

# 414E IL

## Industrial Loader



### Engine

Engine Model	Cat® 3054C DIT	
Gross Power – SAE J1995	69 kW	93 hp
Net Power – SAE J1349	66 kW	89 hp

### Weights

Operating Weight – Nominal	6820 kg	15,035 lb
Operating Weight – Maximum	10 154 kg	22,385 lb

### Loader

Lift Capacity	2473 kg	5,453 lb
Dump Height	2651 mm	8 ft 8 in

# 414E Industrial Loader

*Cat® Industrial Loaders set the industry standard for operator comfort, performance, versatility and job site efficiency.*

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## Operator Station

- ✓ The all new operator station maximizes operator comfort and productivity. The spacious platform features excellent visibility, easy to use seat-mounted joystick controls, ergonomically located foot throttle and suspension seat with 20 degree rotation for maximum comfort and productivity.

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## Power Train

- ✓ The Cat 3054C DIT engine is U.S. EPA Tier 3 Certified. The efficient fuel system delivers reliable engine lug performance. The transmission and new Cat axles provide increased roading speed.

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## Hydraulics

The Caterpillar® 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.

*With a more comfortable operator station, new joystick implement controls, integrated three-point tool carrier and increased performance, the 414E IL lets you GET MORE DONE with less effort.*



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### **Integrated Three-Point Tool Carrier**

- ✓ The tractor's new box section mainframe features an integrated category II three-point tool carrier designed to complement a wide range of Cat and existing work tools.

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### **Joystick Implement Controls**

- ✓ The 414E IL leads the industry with seat mounted joystick implement controls that allow for greater operator comfort and productivity.

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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. Your Cat dealer offers a wide range of services that can be set up under a Customer Support Agreement.



✓ *New Feature*

## Operator Station

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



**Operator Comfort.** The all-new operator station has been designed to maximize operator comfort and productivity. The spacious work environment provides more legroom. Integrated storage areas and cupholders are designed for operator convenience.

**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.

**ROPS Canopy.** Features of the ROPS canopy includes:

- Mechanical suspension vinyl seat
- Left side storage space with a lockable compartment
- Tilt steering column
- Floor mat
- Four working lights
- Vandalism guard
- Internal and external power receptacle
- Drink holders
- Phone clip

**ROPS Canopy Plus.** Includes all of the features of the ROPS canopy with the addition of the following:

- Front windshield
- Wiper/washer system
- Eight working lights

**Suspension Seat Standard.** The standard vinyl mechanical suspension seat is ergonomically located and allows a 20 degree side rotation to maximize operator comfort and productivity. The seat is adjustable for a greater operating range and more comfortable ride. The seat controls allow the seat to be tailored to support differing body weights. Adjustable seat height accommodates all operators.

**Machine Controls.** Switches are located at operator level. White-faced gauges are easy to read.



**Viewing Area.** Unobstructed view to rear work tools and integrated three-point tool carrier.

The sloping front hood and divergent lift arms allow the operator to see more of the forward work area and loader attachments.



**Storage Compartment.** New lockable, left side storage is standard.

## Power Train

*The Cat® 3054C engine is built for performance, power, reliability and fuel efficiency.*

**Cat 3054C Diesel Engine.** The standard Cat 3054C DIT (Direct Injection Turbocharged) 66 kW (89 hp) engine is U.S. EPA Tier 3 Certified. It delivers high horsepower, increased torque rise, traditional Cat durability and reliable power with low emissions.

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

**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.

**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 Cat Rear Axles.** New heavy-duty rear axles are designed specifically for demanding loader applications. Features include outboard planetary gear sets for serviceability and brake design improvements for longer life.

**Transmission.** The Caterpillar power shuttle transmission provides four speeds forward and reverse. Full synchromesh gears and hydraulically shifted forward and reverse shuttle clutches allow direction and travel speed to be changed on-the-go. A neutral start provision prevents starting while the shuttle is engaged.



**Transmission Neutralizer.** Standard on the 414E IL, the hand-operated power disconnect provides easy, on-the-go shifting and full engine rpm for faster cycle times. Neutralizer is located on the gear shift lever for operator convenience.

**Smoother Shifts.** New modulated transmission control valves provide smoother speed and directional shifts.

**Four Wheel Drive (4WD) Standard.** 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 two positions: two wheel drive with all wheel braking and four wheel drive with all wheel braking. 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 System.** The optional 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.

## Integrated Three-Point Tool Carrier

*Cat® Integrated Three-Point Tool Carrier delivers even greater operator comfort.*



**Integrated Three-Point Tool Carrier.**  
The tractor's new box section mainframe features an integrated category II three-point tool carrier designed to complement a wide range of Cat and existing work tools.

### **Joystick Implement Controls.**

The Cat 414E IL leads the industry with standard seat mounted joystick implement controls.

The single joystick allows the operator full control of the three-point tool carrier's ability to raise, lower, pitch, tilt, float and activate the 414E IL auxiliary hydraulics and work tools.



## Engine

Engine Model	Cat® 3054C DIT	
Gross Power – SAE J1995	69 kW	93 hp
Gross Power – ISO 14396	68 kW	92 hp
Net Power – SAE J1349	66 kW	89 hp
Net Power – ISO 9249	67 kW	90 hp
Net Power – EEC 80/1269	67 kW	90 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	27%	
Net Torque Rise @ 1,400 rpm – Optional	37%	
Net Peak Torque @ 1,400 rpm – Standard – SAE J1349	296 N•m	219 lb ft
Net Peak Torque @ 1,400 rpm – Optional – SAE J1349	386 N•m	285 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 2286 m (7,500 ft).
- Net torque rise meets SAE J1349.
- Cat 3054C DIT engine is U.S. EPA Tier 3 Certified.

## Weights

Operating Weight – Nominal	6577 kg	14,500 lb
Operating Weight – Maximum	10 154 kg	22,385 lb
Cab, ROPS/FOPS	240 kg	529 lb
Ride Control	25 kg	55 lb
MP Bucket 1.0 m <sup>3</sup> (1.3 yd <sup>3</sup> ) w/Fold-Over Fork	884 kg	1,949 lb
MP Bucket 1.0 m <sup>3</sup> (1.3 yd <sup>3</sup> ) w/o Fold-Over Fork	714 kg	1,574 lb
Counterweights (Option 1)	116 kg	255 lb
Counterweights (Option 2)	231 kg	510 lb
Counterweights (Option 3)	488 kg	1,075 lb
Counterweights (Rear)	247 kg	554 lb

- Total gross machine weight not to exceed 10 154 kg (22,385 lb).

## Loader

Bucket Capacity – General Purpose	0.76 m <sup>3</sup>	1 yd <sup>3</sup>
Bucket Width – General Purpose	2262 mm	7 ft 5 in
Dump Height @ Max Angle	2651 mm	8 ft 8 in
Dump Reach @ Max Angle	772 mm	2 ft 6 in
Dig Depth	106 mm	4 in
Lift Capacity @ Full Height	2473 kg	5,453 lb
Bucket Breakout Force	44.6 kN	10,036 lb

## Hydraulic System

Circuit Type	Load-sensing, closed center	
Pump Capacity (@ 2,200 rpm)	132 L/min	34.8 gal/min
System Pressure	22 700 kPa	3,292 psi
Pump Type	Variable-flow, axial piston	
Steering Type	Front wheel	
Power Steering	Hydrostatic	
Cylinder – Bore	65 mm	2.56 in
Stroke	120 mm	4.72 in
Rod Diameter	36 mm	1.42 in
4WD Cylinder – Bore	65 mm	2.56 in
Stroke	120 mm	4.72 in
Rod Diameter	36 mm	1.42 in
Brake System	Inboard, oil-immersed, multiple disc	

## Power Train

Power-Shuttle, Forward 1st	6 km/h	3.7 mph
Forward 2nd	9.5 km/h	5.9 mph
Forward 3rd	19.8 km/h	12.3 mph
Forward 4th	39.9 km/h	24.8 mph
Power-Shuttle, Reverse 1st	6 km/h	3.7 mph
Reverse 2nd	9.5 km/h	5.9 mph
Reverse 3rd	19.8 km/h	12.3 mph
Reverse 4th	39.9 km/h	24.8 mph

## Service Refills

Cooling System, A/C	15.9 L	4.2 gal
Cooling System, High-Ambient	16.7 L	4.4 gal
Fuel Tank	144 L	38 gal
Engine Oil w/Filter	7.6 L	2 gal
Transmission – Torque Converter, Power Shuttle	18.5 L	4.9 gal
Transmission – Torque Converter, 4WD, Power Shuttle	18.5 L	4.9 gal
Rear Axle	16.5 L	4.4 gal
Rear Axle, Planetaries	1.7 L	0.45 gal
Front Axle, 4WD	11 L	2.9 gal
Front Axle, Planetaries	0.7 L	0.2 gal
Hydraulic System	79.5 L	21 gal
Hydraulic Tank	37.9 L	10 gal



## Standards

Brakes	SAE J/ISO 3450, ISO 3450 1996
Cab – ROPS	SAE J1040 May 1994/ISO 3741 1994
Cab – Sound	ANSI/SAE J1166 Feb08 is 77 dB (A)
Exterior Sound	SAE J88 JUN86 is 72.3 dB (A)

## Axle Ratings

Front Axle, Static	22 964 kg	50,582 lb
Dynamic	9186 kg	20,233 lb
Front Axle, 4WD, Static	22 964 kg	50,582 lb
Dynamic	9186 kg	20,233 lb
Rear Axle, Static	22 964 kg	50,582 lb
Dynamic	9186 kg	20,233 lb

- Axles are 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.

## Engine Features

- Three-ring pistons made of lightweight, silicon/aluminum alloy for strength and maximum thermal conductivity.
- Forged chrome/molybdenum-steel crankshaft with either induction hardened or nitrocarburized 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.
- Direct injection fuel system provides accurate fuel delivery; remote mounted electric lift pump improves serviceability.
- Self-priming electric lift pump for improved cold start capability and easy filter changes.
- 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 880 CCA Group 31 maintenance free battery.
- 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.

## Tires

### Tubeless, nylon, loader-design tires.

Type	Size	Ply Rating
4WD Bias		
Front	12.5/80 × 18	12
Rear	19.5 × 24	12
4WD Bias		
Front	12.5/80 × 18	10
Rear	16.9 × 24	10

## Counterweights

### Minimum Counterweight Recommendations

Loader Bucket	Power Train	kg	lb
GP		231	510
GP	4WD	116	255
MP	4WD	no counterweight	
GP	4WD	488	1,075
MP		231	510
MP	4WD	116	255

## Brakes

### Features:

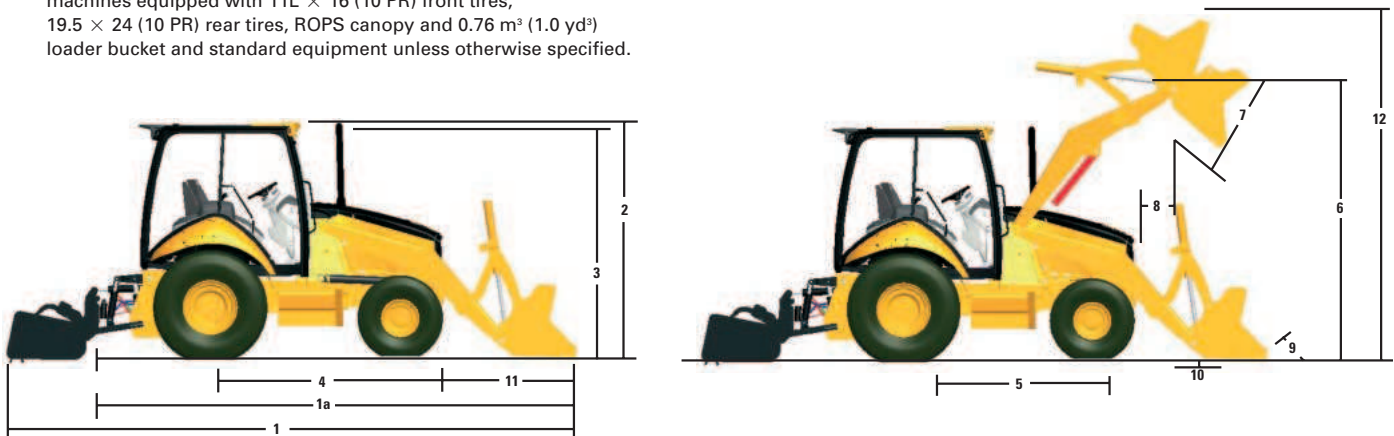
- Self-adjusting, completely enclosed and sealed.
- Foot operated brake pedals can be interlocked for roading.
- Parking/secondary brakes are independent of the service brake system. Parking brake is mechanically applied through an adjustable hand lever located on the right console.

# Machine Dimensions and Performance

## Single – Tilt Loader

	General Purpose (0.76 m <sup>3</sup> /1.0 yd <sup>3</sup> )	General Purpose (0.96 m <sup>3</sup> /1.25 yd <sup>3</sup> )	Multi Purpose (0.96 m <sup>3</sup> /1.25 yd <sup>3</sup> )
Capacity (SAE) rated	0.76 m <sup>3</sup> /1.0 yd <sup>3</sup>	0.96 m <sup>3</sup> /1.25 yd <sup>3</sup>	0.96 m <sup>3</sup> /1.25 yd <sup>3</sup>
Width	2322 mm/7 ft 7 in	2322 mm/7 ft 7 in	2322 mm/7 ft 7 in
Lift capacity at maximum height	2473 kg/5,453 lb	2400 kg/5,292 lb	2240 kg/4,938 lb
Breakout force	40.0 kN/8,980 lb	37.9 kN/8,524 lb	37.5 kN/8,429 lb
(1) Overall transport length	6763 mm/22 ft 2 in	6867 mm/22 ft 6 in	6790 mm/22 ft 3 in
(1a) Overall length (loader on ground) w/o box	5633 mm/18 ft 6 in	5707 mm/18 ft 9 in	5660 mm/18 ft 7 in
(2) Overall transport height			
Height to top of cab/canopy	2775 mm/9 ft 1 in	2775 mm/9 ft 1 in	2775 mm/9 ft 1 in
(3) Height to top of exhaust stack	2754 mm/9 ft 0 in	2754 mm/9 ft 0 in	2754 mm/9 ft 0 in
Height to loader hinge pin (transport)	510 mm/1 ft 8 in	510 mm/1 ft 8 in	510 mm/1 ft 8 in
Ground clearance (minimum)	297 mm/1 ft 0 in	297 mm/1 ft 0 in	297 mm/1 ft 0 in
(4) Rear axle centerline to front grill	2704 mm/8 ft 10 in	2704 mm/8 ft 10 in	2704 mm/8 ft 10 in
Front wheel tread gauge	1871 mm/6 ft 2 in	1871 mm/6 ft 2 in	1871 mm/6 ft 2 in
Rear wheel tread gauge	1714 mm/5 ft 8 in	1714 mm/5 ft 8 in	1714 mm/5 ft 8 in
(5) Wheelbase (AWD)	2200 mm/7 ft 3 in	2200 mm/7 ft 3 in	2200 mm/7 ft 3 in
(6) Maximum hinge pin height	3266 mm/10 ft 9 in	3266 mm/10 ft 9 in	3266 mm/10 ft 9 in
(7) Dump angle at full height	43°	43°	43°
Dump height at maximum angle	2621 mm/8 ft 7 in	2544 mm/8 ft 4 in	2609 mm/8 ft 7 in
(8) Dump reach at maximum angle	753 mm/2 ft 6 in	835 mm/2 ft 9 in	721 mm/2 ft 4 in
(9) Maximum bucket rollback at ground level	40°	40°	40°
(10) Digging depth	135 mm/5 in	135 mm/5 in	166 mm/6 in
Maximum grading angle	110°	106°	110°
Width of dozer cutting edge	N/A	N/A	2406 mm/7 ft 11 in
(11) Grill to bucket cutting edge carry position	1474 mm/4 ft 10 in	1548 mm/5 ft 1 in	1501 mm/4 ft 11 in
(12) Maximum operating height	3996 mm/13 ft 1 in	4146 mm/13 ft 7 in	4174 mm/13 ft 8 in
Jaw opening maximum	N/A	N/A	790 mm/2 ft 7 in
Bucket jaw clamping force	N/A	N/A	50.6 kN/11,385 lb
Weight (does not include teeth or forks)	380 kg/838 lb	428 kg/944 lb	659 kg/1,453 lb

Dimensions and performance specifications shown are for machines equipped with 11L × 16 (10 PR) front tires, 19.5 × 24 (10 PR) rear tires, ROPS canopy and 0.76 m<sup>3</sup> (1.0 yd<sup>3</sup>) loader bucket and standard equipment unless otherwise specified.



## Standard Equipment

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

Air cleaner  
 All Wheel Drive  
 Alarm, back-up  
 Battery, maintenance-free, 880 CCA  
 Brace, lift cylinder  
 Brake, secondary parking  
 Brakes, oil disc, dual pedals, interlocking  
 Bucket level indicator  
 Canopy, ROPS/FOPS  
 Coat hook  
 Coolant/Antifreeze, extended life  
 Counterweight, bumper  
 Differential lock  
 Dome light (cab only)  
 Engine, Cat 3054C DIT (Direct Injection Turbocharged)  
 Engine enclosure  
 Face seals, O-ring  
 Fan, suction and guard  
 Fast reversing shuttle, all gears  
 Fenders, rear  
 Filters, spin-on: fuel, engine oil, transmission oil, water separator, hydraulic fluid  
 Flashing hazard/signal lights  
 Floor mat  
 Gauges  
   Coolant temperature, fuel level, tachometer, hour meter, torque converter oil temperature  
 Ground level fuel fill  
 Hydraulic hose, XT™-3 ES  
 Hydraulic oil cooler

Indicators  
   Air cleaner service, water separator service, brake on, engine coolant, hydraulic oil level sight gauge, oil pressure  
 Instrument panel lights  
 Key start/stop system  
 Lights, working (2 front, 2 rear)  
 Loader, self-leveling, return-to-dig and transmission disconnect switch  
 Lunch box holder  
 Mirror, rear view  
 Power receptacle, 12V, internal and external  
 Power steering, hydrostatic  
 Rubber impact strips on radiator guard  
 Seat belt, retractable 51 mm (2 in)  
 Service harness  
 Stabilizer shoes, grouser type  
 Seat, mechanical suspension with armrest  
 Starting system, glow plugs  
 Stop and tail lights  
 Tilt steering wheel  
 Tires, see page 9  
 Toolbox, external, lockable  
 Torque converter  
 Throttles, hand and foot  
 Transmission, four speed, syncromesh  
 Transmission neutralizer switch  
 Transport tie-downs  
 Warning horn, electric

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

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

	kg	lb
Attachments, front loader (single tilt)		
General purpose buckets		
0.76 m <sup>3</sup> (1.0 yd <sup>3</sup> )	385	847
0.96 m <sup>3</sup> (1.25 yd <sup>3</sup> )	452	994
Multi purpose bucket		
1.0 m <sup>3</sup> (1.3 yd <sup>3</sup> )	714	1,571
1.0 m <sup>3</sup> (1.3 yd <sup>3</sup> ) with forks	884	1,945
Battery, additional, 880 CCA	25	55
Cab, utility plus with air conditioning*	258	568
Canopy Plus, ROPS	15	33
Coolant, additional protection, -50° C (-58° F)	0	0
Counterweights (Front)	116	255
	231	510
	488	1,075
Counterweights (Rear)	107	235
Cutting edge, bolt-on, two piece	70	154

	kg	lb
Fenders, 4WD, front	12	26
Fenders, rear extensions	1	2
Guards		
High ambient cooling package	2	4
Hydraulic valves, loader (3rd valve for MP)	27	59
Lights: Working, additional (2 front, 2 rear)	0	0
Product Link	4	9
Ride control	22	48
Rotating beacon		
Magnetic mount	5	11
Teeth, loader bucket	45	99
Vandalism protection		
Gauge cover	1	2
Padlocks	1	2
Hood lock	0	0

\* Not available at first production.

# 414E Industrial Loader

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

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Featured machines in photos may include additional equipment.  
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AEHQ4001-03 (5-09)

Replaces AEHQ4001-02

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