

# 928Hz

Wheel Loader

**CATERPILLAR**<sup>®</sup>



**Cat<sup>®</sup> C6.6 Engine with ACERT<sup>™</sup> Technology**

Max. Gross power 121 kW/165 hp

**Weight**

Operating Weight 12 560 kg

**Buckets**

Bucket Capacity 2.0-2.5 m<sup>3</sup>

## 928Hz Features

### High Performance Power Train

*Designed and manufactured by Caterpillar to allow superior power and durability.*

### Powerful Hydraulic System

*System senses work demand and adjusts flow and pressure to match for precise, efficient control.*

### Loader Linkage

*Proven design delivers outstanding bucket loading performance.*

### Comfortable Cab

*Large, spacious cab and low-effort, ergonomic joystick controls let you concentrate on your work.*

### Buckets

*Caterpillar® buckets deliver superior digging, loading and carrying performance.*



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**The Cat® 928Hz Wheel Loader leads the industry in operator comfort and performance. Size, power, and performance make this machine ideal for a wide range of jobs. Fast cycle times help you move more material. Large spacious cab with joystick control keeps you comfortable throughout the work day, allowing you to get more done. Loader design delivers strength and durability with superior control. Discover how much more you can get done with the new 928Hz.**



# Power Train

Delivers maximum rimpull to the ground and full power to loader hydraulics.

## Cat Engine

The Cat® C6.6 engine provides cleaner, quieter operation while delivering superior performance and durability. The 112 kW (152 hp) rated net power engine meets all worldwide emissions standards and features flatter power curve for outstanding response in the working RPM range and patented ACERT™ Technology combined with common rail fuel system, smart waste gate turbocharger and crossflow head design for reduced emissions.

## Cat Axles

Heavy-duty axles feature hardened gears and bearings for durable performance. Rear axle oscillates up to 12 degrees to help assure four-wheel ground contact for optimum traction and stability. Standard full locking front axle differentials enable outstanding traction in poor underfoot conditions. Rear axle limited slip differential also available as an option.

## Cat Transmission

Rugged Cat transmission uses heavy-duty components for durable and reliable operation. The operator can choose between manual shift and two autoshift modes, Performance or Economy. Performance mode provides maximum acceleration while the economy mode increases fuel economy and improves operator comfort.

# Hydraulics

System provides high efficiency with low effort, precise control.



## Proven Design

Time tested hydraulic system provides low effort operation and superior control. Fast loader cycle times help you get more done.

## Dual Hydraulic Pumps System

Load-sensing steering pump provides outstanding response during heavy and light duty operations.

High output implement pump provides all the hydraulic power required to move loads at all engine speeds.

## Ride Control System

The optional Ride Control System provides a comfortable ride and excellent material retention.

Nitrogen charged accumulator enables optimum cushioning over uneven terrain for all loads and speeds.

The system operates in Automatic – as the loader ground speed exceeds 5 km/h the system will activate, below 5 km/h the system is off providing maximum lift power.

## Loader Linkage

Strong design delivers superior performance.

### 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 for exceptional truck loading performance.





# Operator Station

Superior comfort keeps you productive, all day long.

Experience comfort and convenience in the H-Series cab. The spacious interior and ergonomic controls keep you comfortable throughout the work day. Choose the seat that meets your needs – the standard, fully adjustable seat or the optional Cat Contour seat for added adjustment and air suspension. The two-door design lets you enter and exit from either side of the machine and wide, serrated steps provide stable footing. Both doors lock open 180 degrees and feature sliding glass windows for better communication with workers on the ground. Large flat glass windows provide excellent visibility all around the machine. The rear window features a standard electric defroster.

## Controls

Low effort, ergonomic joystick controls provide easy operation of lift and tilt functions. The standard joystick features an integrated directional control switch for added convenience. The operator programmable transmission neutralizer can be set in seconds optimizing brake effort for all applications.

## Instrument Panel

The sealed instrument panel with easy to read white faced gauges and indicators keeps the operator informed of system conditions. The large LCD readout provides ground speed and other critical information.

## Optional Rear View Camera

This work area visual enhancement system uses a closed circuit video monitoring system. Up to three cameras can be mounted on the machine frame. Objects can be viewed on a color LCD monitor in the cab.

# Buckets

Cat Buckets are built for high performance.

## The Right Bucket for the Job

Caterpillar offers a variety of buckets to meet your specific job requirements. Careful match of the bucket design and machine operating characteristics provide the best digging, loading and carrying performance.

## General Purpose Buckets

Caterpillar general purpose buckets, available in 2.0 m<sup>3</sup> and 2.3 m<sup>3</sup> capacities with bolt-on cutting edge, are suitable for most general applications. Features include:

- Improved bucket design with longer floor and a larger radius for easier flow of material into the bucket.
- Patented Two-Bolt Corner Guard Cutting Edge System for superior wear resistance, better stability and a simple bolt-on system.
- Built-in, replaceable heel wear plates for extended bucket life.

## Sand and Gravel Bucket

These 2.2 m<sup>3</sup> and 2.5m<sup>3</sup> heavy duty material handling buckets, built with additional wear plates on the floor and sides, are engineered for ready mix or batch plant applications with plant capacity of 200 tons per hour.

## Ground Engaging Tools

Ground engaging tools include hardened steel cutting edges, choice of short or long teeth and a variety of tooth adapters. These tools optimize performance, improve load retention and extend the useful life of Caterpillar buckets.

## Versatility

For expanded machine versatility, other special purpose buckets are also available. Contact your Caterpillar dealer for details.



# Serviceability

Easy access and minimal maintenance requirements keep your machine on the job.



## Convenient service features make maintenance easy

All service points are accessible from ground level on the right side of the engine. Gull-wing doors with gas struts lift for exceptional access to filters and service points. Extended service intervals reduce service time and increase machine availability.

- Sight gauges let you easily check radiator coolant, hydraulic oil and transmission oil levels as well as engine air filter restriction without opening the air cleaner.
- Standard pressure taps allow quick diagnosis of the entire hydraulic system.
- S•O•S<sup>SM</sup> ports make oil sampling quicker, cleaner and provide the best oil sample for analysis.
- Spin-on filters for engine oil, transmission oil and hydraulic oil are vertically mounted for easier servicing.
- 928Hz features a standard electronic fuel prime pump.
- Sequentially placed radiator and oil coolers are easy to access.
- Swing-out cooling fan allows quick and easy cleaning and servicing of the radiator. The fan is hydraulically driven and separate from the engine compartment for low noise operation.
- Optional reversing fan cleans screens without interrupting machine operation.

# Customer Support

Unmatched support makes the difference

**Your Cat dealer is ready to assist you with your purchase decision and everything after.**

- Make comparisons of machines, with estimates of component life, preventative maintenance and cost of production.
- Financing packages are flexible to meet your needs.
- Your Cat dealer can evaluate the cost to repair, rebuild and replace your machine, so you can make the right choice.
- For more information on Cat products, dealer services and industry solutions, visit us at [www.cat.com](http://www.cat.com).



# 928Hz Wheel Loader Specifications

## Engine

Model: Cat® C6.6 ACERT™, 6 cylinder, turbocharged, direct injection, 2300 rpm rated speed

### Rated Power

Net: ISO 9249 and 80/1269/EEC	112/152 kW/hp
Gross: ISO 14396	113/154 kW/hp

### Max. Power

Net: ISO 9249 and 80/1269/EEC	120/163 kW/hp
Gross: ISO 14396 and SAE J1995	121/165 kW/hp

### Peak torque

Net: ISO 9249 and 80/1269/EEC	738 Nm
Gross: ISO 14396	742 Nm

Bore	105 mm
Stroke	127 mm
Displacement	6.6 L

- Net Power ratings are tested at the reference conditions for the specified standard.
- Net power shown is the power available at the flywheel when the engine is equipped with alternator, air cleaner, muffler and fan at minimum speed.
- No derating required up to 3000 m altitude. Auto derate protects hydraulic and transmission systems.
- The Caterpillar® C6.6 engine meets Stage III off-highway emission regulations.

## Buckets

Bucket capacities 2.0-2.5 m<sup>3</sup>

## Weight

Operating weight 12 560 kg

- Specifications shown are for 928Hz with optional counterweight, standard lubricants, full fuel tank, deluxe cab, Limited Slip rear axle with heavy duty brakes, additional guarding, 2.0 m<sup>3</sup> bucket with bolt-on cutting edge, 80 kg operator and 20.5 R 25 radial (L-3) XHA tires.

## Steering

Steering articulation	40°
Minimum turning radius (over tire)	5233 mm
Steering angle, each direction	40°
Steering cylinders, two, bore	70 mm

Hydraulic output at 2300 engine rpm and 69 bar	104 L/min
Maximum working pressure	207 bar

## Loader Hydraulic System

Output at 2300 engine rpm and 69 bar with SAE 10 W oil at 65° C 152 L/min

Pump flow – implement pump 152 L/min

Relief pressure – implement pump 259 bar

Maximum working pressure 259 bar

Hydraulic cycle time	Seconds
Raise	6.1
Dump	1.2
Lower, empty, float down	2.8
Total	10.1

Lift cylinders, double acting:

Bore	120.6 mm
Stroke	685 mm

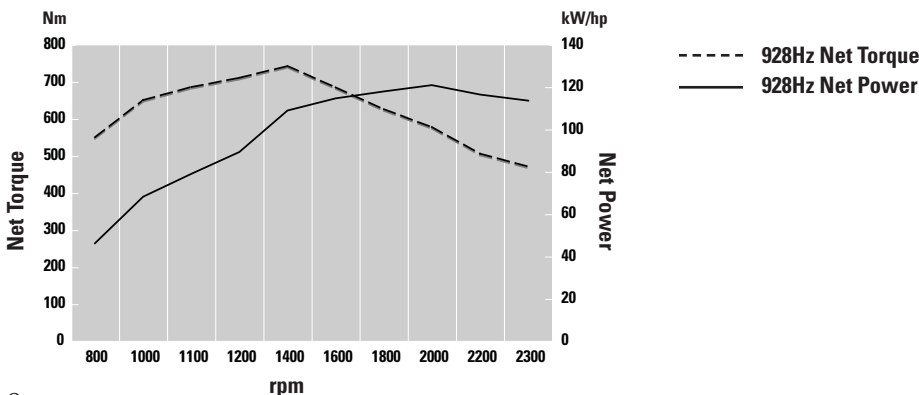
Tilt cylinder, double acting:

Bore	127 mm
Stroke	550 mm

## Service Refill Capacities

	liter
Fuel tank	225
Cooling system	42
Crankcase	15
Transmission	34.5
Differentials and final drives:	
Front	26
Rear	25
Hydraulic system (including tank)	125
Hydraulic tank	70

## Engine Torque





# 928Hz Wheel Loader Specifications

## Transmission

	km/h
Standard transmission max travel speeds	38
Forward	
1	8
2	13
3	26
4	38
Reverse	
1	8
2	13
3	26

## Tires

Size	20.5 R 25 (L-3) XHA
Tread width	2570 mm

- Choice of:
 

17.5–25, 12 PR (L-2)
17.5–25, 12 PR (L-3)
17.5 R 25 (L-2)
17.5 R 25 (L-3)
20.5–25, 12 PR (L-2)
20.5–25, 12 PR (L-3)
20.5 R 25 (L-2)
20.5 R 25 (L-3)

- Other tire choices are available, contact your Cat Dealer for details.
- In certain applications, the loader's productive capabilities may exceed the tire's tonnes-km/h capabilities. Caterpillar recommends that you consult a tire supplier to evaluate all conditions before selecting a tire model.

## ROPS/FOPS

- Caterpillar cab with integrated Rollover Protective Structure (ROPS/FOPS) are standard.
- ROPS meets ISO 3471:1994.
- FOPS meets ISO 3449:1992 Level II.

## Sound

### Operator Sound

The operator sound level measured according to the procedures specified in ISO 6394:1992 is 74 dB(A), for cab offered by Caterpillar, with doors and windows closed.

### Exterior Sound

As manufactured by Caterpillar, this machine's exterior sound power level meets the criteria spelled out in the European Directives noted on the certificate of conformance and the accompanying labeling.

- Standard version 105 dB(A)
- Low sound or Blue Angel version 101 dB(A)

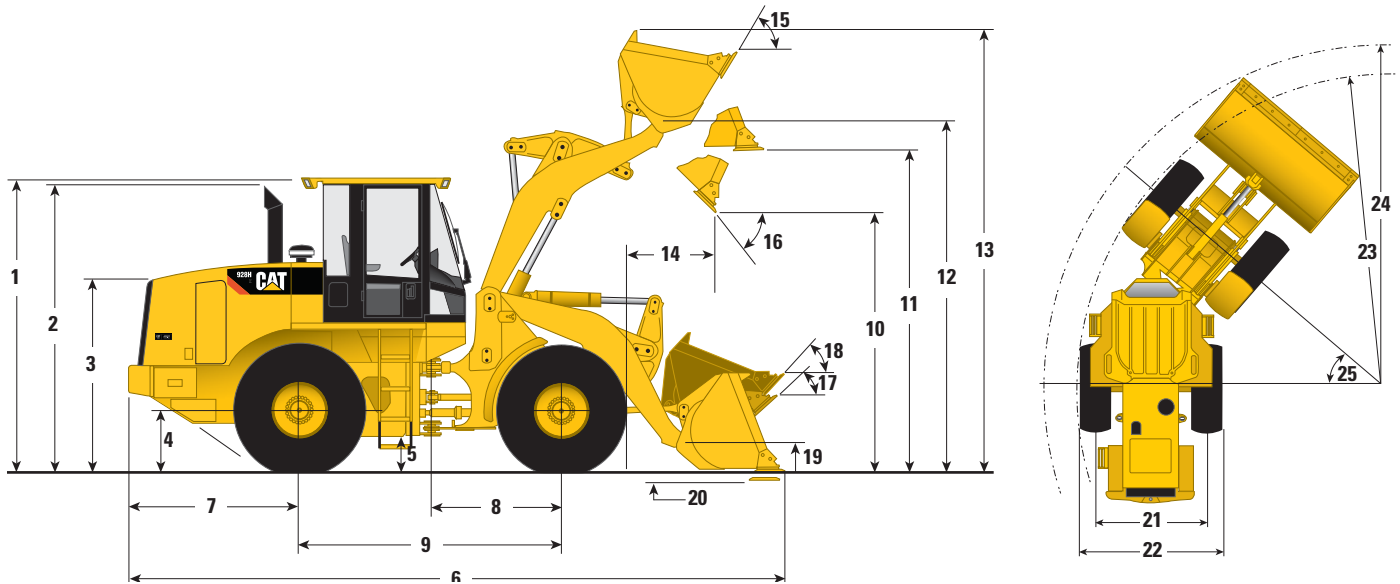
## Operating Specifications

Static tipping load (full turn)	8658 kg
Reach – full lift/ 45 degree dump angle	927 mm
Dump clearance – full lift/ 45 degree dump angle	2879 mm
Articulation angle (each side)	40°

# 928Hz Wheel Loader Specifications

## Dimensions

All dimensions are approximate. Dimensions may vary with bucket. Refer to Operating Specifications.



<b>1</b> Height to top of ROPS/FOPS		3269 mm
<b>2</b> Height to top of exhaust stack		3289 mm
<b>3</b> Height to top of hood		2197 mm
<b>4</b> Height to centre of axle		685 mm
<b>5</b> Ground clearance		408 mm
<b>6</b> Overall length		7252 mm
<b>7</b> Length - rear axle to bumper		1920 mm
<b>8</b> Centre line of front axle to hitch		1450 mm
<b>9</b> Wheel base length		2900 mm
<b>10</b> Dump clearance at maximum lift and 45° dump angle		2879 mm
<b>11</b> Bucket clearance at maximum lift and level		3752 mm
<b>12</b> Bucket pin height at maximum lift		3872 mm
<b>13</b> Overall height - bucket raised		4971 mm
<b>14</b> Reach at maximum lift and 45° dump angle		927 mm
<b>15</b> Rack back angle at maximum lift		60°
<b>16</b> Dump angle at maximum lift		45°
<b>17</b> Rack back angle at ground		44°
<b>18</b> Rack back angle at carry		48°
<b>19</b> Carry height		449 mm
<b>20</b> Digging depth		86 mm
	<b>17.5-25 12 PR (L-2) Tires</b>	<b>20.5 R 25 (L-3) Tires</b>
<b>21</b> Width over tread center	1950 mm	1850 mm
<b>22</b> Overall width over tires	2407 mm	2470 mm
<b>23</b> Minimum turning radius over tires	5186 mm	5225 mm
<b>24</b> Minimum turning radius over bucket at ground level	5795 mm	5794 mm
<b>25</b> Steering angle - left/right	40°	40°
Change in vertical dimension	-65 mm	0

Dimensions listed are for 928Hz with 2.0 m<sup>3</sup> pin-on bucket with bolt-on cutting edge, cab with A/C, optional counterweight, limited slip axles, heavy duty rear brakes, additional guarding, sound suppression, work tool, 80 kg operator and Michelin 20.5 R 25 L-3 XHA tires.

## Operator Specifications

		Pin-On Buckets			
		With Bolt-On Cutting Edge		With Weld On-Teeth**	
Rated bucket capacity *	m <sup>3</sup>	2.0	2.3	2.2	2.5
Struck capacity *	m <sup>3</sup>	1.7	1.9	1.8	2.1
Bucket width	mm	2549	2549	2532	2600
<b>10</b> Dump clearance at full lift and 45° discharge *	mm	2879	2842	2719	2624
<b>14</b> Reach at full lift and 45° discharge *	mm	927	964	1060	1105
Reach at 45° discharge and 2130 mm clearance *	mm	1455	1474	1486	1495
Reach with lift arms horizontal and bucket level	mm	2253	2305	2451	2571
<b>20</b> Digging depth *	mm	86	86	97	90
<b>6</b> Overall length	mm	7252	7304	7303	7420
<b>13</b> Overall height with bucket at full raise *	mm	4971	5070	5075	5139
<b>24</b> Loader clearance radius with bucket in carry position *	mm	5781	5796	5831	5902
Static tipping load, straight *	kg	9983	9911	9951	9777
Static tipping load, full 40° turn *	kg	8654	8585	8615	8451
Breakout force *	kN	115	109	117	104
Operating weight	kg	12 564	12 618	12 667	12 756

Specifications shown are for 928Hz with cab with A/C, optional counterweight, limited slip axles, heavy duty rear brakes, additional guarding, sound suppression, work tool, 80 kg operator and Michelin 20.5 R 25 L-3 XHA tires.

\* Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers (SAE), including SAE-Standards J732 JUN92 and J742 FEB85 governing ratings.

\*\*Dimensions are measured to the tip of the bucket teeth to provide accurate clearance data. SAE standards specifies the cutting edge. Other Ground Engaging Tools available, consult your Cat dealer.

# 928Hz Wheel Loader Specifications

## Supplemental Specifications

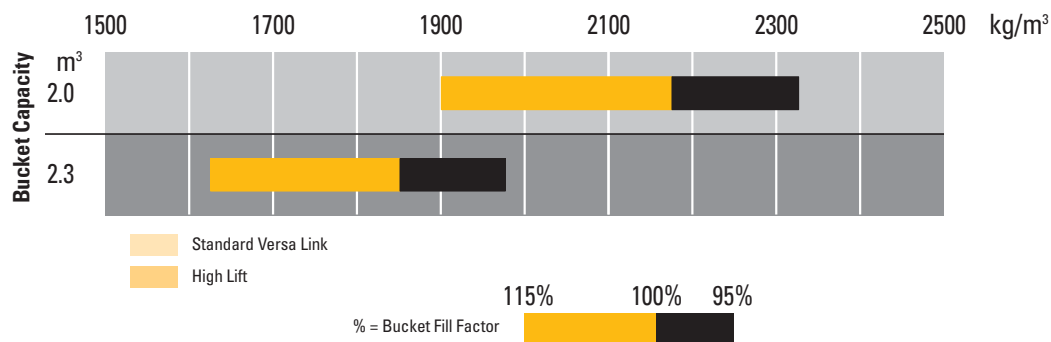
	Change in Operating Weight	Change in Articulated Static Tipping Load with Pin-On Bucket 2.0 m³
	kg	kg
Canopy, ROPS (less cab)	-198	-181
No optional counterweights	-470	-751
Substitute 296 kg optional counterweight	-174	-278
Without guard, crankcase	-17	-22
Without guard, power train	-58	-56
Without ride Control System	-41	-28
Without secondary steering	-42	-52
Tires, 1 piece rims		
17.5-25, 12PR (L-2)	-661	-410
17.5-25, 12PR (L-3)	-582	-361
17.5-25, radial (L-2/L-3)	-519	-322
17.5-R25, radial (L-2)	-614	-381
17.5 R25, radial (L-3)	-458	-284
Tires, 3 piece rims		
17.5-25, 12PR (L-2)	-529	-328
17.5-25, 12PR (L-3)	-457	-283
17.5-25, radial (L-2/L-3)	-413	-256
17.5-25, radial (L-2)	-489	-303
17.5 R25, radial (L-3)	-389	-241
20.5-25, 12PR (L-2)	-240	-149
20.5-25, 12PR (L-3)	-96	-60
20.5-25, radial (L-2/L-3)	-52	-33
20.5-25, radial (L-2)	-172	-107
20.5 R25, radial (L-3)	-0	0
600/65 R25, radial (L-3) Michelin	+4	+2

## Typical Material Densities – Loose

	kg/m <sup>3</sup>		kg/m <sup>3</sup>
Basalt	1960	Gypsum	
Bauxite, Kaolin	1420	broken	1810
Clay		crushed	1600
natural bed	1660	Limestone	
dry	1480	broken	1540
wet	1660	crushed	1540
Clay and gravel		Sand	
dry	1420	dry, loose	1420
wet	1540	damp	1690
Decomposed rock		wet	1840
75% rock, 25% earth	1960	Sand and clay	
50% rock, 50% earth	1720	loose	1600
25% rock, 75% earth	1570	Sand and gravel	
Earth		dry	1720
dry, packed	1510	wet	2020
wet, excavated	1600	Sandstone	1510
Granite		Shale	1250
broken	1660	Slag	
Gravel		broken	1750
pitrun	1930	Stone	
dry	1510	crushed	1600
dry, 6-50 mm	1690		
wet, 6-50 mm	2020		

## Bucket Selection – Pin-on Buckets

Material Density



# 928Hz Standard Equipment

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

## ELECTRICAL

Alternator, 95-amp brushless  
Batteries, maintenance-free, 950 CCA, (2)  
Starting and charging system, 24V  
Halogen work lights (front & rear)  
Ignition key start/stop switch  
Starting aid, thermal  
Switch, battery disconnect

## OPERATOR ENVIRONMENT

Standard two door cab includes all of the following items:

Heater/defroster  
Radio ready  
12 volt electrical accessory outlet  
Sealed Instrument Gauge:

- Engine RPM
- Hydraulic oil temperature
- Engine coolant temperature
- Torque converter oil temperature
- Fuel level
- Digital LCD speedometer, hour meter/odometer

Indicator Lights:

- Turn signal
- Primary steering malfunction
- Hydraulic oil bypass
- Parking brake applied
- Brake charge pressure low
- Transmission oil temperature
- General warning
- Electrical system voltage low
- Fuel water separator
- Engine oil temperature
- Bright lights activated

Adjustable tilt steering column  
Coat hook  
Ground level door release  
Horn, steering wheel mounted (electric)  
Hydraulic control lever lockout  
Interior light  
Lighter  
Lunch box storage with cup holder  
Pilot hydraulic implement controls  
Rear window defroster, electric  
Rear view mirrors (2 inside)  
Seat, adjustable suspension, armrest (fabric or vinyl)  
Seat belt,  
Tinted safety glass, front  
Wet arm wiper/washer (front and rear), front intermittent

## POWER TRAIN

Engine, Cat C6.6 ACERT  
Dust Bowl Pre-Cleaner

- Low emission diesel engine
- Noise reduction technology
- Smart waste gate turbocharged
- Aftercooled
- Closed Circuit Breather
- Electronically controlled

Air cleaner, dry type  
Brakes, enclosed wet-disc full hydraulic  
Differentials, conventional (front/rear)  
Driveshaft, lubed for life  
Electric fuel prime pump  
Engine speed control  
Fuel/water separator  
Muffler  
Radiator, unit serviceable

S•O•S oil sampling port, engine oil  
S•O•S oil sampling port, transmission oil  
Torque converter  
Transmission, 4F/3R, autoshift, single lever control with F/N/R and kickdown button  
Transmission neutralizer; operator programmable

## HYDRAULICS

Hydraulic diagnostic connectors  
Heavy duty hydraulic oil cooler  
Hydraulic control, 2-valve, 1-lever with F/N/R  
Load-sensing steering system  
S•O•S<sup>SM</sup> oil sampling port, hydraulic oil

## OTHER STANDARD EQUIPMENT

Antifreeze/coolant, extended-life protects to -36° C  
Automatic bucket positioner/fork positioner  
Brakes, secondary and parking  
Counterweight  
Engine enclosure, lockable  
Fenders, front  
Hitch, recovery  
Loader linkage, z-bar  
Lift kickout, automatic  
Machine Security System ready  
Product Link ready  
Remote grease lines  
Steering stops, cushioned  
Swing-out, hydraulically driven demand fan  
Vandalism protection, lockable service points  
Visual indicators:

- air cleaner service
- coolant level
- hydraulic oil
- transmission oil

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

Antifreeze/coolant, extended-life, protects to -50° C

Axles:

- Front Limited Slip Differential
- Rear Limited Slip Differential

Beacon light, rotating or strobe, magnetic mount

Buckets/ground engaging tools

Canopy, ROPS

Counterweight, additional, optional

Coupler controls and lines

Alarm, Back up

Roading lights

Deluxe Cab arrangement includes:

- External heated mirrors
- Sunscreen
- Sun shade
- Sliding glass
- Air Conditioner
- Flood lights, auxiliary, cab mounted

Fan, reversing

Fenders, roading, rear

Fenders, steel

Guards:

- Crankcase
- Driveshaft, front
- Power train
- Lights
- Windshield
- Radiator

Hydraulic control auxiliary, third valve

Load check valves (dealer installed)

Machine Security System

Material handling arm

Pallet forks, carriage

Product Link

Quick Coupler

Radiator, wide fin spacing

Waste Handler Packages

Speed Limiter 20 km/h

Radio packages:

- Radio, AM/FM with CD player

Rear-view camera system

Ride Control System

Seats:

- Cat Contour Seat, fabric, with adjustable backrest and lumbar support
- Cat Contour Seat, fabric, electrically adjustable with air suspension

Sound suppression package, available in select markets

Starting aid, engine coolant heater, 120 V, 220 V

Steering, secondary

Tires:

- Bias ply, 17.5-25 and 20.5-25
- Radial, 17.5 R 25, 20.5 R 25

# 928Hz Wheel Loader

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at [www.cat.com](http://www.cat.com)

HEHQ3665 (12-2007) hr

Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Caterpillar dealer for available options.

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