

# 120H

## Motor Grader



### Global Version

Cat® 3126B DITA ATAAC VHP

|                        |       |        |
|------------------------|-------|--------|
| Base Power (all gears) | 93 kW | 125 hp |
|------------------------|-------|--------|

#### Variable Horsepower Arrangement

|             |        |        |
|-------------|--------|--------|
| - gears 1-3 | 93 kW  | 125 hp |
| - gears 4-8 | 104 kW | 140 hp |

#### Weights

|                             |           |           |
|-----------------------------|-----------|-----------|
| Gross Vehicle Weight - base | 12 650 kg | 27,880 lb |
| front axle                  | 3611 kg   | 7959 lb   |
| rear axle                   | 9039 kg   | 19,921 lb |

#### Moldboard

|             |         |       |
|-------------|---------|-------|
| Blade Width | 3658 mm | 12 ft |
|-------------|---------|-------|

# 120H Motor Grader

*The 120H blends productivity and durability to give you the best return on your investment.*

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## Engine

- ✓ The Cat 3126B DITA ATAAC is designed to handle the tough loads. Variable Horsepower matches torque curves to the gear to maximize response, power, and efficiency. Low fuel consumption reduces operating costs and reduces environmental impact. **pg. 4**

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## Power Train

The power shift transmission takes full advantage of the powerful 3126B 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. Excellent 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 to meet current and anticipated regulations for interior and exterior sound levels, emissions, exhaust. **pg. 12**

*Caterpillar has matched and balanced all power train components, hydraulic systems, and structural elements to deliver a superior motor grader. Include the best operator station in the industry and world-class dealer support, and the Cat 120H represents a reliable, cost-effective investment.*



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### Drawbar, Circle, Moldboard

Flexible moldboard positioning and a long wheelbase improve material handling. Rugged construction and replaceable wear parts minimize operation costs. **pg. 7**

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### Structures

The 120H frame is designed and built to exceed the expectations of the customer. **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

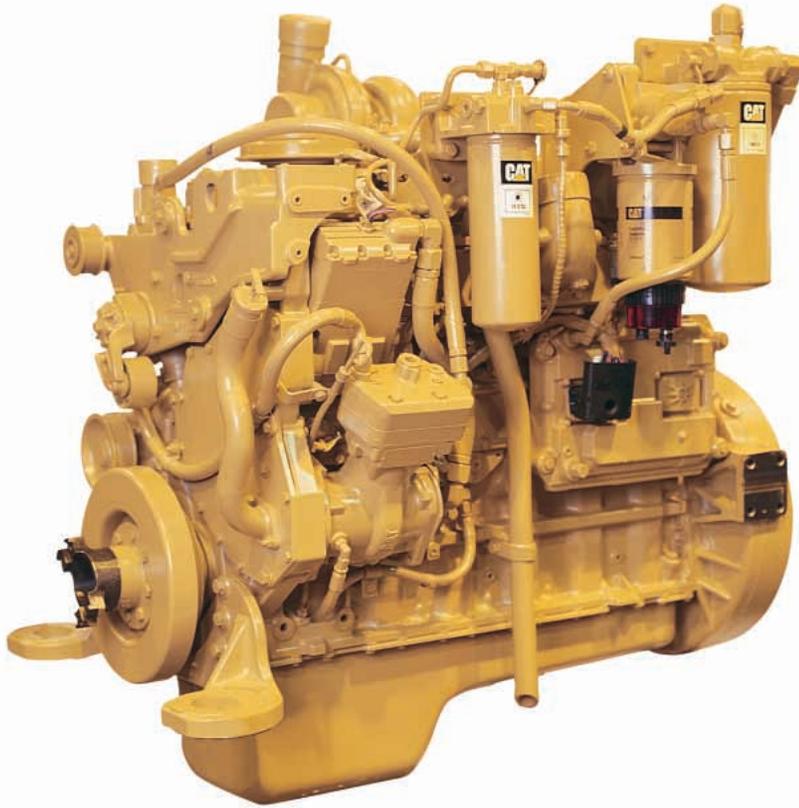
Your Cat dealer offers a range of services that help you operate longer with lower costs. **pg. 13**



✓ *New Feature*

## Engine

*Caterpillar engines deliver increased performance and lower operating costs.*



**3126B DITA ATAAC Engine.** The innovative Cat 3126B 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.

**Variable Horsepower (VHP).** Automatically increases horsepower in higher gears when the machine can use it. In applications such as snow removal, this power allows higher travel speeds and faster snow removal for more snow clearing in less time. Also, the higher rimpull in all gears maximizes performance during high-speed winging and heavy snow load applications. In lower gears where traction is limited, horsepower is limited, reducing wheel slip and conserving fuel.

**Lugging Performance.** High torque output and torque rise makes the 3126B very responsive. Its superior lugging maintains consistent grading speeds without the need to downshift.

**Fuel Efficiency.** Caterpillar state-of-the-art electronically controlled, unit injection fuel system uses high injection pressures for complete fuel combustion, efficient fuel use, and reduced emissions. The dual-filter system reduces component wear.

**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 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 fan speed according to engine cooling requirements. This system reduces demands on the engine, putting more power to the ground and improving fuel efficiency.

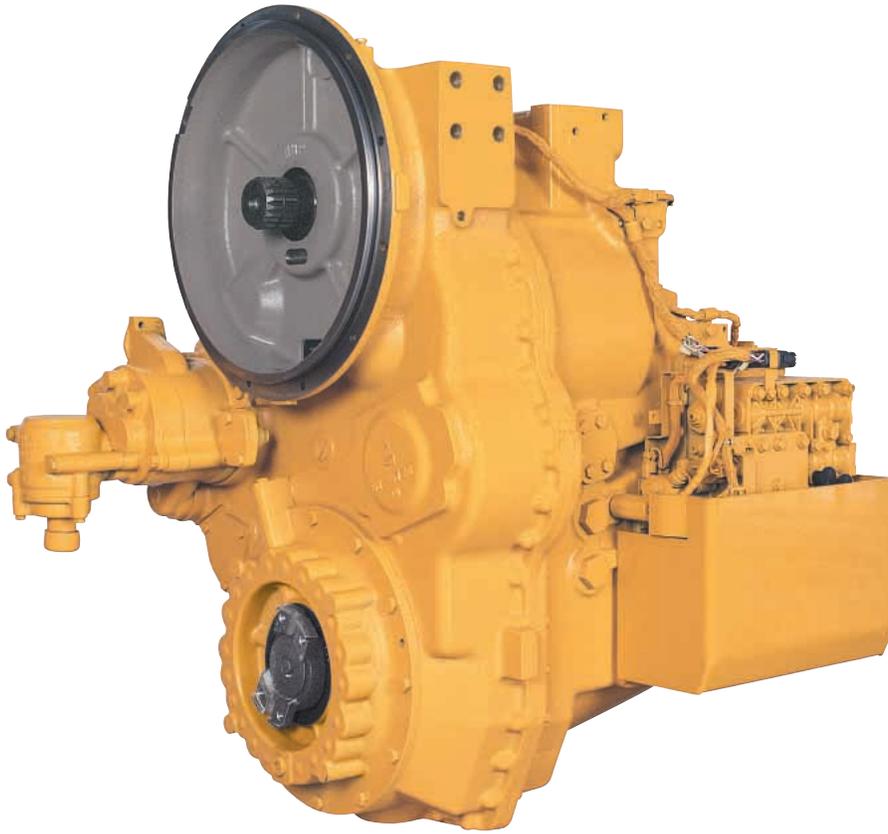
**Caterpillar Engine Oil.** It is formulated to optimize engine life and performance and is strongly recommended for use in Cat diesel engines. The engine oil change interval is increased to 500 hours.

**Improved Torque.** Power curves customized for the 120H increase peak torque for higher ground speeds and enhanced productivity. Rimpull has been increased in all gears for greater productivity.

**Emissions Compliant.** The 120H has reduced NO<sub>x</sub>, hydrocarbon, and particulate emissions. The Cat 3126B meets or exceeds all U.S. EPA Tier 2 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 9.9 km/h (6.2 mph) 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.**

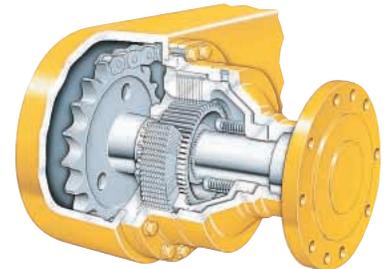
ECPC smoothes shifts and improves inching control, which increases operator comfort and productivity. It uses input from the transmission and operator controls to modulate the directional clutches and produce consistent shifting.

### **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 provides outstanding modulation and operator comfort.

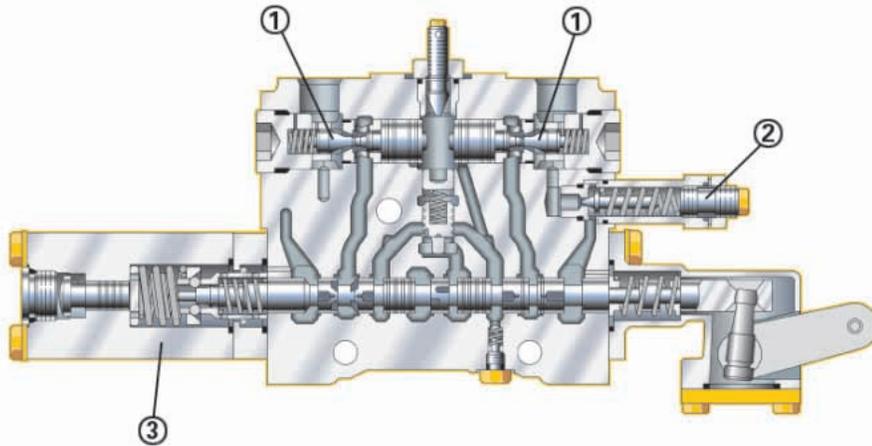
**Dual Air Tanks.** Supply braking capacity to each side of the machine. This system ensures secondary braking capability in the event a failure occurs in a single brake line. The dual air system also has a large reserve for stalled-engine braking.



**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 deliver consistent, precise and responsive control.*



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.

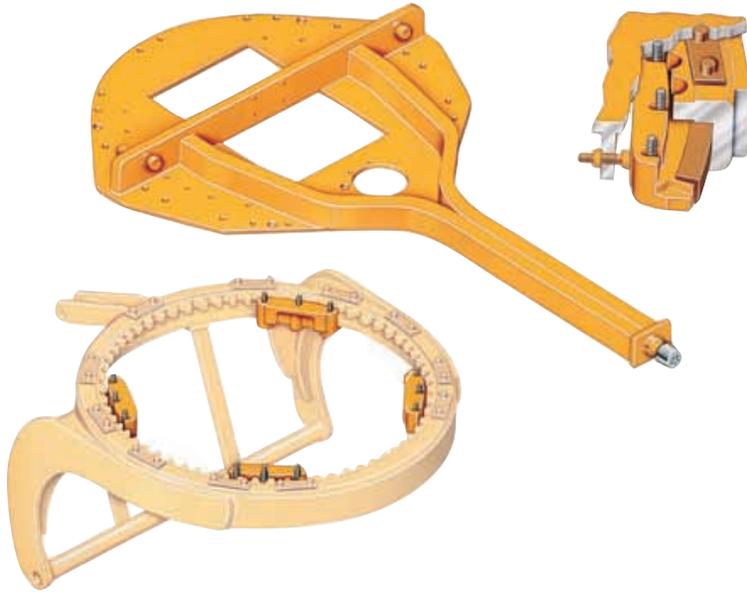
**Heavy Duty XT™ Hose.** Caterpillar hose technology allows high pressures for maximum power and reduced downtime, and intelligent routing minimizes exposure to damage.

### **Optional 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.

## Drawbar, Circle, Moldboard

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



**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.

**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 four 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.

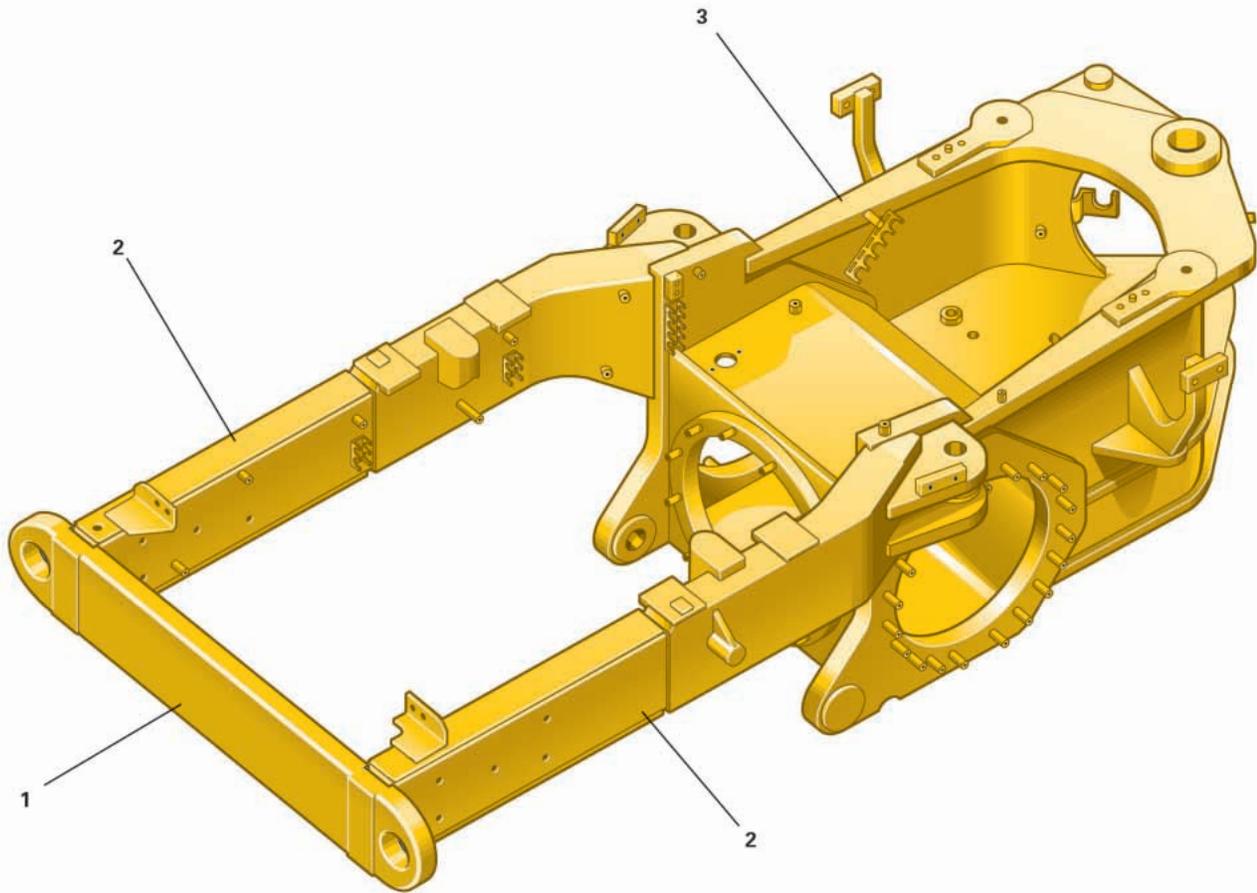
**Circle Drive Slip Clutch.** The standard circle drive slip clutch protects the drawbar, circle and moldboard from shock loads when the blade encounters immovable objects. It also reduces the possibility of the grader making abrupt directional changes in poor traction conditions.

**Drawbar Construction.** The Y-frame drawbar is constructed of two solid beams for high strength and optimum durability, as well as precise blading control.

**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.

## Structures

*The 120H frame is designed and built to exceed the expectations of the customer.*



*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 3126B 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 values for the customer.

## Serviceability

*Re-engineered inspection and service points save time and expense.*

**Service Center.** Gathering many of the frequently serviced items into a ‘Service Center’ on the left side greatly improves access, and helps ensure proper maintenance and inspection routines. The result is 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
- Sample ports for engine, hydraulic, transmission fluids, coolant and fuel, encourages preventive maintenance and diagnostics like the S•O•S<sup>SM</sup> analysis program.

**Fuel Tank.** A 340 L (90 gal) 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 Fluid Change Interval.**

Operate a full 500 hours between engine oil and filter changes, 4,000 hours between hydraulic oil changes, and 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 120H includes innovative changes to improve operator efficiency and, in turn, greater machine productivity.*



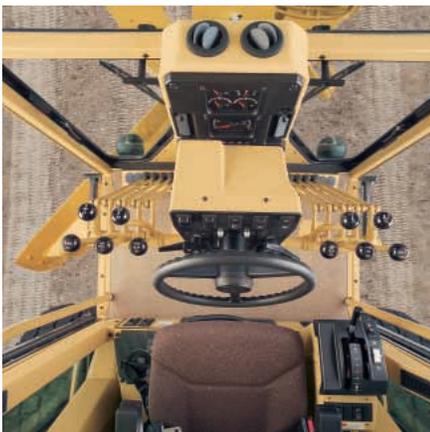
**Comfort and Convenience.** Comfort and convenience are designed into every feature of the operator's station.

**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 more reliable 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 Cat 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.

**Optional Air Conditioner/Heater.** The optional heater and air conditioner arrangements help create a comfortable work environment. The high-capacity systems dehumidify air and pressurize the cab, which circulates fresh air and seals out dust. Multiple additional vents evenly distribute air throughout the cab for clear windows and operator comfort.

**Suspension Seat.** Optional 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.** The narrow operator's console provides good 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. The position of the air dryer and air cleaner, and the alignment the precleaner and muffler, provides good 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 provide interior sound levels of 76dB(A) when measured with the doors and windows closed per ISO 6394. Lower interior noise levels improve operator working conditions.

**Quiet Machine.** Exterior sound level of 107dB(A) when tested per ISO 6395, Annex B. The optional sound suppression group complies with the EU 2000/14/EC sound limit of 107 dB(A). This quiet operation lets the 120H work with minimal disturbance to the surroundings.

**Low Emissions.** The 120H 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, and 4000 hours between hydraulic oil changes. This reduces machine downtime and operating expense, and helps preserve our natural resources.

**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 chloroflourocarbons (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> Analysis 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

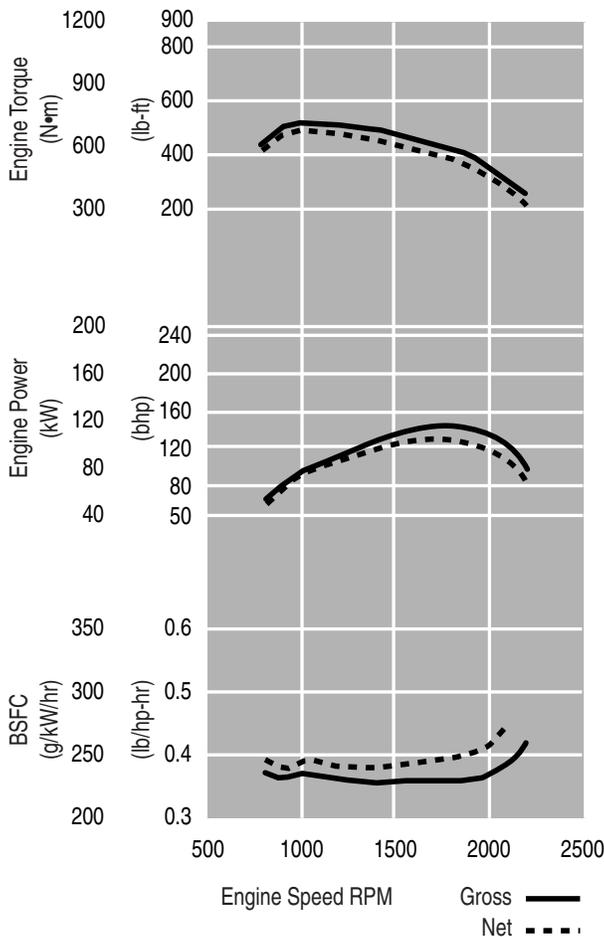
| Engine Model                 | Cat 3126B DITA ATAAC VHP |                     |
|------------------------------|--------------------------|---------------------|
| Base Power (all gears) Net   | 93 kW                    | 125 hp              |
| VHP - gears 1-3 Net          | 93 kW                    | 125 hp              |
| - gears 4-8 Net              | 104 kW                   | 140 hp              |
| Base Power (all gears) Gross | 104 kW                   | 139 hp              |
| VHP - gears 1-3 Gross        | 104 kW                   | 139 hp              |
| - gears 4-8 Gross            | 115 kW                   | 154 hp              |
| Displacement                 | 7.2 L                    | 439 in <sup>3</sup> |
| Bore                         | 110 mm                   | 4.3 in              |
| Stroke                       | 127 mm                   | 5 in                |
| Torque rise                  | 50%                      |                     |
| Max torque @ 1000 rpm        | 737 N·m                  | 544 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 | 1300 RPM |           |
| - min                        | 500 RPM  |           |
| Hi - Ambient Capability      | 50° C    | 122° F    |

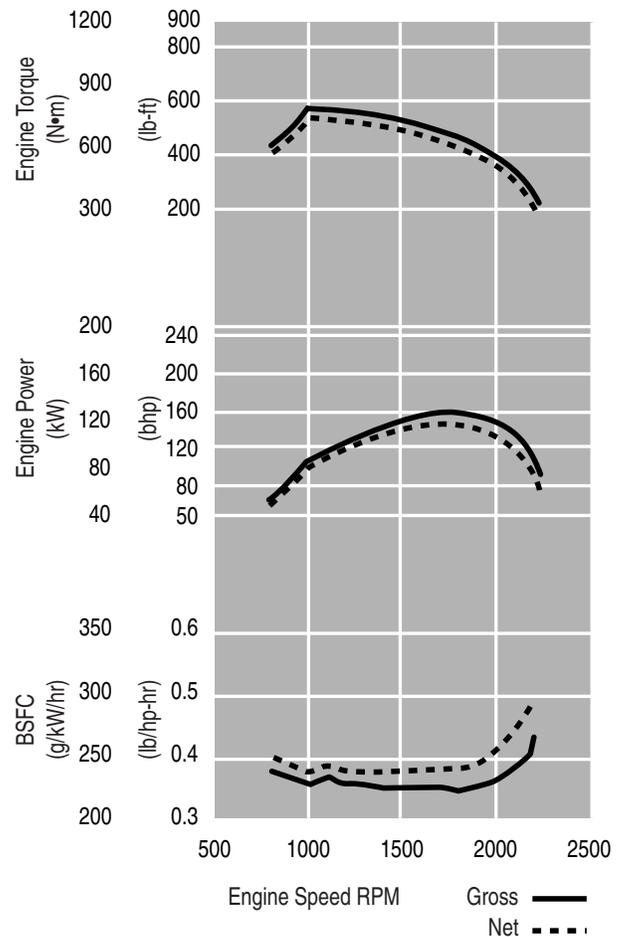
- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 standards in effect at the time of manufacture.
- VHP is an optional arrangement.
- Net power advertised is the power available at rated speed of 2000 rpm, measured at the flywheel when engine is equipped with fan, air cleaner, muffler and 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).

### Base VHP

### Gears 1 - 8 Gears 1 - 3



### Gears 4 - 8



## Power Train

|                         |                                 |                       |
|-------------------------|---------------------------------|-----------------------|
| Forward/Reverse Gears   | 8 fwd/6 rev                     |                       |
| Transmission            | direct drive, power shift       |                       |
| Brakes - Service        | air actuated, multiple oil disc |                       |
| - Service, surface area | 16 744 cm <sup>2</sup>          | 2,595 in <sup>2</sup> |
| - Parking               | air-actuated, multiple oil-disc |                       |
| - Secondary             | dual circuit                    |                       |

- Brakes meet the following standards: SAE J/ISO 3450 JAN98.

## Hydraulic System

|                         |                          |            |
|-------------------------|--------------------------|------------|
| Circuit type            | closed center load sense |            |
| Pump type               | variable piston          |            |
| Pump output             | 144 L/min                | 38 gal/min |
| Maximum system pressure | 24 150 kPa               | 3,500 psi  |
| Standby Pressure        | 3100 kPa                 | 450 psi    |

- Pump output measured @ 2000 RPM

## Operating Specifications

|                                      |          |          |
|--------------------------------------|----------|----------|
| Top Speed - Fwd.                     | 42.6 kph | 26.5 mph |
| - Rev.                               | 33.7 kph | 20.9 mph |
| Turning radius (outside front tires) | 7.3 m    | 23.6 ft  |
| Steering range - left/right          | 50°      |          |
| Articulation angle - left/right      | 20°      |          |
| Fwd. 1st                             | 3.6 kph  | 2.3 mph  |
| 2nd                                  | 5 kph    | 3.1 mph  |
| 3rd                                  | 7.2 kph  | 4.5 mph  |
| 4th                                  | 9.9 kph  | 6.2 mph  |
| 5th                                  | 15.7 kph | 9.7 mph  |
| 6th                                  | 21.3 kph | 13.2 mph |
| 7th                                  | 29.3 kph | 18.2 mph |
| 8th                                  | 42.6 kph | 26.5 mph |
| Rev. 1st                             | 2.9 kph  | 1.8 mph  |
| 2nd                                  | 5.4 kph  | 3.4 mph  |
| 3rd                                  | 7.8 kph  | 4.9 mph  |
| 4th                                  | 12.4 kph | 7.7 mph  |
| 5th                                  | 23.1 kph | 14.4 mph |
| 6th                                  | 33.7 kph | 20.9 mph |

## Service Refill

|                                     |        |          |
|-------------------------------------|--------|----------|
| Fuel Capacity                       | 340 L  | 90 gal   |
| Cooling system                      | 40 L   | 10.4 gal |
| Hydraulic system - total            | 68 L   | 17.7 gal |
| - tank                              | 38 L   | 9.9 gal  |
| Engine Oil                          | 29.5 L | 7.8 gal  |
| Differential/Final Drives           | 47 L   | 12.2 gal |
| Tandem housing (each)               | 49 L   | 12.7 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 | 280 mm               | 11 in               |
| - thickness                    | 22 mm                | 0.9 in              |
| Front-side plates - width      | 236 mm               | 9.3 in              |
| - thickness                    | 10 mm                | 0.4 in              |
| Front-linear weights - min     | 134 kg/m             | 90 lb/ft            |
| - max                          | 172 kg/m             | 115 lb/ft           |
| Front-section modulus - min    | 1619 cm <sup>3</sup> | 99 in <sup>3</sup>  |
| - max                          | 3681 cm <sup>3</sup> | 225 in <sup>3</sup> |
| Front axle - ground clearance  | 608 mm               | 23.9 in             |
| - front wheel lean             | 18°                  |                     |
| - oscillation angle            | 32°                  |                     |

## Tandems

|                              |         |         |
|------------------------------|---------|---------|
| Height                       | 438 mm  | 17.2 in |
| Width                        | 172 mm  | 6.8 in  |
| Sidewall thickness - inner   | 14 mm   | 0.55 in |
| - outer                      | 16 mm   | 0.63 in |
| Drive chain pitch            | 44.5 mm | 1.75 in |
| Wheel axle spacing           | 1510 mm | 59.5 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    | 10 661 kg | 23,504 lb |
| - base GVW              | 8081 kg   | 17,816 lb |
| Down Pressure - max GVW | 9100 kg   | 20,056 lb |
| - base GVW              | 6574 kg   | 14,488 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              | 628 mm  | 24.7 in |
| - left                                  | 625 mm  | 24.6 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                                 | 1912 mm | 75.3 in |
| - left                                  | 1840 mm | 72.4 in |
| Maximum lift above ground               | 457 mm  | 18 in   |
| Maximum depth of cut                    | 775 mm  | 30.5 in |

## Ripper

|                                      |         |          |
|--------------------------------------|---------|----------|
| Ripping depth, maximum               | 262 mm  | 10.3 in  |
| Ripper shank holders                 | 5       |          |
| Ripper shank holder spacing          | 533 mm  | 21 in    |
| Penetration force                    | 4343 kg | 9,566 lb |
| Pryout force                         | 2279 kg | 5,020 lb |
| Machine length increase, beam raised | 1058 mm | 41.7 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 |

## Weights

|                             |           |           |
|-----------------------------|-----------|-----------|
| Gross Vehicle Weight - max  | 16 922 kg | 37,306 lb |
| - front axle                | 5076 kg   | 11,190 lb |
| - rear axles                | 11 846 kg | 23,116 lb |
| Gross Vehicle Weight - base | 12 650 kg | 27,880 lb |
| - front axle                | 3611 kg   | 7,959 lb  |
| - rear axles                | 9039 kg   | 19,921 lb |

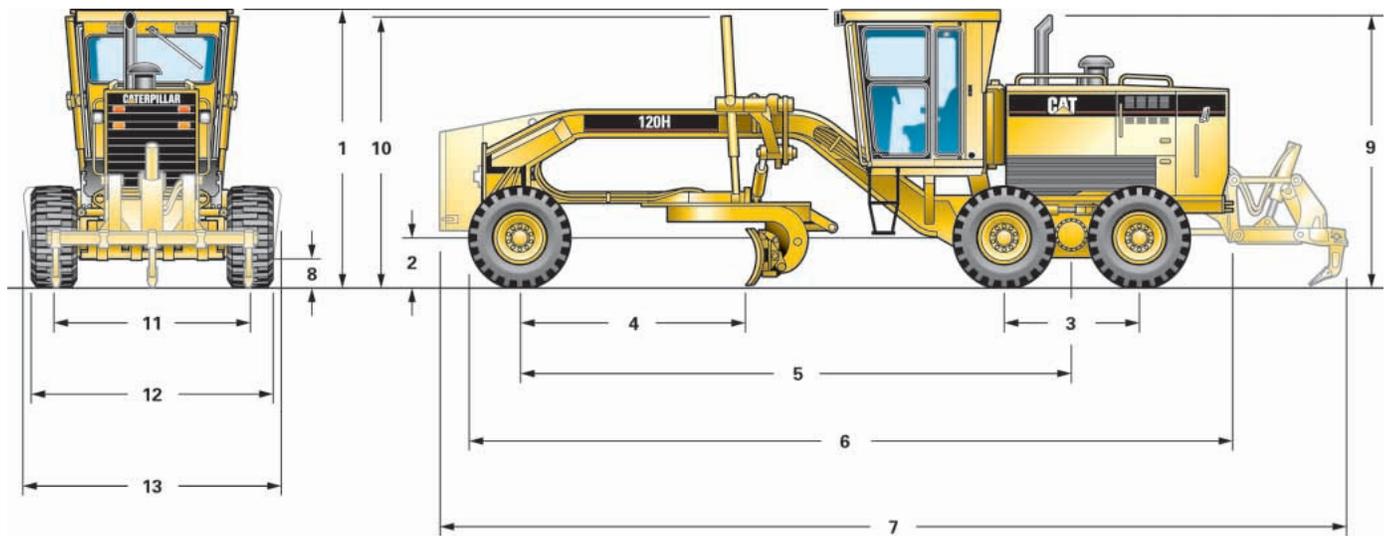
- Base operating weight calculated on standard machine configuration with 13.00-24 10PR (G-2) tires, full fuel tank, coolant, lubricants and operator.

## Cab

- ROPS (Rollover Protective Structure) meets the following criteria: SAE J1040 MAY 1994, ISO 3471:1986, ISO3471:1994
- FOPS (Falling Object Protective Structure) meets the following criteria: ISO 3449:1984, ISO 3449:1992 Level II

# Dimensions

All dimensions are approximate.



|          |                                          |         |          |
|----------|------------------------------------------|---------|----------|
| <b>1</b> | Height - low profile cab                 | 3108 mm | 122 in   |
|          | - high profile cab                       | 3332 mm | 131 in   |
|          | - no cab                                 | 3090 mm | 121 in   |
| <b>2</b> | Height to axle                           | 594 mm  | 23.4 in  |
| <b>3</b> | Length - between tandem axles            | 1510 mm | 59.4 in  |
| <b>4</b> | Length - front axle to moldboard         | 2596 mm | 102.2 in |
| <b>5</b> | Length - front axle to mid tandem        | 5923 mm | 233 in   |
| <b>6</b> | Length - front tire to end of rear frame | 8314 mm | 327.3 in |

|           |                                  |           |          |
|-----------|----------------------------------|-----------|----------|
| <b>7</b>  | Length - counterweight to ripper | 10 064 mm | 396.2 in |
| <b>8</b>  | Ground clearance at trans. case  | 351 mm    | 13.8 in  |
| <b>9</b>  | Height to exhaust stack          | 3138 mm   | 123 in   |
| <b>10</b> | Height to top of cylinders       | 2912 mm   | 115 in   |
| <b>11</b> | Width - tire centerlines         | 2056 mm   | 80.9 in  |
| <b>12</b> | Width - outside rear tires       | 2402 mm   | 94.6 in  |
| <b>13</b> | Width - outside front tires      | 2441 mm   | 96.1 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 the 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, covered adjustable
- 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

### POWER TRAIN

- Air cleaner with dry type radial seal, service indicator, automatic dust ejector
- Air to air after cooler (ATAAC)
- Brakes - oil disc, four-wheel air actuated
- Demand fan
- Differential, lock-unlock
- Engine, 3126 DITA diesel with 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
  - 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 - 4 shoe, replaceable wear strips
- Endbits - 16 mm (5/8 in) DH-2 steel, 16 mm (5/8 in) mounting bolts
- Frame, articulated with safety lock
- Fuel tank, 90 gallon (340 L)
- Fueling, ground level
- Ground level engine shutdown
- Horn, air
- Link bar, 7 position
- Moldboard
  - 3658 mm × 610 mm × 22 mm (12 ft × 24 in × 7/8 in)
  - hydraulic sideshift and tip
- Radiator cleanout access
- S•O•S ports: engine, hydraulic, transmission, coolant, fuel
- Tool box

### TIRES, RIMS, & 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                                       | 6    | 15   |                                                                                                                                                                                                                                                        |     |      |
| Batteries, heavy duty, 1100 CCA                             | 44   | 96   |                                                                                                                                                                                                                                                        |     |      |
| Blade, 3962 mm × 688 mm × 25 mm<br>(13 ft × 27 in × 1 in)   | 209  | 460  |                                                                                                                                                                                                                                                        |     |      |
| Blade, 4267 mm × 610 mm × 22 mm<br>(14 ft × 24 in × 7/8 in) | 75   | 166  |                                                                                                                                                                                                                                                        |     |      |
| Blade, 4267 mm × 688 mm × 25 mm<br>(14 ft × 27 in × 1 in)   | 261  | 574  |                                                                                                                                                                                                                                                        |     |      |
| Blade, front-mounted 2750 mm × 980 mm<br>(9 ft × 39 in)     | 850  | 1874 |                                                                                                                                                                                                                                                        |     |      |
| Blade, front                                                | 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,<br>with rear wall and window    | -41  | -90  |                                                                                                                                                                                                                                                        |     |      |
| Converter, 25 ampere, 24V to 12V                            | 5    | 11   |                                                                                                                                                                                                                                                        |     |      |
| 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                                                 | 4    | 10   |                                                                                                                                                                                                                                                        |     |      |
| 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, 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<br>additional hydraulic valves are available<br>for front scarifier, rear ripper-scarifier,<br>dozer, dozer angle, snow plow and<br>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,<br>headlights and work lights                                                                                                                                                                                        | 22  | 48   |
|                                                             |      |      | cab and bar mounted, high, directional,<br>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   |
|                                                             |      |      | Power port, 12-V                                                                                                                                                                                                                                       | 2   | 5    |
|                                                             |      |      | Push plate, counterweight                                                                                                                                                                                                                              | 919 | 2025 |
|                                                             |      |      | Precleaner, turbine-type                                                                                                                                                                                                                               | 2   | 5    |
|                                                             |      |      | Radio ready, entertainment                                                                                                                                                                                                                             |     |      |
|                                                             |      |      | Receptacle, starting, plug-in                                                                                                                                                                                                                          | 2   | 5    |
|                                                             |      |      | Rims, tires - refer to dealer price list                                                                                                                                                                                                               |     |      |
|                                                             |      |      | Ripper, rear                                                                                                                                                                                                                                           | 612 | 1350 |
|                                                             |      |      | Ripper-scarifier/tooth, one                                                                                                                                                                                                                            | 12  | 26   |
|                                                             |      |      | Scarifier, front mounted, V-type                                                                                                                                                                                                                       | 845 | 1862 |
|                                                             |      |      | Scarifier, front mounted, straight                                                                                                                                                                                                                     | 903 | 1988 |
|                                                             |      |      | Seat, cloth-covered, contour air suspension                                                                                                                                                                                                            |     |      |
|                                                             |      |      | Seat, vinyl-covered, contour suspension                                                                                                                                                                                                                |     |      |
|                                                             |      |      | 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<br>an additional air tank, air circuit protection<br>valve and two position lights with integral<br>turn signals. Dealer supplied equipment is<br>required to meet some specific country<br>on-road requirements | 23  | 52   |

# 120H Motor Grader

AEHQ5516 (12-02)

Replaces AEHQ5274 (10-98)

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