

Loader/Backhoe

Choice of 2-wheel or 4-wheel drive
Case 112 net horsepower (83.5 kW) diesel
Lift to 7750 lbs (3515 kg), dig to 22' (6.7 m)

780D



Case

780D

780D 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 in³ (5 883 cm³)
 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

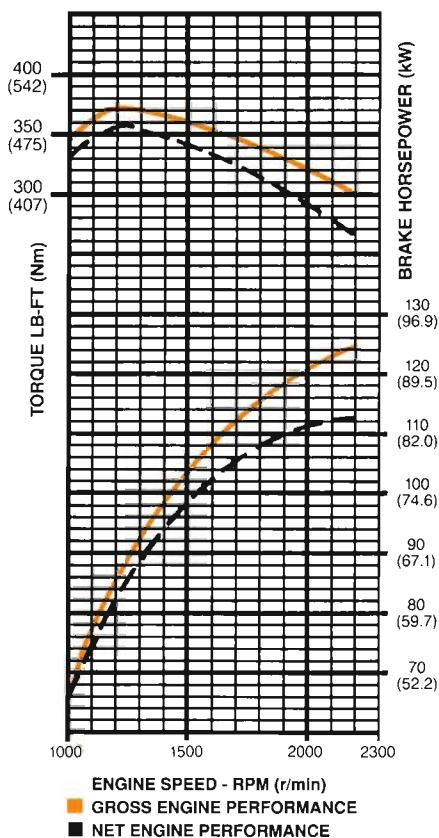
(1) Gross 370 @ 1200 rpm
 (501.7 Nm @ 1200 r/min)

(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, wet disc that are self adjusting and
 self equalizing [175 in² (1129 cm²) of braking
 surface per wheel]. Brakes can be operated
 without interrupting power flow to the rear
 wheels. A clutch cut out is located on the
 loader control handle. Automatic, spring-
 applied, hydraulic-released, parking brake
 is transmission mounted.

Final drives:

Front (4WD) Outboard planetaries

Rear Outboard planetaries with
 differential lock.

4-wheel drive: Operator engaged front-wheel
 mechanical drive by a lever located under the
 steering wheel.

Axle Ratings (Manufacturers)

	Front	Rear
Maximum static	70,096 lbs. (31 796 kg)	98,096 lbs. (44 496 kg)
Operating static	19,446 lbs. (8821 kg)	26,977 lbs. (12 237 kg)
Operating dynamic	38,829 lbs. (17 613 kg)	53,954 lbs. (24 474 kg)

*applies for both 2WD and 4WD

Axle Oscillation

Front: (2WD) 12°/side-24° total
 (4WD) 12°/side-24° total

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)

2WD

Turning ratio (stop to stop) 4.3
 Steering cylinder, double
 acting (1) 3.35" dia x 4.65" stroke
 (85 mm dia x 118 mm stroke)

4WD

Turning ratio (stop to stop) 4.3
 Steering cylinder, double
 acting (1) 3.35" dia x 4.65" stroke
 (85 mm dia x 118 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
Hydraulic reservoir		
w/filter	14.2 gal	53.8
w/o filter	13.6 gal	51.7
Planetaries		
each (4WD) — Front..	2.5 qts	2.4
— Rear..	2.5 qts	2.4
Differential (4WD)		
— Front..	17 qts	16.4
— Rear..	18 qts	17.4
Wheel end (2WD)	2.1 qts	2.0

Travel Speeds — mph (km/h)

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

	1st	2nd	3rd
Forward	3.5 (5.63)	7.6 (12.2)	19.5 (31.4)
Reverse	3.5 (5.63)	7.6 (12.2)	19.5 (31.4)

Tires

Size	Ply Rating	Tread	Pressure PSI (kPa)
Front			
14 x 17.5	10	Hi-Miler	70 (483)
15 x 19.5	12	Sure Grip	70 (483)
Rear			
18.4 x 28	12	R4	32 (221)
21L x 28	10	R4	28 (193)
21L x 24	12	R4	30 (206)

Turning Clearance Circle

(Tractor only) — without brakes

2WD axle 37'7" (11.5 m)

4WD axle

2WD mode 38' (11.6 m)

4WD mode 40' (12.2 m)

780D Loader

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:

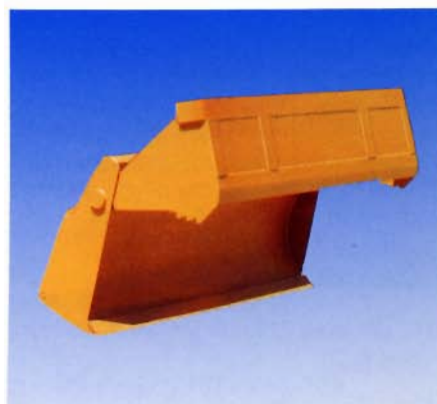
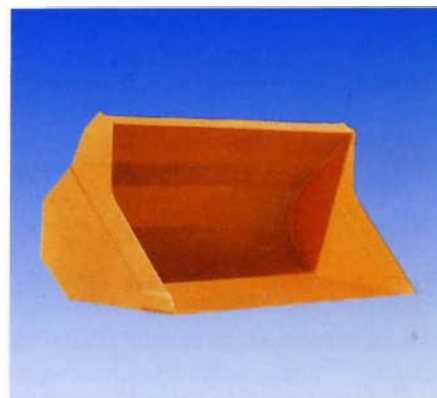
Lift (2) . . . 4" dia x 30" stroke, 2.25" rod
(102 mm dia x 762 mm stroke, 57 mm rod)

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 ³	m ³	yd ³	m ³
96	2.44	General Purpose	1.75	1.34	1.44	1.10
96	2.44	4-in-1	1.625	1.24	1.25	0.96



Operational Data

	General Purpose Bucket 1.75 yd ³ (1.34 m ³)	4-in-1 [®] Bucket 1.625 yd ³ (1.24 m ³)
Lift capacity to full height	7750 lbs (3515 kg)	6190 lbs. (2808 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	114°	95°
Digging depth below ground line — bucket flat	3.25" (83 mm)	7.5" (191 mm)
Digging depth — using clam	N.A.	5.3" (1.35 m)
Digging depth — clam open	N.A.	10" (254 mm)
Dump clearance at full height — 45° dump	9' (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.	6.6 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.

780D 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 r/min @ 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.

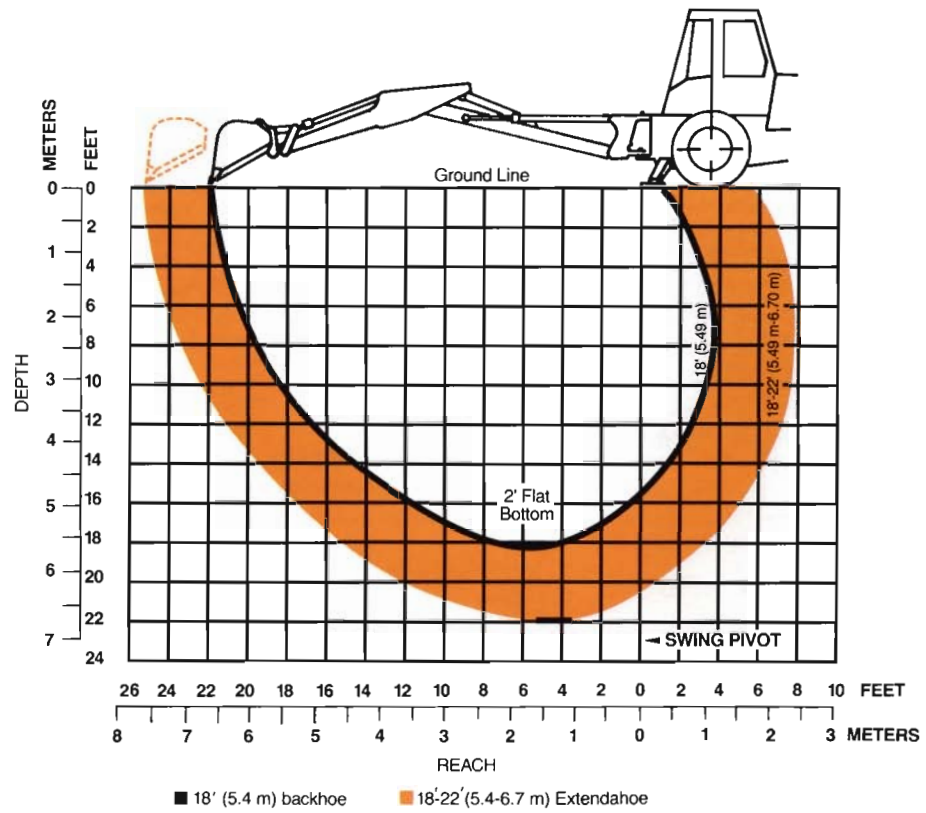
Backhoe control valve: Sectional four spool valve — boom, dipper, bucket, and swing. Foot or optional hand swing. Regeneration and hydraulic cushioned swing stops. Mono-cast two spool stabilizer valve with pilot checks.

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)
 - 4.5" dia x 14.8" stroke, 2.25" rod (114 mm dia x 376 mm stroke, 57 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

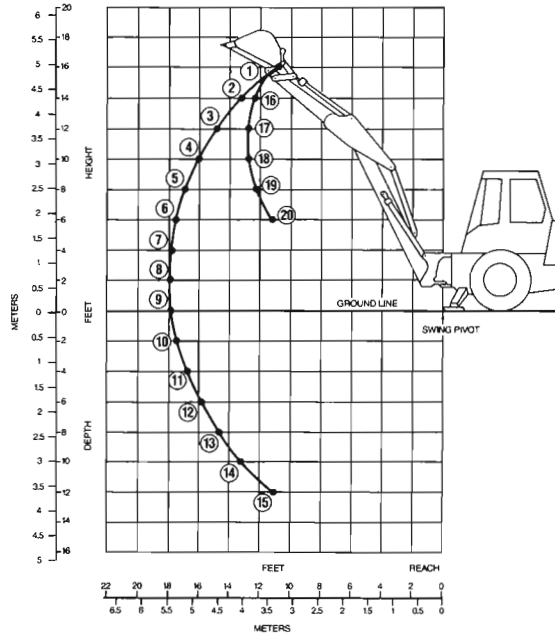
	18' (5.49 m) Backhoe		18' -22' (5.49 m-6.70 m) Extendahoe	
	Retracted	Extended	Retracted	Extended
Digging depth — SAE, 2' (610 mm) Flat bottom	18' (5.49 m)	21'11" (6.68 m)	18' (5.49 m)	22'0" (6.70 m)
Digging depth — SAE, maximum	18'3" (5.56 m)	22'0" (6.70 m)	18'3" (5.56 m)	22'0" (6.70 m)
Overall reach from rear axle centerline	25'9" (7.85 m)	29'4" (8.94 m)	25'8" (7.85 m)	29'4" (8.94 m)
Digging radius from swing pivot	21'11" (6.68 m)	25'6" (7.77 m)	21'10" (6.65 m)	25'6" (7.77 m)
Loading height	12'8" (3.86 m)	14'6" (4.42 m)	12'8" (3.86 m)	14'6" (4.42 m)
Loading reach	9'10" (3.0 m)	11'7" (3.53 m)	8'4" (2.54 m)	11'7" (3.53 m)
Swing arc	180°	180°	180°	180°
Bucket rotation # 1 position	157°	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	8'3" (2.52 m)	8'3" (2.52 m)	8'3" (2.52 m)	8'3" (2.52 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°

780D Backhoe

Lift Capacity Charts —

- Lift capacity figures on this chart of 87% of the maximum lift force per SAE Definition J31 and J49 at 2550 psi (17 582 kPa) system relief pressure.
- Backhoe straight to rear lift capacity within 45° either side of prime mover.
- Backhoe within swing arc lift capacity anywhere within full swing arc.
- Figures stated are determined by static tests and do not include dynamic factors.
- Machine equipped with 24" (610 mm) trenching bucket.
- Boom is angled at 65°

18' (5.49 m) Backhoe Lift Capacity



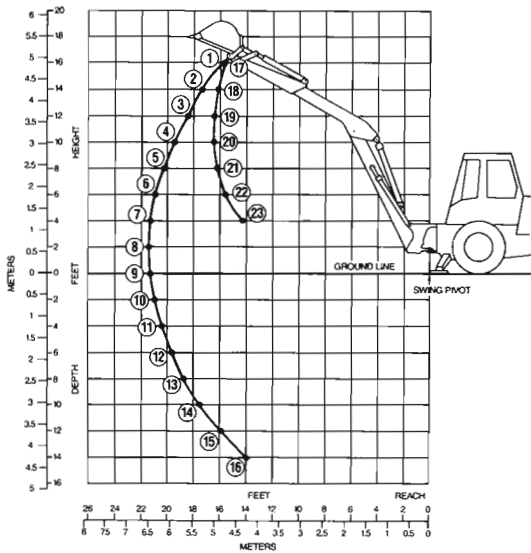
Backhoe Straight to Rear

Pounds (kg)	Pounds (kg)
1. 3000 (1361)	11. 3480 (1579)
2. 3514 (1594)	12. 3450 (1565)
3. 3698 (1677)	13. 3480 (1575)
4. 3740 (1696)	14. 3610 (1637)
5. 3741 (1697)	15. 3898 (1768)
6. 3785 (1717)	16. 6540 (2969)
7. 3750 (1701)	17. 6175 (2801)
8. 3785 (1717)	18. 6230 (2826)
9. 3706 (1681)	19. 6710 (3044)
10. 3565 (1617)	20. 8275 (3754)

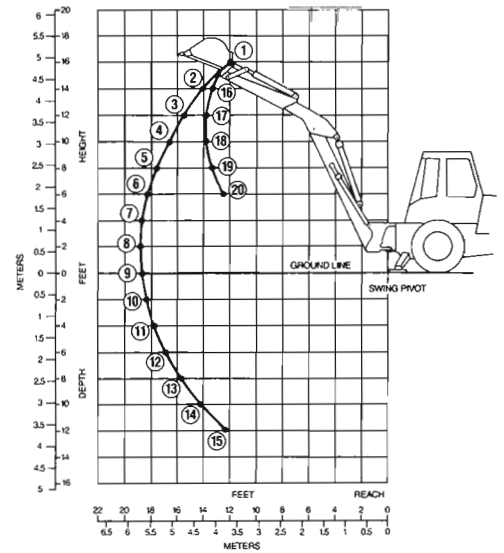
Backhoe Within Swing Arc

Pounds (kg)	Pounds (kg)
1. 2625 (1361)	11. 3480 (1579)
2. 3450 (1565)	12. 3450 (1565)
3. 3650 (1656)	13. 3480 (1579)
4. 3740 (1696)	14. 3610 (1683)
5. 3741 (1697)	15. 3898 (1768)
6. 3785 (1717)	*16. 6255 (2837)
7. 3750 (1701)	*17. 5805 (2633)
8. 3785 (1717)	*18. 5875 (2665)
9. 3706 (1681)	*19. 6105 (2769)
10. 3565 (1617)	*20. 7145 (3241)

Extendahoe Lift Capacity (Dipper Extended)



Extendahoe Lift Capacity (Dipper Retracted)



Backhoe Straight to Rear

Pounds (kg)	Pounds (kg)
1. 1895 (860)	13. 2275 (1032)
2. 2120 (962)	14. 2280 (1034)
3. 2235 (1014)	15. 2290 (1039)
4. 2295 (1041)	16. 2420 (1098)
5. 2380 (1080)	17. 3400 (1542)
6. 2375 (1077)	18. 3830 (1737)
7. 2400 (1089)	19. 3630 (1647)
8. 2400 (1089)	20. 3645 (1653)
9. 2400 (1089)	21. 3810 (1728)
10. 2320 (1052)	22. 4010 (1819)
11. 2250 (1021)	23. 4680 (2123)
12. 2260 (1025)	

Backhoe Within Swing Arc

Pounds (kg)	Pounds (kg)
1. 1895 (860)	13. 2275 (1032)
2. 2120 (962)	14. 2280 (1034)
3. 2170 (984)	15. 2290 (1039)
4. 2295 (1041)	16. 2420 (1098)
5. 2380 (1080)	*17. 3315 (1504)
6. 2375 (1077)	*18. 3470 (1574)
7. 2400 (1089)	*19. 3715 (1685)
8. 2400 (1089)	*20. 3305 (1499)
9. 2400 (1089)	*21. 3465 (1572)
10. 2320 (1052)	*22. 3680 (1669)
11. 2250 (1021)	*23. 4185 (1898)
12. 2260 (1025)	

Backhoe Straight to Rear

Pounds (kg)	Pounds (kg)
1. 2450 (1111)	11. 2940 (1334)
2. 2965 (1345)	12. 2930 (1329)
3. 3190 (1447)	13. 2815 (1277)
4. 3270 (1483)	14. 2835 (1286)
5. 3225 (1463)	15. 3035 (1377)
6. 3250 (1474)	16. 5735 (2601)
7. 3220 (1461)	17. 5550 (2518)
8. 3175 (1440)	18. 5455 (2474)
9. 3150 (1429)	19. 5905 (2679)
10. 3050 (1384)	20. 7010 (3180)

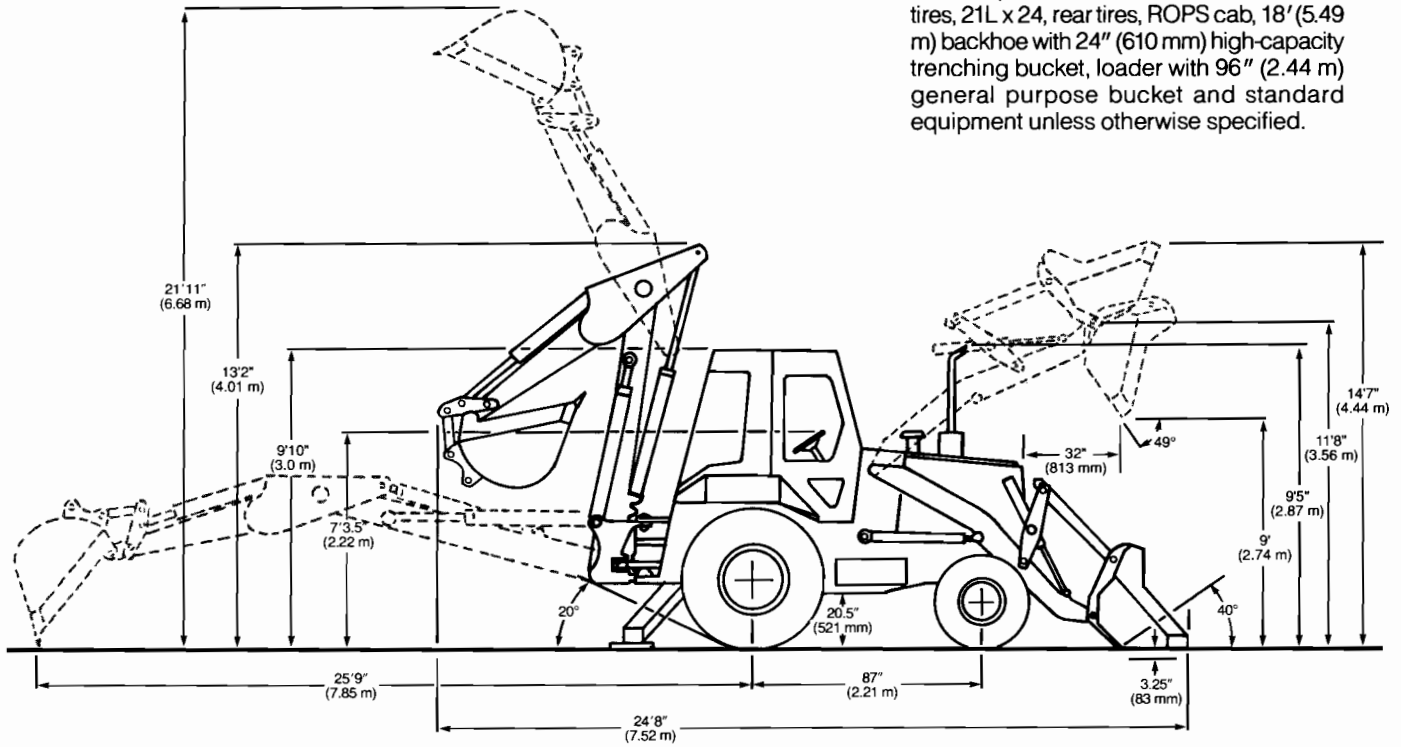
Backhoe Within Swing Arc

Pounds (kg)	Pounds (kg)
1. 1780 (807)	11. 2940 (1334)
2. 3130 (1420)	12. 2930 (1329)
3. 2700 (1225)	13. 2815 (1277)
4. 3270 (1483)	14. 2835 (1286)
5. 3225 (1463)	15. 3035 (1377)
6. 3250 (1474)	*16. 5455 (2474)
7. 3220 (1461)	*17. 4960 (2250)
8. 3175 (1440)	*18. 4975 (2257)
9. 3150 (1429)	*19. 5325 (2415)
10. 3050 (1384)	*20. 6430 (2917)

*Stability limited

Dimensional Data

NOTE: Specifications taken with 14 x 17.5 front tires, 21L x 24, rear tires, ROPS cab, 18' (5.49 m) backhoe with 24" (610 mm) high-capacity trenching bucket, loader with 96" (2.44 m) general purpose bucket and standard equipment unless otherwise specified.



Tractor

Overall width	8'11" (2.46 m)
Height: to top of canopy	9'10" (3.0 m)
Height: to top of cab	9'10" (3.0 m)
Height: to top of exhaust stack	9'5" (2.87 m)
Height: to top of steering wheel	7'3.5" (2.22 m)
Front wheel tread	6'6.5" (1.99 m)
Rear wheel tread	6'0.5" (1.84 m)
Wheelbase	87" (2.21 m)

Tractor/Loader/Backhoe

	BACKHOE 18' (5.49 m)	EXTENDAHOE® Retracted	Extended
Overall Length — transport			
1.75 yd ³ (1.34 m ³) G.P. Bucket	24'8" (7.52 m)	24'8.5" (7.53 m)	N.A.
1.625 yd ³ (1.24 m ³) 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" (8.94 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	8'3" (2.52 m)	8'3" (2.52 m)	8'3" (2.52 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 ³ (1.34 m ³)	4-in-1® Bucket 1.625 yd ³ (1.24 m ³)
Overall width	96" (2.44 m)	96" (2.44 m)
Overall operating height	14'7" (4.44 m)	15'4" (4.64 m)
Digging depth below ground —		
bucket flat	3.25" (83 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' (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 • Antifreeze solution to -20°F (-29°C) • Axle (front), heavy-duty with 78.5" (1.99 m) fixed tread • Brakes, wet disc • Brake, parking • 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, alternator charge warning light, clutch pressure light, condition light for loader and backhoe hydraulic system filter, converter temperature gauge, engine oil gauge, engine water temperature gauge, fuel level gauge, hourmeter, parking brake light, tachometer, audible alarms for low engine oil pressure, high engine coolant temperature and parking brake engaged • Halogen headlight, one rear working and one red tail • Hydraulic boom lock • 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) 21L 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 • Overcenter 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 • Antifreeze to -40°F (-40°C) • Beacon, rotating • Full lockup package • Horn • Lights, combination tail, stop, directional and flasher with rear flood light • 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 • 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	22,214 lbs (10 076 kg)
18' (5.49 m) backhoe w/ROPS cab	22,700 lbs (10 296 kg)
18' -22' (5.49 m-6.70 m) Extendahoe w/ROPS canopy	23,908 lbs (10 844 kg)
18' -22' (5.49 m-6.70 m) Extendahoe w/ROPS cab	24,394 lbs (11 065 kg)
Air conditioning	Add 30 lbs (14 kg)
4-wheel drive	Add 390 lbs (177 kg)

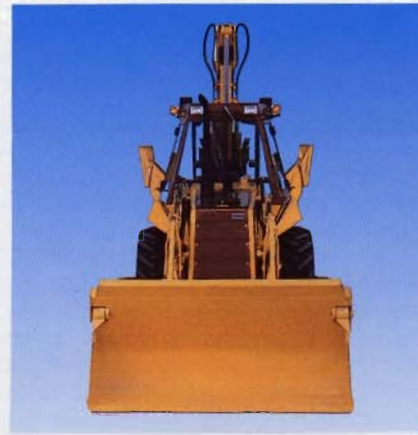
Loader Buckets (Optional)

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.



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