434E Mechanical Backhoe Loader

Engine

	Cat 3054C*	C4.4**
Aspiration	Turbocharged	Turbocharged
Rated power (standard)	2,200 rpm	2,200 rpm
Gross – SAE J1995	68.5 kW/93 hp	70 kW/95 hp
Net – ISO 9249	65 kW/89 hp	67 kW/91 hp
Net – 80/1269/EEC	65 kW/89 hp	67 kW/91 hp
Rated power (optional)	2,200 rpm	2,200 rpm
Gross – SAE J1995	74.5 kW/101 hp	74.5 kW/101 hp
Net – ISO 9249	71 kW/97 hp	71 kW/97 hp
Net – 80/1269/EEC	71 kW/97 hp	71 kW/97 hp
Net torque rise at 1,400 rpm		
70 kW/95 hp	—	30%
68.5 kW/93 hp	33%	—
74.5 kW/101 hp	26%	23%
Peak torque rise at 1,400 rpm		
70 kW/95 hp	—	395 Nm
68.5 kW/93 hp	395 Nm	—
74.5 kW/101 hp	408 Nm	400 Nm
Bore	105 mm	105 mm
Stroke	127 mm	127 mm
Displacement	4.4 liter	4.4 liter

- All engine horsepower (hp) are metric including front page.
- Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- Engine will operate up to a maximum altitude of 3000 m.

* Stage II EU Emission Directive 97/68/EC. For less regulated countries.

** Stage IIIA EU Emission Directive 2004/26/EC. For regulated countries.

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.
- Poly vee front end and auxiliary drive belt that is automatically tensioned for long life reducing operating costs.
- 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 torque at low engine speeds for better machine performance.
- Dry type, axial seal air cleaner with automatic, integrated dust ejection providing more efficient preseparation.
- Direct electric 12 volt starting and charging system with 750 CCA group 31 maintenance free battery.

Axles

Standard All Wheel Drive and All Wheel Steer.

Features

- Heavy duty rear axle with self adjusting inboard brakes, optional differential lock, and final drive.
- 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 is pendulum mounted and permanently sealed and lubricated, requiring no daily maintenance. Also features double acting steering cylinder with 19° steering angle for increased maneuverability.
- All Wheel Steer.
- 24" or 28" Equal Size Tires

All Wheel Steering

Full hydrostatic steering controlled by a hand-metering unit. There are three operator selected modes to maximize machine maneuverability:

- Two wheel steer mode
- Circle-steer mode
- Crab steer

Type	
Power Steering	Hydrostatic
Cylinder, one (1) double-acting (AWD)	

	Front	Rear
Bore	85 mm	85 mm
Stroke	48 mm	63 mm
Rod diameter	42 mm	42 mm
Turning circle		
Two wheel steer		16 550 mm
Circle-steer		11 770 mm

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 brake pedals can be interlocked for roading.
- Parking/secondary brakes are independent of the service brake system. Parking brake is mechanically applied through a hand lever located in the right side console.

Meets ISO 3450:1996 requirements.

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Service Refill Capacities

	Liters
Cooling system	25.0
Fuel tank	160.0
Engine with oil filter	7.6
Transmission	
AWD	18.5
Rear axle (steerable)	
Center housing	16.0
Center housing additive	0.5
Wheel end/Final drive (volume per side)	1.7
Front axle AWD	
Center housing	14.0
Wheel end/Final drive (volume per side)	0.7
Hydraulic system	79/99
Hydraulic tank	40

Transmission

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 converter free wheel clutch allows the converter stator 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, 2.64 stall ratio

Travel Speeds

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

	Power Shuttle (standard)	Power Shift (optional)
Forward	km/h	km/h
1st	6	5
2nd	9	9
3rd	18	18
4th	40	25
5th	—	38
Reverse		
1st	6	5
2nd	9	11
3rd	18	24
4th	40	—

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 l/min at 2200 rpm
System pressure	227 bar

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.

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Weights

Standard single tilt loader, with 1.15 m^3 general purpose loader bucket, 610 mm standard duty backhoe bucket, 80 kg operator and a full fuel tank.

	kg
Operating weight (range)	8370 – 10 700
Standard machine weight	8460
ROPS canopy	–260
Autoshift	50
Air conditioning	48
All wheel drive	106
Multi purpose bucket 1.15 m^3	
With fold-over forks	950
Without fold-over forks	791
Extendable stick (excludes front counterweight)	230
Counterweights	
Base	115
Stackables – One	235
Stackables – Max	485

Minimum Counterweight Recommendations:

Power train AWD	
General purpose	250
Multi purpose	Base
Multi purpose with fold-over forks	Base
Extendable stick	
Power train AWD	
General purpose	485
Multi purpose	235
Multi purpose with fold-over forks	115

Cab Features

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

Canopy Features

Glazed front screen and wiper	√
LH storage console	√
8 working lights	√
Standard air suspension seat	√
Floor mat	√
Tilt steering column	√
Vandal guard	√
Rear view mirror	√
Individual display gauges	√
Seat belt (50 mm)	√

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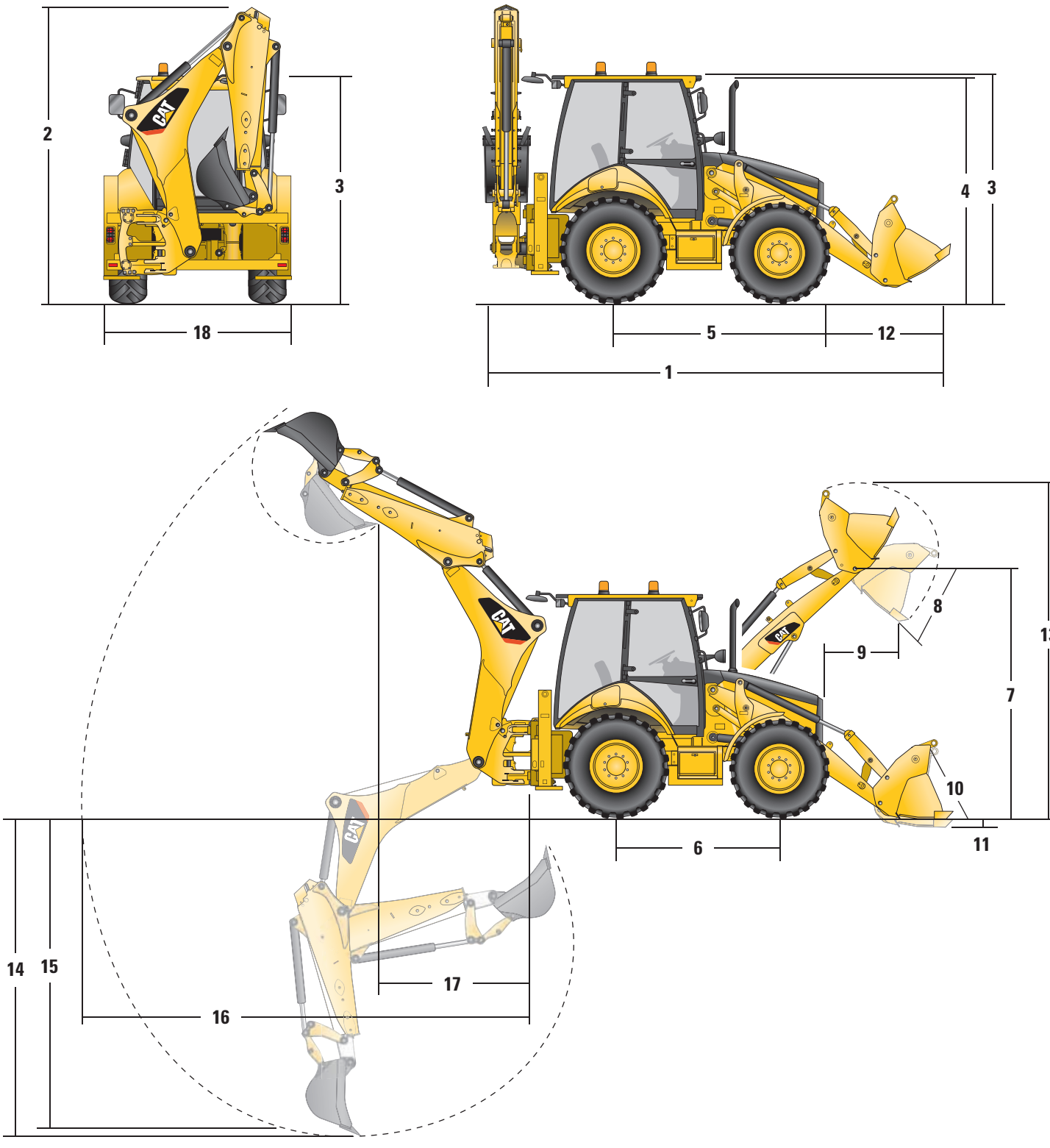

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Machine Dimensions

			General Purpose	Multi Purpose	Multi Purpose with Forks
1	Overall length (loader on ground) S-Stick	mm	6120	6099	6099
	Overall length (loader on ground) E-Stick	mm	6120	6099	6099
	Overall transport length S-Stick	mm	6120	6105	6105
	Overall transport length E-Stick	mm	6120	6105	6105
2	Overall transport height S-Stick	mm	3623	3623	3623
	Overall transport height E-Stick	mm	3647	3647	3647
	Overall width (standard)	mm	2368	2368	2368
3	Height to top of cab/canopy	mm	2801	2801	2801
4	Height to top of exhaust stack	mm	2733	2733	2733
	Height to loader hinge pin (transport)	mm	402	402	402
	Ground clearance (minimum)	mm	325	325	325
5	Rear axle centerline to front grill	mm	2743	2743	2743
	Front wheel tread gauge	mm	1914	1914	1914
	Rear wheel tread gauge	mm	1914	1914	1914
6	Wheel based (AWD)	mm	2200	2200	2200

Dimensions and Performance – Loader Bucket

			General Purpose	Multi Purpose	Multi Purpose with Forks
	Capacity (SAE rated)	m^3	1.15	1.15	1.15
	Width	mm	2434	2434	2434
	Lift capacity at maximum height	kg	3259	3250	3043
	Breakout force	kN	56	56	55
	Tipping load at bucket load point	kg	5974	5780	5596
7	Maximum hinge pin height	mm	3442	3442	3442
8	Dump angle at full height		45°	45°	45°
	Dump height at maximum angle	mm	2666	2681	2681
9	Dump reach at maximum angle	mm	903	889	889
10	Maximum bucket rollback at ground level		41°	41°	41°
11	Digging depth	mm	229	229	229
	Maximum grading angle	mm	107°	107°	107°
	Width of dozer cutting edge	mm	—	2434	2434
12	Grill to bucket cutting edge, carry position	mm	1575	1560	1560
13	Maximum operating height	mm	4339	4409	4872
	Jaw open maximum	mm	—	864	864
	Bucket jaw clamping force	kN	—	56	56
	Weight (not including teeth)	kg	438	744	948

Dimensions and Performance – Backhoe

				Extendable Stick	
			Standard Stick	Retracted	Extended
14	Digging depth, SAE maximum	mm	4364	4368	5357
	Digging depth, maximum	mm	4919	4920	5863
15	Digging depth, 610 mm flat bottom, SAE maximum	mm	4321	4325	5319
	Digging depth, 610 mm flat bottom, maximum	mm	4890	4893	5839
16	Reach from swing pivot at ground line	mm	5660	5666	6590
	Loading height	mm	3759	3854	4398
17	Loading reach	mm	1769	1688	2586
	Swing arc		180°	180°	180°
	Bucket rotation		205°	205°	205°
18	Stabilizer width	mm	2368	2368	2368
	Bucket dig force	kN	63	63	63
	Stick dig force	kN	35	36	26
	Total side shift travel	mm	1258	1258	1258

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	422E
Engine Power (Gross)	**56.6 kW/77 hp**
Control type	Mechanical
Steer mode	Two Wheel Steer
SAE maximum dig depth (standard stick)	4.2 m
Loader bucket capacity	1.0 m^3
Loader breakout force	33 kN
Stick tearout force	35 kN
Bucket tearout force	63 kN
Hydraulic oil flow	125 l/min

	428E	432E	442E
Engine Power (Gross)	**68.5 kW/93 hp**	**68.5 kW/93 hp**	**74.5 kW/101 hp**
Control type	Mechanical	Pilot	Pilot
Steer mode	Two Wheel Steer	Two Wheel Steer	Two Wheel Steer
SAE maximum dig depth (standard stick)	4.2 m	4.4 m	4.6 m
Loader bucket capacity	1.0 m^3	1.0 m^3	1.0 m^3
Loader breakout force	55 kN	55 kN	55 kN
Stick tearout force	35 kN	41 kN	46 kN
Bucket tearout force	63 kN	63 kN	63 kN
Hydraulic oil flow	125 l/min	156 l/min	156 l/min

	434E Mechanical	434E Pilot	444E
Engine Power (Gross)	**68.5 kW/93 hp**	**74.5 kW/101 hp**	**74.5 kW/101 hp**
Control type	Mechanical	Pilot	Pilot
Steer mode	Equal Size Wheel	Equal Size Wheel	Equal Size Wheel
SAE maximum dig depth (standard stick)	4.3 m	4.3 m	4.6 m
Loader bucket capacity	1.15 m^3	1.15 m^3	1.3 m^3
Loader breakout force	56 kN	56 kN	55 kN
Stick tearout force	35 kN	41 kN	41 kN
Bucket tearout force	63 kN	63 kN	63 kN
Hydraulic oil flow	125 l/min	156 l/min	156 l/min