



MODEL 480E

Loader/Backhoe

Case 57 net horsepower (42.5 kW) diesel

Digging depth 12', 14', 12-15', (3.7, 4.3, 3.7-4.6 m)

Loader lift capacity 3170 lbs (1438 kg)

Choice of 2-wheel or 4-wheel drive



480E BASIC TRACTOR

ENGINE

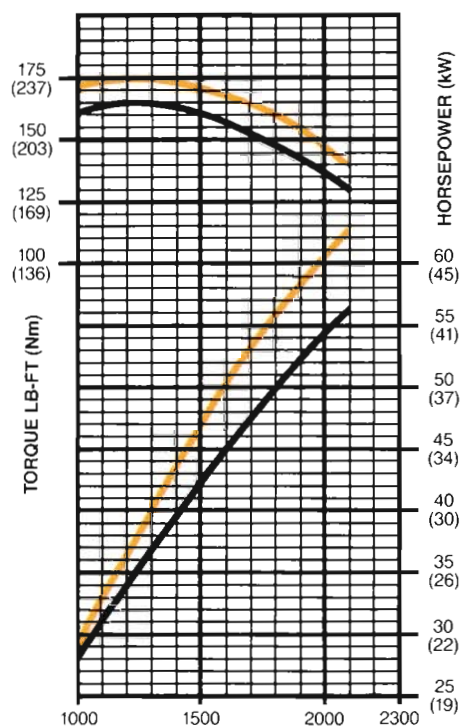
Make and Model Case 4-390
 Type of fuel No. 2 diesel
 No. of cylinders 4
 Bore and stroke 4.02" x 4.72"
 (102 mm x 120 mm)
 Displacement 239 in³ (3917 cm³)
 Compression ratio 17.3:1
 Fuel induction Injectors
 Fuel supply Injection pump
 Air cleaner Dry type—
 replacement element
 Oil filter Replaceable spin-on
 cartridge, full flow
 Lubrication Positive pressure
 Cooling system Pressurized—
 14 psi (96 kPa)

Horsepower
 (1) Gross 63 @ 2200 rpm
 (47 kW @ 2200 r/min)
 (2) SAE Net 57 @ 2200 rpm
 (42.5 kW @ 2200 r/min)

Max torque ft-lb
 (1) Gross 175 @ 1200 rpm
 (237 Nm @ 1200 r/min)
 (2) SAE Net 170 @ 1200 rpm
 (230 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



ENGINE SPEED - RPM (r/min)

Gross Engine Performance

Net Engine Performance

ELECTRICAL

System voltage 12 volts, negative ground
 Battery Maintenance free, 650 cold
 cranking amps at 32°F (0°C)
 Alternator 65 amp

POWER TRAIN

Transmission: 4-speed sliding spur gear with full power shuttle and torque converter. Permits on-the-go shifting up from 2nd to 3rd to 4th and back down from 4th to 3rd.

Torque converter: Single stage hydrokinetic type (2.78 to 1 ratio).

Reversing unit: Full power hydraulic clutches.

Brakes: Individual or simultaneous foot operated, hydraulic actuated 8" (203 mm), double disc with 246 in² (1587 cm²) braking surface. Over-center hand operated dry disc parking brake.

Final drives:
 Front (4-WD) outboard planetaries
 Rear multiple gear reduction

4-wheel drive: operator engaged front wheel mechanical drive by lever located next to operator's seat.

AXLE RATINGS (Manufacturer's)

Front (2-WD) 9,000 lbs (4082 kg)
 (4-WD) 12,500 lbs (5670 kg)
 Rear 13,500 lbs (6123 kg)

AXLE OSCILLATION

Front (2-WD) 27°
 (4-WD) 24°
 Rear Fixed

STEERING

Power steering Hydrostatic
 Hydraulic pump Front-mounted, positive displacement, gear type

Pump capacity
 23 gpm @ 2100 rpm @ 2350 psi
 (87 l/min @ 2100 r/min @ 16 203 kPa)

Steering system: Utilizes same hydraulic pump as the hydraulic system. Steering system is a load-sensing, supply-on-demand system that requires a maximum of 3.0 gpm (11.4 l/min) when turning wheels from stop to stop. Excess oil not being utilized by steering system is then made available to equipment hydraulic system.

Main relief setting 2100 ± 50 psi
 (14 479 ± 345 kPa)

Turning ratio (stop to stop) 2.75 turns
 Steering cylinders, double acting

(2) 1.5" dia x 6.5" stroke
 (38 mm dia x 165 mm stroke)

SERVICE CAPACITIES

	U.S.	Litres
Cooling system		
w/heater	18 qt	17
w/o heater	17 qt	16.1
Fuel tank	23.5 gal	89
Engine oil		
w/filter	11.6 qt	11
w/o filter	10.6 qt	10
Power shuttle	8 qt	7.6
Transaxle	20 qt	18.9
Hydraulic reservoir		
w/filter	10.8 gal	41.0
w/o filter	10.5 gal	39.7
Planetaries—		
each (4-WD)	1.5 qt	1.4
Differential (4-WD)	7 qt	6.6
Transfer case (4-WD)	1 pt	.5

TRAVEL SPEEDS — MPH (km/h)

Engine at full throttle, 14.9 x 24, R4 tires.

	1st	2nd	3rd	4th
Forward	3.3 (5.4)	6.4 (10.3)	12.0 (19.2)	20.9 (33.7)
Reverse	3.0 (4.8)	5.7 (9.2)	10.7 (17.3)	18.2 (29.3)

TIRES

Size	Ply Rating	Tread	Pressure PSI (kPa)
FRONT			
7.50 x 16	6	I1	36 (248)
7.50 x 16	10	I1	60 (414)
8.00 x 16	10	F3	64 (441)
11L x 16	10	F3	52 (359)
12 x 16.5 (1)	6	Lug	45 (310)
12 x 16.5 (1)	8	Lug	60 (414)

REAR			
14.9 x 24	6	R4	20 (138)
16.9 x 24	6	R4	18 (124)
17.5L x 24	6	R4	16 (110)
*17.5L x 24 (1)	8	R4	22 (152)
*17.5L x 24 (1)	10	R4	28 (193)

*Must be used on machines equipped with "Extendahoe."

(1) 4-WD

TURNING CLEARANCE CIRCLE (Tractor only)

With brakes—2-WD 20'1" (6.12 m)
 Without brakes—2-WD 23'5" (7.14 m)
 With brakes—4-WD 25'4" (7.72 m)
 Without brakes—4-WD 30'11" (9.43 m)

48QE LOADER

HYDRAULIC SYSTEM

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

Pump capacity:

23 gpm @ 2100 rpm @ 2350 psi
(87 l/min @ 2100 r/min @ 16 203 kPa).

Main relief pressure: 2350 psi (16 203 kPa).

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

Loader control valve: Mono-cast valve with single-lever control.

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

Loader cylinders:

Lift (2), 2.5" dia x 31.4" stroke, 1.5" rod
(64 mm dia x 798 mm stroke, 38 mm rod)

Tilt (2), 2.5" dia x 29.5" stroke, 1.5" rod
(64 mm dia x 749 mm stroke, 38 mm rod)

LOADER BUCKET SIZES

(Capacities SAE)

WIDTH	TYPE	HEAPED		STRUCK	
		yd ³	m ³	yd ³	m ³
64	1.62 Long lip	.75	.57	.65	.50
74	1.88 Short lip	.78	.60	.66	.50
82	2.08 Short lip	.83	.64	.76	.59

THREE-POINT MOD HITCH

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

Pump capacity:

23 gpm @ 2100 rpm @ 2350 psi
(87 l/min @ 2100 r/min @ 16 203 kPa)

Main relief pressure: 1800 psi (12 411 kPa)

Control valve: 4-spool sectional valve for hydraulic control of lift, tilt, pitch, and auxiliary with "float" detent in the lift spool. Optional single-spool sectional valve for hydraulic control of lift and mechanical adjustment of tilt and pitch.

Mod-hitch cylinders:

Lift (1) 3" dia x 8.4" stroke, 1.5" rod
(76 mm dia x 213 mm stroke, 38 mm rod)

Tilt (1) 2.5" dia x 6.3" stroke, 1.25" rod
(64 mm dia x 160 mm stroke, 32 mm rod)

Pitch (1) 2.5" dia x 7" stroke, 1.25" rod
(64 mm dia x 178 mm stroke, 32 mm rod)

Lift capacity

At end of lift arms . . . 5197 lbs (2362 kg)

At 24" (610 mm) behind

hitch point. 2850 lbs (1295 kg)

Hitch

Category I—Standard

Category II—Available through SPS

TURNING CLEARANCE CIRCLE (Loader)

Bucket rollback — hinge pin at SAE carry position

2-wheel drive

Short lip bucket

with brakes 30'7" (9.32 m)

without brakes 36'3" (11.05 m)

Long lip bucket

with brakes 29'2" (8.89 m)

without brakes 31'8" (9.65 m)

4-wheel drive

Short lip bucket

with brakes 30'9" (9.37 m)

without brakes 36'5" (11.10 m)

Long lip bucket

with brakes 30'7" (9.32 m)

without brakes 35'11" (10.95 m)

OPERATIONAL DATA

	General Purpose Buckets			
	SHORT LIP 2-WD	LONG LIP 2-WD	SHORT LIP 4-WD	LONG LIP 4-WD
Breakout force	6,340 lbf (28 202 N)	5,427 lbf (24 141 N)	6,340 lbf (28 202 N)	5,427 lbf (24 141 N)
Grading angle	109°	105°	109°	105°
Overall length w/o backhoe	15'5.5" (4.72 m)	15'10" (4.83 m)	15'5.5" (4.72 m)	15'10" (4.83 m)
Overall width	6'7" (2.00 m)	6'7" (2.00 m)	6'7" (2.00 m)	6'7" (2.00 m)
Overall operating height	13'1.2" (3.99 m)	13'6" (4.11 m)	13'3" (4.04 m)	13'7.5" (4.16 m)
Height to bucket hinge pin	10'7.5" (3.24 m)	10'7.5" (3.24 m)	10'8.5" (3.26 m)	10'8.5" (3.26 m)
Digging depth below grade—				
bucket flat	4.2" (107 mm)	4.2" (107 mm)	2.75" (70 mm)	2.75" (70 mm)
Dump clearance at full height,				
43° dump	8'6.5" (2.60 m)	8'3" (2.51 m)	8'9" (2.67 m)	8'5" (2.57 m)
Dump angle at full height	43°	43°	43°	43°
Dump reach at full height	27" (685 mm)	31" (787 mm)	27" (685 mm)	31" (787 mm)
Raising time to full height	3.7 sec.	3.7 sec.	3.7 sec.	3.7 sec.
Bucket dumping time	3.0 sec.	3.0 sec.	3.0 sec.	3.0 sec.
Lowering time, power down	1.9 sec.	1.9 sec.	1.9 sec.	1.9 sec.
Bucket rollback @ groundline	33°	33°	33°	33°
Lift capacity to full height	3170 lbs (1438 kg)	3088 lbs (1401 kg)	3170 lbs (1438 kg)	3088 lbs (1401 kg)

480E BACKHOE

HYDRAULIC SYSTEM

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

Pump capacity:

23 gpm @ 2100 rpm @ 2350 psi
(87 l/min @ 2100 r/min @ 16 203 kPa).

Control valve main relief pressure:

2350 psi (16 203 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)

3.5" dia x 16.38" stroke, 1.75" rod
(89 mm dia x 416 mm stroke, 44 mm rod)

Swing (2)

3.5" dia x 11" stroke, 1.5" rod
(89 mm dia x 279 mm stroke, 38 mm rod)

Boom (1)

4" dia x 38.1" stroke, 1.75" rod
(102 mm dia x 968 mm stroke, 44 mm rod)

Dipper (1) 12' (3.66 m) Backhoe

3.5" dia x 33.12" stroke, 2" rod
(89 mm dia x 841 mm stroke, 51 mm rod)

Dipper (1) 14' (4.27 m) Backhoe

3.75" dia x 33.12" stroke, 2" rod
(95 mm dia x 841 mm stroke, 51 mm rod)

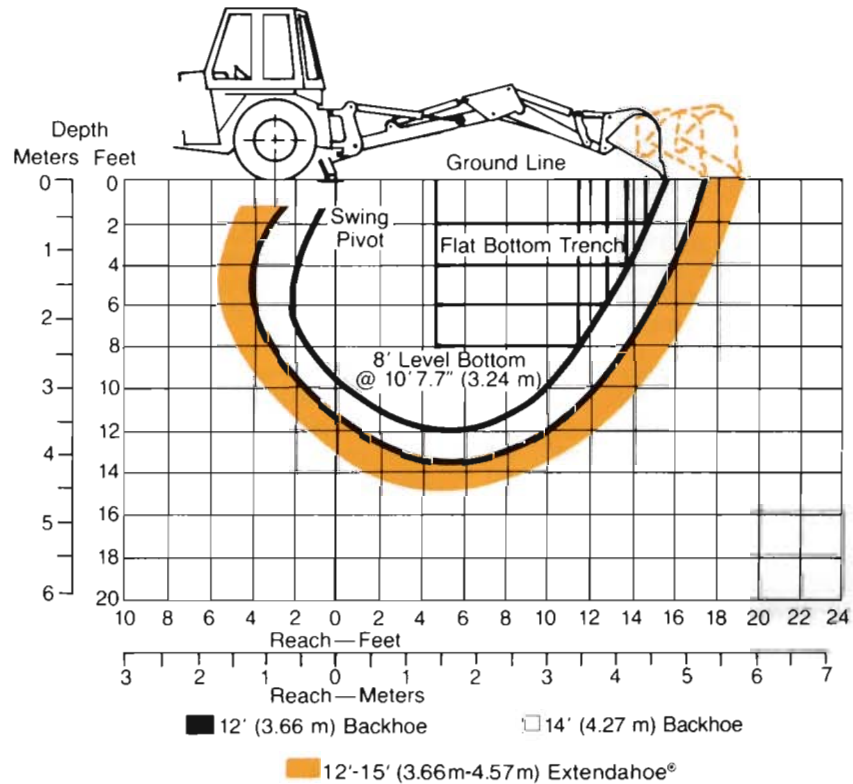
Bucket (1)

3.25" dia x 26.3" stroke, 2" rod
(83 mm dia x 668 mm stroke, 51 mm rod)

Dipper Extension (1)

3" dia x 36.4" stroke, 1.5" rod
(76 mm dia x 925 mm stroke, 38 mm rod)

DIG DEPTH CHART



OPERATIONAL DATA

	12' (3.66 m) Backhoe	14' (4.27 m) Backhoe	12'-15' (3.66 m-4.57 m) Extendahoe®	
			RETRACTED	EXTENDED
Digging depth—SAE,				
2' (610 mm) flat bottom	11'11" (3.63 m)	13'10" (4.22 m)	12'0.2" (3.66 m)	15'0.5" (4.59 m)
Digging depth—SAE, maximum	12'0.3" (3.67 m)	14'0.5" (4.28 m)	12'1.8" (3.70 m)	15'1.8" (4.62 m)
Overall reach from rear axle centerline	18'9.4" (5.73 m)	20'8.8" (6.32 m)	18'10.1" (5.74 m)	21'9" (6.63 m)
Digging radius from swing pivot	15'8.6" (4.79 m)	17'8" (5.39 m)	15'9.3" (4.81 m)	18'8.2" (5.70 m)
Loading height	8'5.1" (2.57 m)	10'1" (3.07 m)	7'7.4" (2.32 m)	8'8.7" (2.66 m)
Loading reach	7'3.2" (2.22 m)	8'7" (2.62 m)	8'3" (2.52 m)	11'0.5" (3.37 m)
Swing arc	180°	180°	180°	180°
Bucket rotation—				
No. 1 position	141.7°	141.7°	135.2°	135.2°
No. 2 position	131.2°	131.2°	125.7°	125.7°
Stabilizer spread—				
operating position	8'10.4" (2.70 m)	8'10.4" (2.70 m)	8'10.4" (2.70 m)	8'10.4" (2.70 m)
transport position	7'3" (2.21 m)	7'3" (2.21 m)	7'3" (2.21 m)	7'3" (2.21 m)
Digging force				
bucket cylinder, SAE	8116 lbf (36 102 N)	8116 lbf (36 102 N)	8276 lbf (36 816 N)	8276 lbf (36 816 N)
dipper cylinder, SAE	4816 lbf (21 434 N)	5288 lbf (23 520 N)	4920 lbf (21 887 N)	3560 lbf (15 837 N)
Leveling angle (maximum slope on which backhoe will make vertical cut)	10°	10°	10°	10°

480E BACKHOE

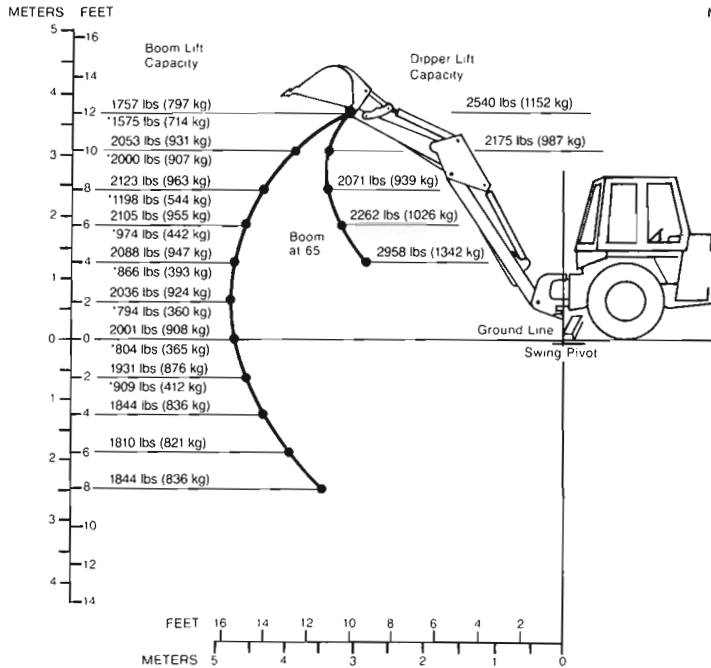
LIFT CAPACITY CHARTS

1. Lift capacity figures on these charts are 87% of the maximum lift force per SAE Definition J31 and J49 at 2350 psi (15 168 kPa) system relief pressure (w/Loader bucket raised).

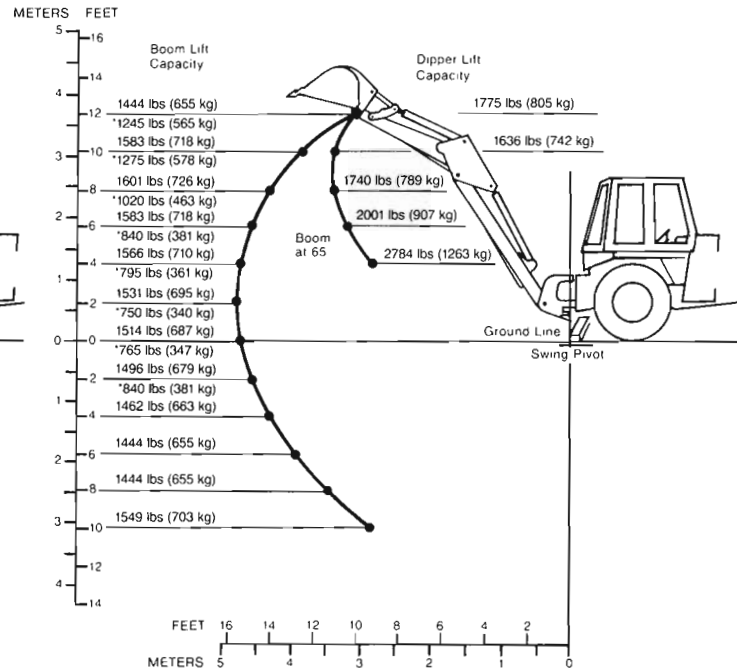
2. Top numbers/lift capacity within 45° either side of prime mover.
3. Bottom numbers/lift capacity anywhere within full swing arc.
4. *Figures are stability limited and 75% of tipping load.

5. Figures stated are determined by static tests and do not include dynamic factors.
6. Machine equipped with 24" (610 mm) trenching bucket.
7. Boom is angled @ 65°.

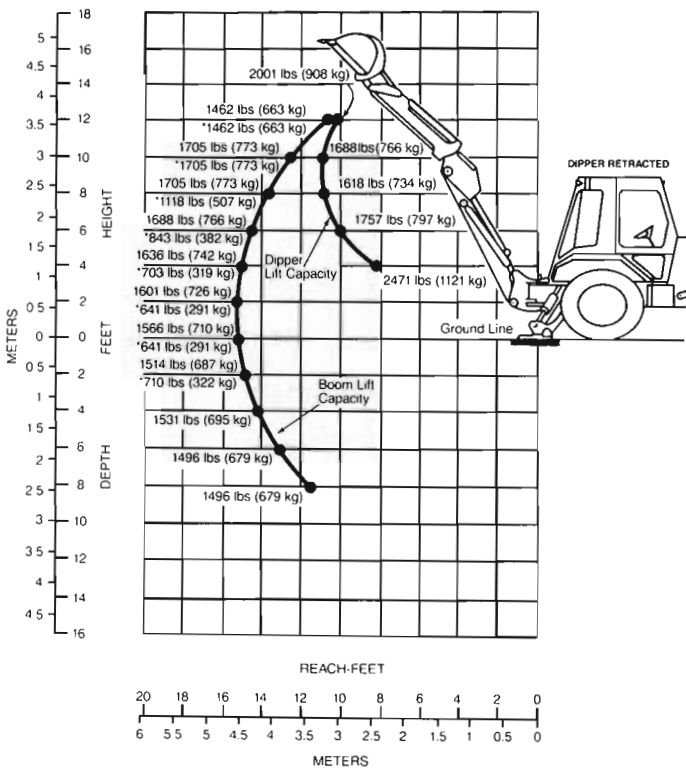
12' (3.66m) BACKHOE



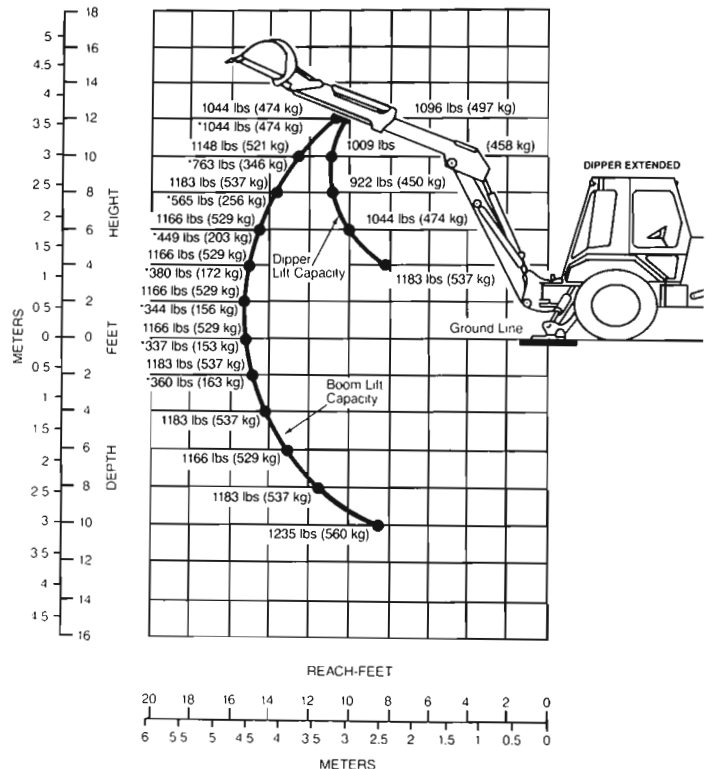
14' (4.27m) BACKHOE



EXTENDAHOE LIFT CAPACITY (DIPPER RETRACTED)

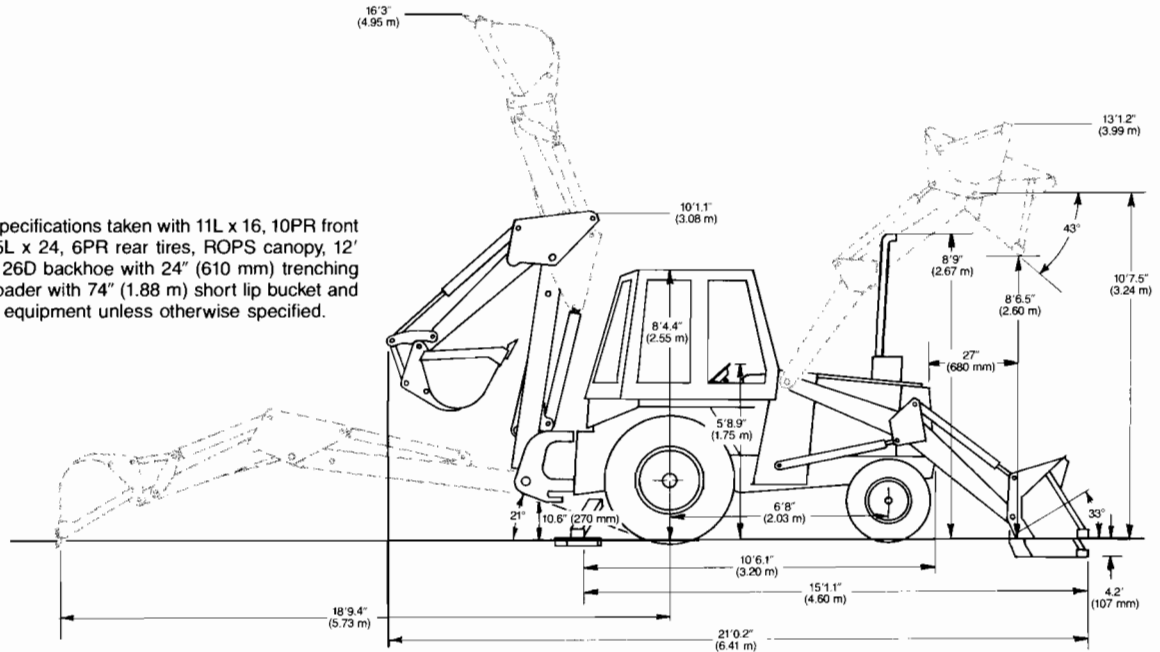


EXTENDAHOE LIFT CAPACITY (DIPPER EXTENDED)



DIMENSIONAL DATA

NOTE: Specifications taken with 11L x 16, 10PR front tires, 17.5L x 24, 6PR rear tires, ROPS canopy, 12' (2.66 m) 26D backhoe with 24" (610 mm) trenching bucket, loader with 74" (1.88 m) short lip bucket and standard equipment unless otherwise specified.



TRACTOR

Overall length.....	10'6.1" (3.20 m)
Overall width.....	6'3.3" to 6'11.1" (1.91 m to 2.11 m)
Height: to top of canopy ..	8'4.5" (2.55 m)
Height: to top of cab.....	8'4.4" (2.55 m)
Height: to top of exhaust stack.....	8'9" (2.67 m)
Height: to top of steering wheel.....	5'8.9" (1.75 m)
Ground clearance (tractor main frame).....	12.6" (321 mm)
Front wheel tread (2-WD).....	4'11" to 5'2" (1.50 m to 1.58 m)
(4-WD).....	5'7" (1.70 m)
Rear wheel tread.....	5'0" to 5'6" (1.53 m to 1.68 m)
Wheel base (2-WD).....	6'8" (2.03 m)
(4-WD).....	6'8.5" (2.05 m)

TRACTOR/LOADER

Overall length.....	15'1.1" (4.60 m)	15'6.8" (4.75 m)
Overall width.....	6'7" (2.00 m)	6'8" (2.01 m)
Overall operating height.....	13'1.2" (3.99 m)	13'5.8" (4.11 m)
Height to bucket hinge pin.....	10'7.5" (3.24 m)	10'7.5" (3.24 m)
Digging depth below ground — bucket flat.....	4.2" (107 mm)	4.2" (107 mm)
Dump clearance full height — 43° dump.....	8'6.5" (2.60 m)	8'2.7" (2.51 m)
Dump angle at full height.....	43°	43°
Dump reach at full height — 43° dump.....	27" (685 mm)	31.1" (791 mm)
Bucket rollback at groundline.....	33°	33°

GENERAL PURPOSE BUCKET

	SHORT LIP	LONG LIP
Overall length.....	15'1.1" (4.60 m)	15'6.8" (4.75 m)
Overall width.....	6'7" (2.00 m)	6'8" (2.01 m)
Overall operating height.....	13'1.2" (3.99 m)	13'5.8" (4.11 m)
Height to bucket hinge pin.....	10'7.5" (3.24 m)	10'7.5" (3.24 m)
Digging depth below ground — bucket flat.....	4.2" (107 mm)	4.2" (107 mm)
Dump clearance full height — 43° dump.....	8'6.5" (2.60 m)	8'2.7" (2.51 m)
Dump angle at full height.....	43°	43°
Dump reach at full height — 43° dump.....	27" (685 mm)	31.1" (791 mm)
Bucket rollback at groundline.....	33°	33°

TRACTOR/LOADER/BACKHOE

	12' (3.66 m)		14' (4.27 m)		EXTENDAHOE® 12'-15' (3.66-4.57 m)	
					RETRACTED	EXTENDED
Overall length — transport						
Short lip bucket.....	21'4.9" (6.53 m)	21'3.5" (6.49 m)	21'3.8" (6.50 m)			N/A
Long lip bucket.....	21'9.4" (6.64 m)	21'8" (6.60 m)	21'9.5" (6.64 m)			N/A
Overall reach from rear axle centerline.....	18'9.4" (5.73 m)	20'8.8" (6.32 m)	18'10.1" (5.74 m)	21'9" (6.63 m)		
Overall height, maximum.....	16'3" (4.95 m)	18'3" (5.56 m)	16'3.3" (4.96 m)	19' (5.79 m)		
Transport height.....	10'1.1" (3.08 m)	11'9" (3.58 m)	10'5.7" (3.19 m)			N/A
Overall width — transport.....	7'3" (2.21 m)	7'3" (2.21 m)	7'3" (2.21 m)	7'3" (2.21 m)		
Ground clearance at backhoe						
main frame.....	10.6" (270 mm)	10.6" (270 mm)	10.3" (262 mm)	10.3" (262 mm)		
Angle of departure.....	21°	21°	21°	21°		

EQUIPMENT DATA

STANDARD EQUIPMENT

TRACTOR

Antifreeze solution to -20° F (-29° C)
 • Axle, heavy-duty oscillating front
 • Brakes, parking, over-center • Engine, 57 net hp (42.5 kW) Case 4-390 diesel
 • Fenders, rear • Floor plates • Fuel opening, lockable • Gauges and instruments: air cleaner restriction light, alternator charge warning (lamp), 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, tachometer, voltmeter • Grille, heavy-duty • Lights, one rear working and one red tail • Instrument cluster, illuminated • Muffler, upright oval with deflector
 • Oil filter, full flow • Power shuttle, with torque converter, 4-speed transaxle with differential lock • Radiator opening, lockable • ROPS canopy • Seat belt • Seat, easy ride • Side panels, full length of engine, lockable • Steering, hydrostatic • Throttle, hand and foot • Tires (front), 7.50 x 16, 10PR(I1) • Tires (rear), 14.9 x 24, 6PR, (R4) utility traction tread • Tool box • Wrapper, front

LOADER

All tractor standard equipment • Single lever control with self-leveling • Hydraulic system, complete • Indicator, bucket level • Loader (less bucket) • Support strut, lift arm

12' (3.66 m) BACKHOE

All tractor and loader standard equipment • Hydraulic system, complete including three levers, foot swing control • Over-center backhoe (less bucket) model 26D (12') with quick disconnect mounting • Stabilizers

14' (4.27 m) BACKHOE

All tractor and loader standard equipment • Hydraulic system, complete including three levers, foot swing control • Over-center backhoe (less bucket) model 26D (14') with quick disconnect mounting • Stabilizers • Accessory hydraulics and front counterweight

12'-15' (3.66 m-4.57 m) EXTENDAHOE

All tractor, loader and backhoe equipment
 • Hydraulic telescoping Extendahoe, accessory hydraulics and front counterweight.

OPTIONAL EQUIPMENT

TRACTOR

Alarm, backup • Antifreeze to -40° F (-40° C) • Beacon, rotating • Emblem, SMV • Floor mat • Full lockup package • Hitch, modular 3-point • Horn • Hourmeter, electric • Lights, combination tail, stop, directional and flasher • Muffler, spark arresting • Noise suppression package • PTO (hydrostatic), 19 hp (14 kW) 540 rpm with 6-tooth SAE 1.375" (35 mm) shaft • Paint, special • ROPS cab, heater and defogger • Seat, deluxe • Start kit, cold weather • Tires, various sizes — see tractor section • Weights, front-end • 4-wheel drive.

LOADER

All tractor optional equipment • Bucket teeth • Counterweight, rear • 64" (1.63 m) long lip, 74" (1.88 m) short lip and 82" (2.08 m) short lip buckets.

BACKHOE

All tractor and loader optional equipment
 • Backhoe floor mat • Boom lockout • Counterweight, front • Dual-lever backhoe controls • Street/cemetery stabilizer pads • 12" (305 mm), 18" (457 mm), 24" (610 mm), 30" (762 mm), 36" (914 mm), standard-duty trenching • 18" (457 mm), 24" (610 mm), heavy-duty trenching buckets • 3.5" (89 mm) stabilizer cylinders • Oversized stabilizer pads.

APPROXIMATE SHIPPING WEIGHTS

NOTE: Specifications taken with 7.50 x 16 front tires, 17.5L x 24 rear tires, ROPS canopy and standard equipment unless otherwise specified.

TRACTOR

Drawbar tractor
 w/ROPS canopy . . . 5284 lbs (2397 kg)
 Drawbar tractor
 w/ROPS cab 5714 lbs (2592 kg)

TRACTOR WITH LOADER

(Less Bucket)

Without rear
 counterweight. 6341 lbs (2876 kg)
 Rear counterweight (required with no rear attachments). . . . add 1496 lbs (679 kg)
 Cab. add 430 lbs (195 kg)
 4-wheel drive add 454 lbs (206 kg)

TRACTOR LOADER/BACKHOE

(Less Buckets)

12' (3.66 m) backhoe 8686 lbs (3940 kg)
 14' (4.27 m) backhoe 8843 lbs (4011 kg)
 Extendahoe 9302 lbs (4219 kg)
 Front counterweight (required
 w/Extendahoe and 14'
 (4.27 m) backhoe add 665 lbs (302 kg)

LOADER BUCKETS (Optional)

64" (1.62 m) long lip . . . 624 lbs (283 kg)
 74" (1.88 m) short lip . . . 638 lbs (289 kg)
 82" (2.08 m) short lip . . . 667 lbs (303 kg)

BACKHOE BUCKETS (Optional)

Width	Standard Trenching	Heavy-Duty Trenching
12" (305 mm) . . .	198 lbs (90 kg)	N/A
18" (457 mm) . . .	238 lbs (108 kg)	322 lbs (146 kg)
24" (610 mm) . . .	270 lbs (122 kg)	380 lbs (175 kg)
30" (762 mm) . . .	306 lbs (139 kg)	N/A
36" (914 mm) . . .	346 lbs (157 kg)	N/A

MOD HITCH

3-point hitch 631 lbs (286 kg)
 Extendahoe and Construction King are trademarks of the J I Case Company.



Sold and serviced by: