

# 450E

## Backhoe Loader



### Engine

Engine Model (Standard)	Cat® C4.4	
Gross Power – SAE J1995	102 kW	137 hp
Net Power – SAE J1349	92 kW	124 hp

### Weights

Operating Weight – Nominal	10 950 kg	24,141 lb
Operating Weight – Maximum	12 300 kg	27,115 lb

### Backhoe

Dig Depth – Standard	5260 mm	17 ft 3 in
E-Stick Retracted	5260 mm	17 ft 3 in
E-Stick Extended	6501 mm	21 ft 4 in

## 450E Backhoe Loader

*Caterpillar® Backhoe Loaders set the industry standard for operator comfort, exceptional performance, versatility and jobsite efficiency.*

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### Operator Station

- ✓ The all-new operator station maximizes operator comfort and productivity. Easy to use machine controls keep operator fatigue low and production up throughout the workday. **pg. 4**

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### Pilot Operated Joystick Controls

- ✓ Pilot operated joystick controls are easy to use, reduce operator fatigue and increase efficiency. Auxiliary backhoe hydraulic functions are operated with convenient thumb roller controls. **pg. 6**

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### Hydraulics

- ✓ Caterpillar's state-of-the-art closed-center hydraulic system, variable displacement piston pump and load-sensing hydraulics improve implement response and speed while still providing high forces at any engine speed. New flow-sharing hydraulic valves improve multi-function performance. **pg. 7**

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### Work Tools

A new hydraulic thumb is part of the wide range of Cat® Work Tools that are available to meet the needs of your job site applications. All machines are equipped with thumb mounting brackets. **pg. 11**

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### Additional Features

- ✓ Product Link, combined function hydraulics and work lights round out the features. **pg. 12**

*With pilot-operated joystick controls, a more comfortable operator station, new extendible stick design and increased performance, the 450E lets you get more done with less effort.*



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### Power Train

- ✓ The Cat® C4.4 engine meets all U.S. EPA Tier 3/EU Stage III emissions requirements. The efficient fuel system delivers reliable engine lug performance. The transmission and new axles provide increased roading speed. **pg. 8**

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### Ride Control

Standard Caterpillar Ride Control provides a comfortable ride at all speeds, both on the jobsite and on the highway. System is designed to provide an improved ride whether the bucket is full or empty. **pg. 9**

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### Backhoe and Loader Features

- ✓ All new backhoe is designed for increased performance with higher digging and lifting forces. The new extendible stick includes a new wear pad design, providing increased life and serviceability. The single-tilt loader offers solid performance in bucket work and material handling. **pg. 10**

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### Serviceability and Customer Support

Easier maintenance results in greater machine uptime and lower owning and operating costs. New tilt-up hood provides easier access to the engine compartment, exposing all daily service points. Your Cat dealer offers a wide range of services that can be set up under a Customer Support Agreement, such as S•O•S and Scheduled Maintenance. **pg. 13**



✓ *New Feature*

## Operator Station

*The all-new operator station provides maximum comfort and ease of operation.*



*450E Deluxe Cab*

**Operator Comfort.** The all-new operator station has been designed to maximize operator comfort and productivity. Pilot operated controls allow for more legroom and a spacious work environment.

**New Styling.** The new ergonomic, automotive styling of the operator station enhances the operator environment. The narrow front dash provides excellent visibility to the front bucket. Integrated storage areas and cupholders are designed for operator convenience.

**Deluxe ROPS Canopy.** Features of the ROPS canopy include:

- Air suspension vinyl seat
- Tilt steering wheel
- Two 12-volt internal power supply adapters
- 12-volt external power supply adapter
- Phone clip
- Lockable, left side storage compartment
- Drink holders
- Floor mat
- Eight working lights
- Boosted brakes
- Individual auto-up feature on stabilizer controls
- Rotating vandal guard
- System indicators for hydraulic filter service and hydraulic temperature warning

**Deluxe Cab with Air Conditioning.** The standard cab features include:

- Air suspension fabric seat
- Tilt steering wheel
- Two 12-volt internal power supply adapters
- 12-volt external power supply adapter
- Phone clip
- Lockable, left side storage compartment
- Drink holders
- Floor mat
- Eight working lights
- Boosted brakes
- Individual auto-up feature on stabilizer controls
- Two doors
- Front and rear windshield
- Wiper/washer system
- Radio-ready
- Dome light
- Deluxe, nine-way adjustable air suspension seat
- System indicators for hydraulic filter service and hydraulic temperature warning
- Air conditioning

**New Gauge Cluster.** Operators can easily view system information on the new gauge cluster. Gauges are displayed against a white background for good visibility in different light conditions. Ergonomic, tactile switches are simple to understand.

**Air Suspension Seat.** The standard air suspension seat utilizes an air adjustment mechanism for a greater operating range and more comfortable ride. A switch on the seat post allows the seat to be tailored to support differing body weights. Adjustable seat height accommodates all operators.

The deluxe cab air suspension seat also has an adjustable back support, lumbar support, seat cushion extension, seat cushion tilt and vertical and angle adjusting armrests.

**HVAC System.** The improved air conditioning system features enhanced air distribution and performance for a more comfortable work environment. Large capacity fresh air filter is easily serviced from ground level with no tools required. Nearly 20% increase in air flow combined with improved louver locations provide superior operator comfort.



**Storage Compartment.** New lockable, left side storage compartment is standard on the 450E.

## Pilot Operated Joystick Controls

*Low effort, comfortable controls reduce fatigue and provide more legroom.*



**Joystick Controls.** Standard excavator-style joysticks provide smooth modulation and are ergonomically designed for low effort control and operator comfort. Without the traditional, rear console, they also provide increased legroom and greater rearward viewing area.

**Pilot Operated Stabilizer Controls.** Stabilizer controls are within easy reach of the operator when operating the backhoe and provide low effort and fine modulation control. Each control has automatic raising or “Auto-Up” feature to speed the process for moving on.

**Pilot Control Pods.** Located on the left and right sides, the controls can move fore and aft and can be operated in either position for maximum comfort.



**Joystick Roller Switches.** Thumb rollers on the joysticks provide convenient, fingertip control of auxiliary functions for features such as the extendible stick, hammers and augers. Roller switches eliminate the need for foot pedals, providing additional foot room for the operator.

**Pattern Selector Switch.** The pattern selector switch, located in the cab, allows the operator to change from excavator control pattern to backhoe loader control pattern without leaving the seat.

**Mechanical Controls.** Four-lever Dynahoe and 4-lever Ford style controls remain available for operators with those preferences. Foot pedals operate additional functions such as extendible stick and auxiliary lines.

# Hydraulics

*Caterpillar sets the standard in power and precision with load-sensing hydraulics.*

## **Load-Sensing Hydraulic System.**

The variable displacement piston pump and flow-sharing hydraulic valves sense work demand and adjust flow and pressure for increased productivity. Load-sensing hydraulics deliver:

- Maximum lift and dig forces at any engine RPM
- Cooler hydraulic system
- Better fuel efficiency
- Quieter operation
- Reduced wear on components

**Hydraulic Pump.** The variable displacement piston pump improves implement response and speed while still providing high forces at any engine speed. A supplemental gear pump provides increased flow and responsiveness.

**Torque Limiter Control.** The pump torque limiter control manages distribution of engine power to the hydraulic system and drive train. E-Series improvements produce more aggressive backhoe digging and stronger truck loading performance.



## **Flow-Sharing Hydraulic Valves.**

Technology leveraged from Cat Hydraulic Excavators, new flow-sharing hydraulic valves automatically distribute flow to optimize multi-function implement performance. Closed-center implement valves signal hydraulic system requirements to a control valve located on the pump.

**Clamps and Bushings.** Metal clamps with rubber bushings are used at hose attachment points to eliminate metal-to-metal contact and increase wear life.

## **Cat XT-3 ES ToughGuard™ Hoses.**

Improved bend radius and abrasion resistance provide reliable long life in the toughest conditions. Made of four overlapping, insulated wire spiral wraps bonded together for durability, Cat XT-3 ES (Enhanced Spiral) ToughGuard hoses exceed SAE certification standards. The hose routing protects them from work damage, and hose failure is substantially reduced. Cat XT-3 ES ToughGuard hoses combined with Cat couplings and O-ring face seal fittings provide a leak-free system. All backhoe hydraulic circuits utilize the new ToughGuard hose with extended wear characteristics.

## Power Train

*The Cat® C4.4 engine is built for performance, power, reliability and fuel efficiency.*



**Cat C4.4 Diesel Engine.** The Cat C4.4 engine meets all U.S. EPA Tier 3/ EU Stage III emissions requirements. It delivers high horsepower, increased torque rise and reliable power with low emissions. It provides excellent fuel economy and system durability.

**Direct Injection Fuel System.** Individual unit fuel injectors deliver efficient and accurate fuel metering and reduced emissions. The water separator service indicator ensures the operator is alerted when service is necessary.

**Enhanced Roading Speed.** Maximum roading speed has been increased to 40 km/h (25 mph) for faster travel between jobsites.

**Air Cleaner.** A dry-type axial seal air cleaner with automatic, integrated dust ejection system provides more efficient pre-separation. The two-stage air filter incorporates both air cleaner and pre-cleaner functions into a single unit mounted under the hood.

**New Axles.** New heavy-duty axles are designed specifically for demanding backhoe loader applications. Features include outboard planetary gear sets and brakes for serviceability and longer life.

**Auto-Shift Transmission.** The standard automatic transmission matches gears with grade and load conditions. Top gear is selected with the twist grip control on the steering column. At the touch of a switch, manual mode gives the operator control over gear selection, as a power shift transmission.

**Transmission Kick-Down Switch/ Neutralizer.** Located on the loader control, the kick-down switch allows the operator to downshift through the gears. When this switch is depressed for more than one second, it serves as the transmission neutralizer to maintain engine and hydraulic speed when truck loading.

**Standard Four Wheel Drive (4WD).** Heavy-duty front drive axle can be engaged at any time by activating the switch on the front console. The switch can be activated while the machine is stopped or moving, with or without load. 4WD features outboard planetary gear final drives and improves mobility and loader performance in poor traction conditions.

**Brake Mode Selector.** The brake mode selector switch has three positions: two wheel drive, two wheel drive with all wheel braking and all wheel drive. Center position provides two wheel drive for better tire life while roading and engages the front axle when brakes are applied for improved braking performance.



## Ride Control

*Standard Caterpillar Ride Control delivers even greater operator comfort.*



**Ride Control System.** The Ride Control System incorporates a nitrogen accumulator in the loader lift circuit that smooths the ride in all conditions, including load and carry, highway roading, or simply moving around the job site.

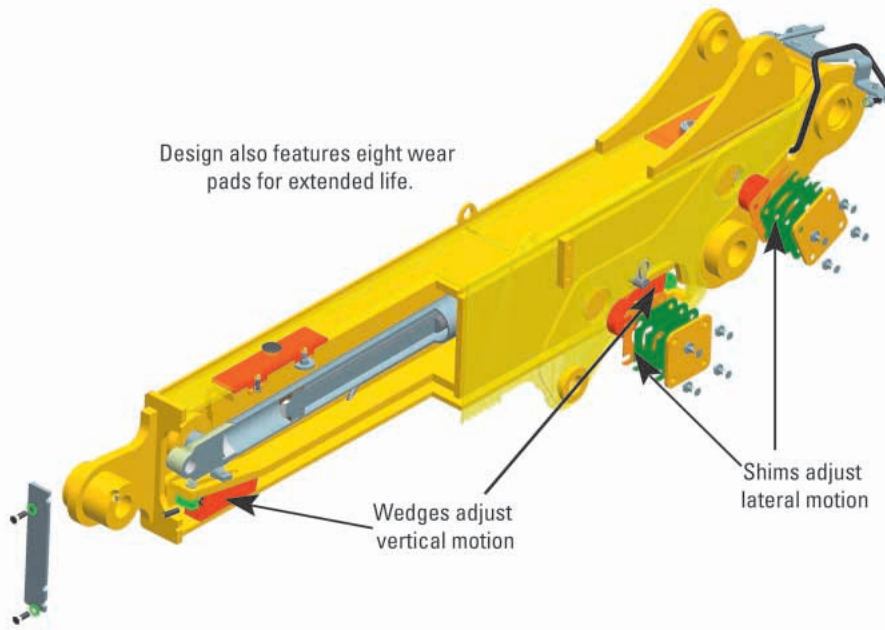
**Improved Productivity.** Ride Control improves material retention in the loader bucket for increased productivity and a cleaner jobsite.

**Controllability.** Ride Control reduces machine loping, providing a smooth and stable ride for increased operator comfort and reduced operator fatigue.

**Convenient Operation.** The system is easily engaged by a switch on the front console. The Ride Control switch has three positions, ON, OFF and AUTOMATIC. In the automatic position, the Ride Control engages automatically as the travel speed increases. At low speed, the system disengages for loading, grading or finishing applications.

## Backhoe and Loader Features

*New extendible stick is designed for better performance, higher force and improved serviceability.*



### *Extendible Stick Design*

**New Backhoe Design.** The completely new E-Series backhoe delivers increased digging forces. Its rugged design provides durability in the toughest applications. Serrated edges on the stick provides improved material clamping for clearing and demolition applications.

**New Extendible Stick.** The optional extendible stick (E-stick) increases reach and dig depth by 1.26 m (4.14 ft). The new design delivers increased life and easy in-field adjustment.

### **High Rotation Backhoe Linkage.**

Single pin bucket linkage contributes to best-in-class rotation of 198 degrees for all applications, eliminating the need to change pin position whether loading trucks or digging tight, vertical wall trenching. An extra pin hole in the E-Series buckets is provided to maintain compatibility with previous machine models.

**Backhoe Boom.** The excavator-style boom features box section fabrication with thicker plates for optimum performance and durability. The curved design provides additional clearance over obstacles while digging a trench or truck loading. The narrow boom enhances the viewing area to the bucket and trench throughout the entire operating range.

**Backhoe Swing Casting.** New swing casting is designed to handle the high performance of the E-Series backhoe. It features replaceable bushings for durability and serviceability.



**Thumb Mounting.** Thumb mounting provisions are standard on every Cat Backhoe Loader for added machine versatility. Hydraulic thumbs are available factory-installed.

**Single Tilt Loader Linkage.** The standard single tilt loader linkage features strong lift and breakout forces for solid performance in backfilling and truck loading applications. The machine is equipped with either a general purpose or multi-purpose pin-on bucket to meet your specific needs.

**Loader Return-to-Dig.** The return-to-dig 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.

## Work Tools

*Choose from a wide variety of tools designed specifically for the backhoe and loader.*

**Work Tools.** Caterpillar Work Tools for backhoe loaders extend the versatility of the machine. Built for performance and durability, these tools deliver high productivity, long service and excellent value.

### Backhoe Work Tools.

- Heavy Duty Bucket
- Ditch Cleaning Bucket
- Hydraulic Hammer
- Vibratory Plate Compactor
- Thumb
- Backhoe Quick Coupler

### Loader Work Tools.

- General Purpose Bucket
- Multi Purpose Bucket
- Side Dump Bucket
- Light Material Bucket
- Single Tilt Quick Coupler
- Loader Forks
- Angle Blade
- Broom
- Rake

**Heavy Duty Bucket.** Cat offers a new line of E-Series heavy duty buckets with larger capacities and extreme service durability.



**Thumb.** Available for both the standard and the extendible stick, thumbs increase the versatility of the backhoe with the ability to grip, grab and sort virtually any material.

**Tips.** A variety of bucket tips are available from your Cat dealer for optimum performance in any application. Buckets are fitted with J225 adapters for maximum strength and durability.

**Lift Eyes.** Integral lifting eyes are a standard feature, one on the backhoe linkage and two lifting eyes on the rear of every loader bucket.

**Loader Quick Coupler.** The optional hydraulic quick coupler allows for quick and easy attachment of buckets and other work tools. This coupler fits on the Single Tilt loader and attaches work tools with the Integrated Toolcarrier interface.

**Backhoe Quick Couplers.** Quick couplers allow for quick attachment of buckets and other work tools.

## Additional Features

*Product Link, combined function hydraulics and work lights add more benefit.*



**New Combined Function Auxiliary Hydraulics Lines.** New backhoe auxiliary lines provide one-way or two-way flow for work tools such as hammers, vibratory compactors and thumbs. Standard hydraulic quick disconnects allow fast tool exchange.

**Product Link.** This established Caterpillar technology uses a Global Positioning System (GPS) to provide machine data to both Cat dealers and end users. Data can be received by either a web based application system or notification by e-mail or pager. Product Link can provide:

- Machine hours
- Location
- Machine events and diagnostics from the on-board computer

**Counterweight.** A new 998 kg (2,200 lb) counterweight is standard for improved machine balance and roading.

**New Work Lights.** New work lights are adjustable and better aligned for improved lighting of the work area.

**Fuel Tank.** Large capacity tank located on the frame's left side is lockable and includes a replaceable, bolt-on step.

**Tool and Battery Box.** Lockable, hinged door provides easy access to battery box with no hand tools required. Permanent punched hole tread plate on top provides stable footing in all weather conditions. A battery disconnect switch is located inside the battery box.

**Flip Over Stabilizer Pads.** Standard flip over stabilizer pads provide the ability to work in both dirt and street applications.

## Serviceability and Customer Support

*Simplified service and maintenance save you time and money.*

**Tilt-Up Hood.** The tilt-up hood provides easy, convenient access to all engine check points from the left side of the machine. Fill caps are color-coded for quick identification.

**On-Board Diagnostics.** Electronic control module stores fault codes for easy, efficient troubleshooting and maximum machine uptime.

**Selection.** Make detailed comparisons of the machines you are considering before you buy. Cat dealers can estimate component life, preventative maintenance and the true cost of lost production. You can also customize the machine that is right for you. Go on-line anytime to review the full range of features and options available using the Build and Quote applications on your dealer's website or [www.cat.com](http://www.cat.com).

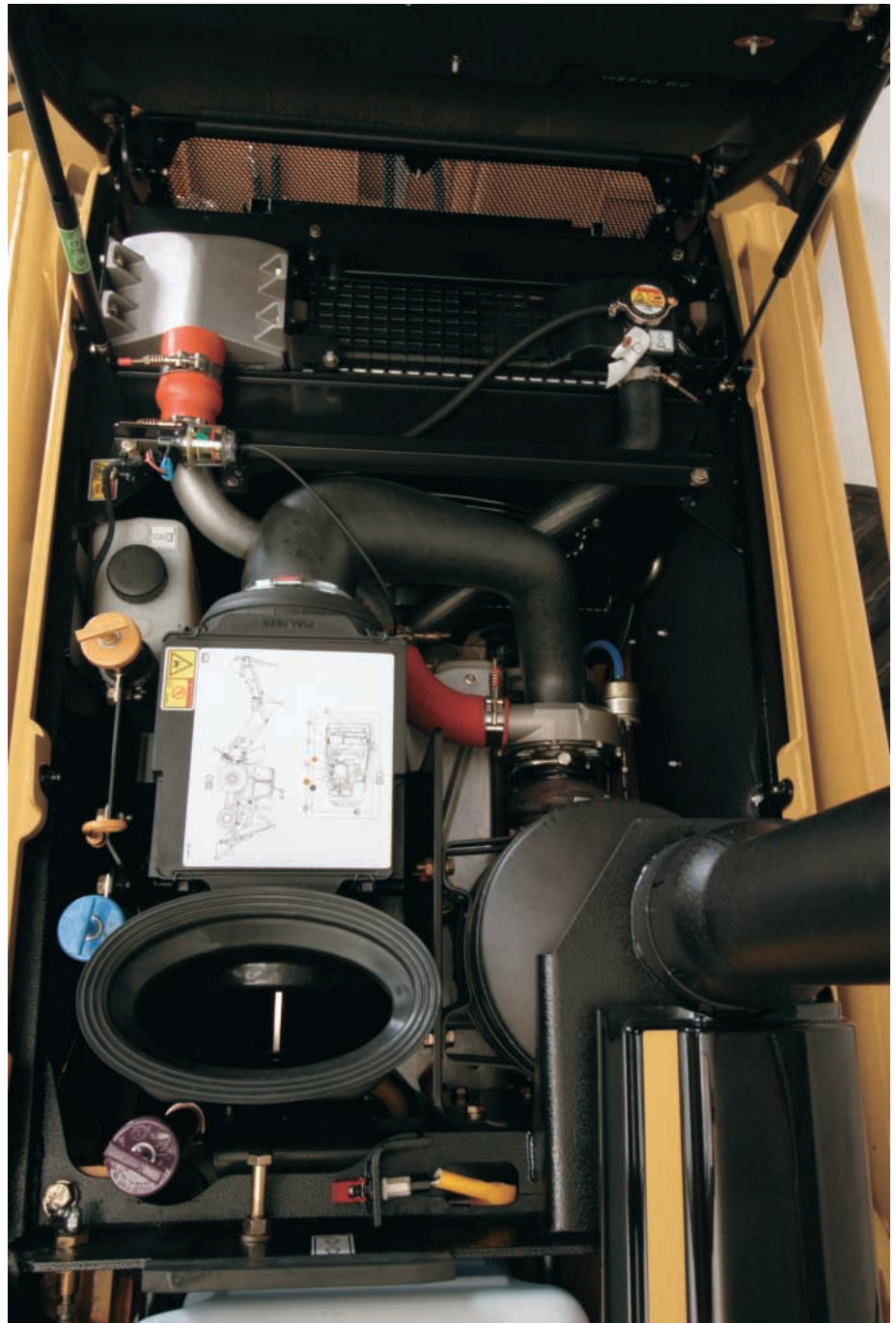
**Purchase.** Look at the value E-Series backhoe loaders offer. Consider all the flexible financing options your Cat dealer offers as well as day-to-day operating costs.

**Operation.** Improving operating techniques can boost your profits. Turn to your Cat dealer for the latest training literature and trained staff.

**Maintenance.** Repair option programs guarantee the cost of repairs up front. Diagnostic programs such as S•O•S<sup>SM</sup> and Coolant Sampling and Technical Analysis help you avoid unscheduled repairs.

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

**Product Support.** You will find nearly all parts at our dealer parts counter. Cat dealers utilize a worldwide computer network to find in-stock parts to minimize machine downtime. Additionally, Caterpillar offers a line of genuine remanufactured components which can help lower repair costs.



**Easy Financing.** Your Cat dealer can provide a financing package to meet your needs.

**Safety.** Caterpillar is committed to providing you with a safe work environment. For more information please visit [SAFETY.CAT.COM](http://SAFETY.CAT.COM)<sup>TM</sup>.

## Engine

Engine Model (Standard)	Cat® C4.4	
Gross Power – SAE J1995	102 kW	137 hp
Gross Power – ISO 14396	102 kW	137 hp
Net Power – SAE J1349	92 kW	124 hp
Net Power – ISO 9249	93 kW	125 hp
Net Power – EEC 80/1269	93 kW	125 hp
Bore	105 mm	4.13 in
Stroke	127 mm	5 in
Displacement	4.4 L	268 in <sup>3</sup>
Net Torque Rise @ 1,400 rpm – Standard	28%	
Net Peak Torque @ 1,400 rpm – Standard – SAE J1349	514 N·m	380 lb ft

- The net power ratings apply at 2,200 rpm when tested under the specified conditions for the specified standard.
- Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- Based on standard air conditions of 25° C (77° F) and 99 kPa (29.32 in) in dry barometer.
- Used 35° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 BTU/lb) when used at 30° C (89° F) (reference a fuel density of 838.9 g/L [7.001 lb/gal]).
- No derating required up to 3000 m (9,842 ft).
- Net torque rise meets SAE J1349.

## Weights

Operating Weight – Nominal	10 950 kg	24,141 lb
Operating Weight – Maximum	12 300 kg	27,115 lb
Cab, ROPS/FOPS	252 kg	556 lb
Air Conditioning	71 kg	157 lb
MP Bucket 1.1 m <sup>3</sup> (1.5 yd <sup>3</sup> ) w/Fold-Over Fork	-86 kg	-190 lb
MP Bucket 1.1 m <sup>3</sup> (1.5 yd <sup>3</sup> ) w/o Fold-Over Fork	105 kg	231 lb
Extendible Stick (no weights)	285 kg	628 lb

- Total gross machine weight not to exceed 12 300 kg (27,115 lb).

## Backhoe

Dig Depth – Standard	5260 mm	17 ft 3 in
E-Stick Retracted	5260 mm	17 ft 3 in
E-Stick Extended	6501 mm	21 ft 4 in
Reach from Swing Pivot – Standard	6704 mm	22 ft
E-Stick Retracted	6704 mm	22 ft
E-Stick Extended	7886 mm	25 ft 10 in
Bucket Rotation	198°	
Bucket Dig Force – Standard	78.9 kN	17,746 lb
E-Stick Retracted	78.9 kN	17,746 lb
E-Stick Extended	78.9 kN	17,746 lb
Stick Dig Force – Standard	52.4 kN	11,780 lb
E-Stick Retracted	53.1 kN	11,939 lb
E-Stick Extended	40 kN	9,009 lb
Stick Lift @ 2440 mm (8 ft) – Standard	3811 kg	8,401 lb
E-Stick Retracted	3667 kg	8,084 lb
E-Stick Extended	2048 kg	4,514 lb
Loading Height – Standard	4440 mm	14 ft 7 in
E-Stick Retracted	4439 mm	14 ft 7 in
E-Stick Extended	5194 mm	17 ft
Loading Reach – Standard	2100 mm	6 ft 11 in
E-Stick Retracted	2100 mm	6 ft 11 in
E-Stick Extended	3112 mm	10 ft 3 in

## Loader

Bucket Capacity – General Purpose	1.34 m <sup>3</sup>	1.75 yd <sup>3</sup>
Bucket Width – General Purpose	2434 mm	8 ft
Dump Height @ Max Angle – Single Tilt	2666 mm	8 ft 9 in
Dump Reach @ Max Angle – Single Tilt	850 mm	2 ft 9 in
Dig Depth – Single Tilt	146 mm	6 in
Lift Capacity @ Full Height – Single Tilt	3570 kg	7,871 lb
Bucket Breakout Force – Single Tilt	50.6 kN	11,375 lb

## Hydraulic System

Circuit Type	Closed center, load sensing	
Pump Capacity (@ 2,200 rpm)	194 L/min	51.3 gal/min
System Pressure – Backhoe	26 200 kPa	3,800 psi
System Pressure – Loader	24 483 kPa	3,550 psi
Pump Type	Variable-flow, axial piston, secondary gear	
Steering Type	Ackerman	
Power Steering	Hydrostatic, Hand Metering Unit	
Steering Cylinder	One double-acting	
Axle Oscillation	10°	
4WD Cylinder – Bore	85 mm	3.35 in
	Stroke	236 mm 9.29 in
	Rod Diameter	42 mm 1.65 in
Brake System	Boosted, outboard, oil-immersed, multiple disc	

## Power Train

Auto-Shift (opt), Forward 1st	6 km/h	3.7 mph
Forward 2nd	9.6 km/h	6 mph
Forward 3rd	20 km/h	12 mph
Forward 4th	27 km/h	17 mph
Forward 5th	40 km/h	25 mph
Auto-Shift (opt), Reverse 1st	6 km/h	3.7 mph
Reverse 2nd	13 km/h	7.8 mph
Reverse 3rd	27 km/h	17 mph

- Auto-Shift automatically shifts between second gear and highest selected gear.
- Forward/reverse electric power shuttle is controlled by a conveniently placed, hand operated lever that provides instant direction changes between forward and reverse through power hydraulic clutches.
- Torque converter free-wheel clutch allows the converter stator to free wheel during high speed, low torque conditions such as roading.
- Single-stage, 2.38:1 stall ratio at 880 N·m (649 lb ft) stall torque.
- Travel speeds at full governor on level ground.

## Operating Specifications – Backhoe

Turning Circle: outside, front wheels	8.36 m	27 ft 5 in
Turning Circle: outside, widest loading bucket	11.18 m	36 ft 8 in

- ISO 5010.
- 4WD (off inner wheel not braked).

## Service Refills

Cooling System, A/C	24.3 L	6.4 gal
Cooling System, High-Ambient	25.6 L	6.8 gal
Fuel Tank	145 L	38.4 gal
Engine Oil w/Filter	8.5 L	2.2 gal
Transmission, AWD, Auto Shift	21 L	5.6 gal
Rear Axle	19 L	5 gal
Front Axle, 4WD	11 L	2.9 gal
Front Axle, Planetaries	0.8 L	0.2 gal
Hydraulic System	100 L	26.5 gal
Hydraulic Tank	50 L	13.2 gal

## Axle Ratings

Front Axle, 4WD, Static	22 944 kg	50,582 lb
	Dynamic	9178 kg 20,233 lb
Rear Axle, Static	23 250 kg	51,257 lb
	Dynamic	9300 kg 20,503 lb

- 4WD axle is pendulum mounted and permanently sealed and lubricated, requiring no daily maintenance. Also features double-acting steering cylinder with 52° steering angle for increased maneuverability. Oscillation 10° each direction from centerline.

## Brakes

Features:

- Brakes meet the following standards: SAE J1473 and ISO 3450 requirements.
- Boosted, self-adjusting, completely enclosed and sealed outboard brakes allow easier servicing.
- Foot operated brake pedals can be interlocked for roading.
- Parking/secondary brakes are independent of the service brake system. Parking brake is mechanically applied through an adjustable hand lever located on the right console.

## Standards

Brakes	SAE J/ISO 3450, ISO 3450 1996
Cab – ROPS	SAE J1040 May 1994/ ISO 3741 1994
Cab – FOPS	SAE J/ISO 3449 APR98 LEVEL II and ISO 3449:1992 LEVEL II
Cab – Sound	ANSI/SAE J1166 Oct 98 is 83 dB(A)
Exterior Sound	SAE J88 APR95 is 79 dB(A)

- The operator Equivalent Sound Pressure Level (Leq) is 83 dB(A) when “ANSI/SAE J1166 OCT 98” is used to measure the value for an enclosed cab. This is a work cycle sound exposure level. The cab was properly installed and maintained. The test was conducted with the cab doors and the cab windows closed.
- Hearing protection may be needed when the machine is operated with an open operator station for extended periods or in a noisy environment. Hearing protection may be needed when the machine is operated with a cab that is not properly maintained, or when the doors and windows are open for extended periods or in a noisy environment.
- The average exterior sound pressure level is 79 dB(A) when the “SAE J88 Feb 2006 – Constant Speed Moving Test” procedure is used to measure the value for the standard machine. The measurement was conducted under the following conditions: distance of 15 m (49.2 ft) and “the machine moving forward in an intermediate gear ratio”.

## Engine Features

- Three-ring pistons made of lightweight, silicon/aluminum alloy for strength and maximum thermal conductivity.
- Forged chrome/molybdenum-steel crankshaft with crankshaft with either induction hardened or nitro carburized journals.
- Front and rear crankshaft oil seals are “lip” type Viton and PTFE designs featuring an integral dust lip.
- Heat resistant, silicone-chrome steel intake and STELLITE-faced exhaust valves provide long 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 deck thickness. Intake and exhaust ports are precision cast to promote optimum gas flow.
- High pressure, direct injection fuel system provides accurate fuel delivery; mechanically driven fuel transfer pump.
- Dry-type axial seal air cleaner with integral precleaner, automatic dust ejection system, and filter condition indicator.
- Direct electric, 12-volt starting and charging system with two 880 CCA Group 31 maintenance free batteries.
- Standard glow plug starting aid system for efficient cold weather starting.
- High contact ratio/gear train, peripheral fixed isolation top cover and open deck block design reduce bare engine noise.
- Higher low end torque for better engine/machine performance.

## Backhoe Buckets – Heavy Duty

With weld-on adapters and pin-on teeth.

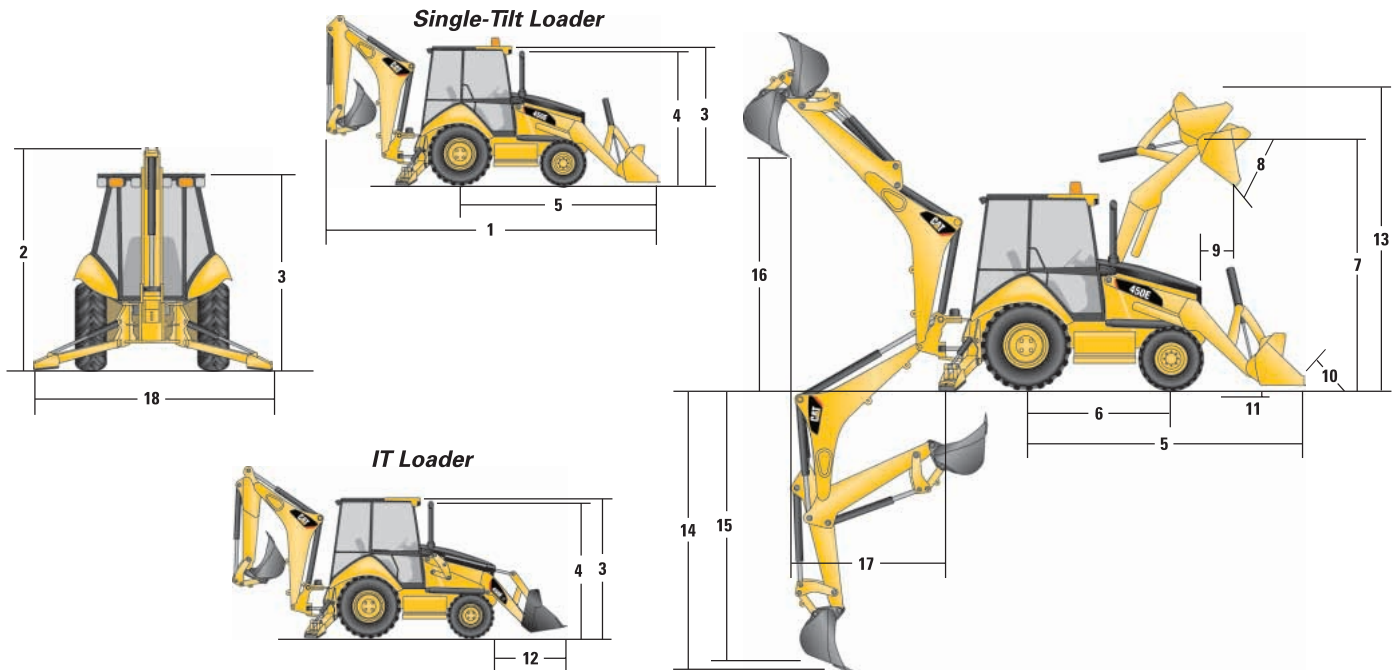
Width (mm/in)	Rated Capacity (liters/ft³)	Weight (kg/lb)	No. of Teeth
457/18	190/6.7	211/465	3
610/24	280/9.9	252/554	4
762/30	380/13.4	283/625	4
914/36	480/17.0	326/719	6



# Machine Dimensions

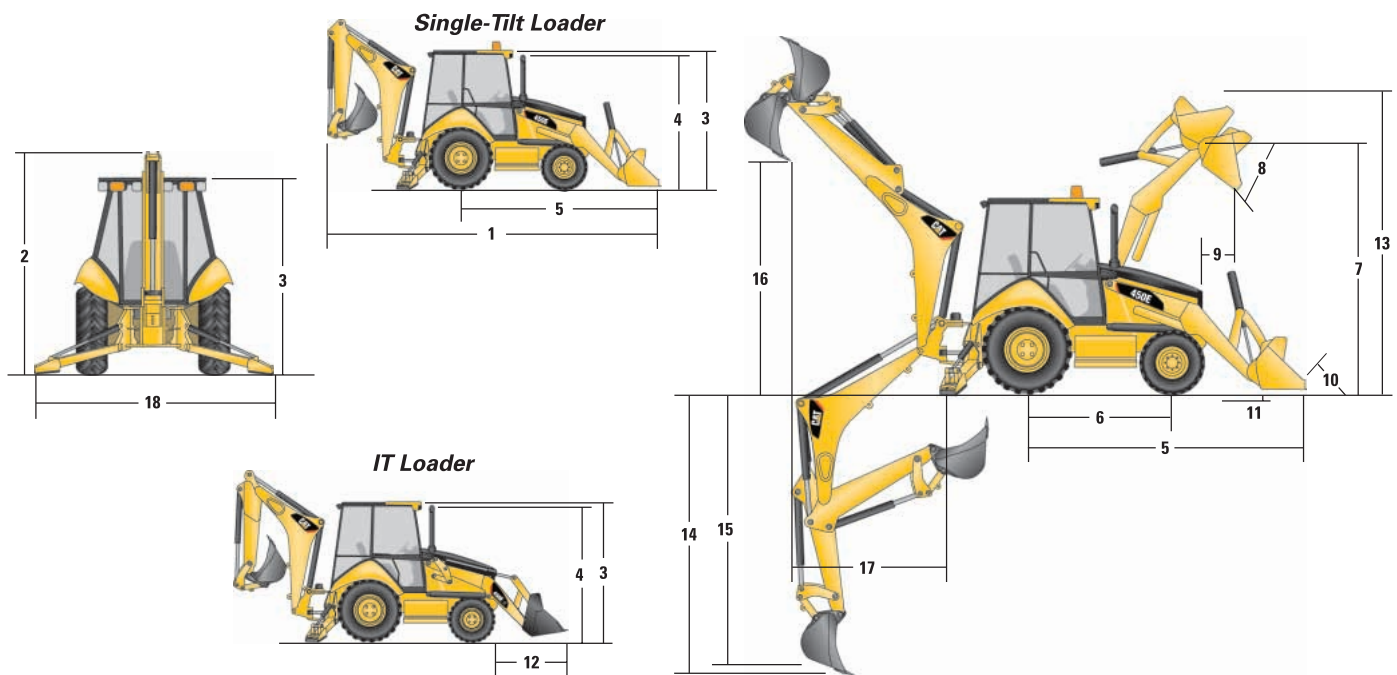
## Single-Tilt Loader

	General Purpose	Multi Purpose
(1) Overall length (loader on ground) (standard stick)	7913 mm/26 ft 0 in	7786 mm/25 ft 7 in
Overall length (loader on ground) (extendible stick)	7913 mm/26 ft 0 in	7786 mm/25 ft 7 in
Overall transport length (standard stick)	7916 mm/26 ft 0 in	7826 mm/25 ft 8 in
Overall transport length (extendible stick)	7916 mm/26 ft 0 in	7826 mm/25 ft 8 in
(2) Overall transport height (standard stick)	4143 mm/13 ft 7 in	4143 mm/13 ft 7 in
Overall transport height (extendible stick)	4159 mm/13 ft 8 in	4159 mm/13 ft 8 in
Overall Width	2436 mm/8 ft 0 in	2436 mm/8 ft 0 in
(3) Height to top of cab/canopy	2874 mm/9 ft 5 in	2874 mm/9 ft 5 in
(4) Height to top of exhaust stack	2845 mm/9 ft 4 in	2845 mm/9 ft 4 in
Rear axle centerline to front grill	2832 mm/9 ft 3 in	2832 mm/9 ft 3 in
Height to loader hinge pin (transport)	469 mm/1 ft 6 in	481 mm/1 ft 7 in
Ground clearance (minimum)	322 mm/1 ft 1 in	322 mm/1 ft 1 in
(5) Rear axle to loader bucket on ground	4494 mm/14 ft 9 in	4367 mm/14 ft 4 in
Front wheel tread gauge	2016 mm/6 ft 7 in	2016 mm/6 ft 7 in
Rear wheel tread gauge	1814 mm/5 ft 11 in	1814 mm/5 ft 11 in
(6) Wheelbase AWD	2200 mm/7 ft 3 in	2200 mm/7 ft 3 in



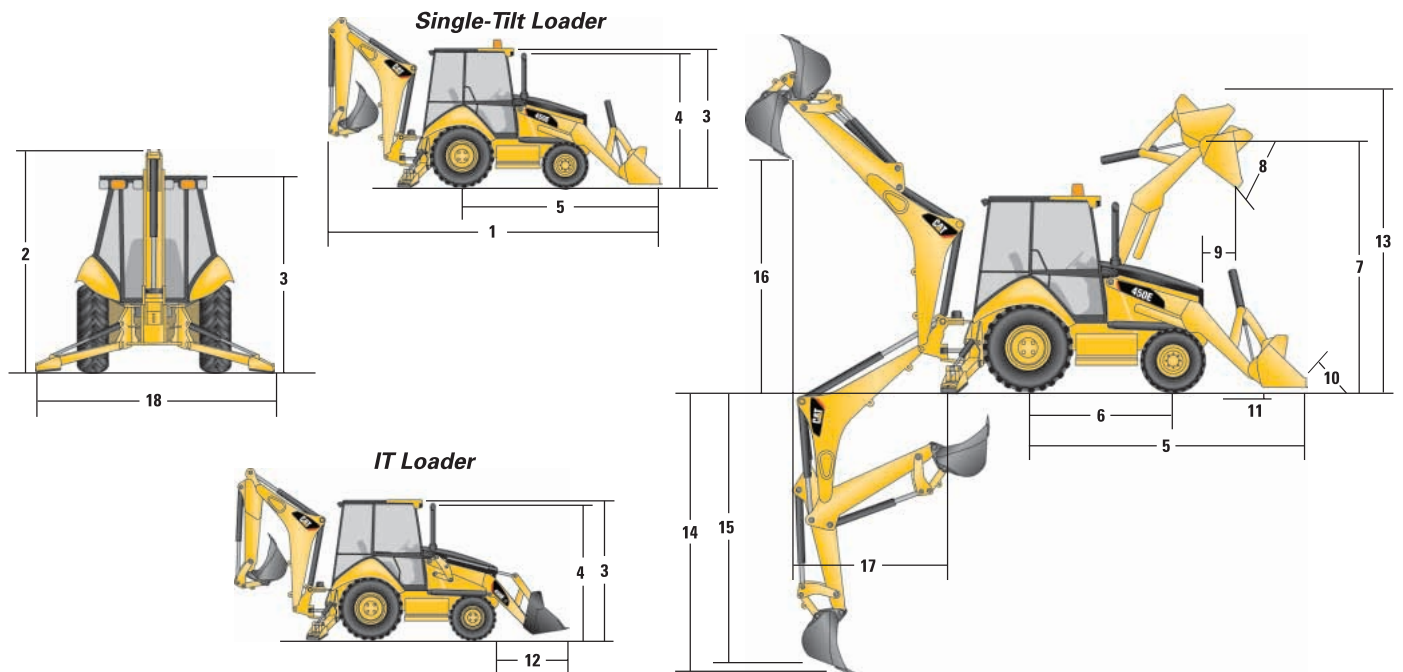
# Loader Bucket Dimensions and Performance

	Single-Tilt Loader		
	General Purpose (1.34 m <sup>3</sup> /1.75 yd <sup>3</sup> )	Multi Purpose (1.15 m <sup>3</sup> /1.50 yd <sup>3</sup> )	Multi Purpose with Forks (1.15 m <sup>3</sup> /1.50 yd <sup>3</sup> )
Capacity (SAE rated)	1.34 m <sup>3</sup> /1.75 yd <sup>3</sup>	1.15 m <sup>3</sup> /1.50 yd <sup>3</sup>	1.15 m <sup>3</sup> /1.50 yd <sup>3</sup>
Width	2434 mm/8 ft 0 in	2425 mm/7 ft 11 in	2425 mm/7 ft 11 in
Lift capacity at maximum height	3570 kg/7,871 lb	3843 kg/8,473 lb	3708 kg/8,174 lb
Breakout force	50 600 N/11,375 lb	60 889 N/13,688 lb	60 000 N/13,488 lb
Tipping load at breakout point	7482 kg/16,495 lb	8160 kg/17,990 lb	8006 kg/17,650 lb
(7) Maximum hinge pin height	3501 mm/11 ft 6 in	3501 mm/11 ft 6 in	3501 mm/11 ft 6 in
(8) Dump angle at full height	43°	43°	43°
Dump height at maximum angle	2666 mm/8 ft 9 in	2759 mm/9 ft 1 in	2759 mm/9 ft 1 in
(9) Dump reach at maximum angle	850 mm/2 ft 9 in	779 mm/2 ft 7 in	779 mm/2 ft 7 in
(10) Maximum bucket rollback at ground level	40°	40°	40°
(11) Digging depth	146 mm/6 in	127 mm/5 in	127 mm/5 in
Maximum grading angle	106°	109°	109°
Width of dozer cutting edge	N/A	2406 mm/7 ft 11 in	2406 mm/7 ft 11 in
(12) Grill to bucket cutting edge, carry position	1665 mm/5 ft 6 in	1572 mm/5 ft 2 in	1572 mm/5 ft 2 in
(13) Maximum operating height	4528 mm/14 ft 10 in	4561 mm/15 ft 0 in	4881 mm/16 ft 0 in
Jaw opening maximum	N/A	864 mm/2 ft 10 in	864 mm/2 ft 10 in
Bucket jaw clamping force	N/A	39 800 N/8,947 lb	39 800 N/8,947 lb
Weight	1043 kg/2,300 lb	957 kg/2,111 lb	1148 kg/2,530 lb



# Backhoe Dimensions and Performance

	Standard Stick	Extendible Stick Retracted	Extendible Stick Extended
(14) Digging depth, SAE (max)	5260 mm/17 ft 3 in	5260 mm/17 ft 3 in	6501 mm/21 ft 4 in
Digging depth, 2438 mm/8 ft flat bottom	4925 mm/16 ft 2 in	4925 mm/16 ft 2 in	6230 mm/20 ft 5 in
(15) Digging depth, 610 mm/2 ft flat bottom	5223 mm/17 ft 2 in	5223 mm/17 ft 2 in	6466 mm/21 ft 3 in
Reach from rear axle centerline at ground line	7955 mm/26 ft 1 in	7955 mm/26 ft 1 in	9137 mm/30 ft 0 in
(16) Reach from swing pivot at ground line	6704 mm/22 ft 0 in	6704 mm/22 ft 0 in	7886 mm/25 ft 10 in
Overall operating height	6531 mm/21 ft 5 in	6531 mm/21 ft 5 in	7375 mm/24 ft 2 in
Loading height	4440 mm/14 ft 7 in	4439 mm/14 ft 7 in	5194 mm/17 ft 0 in
(17) Loading reach	2100 mm/6 ft 11 in	2100 mm/6 ft 11 in	3112 mm/10 ft 3 in
Swing arc	175°	175°	175°
Bucket rotation	198°	198°	198°
(18) Stabilizer spread – operating position (outside edge of pad)	4055 mm/13 ft 4 in	4055 mm/13 ft 4 in	4055 mm/13 ft 4 in
Stabilizer spread, transport position	2451 mm/8 ft 0 in	2451 mm/8 ft 0 in	2451 mm/8 ft 0 in
Bucket dig force	78 938 N/17,746 lb	78 936 N/17,746 lb	78 936 N/17,746 lb
Stick dig force	52 401 N/11,780 lb	53 109 N/11,939 lb	40 074 N/9,009 lb

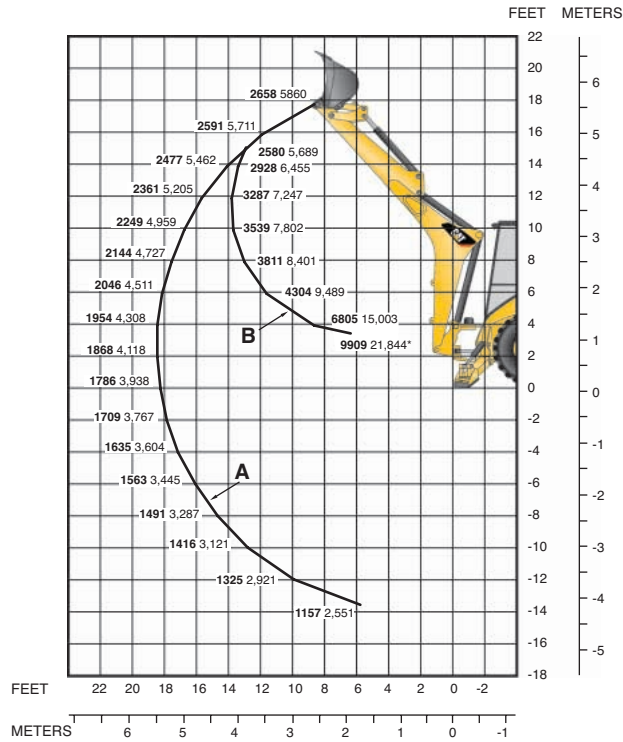


# Backhoe Lift Capacity

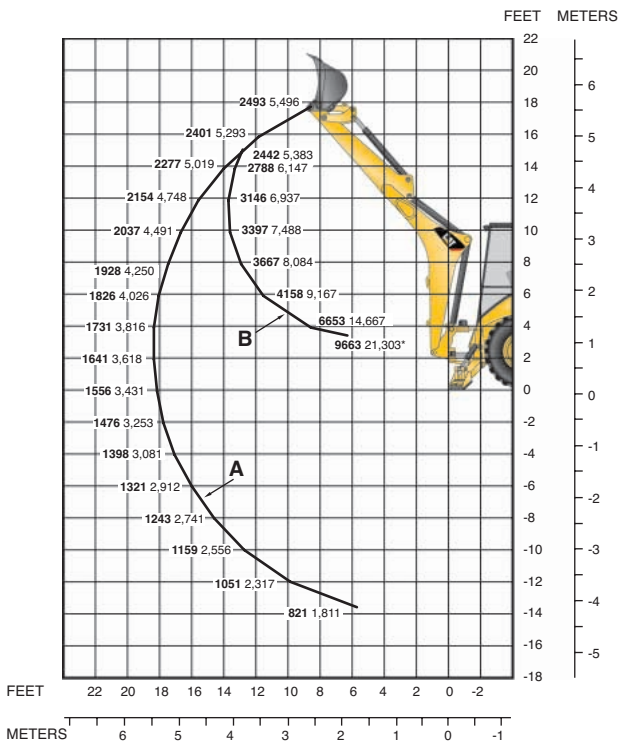
## Cat 450E Standard Stick

### KEY

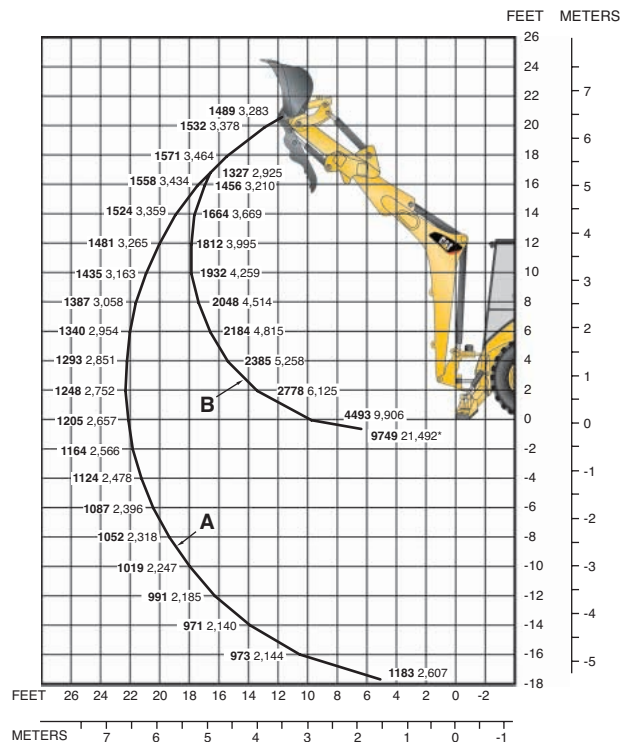
- A — Boom lift **kg lb**
- B — Stick lift **kg lb**



## Cat 450E Extendible Stick — Retracted



## Cat 450E Extendible Stick — Extended



Lift Capacities are over-end values. Machine equipped with 4WD, OROPS, 1.34 m<sup>3</sup> (1.75 yd<sup>3</sup>) general purpose loader bucket, 610 mm (24") heavy duty backhoe bucket and 1000 kg (2,200 lb) counterweight.

\*Indicates lift capacity is stability limited.

## Standard Equipment

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

### BACKHOE

- 5258 mm (17'3") center pivot backhoe
- Excavator style boom w/hammer rest
- Thumb-ready stick w/gripping edges
- Boom transport lock w/auto latching
- Swing transport lock
- Lifting eye
- Pilot operated, auto-up stabilizers
- 198-degree bucket rotation

### ELECTRICAL

- 12-volt electrical system
- 120-ampere alternator
- Horn
- Hazard flashers/turn signals
- Halogen headlights (4)
- Halogen rear floodlights (4)
- Stop and taillights
- Audible system fault alarm
- Key start/stop system
- Ext/int 12-volt power receptacles (2)
- Two 880 CCA maintenance-free batteries
- Battery disconnect switch

### LOADER

- Single Tilt Loader w/bucket level indicator
- Loader service brace
- Return-to-dig, automatic
- Self-leveling loader bucket
- Transmission neutralizer switch

### HYDRAULICS

- Load sensing, variable flow, closed center system, 194 L/min (51 gal/min)
- 5 Function backhoe hydraulics
- 5 Micron spin-on hydraulic filter
- O-ring face seal hydraulic fittings
- Snap-To-Connect hydraulic couplings
- Caterpillar XT™-3 ES hose
- Cat Toughguard XT-3 ES hose
- Ride Control

### OTHER STANDARD EQUIPMENT

- Toolbox, lockable, external
- 4 separate transport tie-down points
- Ground line fill fuel tank
- Rubber impact strips on radiator guard
- 998 kg (2,200 lb) counterweight
- Lockable hood
- Tire valve stem protection
- Stabilizer cylinder rock guards
- Flip style, dual purpose stabilizer pads
- CD-ROM Parts Manual
- Backhoe Safety Manual
- Operations and Maintenance Manual

### OPERATOR ENVIRONMENT

- Lighted gauge group: tachometer, fuel, service hour meter, coolant temperature, transmission temperature
- Hydraulic system monitors: filter and temperature warnings
- Interior rear-view mirror
- Rear fender extensions
- ROPS Canopy
- 51 mm (2 in) retractable seat belt
- Steering wheel assist knob
- Hand and foot throttle
- Floor mat
- Cell phone mount
- Coat hook
- Backhoe position foot rests
- Two lockable storage areas
- Drink holders
- Lunch box holder
- Air suspension seat with arm rests
- Service harness
- Tilt steering wheel
- Rear fender extensions
- System fault alarm
- Boosted brakes

### POWER TRAIN

- Cat C4.4 102 kW (137 hp) – gross power, 92 kW (124 hp) – net power
- U.S. EPA Tier 3 emissions compliant
- Charge cooled, Direct Injection Turbo
- Self-adjusting, serpentine accessory belt
- Water separator with indicator light
- Thermal starting aid system
- Dry-type axial seal air cleaner w/auto dust ejection, precleaner and filter indicator
- Engine fan guard
- On-the-go 4-wheel-drive front axle, maintenance free
- 2WD, 2WD w/4 wheel braking, 4WD modes
- Front driveshaft guard
- Hydrostatic power steering w/secondary emergency steering
- Boosted, multi-plate wet, outboard disc brakes
- Electronic differential lock
- Separate driveline parking brake
- Torque converter
- Transmission, Auto-shift, (5F, 3R)
- 40 km/h (25 mph) level ground max speed
- Spin-on, engine oil and transmission oil filters
- Spin-on clear bowl water/fuel separator
- Spin-on secondary fuel filter
- Firestone 15-19.5 12 ply front tires
- Firestone 21L-24 18 ply rear tires
- Consolidated engine service points
- Open-Circuit-Breather system

## Optional Equipment (with approximate change in operating weight)

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

	kg	lb
<b>Attachments, Backhoe</b>		
<b>Ditch Cleaning Buckets</b>		
1219 mm (48"), 0.45 m <sup>3</sup> (0.59 yd <sup>3</sup> ) DC-DH	272	600
1372 mm (54"), 0.51 m <sup>3</sup> (0.67 yd <sup>3</sup> ) DC-DH	306	675
1524 mm (60"), 0.57 m <sup>3</sup> (0.75 yd <sup>3</sup> ) DC-DH	386	850
<b>Heavy Duty Buckets</b>		
457 mm (18"), 0.18 m <sup>3</sup> (6.3 ft <sup>3</sup> ) HD	211	465
610 mm (24"), 0.27 m <sup>3</sup> (9.5 ft <sup>3</sup> ) HD	252	556
762 mm (30"), 0.27 m <sup>3</sup> (9.5 ft <sup>3</sup> ) HD	283	624
914 mm (36"), 0.27 m <sup>3</sup> (9.5 ft <sup>3</sup> ) HD	326	719
<b>Hydraulic Hammers</b>		
H90C Flat Top	708	1,562
H90C S	718	1,584
H100 Flat Top	1026	2,262
H100 S Flat Top	1036	2,284
<b>Hydraulic Thumbs</b>		
356 mm (14") Wide [for 914 mm (36") HD bucket]	168	370
445 mm (17.5") Wide [for 610 mm (24") or 762 mm (30") HD bucket]	172	380
Quick Coupler Pin Puller	91	200
<b>Vibratory Compactor Plate</b>		
CVP40	489	1,077
<b>Attachments, Front Loader</b>		
<b>General Purpose Buckets, with BOCE</b>		
1.3 m <sup>3</sup> (1.75 yd <sup>3</sup> )	1043	2,300
<b>Multi Purpose Bucket, with BOCE</b>		
1.1 m <sup>3</sup> (1.5 yd <sup>3</sup> )	957	2,111
1.1 m <sup>3</sup> (1.5 yd <sup>3</sup> ) with Forks	1148	2,530
Quick Coupler, IT Compatible	227	500
<b>Angle Brooms (IT Interface)</b>		
BA25 Hydraulic	460	1,014
BA25 Hydraulic with Water	600	1,323
BA25 Manual	460	1,014
<b>Pick-up Broom (IT Interface)</b>		
BP25 Hydraulic	651	1,435
Lever, Detent – Broom	1	2
<b>Work Tools (IT Interface)</b>		
Bucket, 2438 mm (96"), 1.5 m <sup>3</sup> (2.0 yd <sup>3</sup> ) GP	746	1,645
Hook, Profile	79	175
Hook, Blank	113	250
Hook, Flat Back	70	155
Cutter, 470 mm (18.5") Asphalt	193	425
Fork, 1219 mm (48") Tine Pallet	454	1,000
Rake, 2108 mm (83") Loader	771	1,700
Rake, 2108 mm (83") Loader	1120	2,470
Blade, 2819 mm (111") Hydraulic Angle	805	1,775

	kg	lb
Auto Lube	20	43
Cab, Deluxe with A/C	323	712
Coolant, Additional Protection, -50° C (-58° F)	0	0
Fenders, 4WD, Front	17	37
Heater, Engine Coolant	2	4
<b>Hydraulic Couplings</b>		
Quick Disconnect	2	4
<b>Hydraulic Valves, Loader</b>		
Auxiliary	21	46
<b>Hydraulic Valves, Backhoe</b>		
6th Function	10	22
<b>Hydraulic Lines</b>		
Combined Function, Standard Stick	34	76
Combined Function, E-Stick	40	88
One-way Function, E-Stick	30	66
<b>Mechanical Backhoe Controls</b>		
Dynahoe	5	12
Ford	5	12
Product Link	4	9
<b>Quick Coupler</b>		
Backhoe, Pin Puller	100	220
<b>Rotating Beacon</b>		
Magnetic Mount	5	11
Seat Belt, 75 mm (3 in)	0	0
<b>Sticks</b>		
Extendible	285	628
Stops, Bucket	7	16

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## Notes

# 450E Backhoe Loader

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