988G

Wheel Loader

Engine		
Engine Model	Caterpillar® 3456 EUI	
Gross Power	388 kW	520 hp
Flywheel Power	354 kW	475 hp
Operating Specifications		
Operating Weight	50 183 kg	110,634 lb
Rated Payload	11.4 tonnes	12.5 tons
Buckets		
Bucket Capacities	6.3 to 7.0 m^3	8.2 to 9.2 yd^3

988G Wheel Loader

Improved performance and rugged durability combine with operator comfort for maximum productivity.

Structures and Fabricated Box Boom

The articulated frame design features a high-torsion, compact, load-absorbing, front frame and a large, box-section, engine-end frame. Fabricated boom and linkage geometry increase dump clearance, provide improved breakout and lift forces and increase the viewing area to the bucket corners. **pg. 4**

Power Train

✔ The Cat 3456 EUI diesel engine is Tier 2 compliant. A new cylinder block is stronger and lighter weight. The Caterpillar planetary power shift transmission and impeller clutch torque converter provide smooth, consistent shifting with finger tip control. Electronic controls contribute to increased levels of productivity. **pg. 6**

Hydraulics and Electronic Monitoring

Innovative electro-hydraulics play a key role in performance of the 988G and provide low operator effort. Increased hydraulic efficiency improves lift and tilt cycle time for reduced overall cycle time. The tradition of reliable, high-performance Caterpillar hydraulics continues. **pg. 8**

Application Truck Match

Increased performance and good pass matching make the 988G a versatile performer. **pg. 14**

Customer Support

Your Cat® dealer offers a wide range of services that help you operate longer with lower costs. **pg. 15**

Revolutionary design, Caterpillar quality.
Electro-hydraulic controls, increased power and torque rise, front linkage and unmatched operator comfort work together for increased performance and added durability to make the 988G an innovative, 21st century large wheel loader geared for maximum production in the toughest condition.

Operator Station

Experience a new level of efficiency, comfort and productivity with one-hand STIC operation, a 38 percent larger cab, low-effort, fingertip lift and tilt controls, improved visibility, reduced sound levels, improved ventilation and easier entry and exit. **pg. 10**

Buckets and Ground Engaging Tools

Choose between 6.3 m^3 (8.2 yd^3) and 7.0 m^3 (9.2 yd^3) capacity buckets, spade edge and straight edge buckets and various Ground Engaging Tools to match job conditions. These Caterpillar buckets retain the proven shell-tine construction design for unmatched durability. **pg. 12**

Bucket Match

Improve machine performance and increase stability by selecting the right bucket for your application and material density. **pg. 13**

Maintenance and Serviceability

Most daily maintenance checks are performed from the machine's left side, facilitating quick start up. Case drain filters for main hydraulic, steering and fan pumps protect against contamination, and improved access to major components enhance serviceability and increase uptime. **pg. 16**

✔ *New Feature*

Structures and Fabricated Box Boom

Superior design of structures, along with bold, new box-section front linkage provide superior strength.

Structures. Combine the use of robotic welding and castings in critical high-stress areas. More than 90 percent of the 988G structure is robotically welded to provide highly consistent welds and increased strength. Castings are also used in several areas to increase strength by helping to spread the loads and reduce the number of parts.

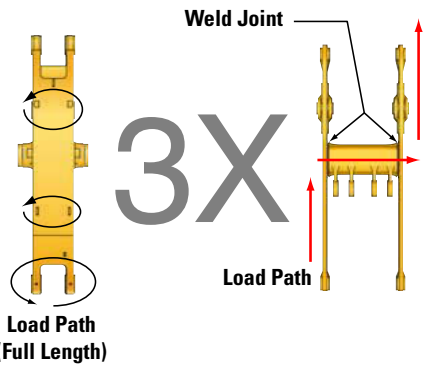
1 Full Box-Section Frame. Has been improved for maximum strength and minimum weight. The frame rail is now extended further forward, improving rail to hitch strength.

2 Box-Shaped Tower. Is designed for improved resistance to twisting for maximum strength. The tilt cylinder tower's high-strength steel plates direct stress down to the lift cylinder cast mounting tube, absorbing impact and loading forces. This design results in a narrower tower which gives better operator visibility.

3 Upper and Lower Hitch-Pins. Pivot on double-tapered roller bearings. The hitch plates are shaped to direct stress away from the end of the weld, resulting in a smoother transition of stress loads into the frame.

4 Spread-Hitch Design. Increases the spread 26 percent to help square-up the frame and provide increased clearance for access to the hitch and hydraulic lines.

5 Steering Cylinder Mounts. Are located on the axle pads providing efficient transfer of steering loads to the axle.



6 Fabricated Box Boom. Replaces the traditional steel plate lift arms found on wheel loaders. This design features forked ends for easier service, faster assembly and increased reliability. Castings in high stress areas smooth the transition of stress distribution for excellent service life. The new boom and dual bucket links work together for increased breakout force, better torsional resistance and higher lift capacity.

• Fabricated Boom Box-Section Design. Has more torsional stiffness than a Z-bar design. (With the parallel lift arm design, corner loading the bucket sends stresses up the lift arm, through the cross tube welding and up the other lift arm.) The box-section design spreads stresses over the full length and perimeter of the boom, allowing stress transfer through parent material. This resists twisting and prevents stress paths that can lead to cracking.

Power Train

Cat power train delivers top performance and durability in tough applications. Changes to the aftercooler, injectors, bearings and pistons help improve startability, response, power, emissions and fuel consumption.

1 Cat 3456 EUI Diesel Engine. Is based on one of the most successful engines offered by Caterpillar, the 3406E. The 3456 is Tier 2 compliant and features increased horsepower and efficient fuel management for quick response, high productivity and exceptional service life. A new, sculptured cylinder block provides greater strength and lighter weight.

- **42 Percent Torque Rise.** Provides high lugging force during digging and acceleration in high rimpull conditions. The torque curve effectively matches the transmission shift points to provide maximum efficiency and faster cycle times.

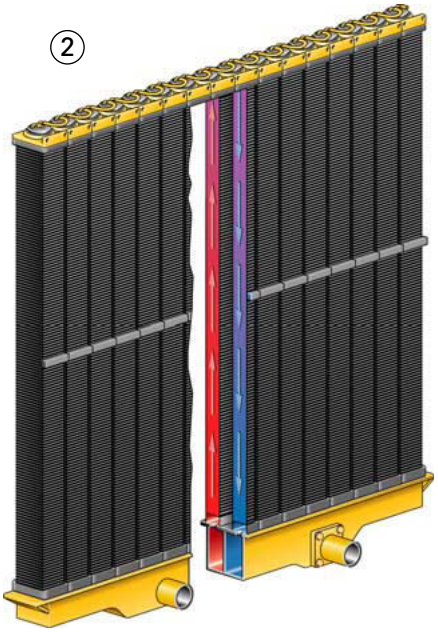
- **Electronic Unit Injection (EUI).** Is a proven high-pressure, direct injection fuel system that electronically monitors operator demands and sensor inputs to optimize engine performance.

- **Air Cleaners.** Are dry-type radial seal with primary and secondary elements and precleaner.

- **ADEM™ III (Advanced Diesel Engine Management) System.** Controls the fuel injector solenoids to monitor fuel injection. This system provides automatic altitude compensation, air filter restriction indication and will not allow the engine to fire until it has oil pressure, acting as a cold start protection and a form of pre-lube.

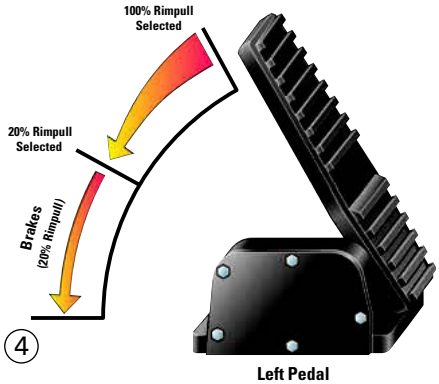
- **Air-to-Air Aftercooler (ATAAC).** Provides a separate cooling system for the intake manifold air. The ATAAC system routes hot compressed air from the turbo and cools it with a single pass, air-to-air aluminum heat exchanger. The cooled compressed air greatly reduces the emissions produced, meeting Tier 2 requirements.

2 Separate Engine Cooling System. Isolates the radiator and fan from the engine compartment for more efficient cooling and allows for a sloped hood for increased viewing.



- **Advanced Modular Cooling System (AMOCS).** Improves cooling capabilities by using a parallel flow system with seven cores. Serviceability is improved with AMOCS as there is no top tank to remove.

3 Electronically Controlled Caterpillar Planetary, Power Shift Transmission. Features perimeter-mounted, large diameter clutch packs that control inertia for smooth shifting and increased component life.



4 Impeller Clutch Torque Converter (ICTC). Combined with the Rimpull Control System (RCS) allows the operator maximum flexibility in modulating rimpull.

- Improved calibration procedure
- Improved left pedal modulation
- Compensates for wear by providing the ability to recalibrate for optimum left pedal modulation regardless of torque converter wear
- The impeller clutch torque convertor uses the left brake pedal to modulate rimpull from 100 to 20 percent for reduced tire slippage. After 20 percent is achieved, further pedal travel applies the brake.
- RCS allows the operator to select from four preset maximum rimpull settings, other than 100 percent, that are available in first gear (90, 85, 75 and 65 percent).
- A lock-up clutch torque converter for direct drive efficiency is also available as an optional attachment.

• Final Drives. Feature planetary reduction at each wheel. Torque is developed at the wheel, which gives less stress at the axle shafts. The planetary units can be removed independently from the wheels and brakes.

5 Heavy-Duty Axles. Feature optional axle oil coolers, permanently lubed universal joints and stronger axle components in both the differentials and final drives for increased performance, serviceability and durability. Conventional differential is standard.

• Free-Floating Axle Shafts. Can be removed independent of the wheels and planetaries for quick and easy serviceability.

• Optional Axle Oil Cooling System. Features two circuits that circulate oil from the differentials through an oil-to-air cooler and filter and back to the brakes. This system provides increased oil life and improves component performance and durability. The system automatically turns on and off at a preset oil temperature.

6 Axle-Shaft, Oil Disk Brakes. Are adjustment-free, fully hydraulic and completely sealed. Disc face grooves provide cooling even when brakes are applied, for a long, fade-resistant service life.

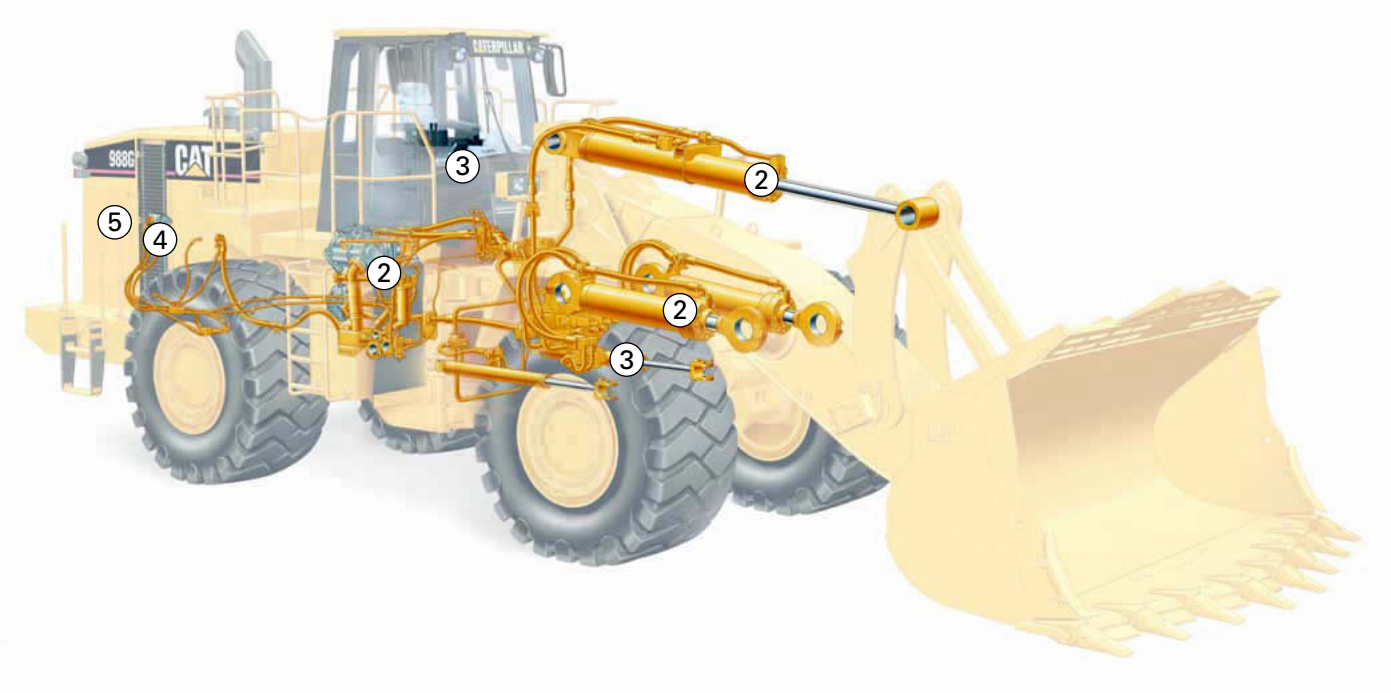
- Location of the brakes improves serviceability. The axle-shaft brake design allows brake service while leaving the final drive intact.
- Axle-shaft brakes require less force by operating on the low torque side of the axle. Combined with improved axle oil circulation for increased cooling, the oil-enclosed, multiple-disc brake design improves durability.
- Parking brake is spring-applied, oil-released and dry disc. It is mounted on the transfer gear output shaft. Manual override is possible to allow movement of the machine.

• Secondary Brakes. Are fully modulated and the front and rear service brake circuits are isolated so one circuit can operate if pressure drops in the other circuit.

• Service Brakes. Are four wheel, hydraulic, oil-dipped multiple disc brakes that are adjustment-free, completely enclosed and allow modulated engagement without slack adjusters.

Hydraulics and Electronic Controls

Efficient, well-balanced hydraulics and low-effort electronic controls mean high performance and exceptional durability.



1 Electro-Hydraulic Control System. Increases hydraulic efficiency and enhances operator comfort through low-effort fingertip controls. XT-3 and XT-5 hose along with reliable components reduce the risk of leaks and blown lines, helping protect the environment.

2 Lift and Tilt System. Consists of larger bore lift and tilt cylinders and a two position main hydraulic pump contributing to increased performance and serviceability.

• Two Position Main Hydraulic Pump. Is controlled by the Electronic Control Module (ECM). A solenoid valve controls the pump displacement, allowing the ECM to adjust hydraulic flow during the loader cycle. This strategy results in faster hydraulics and greater lift forces leading to optimized performance.

3 Load Sensing Steering. With the STIC control system integrates steering and transmission into a single controller. STIC operated pilot valve controls the flow to steering cylinders. The steering system utilizes a variable displacement pump for maximum machine performance by directing power through the steering system only when needed.

4 Case Drain Filtration. A total of three filters for the main hydraulic, steering and fan pumps protect against contamination with easy access for service.

5 Demand Fan. A speed controlled, hydraulic fan that provides maximum cooling efficiency by directing the appropriate amount of power through the fan system based on coolant temperature.

Advanced Electronics. Play a major role in the operation of the 988G. Productivity improvements, enhanced serviceability, increased operator efficiency and lower costs are direct benefits of the 988G advanced electronics.

6 Caterpillar Monitoring System (EMS-III). Continually monitors various machine systems through three instrument clusters and provides a three-level warning system to alert the operator of immediate or pending problems. It shares information with the engine, hydraulic and transmission controls that can be used during servicing to simplify service and troubleshooting. The Caterpillar Monitoring System also allows for new software to be uploaded directly to the cab.

- **Optional Payload Control System.** Tracks data regarding the load in the bucket. It also features a numeric keypad and easy-to-view display. An available printer makes onboard ticket printing possible.
- **Optional Ride Control.** Provides a boom suspension system by placing an accumulator in the boom circuit, reducing fore and aft pitch over rough terrain. This results in a smoother, more comfortable ride, allowing higher load and carry speeds, increased load retention and component life.
- **Loose Material Mode.** Provides maximum hydraulic speed and efficiency for loading in easily penetrated loose material.

Operator Station

A new industry standard for comfort and efficiency.

World Class Cab. With over 3.18 m^3 (112 ft^3) of volume incorporates innovations for operator comfort, maneuverability and productivity. Features include outstanding viewing area, improved cab ventilation, interior sound levels below 77 dB(A), standard coat hook, cup holder, storage bin, intermittent wet-arm wipers, room for a large lunch cooler and radio-ready.

1 STIC Control System. Combines gear selection and steering into one control lever that requires less effort and provides smooth shifting. Side-to-side motions for steering, finger operated direction control and thumb operated buttons for gear selection combine to provide a fluid motion that reduces effort and allows the operator to work the machine for long periods of time with little or no fatigue.

2 Left Pedal. Operates the impeller clutch torque converter/braking while the right pedal operates standard braking.

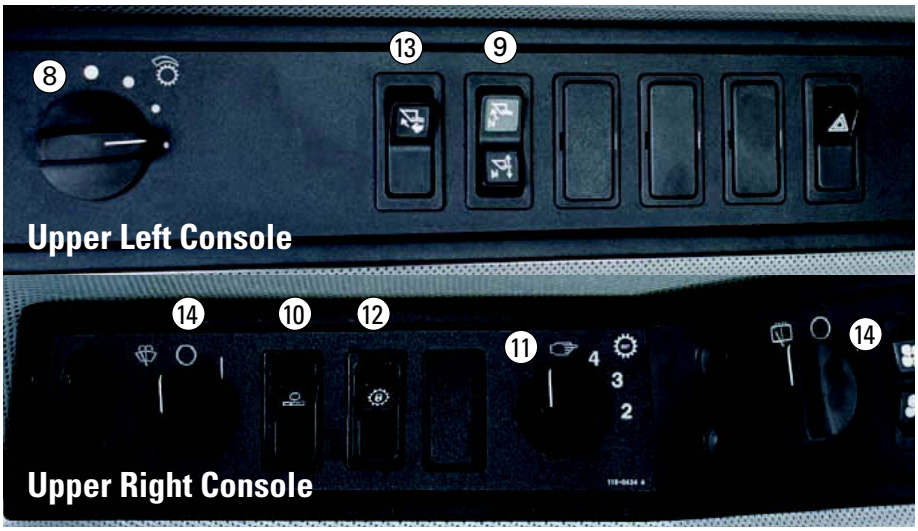
3 Cat Comfort Seat. Replaces the previous Contour Series Seat with more foam in key parts of the seat back, thicker seat cushions, automotive-style lumbar support and an all-new, ergonomic design translate into greater operator comfort, less fatigue and consistent productivity throughout the shift. The seat is a six-way adjustable air suspension seat with a retractable seat belt, headrest and adjustable armrests for optimal comfort and high productivity.

4 Electro-Hydraulic Controls and Armrests. Provide low effort, fingertip control for enhanced comfort and stability.

- Floor-mounted controls and armrests are fore, aft and height adjustable to accommodate operators of any size in a comfortable operating position.

5 Caterpillar Monitoring System (EMS-III). Display system provides information on the machine's major components and system.

- Gauge displays fuel tank level and temperatures for engine coolant, power train and hydraulic oil. Tachometer is an analog gauge with digital readout for gear selection and ground speed.
- Alerts operator if transmission is engaged while parking brake is applied. If pressure drops, the parking brake applies automatically.
- Main module consists of ten fault indicators and one display panel.



6 Throttle Lock. Allows operator to pre-set the engine speed for a variety of applications, resulting in faster cycle times and increased productivity.

7 Rimpull Control System (RCS) Switch. Turns RCS on and off.

8 Rimpull Control System (RCS). Has four factory preset reduced rimpull settings (90, 85, 75 and 65 percent of rimpull). Reduced rimpull settings can be modified by the dealer to operator preference or to better match ground conditions.

9 Kickout Positioner Control. Allows the operator to set customized upper, lower and bucket dig angle kickouts for maximum operating efficiency.

10 Optional Ride Control Switch. Turns Ride Control to off or automatic position.

11 Autoshift. Allows the operator to set the maximum gear into which the transmission will be allowed to shift. This feature contributes to additional comfort and focus on the job. The switch also offers a manual position for operator controlled shifting.

12 Optional Lock-Up Clutch Torque Converter Switch. Activates the lock-up clutch for direct drive efficiency.

13 Loose Material Operating Mode. Tailors hydraulics to provide maximum loose material loading efficiency.

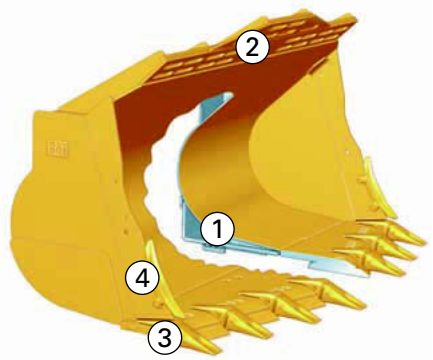
14 Front and Rear Window Wiper/ Washers. Are within easy reach to maintain a clear field of vision.

15 Improved Viewing Area. With bonded front windshield eliminates distracting metal frames for excellent bucket and work site visibility. An internal ROPS improves peripheral viewing by eliminating the large structure outside the cab.

16 Electro-Hydraulic Lock-Out Switch. Disables hydraulic controls.

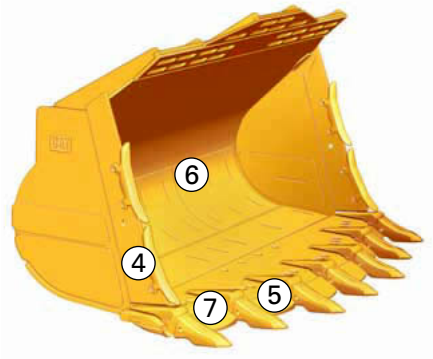
Buckets and Ground Engaging Tools

Caterpillar buckets and Ground Engaging Tools provide the flexibility to match the machine to your application.



Spade-Edge Rock

General Purpose



Heavy-Duty Quarry

Buckets. Ranging from 6.3 m^3 (8.2 yd^3) to 7.0 m^3 (9.2 yd^3) may be configured for a variety of impact and abrasive conditions. All buckets are built with shell-tine construction **(1)** that resists twisting and distortion and feature replaceable, weld-on wear plates to protect the bottom of the bucket. The integral rock guard **(2)** helps retain big loads while heavy-duty pins and retainers **(3)** provide durability.

Spade-Edge Rock Buckets. With bolt-on segments are available in 6.4 m^3 (8.33 yd^3), 6.6 m^3 (8.7 yd^3) and 6.9 m^3 (9.0 yd^3). Each accepts up to two sets of sidebar protectors **(4)**, feature shouldered, double-strap adapters, easily changed bolt-on segments and several tip options.

Straight-Edge Buckets. Are available in 6.3 m^3 (8.2 yd^3) Straight-Edge Rock and 7.0 m^3 (9.2 yd^3) General Purpose configurations. The Straight-Edge Rock bucket features shouldered, double strap adapters and accepts two sets of sidebar protectors, bolt-on segments and tips. The General Purpose bucket is available with bolt-on cutting edge, bolt-on adapters or bolt-on adapters with segments.

High Abrasion Bucket. Is available with 6.4 m^3 (8.33 yd^3) capacity and is recommended for use in face loading where high abrasion and moderate impact is encountered. This bucket features additional wear protection items including: independently attached edge and adapter covers, additional liners and wear plates, one set of sidebar protectors and a thicker base edge.

Heavy-Duty Quarry Bucket. Is available as a 6.4 m^3 (8.33 yd^3) capacity bucket and is recommended for use in face loading where moderate abrasion and high impact is encountered. It features additional wear protection items, including: four sidebar protectors **(4)**, thicker base edge and adapters **(5)**, additional liners and wear plates **(6)** and bolt-on half arrow segments **(7)**.

Bucket Controls. Feature electro-hydraulic lift and tilt circuits for lower lever effort.

Lift Circuit. Has four positions: raise, hold, lower and float and can adjust automatic upper and lower kickouts from the cab.

Tilt Circuit. Features three positions: tilt back, hold and dump. It can adjust automatic bucket positioner to desired loading angle from the cab and does not require visual spotting.

Bucket Match

Proper bucket and application match delivers increased stability and peak performance.

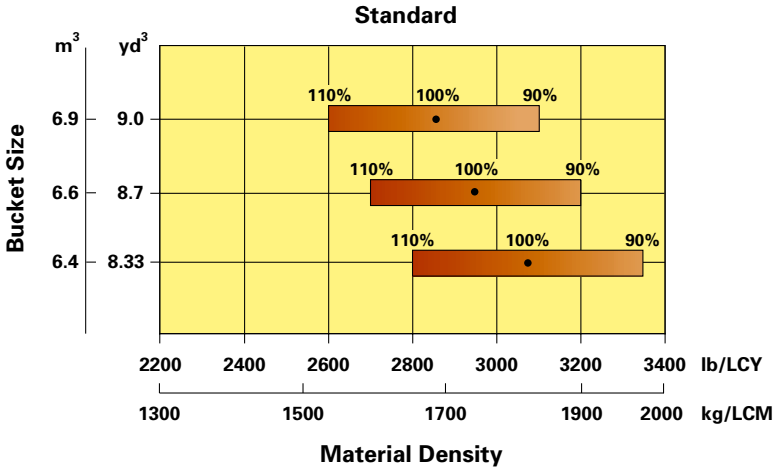
Buckets and GET. The 988G offers a variety of bucket types and available Ground Engaging Tool configurations to properly configure the machine based on material density, impact and abrasion.

Depending on your material densities, the 988G has available a 6.4 m^3 (8.33 yd^3) Spade Nose bucket with teeth and bolt-on segments for improved performance and edge protection.

Increased full turn static tip load, horsepower and hydraulic capabilities allow the 988G to effectively utilize the 6.6 m^3 (8.7 yd^3) and 6.9 m^3 (9.0 yd^3) bucket size in lighter materials such as limestone.

To better match your 988G to material conditions, contact Caterpillar for specialty bucket needs.

Bucket Selection Guide and Matrix



NOTE: Percentages shown represent bucket fill factor

● - Center point at 100% fill

Changes in bucket weight, including field installed wear iron, can impact rated payload. Consult your Caterpillar dealer for assistance in selecting and configuring the proper bucket for the application. The Caterpillar Large Wheel Loader Payload Policy is a guideline intended to maximize wheel loader structural and component life.

Application Truck Match

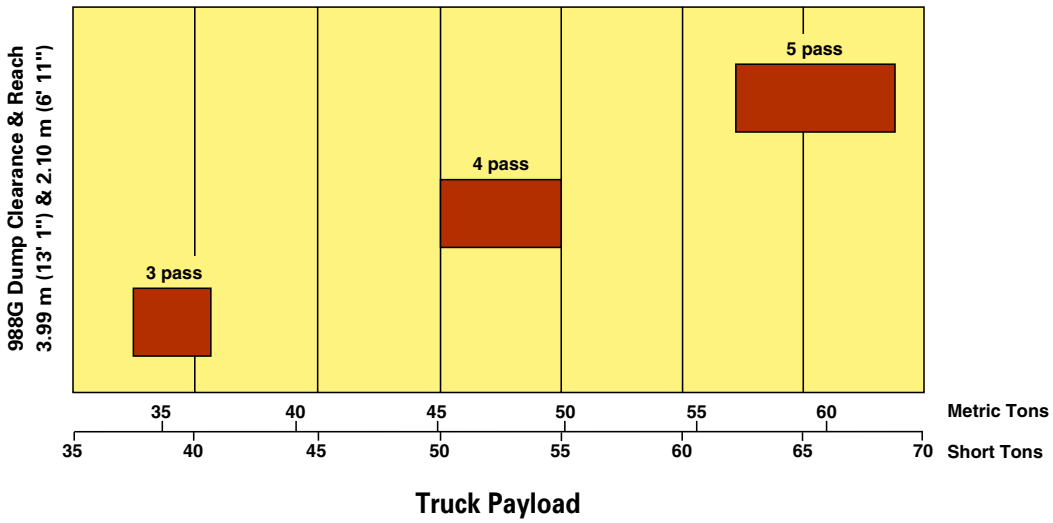
Matched payloads and matched buckets ensure optimum performance.

Performance. The 988G is an aggressive first gear loader for face and bank excavation. With increased dump clearance, the 988G can easily load 37-63 tonnes (40 to 70 ton) off-highway trucks. Increased performance and good pass match make the 988G a versatile performer with a cost per ton that will help your bottom line.

The versatility of a material handler is designed into the machine. With balanced rimpull and hydraulics, the 988G is an aggressive loader that gets the job done quickly and efficiently in loose or stock-pile material and in load and carry work.

Large Wheel Loader/Truck Application Match

988G Rated Payload: Standard Arrangement = 11.4 metric ton (12.5 short ton)



769D = 36 Metric Tons (40 Short Ton) nominal payload
771D = 41 Metric Tons (45 Short Ton) nominal payload
773E = 54 Metric Tons (60 Short Ton) nominal payload
775E = 63 Metric Tons (70 Short Ton) nominal payload

Customer Support

Cat Dealer services help you operate longer with lower costs.

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

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

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

Product Support. You will find nearly all parts at our dealer parts counter. Cat Dealers use a world-wide computer network to find in-stock parts to minimize machine down time. Save money with genuine Cat Remanufactured parts. You receive the same warranty and reliability as new products at cost savings of 40 to 70 percent.

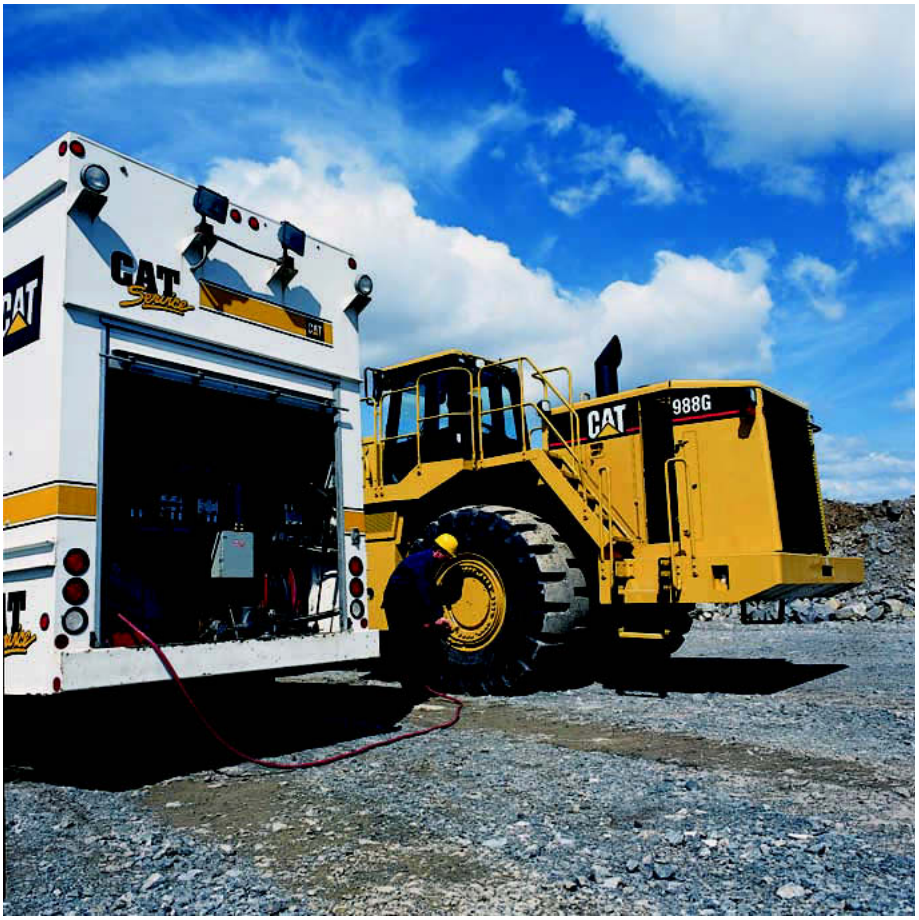
Operation. Improving operating techniques can boost your profits. Your Cat Dealer has training videotapes, literature and other ideas to help you increase productivity.

Maintenance Services. More and more equipment buyers are planning for effective maintenance before buying equipment. Choose from your dealer's wide range of maintenance services at the time you purchase your machine. Repair option programs guarantee the cost of repairs up front. Diagnostic programs such as S•O•S^{SM} and Coolant Sampling and Technical Analysis help you avoid unscheduled repairs.

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

Maintenance and Serviceability

Easier maintenance and enhanced serviceability give you more time in the pile.



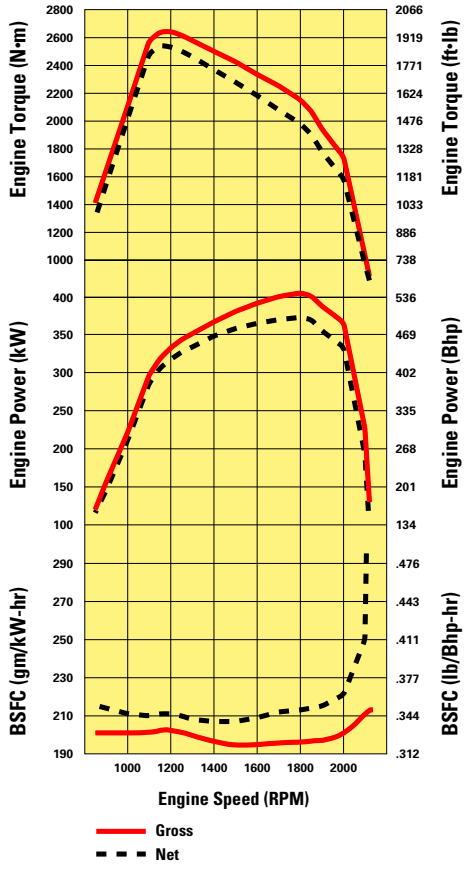
Maintenance and Repair. Is easier through monitoring key functions and logging critical indicators. Electronic diagnostic access is possible with a single tool, the Electronic Technician (ET). In addition to the servicing features built into the engine, the 988G includes:

- **Daily Maintenance Checks.** Most can be performed from the left side of the machine, making it part of an easy pre-start routine. Routine maintenance promotes long service life and durability.
- **Advanced Modular Cooling System.** Allows service technicians to replace individual cores for enhanced serviceability. Maintenance is also simplified since AMOCS is isolated from the engine compartment.
- **U-joints.** Are lifetime lubricated, leaving the slip joint as the only drive line component needing grease.
- **Lube Points.** Are centralized in accessible locations. Fuel fill is located on the left side. Both lube points and fuel fill are accessible from ground level, making lube and fuel service quicker and easier.
- **Swing-Out Doors.** On both sides of the engine compartment provide easy access to the engine oil dipstick and filler spout, S•O•S℠ port, fuel filters, air conditioner compressor, engine oil filters, alternator, starting receptacle, air filter service indicator, coolant fill and ether starting aid. The disconnect switch and diagnostic connector are located on rear platform.
- **Hinged Doors.** In the platform provide access to the hydraulic tank fill, lift and tilt and steering filters. Transmission sight glass and filler spout are serviced from the hitch area.
- **Case Drain Filters.** Protect the hydraulic system from contamination and are conveniently located behind the cab in the service platform.
- **Batteries.** Sit in a built-in battery box and are accessible through tread plates on the right platform.
- **Shock Resistant Lights.** Are replaceable by hand, not requiring the use of any tools.
- **Cab Support Bracket.** Improves access under the cab and is conveniently stored behind the cab.
- **Caterpillar Monitoring System (EMS-III).** Provides operators and service technicians with diagnostic information on the machine's major components and systems. It also allows for flashable software using a laptop and ET instead of replacing a chip that contains the new software.
- **Diagnostic Connector.** Enables quick evaluation of 11 starting and charging functions.

Engine

Engine Model	Caterpillar 3456 EUI	
Gross Power	388 kW	520 hp
Flywheel Power	354 kW	475 hp
Gross Power - ISO 3046-2	388 kW	520 hp
Net Power - ISO 9249	354 kW	475 hp
Net Power - EEC 80/1269	354 kW	475 hp
Bore	140 mm	5.5 in
Stroke	172 mm	6.8 in
Displacement	15.8 L	964 in^3

- These ratings apply at 1,900 rpm when tested under the specific standard conditions for the specified standard.
- Power rating conditions based on standard air conditions of 25° C (77° F) and 99 kPa (29.32 in Hg) dry barometer, using 35° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 30° C (86° F) [reference a fuel density of 838.9 g/L (7.001 lb/gal)].
- Net power advertised is the power available when the engine is equipped with alternator, air cleaner, muffler and hydraulic fan drive.
- No derating required up to 2286 m (7,500 ft) altitude.
- Direct-electric, 24-volt starting system with 100 amp alternator and four high performance maintenance-free batteries with 750 cold cranking amps.



Operating Specifications

Operating Weight	50 183 kg	110,634 lb
Rated Payload	11.4 tonnes	12.5 tons

Transmission

Forward 1	6.8 kph	4.2 mph
Forward 2	11.9 kph	7.4 mph
Forward 3	20.7 kph	12.8 mph
Forward 4	35.4 kph	22 mph
Reverse 1	7.7 kph	4.8 mph
Reverse 2	13.5 kph	8.4 mph
Reverse 3	23.5 kph	14.6 mph

- Travel speeds based on two percent rolling resistance and 35/65-33 tires in converter drive.

Forward 1	Lock-up disabled	
Forward 2	12.3 kph	7.7 mph
Forward 3	21.9 kph	13.6 mph
Forward 4	38.6 kph	24.0 mph
Reverse 1	7.9 kph	4.9 mph
Reverse 2	14.1 kph	8.8 mph
Reverse 3	25.1 kph	15.6 mph

- Travel speeds based on two percent rolling resistance and 35/65-33 tires in direct drive.

Loader Hydraulic System

Main hydraulic system output at 2010 rpm and 6900 kPa (1001 psi)	492 L/min	130 gal/min
Relief valve setting	31 000 kPa	4,500 psi
Cylinders, double acting: lift, bore, and stroke	220 × 911 mm	8.7 × 35.9 in
Cylinder, double acting: tilt, bore, and stroke	220 × 1770 mm	8.7 × 69.7 in
Pilot system, gear-type pump output at 2010 rpm and 2500 kPa (363 psi)	76 L/min	20.1 gal/min
Relief valve setting (low idle)	2400 kPa	348.1 psi

Hydraulic cycle time - Raise	9.4 Seconds
Hydraulic cycle time - Dump	2.4 Seconds
Hydraulic cycle time - Lower, empty, float down	3.8 Seconds
Total Hydraulic Cycle Time	15.6 Seconds

- With SAE 10W oil at 66° C (150° F).

Buckets

Bucket Capacities	6.3 to 7.0 m^3	8.2 to 9.2 yd^3
Max. Bucket Capacity	7 m^3	9.2 yd^3

Service Refill Capacities

Fuel tank - standard	679 L	179.4 gal
Cooling System	103 L	27.2 gal
Crankcase	60 L	15.9 gal
Transmission	70 L	18.5 gal
Differentials and final drives - front	186 L	49 gal
Differentials and final drives - rear	186 L	49 gal
Hydraulic system (factory fill)	470 L	124.2 gal
Hydraulic system (tank only)	267 L	70.5 gal

Axles

Maximum single-wheel rise and fall	568 mm	22.4 in

- Fixed front, oscillating rear ±13°.

Steering

Total steering angle	86°
Steering	Meets SAE and ISO standards.

- Full hydraulic, load-sensing steering system meets SAE J1511 FEB94 and ISO 5010:1992 specified standards.
- Center point frame articulation.
- Front and rear wheels track.

Cab

Cab - ROPS/FOPS	Meets SAE and ISO standards.
Sound Performance	Meets ANSI, SAE and ISO standards.

- Caterpillar cab with integrated Rollover Protective Structure (ROPS/FOPS) are standard.
- Standard air conditioning system contains environmentally friendly R134a refrigerant.
- ROPS meets SAE J1040 APR88 and ISO 3471:1994 criteria.
- FOPS meets SAE J231 JAN81 and ISO 3449:1992 Level II criteria.
- The operator sound exposure Leq (equivalent sound pressure level) measured according to the work cycle procedures specified in ANSI/SAE J1166 OCT98 is 77 dB(A), for the cab offered by Caterpillar, when properly installed, 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 exterior sound pressure level for the standard machine measured at a distance of 15 m (49.2 ft) according to the test procedures specified in SAE J88 JUN86 mid-gear-moving operation is 81 dB(A).
- The sound power level is 115 dB(A) measured according to the dynamic test procedure and conditions specified in ISO 6395:1988/Amd. 1:1996 for a standard machine configuration.
- For “CE” marked configurations, the labeled sound power level is 113 dB(A) measured according to the test procedures and conditions specified 2000/14/EC.

Brakes

Brakes	Meet SAE 130 3450:1996

Operation/Bucket Specifications

			Straight Rock	Spade Rock			Gen. Purpose	H.D. Quarry	High Abrasion
			Teeth & Segments	Teeth & Segments	Teeth & Segments	Teeth & Segments	BOCE	Teeth & Segments	Teeth & Segments
Rated capacity (§)		m^3	6.3	6.4	6.6	6.9	7.0	6.4	6.4
		yd^3	8.2	8.33	8.7	9.0	9.2	8.33	8.33
Struck capacity (§)		m^3	5.2	5.3	5.5	5.7	5.9	5.3	5.3
		yd^3	6.7	6.9	7.2	7.5	7.7	6.9	6.9
Width (§)		mm	3800	3800	3900	3980	3729	3800	3926
		in	150	150	154	157	147	150	155
Dump clearance at full lift and 45° discharge	**With teeth*:**	mm	4166	3961	3960	3960	—	3898	3872
		ft/in	13' 8"	13' 0"	13' 0"	13' 0"	—	12' 9"	12' 8"
	Bare (§)**:**	mm	4449	4243	4246	4246	4300	4252	4242
		ft/in	14' 7"	13' 11"	13' 11"	13' 11"	14' 1"	13' 11"	13' 11"
Reach at full lift and 45° discharge	**With teeth*:**	mm	1906	2107	2110	2110	—	2138	2198
		ft/in	6' 3"	6' 11"	6' 11"	6' 11"	—	7' 0"	7' 3"
	Bare (§)**:**	mm	1680	1625	1666	1659	1849	1627	1623
		ft/in	5' 6"	5' 4"	5' 6"	5' 5"	6' 1"	5' 4"	5' 4"
Reach with boom – level and bucket level	**With teeth*:**	mm	4210	4497	4500	4500	—	4564	4624
		ft/in	13' 10"	14' 9"	14' 9"	14' 9"	—	15' 0"	15' 2"
	Bare (§)**:**	mm	3865	3757	3815	3806	4075	3761	3757
		ft/in	12' 8"	12' 4"	12' 6"	12' 6"	13' 4"	12' 4"	12' 4"
Digging depth (§)		mm	130.9	130.9	130.9	130.9	130.9	130.9	133.3
		in	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Overall length	**With teeth*:**	mm	12 240	12 527	12 530	12 530	—	12 594	12 656
		ft/in	40' 2"	41' 1"	41' 1"	41' 1"	—	41' 4"	41' 6"
	Bare:	mm	11 895	12 185	12 182	12 182	12 105	12 173	12 187
		ft/in	39' 0"	40' 0"	40' 0"	40' 0"	39' 9"	39' 11"	40' 0"
Overall height with bucket at full raise (§)		mm	8131	8131	8131	8131	7909	8131	8131
		ft/in	26' 8"	26' 8"	26' 8"	26' 8"	25' 11"	26' 8"	26' 8"
Loader clearance circle with bucket in carry position	**With teeth*:**	mm	17 588	17 546	17 656	17 722	—	17 602	17 544
		ft/in	57' 8"	57' 7"	58' 0"	58' 2"	—	57' 9"	57' 7"
	Bare (§)**:**	mm	17 482	17 394	17 550	17 616	17 524	17 496	17 438
		ft/in	57' 4"	57' 3"	57' 7"	57' 9"	57' 6"	57' 9"	57' 3"
Static tipping load straight †		kg	32 657	32 279	33 275	32 268	32 570	30 966	30 916
		lb	71,996	71,162	71,153	71,138	71,804	68,268	68,157
Static tipping load at full 35° turn		kg	29 074	28 710	28 669	28 695	29 029	27 396	27 346
		lb	64,097	63,294	63,204	63,261	63,997	60,397	60,287
Static tipping load at full 40° turn		kg	28 022	27 661	27 621	27 646	27 989	26 348	26 298
		lb	61,777	60,981	60,893	60,948	61,705	58,087	57,977
Static tipping load at full 43° turn (§)		kg	27 334	26 977	26 968	26 960	27 309	25 663	25 613
		lb	60,261	59,474	59,454	59,436	60,205	56,577	56,466
Breakout force †† (§)		kN	548	459	460	460	485	455	451
		lb	123,205	103,252	103,371	103,400	108,897	102,142	101,457
Operating weight † (§)		kg	49 937	50 183	50 211	50 219	49 650	51 443	51 491
		lb	110,092	110,634	110,695	110,713	109,460	113,411	113,517

(§) Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers. SAE Standards J732C govern loader ratings and are denoted in the text by (§).

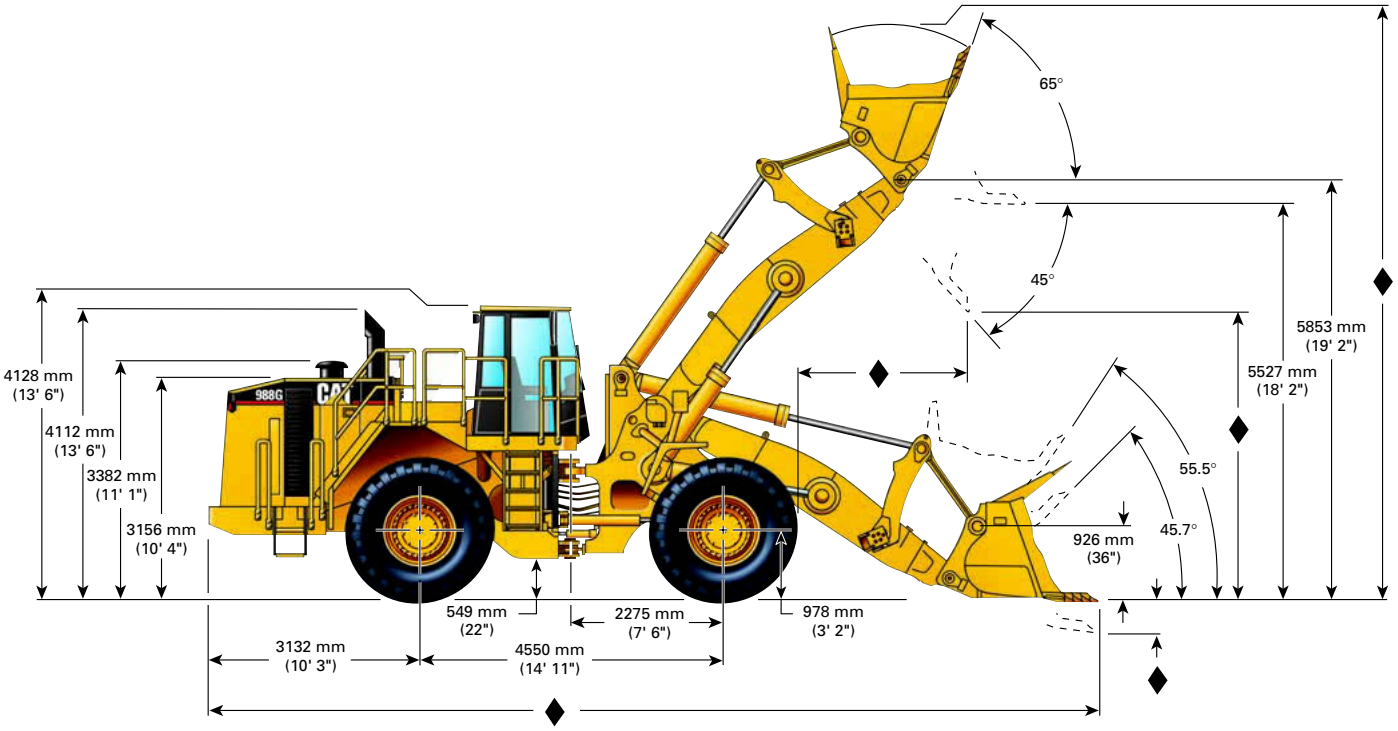
* Dimensions are also measured to the tip of the bucket teeth to provide accurate clearance data. SAE Standards specifies the cutting edge.

† Static tipping load and operating weight shown are based on standard machine configuration with 35/65-33, 36-ply L-4 tires, full fuel tar coolant, lubricants and operator.

†† Measured 102 mm (4.0"): behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732C.

Dimension

All dimensions are approximate.



♦ Dimensions vary with bucket. Refer to Operation/Bucket Specifications.

Tire Dimensions/Specifications

	Width over tires		Ground clearance		Change in vertical dimensions	
	mm	in	mm	in	mm	in
35/65-33, 36-ply L-4 General (Standard)	3473	136.7	549	21.6	0	0
35/65-R33, XLDD1 MX L4 Michelin (Standard)	3554	139.9	514	20.2	35	1.4
35/65-33, 42-ply L-4 General	3473	136.7	549	21.6	0	0
35/65-33, 42-ply L-5 General	3515	138.4	498	19.6	51	2.0
35/65-33, 42-ply L-5 Bridgestone	3543	139.5	583	23.0	-34	-1.3
35/65-33, 36-ply L-4 Firestone	3543	139.5	583	23.0	-34	-1.3
35/65-33, 42-ply L-4 Firestone	3543	139.5	583	23.0	-34	-1.3
35/65-R33, RL4K GY L-4 Goodyear	3574	140.7	508	20.0	41	1.6
35/65-R33, RL5K GY L-5 Goodyear	3523	138.7	508	20.0	41	1.6
35/65-33, 42PR GY L4 Goodyear	3537	139.3	550	21.7	-1	0.0
35/65-33, 42PR GY L5 Goodyear	3537	139.3	550	21.7	-1	0.0
35/65-R33, XLDD2 MX L5 Michelin	3538	139.3	520	20.5	29	1.1

NOTE: In certain applications (such as load-and-carry work), the loader's productive capabilities might exceed the tires tonnes-km/f (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.

Supplemental Specifications

Tires:	Change in Operating Weight Standard (for four tires) kg	lb	Change in Full turn Static Tipping Load kg	lb
35/65-33, 36-ply L-4 General (Standard)	0	0	0	0
35/65-R33, XLDD1 MX L4 Michelin (Standard)	-662	-1459	-384	-847
35/65-33, 42-ply L-4 General	200	441	116	256
35/65-33, 42-ply L-5 General	847	1,867	491	1082
35/65-33, 42-ply L-5 Bridgestone	2087	4601	1210	2668
35/65-33, 36-ply L-4 Firestone	558	1,230	323	712
35/65-33, 42-ply L-4 Firestone	684	1508	397	875
35/65-R33, RL4K GY L-4 Goodyear	129	284	75	165
35/65-R33, RL5K GY L-5 Goodyear	312	688	181	399
35/65-33, 42-ply GY L-5 Goodyear	983	2167	570	1257
35/65-33, 42-ply L-5 Goodyear	824	1817	478	1054
35/65-R33, XLDD2 MX L5 Michelin	-15	-33	-8	-18

Standard Equipment

Standard equipment may vary. Consult your Caterpillar Dealer for specifics.

Electrical
- Alarm, back-up
- Alternator (100-amp)
- Batteries, maintenance-free
- Deutsch terminal connectors
- Diagnostic connector
  - Starting and charging system
- Electrical converter, 12-volt
- Electrical system, 24-volt
- Lighting system, Halogen
  - (Front and Rear)
- Starter, electric (heavy-duty)
- Starter receptacle for emergency start

Operator Environment
- Air Conditioner
- Cab, sound-suppressed, pressurized
  - Internal four-post rollover protective structure (ROPS/FOPS)
  - Radio ready for (entertainment) includes antenna, speakers and converter (12-volt 50-amp)
- Cigar lighter and ashtray
- Coat hook
- Electro-hydraulic tilt and lift controls
- Heater and defroster
- Horn, electric
- Lights, (interior cab)
- Lunchbox and beverage holders
- Loose Material Mode
- Monitoring system (Caterpillar Monitoring System [EMS-III])
  - Action alert system, three category
  - Instrumentation, Gauges:
    - Engine coolant temperature
    - Fuel level
    - Hydraulic oil temperature
    - Torque converter temperature
  - Instrumentation, Warning Indicators:
    - Axle oil temperature (front/rear)
    - Brake oil pressure
    - Coolant flow status
    - Electrical system, low voltage
    - Engine oil pressure
    - Engine overspeed
    - Hydraulic filter status
    - Parking brake status
    - Steering oil pressure
    - Transmission filter status
- Mirrors, rearview (exterior mounted)
- Seat (cloth), Cat Comfort, air suspension
- Seat belt, retractable, 76 mm (3 in) wide
- STIC control system with steering lock
- Tilt and lift control system lock
- Tinted glass
- Transmission gear (indicator)
- Wet-arm wiper/washers (front and rear)
  - Intermittent front wiper

Power Train
- Brakes, full hydraulic, enclosed, wet multiple disc service brakes
- Case drain filtration
- Demand fan
- Engine, Cat 3456 EUI Direct Injected Diesel and ADEM III controller
- Fuel priming aid
- Parking brake
- Precleaner, engine air intake
- Radiator, Advanced Modular Cooling System (AMOCS)
- Separated cooling system
- Starting aid (ether) manual/automatic
- Throttle lock
- Guard, three piece transmission
- Torque converter, impeller clutch with rimpull control system
- Transmission, planetary, auto shift with 4F/3R speed range control

Other Standard Equipment
- Automatic bucket tilt/lift kickouts, electronically adjustable from cab
- Cab tilt support
- Counterweight
- Doors, service access (locking)
- Engine, crankcase, 500 hour interval with CH4 oil
- Ground level fuel fill
- Hitch, drawbar with pin
- Hydraulic oil cooler
- Lower cab cover
- Muffler (under hood)
- Oil sampling valves
- Stairway, left side rear access
- Vandalism protection caplocks
- Venturi stack

Tires, Rims and Wheels
- An allowance for tires is included in the base machine price. Tire selections are shown in the Tire/Supplemental Specifications list on pages 20-21.

Antifreeze
- Premixed 50 percent concentration of extended life coolant with freeze protection to –34°C (-29°F)

Optional Equipment

Optional equipment and customized attachments may vary. Consult your Caterpillar Dealer for specifics.

Auxiliary lights
Axle oil-coolers
Block handler configuration (Custom)
Buckets
Directional lights
Engine Jake Brake
Extended Life Coolant –50°C (–58°F)
Forestry configuration (Custom)
Fuel, fast fill
Fuel, heater
Fuel, fast fill and heater
Guards
  Crankcase
  Steering cylinders
Heater, engine coolant, 120-volt
Heater, engine coolant, 220-volt
High ambient cooling
Hydraulic, three valve
Lock-up clutch
No-SPIN differential, rear only
Oil change, high-speed
Payload Control System (PCS)
Rear intermittent wiper
Rear chain clearance
Ride control
Right-hand stairway
Roading fenders, front and rear
Roof, extended
Secondary steering
Sound suppression, exterior
Steel mill configuration (Custom)
Tires

988G Wheel Loader

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Printed in U.S.A.

AEHQ5388-02 (02-02)

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