

CATERPILLAR®

EXCAVATOR

312



Cat 3064T Engine	63 kW	84 HP
Operating Weight	12 300 kg	27,200 lb
Bucket Capacities	0.32-0.63 m ³	0.42-0.82 yd ³

Maximum:		
Reach @ Ground Level	8625 mm	28' 4"
Digging Depth	6050 mm	19' 10"
Travel Speed	5.5/3.8 km/h	3.4/2.4 MPH



The Cat 312 Hydraulic Excava



World-Class Cab

Pilot-operated, adjustable joysticks control all front end and swing functions.

Lever- and pedal-operated travel controls allow operator to work implement joysticks while moving machine.

Monitor panel continually informs operator of machine status and houses most machine system controls.

Low sound level design keeps noise levels to a minimum.

Excellent visibility and ventilation.

Fully adjustable seat has wide range of adjustment for maximum comfort.

Heater, defroster and fan keep positive filtered air (warm, fresh or cool if equipped with air conditioner option) flowing through cab with the flip of a switch.

Smooth Predictable Operation

State-of-the-art hydraulics.

Electronic power control determines optimum engine speed and pump output for maximum productivity and fuel efficiency.

Electronic underspeed control system destrokes hydraulic pumps if engine slows under load.

Power mode selector electronically controls engine speed and power.

Work mode selector allows operator to choose circuit priorities for pump flow.

Load-sensing feature provides smooth starts and stops when handling full loads.

Reliability

Advanced carbody design delivers excellent resistance to torsional bending.

Robot welding ensures consistent, high-quality welds throughout the manufacturing process.

Robot-welded track roller frame delivers exceptional strength and service life.

Rugged main frame utilizes curved side rails drawn through a die rather than formed for excellent uniformity and strength.

Boom tower and main rails constructed of solid, high-tensile strength steel plates for excellent durability.

Booms and sticks are welded, box-section structures with thick steel plates.

Versatile Stick and Bucket Combinations

Power and work mode selectors allow most efficient power and hydraulic system priority for each application.

Exceptional versatility allows the machine to accomplish a wide range of jobs.

Sleek, Modern Styling

Cab and body have smooth, rounded contours for a more contemporary look.

Cab interior combines new styling with softer, more pleasing color scheme.

tor

Outstanding Operator Comfort

Plenty of leg and head room for maximum operator comfort.

Multi-adjustable seat keeps the operator productive throughout the shift.

Joystick consoles slide forward and backward for ease of operation.

Lever require less force, shorter stroke.

Load-sensing hydraulics provide smooth, precise control.

New dial-type throttle has 10 settings for easy, precise adjustment.

Monitor panel, mounted in front of right console, keeps the operator informed of machine status.

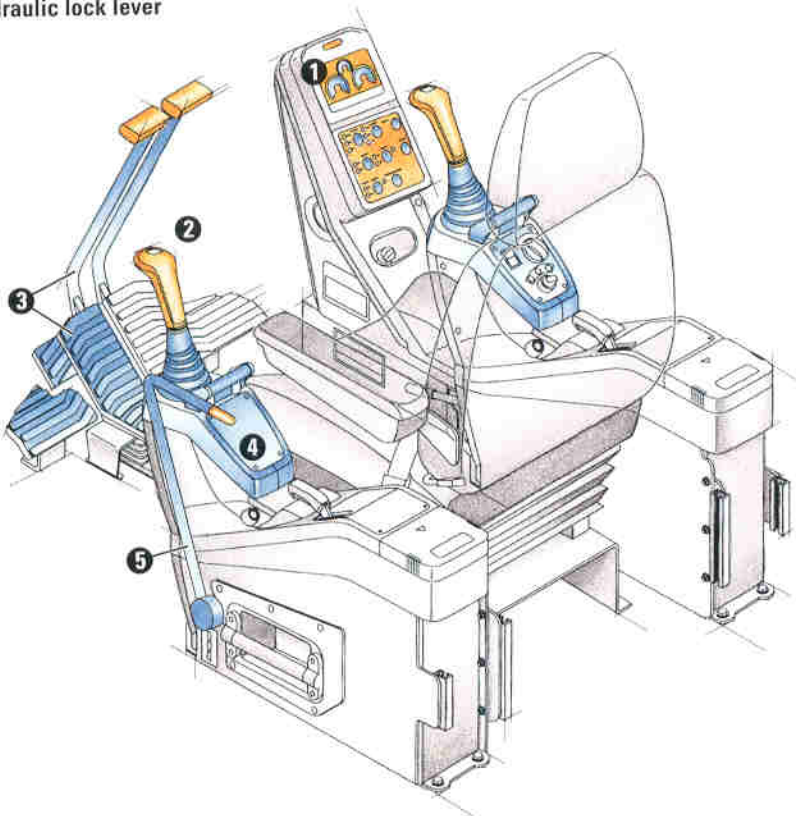
Wide, large windows help assure excellent visibility in all directions.

Large skylight offers upward visibility, more ventilation.

Eight air vents with standard positive forced air ventilation and heater/defroster increase comfort. Optional air conditioner is available.

Resiliently mounted cab and sound-suppressed panels reduce noise levels. Machine design moves engine and hydraulic noise away from the operator.

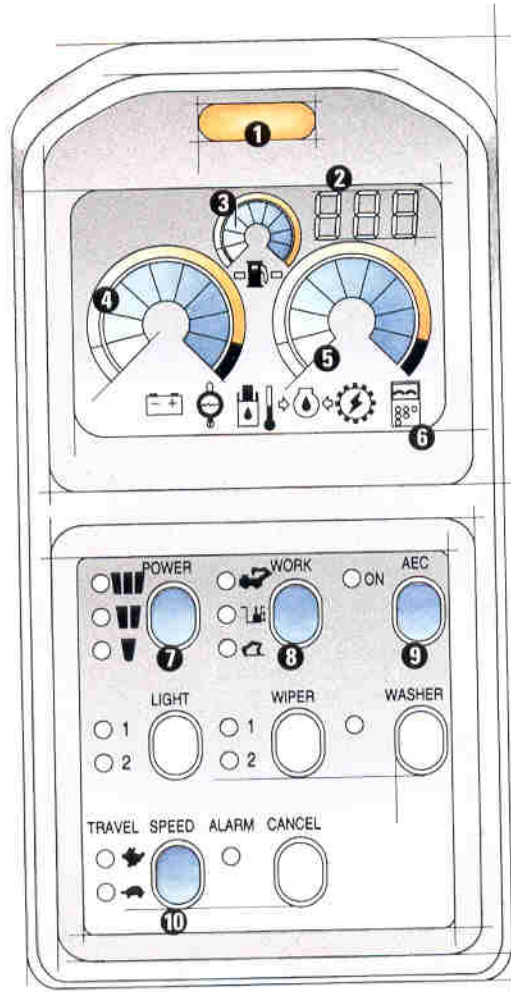
- 1 Monitor panel
- 2 Joysticks
- 3 Travel levers and pedals
- 4 Adjustable joystick consoles
- 5 Hydraulic lock lever





Power Systems

- 1 Action alert lamp
- 2 Engine RPM
- 3 Fuel gauge
- 4 Engine coolant temperature
- 5 Hydraulic oil temperature
- 6 Indicator lights
- 7 Power Mode Selector
- 8 Work Mode Selector
- 9 Automatic Engine Control
- 10 2-speed travel





Three Power Mode settings allow operator to choose optimum engine speed and hydraulic flow for each work situation.


- 100% for high-production truck loading, trenching, high-speed travel and hydraulic hammer use.
- 80% for normal truck loading, trenching, setting pipe and utility work.
- 60% for lifting, pipe setting, bank forming, slope finishing and close-quarters work.

Correct settings can result in significant fuel savings. From 5%-10% in the highest settings and 10%-20% in the lowest settings.

Three Work Mode Selector settings allow operator to tailor hydraulic circuit priority for maximum performance in each application.

-  Boom circuit – for mass excavation, trenching, heavy lifting and truck loading where boom movement and speed are major factors in efficient operation.

-  Swing circuit – for trenching and basement excavation where consistent crowd force to the side of the wall is important.

-  Stick circuit – for leveling, bank forming, slope finishing and lifting jobs that require fine control.

Proper Work Mode setting can shorten average cycle times by 5%-10%.

Cat® 3064 Engine

The 3064 engine has the best fuel consumption in its class. It features improved thermal efficiency and reduced friction resistance between piston and liners.

Engine noise and vibration are reduced as part of the basic engine design.

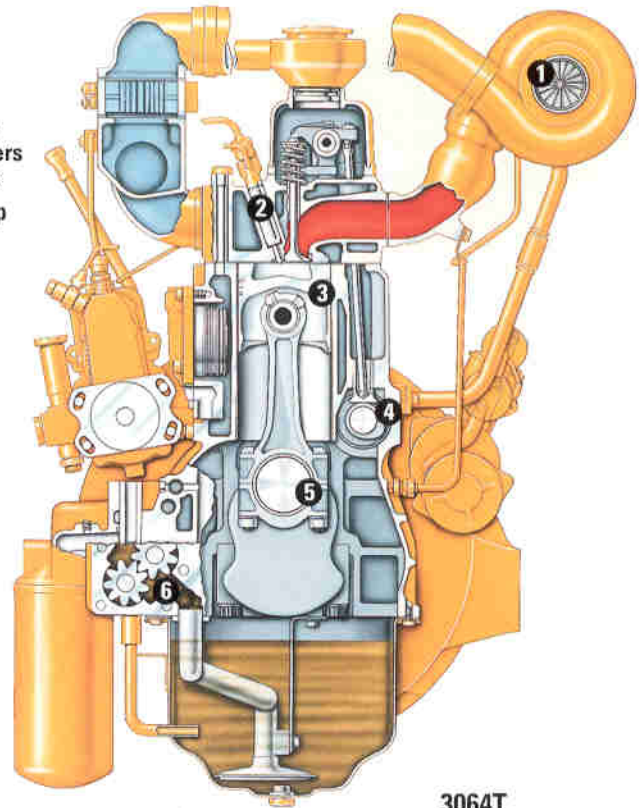
This engine is designed for high torque rise at middle rpms which is suited to excavator applications.

New materials and new technologies are used to help ensure reliability. Severe testing was done to help ensure excellent durability.

Designed to be as compact as possible while maintaining high performance and durability.

Oil filter, fuel filter, priming pump on same side of engine.

- 1 Turbocharger
- 2 Injection Unit
- 3 Aluminum Alloy Pistons
- 4 Camshaft Roller Followers
- 5 Forged Steel Crankshaft
- 6 High Efficiency Oil Pump



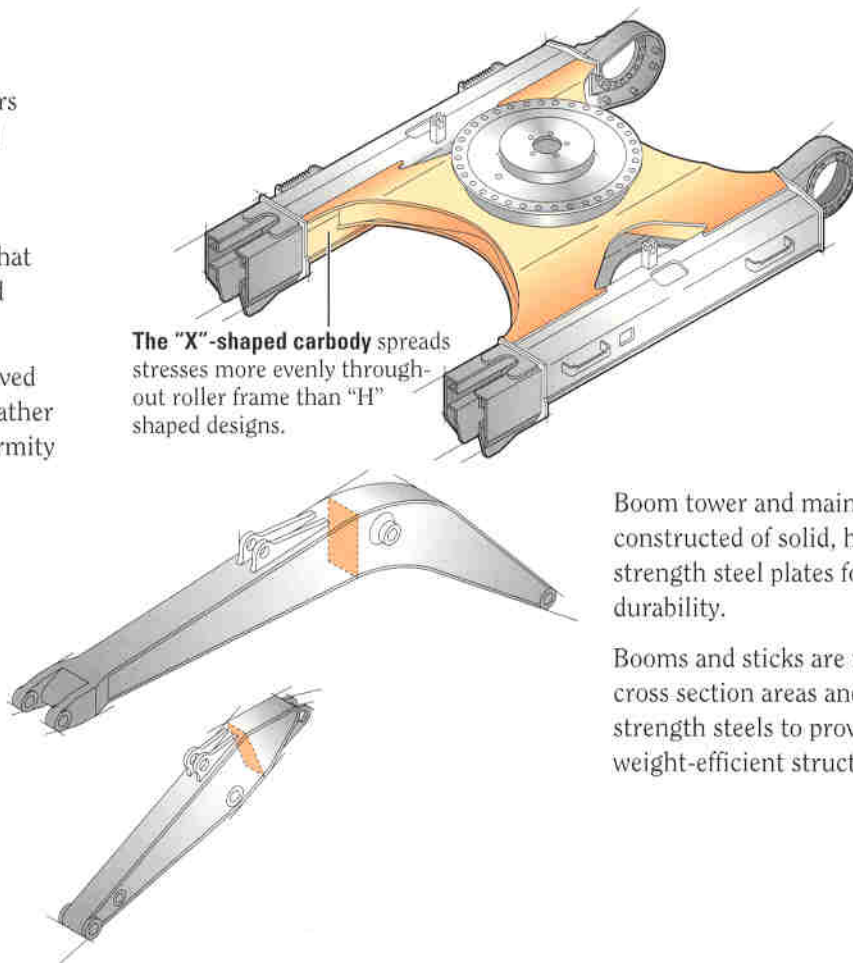
Durable Structures

Advanced carbody design delivers excellent resistance to torsional bending.

Robot welding helps to ensure consistent, high-quality welds that deliver exceptional strength and service life.

Rugged main frame utilizes curved side rails drawn through a die rather than formed for excellent uniformity and strength.

The "X"-shaped carbody spreads stresses more evenly throughout roller frame than "H" shaped designs.



Boom tower and main rails constructed of solid, high-tensile strength steel plates for excellent durability.

Booms and sticks are made with large cross section areas and high-yield strength steels to provide the most weight-efficient structures.



Caterpillar® Engine

Gross power at 1900 RPM68 kW (91 HP)
Net power at 1900 RPM63 kW (84 HP)

(Kilowatt (kW) is the International System of Units equivalent to horsepower.)

Ratings of Caterpillar machine engines are based on standard air conditions of 25°C (77°F) and 99 kPa (29.32" Hg.) dry barometer. Power is based on using 35° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 30°C (86°F) (ref. a density of 838.9 g/L [7.001 lb/U.S. gal]). Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler, and alternator. No derating is required up to 1500 m (5000 ft) altitude.

The following ratings apply at 1900 RPM when tested under the specified standard conditions for the specified standard:

Net Power	kW	HP	PS
Caterpillar.....	63	84	85
EEC 80/1269	63	84	85
ISO 9249	63	84	85
SAE J1349 (JAN90).....	62	83	84
Gross Power			
ISO 3046-2.....	68	91	92

Cat four-stroke-cycle, 3064 turbocharged diesel engine with four cylinders, 102 mm (4.02") bore, 130 mm (5.12") stroke and 4.25 liters (259 in³) displacement.

Efficient fuel injection system with an individual, adjustment-free unit injector for each cylinder. Low profile, heat resistant aluminum-alloy pistons have three rings each and are oil cooled. High-carbon, steel forged connecting rods have a light weight, tapered design.

The cylinder head has a cross-flow port arrangement with helical intake ports. Coolant is forced around the intake and exhaust valves to reduce thermal stress. The cast cylinder block is a unique spherical shape with ribbed skirt. Precision casting minimizes cylinder pitch for cooling efficiency. An oil passage in the block eliminates the internal lubricating tube. The one-piece, forged-alloy crankshaft is induction hardened with an eight balance design to minimize vibration. Main bearing and connecting rods use steel backed aluminum bearings with lead-tin overlay for strength.

Electric, 24-volt starting system with a 50-amp alternator and two, 12-volt, 100-amp-hour Caterpillar batteries.



Steering

Two rocker pedals with detachable hand levers control steering and travel function. Controls are pilot-operated for reduced efforts. Left pedal and lever control left track; right pedal and lever control right track. When idlers are in front: (1) Pushing both pedals or levers forward moves the excavator straight ahead. (2) Rocking both pedals or pulling both levers backward moves the excavator straight back. (3) Moving one pedal or lever more than the other, either forward or backward, results in a gradual turn. (4) Moving one pedal or lever forward and the other pedal or lever backward counter-rotates the tracks for spot turns.



Brakes

Two wet, multiple-disc brakes are used on the final drive input shafts. Spring-applied, hydraulically released. Actuating a travel control automatically releases the brakes. When controls are released, brakes automatically apply.



Controls

Two joystick hand levers actuate boom, stick, bucket and swing (SAE pattern).

Right Lever: Move forward and backward to lower and raise boom. Move left and right to control bucket curl and dump. Button on top is automatic engine control system's manual switch. Operator can increase or decrease engine speed by pushing the button.

Left Lever: Move forward and backward to move stick out and in. Move left and right to control direction of swing. Button on top controls horn.

Oblique movement of either lever operates two functions simultaneously. Manually applied lever on the left console cuts off pilot pressure for joysticks and travel controls and electrical power for engine starting circuit.

Monitor panel contains switches for power mode selector, work mode selector, automatic engine control, lights, windshield wiper, windshield washer, travel speed selector and alarm cancel. Blind switch for troubleshooting also is located on monitor panel.



Hydraulic System

Two variable-displacement piston pumps power the boom, stick, buckets and travel circuits. One single-section gear pump powers the pilot control circuit.

Main Hydraulic System:

Maximum flow.....2 x 118 liters/min (2 x 31 GPM)
Maximum pressure:
Implements280 kg/cm² (3,980 psi)
Travel350 kg/cm² (4,980 psi)
Swing.....235 kg/cm² (3,340 psi)

Pilot System:

Maximum flow.....20 liters/min (5.3 GPM)
Maximum pressure36 kg/cm² (510 psi)
Boom cylinder is equipped with rod-end snubber; stick cylinder has head- and rod-end snubbers.



Swing Mechanism

Fixed-displacement, axial-piston motor powers the swing mechanism.

Double-reduction, planetary swing drive. Splash lubricated. Optional automatic swing holding brake mounts between the swing motor and swing drive. Automatically applied four seconds after swing control is released. Brake is hydraulically released when the swing control is actuated.

Maximum swing speed12.0 RPM



Track

Caterpillar designed and built track-type undercarriage. Robot-welded, pentagonal design roller frames with hydraulic track adjusters. Sealed and Lubricated Track roller and idlers. Sealed Track with strut-type links and triple-grouser shoes.

Number of shoes (each side)43
Width of standard shoe500 mm (20")
Overall track length3490 mm (11'5")
Gauge1990 mm (6'6")
Track shoe options:
Triple grouser600 mm (24")
700 mm (28")
770 mm (30")

Track rollers (each side)6
Ground clearance440 mm (17.3")
Ground pressureSee track shoes chart on pg. 10



Drive

Fully hydrostatic. Each track is driven by an independent, two-speed, axial-piston hydraulic motor. Double-reduction, planetary final drives are splash lubricated. Track motors, brakes and final drives are completely enclosed and are narrower than the width of the narrowest track shoes.

Maximum drawbar pull10 600 kg (23,370 lb)
Maximum travel speed5.5 km/h (3.4 MPH)



Service Refill Capacities

	Liters	U.S. Gallons
Fuel Tank.....	250	66
Cooling.....	15.5	4.1
Lubrication:		
Engine.....	13.0	3.4
Swing Drive.....	2.8	0.74
Track Drive (each).....	2.5	0.66
Hydraulic System (includes tank).....	151	40
Hydraulic Tank.....	99	26.2



Weights

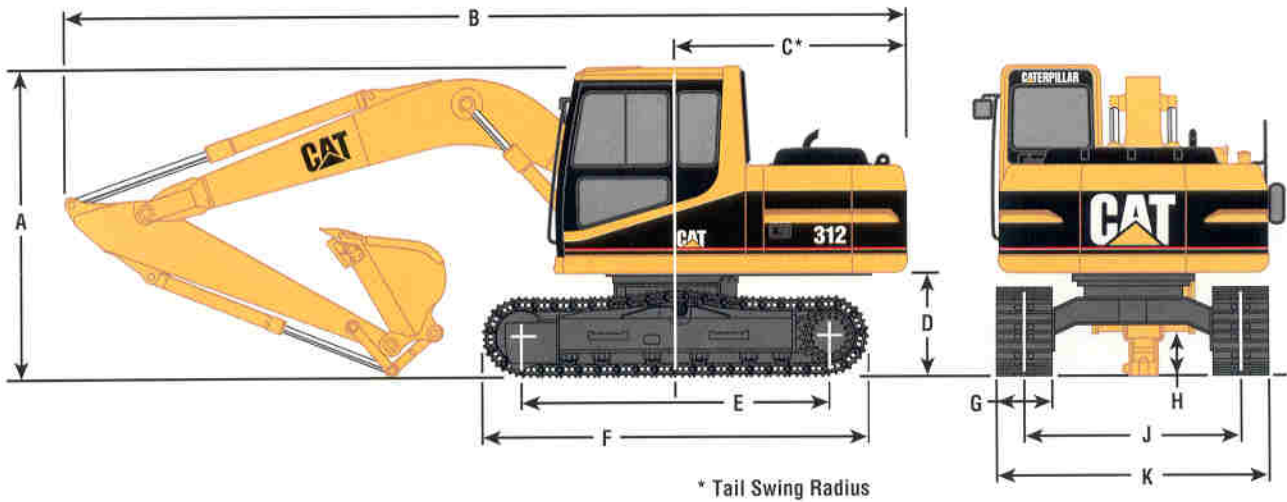
Machine is equipped with boom and 990 mm (39") bucket of 520 liters (0.68 yd³) capacity. For shipping weight, subtract 285 kg (630 lb).

Shoes	Medium Stick 2500 mm (8'2")		Long Stick 3000 mm (9'10")	
	kg	lb	kg	lb
500 mm (20").....	12 000	26,500	12 100	26,700
600 mm (24").....	12 250	27,000	12 350	27,200
700 mm (28").....	12 500	27,500	12 600	27,700
770 mm (30").....	12 600	27,800	12 700	28,000



Dimensions

with 2500 mm (8'2") stick and 500 mm (20") shoe





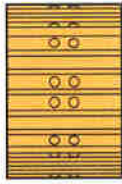

- A) 2760 mm (9'1")
- B) 7600 mm (24'11")
- C) 2130 mm (7'0")

- D) 900 mm (35")
- E) 2780 mm (9'1")
- F) 3490 mm (11'5")

- G) 500 mm (20")
- H) 440 mm (17")

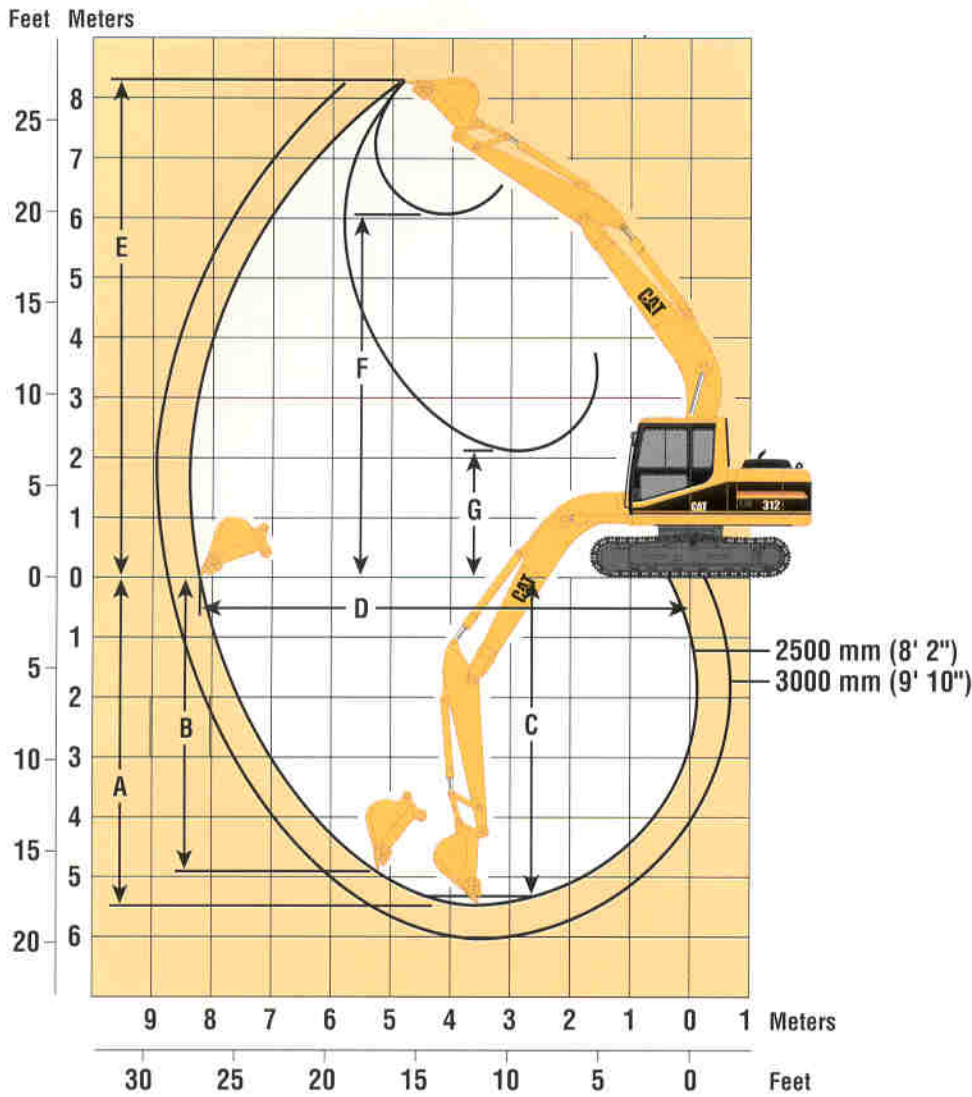
- J) 1990 mm (6'6")
- K) 2490 mm (8'2")

Track Shoes and Ground Pressures (with medium stick)

Type	Triple Grouser			
				
Shoe width.....	500mm (20")	600 mm (24")	700 mm (28")	770 mm (30")
Ground pressure	0.39 kg/cm ² (5.55 psi)	0.33 kg/cm ² (4.69 psi)	0.29 kg/cm ² (4.12 psi)	0.27 kg/cm ² (3.84 psi)

Note: Specifications and conversions are rounded.

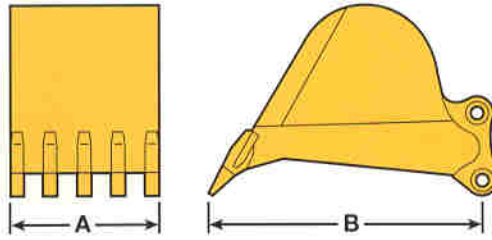
Working Ranges



Stick	3000 mm (9'10")	2500 mm (8'2")
A Maximum digging depth	6050 mm (19'10")	5550 mm (18'3")
B Maximum vertical wall digging depth.....	5340 mm (17'6")	4970 mm (16'4")
C Maximum digging depth at 2440 mm (8") flat floor	5865 mm (19'3")	5340 mm (17'6")
D Maximum reach at ground level	8625 mm (28'4")	8175 mm (26'10")
E Maximum cutting height.....	8695 mm (28'6")	8475 mm (27'10")
F Maximum loading height	6330 mm (20'9")	6095 mm (20'0")
G Minimum loading height.....	1520 mm (5'0")	2010 mm (6'7")
Digging forces:		
Stick	5300 kg (11,685 lb)	5900 kg (13,010 lb)
Bucket	7900 kg (17,420 lb)	7900 kg (17,420 lb)



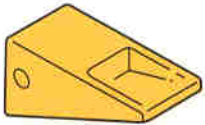
Bucket Specifications



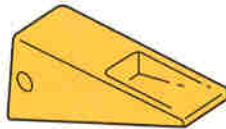
A Bite Width		B Tip Radius		SAE Rated Capacity		Weight with Teeth		Number of Teeth
mm	in	mm	in	liters	yd ³	kg	lb	
600	24	1210	48	320	0.42	305	672	3
700	28	1210	48	380	0.50	336	740	4
895	35	1210	48	450	0.59	381	839	5*
990	39	1210	48	520	0.68	403	888	5*
1000	39	1210	48	570	0.75	406	895	5
1090	43	1210	48	630	0.82	433	954	5

* with sidecutters

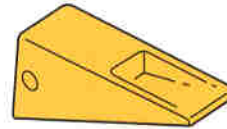
Teeth



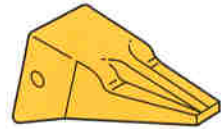
Short (severe)...for tough digging.



Long (general purpose)...for most digging applications.



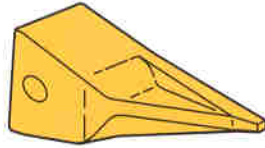
Long Heavy Duty...the long (general purpose) tooth is offered as the standard tooth.



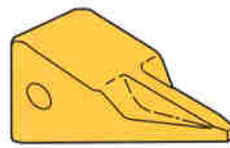
Penetration...self-sharpening for digging in tough, compacted material.



Wide (spade)...easy digging materials, for load retention and clean-up grading.



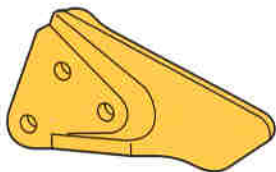
Sharp (corner)



Sharp (center)

Sharp tip...for maximum penetration. Recommended when penetration is more important than wear life and strength.

Sidecutter



Lift Capacities



Load Point
Height



Load at
Maximum Reach



Load Radius
Over Front















Load Radius
Over Side

MEDIUM STICK – 2500 mm (8'2")

BUCKET – 520 liter (0.68 yd³)















SHOES – 500 mm (20") triple grouser

	1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)				m ft	
												
6.0 m 20.0 ft	kg lb									*1200 *2600	*1200 *2600	6.64 21.53
4.5 m 15.0 ft	kg lb					*2700 *5900	*2700 *5900	1900 5850	4050	*1150 *2450	*1150 *2450	7.51 24.53
3.0 m 10.0 ft	kg lb			*4500 *9800	*4600 *9800	*3450 *7400	3050 6500	2700 5700	1850 3950	*1150 *2450	1100 2450	7.93 25.99
1.5 m 5.0 ft	kg lb			*6950 *14,900	5250 11,250	4100 8800	2800 6000	2550 5500	1750 3750	*1200 *2650	1050 2300	8.00 26.24
Ground Line	kg lb			*6150 *14,300	4850 10,400	3900 8350	2600 5600	2500 5300	1650 3550	*1350 *2950	1100 2400	7.72 25.31
-1.5 m -5.0 ft	kg lb	*3950 *8800	*3950 *8800	7700 16,450	4800 10,250	3800 8150	2550 5400	2450 5200	1650 3500	*1650 *3650	1300 2850	7.04 23.06
-3.0 m -10.0 ft	kg lb	*7000 *15,800	*7000 *15,800	*7150 *15,350	4850 10,450	3850 8250	2550 5450			*2300 *5100	1800 4000	5.82 18.93

LONG STICK – 3000 mm (9'10")

BUCKET – 520 liter (0.68 yd³)

SHOES – 500 mm (20") triple grouser

	1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)				m ft	
														
7.5 m 25.0 ft	kg lb											*1250 *2750	*1250 *2750	5.78 18.45
6.0 m 20.0 ft	kg lb							*1950 *3800	*1950 *3800			*1050 *2300	*1050 *2300	7.18 23.35
4.5 m 15.0 ft	kg lb							*2350 *5150	1950 4150			*1000 *2200	*1000 *2200	7.98 26.10
3.0 m 10.0 ft	kg lb					*3000 *6450	*3000 *6450	*2650 5750	1850 4000	*1500 *3250	1200 2600	*1000 *2250	1000 2150	8.38 27.46
1.5 m 5.0 ft	kg lb			*6150 *13,200	5400 11,600	*3950 *8500	2850 6050	2550 5500	1750 3750	1750 3700	1150 2450	*1100 *2400	950 2050	8.44 27.69
Ground Line	kg lb			*7100 *16,500	4900 10,450	3900 8350	2600 5550	2450 5250	1650 3500	1700 3700	1100 2450	*1250 *2700	950 2100	8.18 26.83
-1.5 m -5.0 ft	kg lb	*3600 *8050	*3600 *8050	7650 16,300	4700 10,100	3750 8050	2500 5300	2400 5100	1600 3400			*1500 *3300	1100 2400	7.55 24.74
-3.0 m -10.0 ft	kg lb	*6000 *13,500	*6000 *13,500	*7500 *16,200	4750 10,150	3750 8050	2450 5300	2400 5150	1600 3400			*2050 *4500	1450 3250	6.45 21.01
-4.5 m -15.0 ft	kg lb			*5850 *12,400	4950 10,600	*3700 *7700	2600 5600					*3250 *7150	2350 5300	4.83 15.54

* Indicates the load is limited by hydraulic capacity rather than tipping capacity. Lift Capacity Ratings are based on SAE Standard J1097. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.

Lift Capacities



Load Point Height



Load at Maximum Reach



Load Radius Over Front















Load Radius Over Side

MEDIUM STICK – 2500 mm (8'2")

BUCKET – 520 liter (0.68 yd³)















SHOES – 700 mm (28") triple grouser

	1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)					
											m ft	
6.0 m 20.0 ft	kg lb									*1200 *2600	*1200 *2600	6.64 21.53
4.5 m 15.0 ft	kg lb				*2700 *5900	*2700 *5900	*2700 *5900	2000 4250	*1150 *2450	*1150 *2450	7.51 24.53	
3.0 m 10.0 ft	kg lb		*4600 *9800	*4600 *9800	*3450 *7400	3150 6750	2800 5950	1950 4100	*1150 *2450	*1150 *2450	7.93 26.00	
1.5 m 5.0 ft	kg lb		*6950 *14,900	5400 11,650	4250 9150	2900 6250	2700 5750	1850 3900	*1200 *2650	1100 2450	8.00 26.24	
Ground Line	kg lb		*6150 *14,300	5050 10,800	4050 8700	2700 5800	2600 5550	1750 3750	*1350 *2950	1150 2550	7.72 25.31	
-1.5 m -5.0 ft	kg lb	*3950 *8850	*3950 *8850	*8000 17,100	4950 10,650	3950 8500	2650 5650	2550 5450	1700 3650	*1650 *3650	1350 2950	7.04 23.06
-3.0 m -10.0 ft	kg lb	*7000 *15,800	*7000 *15,800	*7100 *15,350	5050 10,850	4000 8550	2650 5700			*2300 *5100	1900 4200	5.82 18.92

LONG STICK – 3000 mm (9'10")

BUCKET – 520 liter (0.68 yd³)

SHOES – 700 mm (28") triple grouser

	1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)					
													m ft	
7.5 m 25.0 ft	kg lb											*1250 *2750	*1250 *2750	5.78 18.45
6.0 m 20.0 ft	kg lb						*1950 *3800	*1950 *3800				*1050 *2300	*1050 *2300	7.19 23.35
4.5 m 15.0 ft	kg lb						*2350 *5150	2000 4300				*1000 *2200	*1000 *2200	7.98 26.10
3.0 m 10.0 ft	kg lb				*3000 *6450	*3000 *6450	*2650 *5800	1950 4150	*1500 *3250	1250 2750	*1000 *2250	*1000 *2250	8.38 27.47	
1.5 m 5.0 ft	kg lb		*6150 *13,200	5600 12,000	*3950 *8550	2950 6300	2700 5750	1850 3900	1800 *3800	1200 2550	*1100 *2400	1000 2150	8.44 27.69	
Ground Line	kg lb		*7100 *16,500	5050 10,850	4050 8700	2700 5800	2550 5500	1750 3700	1800 3900	1150 2550	*1250 *2700	1000 2200	8.18 26.83	
-1.5 m -5.0 ft	kg lb	*3600 *8050	*3600 *8050	7950 16,950	4900 10,500	3950 8400	2600 5550	2500 5350	1650 3550			*1500 *3300	1150 2550	7.55 24.74
-3.0 m -10.0 ft	kg lb	*6000 *13,500	*6000 *13,500	*7500 *16,150	4950 10,600	3900 8400	2600 5550	2500 5400	1650 3600			*2050 *4500	1550 3400	6.45 21.01
-4.5 m -15.0 ft	kg lb			*5850 *12,400	5150 11,050	*3700 *7650	2700 5800					*3250 *7150	2450 5550	4.83 15.53

* Indicates the load is limited by hydraulic capacity rather than tipping capacity. Lift Capacity Ratings are based on SAE Standard J1097. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.

Standard Equipment

Note: Standard and optional equipment may vary outside USA. Consult your Caterpillar dealer for specifics.

Alternator, 50-amp.	Roof hatch.	Track, Sealed with 500 mm (20") shoes.
Cab, sound suppressed, includes: Automatic engine speed control.	Seat, four-way adjustable with adjustable armrests.	Track guiding guards, idlers.
Ash tray.	Seat belt, retractable.	Travel, two speeds with automatic travel speed shifting.
Cigar lighter.	Travel control pedals, pilot-operated with removable levers.	Windows:
Coat hook.	Counterweight.	Main windshield wiper and washer.
Dial-type throttle.	Door and cap locks, one key.	Right and rear windows, polycarbonate.
Floor mat.	Hydraulic valve port, auxiliary.	Sliding door window, tempered glass.
Heater/Defroster	Light:	Windshield, two-piece:
Horn, front.	Boom, left.	Upper, retractable laminated glass.
Hydraulic system neutralizing lever.	Frame, right side.	Lower, tempered glass.
Joysticks, pilot-operated.	Mirrors.	Work Mode Selector.
Lighting, interior.	Power Mode Selector.	
Literature compartment.	Storage compartment.	
Monitoring system.	Straight travel circuit.	
Radio mount, with 12-volt converter.	Tool box, locking.	

Optional Equipment

Air conditioner.	Hydraulic lines:	Starting kit, cold weather.
Alarm, travel.*	Sticks.	Stick:
Auxiliary hydraulic lines groups.	Booms.	3000 mm (9'10").
Boom, one-piece.	Lights:	2500 mm (8'2").
Brake, automatic swing holding.	Boom, right.	Sun visor for polycarbonate skylight.
Buckets, see page 12.	Working, cab-mounted. (2)	Sun visor for windshield (mounted inside cab).
Bucket linkage.	Openable Polycarbonate skylight.	Track shoes, see page 10.
Cooling package, high ambient.	Rain protective shade for front window (cannot be used with vandalism guards).	Water separator, fuel line.
Guards:	Seats, suspension:	Wiper for lower front window (includes washer).
Swivel.	KAB 411.	
Vandalism protection.	KAB 414 w/headrest.	
Hydraulic arrangements, auxiliary:		
Single-function capability.		
Double-function capability.		
Combined single- and double-function capability.		
Two-pump flow capability.		

* Required in USA and Canada