



Cat[®] 988 XE

Wheel Loader

Move more material in less time at a lower cost per ton with the Cat[®] 988 XE Wheel Loader. The electric-drive 988 XE is faster and more efficient than the powershift 988 in applications that demand high performance and production. Get a fast return on your investment with great overall fuel efficiency and designed-in durability for multiple lifecycles.

Proven Reliability

- With 15+ years of electric-drive experience, the 988 XE combines the simple and robust switched reluctance technology with existing 988 proven machine design.
- More than 90% identical to the 988.
- Fewer moving parts than traditional torque converter and mechanical transmission systems.
- Solid-state, fully sealed, and liquid-cooled powered electronics maximize durability in extreme conditions.
- Moves more material more efficiently with improved power and control.
- Cat C18 engine is built and tested to meet your most demanding applications.
- Advanced filtration system for extended performance and reliability of the hydraulic system.

Durability

- Achieves long engine life and improved fuel efficiency with reduced high idle speed.
- Automatic retarder controls help maintain optimal speed on grade.
- One-piece castings help provide enhanced front linkage strength in key pin areas.
- Full box section rear frame helps resist torsional shock and twisting forces.
- Durable construction withstands the toughest loading conditions and multiple lifecycles.
- Dynamic braking helps achieve long brake life while operating in single pedal mode.

Achieve Greater Productivity

- Electric-drive system eliminates shifting and simplifies operator control, helping to accelerate the learning curve of new operators.
- Superior acceleration, smoother directional shifts, and reduced travel times.
- Maximum responsiveness with Steering and Integrated Control (STIC[™]).
- Convenient, responsive electro-hydraulic controls help increase operator productivity.
- Superior digging, higher bucket fill factors, and reduced dig times.
- Improved visibility over the top of the linkage.

Superior Fuel Efficiency

- More fuel efficiency in truck loading applications.
- Continuously variable speed control up to maximum ground speed.
- Positive flow control (PFC) hydraulic system helps increase efficiency, bucket feel, and responsiveness with consistent performance.
- Economy mode provides 100% ECM managed engine speed to help provide the most fuel efficient required RPM during machine operation.
- Fully integrated electronic engine controls help make your fuel go farther.
- Engine idle shutdown for less fuel used while idling.
- Flow sharing hydraulics provide full flow at reduced engine rpm.
- Increased hydraulic speed and faster cycle times help decrease idle time and fuel burn.



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Increase Productivity and Efficiency with Integrated Technologies

- Cat Technologies developed to monitor, manage, and enhance your job site operations.
- Cat Payload provides accurate weighing* of the materials you are loading and hauling. Payload data is displayed in real-time to improve productivity and reduce overloading.
- Cat Detect enhances awareness of the environment around working equipment and provides alerts to help keep people and assets safe on the job site.
- Product Link™ wirelessly connects you to your equipment, giving you access to essential information you need to know to run your business.
- Gain valuable insight into how your machine or fleet is performing.
- Optional advanced productivity plan provides comprehensive actionable information to help you manage and improve the productivity and profitability of your operations.
- Improved cycle times and bucket fill factors with optional operator coaching.
- Optimized dig segment cycle with optional operator assist – tire slip prevention, auto set tires, and lift stall prevention.
- Easy to operate in single pedal with dynamic braking and operator assist features that allow faster training of new operators.
- Increase operator efficiency with operator coaching through on-board tips for truck loading operations.

**Not legal for trade.*

Safety Features

- Operator presence sensing automatically engages the parking brake if the machine detects movement without an operator on the seat.*
- External operator seat belt beacon indicates when the seat belt is not being used by the operator.
- Standard LED lights provide a safer work environment while operating in dark conditions.
- Hazardous voltage lamp assures electric drive system is de-energized and machine is safe to work on.
- Achieve precise positioning for easy loading in tight areas with 43 degrees of steering articulation.
- Precise machine control by load-sensing hydraulic steering system.
- Reduced stairway angles and standard stairway lighting help provide lower risk of slips, trips, and falls due to better visibility of the steps and stairway.
- Computerized monitoring system with warning indicators.
- Standard Cat Vision enhances visibility behind the machine, helping you work safely and confidently.
- Pressurized cabin with filtered air and reduced sound levels.

**Applies when the machine is stationary. Caterpillar recommends that the parking brake be applied when the machine is not in motion.*

Reduced Maintenance Time and Costs

- Electric-drive system helps maximize consumable life, reducing oil and filter waste. Enables two times the life for powertrain oil and four times the life for filters.
- Three levels of dynamic braking when operating in single pedal mode helps reduce break wear.
- Operator assist features help reduce component and tire wear by automating critical dig segments while working in the material pile.
- Reduce the potential for wheel slippage without reducing hydraulic efficiency with rimpull control system (RCS) and modulating the left pedal from 100 to 25%.
- Long life, rebuildability, and high resale value with low maintenance costs.
- Grouped service points and swing-out engine compartment service doors provide easy access to critical daily service checks.
- Optional engine compartment lighting for great visibility while servicing the engine.
- Ecology drains to prevent spills.
- Reduced waste with maintenance-free batteries.
- Vehicle Information Management System (VIMS™) notifications to help resolve problems before failure.
- Operators can now monitor tire pressure during operation. Any change sending a fault code to VisionLink® helps prevent premature tire failure.

Easy, Comfortable Operator Environment

- World-class operator comfort and ergonomics.
- Cat Premium Plus seat with standard features, including leather finish, forced air heating and cooling, two-way thigh adjustment, power lumbar and back bolster adjustment, and dynamic end dampening to provide total comfort throughout the workday.
- Easy-to-reach levers and seat-mounted implement pod to help reduce fatigue.
- Ergonomic switch placement and displays with LED indicators.
- Two-position rocker switch activates the electro-hydraulic parking brake.
- Reduced vibrations from isolated cab mounts and seat air suspension.
- Automatic cab temperature controls.

Purpose-Built Specialty Arrangements Millyard

- Unload a typical full-length log truck in a single pass with the larger lift and tilt cylinders and a unique tilt lever to maximize linkage force. Designed with 20% more lift capacity and 26% more tilt capacity over the standard 988.
- Swing-out fan radiator design for easy service in high-debris millyard applications, helping to reduce maintenance and service downtime. Auto reversing fan system to help dislodge debris and keep air flowing across the radiator cores.
- Additional counterweight to help increase stability for improved confidence while maneuvering with full loads.
- Purpose-built lift arm with lowered cross member to help increase visibility to the tips of the forks, helping to increase the speed when lining up the load and reduce operator movements to see the forks.

Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
ELECTRICAL			POWERTRAIN (CONTINUED)		
Alarm, back-up	✓		Cat Production Measurement		✓
Alternator, single 150 amp	✓		Cat Production Measurement ready	✓	
Converter, 10/15 amp, 24V to 12V	✓		Cat switched reluctance (SR) drive motor	✓	
Lighting system (LED work lights, access and service platform lighting)	✓		Cat SR generator/pump drive	✓	
Starting and charging system, 24V	✓		Crankcase guard		✓
Auxiliary start receptacle	✓		Electro hydraulic parking brake	✓	
Starter lockout in bumper	✓		Engine block heater 120V or 240V		✓
Transmission lockout in bumper	✓		Engine brake, software enabled attachment (SEA)		✓
OPERATOR ENVIRONMENT			Engine, C18 diesel, turbocharged/aftercooled	✓	
Air conditioner	✓		Engine oil change system, high speed, Wiggins		✓
Automatic parking brake activation when operator is not detected and machine is moving	✓		Ground level engine shutoff	✓	
Cat Detect, object detection system		✓	High ambient cooling – software		✓
Cat Vision, rear vision camera system	✓		Turbine precleaner, engine air intake	✓	
Cab precleaner		✓	Radiator, aluminum modular radiator (AMR)	✓	
Cab, sound suppressed and pressurized, integrated rollover protective structure (ROPS/ FOPS) radio ready for entertainment, includes antenna, speakers, and converter (12-volt 5-amp) and power port	✓		Starting aid, ether, automatic	✓	
External operator seat belt beacon indicator		✓	Throttle lock, electronic	✓	
Handrail mounted mirrors for increased operator visibility to the rear tires		✓	Manual switch and automatic fuel priming	✓	
LED warning strobe		✓	ADDITIONAL EQUIPMENT		
Lights, directional	✓		Operator assist feature, tire slip prevention	✓	
Mirrors, rearview (externally mounted)	✓		Operator assist features, auto set tires and lift stall prevention		✓
Payload overload prevention	✓		Autolube with auto shutoff		✓
Radio, AM/FM/CD/MP3 Bluetooth® with Satellite Sirius XM		✓	Automatic bucket lift and return to dig memory	✓	
Radio, CB ready	✓		Base machine price includes a rim allowance	✓	
Seat, cab - heated and ventilated		✓	Cat Clean Emission Module (CEM) (Tier 4 only)	✓	
Seat, deluxe	✓		Cold weather package: additional starter and 2 batteries, engine block heater 120V or 240V, heated fuel lines		✓
Seat belt minder	✓		Doors, service access (locking)	✓	
Seat belt, retractable, 76 mm (3 in) wide	✓		Ecology drains for engine, radiator, hydraulic tank	✓	
Single pedal operation with three levels of dynamic braking	✓		Engine compartment lights		✓
Slope indicator within cab information display	✓		Fast fill fuel system (Shaw-Aero)		✓
STIC™ system	✓		Front and rear roading fenders		✓
Virtual gear indicator	✓		High performance LED lighting		✓
Wet-arm wipers/washers (front and rear) – intermittent front and rear wipers	✓		Hitch, drawbar with pin	✓	
POWERTRAIN			Hydraulic, steering and brake filtration/screening system	✓	
Antifreeze -50°C (-58°F)		✓	Hydraulically driven demand fan	✓	
Automatic retarder controls	✓		Load and carry counterweight		✓
Axle oil cooler		✓	Operator coaching system		✓
Brakes, oil-cooled, multi-disc, service/secondary	✓		Premixed 50% concentration of extended life coolant with freeze protection to -34°C (-29°F)	✓	
Cat Integrated Powered Electronics	✓		Steering, load sensing	✓	
			Tire pressure monitoring system		✓
			Vandalism protection caplocks	✓	
			Wheel chocks		✓
			OTHER OPTIONAL CONFIGURATIONS		
			Aggregate handler		✓
			Load and carry		✓
			Millyard		✓

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Technical Specifications

Engine		
Engine Model	C18	
Rated Speed	1,700 rpm	
Peak Power Speed	1,500 rpm	
Engine – ISO 14396:2002	432 kW	580 hp
Gross – SAE J1995:2014	439 kW	588 hp
Net Power – SAE J1349:2011	401 kW	538 hp
Bore	145 mm	5.7 in
Stroke	183 mm	7.2 in
Displacement	18.1 L	1,105 in ³
Peak Torque @ 1,200 rpm – SAE J1995:2014	3023 N·m	2,230 lb·ft
Torque Rise	58%	

- Two engine emissions options are available:
 - Meets U.S. EPA Tier 4 Final, EU Stage V and Japan 2014 emission standards.
 - Meets Brazil MAR-1 emission standards, equivalent to U.S. EPA Tier 3 and EU Stage IIIA.
- Net power advertised is the power available at the flywheel when the engine is equipped with fan at minimum speed, air intake system, exhaust system, and alternator.

Operating Specifications

Operating Weight	52 781 kg	116,362 lb
Rated Payload – Quarry Face	11.3 tonnes	12.5 tons
Rated Payload – Loose Material	14.5 tonnes	16.0 tons
Bucket Capacity Range	4.7-13.0 m ³	6.2-17.0 yd ³

Transmission

Transmission Type					
Cat Switched Reluctance Electric Drive					
Speed	km/h	mph	Speed	km/h	mph
Forward 1 (virtual)	7.0	4.3	Reverse 1 (virtual)	7.0	4.3
Forward 2 (virtual)	11.3	7.0	Reverse 2 (virtual)	11.3	7.0
Forward 3 (virtual)	22.2	13.8	Reverse 3 (virtual)	28.2	17.5
Forward 4 (virtual)	32.1	20.0			

Hydraulic System – Lift/Tilt

Lift/Tilt System – Circuit	EH – Positive Flow Control, Flow Sharing	
Lift/Tilt System Pumps	Variable Displacement Piston	
Relief Valve Setting – Lift/Tilt	32 800 kPa	4,757 psi

Hydraulic Cycle Time

Rackback	4.5 seconds
Raise	8.0 seconds
Dump	2.2 seconds
Lower Float Down	3.5 seconds
Total Hydraulic Cycle Time (empty bucket)	18.2 seconds

Hydraulic System – Steering

Steering System – Circuit	Pilot, load sensing	
Steering System – Pump	Piston, variable displacement	
Steering Cut Off Pressure	30 000 kPa	4,351 psi
Total Steering Angle	86°	
Steering Cycle Time (high idle)	3.4 seconds	
Steering Cycle Time (low idle)	5.6 seconds	

Service Refill Capacities

Fuel Tank	555 L	147.0 gal
Diesel Exhaust Fluid (DEF) Tank	33 L	8.7 gal

- All nonroad Tier 4 Final/Stage V diesel engines only are required to use:
 - The machine has the flexibility to run on either ultra-low-sulfur diesel fuel (ULSD with 15 ppm of sulfur or less).
 - Cat engines are compatible with the following renewable, alternative, and biodiesel* fuels that reduce greenhouse gases:
 - Up to B20 biodiesel (FAME) **
 - Up to 100% HVO and GTL renewable fuels
- * Refer to guidelines for successful application. Please consult your Cat dealer or “Caterpillar Machine Fluids Recommendations” (SEBU6250) for details.
- Cat DEO-ULS™ or oils that meet the Cat ECF-3, API CJ-4, and ACEA E9 specifications are required.
- Only use DEF that meets ISO 22241-1:2006 standards.

Air Conditioning System

The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 1.8 kg of refrigerant which has a CO₂ equivalent of 2.574 metric tonnes.

Sound Performance – Tier 4 Final/Stage V

Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)
Machine Sound Power Level (ISO 6395:2008)	109 dB(A)
Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)*
Machine Sound Power Level (ISO 6395:2008)	109 dB(A)**

Sound Performance – Tier 3/Stage IIIA Equivalent

Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)
Machine Sound Power Level (ISO 6395:2008)	110 dB(A)
Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)*
Machine Sound Power Level (ISO 6395:2008)	110 dB(A)**

- * For machines in European Union countries and in countries that adopt the “EU Directives” and “UK Directives.”
- ** European Union Directive “2000/14/EC” as amended by “2005/88/EC” and UK Noise Regulation 2001 No. 1701.
- The machine sound power level was measured according to ISO 6395:2008. The measurement was conducted at 70% of the maximum engine cooling fan speed.
- The operator sound pressure level was measured according to ISO 6396:2008. The measurement was conducted at 70% of the maximum engine cooling fan speed.
- Hearing protection may be needed when the machine is operated with a cab that is not properly maintained or when the doors or windows are open for extended periods or in a noisy environment.



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