

# 428E

## Backhoe Loader



### Cat® 3054C DIT Diesel Engine (standard)

Gross Power (SAE J1995) at 2200 rpm	69 kW/94 hp
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Net Power (ISO 9249) at 2200 rpm	67 kW/91 hp
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### Cat® 3054C DIT Diesel Engine (optional)

Gross Power (SAE J1995) at 2200 rpm	75 kW/102 hp
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Net Power (ISO 9249) at 2200 rpm	73 kW/99 hp
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Operating Weight	7570-10 700 kg
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### Backhoe Digging Depth

#### Standard Stick

SAE Maximum	4243 mm
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Maximum	4953 mm
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#### Extendible Stick

SAE Maximum	5342 mm
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Maximum	5976 mm
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# Cat® 428E Backhoe Loader

*The Caterpillar® E-Series Backhoe Loader – The Next Generation.*

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## Loader Versatility

The Cat Parallel Tilt Loader.

- Divergent lift arms and low profile hood for maximum visibility to the tool
- Robust design reduces torsional flex when lifting heavy objects
- Optional Return to Dig
- Excellent work tool versatility
- Standard self levelling

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## Operator Station

The all new E-Series Cab offers an improved operator environment, with increased visibility, ergonomics and comfort.

- Automotive style finish
- Stylish and functional curved glass maximises space within the cab
- Excellent 360° visibility
- Improved HVAC performance
- Air Suspension seat
- Low effort, well placed controls
- Plenty of personal storage space
- Exceptional operator comfort
- Cab and Canopy options

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## Backhoe Versatility and Performance

- Excavator style backhoe reaches over obstacles, for easier, faster truck loading in confined spaces
- Industry leading 205° High Rotation Linkage gives excellent clamping and straight wall trenching
- New design E-Stick with extending outer section ensures maximum wear protection
- Optional Quick Coupler for maximum versatility

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## AccuGrade

AccuGrade-integrated backhoe survey system option, designed by Cat to give accurate trench depth and grade guidance.

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## ***Caterpillar's 428E – The Next Generation***

*Developed with over 20 years experience in the Backhoe Loader industry, the 428E is designed to exceed customer expectations.*

*More performance, versatility and comfort than ever before gives the 428E the edge needed in a harsh and competitive environment.*

*Along with you, it's up to the challenge.*

*See your Cat dealer and try out The Next Generation of Backhoe Loaders from Caterpillar.*





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### Powertrain

The 428E now has 40 kph roading speed as standard. The proven Cat 3054C engine is available in 91 hp standard or 99 hp optional variants. Coupled with the Power-Shuttle transmission, it provides all the performance needed.

- Standard 3054C DIT engine (67 kW)
- Optional 3054C DIT engine (73 kW)
- Engines meet EU directive 97/68/EC Stage II emissions regulations
- Durable gear driven water pump.
- Parts commonality with other Cat machines
- Single fuel filter/water separator for lower servicing costs
- Single location access to service refill points

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### Load Sensing, Flow-Sharing Hydraulic System

- New flow-sharing hydraulic valves give improved implement control exactly where it is needed
- Load-sensing hydraulics provide full implement force at any engine speed
- Cat exclusive high pressure XT hose
- O-ring face seals for reliability

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### Serviceability

- New improved fully opening hood provides greater access to engine compartment
- New Wear Pad adjustment design on Stabilizers and E-Stick for quick, easy maintenance

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### Other Special Features

- Standard All Wheel Drive for maximum rim-pull and improved loader performance
- Optional Differential Lock for improved traction in poor conditions
- Stackable counterweights provides optimal machine balance
- New 13% larger 145 litre fuel tank, for extended operating time
- Optional Ride Control System for improved ride stability
- All Wheel Braking feature is standard

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### Caterpillar Work Tools

Caterpillar work tools have been designed around the performance and demands of the whole E-Series range.

- Provides maximum versatility for all jobsite applications.
- All loader tools fully compatible with previous generation machines. Hoe tools are compatible with D-Series.

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### Complete Customer Support

Your Caterpillar dealer offers a complete machine aftercare service, such as Customer Support Agreements, and can tailor your purchase to exactly suit your needs. Your dealer can also offer competitive finance packages to ensure that you can plan everything to enable the best return on your new asset. **pg. 12**



## Features

*Customer driven improvements are designed into the 428E.*

### Lower Operating Costs

The 428E has improved Stabilizer and E-Stick wear pad adjustment. External wear pad adjustment ensures easy maintenance of the Stabilizer and E-Stick, lowering operating costs. This equates to less machine downtime and more convenience for the operator.

### AccuGrade-Integrated Backhoe Survey System

This operator guidance system has been designed exclusively by Caterpillar. It allows excavating and grading to operator set parameters and reduces manual labour on the jobsite, plus saves considerable costs by reducing excess infill material and overburden removal. It is available in Ready or Basic options. This tool is an important asset when accurate trenching is needed to be done.

### Improved Weight Distribution

The 428E has been designed with improved weight distribution. The new design coupled with a slightly longer wheel base ensures optimum balance and handling, particularly when roading. This is achieved with no loss in turning circle.

### Pattern Changer

The 428E is offered with an optional pattern changer, allowing operators to choose between either Backhoe ISO or X pattern. Excavator SAE control patterns are also available from the factory. This ensures the 428E will suit any type of operator.

### New 145 Litre Fuel Tank

Responding to customer needs, Cat has enlarged the fuel tank by over 13% to 145 litres. Along with the efficient Cat engine and hydraulic system, this ensures longer periods between fill ups and less inconvenience.

### Caterpillar Immobilizer System

Machine theft has serious repercussions for your business, such as loss of business, higher insurance costs and inconvenience. The all new Cat Immobilizer System is a diesel engine immobiliser system, designed to provide theft protection. The system meets Thatcham approval and PTAG attack time requirements and a premium discount may be available from certain Insurance companies (see your Cat dealer for details). The system uses the same key but has a one touch pad for easy disarming.

### Product Link

Product Link is a satellite machine positioning and information system which is available on the 428E. The PL121 SR version enables the owner to locate the machine and obtain working hours feedback. This system allows the owner to see where the machine is at all times, and enabling preventative maintenance to be scheduled in advance. A valuable tool, particularly in Rental fleets.



### Electro-Deposition Coating

Your 428E has been protected by an undercoat of electro-deposited (E-Coat) primer, which completely seals each metallic component and offers a superior degree of protection from damage and corrosion. Coupled with the high solids polyurethane top coat, your 428E will stay looking good for longer, ensuring optimum resale value.

## Loader

*The 428E self-levelling loader now has even greater performance.*



### **Improved Loader Performance**

The new 428E Parallel Lift Loader offers a 13% increase in full height lift capacity and more Loader breakout force, providing more power and greater productivity. Available with either a General Purpose or Multi Purpose bucket, the 428E can be matched to your needs precisely. As ever, the work tool visibility is excellent with the narrow sloping hood and divergent loader arms allowing a clear line of sight to the bucket edges. The large torque tube provides torsional stiffness, needed when picking up irregular shaped heavy objects, in the loader bucket, or grading with the loader.

### **Ride Control**

Caterpillar's proven Ride Control system is an option designed to reduce machine pitching and bouncing giving operators a smooth ride in all applications, including load and carry, roading, or simply moving around the jobsite. An accumulator acts as a shock absorber to reduce machine pitching and provide a smoother ride over rough terrain. The system is engaged by a switch on the front console.

### **Return to Dig Option**

Your 428E is available with an optional Return to Dig system. This system reduces loading cycle times by bringing the loader bucket back to the dig position with an easy pull of the lever. By the time the loader bucket is at ground level, the bucket is angled correctly for the next load or cut.



## Operator Station

*The E-Series cab. Comfort, Visibility, Style – Designed In!*



### **The 428E Cab is Designed with Today's Operator in Mind**

The all new E-Series cab is designed to provide maximum comfort, ease of operation, and overall style for today's demanding operator. The new design incorporates curved glass for improved interior space and visibility, and the cab is widened for better performance when turning from one mode of operation to the other. Cab comfort is enhanced with the first-class Cat air suspension seat, reducing fatigue.

Excellent ergonomics ensure that all controls are within easy reach of the operator, and tinted glass is standard in all cabs.

Other features such as standard air-ride seat and remote stabiliser controls, large adjustable vents throughout the cab, and clear gauges provide the operator with an operating environment designed to maximize comfort and productivity.



### **Vibration**

Caterpillar understands that backhoe loaders work in some of the harshest environments. By controlling normal machine vibrations caused by these harsh conditions, operator efficiency and productivity are improved. The 428E has features, both standard and optional, that reduce vibration.

### **Operator Controls**

Optimal cab ergonomics are vital to assist the operator in their quest for best productivity. Pressure compensated, well placed levers ensure low efforts and good controllability.

### **HVAC System**

The 428E benefits from a new, optional, more powerful air conditioning system, which with its new improved ventilation flow to the operator, ensures the operator stays cool. The ventilation system also provides plenty of demisting/ defrosting/heating capability.

### **Work Lights**

The 428E has adjustable front and rear work lights. This allows the operator to direct the light wherever needed, providing maximum illumination to the work area.

### **Cab Air Filter**

The 428E has an easy access cab air filter, situated within the RH rear fender. The cab air intake is positioned on the B post, high up to minimise dust intake into the air filter.

### **Cab Mounts**

The cab shell is attached to the frame with resilient mounts, reducing vibration and sound.

### **Cab and Canopy Options**

The 428E is available in 2 cab and 2 canopy options, providing the best choices to suit individual operator needs. There is a cab-basic and cab-standard, plus a canopy standard and a canopy plus. See pg. 18 for details.

### **Cat Air Suspension Seat**

The major interface between the machine and the operator is optimal, and the Cat air suspension seat is an excellent asset to the new E-Series cab design. The seat is designed to move in an arc around the foot pedals, which means the operator doesn't have to compensate for pedal distance as the seat moves up and down.



## Backhoe Performance

*The E-Series Backhoe improves performance and serviceability.*



### Excavator-style Backhoe

The instantly recognizable Cat excavator boom has more than just good looks – it outperforms straight boom designs too. Whether close-up truck loading on a single road carriageway, or digging over obstacles such as walls, the excavator boom outperforms the rest. Combine this versatility with the powerful breakout forces, the controllability of the load-sensing, flow-sharing hydraulic system, and you have the best hoe in the industry. The boom is a narrow design, ensuring maximum visibility to the work tool.

### All New Extendable Stick

The 428E is available with the all new, improved extendable stick. Redesigned with the sliding outer section, this design keeps the wear pads out of the dirt, extending adjustment intervals. When adjustment is necessary, the externally accessible wear pad design takes 20 minutes to adjust, without the need to disassemble the E-Stick. The new sliding outer E-Stick design allows excellent material clamping with the hoe bucket.

### New Slider Frame and Swing Frame

The 428E is designed to make necessary maintenance easy to perform. The new E-Series cast slider frame has exterior lock clamps, with no backhoe disassembly needed when servicing. The Swing Frame/Boom Foot pins have replaceable bushings in the bores.

### Caterpillar Cushion Swing Option

The 428E is available with Cat Cushion Swing, which enables very fast trenching by damping the boom oscillation down when returning to trench with the hoe.





## Caterpillar Work Tools

*Enhance the versatility of your 428E with a wide choice of tools on offer to suit your needs.*

### Backhoe Buckets

Cat offers a huge variety of hoe buckets to meet your requirements, including:

- Standard Duty Bucket. Used in easy to penetrate, low impact, moderately abrasive materials.
- Heavy Duty Bucket. Used for digging fragmented rock, frozen ground and highly abrasive materials.
- Extreme Service Bucket. Used in highly abrasive, high impact soil.
- High Capacity Bucket. Same durable construction as the HD bucket, but longer tip radius provides increased fill capacity.

### Durability

Caterpillar backhoe buckets offer superior durability with the following features:

- Thick cutting edges.
- DRS (Diagonal Retention System) ensures easier replacement of pin on teeth and greater strength.
- Thick wear material on the side plates for better reinforcement and less wear.
- ID plates on all buckets showing part number, GET sizes and machine compatibility.

### Sizes

Work tools are available in a full range of sizes, from a 9"/228 mm Cribbing bucket for cable trenching, a range of Ditch Cleaning buckets, right up to large capacity 36"/914 mm buckets for mass excavation.

### Quick Coupler

A Cat quick coupler is available for easy hoe bucket changes.

### Hydro-mechanical Work Tools

Caterpillar has designed a range of hydro-mechanical tools carefully matched to the machine for optimum performance, including:

- Hydraulic Hammers
- Vibratory Compactor
- Cold Planer
- Auger

Please see your Cat dealer for the full range of tools available for particular machine combination.



## Hydraulics

*New flow-sharing hydraulics give the 428E even greater control.*



### Hydraulic Performance

It's rare that you'll be working at full production 100% of the time, so why should the machine be working flat out, using more fuel, making more noise, and increasing wear? The 428E has a load-sensing, closed center hydraulic system, which closely matches power and flow to the demand needed by the implements. So whether you're in full trenching mode, or delicately digging around services, you are in control. In applications such as loading and carrying, speed is important. The system will match the flow needed to get the job done quickly and efficiently. As there is minimal demand on the system unless needed, there are less parasitic hp losses and more power available for rimpull—meaning better loading and roading.

### New Flow Sharing Valves

The 428E also features new flow-sharing hydraulic valves, ensuring that the correct flow of oil reaches the implement cylinders, providing greater control and eliminating oil starvation when operating multiple functions, such as grading with the backhoe.

### Hardware

The 428E is equipped with a highly efficient variable displacement piston pump, Cat's XT hoses and O-ring face seal fittings, ensuring a robust system. XT hose is constructed from four over-lapping wire spiral wraps, ensuring excellent durability and resistance to damage from pressure spikes and hydraulic pulsing.



# Caterpillar AccuGrade – Integrated Backhoe Survey System

*Reduce costs, while improving productivity, safety and control with AccuGrade.*

## AccuGrade-Integrated Backhoe Survey System

The Caterpillar AccuGrade system has been designed to eliminate labour intensive manual trench grade/depth checking, normally performed on site either by the operator himself, or additional labour. It is an operator guidance tool. It can improve backhoe productivity considerably, and can save the operator money by reducing in-fill material, and decreasing material removal. Reducing material needed to fill the trench also has a positive effect on the environment. For operators working under tight deadlines, AccuGrade can help the operator work faster and with more efficiency.

When excavating, or grading banks and trenches, the AccuGrade system ensures perfect synchronisation between operator and machine, ensuring accurate cuts, perfect grades and faster cycle times.

The intuitive layout and controls make it easy for the operator to set his digging parameters and the Advisor screen provides the feedback to ensure the operator excavates to those parameters.

## AccuGrade Options

**AccuGrade Ready** – Includes in-cylinder sensors, main wiring harness and component mounting hardware. This option is designed so that one Advisor screen can be swapped around a fleet of machines, as needed.

**AccuGrade BHL Site Reference System** – A fully functional system, including in-cab Advisor screen, inclinometer, swing sensor and installed software.

## Summary of Benefits

- Reduce jobsite labour, saving considerable expense
- Offers greater comfort, as the operator doesn't need to leave the cab
- Accurate excavation reduces infill material and removal of excess excavated material
- Accurate trenches mean less trench finishing work, or undercut trenches
- More productive, operator can work more efficiently with less disruptions
- Improved safety, as human labour is not checking grade or depth in the working area of the machine
- Integrated and factory installed. Integrated design ensures that there are no external components to damage on the machine, and this system is designed specifically for the Cat BHL



## Work Tool Compatibility

The AccuGrade system can be configured to work with any of the current D/E series hoe buckets and couplers. Additional customer buckets can be programmed in, via the Advisor screen. The system will have a Favourites List, allowing the customer to quickly scroll through the ten most used work tools, for easy changes.

## Advisor Hardware

The Advisor screen is the interface between the operator and the AccuGrade system. It comprises a visual display LCD screen, which guides the operator to work to set parameters using a combination of audible and visual warnings, including a grade/depth target line with bucket symbol, showing the operator where his bucket position is relative to his desired cut. It is removable for added security, and is transferable between other BHL's that are fitted with the AccuGrade Ready system. The Advisor screen is intuitive for all operators, allowing the machine to be used effectively in multi operator sites and Rental fleets.

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## Power Train

*428E has a 40 kph transmission as standard – less time on the road, more time on the job site.*

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### Caterpillar 3054C Engine

The 428E is available with either the standard 3054C DIT 67 kW engine, or the optional 3054C DIT unit producing 73 kW. The engines are 4 cylinder, 4 stroke direct injection diesel engines equipped with standard glow plug starting for optimal cold weather performance. This provides reliable starting performance down to -26°C. The engine features a reliable gear driven water pump, for improved durability. All Caterpillar backhoe engines conform to EU directive 97/68/EC Stage II emission regulations.

### 40 kph Power-Shuttle Transmission

The 428E comes equipped with 40 kph Power-Shuttle transmission, improving roading speed and providing better spacing between gear ratios. It utilizes a constant mesh, synchronized, four speed system. The forward/reverse lever on the steering column is placed for easy direction changes on the move, and the gear selection is from the floor mounted shift lever.

### Axles and Brakes

The new Caterpillar rear axle is an enclosed design with a wet multi-plate Kevlar braking system. This system is oil immersed and self adjusting, and allows operation in the harshest environments. The system has dual brake pedals for split braking in tight corners.



### High Ambient Cooling Option

The 428E is available with a High Ambient (HA) engine cooling package, allowing the machine to be operated in temperatures up to 50°C.

### Air Filter

A dry type axial seal air cleaner with automatic integrated dust ejection provides more efficient pre-separation. Rolled air filters allow consistent linear air flow with reduced installation space.

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## Complete Customer Support

*Lower operating costs with your dealer's excellent services and options.*

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### Customer Support Agreements (CSA's)

Your Cat dealer can offer a comprehensive range of CSA's which can be individually tailored to suit your finances and requirements. Dealers can offer a range of options from a full Preventative Maintenance with SOS package to a Parts Only CSA. Protect your valuable investment and know exactly what your monthly payments will be to help you run your business.

### Finance

Have you explored the range of options available from your dealer to finance your machine? They can offer a selection of attractive packages tailored exactly to your requirements.

### Machine Selection

Your dealer can help guide you with your machine purchase decision, based on your requirements and help keep operating costs to a minimum. Is the machine you have in mind exactly the best for your job, or could other attachments be more suitable?

### Operating Techniques

Your dealer can advise operating techniques for your machine which will minimize wear and tear, maximize productivity, and lower owning and operating costs.

### Remanufactured components (Reman)

Sometimes, the most cost effective way to repair the machine is with remanufactured components. Reman components are rebuilt to original specification at Cat's Reman facility, using genuine parts and skilled technicians. Reman parts are guaranteed for 1 year.



## Serviceability

*Lower operating costs mean a better return on your asset.*

### Reduced Maintenance

The 428E is equipped with a new flip open hood, allowing access to all check/fill points, air cleaner, washer bottles, visual indicators etc. The E-Series carries on the tradition with sealed for life axial oscillation, driveshaft universal joints, trunnions etc. Daily maintenance, which can be a chore for the busy operator, is kept to a minimum on the new 428E.

### Boom and Stick Design

The all new Boom and Stick design allows all wear adjustment to be done with Stick in-situ, using a simple wedge adjustment mechanism – no dismantling to shim the wear pads. The Stabiliser legs are also externally adjustable, reducing machine down time and inconvenience.

### Cat Filters

All Cat filters are vertically mounted for spill free servicing and reduced oil contamination. They are also low micron filters, filtering even the tiny particles from the oil and keeping the engine, transmission and hydraulic system running smoothly for years.

### Scheduled Oil Sampling

Your Cat dealer will be able to provide the Caterpillar Scheduled Oil Sampling (S•O•S<sup>SM</sup>) service. This enables your dealer to analyze wear before problems arise, so that premature failure can be avoided, and corrective action can take place to reduce costs and downtime.



## Engine

Caterpillar 3054C turbocharged, direct injection, four cylinder diesel engine.

Rated Power (standard)	2200 rpm
Gross – SAE J1995	69 kW/94 hp
Net – ISO 9249	67 kW/91 hp
Net – 80/1269/EEC	67 kW/91 hp
Rated Power (optional)	2200 rpm
Gross – SAE J1995	75 kW/102 hp
Net – ISO 9249	73 kW/99 hp
Net – 80/1269/EEC	73 kW/99 hp
Net Torque Rise at 1400 rpm	
67 kW/91 hp	35%
73 kW/99 hp	29%
Bore	105 mm
Stroke	127 mm
Displacement	4.4 liter

- All engine horsepower (hp) are metric including front page.
- Net power advertised is the power available at the fly wheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- No de-rating required up to 3000 m.
- Meets Stage II EU Emission Directive 97/68/EC.

### Features

- Three ring pistons made of lightweight silicon/aluminium alloy for strength and maximum thermal conductivity.
- Forged, chrome/molybdenum-steel crankshaft with nitro-carbonized journals.
- Front and rear crankshaft oil seals are 'lip' type Viton and PTFE designs featuring an integral dust lip.
- Heat resistant silicon-chrome steel intake and STELLITE faced exhaust valves are used for long engine life.
- Cylinder block is high strength, cast iron alloy of deep-skirt, monobloc design for increased strength and long life.
- Cylinder head is high strength, cast iron alloy construction with extra duty wall and head thickness. Intake and exhaust ports are precision cast to promote optimum gas flow.
- Direct injection fuel system provides accurate fuel delivery. Self priming electric lift pump for improved cold start capability. One filter fuel system for reduced maintenance costs.
- High low engine torque for better machine performance.
- Dry type, axial seal air cleaner with automatic, integrated dust ejection providing more efficient pre-separation.
- Direct electric 12 volt starting and charging system with 750 CCA group 31 maintenance free battery.

## Hydraulic System

Load-sensing, closed-center system.

Variable-flow, closed-center, load-sensing system provides full hydraulic force to cutting edges at all engine speeds. Provides low fuel consumption and low effort controls.

### Type

Closed-center

### Pump type

Variable-flow, axial-piston

Pump capacity 125 lpm at 2200 rpm

System pressure 227 bar

## Brakes

Fully enclosed, hydraulic, multiple discs.

### Features

- Inboard oil-immersed, hydraulically actuated multiple Kevlar discs on final drive input shaft.
- Completely enclosed and sealed.
- Self-adjusting.
- Foot-operated dual pedals can be interlocked for roading.
- Parking/secondary brakes are independent of the service brakes. Parking brake is mechanically applied through a hand lever located in the right side console.

Meets ISO 3450:1996 requirements.

## Axles

All Wheel Drive is standard.

### Features

- Heavy-duty rear axle with self-adjusting inboard brakes, optional differential lock and final drives.
- All Wheel Drive (AWD) is engaged by front console panel switch or by brake pedal during all-wheel-braking operation. AWD can be engaged on-the-go, under load, in any gear, forward or reverse. AWD has outer final drives for easy maintenance.
- AWD front axle is pendulum mounted and permanently sealed and lubricated, requiring no daily maintenance. Also features double-acting steering cylinder with 50° steering angle for increased manoeuvrability.



## Steering

Full hydrostatic steering.

Full hydrostatic steering controlled by a hand-metering unit. Secondary steering system available to meet roading regulations in various countries and to meet ISO 5010.

Type	Front wheel
Power Steering	Hydrostatic
Cylinder, one (1) double-acting (AWD)	
Bore	65 mm
Stroke	120 mm
Rod diameter	36 mm

### Turning Circle

Inner wheel not braked 4WD	
Outside front wheels	8180 mm
Outside widest loader bucket	10 830 mm

## Transmission

Caterpillar Power-Shuttle

The standard Power-Shuttle transmission provides four speed forward and reverse, full synchromesh in all gears. Constant mesh gears on all ratios permit on-the-go shifting of all gears, up or down. Neutral start provision prevents starting while shuttle is engaged. Torque convertor free-wheel clutch allows the convertor stator to free-wheel during high speed, low-load conditions, such as roading.

### Transmission disconnect

Hand operated power disconnect for easy, on-the-go shifting and full engine rpm when in the loading cycle.

### Forward/Reverse electric power shuttle

Conveniently placed, hand operated lever provides instant direction changes between forward and reverse through power hydraulic clutches.

### Torque convertor

Single stage, 2.4 stall ratio

### Travel Speeds

Travel speeds of All Wheel Drive backhoe loader at full throttle, when equipped with 16.9 x 28 rear tires.

Forward	kph
1st	6
2nd	10
3rd	20
4th	40
Reverse	
1st	6
2nd	9
3rd	19
4th	40

## Operator Station

ROPS/FOPS is standard.

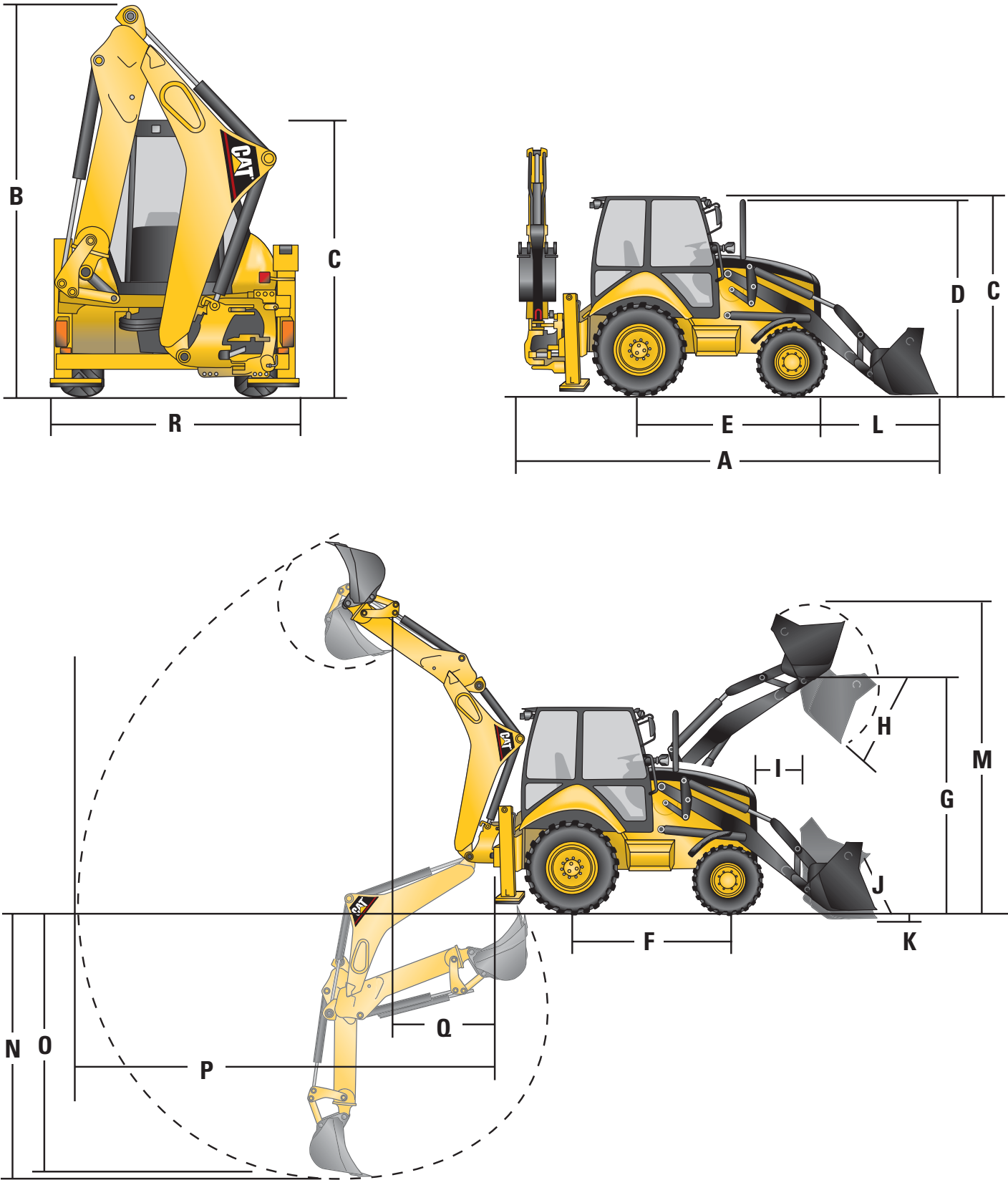
ROPS (Roll Over Protective Structure) offered by Caterpillar for this machine meets ROPS criteria ISO 3471:1994 and FOPS (Falling Objects Protective Structure) criteria ISO 3449:1992.

## Service Refill Capacities

	Liters
Cooling System	
with air conditioning	15.9
Fuel tank	145.0
Engine with oil filter	7.6
Transmission (Power Shuttle)	
AWD	18.5
AWD (with boosted brakes)	19.0
Transmission (Powershift)	
AWD	19.0
AWD (with boosted brakes)	20.5

	Liters
Rear Axle (Rigid)	
Center Housing	16.5
Center Housing Additive	0.5
Wheel End/Final Drive (volume per side)	1.7
Front Axle AWD	
Planetaries	11.0
Wheel End/Final Drive (volume per side)	0.7
Hydraulic System (min/max)	79/99
Hydraulic Tank	38

Dimensions – Parallel Lift Loader





Machine Dimensions		General Purpose		Multi Purpose	Multi Purpose with forks
<b>A</b>	Overall length (loader on ground) S-Stick	mm	5810	5754	5754
	Overall length (loader on ground) E-Stick	mm	5812	5756	5756
	Overall transport length S-Stick	mm	5836	5811	5811
	Overall transport length E-Stick	mm	5838	5813	5813
<b>B</b>	Overall transport height S-Stick	mm	3717	3717	3717
	Overall transport height E-Stick	mm	3740	3740	3740
	Overall Width (Standard)	mm	2352	2352	2352
	Overall Width (Narrow)	mm	2242	2242	2242
<b>C</b>	Height to top of cab/canopy	mm	2863	2863	2863
<b>D</b>	Height to top of exhaust stack	mm	2779	2779	2779
	Height to loader hinge pin (transport)	mm	403	429	429
	Ground clearance (minimum)	mm	358	358	358
<b>E</b>	Rear axle centerline to front grill	mm	2704	2704	2704
	Front wheel tread gauge	mm	1915	1915	1915
	Rear wheel tread gauge	mm	1713	1713	1713
<b>F</b>	Wheel based (AWD)	mm	2200	2200	2200

Dimensions and Performance – Loader Bucket		General Purpose		Multi Purpose	Multi Purpose with forks
	Capacity (SAE rated)	m <sup>3</sup>	0.96 1.0	1.03	1.03
	Width	mm	2262 2406	2406	2406
	Lift capacity at maximum height	kg	3318 3311	3142	2925
	Breakout force	kN	50 50	54	53
	Tipping load at bucket load point	mm	6095 6235	6178	5993
<b>G</b>	Maximum hinge pin height	mm	3340 3340	3340	3340
<b>H</b>	Dump angle at full height		45° 45°	45°	45°
	Dump height at maximum angle	mm	2602 2634	2668	2668
<b>I</b>	Dump reach at maximum angle	mm	827 795	724	724
<b>J</b>	Maximum bucket rollback at ground level		39° 39°	39°	39°
<b>K</b>	Digging depth	mm	91 91	118	118
	Maximum grading angle		111° 112°	115°	115°
	Width of dozer cutting edge	mm	– –	2406	2406
<b>L</b>	Grill to bucket cutting edge, carry position	mm	1538 1505	1480	1480
<b>M</b>	Maximum operating height	mm	4242 4238	4264	4721
	Jaw open maximum	mm	– –	790	790
	Bucket jaw clamping force	kN	– –	56	56
	Weight (not including teeth)	kg	417 428	611	844

Dimensions and Performance – Backhoe		Standard Stick	Extendible Stick	
			Retracted	Extended
<b>N</b>	Digging depth, SAE maximum	mm	4243	5342
	Digging depth, maximum	mm	4953	5976
<b>O</b>	Digging depth, 610 mm flat bottom	mm	4205	5306
<b>P</b>	Reach from swing pivot at ground line	mm	5588	6639
	Loading height	mm	3743	4252
<b>Q</b>	Loading reach	mm	1710	2713
	Swing arc		180°	180°
	Bucket rotation		205°	205°
<b>R</b>	Stabilizer width	mm	2258	2258
	Bucket dig force	kN	52	51
	Stick dig force	kN	32	23
	Total side shift travel	mm	1258	1258

## Weights

Standard parallel lift loader, with  
1.0 m<sup>3</sup> general purpose loader bucket,  
610 mm standard duty backhoe bucket,  
80 kg operator and a full fuel tank.

	kg
Operating weight (range)	7570-10700
Standard machine weight	7807
ROPS canopy	-260
Air conditioning	48
Multi-purpose bucket 1.03 m <sup>3</sup>	
With fold-over forks	755
Without fold-over forks	700
Extendible stick (excludes front counterweight)	229
Counterweights	
Base	115
Stackables – One	235
Stackables – Max	485

### Minimum Counterweight Recommendations:

Standard Stick (power train AWD)	
General Purpose	145
Multi Purpose	Base
Multi purpose with fold-over forks	Base
Extendible Stick (power train AWD)	
General Purpose	460
Multi Purpose	235
Multi Purpose with fold-over forks	115

Total gross vehicle weight  
not to exceed 10 700 kg.

## Cab Features

	Base	Standard
RH fixed door with opening window	✓	
RH opening door with opening window		✓
LH opening door with opening window	✓	✓
2 rear side fixed windows	✓	✓
Basic air suspension seat	✓	
Standard air suspension seat		✓
4 working lights	✓	
8 working lights		✓
Floor mat	✓	✓
LH storage console		✓
Fixed steering Column	✓	
Tilt steering column		✓
Exterior rear view mirror	✓	✓
Beacon socket (2)	✓	✓
Internal power socket		✓
Radio ready headliner		✓
Individual display gauges	✓	✓
Sun visor		✓
Steering wheel knob		✓
Vandal guard		✓
Cab heater	✓	✓
Cab air conditioning		optional
Seat belt (50 mm)	✓	✓

## Canopy Features

	Standard	Plus
No glazing	✓	
Glazed front screen and wiper		✓
LH storage console		✓
4 working lights	✓	
8 working lights		✓
Basic air suspension seat	✓	
Standard air suspension seat		✓
Floor mat	✓	✓
Fixed steering Column	✓	
Tilt steering column		✓
Vandal guard		✓
Rear view mirror	✓	✓
Individual display gauges	✓	✓
Seat belt (50 mm)	✓	✓



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## Standard Equipment

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

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Air cleaner, dry type, axial seal with pre-cleaner and filter condition indicator	Front axle, pendulum mount	Mirrors, external (2)
All Wheel Drive	Front grill with bumpers	Power receptacle, 12 V (2)
Alternator, 120-amp, 12 volt	Front headlights	Power steering, hydrostatic
Antifreeze (to -37°C)	Front and rear windshield wipers	ROPS cab with heater, defroster, pressurizer and cab recirculating fan
Audible system fault alarm	Gauges: Coolant temperature, fuel level, tachometer, hour meter, torque convertor, oil temperature	Seat belt, retractable (50 mm)
Backhoe, 4243 mm dig depth, side-shift, excavator-style backhoe 2 lever control	Ground line fuel fill with 145 liters capacity	Seat, air suspension with fabric or vinyl seat cover
Battery, maintenance free, 750 CCA	Grouser style stabilizer shoes	Spin-on fuel, engine, hydraulic and transmission oil filters
Boom, transport lock	Hydraulic oil cooler	Starting system, thermal aid
Brace, lift cylinder	Indicators: Air cleaner service, brake on, engine coolant, hydraulic oil level sight gauge, oil pressure	Stop and tail lights (2)
Brakes, Kevlar disc, oil disc	Instrument panel lights	Swing transport lock
Cable stabilizer controls	Key start/stop system with auxiliary position	Tires (2 front, 2 rear)
Caterpillar 3054C DIT (67 kW)	Left side door with lock	Torque convertor
Coat hook	Lifting eye, backhoe	Throttles, hand and foot
Electro-hydraulic slide frame lock	Lights, working (2 front, 2 rear)	Transmission, four-speed synchromesh
Engine enclosure	Load sensing, variable flow system with axial piston pump	Transmission neutralizer switch
Fan, cooling and fan guard		Warning horn, front electric
Fast reversing shuttle, all gears		Water separator
Flashing hazard/signal lights		
Floor mat, rubber		

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## Optional Equipment

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

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Air conditioning	Guards	Mirror, exterior rearview, large
Alarm, back up	AWD driveshaft	Operators station
Attachments, front loader	Teeth (GP/MP)	Canopy
General purpose bucket 1.0 m <sup>3</sup>	Rear lights, roading	Ride control
Multi purpose bucket 1.03 m <sup>3</sup>	High ambient cooler package	Rotating beacon
1.03 m <sup>3</sup> with forks	Hydraulic valves, loader	Seat belt 75 mm
Attachments, hoe work tools see pg. 9	3rd valve for GP/MP	stabilizer street pads
Quick Coupler (mechanical)	Hydraulic valves (auxiliary)	Stick, extendible
Battery, additional	Standard stick	Tilt steering wheel
Counterweights	Extendible stick	Tool box, external
Bumper	Hydraulic lines	Transport locks
Base	Hammer lines to stick	Vandalism protection
Stackables	Quick disconnects	Visor cab
Cutting edge, bolt on	Lights	
Single piece	Number plate, rear	
Two piece	Roading	
Fenders, front, All Wheel Drive	Working, 8 lights	

# 428E Backhoe Loader

HEHB3124 (11/2005) 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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