahoe	
			RETRACTED	EXTENDED
Digging depth — SAE, 2' (610 mm) Flat bottom	18' (5.49 m)	18' (5.49 m)	18' (5.49 m)	21'11" (6.68 m)
Digging depth — SAE, maximum	18'3" (5.56 m)	18'3" (5.56 m)	18'3" (5.56 m)	22'0" (6.70 m)
Overall reach from rear axle centerline	25'9" (7.85 m)	25'8" (7.85 m)	25'8" (7.85 m)	29'4" (7.82 m)
Digging radius from swing pivot	21'11" (6.68 m)	21'10" (6.65 m)	21'10" (6.65 m)	25'6" (7.77 m)
Loading height	12'8" (3.86 m)	12'8" (3.86 m)	12'8" (3.86 m)	14'6" (4.42 m)
Loading reach	9'10" (3.0 m)	8'4" (2.54 m)	8'4" (2.54 m)	11'7" (3.53 m)
Swing arc	180°	180°	180°	180°
Bucket rotation #1 position	156°	156°	156°	156°
#2 position	111°	111°	111°	111°
Stabilizer spread — operating position	14' (4.27 m)	14' (4.27 m)	14' (4.27 m)	14' (4.27 m)
transport position	8'0" (2.44 m)	8'0" (2.44 m)	8'0" (2.44 m)	8'0" (2.44 m)
Digging force, bucket cylinder, SAE	13,640 lbf (60 674 N)	13,742 lbf (61 127 N)	13,742 lbf (61 127 N)	13,742 lbf (61 127 N)
Digging force, dipper cylinder, SAE	10,970 lbf (48 797 N)	11,095 lbf (49 353 N)	11,095 lbf (49 353 N)	8,138 lbf (36 200 N)
Leveling angle (maximum slope on which backhoe will make vertical cut)	14°	14°	14°	14°

# 780C BACKHOE

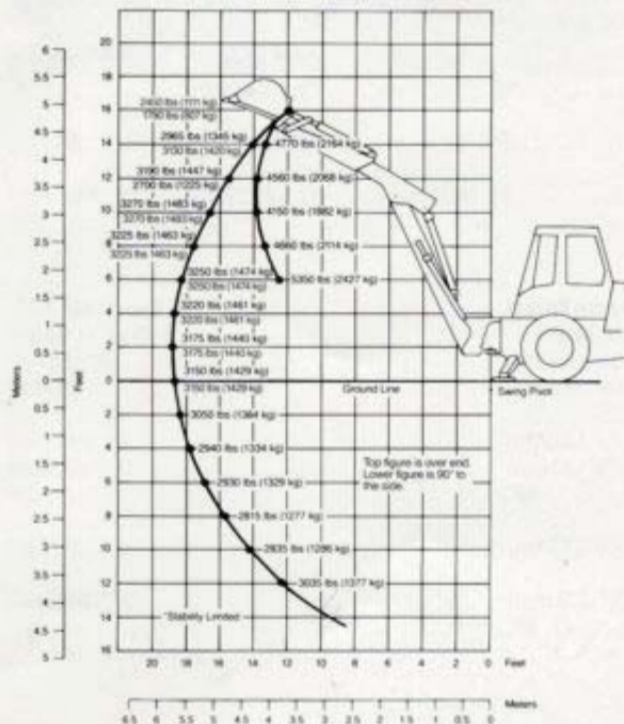
## LIFT CAPACITY CHARTS

1. Lift capacity figures on this chart are 87% of the maximum lift force per SAE Definition J31 and J49 at 2850 psi (19 650 kPa) system relief pressure.
2. Top numbers/lift capacity within 45° either side of prime mover.
3. Bottom number/lift capacity anywhere within full swing arc.
4. \*Figures are stability limited and 75% of tipping load.
5. Figures stated are determined by static tests and do not include dynamic factors.
6. Machine equipped with 24" (610 mm) heavy duty trenching bucket.
7. Boom is angled at 65°.

## 18' (5.49 M) BACKHOE

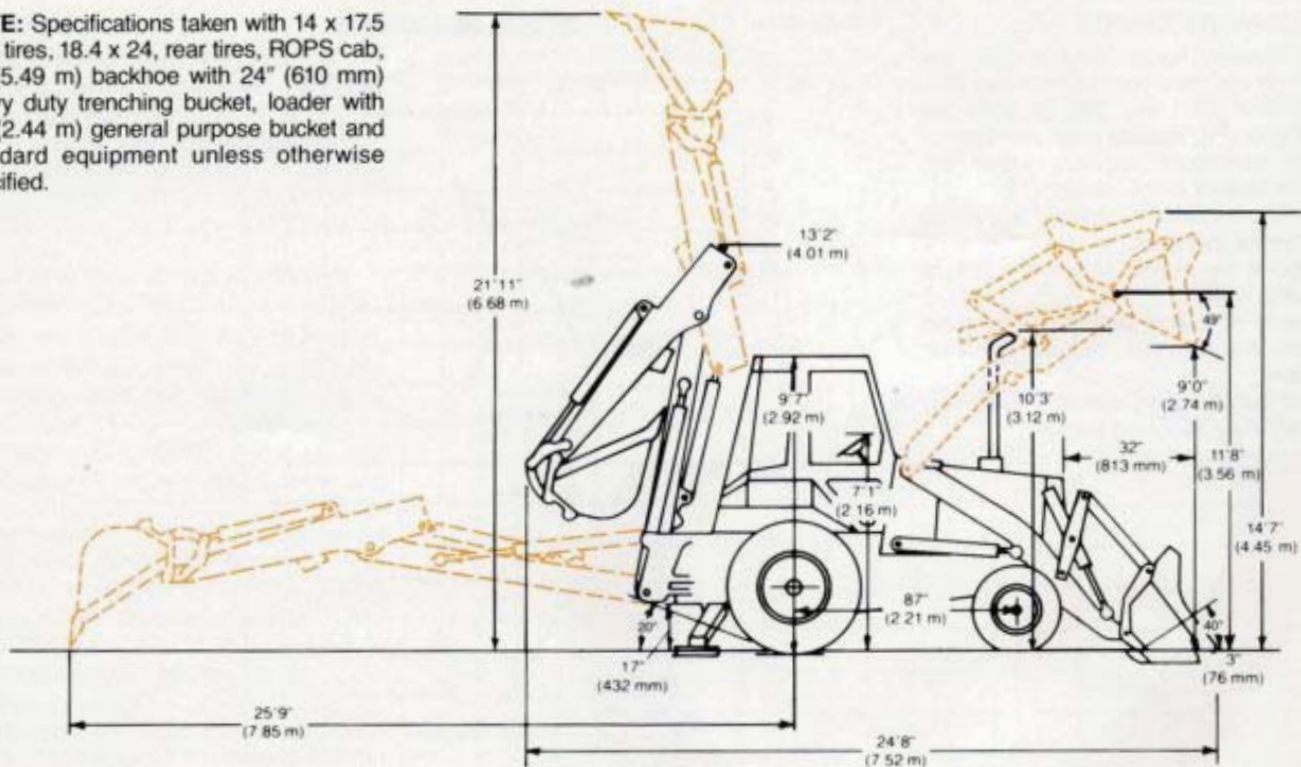


## EXTENDAHOE LIFT CAPACITY (DIPPER RETRACTED)



# DIMENSIONAL DATA

**NOTE:** Specifications taken with 14 x 17.5 front tires, 18.4 x 24, rear tires, ROPS cab, 18' (5.49 m) backhoe with 24" (610 mm) heavy duty trenching bucket, loader with 96" (2.44 m) general purpose bucket and standard equipment unless otherwise specified.



## TRACTOR

Overall width.....	8'3" (2.51 m)
Height: to top of canopy ..	9'7" (2.92 m)
Height: to top of cab.....	9'7" (2.92 m)
Height: to top of exhaust stack .....	10'3" (3.12 m)
Height: to top of steering wheel .....	7'1" (2.16 m)
Front wheel tread .....	6'6" (1.98 m)
Rear wheel tread .....	5'11" (1.80 m)
Wheelbase .....	87" (2.21 m)

## TRACTOR/LOADER/BACKHOE

	BACKHOE 18' (5.49 m)	EXTENDAHOE* Retracted	Extended
Overall length—transport			
1.75 yd <sup>3</sup> (1.34 m <sup>3</sup> ) G.P. Bucket .....	24'8" (7.52 m)	24'8.5" (7.53 m)	N.A.
1.75 yd <sup>3</sup> (1.34 m <sup>3</sup> ) 4-in-1 Bucket .....	24'9" (7.54 m)	24'9.5" (7.56 m)	N.A.
Overall reach from rear			
axle centerline .....	25'9" (7.85 m)	25'8" (7.85 m)	29'4" (7.82 m)
Swing pivot .....	21'11" (6.68 m)	21'10" (6.65 m)	25'6" (7.77 m)
Overall height,			
maximum .....	21'11" (6.68 m)	22'6" (6.86 m)	26'0" (7.92 m)
Transport height.....	13'2" (4.01 m)	13'2" (4.01 m)	N.A.
Overall width—			
transport.....	8'0" (2.44 m)	8'0" (2.44 m)	8'0" (2.44 m)
Ground clearance at backhoe			
main frame .....	17" (432 mm)	17" (432 mm)	17" (432 mm)
Angle of departure .....	20°	20°	20°

## TRACTOR/LOADER

	General Purpose Bucket 1.75 yd <sup>3</sup> (1.34 m <sup>3</sup> )	4-in-1* BUCKET 1.75 yd <sup>3</sup> (1.34 m <sup>3</sup> )
Overall width.....	96" (2.44 m)	96" (2.44 m)
Overall operating height.....	14'7" (4.45 m)	17' (5.18 m)
Digging depth below ground—		
bucket flat .....	3" (76 mm)	7.5" (191 mm)
Height to bucket hinge pin .....	11'8" (3.56 m)	11'8" (3.56 m)
Dump angle at full height .....	49°	48°
Dump clearance at full height		
45° dump .....	9'0" (2.74 m)	9'1" (2.77 m)
Dump reach at full height		
45° dump .....	32" (813 mm)	37" (940 mm)
Bucket rollback at ground line .....	40°	41°

# EQUIPMENT DATA

## STANDARD EQUIPMENT

### TRACTOR

Air cleaner, dry type with replaceable cartridge • Alternator and regulator • Anti-freeze solution to -20°F (-29°C) • Axle (front), heavy-duty with 78" (1.98 m) fixed tread • Brakes, full air • Brake, parking, air • Electrical system, 12-volt • Engine, 112 hp (83.5 kW) Case 6T-590 diesel • Fenders, rear • Floor plates • Gauges and Instruments: air cleaner restriction light, air pressure indicator, alternator charge warning light, clutch pressure light, condition light for loader and backhoe hydraulic system filter, converter temperature gauge, engine oil pressure warning light, engine water temperature gauge, fuel level gauge, hourmeter, parking brake light, tachometer • Halogen headlights, one rear working and one red tail • Instrument cluster, illuminated • Muffler, upright with deflector • Oil cooler, hydraulic • Oil filter, full flow • Transmission, 3-speed powershift • Radiator opening, lockable • ROPS canopy on isolated operator's compartment • Safety belt, seat mounted • Seat, Easy Ride with single lever turnaround adjustment • Side panels, full length of engine • Steering, hydrostatic • Throttle, hand and foot • Tires (front) 14.00 x 17.5, 10PR • Tires (rear) 18.4 x 24, 12PR R4 • Toolbox • Wrapper, front

### LOADER

All tractor standard equipment • Anti-rollback • Control, single lever • Hydraulic system, complete • Indicator, bucket level • Loader (less bucket) • Return-to-dig • Self-leveling • Support strut, lift arm

### 18' (5.49 m) BACKHOE

All tractor and loader standard equipment • Hydraulic system, complete, including three lever, footswing control • Over-center backhoe (less bucket) • Stabilizers with two position cleated pads

### 18'-22' (5.49 m-6.70 m) EXTENDAHOE

All tractor, loader and backhoe equipment • Hydraulic telescoping extendahoe, accessory hydraulics

### OPTIONAL EQUIPMENT TRACTOR

Air conditioning • Alarm, backup • Anti-freeze to -40°F (-40°C) • Beacon, rotating • Full lockup package • Horn • Lights, combination tail, stop, directional and flasher with rear flood light • Muffler, spark arresting • Paint, special • ROPS cab with air filtration, defogger, heater pressurization, and floor mat • Front and rear wipers, lights, working, directional, flashers • Seat, deluxe suspension • Start kit, cold weather • Tires various sizes — see tractor section

### LOADER

All tractor optional equipment • Accessory hydraulics • Bucket teeth • 96" (2.44 m) general purpose bucket • 96" (2.44 m) 4-in-1 bucket

### BACKHOE

All tractor and loader optional equipment • Boom lock-out • Dual lever backhoe controls • Street-cemetery stabilizer pads • 24" (610 mm) and 30" (762 mm) heavy duty and 36" (914 mm) standard-duty trenching buckets.

## APPROXIMATE SHIPPING WEIGHTS

**NOTE:** Specifications taken with 14 x 17.5 front tires, 18.4 x 24 rear tires, ROPS canopy and standard equipment unless otherwise specified.

### TRACTOR/LOADER/BACKHOE (Less buckets)

18' (5.49 m) backhoe w/ROPS canopy .....	18,212 lbs (8261 kg)
18' (5.49 m) backhoe w/ROPS cab .....	18,698 lbs (8481 kg)
18'-22' (5.49 m-6.70 m) Extendahoe w/ROPS canopy .....	19,905 lbs (9029 kg)
18'-22' (5.49 m-6.70 m) Extendahoe w/ROPS cab .....	20,391 lbs (9249 kg)
Air conditioning .....	Add 30 lbs (14 kg)

### LOADER BUCKETS (Optional)

96" (2.44 m) general purpose . . . .	1050 lbs (476 kg)
96" (2.44 m) 4-in-1 .....	2610 lbs (1184 kg)

### BACKHOE BUCKETS (Optional)

24" (610 mm) heavy-duty .....	633 lbs (287 kg)
30" (762 mm) heavy-duty .....	737 lbs (334 kg)
36" (914 mm) standard-duty .....	836 lbs (379 kg)

Extendahoe, 4-in-1, and Construction King are trademarks of the J I Case Company.

# 780C LOADER/BACKHOE



**Sold and Serviced by:**

**NOTE:** All specifications are stated in accordance with ICED Definitions or SAE Standards or Recommended Practices, where applicable.

**IMPORTANT**

JI Case Company reserves the right to change these specifications without notice and without incurring any obligation relating to such change. Unit illustrated is equipped with non-standard items.

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