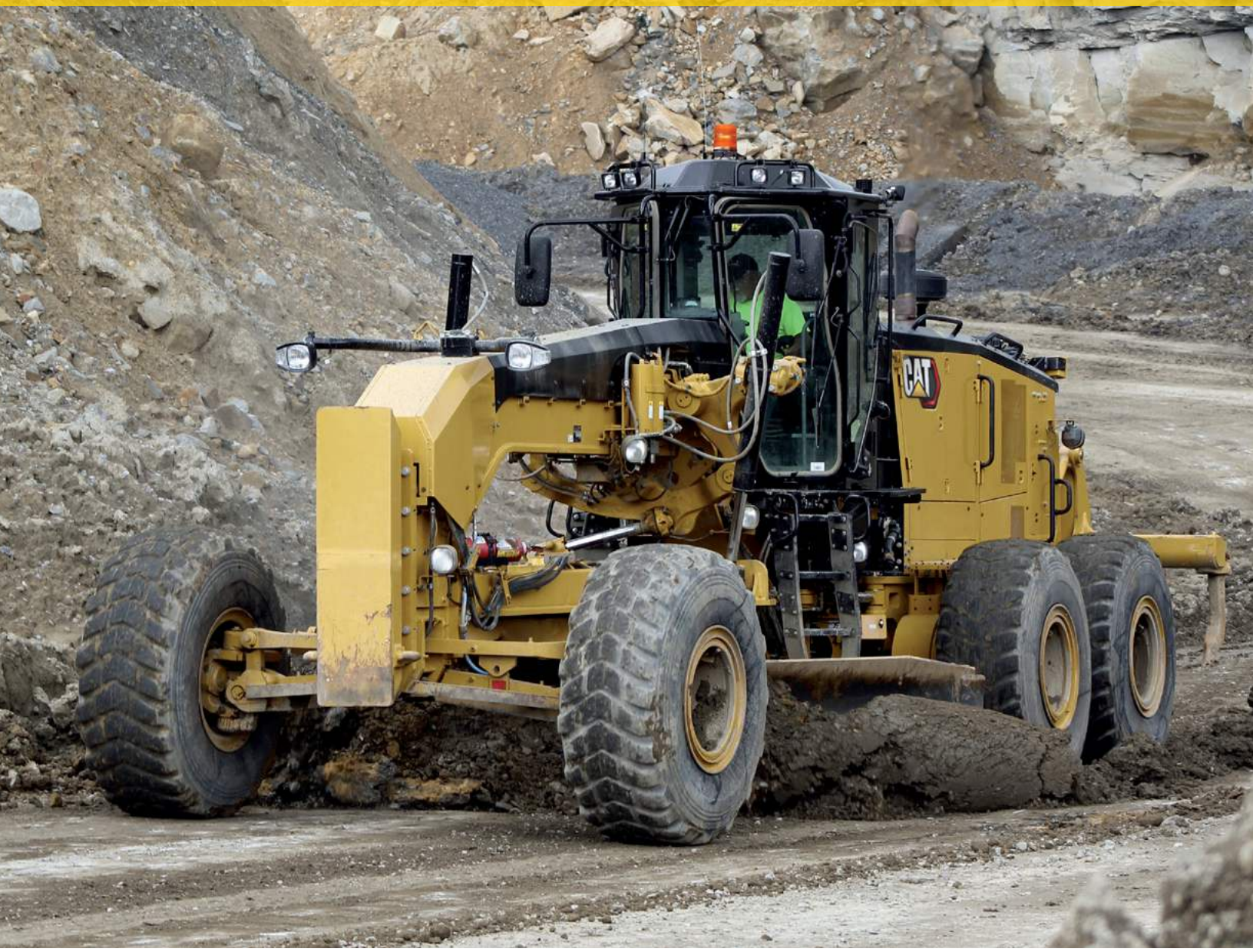
18
Motor Grader



Engine		
Model	Cat® C13	
Emissions	U.S. EPA Tier 4 Final/EU Stage V/ Japan 2014 (Tier 4 Final)	
	Tier 3/Stage IIIA Equivalent	
	Tier 2/Stage II Equivalent	
Base Power (1st gear) – Net	227 kW	304 hp
Optimized VHP Range – Net	227-266 kW	304-357 hp

Moldboard		
Width	5.5 m	18 ft
Weight		
Operating Weight, Typically Equipped	33 713 kg	74,324 lb

Introduction

Enabling you to build and maintain haul roads to maximize mine-site productivity and lower your owning and operating cost.



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With additional power, wider moldboard and the possibility to use a more aggressive blade angle; the 18 enhances operational efficiencies by increasing coverage and reducing the number of passes required to grade your haul roads.

It includes additional standard features to provide the best combination of weight and power to help protect your asset and enhance safety.

The 18 is an ideal fit for small to medium size mining operations that run 172 tonne (190 ton) or smaller hauling trucks.

Structures and Drawbar-Circle-Moldboard

Engineered for maximum production and service life.



Structure Strength – Built to Last

The 18's design to the front frame, hitch area and rear frame provides performance and durability in heavy duty applications.

- Front Frame Structure – Continuous top and bottom plate construction provides consistency and strength. The Center Shift Section is made of heavy duty steel casting which improves stress distribution to this high load area of the mainframe for enhanced durability.
- Rear Frame Structure – Is lengthened to provide easy service access to components in the engine enclosure as well as to improve machine balance. It also utilizes two bumper castings and thick hitch plates for improved durability. A mechanical locking pin prevents frame articulation to ensure safety when servicing or transporting the machine.

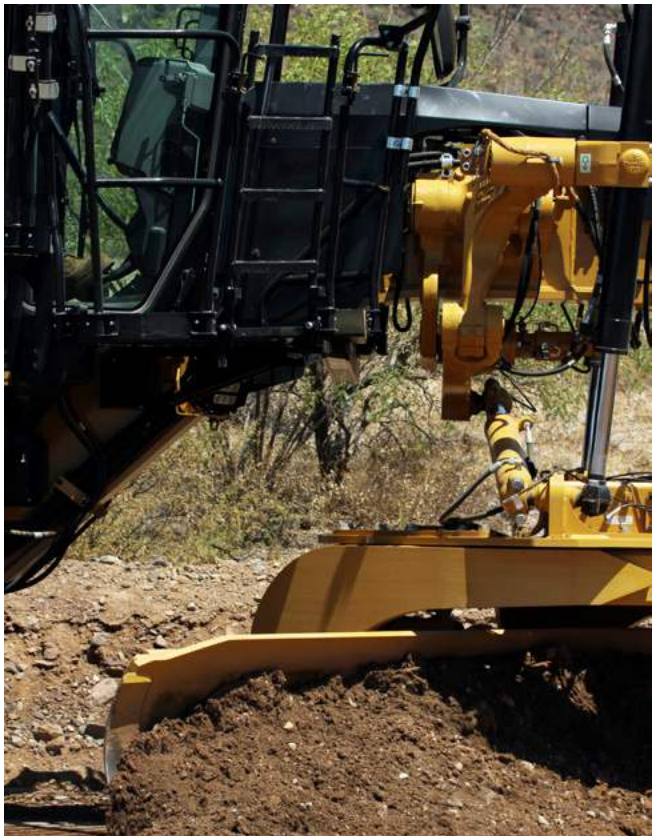
Optimized Machine Balance

The 18 is designed to optimize machine balance and performance at your site. With optimized combination of weight and balance the 18 delivers improved traction and the ability to keep ground speed, especially when carrying a large load on the board. Operators will find that the machine will be able to take corners better with improved turning.

Easy Maintenance for More Uptime

A series of shims, patented top-adjust wear strips and wear inserts are easy to add or replace. This keeps drawbar-circle-moldboard components factory-tight for higher quality work, and saves you service time and costs. An adjustable circle drive reduces service time and reduces wear by keeping components tight.







Engine

Consistent power and reliability for maximum productivity.



Engine

The Cat C13 engine gives you the performance to maintain consistent grading speeds for maximum productivity. Superior torque and lugging capability pulls through sudden, short-term load increases.

Standard optimized variable horse power (VHP) is designed to provide the ideal amount of power in all gears to efficiently perform diverse motor grader applications while protecting structure and drive train components.

Engine Economy (ECO) Mode

ECO Mode improves fuel economy by reducing high idle engine speed while maintaining machine power. ECO Mode controls the high engine idle speed (capped at 1,900 rpm in working gears) to ensure the engine is performing as efficiently as possible with respect to fuel consumption.

ECO Mode could provide significant fuel consumption savings especially in operations that are typically run at light to moderate loads, high idle and gear usage between 3R to 5F.

Consistent Power to the Ground

This standard, automatically enabled feature changes the engine power levels in real-time to offset cooling fan losses, resulting in consistent power to the ground independent of ambient temperatures and machine workloads. As a result the operator will get the best performance from the machine all the time.



Emission Technology

Providing you reliable, integrated solutions.





Emission Regulations

Emissions reduction technology is designed so regeneration runs in the background while you work. It delivers the same power and torque needed for optimal performance. The C13 engine variation that meets Tier 4 Final/Stage V/Japan 2014 (Tier 4 Final) emission standards includes:

- **Diesel Particulate Filter (DPF)**
  The Diesel Particulate Filter can provide a particulate reduction of greater than 90%. It filters soot from the exhaust. Soot is then removed through the regeneration process automatically or manually.
- **Selective Catalytic Reduction (SCR)**
  The Selective Catalytic Reduction system can provide a NO_X reduction of greater than 90%. SCR operation is transparent to the operator during operation. The urea solution, Diesel Exhaust Fluid (DEF), is pumped from the DEF tank and is sprayed into the exhaust stream. The DEF reacts with the SCR catalyst to reduce NO_X.
- **Diesel Exhaust Fluid (DEF)**
  Diesel Exhaust Fluid is a liquid that is injected into the exhaust system of engines equipped with Selective Catalytic Reduction (SCR) systems. Diesel Exhaust Fluid that meets ISO-22241 specifications is required.
- **Ground Level Diesel Exhaust Fluid (DEF) Fill**
  DEF fill allows the DEF tank to be filled from ground level. This removes the burden of climbing onto and off of the machine to fill the DEF tank and allows the DEF tank to be filled at the same time the fuel tank is being filled.

Power Train

We designed the 18 to give you efficiency and longevity in your most demanding applications.

- Compared to the 16, the 18 has on average 5% more power and a 5.5 m (18 ft) moldboard which combined with proper weight balance provides exceptional productivity.
- Standard Automatic Differential Lock unlocks the differential during a turn and re-locks when straight for easier operation and improved power train protection.
- Advanced Productivity Electronic Control System (APECS) transmission is a key contributor to improved speed shift performance in the 18. The operator will notice enhanced comfort during shifting resulting in an increased level of operator productivity.
- Eight forward and six reverse gears are specifically designed to give you a wide operating range for maximum productivity.
- Engine Over-Speed Protection prevents downshifting until an acceptable safe travel speed has been established.
- Standard transmission guard provides a steel protection from ground debris.

Front and Rear Axles

The sealed spindle keeps front axle bearings lubricated and protected from contaminants. The Cat "Live Spindle" design places the larger tapered roller bearing on the outside, where the load is greater, extending bearing life.

A bolt-on modular rear axle improves serviceability and contamination control with easy access to differential components.

Hydraulic Brakes

Additional brake capacity is achieved by increased brake disc diameter and piston area resulting in increased dynamic brake torque.

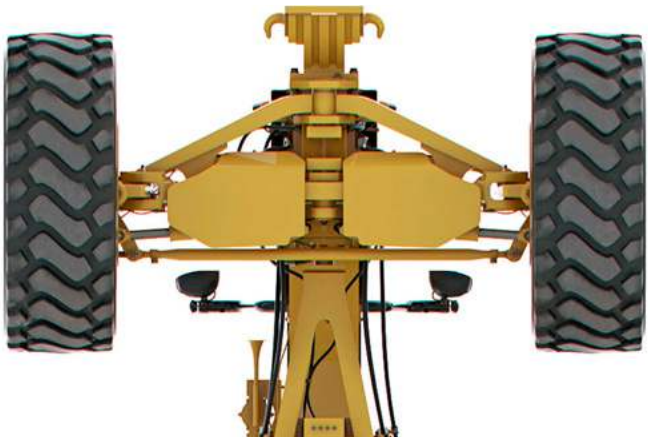
Manual standard brake wear indicator allows brake wear to be measured during maintenance work without removal of the brake pods and supports better maintenance planning.





Power Train

Maximum power to the ground.

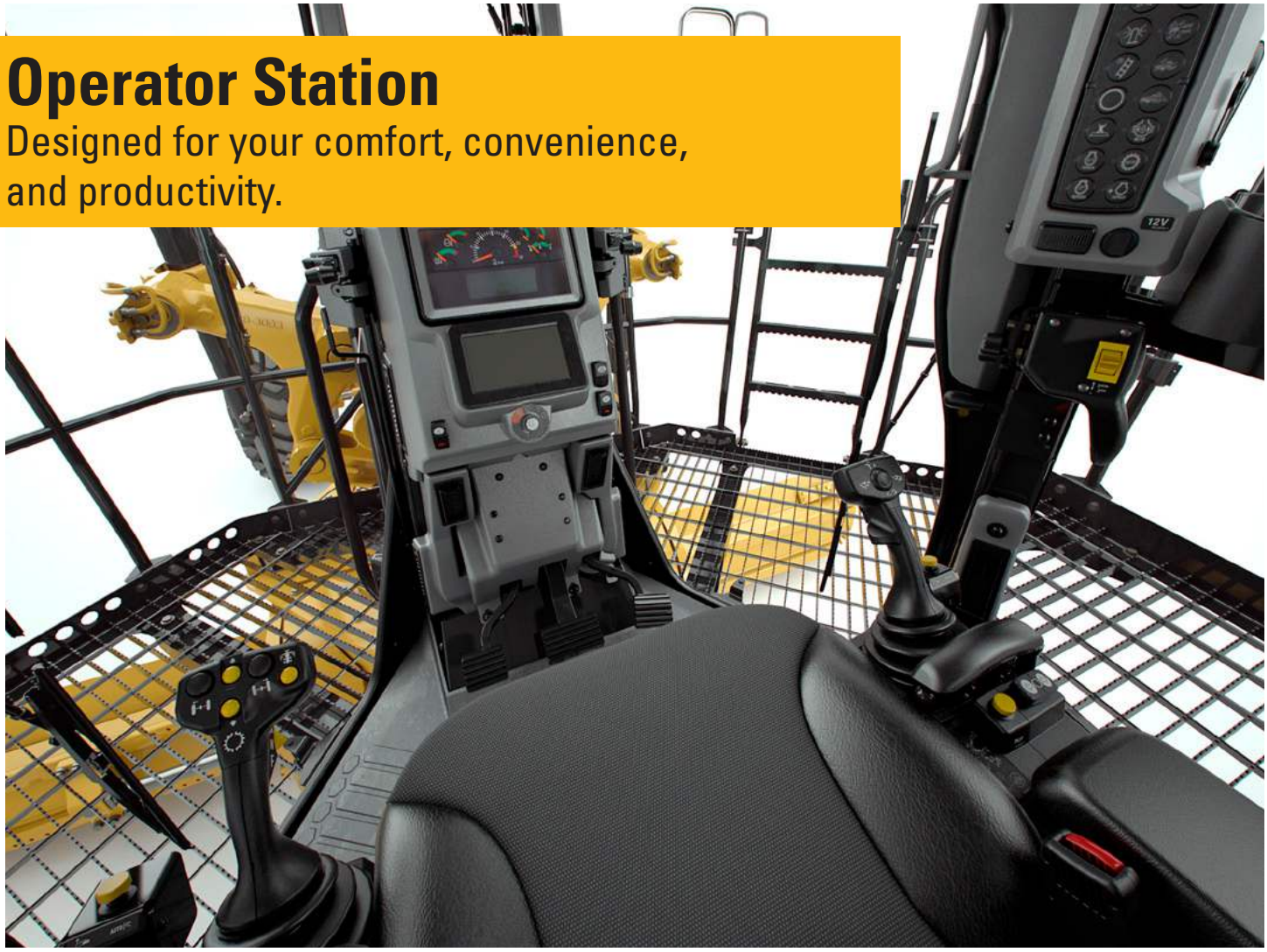


Front axle steering cylinder has been designed to enhance durability and hydraulic hoses have been routed to improve reliability.

A standard front guard helps project the front axle from rocks or other debris that could damage the axle or its components.

Operator Station

Designed for your comfort, convenience, and productivity.





Ease of Operation

Two electro-hydraulic joysticks require up to 78% less hand and wrist movement than conventional lever controls for greatly enhanced operator comfort and efficiency. The intuitive control pattern allows both new and experienced operators to quickly become productive. Electronically adjustable control pods help position joysticks for optimal comfort, visibility and proper operation.

With the touch of a button, the articulation return-to-center feature automatically returns the machine to a straight frame position from any angle.

You can choose the blade lift modulation mode that best fits your application or operating style: Fine, Normal or Coarse.

Electronic throttle control provides easy, precise and consistent throttle operation. An automatic/manual mode switch offers flexibility for different applications and operator preferences.



Visibility

Good visibility is key to your safety and efficiency. The 5.5 m (18 ft) moldboard, the large windows and enhanced design of the rear frame provides exceptional visibility to the heel and toe of the blade while keeping good clearance between moldboard and tires. A standard rear vision camera is available to enhance your sight lines to the rear of the machine.



Comfort and Control

Experience the most spacious, comfortable cab in the industry. Revolutionary joystick controls replace levers, so hand and arm movement is reduced, helping to reduce operator fatigue.

The multi-color/touch screen Information Display is the operator's gateway to monitoring machine performance, a convenient way of modifying machine parameters to tailor performance to the current task and access the service information for initial troubleshooting.

The keypad allows activation and deactivation of different functions in the machine with one touch and indicates whether a function is active or not through light emitting diode (LED) lights.

Standard Cat Comfort Series suspension seat has six way adjustment controls for optimal support and comfort. Seat side bolsters restrain side-to-side movement, especially when working on side slopes. Multiple isolation mounts significantly reduce sound and vibration for a more relaxed work environment. Optional heated and ventilated seat provides enhanced comfort for operators in extreme weather conditions.

The high capacity Heating, Ventilation and Air Conditioning (HVAC) system dehumidifies and pressurizes the cab, circulates fresh air, seals out dust and keeps windows clear.

Additional storage space for common used cabin items is included inside the cab.

Optional Bluetooth and satellite radio are available.





Load Sensing Hydraulics (PPPC)

A proven load-sensing system and advanced Proportional Priority Pressure-Compensating (PPPC) electro-hydraulic valves give you superior implement control and enhanced machine performance. Continuously matching hydraulic flow/pressure to power demands creates less heat and reduces power consumption.

- Consistent, Predictable Movement – PPPC valves have different flow rates for the head and rod ends of the cylinder, so you can count on consistent, predictable implement response.
- Balanced Flow – Hydraulic flow is proportioned to give you confidence that all implements will operate simultaneously without slowing the engine or speed of some implements.

Hydraulics

Advanced machine controls with precise and predictable movements.

Blade Float

Allows the blade to move freely under its own weight. By floating both cylinders, the blade can follow the contours of the haul road. 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. An optional Variable Down Pressure feature allows you to select the amount of down force when the blade is in float. This helps you extend cutting edge life and is effective for removing snow and mud from a road surface.

Independent Oil Supply

Large, separate hydraulic oil supplies prevent cross-contamination and provide proper oil cooling, which reduces heat build-up and extends component life. Cat XT™ hose allows high pressures for maximum power and reduced downtime.





Integrated Technologies

Monitor, manage, and enhance job site operations.



Cat Product Link™ Elite

Product Link is deeply integrated into your machine, helping you take the guesswork out of equipment management. Easy access to timely information like machine location, hours, fuel usage, idle time and event codes via the online VisionLink® user interface can help you effectively manage your fleet and lower operating costs.

Product Link licensing is not available in all areas. Please consult your Cat dealer for availability.

Cat Grade Control

Cat Grade with Cross Slope is a standard, fully integrated, factory installed grade control system that helps your operator more easily maintain desired cross slope by automatically controlling one side of the blade. The system is job-ready from day one, and scalable for the future with upgrade kits that provide additional 2D and/or 3D control features.

Cat MineStar™ System

Cat MineStar helps you manage everything from material tracking to sophisticated real-time fleet management, machine health systems, autonomous equipment systems and more. The capability sets – Fleet, Terrain, Detect, Health and Command – can be used in combination or individually to allow your operation the flexibility and scalability it needs to be more productive, efficient and safe.

For more information visit *cat.com*.



Safety

Focused on keeping everyone safe.





Access Platform – Optional

The access platform provides a full second access path to the engine compartment and cab of the machine. This arrangement includes ladder, walkways, handrails and access to the cab from both the left and right side of the machine.

Service Access Platform – Optional

This service access configuration provides ladders, walkways and handrails for enhanced fall protection access to the engine compartment from both sides of the machine. In this type of configuration the operator accesses the cab through the regular ladders installed to the sides of the cab.

Access to Tandem

Two strategically placed grab handles and a non-slip step are provided on the back right side of the engine compartment for access to tandem walkways, particularly when fenders are installed.

Speed Sensitive Steering

Makes steering less sensitive as ground speed increases for greater operator confidence and control.

Secondary Steering System

Automatically engages an electric hydraulic pump in case of a drop in steering pressure so the operator can safely steer the machine to a stop.

Light Emitting Diode (LED) Enclosure Service Lights

The standard set of two LED 4×4 light enclosures provides visibility to field technicians for machine services and maintenance as well as operator's walk around performed at night.

Seat Belt Indication

Provides visual and audible alert to the operator when the seat belt is not used, codes generated are recorded in VisionLink or VIMS™ PC. Additionally, the machine is pre-wired so customer will be able to easily install a beacon on top of the cab which will serve as an external indicator of the seat belt usage.

Fire Suppression Ready System

Standard feature provides the 18 with the required provisions and brackets to mount a fire suppression system. It allows the customer to install a fire suppression system faster without compromising other machine components.

Other Standard Safety Features

- Rearview camera
- Operator not present monitoring system
- Hydraulic lockout
- Laminated front window glass
- Ground-level electrical disconnect switch
- Ground-level engine shutoff switch
- Glare reducing paint for night operation







Serviceability

Reduce service time to increase your uptime.



High mechanical availability is one of your top concerns. The 18 helps increase uptime by making our machine easier to repair and maintain. Major components are modular in design, so most can be removed and reinstalled without disturbing other components.





Fluid Level Monitoring Strategy

Helps prevent critical components from damage when low fluid levels are present. All information is available via the Information Display within the cab, and diagnostic codes are logged.

- **Ok-to-Start** strategy provides electronic fluid level verification at startup on the coolant, engine and hydraulic oil.
- **Critically Low Fluid Level Monitoring System** monitors the coolant, engine oil, hydraulic fluid and trans-axle oil during regular operation.

Long Life Service Intervals

Key service intervals*:

- 2× engine air filter life.
- 1,000 hours for hydraulic main and pilot filters as well as the transmission filter.
- 2,000 hours for transmission and rear axle fluid.

*When Scheduled Oil Sampling (S·O·S^{SM}) sampling and Cat branded filters are used.

Modular Cooling Package

The modular cooling package makes for simple removal and installation of components on the cooling system which reduces service time. The radiator also uses a bar plate design which is durable, rugged, and able to handle the most demanding applications. Additionally, clean out access doors provide easy clean out of the cores as needed.

Serviceability Enhancements

- French style engine enclosure doors – without post
- Easy access to the engine valve cover and injectors
- Optimized filter and S·O·S port placement
- Rear axle modular design
- Metallic fuel and shunt tanks
- Brake wear Indication
- Gen 2 Electro-Hydraulic (EH) steering – optimized warning strategy
- In-chassis – final drive removal
- Transmission and axle – cold and hot dipstick fluid marks
- Platform door for ground level access to cab air filter
- Electronic Technician (Cat ET)
- VIMS – optimizes machine availability and component life
- Automatic lubrication system – optional



Work Tools and Attachments

Provide flexibility to match the machine to your job.



Moldboard Options

A 5.5 m (18 ft) moldboard allows the operator to increase coverage by 12.5 % compared to a 4.9 m (16 ft) blade or use a more aggressive blade angle and still be able to deposit the windrow away from tires to protect tire life. The use of a more aggressive blade angle results in reduced load on the machine and the ability to better maintain ground speed for enhanced performance.

Ground Engaging Tools (GET)

254 mm by 35 mm (10 in by 1⅜ in) cutting edge is standard on the 18 and could provide longer component life compared to the 203 mm by 25 mm (8 in by 1 in) curved cutting edge.

A variety of tools are available from Cat Work Tools.

Rear Ripper/Scarifier

Made to penetrate tough material fast and rip thoroughly for easier movement with the moldboard. The 18 includes a standard ripper with three shanks with the ability to add four more for additional versatility.



Sustainability

Thinking generations ahead.

Sustainable Development for Caterpillar means leveraging technology and innovation to increase efficiency and productivity with less impact on the environment. This helps customers by enabling their businesses to become more productive by providing products, services and solutions that use resources more efficiently.

- Fuel saving features like Engine Economy (ECO) Mode help decrease overall fuel consumption.
- Major components on Cat Motor Graders are designed to be rebuilt. The Cat Certified Rebuild program conserves natural resources by delivering a cost effective second and even third life for our machines.
- Standard Cat Grade with Cross Slope improves operator productivity, as well as saving fuel and wear and tear on the machine. The need for grade checking crews on the ground is eliminated which increases site safety.





Customer Support

Your Cat dealer knows how to keep your mining machines moving.

From helping you choose the right machine to knowledgeable ongoing support, Cat dealers provide you with unmatched sales and service.

- Preventive maintenance programs and guaranteed maintenance contracts.
- Best-in-class parts availability.
- Operator training to help boost your profits.
- Genuine Cat Remanufactured parts.

18 Motor Grader Specifications

Engine

Engine Model	Cat C13 VHP	
Base Power (1st gear) – Net	227 kW	304 hp
Base Power (1st gear) – Net (metric)		309 hp
VHP Range – Net	227-266 kW	304-357 hp
VHP Range – Net (metric)		309-362 hp
Displacement	12.5 L	763 in³
Bore	130 mm	5.1 in
Stroke	157 mm	6.2 in
Torque Rise		
Tier 4 Final/Stage V/Japan 2014 (Tier 4 Final)	40%	
Tier 3/Stage IIIA/Japan 2006 (Tier 3) Equivalent	38%	
Tier 2/Stage II/Japan 2001 (Tier 2) Equivalent	38%	
Maximum Torque ISO 9249		
Tier 4/Stage V/Japan 2014 (Tier 4 Final)	1771 N·m	1,306 lbf-ft
Tier 3/Stage IIIA Equivalent	1721 N·m	1,270 lbf-ft
Tier 2/Stage II Equivalent	1721 N·m	1,270 lbf-ft
Speed @ Rated Power	2,000 rpm	
Number of Cylinders	6	
Derating Altitude		
Tier 4/Stage V/Japan 2014 (Tier 4 Final)	3810 m	12,500 ft
Tier 3/Stage IIIA Equivalent	3954 m	12,973 ft
Tier 2/Stage II Equivalent	3711 m	12,176 ft
Standard – Fan Speed		
Maximum	1,450 rpm	
Minimum	550 rpm	
Standard – Ambient Capability	50° C	122° F
Biodiesel Capability	Up to B20[1]	

- The 18 is offered with three variations of the C13 engine. One emits U.S. EPA Tier 4 Final/EU Stage V/Japan 2014 (Tier 4 Final) emission standards and is required for higher regulated countries. The other options emit equivalent to Tier 2/Stage II or Tier 3/Stage IIIA depending on the emissions of the specific country.
- Power as declared per ISO 14396 Tier 4 Final/Stage V/ Japan 2014 (Tier 4 Final) 272 kW (365 hp), Tier 3/Stage IIIA equivalent, or Tier 2/Stage II equivalent 267 kW (359 hp) at 2,000 rpm rated speed.
- Net power is measured per ISO 9249 at rated speed of 2,000 rpm and includes an engine equipped with fan, air cleaner, muffler and alternator.
- On Tier 4/Stage V/Japan 2014 (Tier 4 Final) machines, ultra low sulfur diesel (ULSD) and low ash oil are required.
- On Tier 4/Stage V/Japan 2014 (Tier 4 Final) machines, Diesel Exhaust Fluid (DEF) that meets ISO-22241 specifications is required.

[1]Cat diesel engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) or ULSD blended with the following lower-carbon intensity fuels up to:

- ✓ 20% biodiesel FAME (fatty acid methyl ester)*
- ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels

Refer to guidelines for successful application. Please consult your Cat dealer or "Caterpillar Machine Fluids Recommendations" (SEBU6250) for details.

**Engines with no aftertreatment devices can use higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer).*

Variable Power

Gear	Net kW	Net HP	Metric HP
Forward			
1st	227	304	309
2nd	227	304	309
3rd	232	311	315
4th	239	321	325
5th	244	327	332
6th	251	337	341
7th	255	342	347
8th	266	357	362
Reverse			
1st	227	304	309
2nd	227	304	309
3rd–6th	232	311	315

Power Train

Forward/Reverse Gears	8 Forward/6 Reverse	
Transmission	Direct drive, power shift, countershaft	
Brakes		
Service	Oil-actuated, oil disc	
Dynamic Brake Torque per Wheel	36 701 N·m	27,069.27 lbf-ft
Parking	Spring applied, hydraulically released	
Secondary	Oil-actuated, oil-disc	

Hydraulic System

Circuit Type	Electro-hydraulic load sensing, closed center	
Pump Type	Variable piston	
Pump Output*	280 L/min	74 gal/min
Maximum System Pressure	24 750 kPa	3,590 psi
Standby Pressure	5900 kPa	856 psi

- Pump output measured at 2,150 rpm.

Operating Specifications

Top Speed		
Forward	51.7 km/h	32.1 mph
Reverse	40.8 km/h	25.3 mph
Turning Radius (outside front tires)	9.3 m	30'6"
Steering Range – Left/Right	47.5°	
Articulation Angle – Left/Right	20°	
Forward		
1st	4.5 km/h	2.8 mph
2nd	6.1 km/h	3.8 mph
3rd	8.9 km/h	5.5 mph
4th	12.3 km/h	7.6 mph
5th	19.0 km/h	11.8 mph
6th	25.8 km/h	16.0 mph
7th	35.5 km/h	22.0 mph
8th	51.7 km/h	32.1 mph
Reverse		
1st	3.6 km/h	2.2 mph
2nd	6.6 km/h	4.1 mph
3rd	9.7 km/h	6.0 mph
4th	15.0 km/h	9.3 mph
5th	28.0 km/h	17.4 mph
6th	40.8 km/h	25.3 mph

• Calculated with no slip and 23.5R25 L-3 tires.

Service Refill

Fuel Capacity	496 L	131 gal
DEF Tank	16 L	4.2 gal
Cooling System	70 L	18.5 gal
Hydraulic System		
Total	146 L	38.6 gal
Tank	70 L	18.5 gal
Engine Oil	36 L	9.5 gal
Transmission/Differential/Final Drives	98.5 L	26 gal
Tandem Housing (each)	129 L	34 gal
Front Wheel Spindle Bearing Housing	0.9 L	0.24 gal
Circle Drive Housing	10 L	2.6 gal

Frame

Circle		
Diameter	1822 mm	71.7 in
Blade Beam Thickness	50 mm	2 in
Drawbar		
Height	203 mm	8 in
Width	76 mm	3 in
Front Frame Structure		
Height	460 mm	18.1 in
Width	356 mm	14.0 in
Thickness	14 mm	0.6 in
Front Axle		
Height to Center	670 mm	26.4 in
Wheel Lean	18° Left/17° Right	
Total Oscillation per Side	35°	

Tandems

Height	648 mm	25.5 in
Width	236 mm	9.3 in
Sidewall Thickness		
Inner	22 mm	0.9 in
Outer	22 mm	0.9 in
Drive Chain Pitch	63.5 mm	2.5 in
Wheel Axle Spacing	1841 mm	72.5 in
Tandem Oscillation		
Front Up	15°	
Front Down	25°	

Moldboard

Width	5.5 m	18 ft
Height	787 mm	31 in
Thickness	25 mm	1 in
Arc Radius	413 mm	16.3 in
Throat Clearance	126 mm	5 in
Cutting Edge		
Width	254 mm	10 in
Thickness	35 mm	1.4 in
End Bit		
Width	152 mm	6 in
Thickness	19 mm	0.75 in
Blade Pull*		
Base GVW	21 417 kg	47,216 lb
Maximum GVW	23 985 kg	52,878 lb
Down Force		
Base GVW	15 426 kg	34,008 lb
Maximum GVW	19 895 kg	43,861 lb

*Blade pull calculated at 0.9 traction coefficient, which is equal to ideal no-slip conditions, and Gross Machine Weight.

18 Motor Grader Specifications

Blade Range

Circle Centershift		
Right	560 mm	22 in
Left	690 mm	27.2 in
Moldboard Sideshift		
Right	790 mm	31.1 in
Left	740 mm	29.1 in
Maximum Blade Position Angle	65°	
Blade Tip Range		
Forward	40°	
Backward	5°	
Maximum Shoulder Reach Outside of Tires		
Right	2605 mm	103 in
Left	2605 mm	103 in
Maximum Lift above Ground	400 mm	15.7 in
Maximum Depth of Cut	470 mm	18.5 in

Ripper

Ripping Depth – Maximum	452 mm	17.8 in
Ripper Shank Holders	7	
Shank Holder Spacing		
Minimum	445 mm	17.5 in
Maximum	500 mm	20 in
Penetration Force	13 749 kg	30,311 lb
Pryout Force	19 822 kg	43,700 lb
Machine Length Increase, Beam Raised	1610 mm	63.4 in

Weights*

Gross Vehicle Weight – Typically Equipped		
Total	33 713 kg	74,324 lb
Front Axle	9296 kg	20,494 lb
Rear Axle	24 417 kg	53,830 lb
Gross Vehicle Weight – Base**		
Total	32 794 kg	72,298 lb
Front Axle	8998 kg	19,837 lb
Rear Axle	23 796 kg	52,461 lb
Gross Vehicle Weight – Maximum Tested		
Total	38 500 kg	84,877 lb
Front Axle	11 850 kg	26,125 lb
Rear Axle	26 650 kg	58,753 lb

*For machines not equipped with Tier 4 Final/Stage V/Japan 2014 (Tier 4 Final) engine, subtract 150 kg (331 lb) from the rear axle weight and total weight.

**Base operating weight calculated on standard machine configuration with 23.5R25 tires, full fuel tank operator and rops cab.

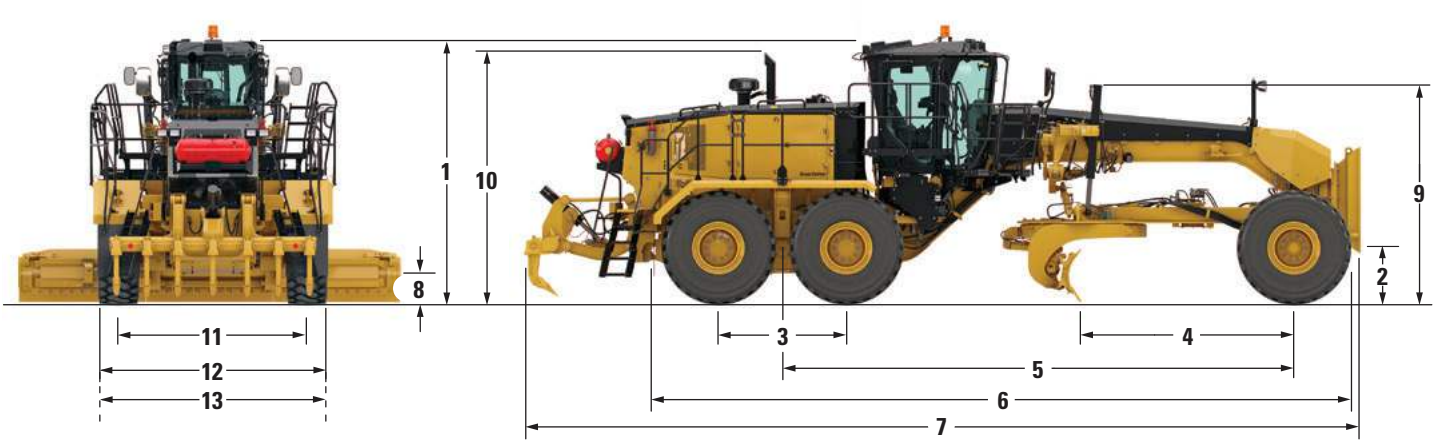
Standards

ROPS/FOPS	ISO 3471: 2008/ ISO 3449: 2005
Steering	ISO 5010: 2007
Brakes	ISO 3450: 2011
Sound	ISO 6394: 2008/ ISO 6395: 2008/ ISO 6396: 2008

- The dynamic spectator sound power level is 109 dB(A) for Stage V configurations and 109 dB(A) for Tier 2/Stage II equivalent and Tier 3/Stage IIIA equivalent machines when measured according to the dynamic test procedures that are specified in ISO 6395:2008. The measurement was conducted at 70% of the maximum engine cooling fan speed. The machine was equipped with sound suppression system.
- The dynamic operator sound pressure level is 71 dB(A) for Stage V configurations and 72 dB(A) for Tier 2/Stage II equivalent and Tier 3/Stage IIIA equivalent machines when measured according to the dynamic test procedures that are specified in ISO 6396:2008. The measurement was conducted at 70% of the maximum engine cooling fan speed, with the cab doors and the cab windows closed. The cab was properly installed and maintained. The machine was equipped with sound suppression system.

Dimensions

All dimensions are approximate, based on standard machine configuration with 23.5R25 tires.



1	Height – Top of Cab	3746 mm	147.5 in
2	Height – Front Axle Center	760 mm	29.9 in
3	Length – Between Tandem Axles	1841 mm	72.5 in
4	Length – Front Axle to Moldboard	3066 mm	120.7 in
5	Length – Front Axle to Mid Tandem	7365 mm	290 in
6	Length – Front Tire to Rear of Machine (includes tow hitch)	10 593 mm	417 in
7	Length – Counterweight to Ripper	12 051 mm	474.4 in
8	Ground Clearance at Rear Axle	423 mm	16.7 in
9	Height to Top of Cylinders	3115 mm	122.6 in
10	Height to Exhaust Stack	3584 mm	141.1 in
11	Width – Tire Center Lines	2703 mm	106.4 in
12	Width – Outside Rear Tires	3411 mm	134.3 in
13	Width – Outside Front Tires	3411 mm	134.3 in

Optional Tire Arrangements

Common tire options for the 18

Wheel Group	Tires
19.5×25 MP	23.5R25 Bridgestone VKT 2 Star
19.5×25 MP	23.5R25 Bridgestone VKT 1 Star
19.5×25 MP	23.5R25 Bridgestone VJT 1 Star
19.5×25 MP	23.5R25 Michelin XHA 2 Star
19.5×25 MP	23.5R25 Michelin XLDD 2 Star L5

Factory options may vary based on availability.

18 Standard Equipment

Standard Equipment

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

OPERATOR ENVIRONMENT

- Adjustable electric arm rest
- Adjustable wrist rest
- Air conditioner with heater
- Air horn
- Articulation, automatic Return-to-Center
- Centershift pin indicator
- Coat hook
- Cup holder
- Display, digital speed and gear
- Doors, left and right side with wiper
- Gauges (analog) inside the cab (includes fuel, articulation, engine coolant temp, engine RPM, and hydraulic oil temp)
- Gauges, machine level
- Information display touch screen
- Joystick gear selection
- Joystick hydraulic controls for implements, steering, transmission
- Ladders, cab, left and right side
- Lights, left and right side lights
- Lights, night time cab
- Meter, hour, digital
- Mirror, inside rearview, wide angle
- Power port, 12V
- Radio ready, entertainment
- ROPS cab, sound suppressed, less than 73 dB(A) ISO 6394 (70% fan speed)
- Seat, cloth-covered, comfort air suspension
- Storage compartments
- Throttle control, electronic

POWER TRAIN

- Air cleaner, dual stage dry type radial seal with service indicator through messenger and automatic dust ejector
- Air-to-air after cooler (ATAAC)
- Auto Diff Lock
- Belt, serpentine, automatic tensioner
- Brake wear indication
- Brakes, oil disc, four-wheel, hydraulic
- Consistent power to ground
- Critically Low Fluid Level Monitoring System
- Differential, lock/unlock
- Drain, engine oil, high speed
- Electronic over speed protection
- ECO Mode
- Engine, compression brake
- Ether starting aid
- Fuel tank, fast fill, ground level
- Fuel-water separator
- Hydraulic Demand Fan
- Muffler, under hood (Tier 2/Stage II equivalent and Tier 3/Stage IIIA/ (Tier 3) equivalent
- OK-to-Start
- Optimized VHP
- Parking brake – multi disc, sealed, oil-cooled
- Priming pump, fuel
- Rear axle, modular
- Sediment drain, fuel tank
- Three variations of the C13 engine. One meets U.S. EPA Tier 4 Final/EU Stage V/Japan 2014 (Tier 4 Final) emission standards and is required for sale in higher regulated countries. The other options emit equivalent to Tier 2/Stage II equivalent or Tier 3/Stage IIIA
- Transmission, 8F/6R, power shift
- VIMS no telematics

GUARDS

- Front axle cylinder guard
- Transmission guard

ELECTRICAL

- Alternator, 150 ampere, sealed
- Batteries, maintenance free, heavy duty, 1,400 CCA
- Breaker panel
- Electrical system, 24V
- Lights: brake, reversing, roof-mounted roading, stop and tail (LED), work front
- Product Link
- Starter, electric, heavy duty

SAFETY

- Alarm, back up
- Ground level engine shutdown
- Hammer (emergency exit)
- Horn, electric
- Lockout, hydraulic implement for roading
- Operator not present monitoring system
- Paint, glare reducing – top of front frame, rear enclosure and ripper cylinders
- Rearview camera
- Seat belt indicator
- Seat belt, retractable 76 mm (3 in)
- Secondary steering
- Windows, laminated glass
  - Fixed front with intermittent wiper
  - Door with intermittent wipers (two)
- Windows: tempered
  - Left and right side wipers
  - Rear with intermittent wiper
- Light, LED, warning strobe
- Lights front LED
- Lights, front headlights high
- Lights, front headlights low
- Mounting, for warning light
- Service lights
- Working lights Halogen
- Working lights LED

Continued on next page

Standard Equipment *(Continued)*

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

OTHER STANDARD EQUIPMENT

- 3-bolt blade bracket
- ARO
- Accumulators, blade lift
- Brake accumulators, dual certified
- Cat Grade with Cross Slope
- CD ROM Parts Book
- Clutch, circle drive slip
- Cutting edges, flat DH-2 steel
  - 254 mm × 35 mm (10 in × 1.4 in)
  - 19 mm (¾ in) mounting bolts
- Doors (four), engine compartment, (two left, two right hand) locking
- Doors, two service, left and right side
- Drawbar – six shoe with replaceable wear strips
- End bits, 16 mm (⅝ in) DH-2 steel, 19 mm (¾ in) mounting bolts
- Fast fill fuel 567.8 L/min (150 gpm)
- Fluid check
- Frame, articulated, with safety lock
- Hydraulics, load-sensing
- Metallic fuel tank, 496 L (131 gal)
- Metallic DCM wear strips
- Modular cooling package
- Moldboard
  - 5.5 m × 787 mm × 25 mm (18 ft × 31 in × 1 in)
  - Hydraulic side shift and tip
- Radiator, two cleanout access doors
- Rear bumper
- Rear tandem access steps and hand bars
- S·O·S ports: engine, hydraulic, transmission, coolant
- Tandem walkway
- Top adjust circle wear strips
- Fire suppression ready
- Ripper, rear
- Push block, counterweight

WORK TOOLS/G.E.T.

- 5.5 m (18 ft) blade with flat cutting edge 254 mm × 35 mm (10 in × 1⅜ in)

TIRES, RIMS, AND WHEELS

- A partial allowance for tires on 597 mm × 609.6 mm (23.5 in × 24 in) multi-piece rims is included in the base machine price and weight

FLUIDS

- Extended Life Coolant to –35° C (–31° F)

18 Optional Equipment

Optional Equipment

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

OPERATOR ENVIRONMENT

- Comfort package
- Heated door
- Mirrors high visibility
- Mirrors, outside heated 24V
- Mirrors, outside mounted
- Seat heated
- Seat heated/ventilated
- Windows cleaning platform and ladders left-right hand side

POWER TRAIN

- Transmission, autoshift

GUARDS

- Debris guard
- Rear fenders
- Sound suppression, engine enclosure and transmission

SAFETY

- Additional monitor for rearview camera
- Enhanced access platform
- Machine Security System Key
- Service access platform

OTHER ATTACHMENTS

- Auto-lube, Centro-matic
- Auto-lube, ripper enhancement
- Control, blade, variable float
- Heater, engine coolant, 120V
- Heater, engine coolant, 240V
- Hydraulic arrangements with additional hydraulic valves Base+1
- Hydraulic arrangements with additional hydraulic valves Base+5
- Product Link Elite dual
- Rim, 495.3 mm × 635 mm (19.5 in × 25 in) MP (spare)
- Weather, Cold Plus package

WORK TOOLS/G.E.T.

- 5.5 m (18 ft) blade with curved cutting edge 203 mm × 25 mm (8 in × 1 in)
- Tooth, ripper

FLUIDS

- Coolant, –51° C (–60° F)

18 Environmental Declaration

The following information applies to the machine at the time of final manufacture as configured for sale in the regions covered in this document. The content of this declaration is valid as of the date issued; however, content related to machine features and specifications are subject to change without notice. For additional information, please see the machine's Operation and Maintenance Manual.

For more information on sustainability in action and our progress, please visit https://www.caterpillar.com/en/company/sustainability.

Engine

- The Cat® C13 VHP engine is available in configurations that meet U.S. EPA Tier 4 Final and EU Stage V emission standards, equivalent to U.S. EPA Tier 3 and EU Stage IIIA or U.S. EPA Tier 2 and EU Stage II.
- Cat U.S. EPA Tier 4 Final and EU Stage V diesel engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) or ULSD blended with the following lower-carbon intensity fuels up to:
  - ✓ 20% biodiesel FAME (fatty acid methyl ester)*
  - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels
- Cat engines equivalent to U.S. EPA Tier 3 and EU Stage IIIA or U.S. EPA Tier 2 and EU Stage II, are compatible with diesel fuel blended with the following lower-carbon intensity fuels up to:
  - ✓ 100% biodiesel FAME (fatty acid methyl ester)**
  - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels

  Refer to guidelines for successful application. Please consult your Cat dealer or "Caterpillar Machine Fluids Recommendations" (SEBU6250) for details.

**Engines with no aftertreatment devices can use higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer).*

***For use of blends higher than 20% biodiesel, consult your Cat dealer.*

Air Conditioning System

- The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 2.0 kg (4.4 lb) of refrigerant which has a CO_2 equivalent of 2.860 metric tonnes (3.152 tons).

Paint

- Based on best available knowledge, the maximum allowable concentration, measured in parts per million (PPM), of the following heavy metals in paint are:
  - – Barium < 0.01%
  - – Cadmium < 0.01%
  - – Chromium < 0.01%
  - – Lead < 0.01%

Sound Performance

- The dynamic spectator sound power level is 109 dB(A) when measured according to the dynamic test procedures that are specified in ISO 6395:2008. The measurement was conducted at 70% of the maximum engine cooling fan speed. The machine was equipped with sound suppression system.
- The dynamic operator sound pressure level is 71 dB(A) for Stage V and 72 dB(A) for Tier 2/Stage II equivalent and Brazil MAR-1 (Tier 3/Stage IIIA equivalent) machines when measured according to the dynamic test procedures that are specified in ISO 6396:2008. The measurement was conducted at 70% of the maximum engine cooling fan speed, with the cab doors and the cab windows closed. The cab was properly installed and maintained. The machine was equipped with sound suppression system.

Oils and Fluids

- Caterpillar factory fills with ethylene glycol coolants. Cat Diesel Engine Antifreeze/Coolant (DEAC) and Cat Extended Life Coolant (ELC) can be recycled. Consult your Cat dealer for more information.
- Cat Bio HYDO™ Advanced is an EU Ecolabel approved biodegradable hydraulic oil.
- Additional fluids are likely to be present, please consult the Operations and Maintenance Manual or the Application and Installation guide for complete fluid recommendations and maintenance intervals.

Features and Technology

- The following features and technology may contribute to fuel savings and/or carbon reduction. Features may vary. Consult your Cat dealer for details.
  - – ECO mode minimizes fuel consumption for light applications
  - – Engine Idle Shutdown Timer reduces fuel burn, greenhouse gas emissions and unnecessary idle time by shutting down the machine after a pre-set idling period
  - – Improve productivity with the Electronic Throttle Control which matches engine power and torque to application requirements
  - – Cat Grade helps reduce fuel burn and greenhouse gas emissions by enabling you to achieve grade faster and more accurately by automating blade actions
  - – Extended maintenance intervals not only reduce downtime but decrease the amount of fluid and filters that are replaced over the life of the machine
  - – Improve jobsite efficiency with lower operating costs with Product Link and VisionLink insights

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