

938G

Wheel Loader

CAT[®]

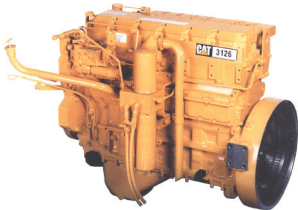


Cat[®] 3126 Engine

Rated flywheel power	106 kW	145 hp
Bucket capacities	2.1 to 2.8 m ³	2.75 to 3.65 yd ³
Operating weight	13 030 kg	28,731 lb

3126 Engine

The six-cylinder, turbocharged and aftercooled engine is built for power, reliability, economy and low emissions.



Powerful performance. The 938G performs at full-rated flywheel power of 108 kW (145 hp), while meeting all current and proposed worldwide emissions standards up to the year 2001. The four-stroke cycle design delivers long power strokes and efficient fuel combustion with low emissions. The turbocharged and aftercooled Caterpillar 3126 engine is precisely engineered and stringently tested to maintain a tradition of quality. It does it all with profit-boosting performance, heavy duty durability and reliability, built-in serviceability and excellent fuel economy.

Torque Rise. The unit injected fuel system provides a controlled fuel delivery increase as the engine lugs back from rated speed. This occurs during the work cycle and results in increased horsepower above rated power. Combined with increased torque rise, this improves response, provides greater rimpull, more lift force and faster cycle times. The 115 kW (158 hp) peak power increase occurs at approximately 1900 rpm's when power is needed during the working range.

Turbocharger enhances performance and engine efficiency, especially at high altitudes by packing more air in the cylinders for excellent combustion.

Jacket Water Aftercooler reduces smoke and emissions by providing a cooler, more efficient combustion.

Crankshaft is forged and induction hardened for long-term durability. Connecting rods can be removed through the tops of the cylinders for excellent serviceability.

Individual, high-pressure unit injectors atomize fuel efficiently for economy and low emissions.

Deep skirt designed block ensures rigidity and reduces vibration.

Two-piece pistons with forged steel crown and aluminum skirt provide durability, low vibration and enhanced fuel efficiency.

Camshaft roller followers reduce wear for durability and fuel economy. Followers and pushrods can be easily replaced without removing the camshaft.

Easy maintenance. The engine can be rebuilt for a second life. Caterpillar remanufactured parts are available to economically replace many components.

Standard Equipment

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

Electrical

- Alternator (50-amp)
- Back up alarm
- Batteries (two 12-volt, maintenance free, 650 CCA)
- Converter, 12-volt
- Direct electric starting (24-volt)
- Ignition key start/stop switch
- Lighting system, Halogen (road and working)

Operator Environment

- Cab, pressurized with sound suppression and rollover protective structure (ROPS)
- Cigar lighter
- Coat hook
- Cloth seat, KAB
- Cup and thermos holders
- Dome light
- Heater and defroster
- Horn, electric (steering wheel mounted)
- Implement lever lockout
- Instrumentation
 - Battery voltage gauge
 - Engine coolant temperature gauge
 - Fuel level gauge
 - Hydraulic oil temperature gauge
- Radio ready cab, includes 2-amp converter
- Rearview mirrors, interior

- Seat belt, retractable, 75 mm (3") wide
- Warning indicators
 - Alternator
 - Coolant temperature
 - Engine oil pressure
 - Hydraulic filter bypass
 - Hydraulic oil temperature
 - Parking brake
 - Service brake oil level
- Windshield washers/wipers, wet-arm (front and rear), front intermittent

Power Train

- Brakes, full hydraulic, enclosed wet-disc
- Cat 3126 diesel engine, turbocharged and aftercooled
- Fuel filters, series
- Fuel priming aid
- Fuel/water separator
- Multi-row modular radiator
- Precleaner, engine air intake
- Radiator cooling fan, hydraulically driven
- Torque converter
- Transmission, automatic power shift (4F/3R) with fully automatic speed range control and quick gear kickdown button
- Transmission neutralizer on/off switch

Other Standard Equipment

- Automatic bucket positioner
- Automatic lift kickout
- Bottom guard
- Counterweight
- Drawbar hitch with pin
- Fenders, front and rear
- Hydraulic diagnostic connectors
- Indicators
 - Air cleaner service
 - Coolant level sight gauge
 - Hydraulic oil level sight gauge
- Loader linkage, sealed Z-bar design
- Long Life Coolant antifreeze
- Pilot hydraulic controls
- Steering, load-sensing hydraulic
- Tilting hood, non-metallic, one-piece
- Vandalism protection caplocks

Optional Equipment

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

With approximate changes in operating weights.

	kg	lb		kg	lb
Air conditioning	73	161	Hydraulic oil cooling package	3	7
Auxiliary lighting package	8	18	Hydraulic arrangement:		
Buckets		see page 8-10	Three valve	25	55
Cab removed, ROPS remains	-198	-437	Wobble stick	0	0
Differentials:			Mirrors, outside mounted	5	11
NoSPIN (rear only)	2	5	Payload Control System	15	33
Limited Slip (front and rear)	8	18	Ride Control System	22	49
Field installed attachments:			Roll-down sun screen (rear window)	2	4
Guard, power train	57	126	Seat, air suspension	5	11
Engine coolant heater,			Signal lights, directional	8	18
120-volt, 220-volt	1.4	3	Speedometer	1	2
Lighting system, warning			Starting aids:		
(rotating beacon)	3	7	Air intake heater	2	5
Mirrors, outside mounted	5	11	Engine coolant heater, 120-volt	1.4	3
Emergency starting receptacle			Ether starting aid	1	2
Radio, AM/FM cassette			Receptacle, 120-volt, 220-volt	3	7
in fixed mounting or quick			Steering, supplemental	30	66
release versions	1.5	3	Sun visor	1	2
Voltage converter, 5-amp,			Traction Control System	73	161
15-25 amp	1.5	3			

Custom Products Offerings

- Waste Arrangement
- High Lift Arrangement
- 3rd Valve Conversions
- High Ambient Packages
- Reversible Fan
- Removals
- Retrofit Kits
 - Ride Control
 - Payload Control System
 - 3rd Valve
 - Fenders
 - Secondary Steering
 - Wobble Stick

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- Cigar lighter
- Coat hook
- Cloth seat, KAB
- Cup and thermos holders
- Dome light
- Heater and defroster
- Horn, electric (steering wheel mounted)
- Implement lever lockout
- Instrumentation
 - Battery voltage gauge
 - Engine coolant temperature gauge
 - Fuel level gauge
 - Hydraulic oil temperature gauge
- Radio ready cab, includes 2-amp converter
- Rearview mirrors, interior

- Seat belt, retractable, 75 mm (3") wide

Warning indicators

- Alternator
- Coolant temperature
- Engine oil pressure
- Hydraulic filter bypass
- Hydraulic oil temperature
- Parking brake
- Service brake oil level
- Windshield washers/wipers, wet-arm (front and rear), front intermittent

Power Train

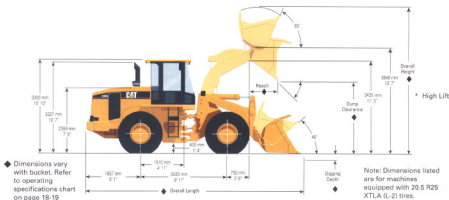
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 - Air cleaner service
 - Coolant level sight gauge
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- Loader linkage, sealed Z-bar design
- Long Life Coolant antifreeze
- Pilot hydraulic controls
- Steering, load-sensing hydraulic
- Tilting hood, non-metallic, one-piece
- Vandalism protection caplocks

Dimensions

All dimensions are approximate



Tread width for all tires 2020 mm (80")

	Width over tires		Ground clearance		Change in vertical dimensions	
	mm	inches	mm	inches	mm	inches
20.5-25 12 PR (L-2)	2607	102.6	401	15.8	1	0.04
20.5-25 12 PR (L-3)	2602	102.4	427	16.8	27	1.06
20.5 R25 XTLA (L-2)	2601	102.4	400	15.7	—	—
20.5 R25 GP-2B (L-2/3)	2595	102.2	410	16.1	10	0.39
20.5 R25 XHA (L-3)	2594	102.1	406	15.9	6	0.24

Supplemental Specifications

	Change in Operating Weight		Change in Articulated Static Tipping Load	
	kg	lb	kg	lb
Remove cab only, ROPS	-198	-437	-191	-421
20.5-25 12 PR (L-2)	-60	-132	-39	-86
20.5-25 12 PR (L-3)	85	187	56	123
20.5 R25 XTLA (L-2)	—	—	—	—
20.5 R25 GP-2 B (L-2/3)	130	287	86	190
20.5 R25 XHA (L-3)	172	379	114	251

Note: Tire options include tires and rims.

Cab

Caterpillar cab and Rollover Protective Structure (ROPS) are standard in North America, Europe and Japan.

Features

- meets OSHA and MSHA limits for operator and sound exposure with doors and windows closed (according to ANSI/SAE J1166 MAY90)
- ROPS meets the following criteria:
 - SAE J394
 - SAE 1040 APR88
 - ISO 3471-1:1986
 - ISO 3471:1994
- also meets the following criteria for Falling Objects Protective Structure:
 - SAE J231 JAN81
 - 3449:1992 LEVEL II

Note

When properly installed and maintained, the cab offered by Caterpillar when tested with doors and windows closed according to ANSI/SAE J1166 MAY90, meets OSHA and MSHA requirements for operator sound exposure limits in effect at time of manufacture. The operator sound pressure level is 75 dB(A) when measured per ISO 6394 or 86/662/EEC.

Service Refill Capacities

	Liters	Gallons
Fuel tank	254	67
Cooling system	52.5	13.8
Crankcase	20	5.3
Transmission	30	7.9
Differentials and final drives		
front	24	6.3
rear	27	7.1
Hydraulic system (including tank)	90	23.8
Hydraulic tank	55	14.5

Tires

Tubeless, nylon, loader-design tires.

Choice of

- 20.5-25, 12 PR (L-2)
- 20.5-25, 12 PR (L-3)
- 20.5-R25 GP-2B (L-2/3) steel radial
- 20.5-R25 XTLA (L-2) steel radial
- 20.5-R25 XHA (L-3) steel radial

Note

In certain applications (such as load-and-carry work) the loader's productive capabilities might exceed the tires' tonnes-km/h (ton-mph) capabilities. Caterpillar recommends that you consult a tire supplier to evaluate all conditions before selecting a tire model.

Steering

Full hydraulic power steering. Meets SAE J1151 FEB94 and ISO 5010:1992

Ratings

Minimum turning radius (over tire)	5480 mm (18')
Steering angle, each direction	40°
Hydraulic output at 2597 rpm and 6900 kPa (1000 psi)	102 liters/min (27 gpm)
Relief valve setting	22 800 kPa (3306 psi)

Features

- center-point frame articulation
- load sensing hydraulic steering pump
- front and rear wheels track
- flow-amplified, closed-center, pressure-compensated system
- steering-wheel operated metering pump controls flow to steering cylinders
- full-flow filtering
- adjustable steering column

Bucket Controls

Pilot-operated lift and tilt circuits.

Lift circuit features

- four positions: raise, hold, lower and float
- can adjust automatic kickout from horizontal to full lift

Tilt circuit features

- three positions: tilt back, hold and dump
- can adjust automatic bucket positioner to desired loading angle
- doesn't require visual spotting

Controls

- two lever control (standard)
- three lever control (optional)
- wobble stick (optional) combines lift and tilt controls
- lever lock control

Axles

Fixed front, oscillating rear ($\pm 12^\circ$).

Features

- maximum single-wheel rise and fall: 420 mm (16.5")
- differentials, enclosed brakes and final drives included
- threaded nuts to set bearing pre-load
- Patented Duo-Cone Seals between axle shaft and housing
- uses SAE 30W (oil change interval: 2000 hours or one year)

Brakes

Meet the following standards: OSHA, SAE J1473 OCT90, ISO 3450-1996.

Service brake features

- full-hydraulic actuated, oil-disc brakes
- completely enclosed and sealed
- adjustment-free
- separate circuits for front and rear axles
- dual pedal braking system with switchable left or right pedal

Parking brake features

- mechanical, shoe-type brake
- mounted on transmission output
- pull-cable operated

Final Drives

Planetary final drives consist of ring gears and planetary carrier assemblies.

Features

- ring gears are pressed in and doweled to axle housings
- carrier assemblies include:
 - planet gears with full-floating bronze sleeve bearings
 - planet shafts
 - retaining pins
 - bearings
 - sun gear shafts
 - planetary carriers

Loader Hydraulic System

Open-centered, interrupted series system with full-flow filtering. System is completely sealed. Pilot-operated controls.

Implement system, vane-type pump

Output at 2597 rpm and 6900 kPa (1000 psi) with SAE 10W oil at 66°C (150°F)	163 liters/min	43 gpm
Relief valve setting	24 800 kPa	3600 psi
Cylinders, double acting: lift, bore and stroke	127 x 693 mm	5.00 x 27.25"
Cylinder, double acting: tilt, bore and stroke	139.7 x 527 mm	5.5 x 20.75"

Pilot system, variable displacement piston-type pump*

Output at 2597 rpm and 6900 kPa (1000 psi) with SAE 10W oil at 66°C (150°F)	102 liters/min	27 gpm
Working pressure	3000 kPa	435 psi

Hydraulic cycle time	seconds
Raise	6.0
Damp	1.4
Lower, empty, float down	2.8
Total	10.2

Features

- completely enclosed system
- low effort, pilot-operated controls
- full-flow filtering
- reusable couplings with O-ring face seals

*Common with steering pump.

Engine

Four-stroke cycle, six-cylinder 3126 turbocharged diesel engine.

Ratings*	kW	hp
Rated flywheel @ 2200 rpm	108	145
Peak flywheel @ 1900 rpm	115	158

The following ratings apply at 2200 rpm when tested under the specified standard conditions for the specified standard:

Net power	kW	hp	PS
Caterpillar	108	145	—
ISO 9249	108	145	—
SAE J1349	108	145	—
EEC 80/1269	108	145	—
DIN 70020	—	—	151

Peak torque (net) @ 1400 rpm
765 Nm 564 lb-ft

Total rise 54%

Dimensions

Bore	110 mm	4.3 in
Stroke	127 mm	5.0 in
Displacement	7.2 liters	439 cu in

Exhaust emissions

The 3126 meets the following emissions requirements:

- EU OCT 1998
- US EPA JAN 1997
- Japan MOC APRIL 1997

*Power rating conditions

- based on standard air conditions of 25°C (77°F) and 99 kPa (29.32 in Hg) dry barometer
- used 35° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 30°C (86°F) [ref. a fuel density of 838.9 g/L (7.001 lb/U.S. gal)]
- net power advertised is the power available at the flywheel when the engine is equipped with fan, alternator, air cleaner, and muffler
- no derating required up to 2300 m (7500 ft) altitude

Features

- direct-injection fuel system with individual adjustment-free unit injectors for cylinders
- water jacket aftercooled
- 3-ring aluminum-alloy/forged steel 2-piece articulated pistons, cam-ground, tapered and cooled by oil spray
- induction-hardened, forged crankshaft
- uniflow cylinder head design with two alloy-steel valves per cylinder
- deep-skirted cast cylinder block
- tapered connecting rods
- oscillating roller-followers
- direct-electric 24-volt starting and charging system with two 12-volt, 650 CCA Caterpillar maintenance-free batteries, heavy duty starter and a 50-amp alternator

Transmission

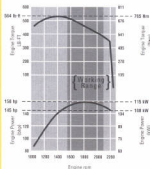
Countershaft power shift transmission with four speeds forward and three reverse.

Maximum travel speeds (standard 20.5-25 tires)

		km/h	mph
Forward	1	7.0	4.3
	2	12.7	7.9
	3	21.9	13.6
	4	35.9	22.3
Reverse	1	7.0	4.3
	2	12.7	7.9
	3	21.9	13.6

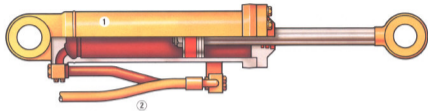
Features

- single lever to control both speed and direction
- separate control to lock in neutral
- single-stage, single-phase torque converter
- automatic shift capability
- quick gear kickdown button
- F-37 high energy friction material provides long clutch life
- externally mounted controls with quick disconnects for easy in-machine checks
- high contact ratio gears are precision ground for quieter operation



Hydraulics

Powerful hydraulics are the invisible force behind the loader's muscle and flexibility.



Matched hydraulics. Pump flow and large-bore lift and tilt cylinders (1) ensure quick, efficient load handling.

Low-effort hydraulic control. A pilot control valve enables the operator to move the control lever with minimum effort. This reduces operator fatigue, while providing quick response and precise control. Lift height and digging angle can be preset, ensuring accuracy and cutting down on operator distractions.

Caterpillar XT hose and couplings (2) are uniquely designed and tested to work together as a system for superior performance.

- Hoses are specifically engineered and manufactured for high abrasion resistance, excellent flexibility and easy installation. In today's hydraulic systems, that means long life, low unscheduled downtime and reduced operating costs.
- Caterpillar couplings use O-ring face seals which provide positive sealing for reliable leak-free connections. Reliable components reduce the risk of leaks and blown lines, helping protect the environment.

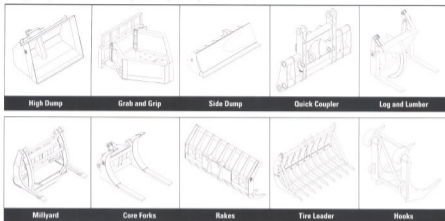
Pressure taps allow quick diagnosis of the hydraulic system.

Smooth, efficient steering. Load sensing steering maximizes machine performance by directing power through the steering system only when needed. When the machine is not steering, more engine power is available to generate rimpull, breakout and lift forces. Load sensing reduces horsepower draw by up to 8%, resulting in increased fuel economy. Large-bore steering cylinders allow responsive maneuverability.

Automatic Ride Control. This Caterpillar system uses a nitrogen-oil accumulator in the hydraulic lift circuit that acts as a shock absorber. Automatic Ride Control System benefits include a more controlled ride, less dynamic stress on structures and components, reduced tire flexing and greater payload retention. Collectively these benefits contribute to improved operator efficiency, lower operating cost and enhanced productivity.

Attachments

Add versatility to your machine with a wide range of buckets and attachments designed for the 938G to optimize your operation.



Buckets.

- High Dump — ideal for loading stockpiled, light material into high sided trucks or hoppers.
- Grab and Grip — loads materials ordinary buckets can't reach; serrated jaws surround and capture materials on the sides and from below.
- Side Dump — permits loaders to operate in congested worksites, but also dumps forward like a conventional bucket.
- Quick Coupler — provides unmatched versatility and eliminates the need for multiple machines. Most Cat buckets can be fitted for Caterpillar quick couplers.
- Other available buckets:
 - Woodchip.
 - Coal.
 - Fertilizer.
 - Light material.
 - Rock.
 - Sand and gravel.
 - Landfill/refuse.
 - Multi-purpose.

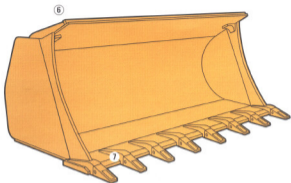
Forks.

- Log and Lumber — ideal for a wide range of jobs — loading, decking and sorting lumber, logs, or palletized material. (Various tine lengths and clamps available.)
- Millyard — maximize loader efficiency in millyard applications.
- Other available forks:
 - Pallet forks (various clamp options).
 - Core forks.
 - Hay ejector forks.

Other Attachments.

- Rakes — use for fast, economical removal of brush, trees, stumps and rocks. (Various clamp options available.)
- Tire loader — specially designed to feed tires to shredder or load trucks.
- Hooks — convert any brand or type of pin-on tool or attachment to quick coupler.
- Also available:
 - Material handling arms.
 - Snow plows.
 - V-plow.
 - Reversible plows.

See your Caterpillar dealer for these, as well as a number of other specialty attachments available from Balderson Inc.



Penetration Buckets (6) — Designed with a flat floor and curved side bars to maximize penetration and loadability in a variety of stripping and excavating applications. These buckets use flush mounted weld-on adapters (7) which provides a clean, unrutted work surface.

Five tip options (8) are available to provide the best combination of wear life, penetration and strength needed for each application.

Consult your Caterpillar dealer for the tip recommendations for your application.

8 Tip Options

Short



Long



Heavy-duty Long



Heavy-duty Abrasion

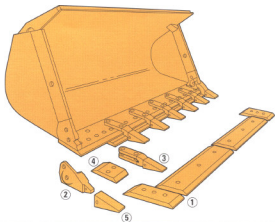


Penetration



Cat Buckets and Ground Engaging Tools

Four buckets and a large choice of Ground Engaging Tools maximize performance in all applications.



General Purpose Buckets — Designed for excellent loadability and long life in a broad range of applications such as bank loading, excavating, and stock pile loading.

Corner Guard System — Allows maximum flexibility between teeth and edge systems providing superior protection and performance for each application.

Bolt-on cutting edge and end bits. (1)

- Standard DH-2 for superior strength and wear life.
- Abrasion Resistant Material (ARM) with impregnated tungsten carbide for maximum wear life in low-to-medium impact application.

Bolt-on Teeth

- **New two-bolt corner adapter (2)** securely attached to prevent shifting.
- **Bolt-on two-strap center adapters (3)**
- **Bolt-on segments (4)** protect the base edge eliminating scalloping and maintaining a smooth work surface.
- **Tips (5)**
- **Retention Systems** — Two systems are now available — standard and heavy duty. The heavy duty system eliminates pin walking and the resultant tip loss in particularly severe loading conditions.

The 938G cab is a spacious and comfortable work environment that promotes productive operation. The new cab includes larger windows, better ergonomics and generous storage areas.

Access/egress is through a new two-door design. Both doors open fully and lock flush against the side of the cab. Doors are available with either fixed or sliding glass windows. Steps are wide and angled out for secure footing.

1 Larger windows improve the viewing area in all directions. Twelve percent more glass area* opens the operator's view for remarkable forward and peripheral viewing. The stylish, sloping hood allows the operator a better view to the rear of the machine. View to the bucket corners is better, too. Silicone-bonded windshield and rear window eliminate pillar obstructions and improve serviceability.

*Compared to the former model.

2 Automatic shift control allows the operator to concentrate on the work, not gear selection. Preset factory shift points ensure each shift occurs at optimum torque. A switch allows the operator to select either automatic or manual shifting. The low-effort shift control allows one-handed shifting for speed or directional changes.

3 Quick gear kickdown button lets the operator downshift easily to a lower gear, saving time, increasing bucket fill factors and lowering cycle times.

4 Pilot-assisted hydraulic bucket control makes low-effort operation possible.

5 Padded, adjustable wrist rest helps reduce fatigue.

6 Load-sensing, steering system with flow amplification matches steering response to application requirements.

7 Steering console and all the machine's primary gauges can be positioned infinitely within the tilt range by the operator. With the stroke of a lever, the entire console lifts effortlessly out of the way for easy access or egress.

8 Dual suspended brake pedals serve brake and transmission neutralizer functions (left pedal only for neutralizer) so the operator can maintain high engine rpm for full hydraulic flow. Suspended pedals are the most ergonomic and also simplify cleaning the cab floor.

9 Generous storage space includes:

- Lockable compartment for personal items.
- Coat hook.
- Molded compartments for lunchbox, cooler, thermos, cup or can.

10 Parking brake.

11 Warning indicators.

12 Traction control indicator.

Radio ready means this cab includes a 12-volt converter (5-amp), speakers, antenna, all wiring and brackets for entertainment or communications radio installation.

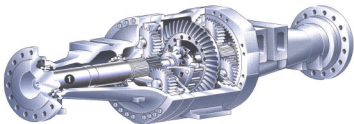
Seat options include the standard seat with adjustable fore/aft position, seatback angle, lumbar support, bottom cushion height, armrest angle and suspension stiffness. The seat cover is a combination of durable, breathable cloth and vinyl. Also available is the optional Cat Contour Series Seat, with added back support extension and electrically adjustable air suspension.

Other options available for the 938G operator's station:

- Sun visor for the front windshield.
- Roll-down sun screen for the rear window.
- External mirror package.
- Auxiliary lighting package including cab-mounted flood lights and rear bumper mounted work lights, that can be positioned by the user.
- Air conditioning, that uses R-134a refrigerant which does not contain chlorofluorocarbons.

Power Train

The Cat power train makes dependable performance a standard feature.



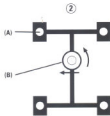
1 Heavy duty axles and brakes are designed to last in all kinds of operating conditions. Planetary final drives use full-floating bronze sleeve bearings in the planet gears and differential pinion. Oil-disc brakes are adjustment free and fully enclosed to lock out contaminants. Patented Duo-Cone Seals between the axle shafts and housings keep lubrication in and dirt out. Oscillating rear axle helps ensure four-wheel ground contact for traction and stability, even on rugged terrain.

Power shift transmission with automatic shift capability is designed, developed and built by Caterpillar. The electronically controlled power shift transmission allows full-power speed and directional changes. Fully modulated shifts increase component life and productivity, and help reduce operator fatigue.

Easy maintenance is designed into the transmission. Built-in pressure taps help reduce troubleshooting time for increased machine availability.

2 Optional Traction Control System is a state-of-the-art Caterpillar electronic system. Sensors (A) measure axle shaft rotation and vehicle articulation (B). When a tire slips, the system applies the service brake and torque is transferred through the differential to the wheel with the better traction, whether traveling straight ahead or turning. An energy management system monitors brake energy and protects the brake system by automatically reducing brake pressure as needed. The system operates on all four wheels independently, providing the maneuverability of an open differential and the power of a limited slip.

Optional limited-slip differentials and NoSPIN rear differentials are also available to deliver traction in low traction or inconsistent ground conditions.



Optional Equipment

Optional equipment may vary. Consult your Caterpillar dealer for specifics.
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NoSPIN (rear only)	2	5	Payload Control System	15	33
Limited Slip (front and rear)	8	18	Ride Control System	22	49
Field installed attachments:			Roll-down sun screen (rear window)	2	4
Guard, power train	57	126	Seat, air suspension	5	11
Engine coolant heater,			Signal lights, directional	8	18
120-volt, 220-volt	1.4	3	Speedometer	1	2
Lighting system, warning			Starting aids:		
(rotating beacon)	3	7	Air intake heater	2	5
Mirrors, outside mounted	5	11	Engine coolant heater, 120-volt	1.4	3
Emergency starting receptacle			Ether starting aid	1	2
Radio, AM/FM cassette			Receptacle, 120-volt, 220-volt	3	7
in fixed mounting or quick			Steering, supplemental	30	66
release versions	1.5	3	Sun visor	1	2
Voltage converter, 5-amp,			Traction Control System	73	161
15-25 amp	1.5	3			

Custom Products Offerings

- Waste Arrangement
- High Lift Arrangement
- 3rd Valve Conversions
- High Ambient Packages
- Reversible Fan
- Removals
- Retrofit Kits
 - Ride Control
 - Payload Control System
 - 3rd Valve
 - Fenders
 - Secondary Steering
 - Wobble Stick