



The New Cat[®] 966K XE Wheel Loader with advanced powertrain

25% Less Fuel.

100% Power.



EFFICIENT. COMFORTABLE. SUSTAINABLE.

As fuel costs go up, the drive for more fuel efficient equipment that does not sacrifice power or production is crucial. The world is changing. The way you work is changing. More than ever, you need to find ways to improve your efficiency and productivity. We listened. We responded. We evolved. Caterpillar is proud to introduce the 966K XE wheel loader with an advanced powertrain.



ADVANCED POWERTRAIN DELIVERS UP TO 25% INCREASE IN FUEL EFFICIENCY*



The 966K XE wheel loader, with an **advanced powertrain**, has been engineered to deliver **superior performance** and fuel efficiency while simplifying the operator's interface and operating technique. By utilizing a hydraulic pump and motor (variator unit), the Cat® continuously variable transmission allows for a smooth and continuous gear ratio change between engine speed and machine speed. The variator provides this ratio flexibility while greatly reducing the heat load generated by the drive train when the machine is digging, pushing, and climbing under heavy load.

The continuously variable gear ratio of the variator also enables the ability to run the engine at a more efficient operating range independent of machine ground speed.

Power is transmitted through the variator unit (versatile gear ratio) as well as parallel mechanical gear path (highest **efficiency**). Power through the variator and mechanical paths are combined through a series of planetary gear sets in order to maximize the transmission efficiency over a wide range of operating conditions.

With the continuously variable transmission, shifting of the transmission is automated and transparent to the operator. The operator has the ability to control maximum ground speed through the use of virtual gears to provide **flexibility** in all machine applications. The controls of the advanced powertrain allow for modulated neutralization and retarding via the left pedal.

The Cat continuously variable transmission is engineered to optimally interact with other Cat components of the advanced powertrain and **delivers up to 25% increase in fuel efficiency.***

* fuel efficiency = tons/liter

SIMPLE OPERATION



Operating the 966K XE is extremely simple. There are two pedals:

Left Pedal = STOP

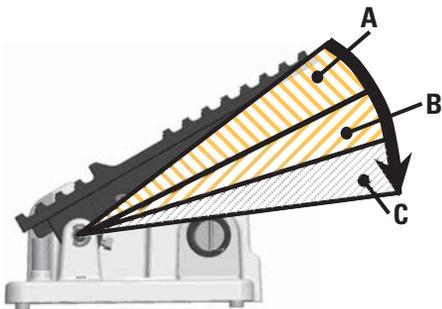
- Modulated Neutralizer
- Integrated Retarding
- Service Brakes

Right Pedal = GO

- Throttle and Rimpull
- Automotive Feel When Coasting



- **Simpler operator interface:**
Reduced operator interface/operating mode complexity.
- **Right pedal control:** For hauling applications, the right pedal can be electronically set to provide the desired amount of propulsion without the need to keep the pedal depressed. The left pedal will act as a modulated neutralizer while maintaining propulsion once the pedal is released.
- **Left pedal modulation:** Provides smooth and continuous operation. Initial pedal travel acts as a modulated neutralizer, progressively reducing rimpull. Further pedal action activates the continuous integrated retarding strategy which continuously and smoothly downshifts the transmission leveraging engine friction (powering hydraulic and fan pumps) as braking power. The service brakes are only applied when the pedal is fully pressed, reducing brake wear.



- A – Modulated neutralizer**
- B – Continuous integrated retarding**
- C – Service brake application**

- **Uninterrupted engine retarding:**
Operator can easily control amount of retarding with the left pedal resulting in a reduction of service brake use/wear.



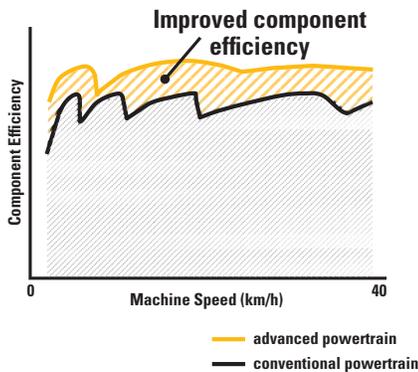
- **Maneuverability on grade:**
Machine maneuvering on grade is made easy with smooth retarding and anti-rollback feature.
 - **Zero pedal down hill speed control:**
Operator can use left and right pedal to achieve desired speed with no further pedal input. Machine speed will maintain pending grade change and braking capacity.
 - **Zero pedal grade holding capability:**
Release of pedals on a grade will not result in rollback.
- **Natural coasting:** Propulsion and retarding is controlled to provide automotive feel with throttle pedal.
- **Advanced power diagnostic:**
On-board diagnostic replaces Single/Double Stall testing and offers additional information to help troubleshoot.
- **Simplified shifting strategy**
 - **Full automatic transmission:**
Operator can choose to put machine in 4F and go without need for further shifting.
 - **Programmable virtual gears:**
Provides familiar, conventional speed range limiting with added flexibility of selecting Virtual Gears in-between (0.5F, 0.6F, 0.7F...1F, etc...) for desired applications. Virtual gears allow for precisely matched grade and load with retarding capacity or for limiting top speed when working in enclosed area.
 - **Integrated flexibility:** Separate and settable Forward and Reverse maximum speed virtual gears make operating the machine simple.
 - **Smooth and continuous deceleration under load without manual downshifting:** Allows an operator to engage the pile from 2nd gear run out speeds without having to manually downshift. Intuitively changes from roading to dozing without the need of operator input.
- **Simpler directional shift operation:**
Offers smooth and efficient directional changes without the need to modulate brakes/throttle, or coast in neutral, resulting in increased tire life and operator comfort.

BENEFITS



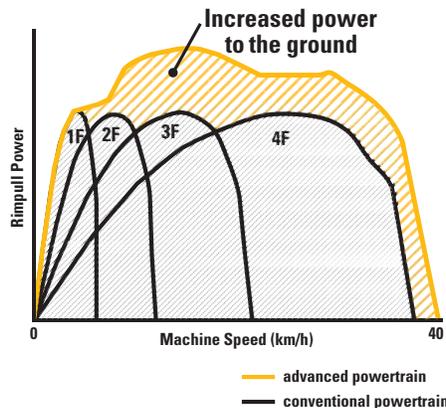
Efficiency and Performance

- Improved component efficiency:** Hydraulic Variator takes the place of the Torque Converter for reduced heat generation under severe rimpull load.
 - While aggressively digging, the Cat continuously variable transmission consumes roughly half the energy versus a conventional transmission.



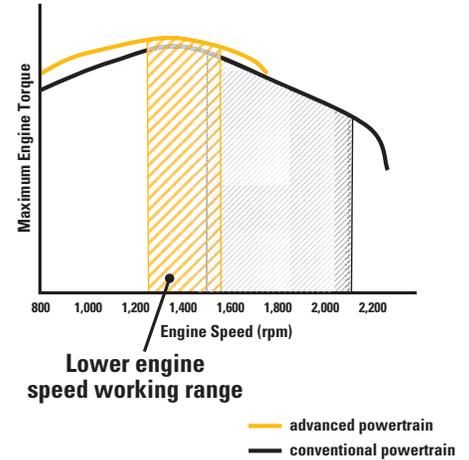
- Engine operates more economically:** With the Cat continuously variable transmission, the machine momentum can be recovered as free energy to power implements and/or fan.

- Smart deceleration:** Machine deceleration during a directional change is powered with engine friction rather than engine fuel equating to savings in fuel consumption.
- Lower fan speeds:** Lower heat loads drive lower fan speeds lowering fuel consumption.
- Powerful aggressive operation:** While maintaining the ability to operate effectively in moderate applications, this machine delivers improved performance on grade and in aggressive applications.



Comfort

- Smooth part throttle operation:** Machine is well balanced and easier to operate at extremely low engine speeds, providing increased productivity while burning less fuel.



- Hold downhill grades at higher speeds:** Increased retarding capacity to hold speeds on steeper grades by leveraging fan and implements as retarding sources.
- Consistent grade climbing capability:** Performance change with grade change is subtle due to not having to shift between discrete gears and machine speed not directly tied to engine speed.
- Faster learning with novice operators:** It is easier to become effective with the Cat continuous variable transmission. There is no need to shift gears which enables the operator to focus on loading the bucket.



- **Engine lug prevention:** Power management balances the power to drive train and power to implements to prevent stalling the engine.
- **Lower engine and fan speeds** result in lower sound.

- **Engine overspeed prevention:** The operator can confidently utilize the machine while the integrated power system control strategies prevent ability to overspeed the engine while maximizing retarding performance.
- **Eliminate axle oil cooler:** Reduces the need for axle oil cooler in aggressive applications due to less reliance on service brakes.

Sustainability

- **Reduce regeneration interval:** Significantly lower engine operating speeds reduce soot load, increase duration between regeneration cycles and reduce fuel consumed for aftertreatment regeneration.
- **Reduced fuel consumption** could result in extended engine life rebuild intervals.
- **Integrated retarding and modulated torque control** could result in increased tire and brake life.

SPECIFICATIONS

Engine

Engine Model	Cat® C9.3 ACERT™	
Max. Engine Power – ISO 14396 (1,700 rpm) metric	240 kW	321 hp
Max. Gross Power – SAE J1995 (1,700 rpm) metric	243 kW	325 hp
Max. Net Power – SAE J1349, ISO 9249 (1,700 rpm) metric	223 kW	299 hp
Max. Gross Torque – ISO 14396 (1,200 rpm)	1473 N·m	1,086 ft·lb
Max. Gross Torque – SAE J1995 (1,200 rpm)	1490 N·m	1,099 ft·lb
Max. Net Torque – SAE J1349, ISO 9249, EEC 80/1269 (900 rpm)	1409 N·m	1,039 ft·lb
Bore	115 mm	4.5 in
Stroke	149 mm	5.9 in
Displacement	9.3 L	568 in ³

- Cat engine with ACERT Technology – meets Tier 4 Interim/Stage IIIB emission standards.

Weights

Operating Weight	24 189 kg	53,311 lb
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- For 4.2 m³ (5.5 yd³) general purpose buckets with BOCE.

Operating Specifications

Static Tipping Load Full 37° Turn – ISO 14397-1*	14 636 kg	32,259 lb
Static Tipping Load Full 37° Turn – Rigid Tires**	15 828 kg	34,886 lb
Breakout Force	173 kN	38,984 lb

- For 4.2 m³ (5.5 yd³) general purpose bucket with BOCE.
- * Full compliance to ISO (2007) 14397-1 Sections 1 thru 6, which requires 2% verification between calculations and testing.
- ** Compliance to ISO (2007) 14397-1 Sections 1 thru 5.

Transmission Virtual Gears

Type	LVT 145 Continuously Variable	
Forward 1	6.7 km/h	4.2 mph
Forward 2	12.6 km/h	7.8 mph
Forward 3	22.1 km/h	13.7 mph
Forward 4	40 km/h	24.9 mph
Reverse 1	6.7 km/h	4.2 mph
Reverse 2	13.9 km/h	8.6 mph
Reverse 3	28 km/h	17.4 mph

- Maximum travel speed in standard vehicle with empty bucket and standard L3 tires with 826 mm (33 in) roll radius.

Hydraulic System

Steering System Pump Type	Piston	
Implement System – Maximum Pump Output (1,400 rpm)	340 L/min	90 gal/min
Implement System – Maximum Operating Pressure	31 000 kPa	4,496 psi
Implement System – Optional 3rd Function Maximum Flow	300 L/min	79.3 gal/min
Implement System – Optional 3rd Function Maximum Pressure	20 700 kPa	3,000 psi
Hydraulic Cycle Time – Raise from Carry Position	5.9 seconds	
Hydraulic Cycle Time – Dump, at Maximum Raise	1.5 seconds	
Hydraulic Cycle Time – Lower, Empty, Float Down	2.4 seconds	
Hydraulic Cycle Time – Total	9.8 seconds	

- Cycle time with rated payload.

Service Refill Capacities

Fuel Tank – Standard	381 L	101 gal
Cooling System	65 L	17.2 gal
Crankcase	24.5 L	6.5 gal
Transmission	60 L	15.9 gal
Differentials and Final Drives – Front	64 L	16.9 gal
Differentials and Final Drives – Rear	64 L	16.9 gal
Hydraulic Tank	198 L	52.3 gal