



12H

Motor Grader



Global Version

Cat® C-9 ETA Engine

Base Power (all gears)	108 kW	145 hp
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Variable Horsepower Arrangement

- gears 1-3	108 kW	145 hp
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- gears 4-8	123 kW	165 hp
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Variable Horsepower Plus Arrangement

- gears 1-3	108 kW	145 hp
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- gears 4-6	123 kW	165 hp
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- gears 7-8	138 kW	185 hp
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Weights

Gross Vehicle Weight-base	14 200 kg	31,320 lb
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front axle	3784 kg	8346 lb
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rear axle	10 416 kg	22,974 lb
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Moldboard

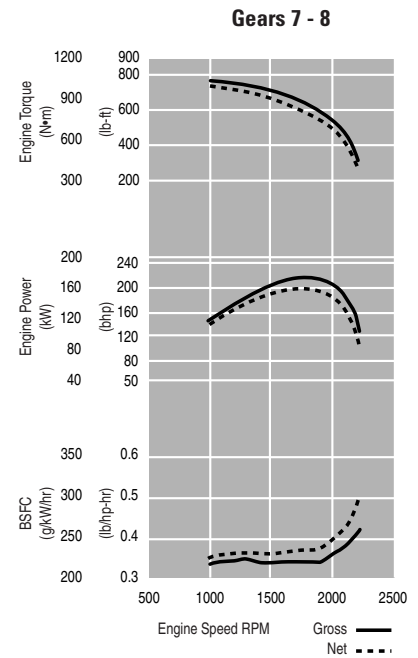
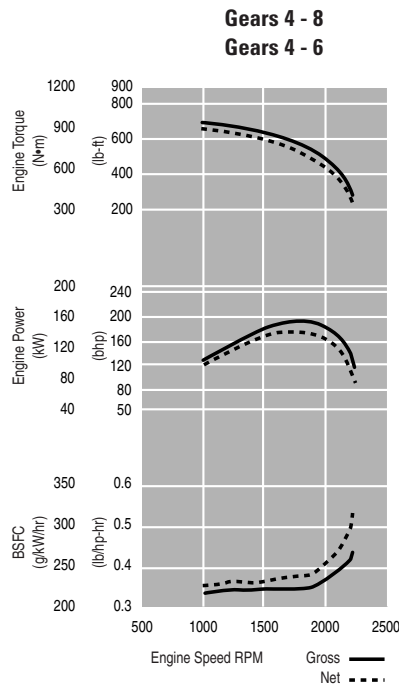
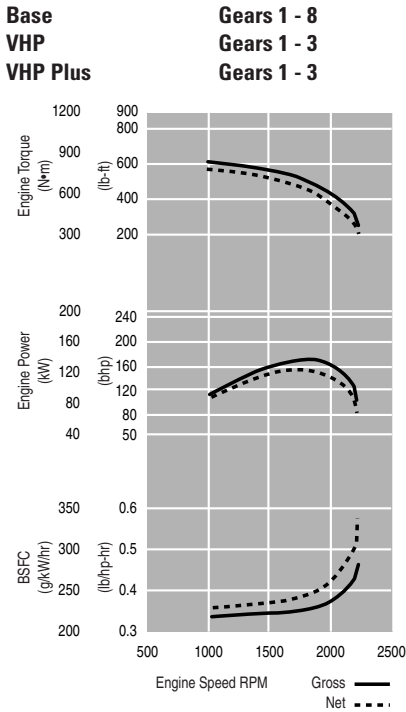
Blade Width	3658 mm	12 ft
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Engine

Engine Model	Cat C-9 ETA VHP	
Base Power (all gears) Net	108 kW	145 hp
VHP - gears 1-3 Net	108 kW	145 hp
- gears 4-8 Net	123 kW	165 hp
VHP Plus - gears 1-3 Net	108 kW	145 hp
- gears 4-6 Net	123 kW	165 hp
- gears 7-8 Net	138 kW	185 hp
Base Power (all gears) Gross	116 kW	156 hp
VHP - gears 1-3 Gross	116 kW	156 hp
- gears 4-8 Gross	131 kW	176 hp
VHP Plus - gears 1-3 Gross	116 kW	156 hp
- gears 4-6 Gross	131 kW	176 hp
- gears 7-8 Gross	146 kW	196 hp
Displacement	8.8 L	537 in ³
Bore	112 mm	4.4 in
Stroke	149 mm	5.9 in
Torque rise	50%	
Max torque @ 1000 rpm	988 N•m	728 lb-ft

Speed @ rated power	2000 RPM	
Number of cylinders	6	
Derating altitude	3048 m	10,000 ft
Std - Fan speed - max	1210 RPM	
- min	500 RPM	
Std - Ambient Capability	47° C	117° F
Hi Ambient - Fan speed - max	1350 RPM	
- min	500 RPM	
Hi - Ambient Capability	50° C	122° F

- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 standards in effect at the time of manufacture.
- VHP and VHP Plus are optional arrangements.
- Net power advertised is the power available at rated speed of 2000 rpm, measured at the flywheel when engine is equipped with fan, air cleaner, muffler and alternator.
- No derating required up to 3048 m (10,000 ft) altitude. Deration rate of 1.5% per 304.8 m (1000 feet) above 3048 m (10,000 feet).



Power Train

Forward/Reverse Gears	8 fwd/6 rev	
Transmission	Direct drive, power shift	
Brakes - Service	Air actuated multiple oil disc	
- Service, surface area	23 948 cm ²	3,712 in ²
- Parking	Air-actuated, multiple oil-disc	
- Secondary	Dual circuit	

- Brakes meet the following standards: SAE J/ISO3450 JAN 98.

Hydraulic System

Circuit type	Closed center load sense	
Pump type	Variable piston	
Pump output	196 L/min	51.9 gal/min
Maximum system pressure	24 150 kPa	3,500 psi
Standby Pressure	3100 kPa	450 psi

- Pump output measured @ 1850 RPM

Operating Specifications

Top Speed - Fwd.	44 kph	27.4 mph
- Rev.	34.7 kph	21.6 mph
Turning radius (outside front tires)	7.4 m	24.25 ft
Steering range - left/right	50°	
Articulation angle - left/right	20°	
Fwd. 1st	3.8 kph	2.3 mph
2nd	5.1 kph	3.2 mph
3rd	7.4 kph	4.6 mph
4th	10.3 kph	6.4 mph
5th	16.2 kph	10 mph
6th	22 kph	13.7 mph
7th	30.3 kph	18.8 mph
8th	44 kph	27.4 mph
Rev. 1st	3 kph	1.8 mph
2nd	5.6 kph	3.5 mph
3rd	8.1 kph	5 mph
4th	12.8 kph	7.9 mph
5th	23.9 kph	14.8 mph
6th	34.7 kph	21.6 mph

Service Refill

Fuel Capacity	378 L	100 gal
Cooling system	44 L	11.6 gal
Hydraulic system - total	74 L	19.5 gal
- tank	38 L	9.9 gal
Engine Oil	24 L	6.3 gal
Differential/Final Drives	47 L	12.2 gal
Tandem housing (each)	64 L	16.9 gal
Front wheel spindle bearing housing	0.5 L	0.13 gal
Circle drive housing	7 L	1.8 gal

Frame

Circle - diameter	1530 mm	60.2 in
- blade beam thickness	30 mm	1.2 in
Drawbar - height	127 mm	5 in
- thickness	76 mm	3 in
Front-top/bottom plate - width	305 mm	12 in
- thickness	25 mm	1 in
Front-side plates - width	242 mm	9.5 in
- thickness	12 mm	0.5 in
Front-linear weights - min	165 kg/m	112 lb/ft
- max	213 kg/m	144 lb/ft
Front-section modulus - min	2083 cm ³	127 in ³
- max	4785 cm ³	291 in ³
Front axle - ground clearance	608 mm	23.75 in
- front wheel lean	18°	
- oscillation angle	32°	

Tandems

Height	506 mm	19.9 in
Width	201 mm	7.9 in
Sidewall thickness - inner	16 mm	0.63 in
- outer	18 mm	0.71 in
Drive chain pitch	51 mm	2 in
Wheel axle spacing	1522 mm	60 in
Tandem oscillation - forward	15°	
- reverse	25°	

Moldboard

Blade Width	3658 mm	12 ft
Moldboard Height	610 mm	24 in
Thickness	22 mm	0.87 in
Arc radius	413 mm	16.25 in
Throat clearance	120 mm	4.7 in
Cutting edge - width	152 mm	6 in
- thickness	16 mm	0.63 in
End Bit - width	152 mm	6 in
- thickness	16 mm	0.63 in
Blade Pull - max GVW	13 094 kg	28,867 lb
- base GVW	9379 kg	20,677 lb
Down Pressure - max GVW	10 799 kg	23,800 lb
- base GVW	6555 kg	14,447 lb

- Blade Pull calculated at 0.9 traction coefficient, which is equal to ideal no-slip conditions, and Gross Vehicle Weight (GVW).

Blade Range

Circle centershift - right	728 mm	28.7 in
- left	695 mm	27.4 in
Moldboard sideshift - right	660 mm	26 in
- left	524 mm	20.6 in
Maximum blade position angle	90°	
Blade tip range (forward)	40°	
(backward)	5°	
Maximum shoulder reach outside of tires		
- right	1809 mm	71.2 in
- left	1859 mm	73.6 in
Maximum lift above ground	480 mm	18.9 in
Maximum depth of cut	735 mm	28.9 in

Ripper

Ripping depth, maximum	462 mm	18.2 in
Ripper shank holders	5	
Ripper shank holder spacing	533 mm	21 in
Penetration force	8047 kg	17,740 lb
Pryout force	9281 kg	20,460 lb
Machine length increase, beam raised	970 mm	38.2 in

Scarifier

Front, V-Type: Working width	1184 mm	46.6 in
Scarifying depth, maximum	292 mm	11.5 in
Scarifier shank holders	11	
Scarifier shank holder spacing	116 mm	4.6 in
Front, straight: Working width	1800 mm	71 in
Scarifying depth, maximum	317 mm	12.5 in
Scarifier shank holders	17	
Scarifier shank holder spacing	111 mm	4.38 in
Rear: Working width	2300 mm	91 in
Ripping depth, maximum	411 mm	16.2 in
Scarifier shank holders	9	
Scarifier shank holder spacing	267 mm	10.5 in

Weights

Gross Vehicle Weight - max	20 783 kg	45,818 lb
Front axles	6234 kg	13,744 lb
Rear axles	14 549 kg	32,074 lb
Gross Vehicle Weight - base	14 200 kg	31,320 lb
Front axles	3784 kg	8,346 lb
Rear axles	10 416 kg	22,974 lb

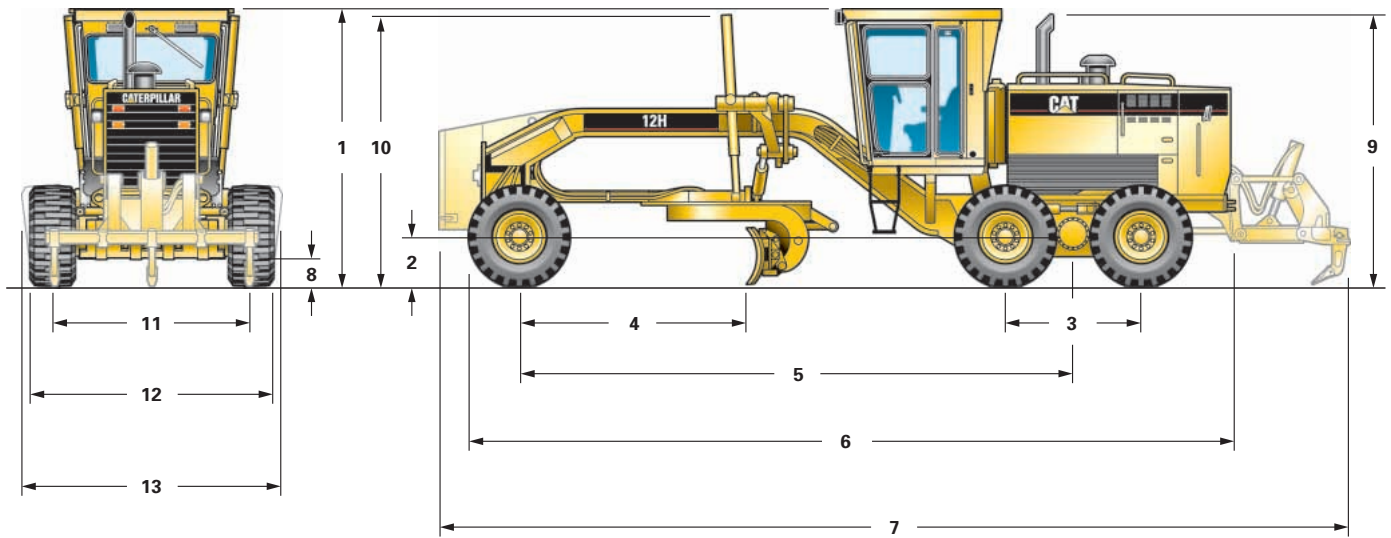
- Base operating weight calculated on standard machine configuration with 13.00-24 10PR (G-2) tires, full fuel tank, coolant, lubricants and operator.

Cab

- ROPS (Rollover Protective Structure) meets the following criteria: SAE J1040 MAY 94, ISO 3471: 1986, ISO 3471:1994
- FOPS (Falling Object Protective Structure) meets the following criteria: ISO 3449:1984, ISO 3449:1992 Level II

Dimensions

All dimensions are approximate.



1	Height - low profile cab	3107 mm	122 in
	- high profile cab	3332 mm	131 in
	- no cab	3090 mm	122 in
2	Height to axle	594 mm	23.4 in
3	Length - between tandem axles	1523 mm	59.9 in
4	Length - front axle to moldboard	2565 mm	101 in
5	Length - front axle to mid tandem	6086 mm	239.6 in
6	Length - front tire to end of rear frame	8571 mm	337.4 in

7	Length - counterweight to ripper	10 012 mm	394.2 in
8	Ground clearance at trans. case	341.5 mm	13.4 in
9	Height to exhaust stack	3090 mm	122 in
10	Height to top of cylinders	3030 mm	119 in
11	Width - tire centerlines	2077 mm	81.8 in
12	Width - outside rear tires	2422 mm	95.3 in
13	Width - outside front tires	2440 mm	96 in

Standard Equipment

Standard equipment may vary. Consult your Caterpillar dealer for details.

ELECTRICAL

- Alarm, back-up
- Alternator, 35 ampere, sealed
- Batteries, maintenance free, 750 CCA
- Electrical system, 24 volt
- Lights, stop and tail
- Motor, starting
- Product Link connection

OPERATOR ENVIRONMENT

- Accelerator
- Ashtray and lighter
- Coat hook
- Control console, adjustable
- Cup holder
- EMS III operator warning system
- Panel gauges inside cab
 - fuel
 - articulation
 - engine coolant temp
 - system voltage
 - air brake pressure
- Hydraulic controls, load sensing
 - right/left blade lift with float position
 - blade sideshift and tip
 - circle drive
 - centershift
 - front wheel lean
 - articulation
- Meter, hour, digital
- Mirror, inside rearview, wide angle
- Mounting bracket, general purpose
- Power steering, hydraulic
- ROPS cab, sound suppressed, low profile
- Seat, cloth, static
- Seat belt, retractable 76 mm (3 in)
- Steering wheel, tilt, adjustable
- Storage area for cooler/lunchbox
- Sunscreen, front windshield
- Throttle control, electronic
- Washer/wipers, (3) front windshields
- Windows, fixed lower front

POWERTRAIN

- Air cleaner
 - dry type radial seal
 - service indicator
 - automatic dust ejector
- Air-to-air aftercooler (ATAAC)
- Brakes - oil disc, four-wheel air actuated
- Demand fan
- Differential, lock-unlock
- Engine, C-9 ETA diesel
 - automatic derate
 - automatic idle control
- Fuel tank, sediment drain
- Fuel-water separator
- Lube for life pump drive shaft
- Muffler, under hood
- Parking brake - multi-disc, sealed and oil cooled
- Pre-screener
- Priming pump, fuel
- Serpentine belt, automatic tensioner
- Tandem drive
- Transmission
 - 8 forward/6 reverse speeds
 - power shift
 - direct drive
 - electronic shift control
 - overspeed protection

OTHER STANDARD EQUIPMENT

- Antifreeze -35°C (-30°F)
- Bumper, rear, integrated, with hitch
- Clutch, circle drive slip
- Cutting edges
 - 152 mm × 16 mm (6 in × 5/8 in)
 - curved DH-2 steel
 - 16 mm (5/8 in) mounting bolts
- Doors, engine compartment, locking
- Drawbar
 - 6 shoe
 - replaceable wear strips
- Endbits - 16 mm (5/8 in) DH-2 steel, mounting bolts
- Engine shutdown, ground level
- Frame, articulated with safety lock
- Fuel tank, 100 gallon (378 L)
- Fueling, ground level
- Horn, air
- Moldboard
 - 3658 mm × 610 mm × 22 mm (12 ft × 24 in × 7/8 in)
 - hydraulic sideshift and tip
- Radiator cleanout access
- S•O•SSM ports: engine, hydraulic, transmission, coolant, fuel
- Tool box

TIRES, RIMS, AND WHEELS

- Partial allowance: 13.00-24 10PR on 9" single piece rims

Optional Equipment

Optional equipment may vary. Consult your Caterpillar dealer for details.

All weights approximate.

	kg	lb		kg	lb
Accumulators, blade lift	71	156			
Air conditioner with heater and pressurizer	49	107			
Air dryer	13	29			
Alternator, 75 ampere	7	15			
Autoshift, transmission	2	5			
Batteries, extreme duty, 1300 CCA	58	128			
Batteries, heavy duty, 1100 CCA	42	93			
Blade, 3658 mm × 688 mm × 25 mm (12 ft × 27 in × 1 in)	151	340			
Blade, 3962 mm × 686 mm × 25 mm (13 ft × 27 in × 1 in)	208	460			
Blade, 4267 mm × 610 mm × 22 mm (14 ft × 24 in × 7/8 in)	75	166			
Blade, 4267 mm × 688 mm × 25 mm (14 ft × 27 in × 1 in)	261	574			
Blade, front-mounted 2750 mm × 980 mm (9 ft × 39 in)	850	1874			
Blade, front dozer	1180	2602			
Blade, front, narrow	1100	2425			
Blade, front, with foldable ends	1525	3362			
Cab, ROPS, high profile, sound suppressed	77	170			
Canopy, ROPS, high profile, with rear wall and window	-41	-90			
Converter, 25-amp, 24-V to 12-V	5	11			
Covers, louver with screen	7	15			
Covers, lower rear frame	11	25			
Covers, metallic, fuel tank	11	25			
Cutting edges for 22 mm (7/8 in) thick blade					
203 mm × 19 mm (8 in × 3/4 in) for 3.7 m blade					
203 mm × 19 mm (8 in × 3/4 in) for 4.1 m blade					
203 mm × 16 mm (8 in × 5/8 in) for 3.7 m blade					
203 mm × 16 mm (8 in × 5/8 in) for 4.1 m blade					
Cutting edges for 25 mm (1 in) thick blade					
203 mm × 19 mm (8 in × 3/4 in) for 3.7 m blade					
203 mm × 19 mm (8 in × 3/4 in) for 4.1 m blade					
Endbits, overlay, reversible	11	24			
Engine, VHP or VHP Plus	4	10			
Ether starting aid	1	2			
Extensions, blade 610 mm (2 ft) right and left					
for 22 mm (7/8 in) thick blade	114	250			
for 25 mm (1 in) thick blade	148	325			
Fan, defroster, front and rear	2	4			
Graderbit system, penetration bit type	163	360			
Guard, brake lines	8	18			
Guard, lower platform	23	50			
Guard, transmission	98	215			
Hammer, with mounting	5	12			
Heater, engine coolant	1	3			
Heater, cab	14	30			
Heater, cab, with pressurizer	18	40			
			Hydraulic arrangements with one or more additional hydraulic valves are available for front scarifier, rear ripper-scarifier, dozer, dozer angle, snow plow and snow wing. See dealer price list.		
			Hydraulic lockout	2	5
			Lighting systems:		
			bar mounted, directional and headlights	13	28
			cab mounted, directional and headlights	9	20
			cab and bar mounted, directional, headlights and work lights	22	48
			cab and bar mounted, high, directional, headlights and work lights	22	48
			work lights, front and rear	6	13
			snow wing light, right	18	40
			warning light, cab or canopy mounted	3	6
			Mirrors, dual, inside mounted	-	-
			Mirrors, outside mounted	8	18
			Mirrors, outside mounted, heated	11	25
			Mount, snow wing, frame-ready	91	200
			Power port, 12-V	2	5
			Precleaner, turbine-type	-	-
			Push plate, front mounted	919	2025
			Radio ready, entertainment		
			Receptacle, starting, plug-in	2	5
			Rims, tires - refer to dealer price list		
			Ripper-scarifier, rear	961	2119
			Ripper-scarifier/tooth, one	33	72
			Rear scarifier, shanks/teeth, nine	65	144
			Scarifier, front mounted, V-type	845	1862
			Scarifier, front mounted, straight	903	1988
			Seat, cloth-covered, contour air suspension		
			Seat, vinyl-covered, contour suspension		
			Snow arrangements, refer to Snow Arrangement Supplement		
			Sound suppression	91	200
			Speedometer/tachometer	1	2
			Steering, secondary	50	111
			Sunshade, rear window	3	7
			Windows, lower front, opening	3	6
			Windows, sliding side	4	8
			Wiper and washer, rear, intermittent	7	16
			Wiper and washer, front, intermittent		
			European roading group which provides an additional air tank, air circuit protection valve and two position lights with integral turn signals. Dealer supplied equipment is required to meet some specific country on-road requirements	23	52