

# 12H

## Motor Grader



### European Version

#### Cat® C-9 ATAAC Engine

##### Variable Horsepower Arrangement

gears 1-3	108 kW/145 hp
gears 4-8	123 kW/165 hp

##### Variable Horsepower Plus Arrangement

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

#### Gross Vehicle Weight

<b>Base</b>	<b>14 200 kg</b>
front wheels	3780 kg
rear wheels	10 420 kg
<b>Maximum</b>	<b>20 780 kg</b>
front wheels	6230 kg
rear wheels	14 550 kg
<b>Moldboard Blade Width</b>	<b>3658 mm</b>

## 12H Motor Grader

*The 12H blends productivity and durability to give you the best return on your investment.*

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### Engine

- ✓ The Cat C-9 ATAAC engine is designed and rated to handle the tough loads. Variable Horsepower maximizes response, power, and efficiency, while the direct drive, power shift transmission optimizes blade control and versatility. **pg. 4**

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### Power Train

The power shift transmission takes full advantage of the powerful C-9 engine. Variable Horsepower uses specific torque curves for each gear range for optimum performance. Dual air system and multi-disc oil brakes assure reliable braking control. **pg. 5**

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### Hydraulics

The load-sensing hydraulic system lowers power consumption and system heat. The advanced PPC control valves provide low lever effort, balanced flow and consistent cylinder speeds for outstanding blade control. Blade float is incorporated into the blade lift valves. **pg. 6**

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### Operator's Station

- ✓ Low effort blade controls, electronic throttle control, EMS III monitoring system, and improved ventilation provide world-class operator control and comfort. Improved visibility to the front and rear increase operator confidence and productivity. **pg. 10**

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### Environmentally Responsible Design

- ✓ New engine arrangements and operator station designs reduce emissions and meet current and anticipated regulations for interior and exterior sound levels, emissions, exhaust. **pg. 12**

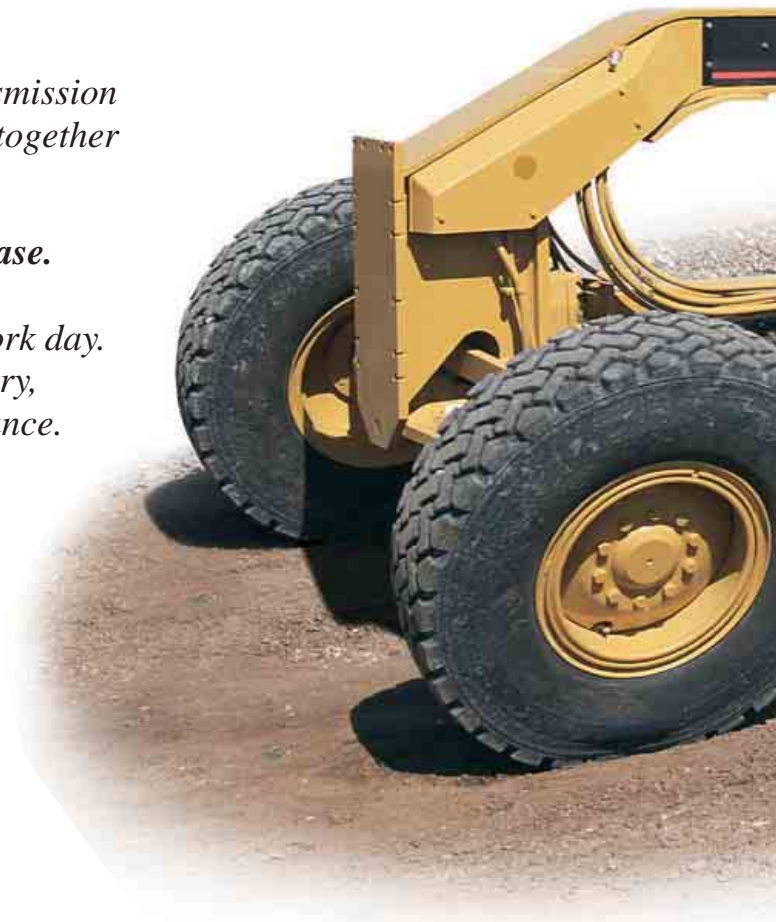
### ***Matched and balanced components.***

*The Cat® C-9 engine, direct-drive power shift transmission and load-sensing hydraulics are designed to work together to deliver top productivity in all applications.*

### ***Superior visibility, control layout and operating ease.***

*The operator is the single most important factor in maintaining high productivity throughout the work day. By offering the best operator's station in the industry, Caterpillar helps operators achieve peak performance.*

- ✓ *New feature*



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**Structures**

The 12H frame is designed and built to exceed the expectations of the customer. **pg. 7**

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**Drawbar, Circle, Moldboard**

Versatile moldboard positioning and a long wheelbase improve material handling. Rugged construction and replaceable wear parts minimize operation costs. **pg. 8**

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**Serviceability**

- ✓ Caterpillar® re-engineered inspection and service points, grouping them into a convenient left-hand side, ground level 'service center.' Ground level fueling and extended engine and hydraulic oil change intervals help minimize downtime. **pg. 9**

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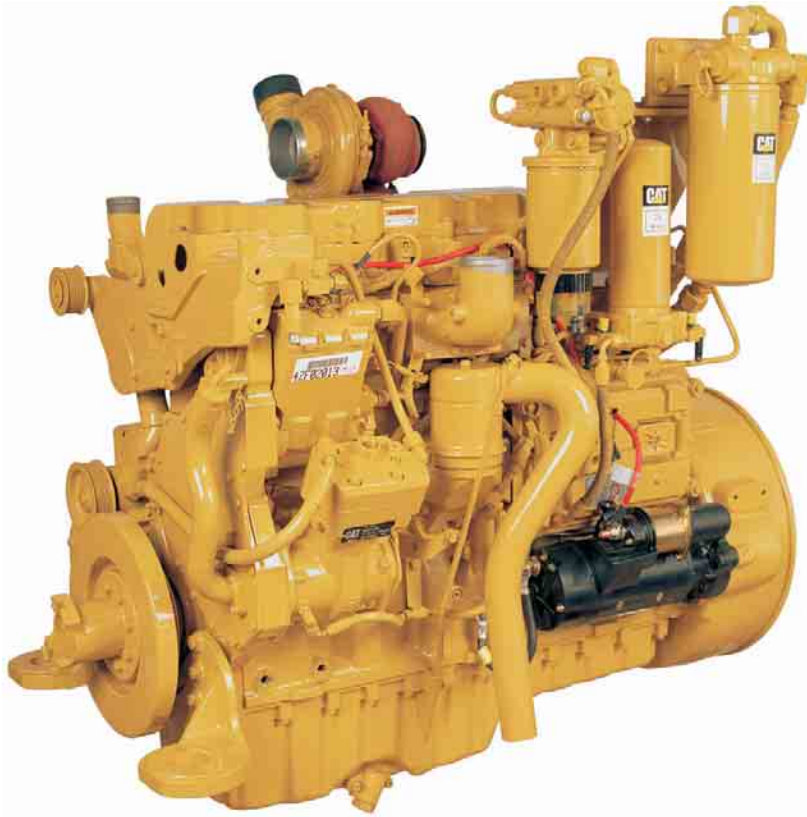
**Customer Support**

Your Cat dealer offers a range of services that help you operate longer with lower costs. **pg. 13**



## Cat C-9 ATAAC Engine

*The six-cylinder, direct injection, turbocharged and air-to-air aftercooled engine is built for power, reliability, low maintenance, excellent fuel economy and low emissions.*



### Cat C-9 ATAAC Engine.

The innovative C-9 diesel engine delivers large-engine performance from a compact engine design. The six-cylinder engine is turbocharged and air-to-air aftercooled. With high displacement and low rated speed, this engine provides excellent fuel economy and durability that can significantly reduce operating costs.

**Improved Torque.** Power curves customized for the 12H increase peak torque for higher ground speeds and enhanced productivity. Rimpull has been increased in all gears for greater productivity.

**Variable Horsepower (VHP) and VHP Plus.** Automatically increases horsepower in higher gears when the machine can use it. In lower gears where traction is limited, horsepower is limited, reducing wheel slip, tire wear and conserving fuel.

- The 12H has a VHP Plus option to provide additional horsepower in forward gears 7-8. In applications such as snow removal, this power allows higher travel speeds and faster snow removal for more snow clearing in less time.

**Lugging Performance.** High torque output and torque rise makes the C-9 very responsive. Its superior lugging maintains consistent grading speeds without the need to downshift.

**Advanced Fuel System.** The C-9 features an electronically controlled, hydraulically-actuated, direct-injection fuel system that provides improved fuel economy and reduced emissions. The advanced Diesel Engine Module (ADEM III) fuel system is a Caterpillar exclusive electronic control module which provides improved engine response, performance, fuel efficiency, troubleshooting, diagnostics, and reduced emissions. The ADEM III electronic engine control improves altitude capability to 3000 meters without deration and allows integration with the electronic transmission control for maximum power train efficiency.

### Turbocharged and Air-to-Air Aftercooled.

Turbocharger packs more dense air into the cylinders for more complete combustion and lower emissions improving performance and engine efficiency. These benefits are especially useful at high altitudes. Air-to-air aftercooler reduces smoke and emissions by providing a cooler inlet air for more efficient combustion. This also extends the life of the piston rings and bore.

**Extended Engine Life.** The large bore-stroke design and conservative power rating minimize internal stresses and increase component life. The low engine speeds reduce engine wear and sound levels.

**Hydraulic Demand Fan.** The hydraulic demand fan control automatically adjusts cooling fan speed according to engine cooling requirements. This system reduces demands on the engine, putting more power to the ground and improving fuel efficiency.

**Caterpillar Engine Oil.** It is formulated to optimize engine life and performance and is strongly recommended for use in Cat diesel engines. The engine oil change interval is increased to 500 hours.

**Factory Remanufactured Parts.** A large choice of factory remanufactured parts and dealer proposed repair options increase machine availability and reduce total repair costs.

**Emissions Compliant.** The new 12H has reduced NOx, hydrocarbon, and particulate emissions. The Cat C-9 meets or exceeds all U.S. EPA Tier II and EU Stage II emissions control standards worldwide.

## Power Train

*Matched Caterpillar components deliver smooth, responsive performance and reliability.*

**Power Shift Transmission.** Designed and built specifically for Cat motor graders, the rugged transmission provides on-the-go, full-power shifting as well as inching capability.

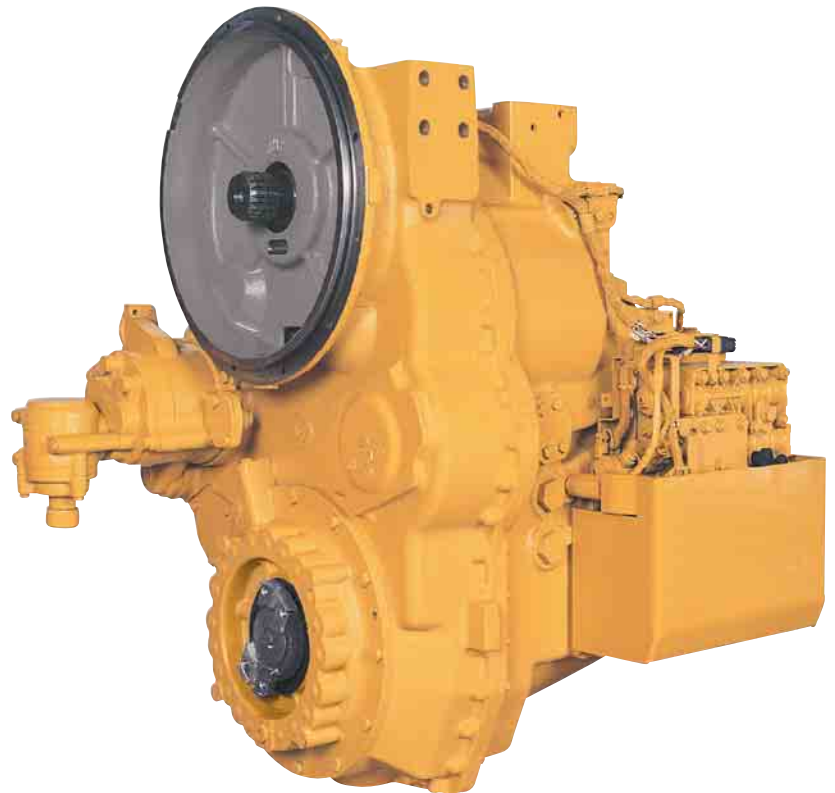
**Direct Drive.** Delivers superior fuel efficiency and “feel” of blade loads, material hardness and ground speed.

**Gear Selection.** Eight forward and six reverse speeds offer a wide operating range for maximum flexibility. Four gears below 10.3 km/h match working speed to job conditions for maximum productivity in earthmoving jobs. Gears five, six and seven are optimal for efficient snow removal operations. Gear 8 is designed for roading.

**Electronic Transmission Control.** Produces easy, smooth shifts to maintain uniform surfaces during shifting, and extends transmission life by reducing stress on transmission clutches. A single lever controls direction, gear and the parking brake.

**Electronic Clutch Pressure Control.** ECPC smoothes shifts and improves inching control, which increases operator comfort and productivity. It uses input from the transmission and operator controls to modulate the directional clutches and produce consistent shifting.

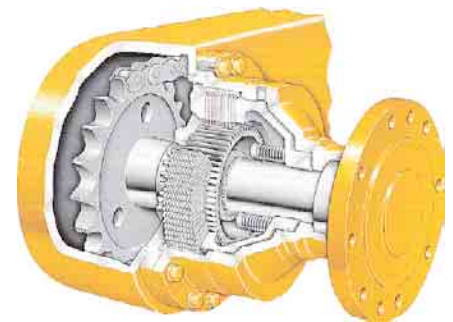
**Electronic Overspeed Protection.** The transmission control upshifts the transmission to relieve overspeed conditions. The transmission control will also prevent a downshift until machine speed is within the range for the requested gear. This can prevent damage and reduce component wear.



**Inching Pedal.** Delivers precise control of machine movements in any gear with low pedal effort and excellent modulation, critical in close-quarter work or finish grading. A new pedal design and location improves modulation and operator comfort.

**Autoshift Transmission.** Improves ease of operation and maximizes productivity by automatically shifting the transmission at optimal shift points.

**Dual Certified Air Tanks.** Supply braking capacity to each side of the machine. This system ensures secondary braking capability in the event a failure occurs in a single brake line. The dual air system also has a large reserve for stalled-engine braking.

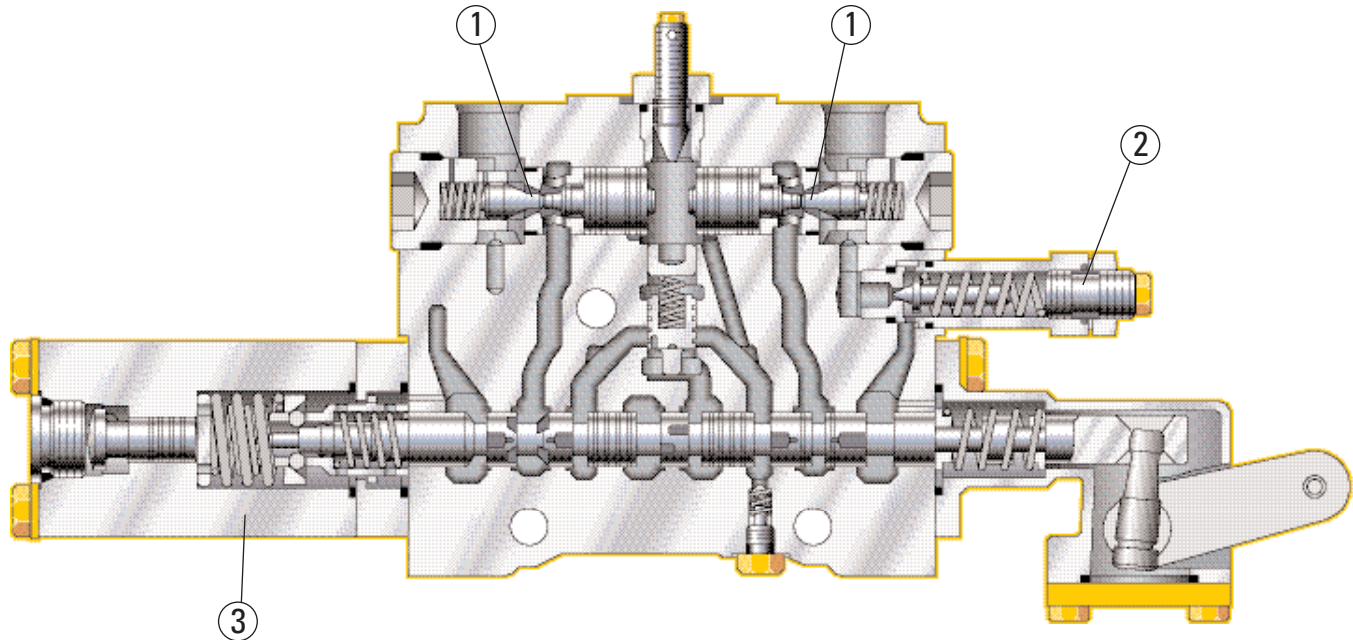


**Brakes.** Caterpillar multi-disc brakes offer a large surface area for dependable, extended-life braking. The air-actuated service brakes, located in each of the four wheel spindle housings, are sealed, adjustment free, and lubricated and cooled by tandem housing oil. The parking/emergency brakes, located in the transmission on the output shaft, are spring actuated and air pressure released. When engaged, they neutralize the transmission and lock the wheels on any surface.

# Hydraulics

*Balanced hydraulics provide predictable blade response.*

- 1 Lock valve
- 2 Line relief valve
- 3 Blade float detent



**Load Sensing Hydraulics.** A load sensing variable displacement pump and the advanced proportional priority pressure-compensating (PPPC, or “triple-PC”) hydraulic valves provide superior implement control and enhanced machine performance and efficiency. Continuously matching hydraulic flow and pressure to power demands creates less heat and reduces power consumption.

**Implement Control Valves.** PPPC valves have different flow rates for the head and rod ends of the cylinder. This insures consistent extension and retraction properties for each cylinder, and improves operator ‘feel’ and system response. All control valves use lock valves to maintain blade settings. Line relief valves protect cylinders from excessive pressure.

**Balanced Flow.** Hydraulic flow is proportioned to ensure all implements operate simultaneously. If demand exceeds pump capacity, all cylinders are reduced by the same ratio. The result is improved productivity in virtually any application.

**Blade Float.** Blade float, incorporated into the blade lift control valves, allows the blade to move freely under its own weight. By floating both cylinders, the blade can follow the contours of the road when removing snow. Floating only one cylinder permits the toe of the blade to follow a hard surface while the operator controls the slope with the other lift cylinder.

**Independent Oil Supply.** Large separate hydraulic oil supply prevents cross-contamination and provides proper oil cooling, which reduces heat build-up and extends component life.

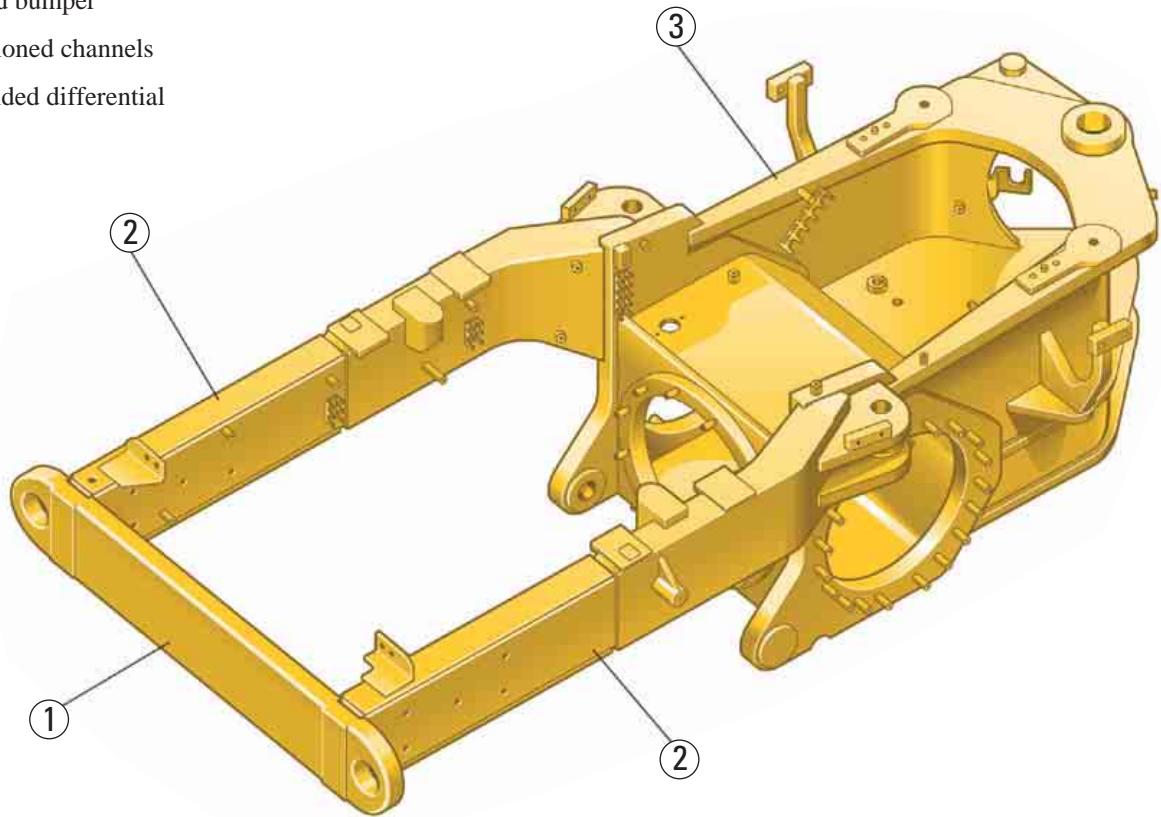
**Heavy Duty XT Hose.** Caterpillar hose technology allows high pressures for maximum power and reduced downtime, and intelligent routing minimizes exposure to damage.

**Hydraulic Lockout.** Mechanically locks all moldboard, machine, and attachment control levers during machine roading. This prevents implements from being accidentally engaged when the motor grader is travelling down the road.

## Structures

*The 12H frame is designed for versatility and durability.*

- 1 Integrated bumper
- 2 Box-sectioned channels
- 3 Fully welded differential



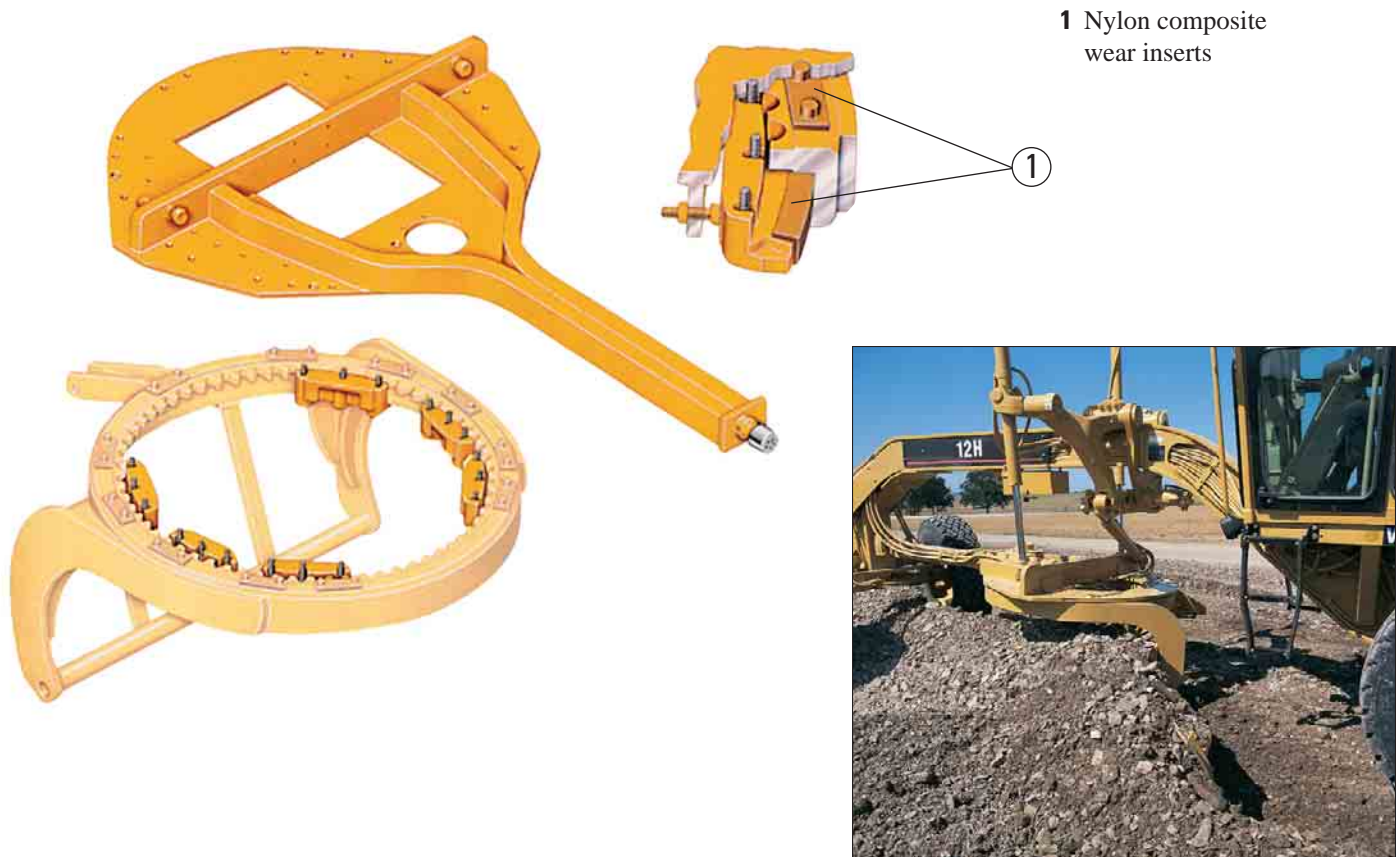
**Integrated Bumper.** The integrated bumper ties the rear frame together into a cohesive unit, to handle the loads possible with the new C-9 power train. This is especially important in ripping and snow removal applications where graders are equipped with snow wing attachments.

**Rear Frame.** Rear frame has two box-sectioned channels integral with fully welded differential case for a solid working platform.

**Front Frame.** Continuous top and bottom plate construction provides consistency and strength. The flanged box section design removes welds from high stress areas, improving reliability and durability, and increasing resale value for the customer.

## Drawbar, Circle, Moldboard

*Every component is designed for maximum productivity and durability.*



1 Nylon composite wear inserts

**Blade.** Heat treated moldboard rails, through-hardened, curved DH-2™ steel cutting edge and end bits, and replaceable metallic wear inserts assure a long, reliable service life. Three sideshift mounting locations for the optional moldboard add flexibility.

**Blade Positioning.** The blade linkage design provides extensive moldboard positioning, most beneficial in mid-range bank sloping and in ditch cutting and cleaning. A 7-hole link is standard.

**Blade Angle.** A long wheelbase allows the operator to obtain an aggressive moldboard angle. This aggressive angle permits material to roll more freely along the blade, which reduces power requirements. This is particularly helpful in handling very dry materials, cohesive soils, snow and ice.

**Circle Construction.** One-piece forged circle with hydraulically driven motor stands up to high stress loads. Raised wear surfaces prevent circle teeth wear against the drawbar. Sixty-four uniformly spaced teeth on the front 240° of the circle are flame cut and heat induction hardened to resist wear. And the circle, with 360° rotation, is secured to the drawbar by six vertically and horizontally adjustable shoes for maximum support.

**Replaceable Wear Items.** Tough, durable nylon composite wear inserts are located between the drawbar and circle, and between the support shoes and circle. This sacrificial wear system helps keep components tight for fine grading and allows easy replacement. These inserts reduce rotational friction resulting in extended component life.

**Circle Drive Slip Clutch.** The standard circle drive slip clutch protects the drawbar, circle and moldboard from shock loads when the blade encounters immovable objects. It also reduces the possibility of the grader making abrupt directional changes in poor traction conditions.

**Drawbar Construction.** The Y-frame drawbar is constructed of two solid beams for high strength and optimum durability, as well as precise blading control. And the yoke plate completely covers the top of the circle.

**Blade Lift Accumulators.** These optional blade lift accumulators absorb vertical shocks encountered when the moldboard contacts immovable objects. This option is especially useful in rough grading and rocky areas.

## Serviceability

*Re-engineered inspection and service points reduce downtime and operating costs.*

**Service Center.** A ‘Service Center’ on the left-hand side provides easy, centralized access to most check and maintenance points. Routine inspection and service are faster and easier, for better machine availability and lower operating costs.

- Large hinged doors provide easy access to the adjacent engine and maintenance service compartments.
- Engine and hydraulic oil checkpoints, coolant gauges, and air filters
- Spin-on filters for oils, fuel, coolant
- Remote lubrication points, purge valves and ecology drain lines
- Fuse panel with new automotive style fuses located inside cab
- Tandem oil checkpoint is conveniently located between the wheels in the center of the tandem.
- Sample ports for engine, hydraulic, transmission fluids, coolant and fuel, encourage preventive maintenance and diagnostics like the S•O•S<sup>SM</sup> program.

**Fuel Tank.** The 378 liter, ground level fuel tank allows longer work shifts and reduces refueling times. A fuel tank sediment drain enables the operator to remove sediment accumulation, reducing the risk of fuel system damage.

### **Extended Oil Change Interval.**

Operate a full 500 hours between engine oil and filter changes, 4000 hours between hydraulic oil changes, and up to 12 000 hours between engine coolant changes. This reduces downtime and operating expense.

**Cat XT Hose.** Caterpillar XT hose technology allows high pressures for maximum power and reduced downtime, and intelligent routing minimizes exposure to damage.



**O-Ring Face Seals.** Cat O-ring face seals assure rock-solid connections that maintain pressure and reduce oil leaks. Intelligent hose routing minimizes exposure to damage, increasing hose life and enhancing reliability.

**Radiator Cleanout Access.** Radiator clean-out access gives the operator the ability to clear away debris and other materials that build up around the radiator. This ensures that the radiator functions properly keeping the engine cool and increasing component life.

## Operator's Station

*The 12H includes innovative changes to improve operator efficiency and maximize machine productivity.*



**Comfort and Convenience.** Comfort and convenience are designed into every feature of the operator's station.

**Autoshift Transmission.** Improves ease of operation and maximizes productivity by automatically shifting the transmission at optimal shift points.

**Optimized Inching Modulation.** The new Electronic Clutch Pressure Control (ECPC) optimizes inching modulation and smoothes shifting. It also eliminates cable control, improving reliability and enhances cold oil characteristics.

**Electronic Throttle Control.**

ETC provides easier, more precise, more consistent throttle operation. Two modes on a single switch offer flexibility for varying applications and operator preference. Like cruise control, ETC improves fuel efficiency.

**Electronic Monitoring System.** Powerful monitoring and diagnostic capabilities allow more efficient and safer machine operation. The Cat EMS III keeps operators better informed of machine status with:

- Continuous tracking of all critical machine parameters on a dash display
- Warnings/alerts for abnormal conditions
- Retrieval or adjustment of over 200 electronic system parameters using the powerful ET service tool

**Controls On Steering Console.** Controls and switches are located on the steering console, shift console and right cab post, all within easy reach. Gauges are located inside the cab, directly in front of the operator.

**Backlit Controls.** Rocker switches and transmission shifter are backlit for nighttime operation.



**Air Conditioner and Heater-Pressurizer.** The optional air conditioner arrangement helps create a comfortable work environment. A cab heater-pressurizer is standard. The high-capacity systems dehumidify air and pressurize the cab, while circulating fresh air and sealing out dust. Multiple additional vents evenly distribute air throughout the cab for clear windows and operator comfort.

**Suspension Seat.** Standard contour series suspension seat features fold-up armrests and a retractable seat belt. The seat can easily adjust for optimal support and comfort. Seat controls are located within easy reach and in plain view.

**Fresh Air Filters.** Located above each cab door for quick replacement.

**Optional 12V Power Port.** Available for use with computers, cellular phones or other electronic equipment.

**Exceptional Visibility.** A redesigned operator's console improves forward visibility. Large side windows allow a clear view of the moldboard heel and tandem tires. A wide rear window and tapered engine hood provide a good view to the rear of the machine. Moving the air dryer and air cleaner, and aligning the precleaner and muffler, improves visibility to the rear of the machine. Operators can work more confidently and efficiently.

## Environmentally Responsible Design

*Caterpillar builds machines that help you create a better world.*



**Quiet Cab.** The resiliently mounted engine and transmission reduce interior engine noise and vibration. Interior sound levels do not exceed 75 dB(A), using ISO 6394. Lower interior noise levels improve operator working conditions.

**Quiet Machine.** Exterior sound levels are below 108 dB(A) and comply with the EU 2000/14/EC sound limit of 109 dB(A). This quiet operation lets the 12H work with minimal disturbance to the surroundings.

**Low Emissions.** The 12H Motor Grader is even more environmentally friendly than its predecessors with reductions in NO<sub>x</sub>, hydrocarbon, and particulate emissions. It meets or exceeds all U.S. EPA Tier II and EU Stage II emissions control standards worldwide.

**Fuel Efficient.** Caterpillar state-of-the-art electronically controlled, unit injection fuel system has high injection pressure for complete fuel combustion, increased fuel efficiency and reduced emissions.

**Dry Machine.** Lubricant fill points and filters are designed to minimize spillage. O-ring face seals, Cat XT hose and Cat hydraulic cylinders protect against leaks.

**Extended Oil Change Interval.** Operate a full 500 hours between engine oil and filter changes, 4000 hours between hydraulic oil changes, and up to 12 000 hours between engine coolant changes. This reduces downtime and operating expense.

**Ecology Drains.** Make regular maintenance easier and help prevent spills when changing fluids.

**Ozone Protection.** To help protect the earth's ozone layer, air-conditioning units use a refrigerant free of chloro-fluorocarbons (CFCs).

## Customer Support

*Cat dealer services help you operate longer with lower costs.*

**Product Support.** You will find nearly all parts at our dealer parts counter. Cat dealers use a world-wide computer network to find in-stock parts to minimize machine down time. Save money with genuine Cat Reman parts. You receive the same warranty and reliability as new products at substantial cost savings.

**Machine Selection.** Make detailed comparisons of the machines under consideration before purchase. Cat dealers can estimate component life, preventive maintenance cost, and the true cost of lost production.

**Purchase.** Look past initial price. Consider the financing options available as well as day-to-day operating costs. Look at dealer services that can be included in the cost of the machine to yield lower equipment owning and operating costs over the long run.

**Customer Support Agreements.** Cat dealers offer a variety of product support agreements, and work with customers to develop a plan that best meets specific needs. These plans can cover the entire machine, including attachments, to help protect the customer's investment.

**Operation.** Improving operating techniques can boost your profits. Your Cat dealer has videotapes, literature and other ideas to help you increase productivity, and Caterpillar offers certified operator training classes to help maximize the return on your machine investment.



**Maintenance Services.** Talk to your dealer about the range of available maintenance services. Repair option programs guarantee the cost of repairs up front. Diagnostic programs such as S•O•S<sup>SM</sup> and Coolant Sampling and Technical Analysis help avoid unscheduled repairs.

**Replacement.** Repair, rebuild or replace? Your Cat dealer can help you evaluate the cost involved so you can make the right choice.

# Engine

Cat C-9 ATAAC engine, Variable horsepower (VHP)

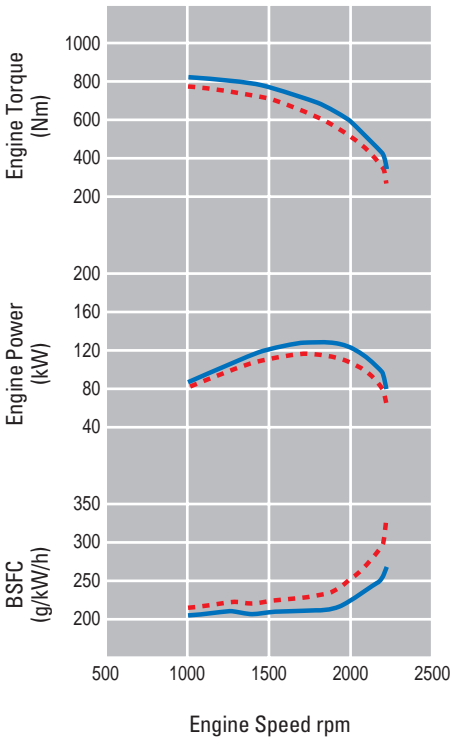
Net power	kW	hp
<b>VHP</b>		
gears 1-3	108	145
gears 4-8	123	165
<b>VHP Plus</b>		
gears 1-3	108	145
gears 4-6	123	165
gears 7-8	138	185
<b>Gross power</b>		
<b>VHP</b>		
gears 1-3	116	156
gears 4-8	131	176
<b>VHP Plus</b>		
gears 1-3	116	156
gears 4-6	131	176
gears 7-8	146	196

Displacement	8.8 liters
Bore	112 mm
Stroke	149 mm
Torque rise	50%
Max torque at 1000 rpm	988 Nm
Speed at rated power	2000 rpm
Number of cylinders	6
Derating altitude	3000 m
<b>Standard Fan speed</b>	
maximum	1210 rpm
minimum	500 rpm
Standard Ambient Capability	47°C
<b>High Ambient Fan speed</b>	
maximum	1300 rpm
minimum	500 rpm
High Ambient Capability	50°C

- The engine is certified according to the EU Directive 97/68/EC, Stage II
- Net power is tested per ISO 9249, and EEC 80/1269 standards in effect at the time of manufacture.
- VHP Plus is optional.
- 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 3000 m altitude. Deration rate of 1.5% per 300 m above 3000 m.

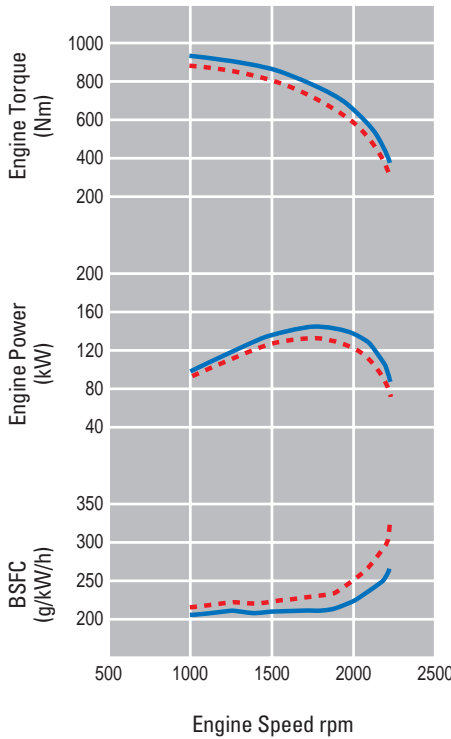
**VHP**  
**VHP Plus**

**Gears 1-3**  
**Gears 1-3**



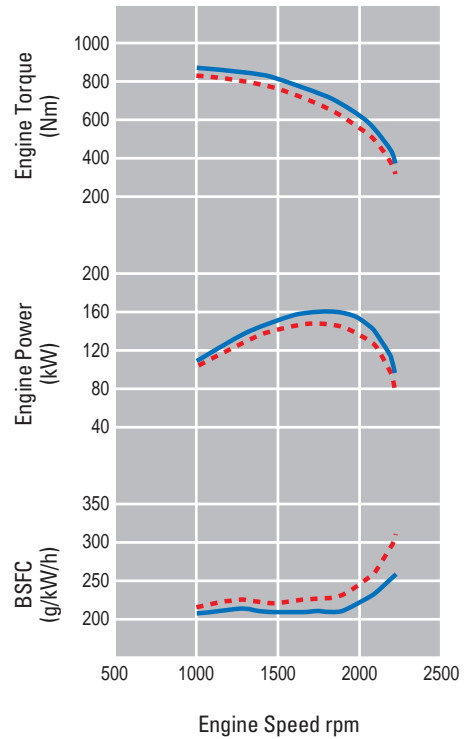
— Gross  
- - - Net

**Gears 4-8**  
**Gears 4-6**



— Gross  
- - - Net

**Gears 7-8**



— Gross  
- - - Net

## Power Train

Gears	
Forward	8
Reverse	6
Transmission Direct drive, power shift	
Brakes	
Service	Air actuated multiple oil disc
surface area	23 948 cm <sup>2</sup>
Parking	Air-actuated multiple oil-disc
Secondary	Dual circuit

Brakes meet ISO3450 JAN 98 standard.

## Operating Specifications

Top Speed	
Forward	44 km/h
Reverse	34.7 km/h
Turning radius (outside front tires) 7.5 m	
Steering range	
left/right	50°
Articulation angle	
left/right	20°
Maximum travel speeds*	
Forward	km/h
1st	3.8
2nd	5.1
3rd	7.4
4th	10.3
5th	16.2
6th	22.0
7th	30.3
8th	44.0
Reverse	
1st	3.0
2nd	5.6
3rd	8.1
4th	12.8
5th	23.9
6th	34.7

\* at rated rpm with conventional base 13.00-24 10PR tires

## Hydraulic System

Circuit type	Closed center load sense
Pump type	Variable piston
Pump output at 1850 rpm	196 L/min
Maximum system pressure	24 150 kPa
Standby Pressure	3100 kPa

## Frame

Circle diameter	1530 mm
Drawbar	
height	127 mm
thickness	76 mm
Front-top/bottom plate	
width	305 mm
thickness	25 mm
Front-side plates	
width	242 mm
thickness	12 mm
Front-liner weights	
minimum	165 kg/m
maximum	213 kg/m
Front-section modulus	
minimum	4785 cm <sup>3</sup>
maximum	2083 cm <sup>3</sup>
Front axle	
ground clearance	608 mm
front wheel lean	18°
oscillation angle	32°
Circle blade beam thickness	30 mm

## Tandems

Height	506 mm
Width	201 mm
Sidewall thickness	
inner	16 mm
outer	18 mm
Drive chain pitch	51 mm
Wheel axle spacing	1522 mm
Tandem oscillation	
forward	15°
reverse	25°

## Moldboard

Blade width	3658 mm
Moldboard height	610 mm
Thickness	22 mm
Arc radius	413 mm
Throat clearance	120 mm
Cutting edge	
width	152 mm
thickness	16 mm
End bit	
width	152 mm
thickness	16 mm
Blade pull*	
max GVW	13 094 kg
base GVW	9379 kg
Down pressure	
max GVW	10 799 kg
base GVW	6555 kg

\* 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
left	695 mm
Moldboard sideshift	
right	660 mm
left	524 mm
Maximum blade position angle	90°
Blade tip range	
forward	40°
backward	5°
Maximum shoulder reach outside of tires	
right	1809 mm
left	1859 mm
Maximum lift above ground	480 mm
Maximum depth of cut	735 mm

## Weights

	kg
Gross Vehicle Weight*	
maximum	20 783
front wheels	6234
rear wheels	14 549
base	14 200
front axles	3784
rear axles	10 416

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

## Ripper

Ripping depth, maximum	462 mm
Ripper shank	
holders	5
holder spacing	533 mm
Penetration force	8047 kg
Pryout force	9281 kg
Machine length increase, beam raised	970 mm

## Brakes

- Brakes meet the standard ISO 3450:1996.

## ROPS/FOPS

- ROPS (Rollover Protective Structure) offered by Caterpillar for the machine meets ROPS criteria ISO 3471-1994.
- FOPS (Falling Object Protective Structure) meets ISO 3449-1992 Level II.

## Service Refill

	Liters
Fuel tank	378
Cooling system	44
Hydraulic system	
total	74
tank	38
Engine oil	24
Differential/Final drives	47
Tandem housing (each)	64
Front wheel spindle bearing housing	0.5
Circle drive housing	7

## Scarifier

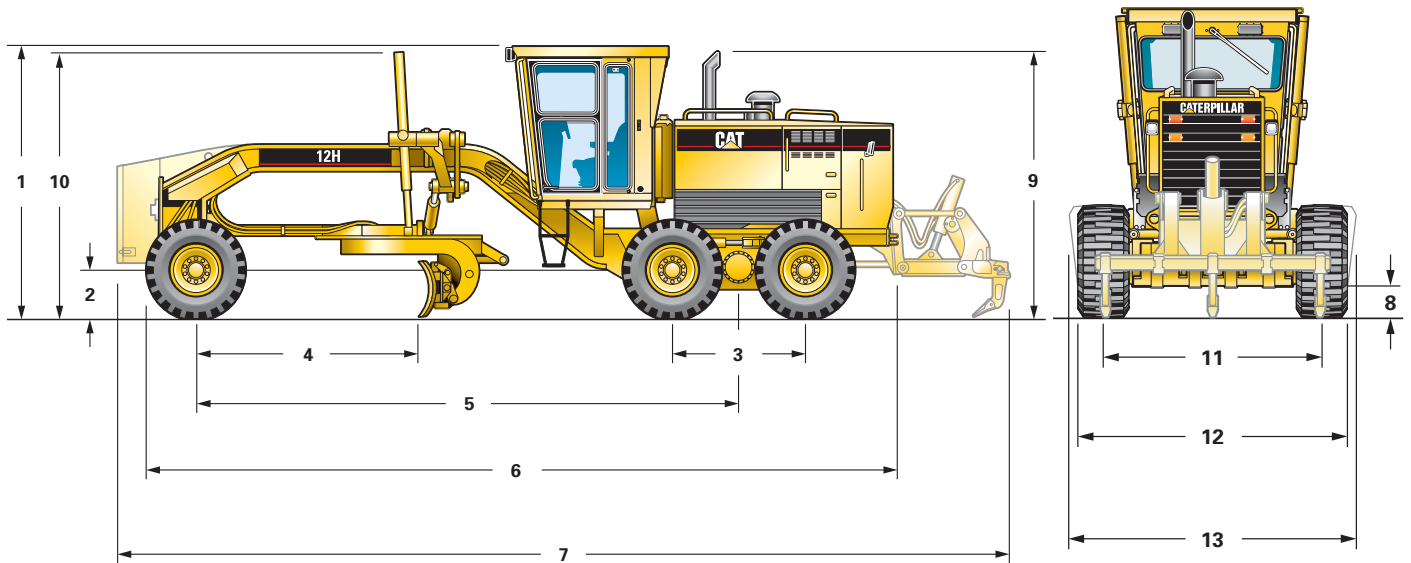
Front, V-Type	
Working width	1184 mm
Scarifying depth, maximum	292 mm
Scarifier	
shank holders	11
shank holder spacing	116 mm
Rear	
Working width	2300 mm
Ripping depth, maximum	411 mm
Scarifier	
shank holders	9
shank holder spacing	267 mm

## Cab

- The operator sound level measured according to the procedures specified in ISO 6394:1998 is 75 dB(A), for cab offered by Caterpillar, when properly installed and maintained and tested with the doors and windows closed.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.
- The labeled sound power level is 108 dB(A) measured according to the test procedures and conditions specified in 2000/14/EC.

# Dimensions

All dimensions are approximate. Based on standard machine configuration with 13.00-24 10PR tires.



<b>1</b> Height		<b>8</b> Ground clearance at transmission case	342 mm
low profile cab	3107 mm	<b>9</b> Height to exhaust stack	3090 mm
high profile cab	3332 mm	<b>10</b> Height to top of cylinders	3030 mm
no cab	3090 mm	<b>11</b> Width	
<b>2</b> Height to axle	594 mm	tire center lines	2077 mm
<b>3</b> Length		<b>12</b> Width	
between tandem axles	1523 mm	outside rear tires	2422 mm
<b>4</b> Length		<b>13</b> Width	
front axle to moldboard	2565 mm	outside front tires	2440 mm
<b>5</b> Length			
front axle to mid tandem	6086 mm		
<b>6</b> Length			
front tire to end of rear frame	8571 mm		
<b>7</b> Length			
counterweight to ripper	10 012 mm		

# Standard Equipment

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

## Electrical

Alarm, back-up  
Alternator, 75 ampere, sealed  
Batteries, maintenance free,  
1100 CCA  
Electrical system, 24 volt  
Lights, stop and tail  
Motor, starting  
Product Link connection

## Operator Environment

Accelerator  
Ashtray and lighter  
Autoshift function  
Coat hook  
Control console, adjustable  
Cup holder  
EMS III operator warning system  
Panel gauges inside the cab  
fuel  
articulation  
engine coolant temp  
system voltage  
air brake pressure  
Heater, pressurizer  
Hydraulic controls, load sensing  
right/left blade lift with float position  
blade sideshift and tip  
circle drive  
centershift  
front wheel lean  
articulation  
Lockout, hydraulic control  
Meter, hour, digital  
Mirrors  
outside mounted  
inside, rearview, wide angle  
dual, inside mounted  
Mounting bracket, general purpose  
Power steering, hydraulic  
ROPS cab, sound suppressed,  
low profile  
Seat, cloth, contour suspension  
Seat belt, retractable 76 mm  
Speedometer, tachometer with odometer  
Steering wheel, tilt, adjustable  
Storage area for cooler/lunchbox  
Sunscreen, front windshield  
Throttle control, electronic  
Transmission gear and direction  
indicator, digital  
Washer/wipers  
(3) intermittent front windshields  
(1) intermittent rear windshield  
Windows, fixed lower front

## Powertrain

Air cleaner  
dry type radial seal  
service indicator  
automatic dust ejector  
Air to air after cooler (ATAAC)  
Brakes - oil disc, four-wheel air  
actuated  
Demand fan, blower  
Differential, lock-unlock  
Engine, C-9 ATAAC diesel VHP  
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, autoshift  
8 forward/6 reverse speeds  
power shift  
direct drive  
electronic shift control  
overspeed protection

## Other Standard Equipment

Antifreeze -35°C  
Bumper, rear, integrated, with hitch  
Clutch, circle drive slip  
Cutting edges  
152 mm x 16 mm (6"x 5/8")  
curved DH-2 steel  
16 mm (5/8") mounting bolts  
Doors, engine compartment, locking  
Drawbar  
6 shoe  
replaceable wear strips  
Endbits - 16 mm (5/8") DH-2 steel,  
16 mm (5/8") mounting bolts  
Engine shutdown, ground level  
Frame, articulated with safety lock  
Fuel tank, 378 Liters  
Fueling, ground level  
Horn, air  
Moldboard  
3658 mm x 610 mm x 22 mm  
(12"x 24"x 7/8")  
hydraulic sideshift and tip  
Radiator cleanout access  
S•O•S<sup>SM</sup> ports: engine, hydraulic,  
transmission, coolant, fuel  
Sound suppression, EU  
Steering, secondary  
Tool box

## Tires, Rims and Wheels

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

**EU Arrangement.** The EU Arrangement package with associated attachments is what designates the 12H as a machine destined for EUROPE which meets EU specifications and legal requirements. Dealer supplied equipment may be required to meet some specific country on-road requirements.

## Optional Equipment

With approximate changes in operating weights.

	kg		kg
Accumulators, blade lift	71	Graderbit system, penetration bit type	163
Air conditioner	31	Guard, brake lines	8
Air dryer	13	Hammer, with mounting	5
Batteries, extreme duty, 1300 CCA	15	Heater, engine coolant	1
Blade		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.	
3658 mm x 688 mm x 25 mm (12'x 27"x 1")	151	Lighting systems:	
3962 mm x 686 mm x 25 mm (13'x 27"x 1")	164	bar mounted, directional and headlights	13
4267 mm x 610 mm x 22 mm (14'x 24"x 7/8")	75	cab mounted, directional and headlights	9
4267 mm x 688 mm x 25 mm (14'x 27"x 1")	261	cab and bar mounted, directional, headlights and work lights	22
front-mounted		cab and bar mounted, high, directional, headlights and work lights	22
2750 mm x 980 mm	1180	work lights, front and rear	6
2000-2935 mm x 790 mm (foldable ends)	1525	snow wing light, right	18
2500 mm x 800 mm	1100	warning light, cab mounted	3
Cab, ROPS, high profile, sound suppressed	77	Mirrors, outside mounted, heated	8
Converter, 25-amp, 24-V to 12-V	5	Power port, 12-V	2
Covers, louver with screen	7	Precleaner, turbine-type	–
Covers, lower rear frame	11	Push plate, front mounted	919
Covers, metallic, fuel tank	11	Radio ready, entertainment	–
Cutting edges for 22 mm thick blade	–	Receptacle – starting, plug-in	2
203 mm x 19 mm for 3.7 m blade	–	Rims, tires – see dealer price list	
203 mm x 19 mm for 4.1 m blade	–	Ripper-scarifier, rear	961
203 mm x 16 mm for 3.7 m blade	–	Ripper-scarifier/tooth, one	33
203 mm x 16 mm for 4.1 m blade	–	Rear scarifier, shanks/teeth, nine	65
Cutting edges for 25 mm thick blade	–	Scarifier, front mounted, V-type	845
203 mm x 19 mm for 3.7 m blade	–	Seat, cloth-covered, contour air suspension	–
203 mm x 19 mm for 4.1 m blade	–	Sunshade, rear window	3
Endbits, overlay, reversible	11	Windows, lower front, opening	3
Engine, VHP Plus	4	Windows, sliding side	4
Ether starting aid	1		
Extensions, blade 610 mm right and left			
for 22 mm thick blade	114		
for 25 mm thick blade	148		
Fan, defroster, front and rear	2		

# 12H Motor Grader

HEHG5515 (01/2003) hr

Featured photos of machines may not always include standard equipment.  
See your Caterpillar Dealer for available options.  
Materials and specifications are subject to change without notice.

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