938H
Wheel Loader

<table>
<thead>
<tr>
<th>Engine</th>
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</thead>
<tbody>
<tr>
<td>Engine Model</td>
<td>Cat® 6.6 ACERT™</td>
<td></td>
</tr>
<tr>
<td>Net Power – SAE J1349</td>
<td>128 kW 172 hp</td>
<td></td>
</tr>
<tr>
<td>Net Power – ISO 9249</td>
<td>134 kW 180 hp</td>
<td></td>
</tr>
<tr>
<td>• Caterpillar® engine with ACERT™ Technology – EPA Tier III, EU Stage III Compliant.</td>
<td></td>
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</tr>
</tbody>
</table>

| Buckets | | |
| Bucket Capacities | 2.3 - 3.0 m³ 3.0 - 4.0 yd³ | |

| Weights | | |
| Operating Weight | 15 059 kg 33,190 lb | |
| • For 2.8 m³ (3.65 yd³) general purpose bucket with standard 20.5-R25 tires. | | |

| Operating Specifications | | |
| Static Tipping Load, Full Turn | 10 076 kg 22,207 lb | |
| • For 2.8 m³ (3.65 yd³) general purpose bucket with standard 20.5-R25 tires. | | |
# 938H Wheel Loader

*Setting the standard for wheel loader productivity, durability, versatility and comfort.*

## Reliability
- Proven Components and Technology
- Diagnostic Systems Monitor Product Health to Ensure Reliability
- Unmatched Parts Availability and Dealer Support [pg. 4](#)

## Operator Comfort
- Easy Entry and Exit
- Excellent Visibility
- Adjustable Machine Parameters to Match Operator Preference [pg. 14](#)

## Durability
- ACERT™ Technology Maintains Performance, Efficiency and Durability While Meeting Emissions Regulations
- Heavy Duty Components Stand Up to All Operating Conditions
- Strong, Solid Structures Built to Last [pg. 6](#)

## Productivity
- Improved Cycle Times with Load-Sensing Hydraulic System
- Locking Differentials Provide Superior Tractive Effort in Poor Underfoot Conditions
- Constant Net Horsepower Through the Operating Range [pg. 8](#)
VERSATILITY
• Special Machine Arrangements for Unique Applications
• Large Variety of Cat® Work Tools pg. 9

OWNING AND OPERATING COSTS
• Superior Maintenance
• Electronic Systems Monitor Product Health and Performance
• Complete Dealer Support pg. 10

SERVICEABILITY
✓ • Service Centers for Convenient Maintenance
✓ • Exceptional Ground-Level Access to Service Points
✓ • Monitoring Systems and Dealer Support Reduce Unexpected Downtime pg. 12

✔ New Feature
• Validated components and technology
• Electronic systems monitor vital machine components
• Excellent uptime from the best dealer support network in the industry
• Unmatched genuine Cat parts availability

PROVEN RELIABILITY. The 938H features many of the components designed and proven in various Caterpillar products – all contribute to the reliability of the 938H:
• Frames
• Axles
• Countershaft powershift transmission
• Individual component cooling system
• Cab

ACERT™ TECHNOLOGY. Since March 2003, ACERT Technology has been proving itself in on-highway trucks. More recently it has proven itself again in field tests of off-highway equipment.

This technology allows Cat engines to meet durability and reliability expectations without sacrificing performance.

CATERPILLAR DESIGNED COMPONENTS. Components used to build Cat Wheel Loaders are designed and manufactured to Caterpillar quality standards to ensure maximum performance even in extreme operating conditions.

Engine electronic control modules and sensors are completely sealed against moisture and dust. Deutsche connectors and electrical wire braiding ensure that electrical connections resist corrosion and premature wear.

Hoses are engineered and manufactured for high resistance to abrasion, excellent flexibility and easy installation and replacement.

Caterpillar® couplings use o-ring face seals to provide positive sealing for durable leak-free connections.

Heavy duty components reduce the risk of leaks, corrosion and premature wear, increasing uptime and helping to protect the environment.

MONITORING PROGRAMS. Monitoring product health is key to maintaining reliability of any equipment. Many programs are available on the 938H to help you track machine health.

Caterpillar Messenger Display. The 938H is equipped with the Caterpillar Messenger Display that keeps watch over the health of your loader while providing real-time diagnostic feedback. In the event of a system malfunction, Messenger will provide the operator with a description of the occurrence, and if serious enough, sound an audible alarm in addition to a flashing indicator light.
**Product Link.** Standard equipment on the 938H, this state-of-the-art satellite technology enables Caterpillar dealers and customers to keep in touch with their machines. The system provides a two-way information flow between machine on-board systems and Caterpillar dealers/customers via the Cat Dealer Website and EquipmentManager.

**EquipmentManager.** EquipmentManager is a web-based application that uses key indicators from your equipment such as hours, location and diagnostic codes and combines it with powerful tools like mapping, maintenance and repair scheduling, and troubleshooting instructions. This application enables quick identification of actions required to maximize your equipment uptime and control owning and operating costs.

**S-O-S™ Services.** Keep minor repairs from becoming major ones and avoid complete failures. By regularly taking samples from the ports provided, your Cat dealer tracks wear of components and parts, oil performance, and oil condition and uses that data to predict wear-related problems before they happen. Often a simple adjustment or replacement of a part, based on S-O-S reports, can keep a small problem from turning into a major repair – allowing your machine to be running when you need it, not waiting in the shop for service.

**DEALER SUPPORT.** The Caterpillar global network of independently-owned dealers is the best in the world at providing support to keep your loader up and running. Known for parts availability and technical expertise, Cat dealers are partners in your business.

**Service Capabilities.** Cat field service technicians have the experience and tools necessary to service your loader on site. Field service trucks are fully loaded with state-of-the-art tools and diagnostic equipment as well as specifications and schematics for every Cat machine. Technical experts at the dealership and Caterpillar are available to provide assistance to field service technicians when needed.

When on-site repair isn’t enough, Cat dealerships are fully-equipped to service your loader quickly.

**Parts Availability.** Caterpillar provides an unsurpassed level of personalized service for your wheel loader. With parts distribution centers throughout the world, most parts can be delivered in 24 hours.

**Remanufactured Parts.** Cat engines and major components are designed to be remanufactured and provide multiple life cycles. The Cat Reman program is more extensive than most rebuild programs. Components are actually remanufactured in the factory to original specifications with necessary product updates. Strict reuse guidelines and unparalleled quality control ensure that reman products provide the reliability and durability that you expect from Caterpillar. Reman products are stocked in distribution centers around the world and are ready to install to minimize downtime, maintain productivity and profitability.
DURABILITY
Built Strong and Tough

- ACERT™ Technology maintains engine performance, efficiency and durability while reducing emissions.
- Heavy duty components withstand all operating conditions.
- Strong, solid structures are built to last.

Cat C6.6 ACERT. The Cat C6.6 is a 6.6 liter (403 in³) displacement, in-line six cylinder engine. The C6.6 utilizes ACERT Technology, a series of Caterpillar engineered innovations that provides advanced electronic control, precise fuel delivery and refined air management, resulting in outstanding performance and lower emissions.

The C6.6 with ACERT Technology offers a compact design with big, heavy duty engine features for outstanding durability, reliability and performance. The C6.6 incorporates a new cross flow cylinder head design, 4 valve head and an ADEM A4 electronic controller. The C6.6 also features a proven cylinder block, pistons and crankshaft.

Electronic Control ADEM A4.
The Advanced Diesel Engine Management – Electronic Control Module consistently monitors important engine conditions and functions. It uses sensors throughout the engine to regulate fuel delivery and all other engine systems that require input to manage load and performance. The ADEM A4 controller is the brain behind engine responsiveness, self-diagnosis, controlling emissions and fuel economy.

Air Management. Air management is a key concept in optimizing engine performance and controlling emissions. Engines must breathe clean cool air in order to perform. To aid this, the C6.6 uses a turbocharger fitted with a smart waste gate to give precise and reliable control of the boost pressure. A new cross-flow design in the cylinder head facilitates air movement, while tighter tolerances between the piston and cylinder wall reduce blow by gases.

Fuel System. Through multiple injection fuel delivery, fuel is introduced in the combustion chamber in a number of precisely controlled microbursts. Injecting fuel in this way allows for precise shaping of the combustion cycle while reducing engine sound levels.

Fuel Pump. The C6.6 uses an oil-lubricated high-pressure fuel pump to feed a common fuel rail. By using an oil-lubricated fuel pump, the C6.6 has been designed to be more tolerant of alternative fuels.

Fuel Priming Pump. An electrical fuel priming pump is located between the fuel tank and the combined water separator/primary fuel filter. The electric priming pump eliminates the need to pre-fill or manually prime filters after a change, thus reducing contamination and improving injector life.

Engine Idle Management. The Engine Idle Management System (EIMS) maximizes fuel efficiency and provides flexibility in managing idle speeds for specific application requirements. Four idle control speeds are available.

POWERSHIFT TRANSMISSION.
The 938H continues to use powershift transmission technology proven on previous series. The countershaft powershift transmission features heavy-duty components to handle the toughest applications. Built-in electronic controls enhance productivity and durability.

Control Throttle Shifting. Control Throttle Shifting regulates engine speed during high-energy directional and gear changes for smoother shifting and longer component life.

Electronic Clutch Pressure Control. Electronic Clutch Pressure Control (ECPC) system modulates clutches individually to improve shift quality, component life and operator comfort. Adjustment is simplified with all solenoid valves externally mounted on top of the transmission housing.

AXLES. The 938H axles are designed by Caterpillar for durability in all operating conditions. The front axle is rigidly mounted to the frame to support the weight of the wheel loader and withstand internal torque loads as well as external forces encountered throughout operation. The rear axle is designed to allow ± 12° oscillation. All four wheels remain on the ground over uneven terrain providing excellent stability and traction.
**Integrated Braking System.** The Cat exclusive Integrated Braking System reduces axle oil temperatures and improves transmission neutralizer smoothness. IBS has a direct impact on durability of the axles and brakes especially in applications involving long distances and/or heavy braking.

**RADIATOR.** Brazed aluminum construction provides a stronger joint for maximum durability and resistance to leaks. The 6-fins-per-inch design decreases the chance of blockage and plugging.

**STRUCTURES.** The articulated frame design of the 938H features a durable plate engine frame and two plate loader tower that is robotically welded. Robotic welding creates frame joints with deep plate penetration welds and excellent fusion for maximum strength and durability.

**Engine End Frame (EEF).** The 938H uses a proven solid plate engine end frame which provides a strong, rigid structure that resists twisting and evenly distributes impact loads. The result is an extremely solid mounting platform for the engine, transmission, axle, ROPS and other accessories.

**Non-Engine End Frame (NEEF).** The non-engine end frame provides a solid mounting base for the front axle, lift arms, lift cylinders and tilt cylinder. The fabricated, two-plate loader tower design reduces material packing under the lift cylinders while absorbing the forces associated with loading, twisting and material handling.

**Hitch.** The distance between the upper and lower hitch plates is an important contributor to machine performance and component life. The Caterpillar hitch design provides excellent load distribution and bearing life. Both the upper and lower hitch pins pivot on double tapered roller bearings – improving durability by distributing both vertical and horizontal loads over a larger surface area. The wide opening also provides excellent service access.

**Counterweight.** The two-piece counterweight is integrated into the 938H design and provides added protection for the lights by incorporating them into the top of the structure.

**Linkage.** The 938H linkage is a single-tilt Z-bar design. Z-bar linkage generates excellent breakout force and good rack back angle for better bucket loading and load retention. Lift arms are solid steel, providing superior strength with an excellent front end viewing area. The proven design offers excellent dump clearance and reach.
• Hydraulics are easy to control with low effort
• Differential locks provide maximum traction in varying underfoot conditions
• Constant net horsepower across various applications
• Standard and optional features that maximize productivity

NEW! DIFFERENTIAL LOCK. Maximize productivity with the new hydraulic locking front differential. This standard feature provides operators with the confidence to maneuver through poor underfoot conditions with ‘on the fly’ engagement.

A Caterpillar exclusive, the optional automatic front/rear locking differential collects input from sensors throughout the loader and adapts tractive effort to meet operating requirements.

CONSTANT NET HORSEPOWER. On many competitive machines, gross horsepower is constant, meaning that net engine power available for actual work will vary based on demands made from parasitic sources, such as air conditioning or cooling fans.

The Cat C6.6 engine is electronically configured to provide constant net horsepower at full parasitic load enhancing productivity and improving fuel efficiency.

LOAD SENSING HYDRAULICS. The 938H features a load sensing hydraulic system that supplies flow and pressure for the implements only upon demand, and only in the amounts necessary to perform the needed work thus providing a more efficient loader.

With the new S3PC Priority Proportional Pressure Compensation Valve, implement control is improved over the previous system – raise/lower and rack back/dump can be operated simultaneously.

Operators will notice enhanced ease of operation, more rimpull into the pile and a 16% increase in lift force.

COUNTERSHAFT POWERSHIFT TRANSMISSION. The electronic countershaft powershift transmission with automatic shift capability is designed and built by Caterpillar. The very responsive, full-power speed and directional changes provide excellent cycle times and productivity.

Fuel Economy Mode. Match transmission shifting patterns to machine application requirements. The Fuel Economy Mode (within Messenger) provides operators with the ability to choose between three different shift modes in order to maximize shift quality and fuel efficiency.

ON-DEMAND FAN. With electronic control of the variable speed on-demand fan, temperature levels of the engine coolant, transmission oil, hydraulic oil and air inlet manifold are constantly monitored. This data is used to control and maintain fan speed at the level necessary to maintain normal system temperatures. Controlled fan speed improves fuel efficiency, lowers noise levels and reduces radiator plugging.

Isolated Cooling System. The 938H cooling system is isolated from the engine compartment by a non-metallic shield. The hydraulically driven, variable speed fan draws in clean air from the rear of the machine and exhausts it out the sides and top of the hood. The end results are optimal cooling efficiency, increased fuel efficiency, less radiator plugging and reduced operator sound levels.

RIDE CONTROL. The optional Ride Control System improves ride, performance and load retention when traveling over rough terrain. Operators gain confidence moving at higher speeds in load and carry operations decreasing cycle times and increasing productivity.

AUTOLUBE. The optional Caterpillar Autolube System provides precise, automatic lubrication of pins and bushings – during loader operation. Automatic lubrication reduces time spent on daily maintenance and downtime for unplanned repairs due to inadequate greasing – improving productivity.
VERSATILITY
Built For Your Operation

- A variety of buckets and work tools for many applications

WORK TOOLS AND QUICK COUPLERS.
A variety of buckets, work tools and couplers are available from the factory or from your Caterpillar dealer to customize the 938H for your operation.

Quick Couplers. Quick couplers provide unmatched versatility for wheel loaders. Buckets and work tools can be changed in seconds without leaving the cab for maximum productivity.

General Purpose Buckets. General Purpose Buckets provide good all-around performance for stockpiling, rehandling, excavating and bank loading. A heavy duty General Purpose Bucket can be used for more aggressive applications.

Material Handling Buckets. The Material Handling Bucket is a flat-floor bucket used for handling stockpiled materials such as aggregates or other easy-to-load materials requiring moderate breakout force.

Coal Buckets. Coal Buckets maximize productivity in loading and stockpiling coal and other materials of similar density.

Waste Buckets. Waste Buckets are designed for long life in the harsh world of refuse applications. This high-capacity bucket is well-suited for loading, sorting and other transfer station work.

Woodchip and Clean-Up Buckets. Woodchip and Clean-up Buckets are available for forestry and millyard applications.

Multi-Purpose Buckets. Multi-Purpose Buckets have a unique four-way action that can load, strip topsoil, bulldoze, clamp pipe or large chunks of concrete, clean up debris, and many other tasks.

Side Dump Buckets. Side Dump Buckets dump both to the front and to the side of the machine, an advantage when working in tight quarters, such as street work, tunnel construction and building levees.

Forks. Logging, Millyard and Pallet Forks are available for forestry and material handling applications.

Loader Rakes. Loader Rakes are durable, high-capacity tools for land clearing and site clean up. Rakes are available with or without top clamps and in quick coupler and pin-on models.

Material Handling Arms. Material Handling Arms move pipe, concrete blocks, highway dividers and other construction materials quickly and precisely.

Ground Engaging Tools (GET). Several GET options are available from Caterpillar for 938H buckets. Reversible bolt on cutting edges (BOCE) as well as bolt on teeth and segments provide maximum performance in various materials.
• Sight gauges, grouped maintenance points, easy engine access, ecology drains, maintenance-free batteries – all simplify daily maintenance
• Electronic monitoring systems track product health to avoid unscheduled costly repairs
• Unsurpassed parts availability reduces downtime
• Excellent resale value provided by genuine Cat quality, outstanding dealer service and unmatched dealer support programs
• Caterpillar Financial Services and Cat dealers understand your business

ENGINE IDLE MANAGEMENT SYSTEM.
The Engine Idle Management System (EIMS) maximizes fuel efficiency and provides flexibility in managing idle speeds for specific application requirements. Four idle control speeds are available.

Hibernate Mode. Idle speed drops after a preset time to provide lower fuel consumption, reduced sound levels and lower emissions.

Work Mode. Adjustable working idle speeds according to customer preference and operating conditions.

Warm-Up Mode. Keep the engine at a consistent temperature in cold conditions.

Low Voltage Mode. Prevent battery drain due to high electrical loads from attachments and accessories.

MAINTENANCE. Proper maintenance of your wheel loader can help control expenses and lower your owning and operating costs. The 938H provides unmatched serviceability by offering:
• Hydraulic service center
• Electric service center
• Airborne debris-resistant, swing-out grill provides more efficient airflow
• Well-protected, easily visible sight gauges
• Ground level maintenance points
• Easy access to engine compartment
• Ecology drains for simple and clean fluid drainage
• Brake wear indicators for ease of inspection
• Maintenance-free batteries
• Extended oil and filter change intervals

MONITORING SYSTEMS. Monitoring product health simplifies maintenance planning and reduces costs.

Messenger. Messenger offers the comfort of providing real-time, visual feedback on engine and machine operating conditions. It displays information on diagnostic codes, maintenance and system parameters.

Product Link. With Product Link customers and dealers can remotely obtain machine diagnostics. The system provides updates on service meter hours, machine health and equipment location.

EquipmentManager. EquipmentManager uses key indicators from equipment such as hours, location and diagnostic codes and combines them with powerful tools like mapping, maintenance and repair scheduling as well as troubleshooting instructions. This application enables quick identification of actions required to maximize equipment uptime and control owning and operation costs.

Machine Security System. Stolen equipment equates to lost production and increased costs. Eliminate machine theft and unauthorized usage with the Cat Machine Security System (MSS). MSS is integrated into the machine’s electronic system and can protect most brands of equipment by requiring a uniquely coded key to start the machine.

S-O-S Services. Managing component life and machine availability decreases downtime while improving your productivity and efficiency. S-O-S Services can help you do that. Regular fluid sampling is used to track what is going on inside the equipment. Wear-related problems are predictable and easily and quickly repairable. Maintenance can be done according to your schedule, resulting in increased uptime and flexibility in maintenance and repair before failure.
PARTS AVAILABILITY. Caterpillar provides an unsurpassed level of personalized service for your wheel loader. With parts distribution centers worldwide, most parts can be delivered in 24 hours. Easy access to parts reduces downtime.

RESALE VALUE. Owning quality equipment is a very important factor in maintaining resale value. Cat not only supplies quality equipment but also provides product and dealer support to maintain the reliability and durability of your machine.

CUSTOMER SUPPORT AGREEMENTS. A Customer Support Agreement (CSA) is any arrangement between you and your Cat dealer that helps you lower your total cost per unit of production. CSAs are flexible, allowing them to be tailored to your business. They can range from simple Preventive Maintenance Kits to sophisticated Total Cost Performance Guarantees. Having a CSA with your Cat dealer allows you more time to do what you do best – run your business.

CATERPILLAR EQUIPMENT TRAINING SOLUTIONS. A thorough understanding of machine systems and a high level of skill in operation helps achieve maximum efficiency and improves return on investment. Caterpillar Equipment Training Solutions programs help provide operators with high levels of proficiency and confidence. Contact your Cat Dealer for more information on Caterpillar Equipment Training Solutions programs.

CATERPILLAR FINANCIAL SERVICES CORPORATION. Cat Financial understands your business, your industry and the challenges you face. That’s why they can provide payment plans to fit your unique needs – and to help you achieve your goals.
GROUP SERVICE POINTS and sight gauges for easy daily maintenance

Convenient access to engine compartment for excellent serviceability

Swing-out grill and cooling cores for easy cleaning

Electronic systems to monitor product health

NEW! MULTI-PIECE AXLE. With the introduction of Caterpillar’s new multi-piece axles, service brakes and final drives are located outboard and provide easy access when service is required.

S-O-S SERVICES. Sampling valves on the 938H allow quick access to engine, transmission and hydraulic oils for S-O-S analysis. Oil change intervals and other services can be optimized according to your work schedule, reducing downtime and managing expenses.

HYDRAULIC SERVICE CENTER. Transmission and hydraulic oil filters are located in the Hydraulic Service Center, behind the hinged, right-side access ladder. The hydraulic oil tank can be drained from this location using the access port.

GROUND LEVEL GREASE POINTS. Grease fittings are grouped on the right side of the machine in two convenient locations thus facilitating easy lubrication of vital components throughout the machine.

AUTOLUBE. Reduce time spent on daily maintenance and downtime for unplanned repairs due to inadequate greasing with the optional Caterpillar Automatic Lubrication System. Precise lubrication of pins and bushings at specific intervals improves component wear and reduces ground contamination from excessive greasing.

REMOTE PRESSURE TAPS. Pressure taps for key systems are grouped and centrally located throughout the machine and help facilitate quick diagnostics.

BRAKE WEAR INDICATORS. Axles are equipped with standard brake wear indicators, allowing a technician to easily determine when it is necessary to service the brakes.

SIGHT GAUGES. Well-protected, yet easily visible sight gauges for the transmission, hydraulic oil and radiator coolant allow easy daily checks while reducing the risk of contaminants entering the systems.

ELECTRIC SERVICE CENTER. A lockable compartment located just below the left side access platform contains key electrical components such as the remote jump-start receptacle, battery disconnect switch, circuit breakers and hood actuation switch. The maintenance free batteries are conveniently located under the electric service center.
ENGINE COMPARTMENT ACCESS.

A single mechanical lift cylinder with manual back-up opens the hood. The tilting hood provides excellent access to the engine and cooling compartments and if necessary, the entire hood can be removed with the built-in lift points.

With the hood closed, quick checks of the engine oil level, coolant site gauge and air inlet indicator can be completed through the side service door.

ECOLOGY DRAINS. Engine, transmission and hydraulic oils can be easily drained with standard-equipment ecology drains. An axle oil ecology drain is optional.

ELECTRIC PRIMING PUMP. An electric fuel priming pump located on the primary fuel filter base eliminates the need to pre-fill or manually prime filters after a change, eliminating engine contamination.

COOLING SYSTEM. Cooling system access for clean-out and maintenance is outstanding. The perforated and corrugated grill minimizes debris build-up and swings out for easy cleaning and access to the cooling cores.

The full-width air conditioning condenser and oil cooler cores swing out 45° to allow easy cleaning of the rear radiator face. An access panel located on the right side of the radiator support structure provides access to the front face of the radiator and ATAAC cores for easy cleaning.

COMPLETE CUSTOMER SUPPORT.

Cat field service technicians have the experience and tools necessary to service your loader on site. Technical experts at the dealership and Caterpillar can provide additional assistance to field service technicians as needed.

When on-site repair isn’t enough, Cat dealerships are fully equipped to service your loader quickly.
• Comfortable operation
• Excellent visibility
• Easy entry and exit
• Low effort steering

**OPERATING ENVIRONMENT.** The 938H provides operators with a comfortable operating environment with generous storage space and excellent visibility.

**Seat.** The durable seat adjusts 6-ways to accommodate all sized operators. The seat features an automotive style lumbar support for maximum comfort. The Cat C-500 Series Comfort air-suspension seat is optional as is a heated backrest and seat cushion.

**Implement Pod.** The newly restyled implement pod provides superior comfort through the full length adjustable armrest. Standard transmission F-N-R switch allows operators to keep their hand on the implement control levers while making directional shifts. An optional joystick with integrated F-N-R switch is available and replaces the lift and tilt levers.

**VISIBILITY.** The 938H offers excellent visibility to the front and rear of the machine. Distortion-free flat glass stretches to the floor of the cab for excellent visibility to the bucket. Wet-arm wipers on both front and back keep the windows clean in any condition.

**Rear Vision Camera.** An optional rear vision camera is available to clearly monitor movement behind the wheel loader.

**ENTRY AND EXIT.** A ladder with aggressive tread pattern keeps debris build-up to a minimum. The ladder is at a 5° forward incline for easy entry and exit.

The main cab door opens a full 180° and latches in place to allow safe navigation to the rear of the machine.

The right side door opens 10°, or completely for secondary exit simply by pulling a pin. A full-length ladder on the right side facilitates safe exit if needed.

**Steering.** Caterpillar’s low effort load sensing steering directs power through the steering system only when needed. The new hand metering unit and priority valve provide operators with full steering and multi-function capability a low engine RPM’s. The combined steering column and instrument panel tilt for maximum operator comfort.

**Controls.** Key machine controls are conveniently located within arms reach and allow better efficiency while minimizing operator fatigue.

A variety of machine controls are also contained within the Messenger display. By accessing various menus, an operator can tailor the machine to fit operating style and application. For multi-shift operations, personalized settings for each operator can be established and stored for maximum uptime and comfort.

**Lighting Packages.** In addition to the standard roading lights, optional lighting packages are available for low-light applications. Optional auxiliary halogen or High Intensity Discharge (HID) cab lights provide exceptional lighting for night work. A rotating beacon is available as a safety feature.

**SAFETY.CAT.COM™.**
Engine

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>Cat® 6.6 ACERT™</th>
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<tbody>
<tr>
<td>Gross Power – SAE J1995</td>
<td>147 kW 197 hp</td>
</tr>
<tr>
<td>Net Power – ISO 9249</td>
<td>134 kW 180 hp</td>
</tr>
<tr>
<td>Net Power – SAE J1349</td>
<td>128 kW 172 hp</td>
</tr>
<tr>
<td>Net Power – 80/1269/EEC</td>
<td>134 kW 180 hp</td>
</tr>
<tr>
<td>Peak Torque (Net) @ 1,400 rpm</td>
<td>840 N·m 620 ft-lb</td>
</tr>
<tr>
<td>Transmission</td>
<td></td>
</tr>
<tr>
<td>Forward 1</td>
<td>8.1 km/h 5 mph</td>
</tr>
<tr>
<td>Forward 2</td>
<td>14.6 km/h 9.1 mph</td>
</tr>
<tr>
<td>Forward 3</td>
<td>25.5 km/h 15.8 mph</td>
</tr>
<tr>
<td>Forward 4</td>
<td>43.2 km/h 26.8 mph</td>
</tr>
<tr>
<td>Reverse 1</td>
<td>8.1 km/h 5 mph</td>
</tr>
<tr>
<td>Reverse 2</td>
<td>14.6 km/h 9.1 mph</td>
</tr>
<tr>
<td>Reverse 3</td>
<td>25.5 km/h 15.8 mph</td>
</tr>
</tbody>
</table>

- Maximum travel speeds with empty bucket and 20.5-R25 tires.

Hydraulic System

| Hydraulic Cycle Time – Raise | 5.4 Seconds |
| Hydraulic Cycle Time – Dump | 1.4 Seconds |
| Hydraulic Cycle Time – Lower, Empty, Float Down | 2.7 Seconds |
| Hydraulic Cycle Time – Total | 9.5 Seconds |
| Pilot System – Pump Output | 295 L/min 77.9 gal/min |

- Implement System (Standard), Piston Pump – Rated at 2,100 rpm and 1,000 psi (6900 kPa).

Brakes


Weights

| Operating Weight | 15 059 kg 33,190 lb |

- For 2.8 m³ (3.65 yd³) general purpose bucket with standard 20.5-R25 tires.

Buckets

| Bucket Capacities | 2.3 - 3.0 m³ 3.0 - 4.0 yd³ |
| Max Bucket Capacity | 3 m³ 4 yd³ |

- For 2.8 m³ (3.65 yd³) general purpose bucket with standard 20.5-R25 tires.

Operating Specifications

| Static Tipping Load, Full Turn | 10 076 kg 22,207 lb |
| Breakout Force | 123 kN 27,576 lb |

- For 2.8 m³ (3.65 yd³) general purpose bucket with standard 20.5-R25 tires.
**Tires**

Choose from a variety of tires to match your application.

- Choice of:
  - 20.5R25 XTLA L2 Radial
  - 20.5R25 XHA L3 Radial
  - 20.5R25 GP2B L3 Radial
  - 20.5R25 HRL L3 Radial
  - 20.5R25 RL-2+ L3 Radial
  - 650/65R-25 XLD L3 Radial (Low Profile)
  - 20.5-25 SRG LD L3 Bias (16 PLY)
  - 20.5-25 SRG LD L3 Bias (20 PLY)
  - 20.5-25 RM 99 L3 Bias

- NOTE: In certain applications (such as load and carry) the loader’s productive capabilities might exceed the tires’ tonnes-km/h (ton-mph) capabilities. Caterpillar recommends that you consult a tire supplier to evaluate all conditions before selecting a tire model. Other special tires are available on request.

**Cab**

Meets SAE and ISO standards

- Caterpillar cab with Integrated Rollover Protective Structure (ROPS) is standard in North America and Europe.
- The operator sound pressure level measured according to the procedures specified in ISO 6394:1998 is 75 dB(A) for the cab offered by Caterpillar when properly installed and maintained and tested with the doors and windows closed.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.
- The sound power level is 108 dB(A) measured according to the dynamic test procedure and conditions specified in ISO 6395:1998 for a standard machine configuration.

**Service Refill Capacities**

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity</th>
<th>Gallons</th>
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<tbody>
<tr>
<td>Fuel Tank – Standard</td>
<td>247 L</td>
<td>65.3 gal</td>
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<tr>
<td>Cooling System</td>
<td>36 L</td>
<td>9.5 gal</td>
</tr>
<tr>
<td>Crankcase</td>
<td>17.4 L</td>
<td>4.6 gal</td>
</tr>
<tr>
<td>Transmission</td>
<td>43 L</td>
<td>11.4 gal</td>
</tr>
<tr>
<td>Differentials and Final Drives – Front</td>
<td>57 L</td>
<td>15.1 gal</td>
</tr>
<tr>
<td>Differentials and Final Drives – Rear</td>
<td>53 L</td>
<td>14 gal</td>
</tr>
<tr>
<td>Hydraulic Tank</td>
<td>89 L</td>
<td>23.5 gal</td>
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</table>
### Operation Specifications

<table>
<thead>
<tr>
<th></th>
<th>General Purpose Buckets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bolt-on edges</td>
</tr>
<tr>
<td>Rated capacity</td>
<td>m³</td>
</tr>
<tr>
<td></td>
<td>2.30</td>
</tr>
<tr>
<td></td>
<td>3.00</td>
</tr>
<tr>
<td>Struck capacity</td>
<td>m³</td>
</tr>
<tr>
<td></td>
<td>1.97</td>
</tr>
<tr>
<td></td>
<td>2.58</td>
</tr>
<tr>
<td>Width</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>2700</td>
</tr>
<tr>
<td></td>
<td>2777</td>
</tr>
<tr>
<td>Dump clearance at full lift and 45° discharge</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>2890</td>
</tr>
<tr>
<td></td>
<td>2786</td>
</tr>
<tr>
<td>Reach at full lift and 45° discharge</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>993</td>
</tr>
<tr>
<td></td>
<td>1098</td>
</tr>
<tr>
<td>Reach with lift arms horizontal and bucket level</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>2189</td>
</tr>
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<td></td>
<td>2336</td>
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<tr>
<td>Digging depth</td>
<td>mm</td>
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<td></td>
<td>50</td>
</tr>
<tr>
<td>Overall length</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>7193</td>
</tr>
<tr>
<td></td>
<td>7351</td>
</tr>
<tr>
<td>Overall height with bucket at full raise</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>5140</td>
</tr>
<tr>
<td></td>
<td>5140</td>
</tr>
<tr>
<td>Loader clearance circle with bucket in carry position</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>11946</td>
</tr>
<tr>
<td></td>
<td>12105</td>
</tr>
<tr>
<td>Static tipping load, straight</td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td>11834</td>
</tr>
<tr>
<td></td>
<td>11737</td>
</tr>
<tr>
<td>Static tipping load, articulated at full 40° turn</td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td>10302</td>
</tr>
<tr>
<td></td>
<td>10205</td>
</tr>
<tr>
<td>Breakout force</td>
<td>kN</td>
</tr>
<tr>
<td></td>
<td>1419</td>
</tr>
<tr>
<td></td>
<td>152.7</td>
</tr>
<tr>
<td>Operating weight</td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td>14952</td>
</tr>
<tr>
<td></td>
<td>15027</td>
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<tr>
<td>Reach at 2134 mm (7'0&quot;) height, 45° dumped</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>1508</td>
</tr>
<tr>
<td></td>
<td>1563</td>
</tr>
<tr>
<td>Clearance at full raise and dump, on stops</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>2821</td>
</tr>
<tr>
<td></td>
<td>2706</td>
</tr>
<tr>
<td>Dump angle at full raise and dump, on stops</td>
<td>degrees</td>
</tr>
<tr>
<td></td>
<td>51.2</td>
</tr>
</tbody>
</table>

### Pin-On Bucket Selection Guide

![Pin-On Bucket Selection Guide](image)

**Material Density**

- **GP**: General Purpose Buckets
- **MH**: Medium Hardness

**Material Density**
- **3.00**: 2.3 m³/yd³
- **3.25**: 2.5 m³/yd³
- **3.65**: 2.8 m³/yd³
- **4.00**: 3.0 m³/yd³

**Bucket Fill Factor**
- **115%**: 100%
- **100%**: 95%
<table>
<thead>
<tr>
<th>Bolt-on edges</th>
<th>Teeth and segments</th>
<th>Teeth</th>
<th>Bolt-on edges</th>
<th>Teeth and segments</th>
<th>Teeth</th>
<th>Bolt-on edges</th>
<th>Teeth and segments</th>
<th>Teeth</th>
<th>Bolt-on edges</th>
<th>Teeth and segments</th>
<th>Teeth</th>
<th>Bolt-on edges</th>
<th>Teeth and segments</th>
<th>Teeth</th>
<th>Bolt-on edges</th>
<th>Teeth and segments</th>
<th>Teeth</th>
</tr>
</thead>
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<td>2.80</td>
<td>2.80</td>
<td>2.70</td>
<td>3.00</td>
<td>3.00</td>
<td>2.85</td>
<td>2.80</td>
<td>2.80</td>
<td>2.70</td>
<td>2.40</td>
<td>2.40</td>
<td>2.30</td>
<td>2.02</td>
<td>2.02</td>
<td>1.92</td>
<td>2.64</td>
<td>2.64</td>
<td>2.51</td>
</tr>
<tr>
<td>2.80</td>
<td>2.80</td>
<td>2.70</td>
<td>3.00</td>
<td>3.00</td>
<td>2.85</td>
<td>2.80</td>
<td>2.80</td>
<td>2.70</td>
<td>2.40</td>
<td>2.40</td>
<td>2.30</td>
<td>2.02</td>
<td>2.02</td>
<td>1.92</td>
<td>2.64</td>
<td>2.64</td>
<td>2.51</td>
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<tr>
<td>2.80</td>
<td>2.80</td>
<td>2.70</td>
<td>3.00</td>
<td>3.00</td>
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<td>2.80</td>
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<td>2.30</td>
<td>2.02</td>
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<td>2.70</td>
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<td>2.40</td>
<td>2.30</td>
<td>2.02</td>
<td>2.02</td>
<td>1.92</td>
<td>2.64</td>
<td>2.64</td>
<td>2.51</td>
</tr>
</tbody>
</table>

### Material Handling Buckets

- Bolt-on edges
- Teeth and segments
- Teeth

### General Purpose Buckets – Quick Coupler

- Bolt-on edges
- Teeth and segments
- Teeth
### Operation Specifications

<table>
<thead>
<tr>
<th>General Purpose Buckets – Quick Coupler</th>
<th>Refuse Bucket</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bolt-on edges</strong></td>
<td><strong>Teeth and segments</strong></td>
</tr>
<tr>
<td>Rated capacity</td>
<td>2.70 m&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>3.50 yd&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Struck capacity</td>
<td>2.35 m&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>3.07 yd&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Width</td>
<td>2700 mm</td>
</tr>
<tr>
<td></td>
<td>8'10&quot; ft/in</td>
</tr>
<tr>
<td>Dump clearance at full lift and 45° discharge</td>
<td>2708 mm</td>
</tr>
<tr>
<td></td>
<td>8'10&quot; ft/in</td>
</tr>
<tr>
<td>Reach at full lift and 45° discharge</td>
<td>1077 mm</td>
</tr>
<tr>
<td></td>
<td>3'6&quot; ft/in</td>
</tr>
<tr>
<td>Reach with lift arms horizontal and bucket level</td>
<td>2374 mm</td>
</tr>
<tr>
<td></td>
<td>7'9&quot; ft/in</td>
</tr>
<tr>
<td>Digging depth</td>
<td>122 mm</td>
</tr>
<tr>
<td></td>
<td>4.7 in</td>
</tr>
<tr>
<td>Overall length</td>
<td>7436 mm</td>
</tr>
<tr>
<td></td>
<td>24'4&quot; ft/in</td>
</tr>
<tr>
<td>Overall height with bucket at full raise</td>
<td>5149 mm</td>
</tr>
<tr>
<td></td>
<td>16'10&quot; ft/in</td>
</tr>
<tr>
<td>Loader clearance circle with bucket in carry position</td>
<td>12 063 mm</td>
</tr>
<tr>
<td></td>
<td>4'11&quot; ft/in</td>
</tr>
<tr>
<td>Static tipping load, straight</td>
<td>11 400 kg</td>
</tr>
<tr>
<td></td>
<td>25 126 kg</td>
</tr>
<tr>
<td>Static tipping load, articulated at full 40° turn</td>
<td>9 879 kg</td>
</tr>
<tr>
<td></td>
<td>21 773 kg</td>
</tr>
<tr>
<td>Breakout force</td>
<td>118.9 kN</td>
</tr>
<tr>
<td></td>
<td>26 702 kg</td>
</tr>
<tr>
<td>Operating weight</td>
<td>15 326 kg</td>
</tr>
<tr>
<td></td>
<td>33 779 kg</td>
</tr>
<tr>
<td>Reach at 2134 mm (7'0&quot;) height, 45° dumped</td>
<td>1501 mm</td>
</tr>
<tr>
<td></td>
<td>4'11&quot; ft/in</td>
</tr>
<tr>
<td>Clearance at full raise and dump, on stops</td>
<td>2640 mm</td>
</tr>
<tr>
<td></td>
<td>8'7&quot; ft/in</td>
</tr>
<tr>
<td>Dump angle at full raise and dump, on stops</td>
<td>50.5 degrees</td>
</tr>
</tbody>
</table>
Dimensions
All dimensions are approximate and may vary with work tool.

Tires are 20.5R25 Michelin XHA.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height to top of ROPS</td>
<td>3356 mm</td>
</tr>
<tr>
<td>Height to top of exhaust pipe</td>
<td>3099 mm</td>
</tr>
<tr>
<td>Height to top of hood</td>
<td>2415 mm</td>
</tr>
<tr>
<td>Ground clearance/Standard tire</td>
<td>397 mm</td>
</tr>
<tr>
<td>Lift arm clearance @ maximum lift</td>
<td>3435 mm</td>
</tr>
<tr>
<td>Bucket pin height @ maximum lift</td>
<td>3843 mm</td>
</tr>
<tr>
<td>Overall height – bucket raised</td>
<td>5284 mm</td>
</tr>
<tr>
<td>Center line of rear axle to edge of counterweight</td>
<td>1869 mm</td>
</tr>
</tbody>
</table>

Tires

<table>
<thead>
<tr>
<th>Tires</th>
<th>Width over tires – maximum (loaded)</th>
<th>Change in vertical dimensions</th>
<th>Change in operating weight without ballast</th>
<th>Change in static tipping load – straight</th>
<th>Change in static tipping load – articulated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>inches</td>
<td>kg</td>
<td>lb</td>
<td>kg</td>
</tr>
<tr>
<td>20.5-R25 XTLA L2</td>
<td>2603</td>
<td>102</td>
<td>−16</td>
<td>−170</td>
<td>−120</td>
</tr>
<tr>
<td>20.5-R25 XHA L3</td>
<td>2674</td>
<td>105</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20.5 R25 GP2B L3</td>
<td>2619</td>
<td>103</td>
<td>+6</td>
<td>−53</td>
<td>−37</td>
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<tr>
<td>20.5 R25 HRL L3</td>
<td>2618</td>
<td>103</td>
<td>+23</td>
<td>−48</td>
<td>−34</td>
</tr>
<tr>
<td>20.5 R25 RL-2+ L3</td>
<td>2609</td>
<td>103</td>
<td>+12</td>
<td>+13</td>
<td>+9</td>
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<tr>
<td>650/65R-25 XLD L3</td>
<td>2733</td>
<td>108</td>
<td>0</td>
<td>+519</td>
<td>+364</td>
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<tr>
<td>20.5-25 SRG LD L3</td>
<td>2558</td>
<td>101</td>
<td>+8</td>
<td>−242</td>
<td>−170</td>
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<td>20.5-25 SRG LD L3</td>
<td>2556</td>
<td>101</td>
<td>+11</td>
<td>−174</td>
<td>−122</td>
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<td>20.5-25 RM 99 L3</td>
<td>2540</td>
<td>100</td>
<td>+8</td>
<td>−58</td>
<td>−41</td>
</tr>
</tbody>
</table>

*Without bulge.
Standard Equipment

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

ELECTRICAL
Alarm, back-up, adjustable
Alternator, 24V/65A
Battery disconnect switch with removable key
Lighting:
  Turn signals with flashing hazard function
  Two halogen headlights with high/low beam
  Parking lights
  LED brake and tail lights
  Two front and rear halogen work lights, cab mounted
Jumpstart receptacle

OPERATOR ENVIRONMENT
Air Conditioning
Bucket/Work tool lever lockout feature
Cab, ROPS/FOPS, pressurized and sound suppressed
Coat hook
Controls, lift and tilt functions
Radio ready including antenna, speakers, two 12V/5A
  power outlets, includes cigar lighter
Electric horn, dual actuation (steering wheel, implement pod)
Sun Visor, Front
Cab heating with fresh air inlet and defrosting function
Messenger System
  Monitoring and logging of machine data
  Clock
  Operator keypad
  Axle oil temperature
Product Link Ready (optional in some regions)
Operator display, Gauges:
  Engine coolant temperature
  Fuel level
  Hydraulic oil temperature
  Speedometer
  Gear indicator
  Tachometer
  Transmission oil temperature
Operator display, Warning Indicators:
  Glow Plugs
  Electrical, alternator output
  Engine inlet manifold temperature
  Engine oil pressure
  Fuel pressure
  Hydraulic oil temperature
  Parking brake
  Primary steering oil pressure
  Service brake oil pressure
  Transmission filter bypass
  Axle oil temperature
  Dual interior rearview mirrors
  Dual exterior rearview mirrors
  Interior operator lighting
  Storage compartments
  Lunchbox compartments
  Beverage holder
  Seat, KAB, cloth, adjustable
  Seat belt, retractable, 51 mm (2”) wide
  Adjustable steering column/wheel
  Forward/Neutral/Reverse switch by implement controls
  LH door with sliding window
  RH sliding window and emergency exit
  Windshield wipers, front and rear
  Interval function for front and rear wipers
  Windshield washers, front and rear

POWER TRAIN
Brakes, full hydraulic enclosed wet-disc
Brake wear indicators with Integrated Braking System (IBS)
Front axle with locking differential
Drive line, extreme service
Engine, Cat C6.6 ACERT and ATAAC technology, electronically controlled.
Fan, radiator, electronically controlled, hydraulically driven, temperature sensing, on demand.
Filters, fuel, primary/secondary
Fuel priming pump (Electric)
Fuel/Water separator
Monitoring System, Axle Oil Temp.
Muffler, sound suppressed
Radiator, unit core (6 fpi) with ATAAC
Starting aid (Glow Plugs)
Trans, neutralizer lockout in messenger
Torque converter
Transmission, countershaft, automatic power shift (4F/3R)
Variable Shift Control (VSC), messenger
Standard Equipment (cont’d)
Standard equipment may vary. Consult your Caterpillar dealer for details.

OTHER STANDARD EQUIPMENT
- Automatic bucket positioner
- Counterweight
- Couplings, Caterpillar O-ring face seal
- Fenders, Extension, Platform, Rear
- Guards, (bottom crankcase and fuel tank)
- Hitch, drawbar with pin
- Hood, non-metallic power tilting
- Hoses, Caterpillar XT
- Hydraulics, Load Sensing
- Kickout, lift, automatic
- Kickout, tilt, adjustable
- Linkage, Z-bar, cast crosstube/tilt lever
- Oil sampling valves
- Remote Diagnostic Pressure Taps.
- Sight Gauges: Engine coolant, hydraulic oil and transmission oil level.
- Steering, load sensing
- Vandalism protection caplocks

HYDRAULICS
- Load sensing implement system, pressure sensing
- Load sensing steering system
- Two function hydraulic valve (lift and tilt)
- Two lever operator implement controls

TIRES, RIMS, & WHEELS
A tire must be selected from the mandatory attachments section. Base machine price includes an allowance based on a premium radial tire.

ANTIFREEZE
Premixed 50% concentration of Extended Life Coolant with freeze protection to –34°C (–29°F).
Optional Equipment
Optional equipment may vary. Consult your Caterpillar dealer for details.

- Alternator, heavy-duty
- Antifreeze, −50° C (−58° F)
- Autolube
- Buckets and work tools
- Bucket Ground Engaging Tools (GET) – see Cat dealer for details
- Camera, rear view
- Coolant, extended life
- Cooler, axle oil
- Differential Lock, automatic front and rear
- Drain, axle ecology
- Ether Starting Aid
- Fenders/Platforms, narrow
- Fenders, roading
- Guards, axle seal
- Guard, front window, wide mesh
- Guard, power train bolt-on
- Guard, power train hinged
- Guard, hitch area
- Guard, front driveshaft
- Guard, roading light, front and rear
- Guard, tilt cylinder
- Guard, transmission oil fill
- Heater, engine coolant, 120- or 240-volt
- High Lift, three-valve
- High Lift, three-valve with hydraulic horizontal pin quick coupler
- Hydraulics, three or four-valve
- Joystick control, two, three or four valve
- Ladder, cable
- Lights, auxiliary cab lights
- Lights, high intensity discharge (HID)
- Lights, warning beacon
- Machine Security System
- Mirrors, heated external
- Open canopy
- Precleaner, turbine
- Precleaner, turbine/trash
- Quick Coupler, hydraulic horizontal pin
- Quick Coupler ready lines
- Radio, AM/FM CD player
- Ride Control
- Seat, air suspension
- Seat, heated air suspension
- Seatbelt, 76 mm (3”) wide
- Seatbelt, 76 mm (3”) wide (KAB)
- Steering, secondary
- Sunscreen, rear
- Toolbox