

415F2 IL

Industrial Loader



Engine

Engine Model	Cat® C3.4B	
Rated Net Power – SAE J1349	51 kW	68 hp
Rated Net Power – ISO 9249	51 kW	68 hp

Weights

Operating Weight – Minimum	6366 kg	14,035 lb
Operating Weight – Maximum (ROPS Capacity)	8000 kg	17,637 lb

Loader

Lift Capacity	2660 kg	5,864 lb
Dump Height	2824 mm	9'3"

Features

Ergonomic Operator Station

Built with the operator in mind, the cab provides additional machine control at the operator's fingertips, with differential lock on the loader joystick and floor. The ergonomically designed cab provides all day comfort for a more productive day.

Industry Leading Hydraulic Technology

Load sensing piston pump and flow sharing valves provide a hydraulic system designed for smooth operation, increased fuel efficiency, quieter operation and full forces at any engine speed allowing the operator to match power to job demand.

Superior Blade Controls

The Cat Industrial Loader offers five finger lever pilot controls that require less operator effort. The new 415F2 IL comes standard with a five function hydraulic valve for increased versatility.

Machine Performance

The proven Cat C3.4B engine delivers solid performance, meets U.S. EPA Tier 4 Final emission standards, and requires no diesel exhaust fluid (DEF).

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Experience the new Cat 415F2 IL Industrial Loader with features including a spacious operator station, five function finger valve controls, superior durability and outstanding performance. Safely operate on the job site with quieter hydraulics, increased visibility, and the ability to utilize four wheel braking while in two wheel drive without wearing on tires or drive train.

Operator Station

A cab designed for maximum comfort and productivity.



Three-Point Tool Carrier Controls

Five function finger valve controls provide the feedback operators look for in grading applications. Low effort hydraulics reduce operator fatigue while maintaining performance.



Unmatched Comfort

The ergonomic, automotive style operator station helps you work comfortably and productively all day long. Choose the configuration that meets your needs – Canopy or Cab Deluxe with Air Conditioning. Other features include:

- Adjustable Mechanical Suspension seat
- Tilt steering column
- Excellent visibility over hood and up to bucket dump
- Pantograph windshield wiper
- Large front windshield screen
- Large LCD gauge cluster screen
- Ample legroom
- Differential lock button on loader lever and on the floor
- Large opening windows
- Solid roof cab
- LED brake lights

Ride Control

The optional Ride Control System smoothes the ride in all conditions, including load and carry, highway roading or simply moving around the job site. The result can be increased operator comfort, potentially reducing operator fatigue, and improved material retention.

Premium Gauge Cluster

Bright and large LCD screen makes it easy to monitor machine operation and settings. LED indicator lights and audible alarms allow the machine to clearly communicate with the operator.

Safety Getting in and out of the Cab

Long grab handles and ergonomic step placement makes it easy to maintain three points of contact when getting in and out of the cab.





Power Train

Always built for performance, power and efficiency.

Cat Engine

The Cat C3.4B engine delivers 55 kW (74 hp) and meets Tier 4 Final emission standards, without the addition of Diesel Exhaust Fluid (DEF). Engine features include:

- Diesel oxidation catalyst
- Diesel particulate filter
- Limited operator interaction

Transmission

The standard power shuttle transmission provides four speeds forward and reverse. Hydraulically shifted clutches allow on-the-go direction and travel speed shifts.

- Hydraulic proportional control valves deliver smooth speed and directional shifts.
- Four Wheel Drive improves mobility and loader performance in poor underfoot conditions and can be activated on-the-go.

Brake Mode Selector

Brake mode selector switch has two positions: two wheel drive with all wheel braking and four wheel drive. Two wheel drive with all wheel braking provides better tire life while roading and engages the front axle when brakes are applied for improved braking performance.

Advanced Hydraulics

Matching system power to job site demands.



Load Sensing Hydraulics

Closed center hydraulic system matches pressure and flow to application demand. You remain in control with full hydraulic down pressure when utilizing the category II three-point hitch. In applications such as roading where speed is important, the system will provide the flow needed to get the job done quickly and efficiently. The load sensing hydraulic system provides:

- Better fuel efficiency
- Quieter operation
- Reduced component wear
- Cooler hydraulic temperatures
- Full forces at any engine speed

Flow Sharing Valves

Specifically tuned hydraulic valves allow for the multifunction of hydraulic components, without machine manipulation. Hydraulic fluid is shared between implements so that operation isn't interrupted.



Three-Point Tool Carrier

Category II three-point design.

Integrated Three-Point Tool Carrier

The tractor's new box section mainframe features an integrated category II three-point tool carrier, with optional dual tilt on rear hitch.

Five Function Finger Valve Controls

The Cat 415F2 IL allows the operator to access and feel the full control of the three-point tool carrier's ability to raise, lower, pitch, tilt, float and activate the 415F2 IL auxiliary hydraulics and work tools.

Loader Performance

Powerful front loader.

Front loader arms deliver superior reach, dump height and breakout.

Single Tilt

The standard single tilt loader linkage features strong lift and breakout forces for solid performance in backfilling and truck loading applications with pin-on buckets. The 415F2 IL is equipped with either a general purpose or multi-purpose pin-on bucket to meet your specific needs.

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

Do more jobs with one machine.



Hitch Work Tools

The Box Blade with hydraulically operated scarifier increases the versatility of your machine. It features reversible 180° wear plates for longer life.

Loader Work Tools

A wide range of loader attachments is available including:

- General Purpose Bucket
- Multi Purpose Bucket
- Forks
- IT Coupler (requires 3rd function hydraulics)

Serviceability

Easy maintenance helps keep your machine working.



Minimize Your Downtime

Convenient service features make maintenance easy, reducing your downtime:

- Hinged cooling pack provides easy access
- Tilt up hood provides easy, convenient access to all engine check points
- Engine side panels remove easily without the use of tools
- Cat Product Link™ system (optional) provides remote reporting of machine location and operating system parameters

Customer Support

Unmatched support makes the difference.

Renowned Dealer Support

From helping you choose the right machine to knowledgeable ongoing support, Cat dealers provide the best in sales and service.

- Preventive maintenance programs and guaranteed maintenance contracts
- Best-in-class parts availability
- Operator training to help boost your profits
- Genuine Cat Remanufactured parts



Engine

Engine Model	Cat C3.4B	
Gross Power		
SAE J1995	55 kW	74 hp
ISO 14396	55 kW	74 hp
Rated Net Power @ 2,200 rpm		
SAE J1349	51 kW	68 hp
ISO 9249	51 kW	68 hp
EEC 80/1269	51 kW	69 hp
Net Peak Power @ 1,800 rpm		
SAE J1349	54 kW	72 hp
ISO 9249	54 kW	73 hp
EEC 80/1269	54 kW	73 hp
Bore	99 mm	3.90 in
Stroke	110 mm	4.33 in
Displacement	3.4 L	207 in ³
Net Torque Rise @ 1,200 rpm – SAE J1349	88%	
Net Peak Torque – SAE J1349	416 N·m	307 lbf-ft

- Engine meets Tier 4 Final emission standards.
- No derating required up to 2286 m (7,500 ft).

Weights*

Operating Weight – Minimum	6366 kg	14,035 lb
Operating Weight – Maximum (ROPS Capacity)	8000 kg	17,637 lb
Cab, ROPS/FOPS	163 kg	359 lb
Air Conditioning	46 kg	101 lb
MP Bucket with Bolt-on Teeth (1.00 m ³ /1.31 yd ³) (with fold-over forks)	1874 kg	4,131 lb
MP Bucket with Bolt-on Teeth (1.00 m ³ /1.31 yd ³) (without fold-over forks)	1642 kg	3,622 lb
Front Counterweight		
Counterweights (Option 1)	115 kg	255 lb
Counterweights (Option 2)	240 kg	530 lb
Counterweights (Option 3)	460 kg	1,015 lb

* Specifications shown are for machine equipped with 0.76 m³ (1.0 yd³) general purpose loader bucket, 115 kg (255 lb) front counterweight, all wheel drive, 80 kg (176 lb) operator and full fuel tank.

Transmission

Power Shuttle Transmission – Standard

Forward – 1st	5.4 km/h	3.4 mph
Forward – 2nd	8.9 km/h	5.5 mph
Forward – 3rd	20 km/h	13 mph
Forward – 4th	36 km/h	23 mph
Reverse – 1st	5.4 km/h	3.4 mph
Reverse – 2nd	8.9 km/h	5.5 mph
Reverse – 3rd	20 km/h	13 mph
Reverse – 4th	36 km/h	23 mph

Axle Ratings

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

Hydraulic System

Type	Closed Center	
Pump Type	Variable Flow, Axial Piston	
Pump Capacity @ 2,200 rpm	125 L/min	33 gal/min
System Pressure – Hitch/Box Scraper	20 500 kPa	2,973 psi
System Pressure – Loader	20 500 kPa	2,973 psi

Steering

Type	Front Wheel	
Power Steering	Hydrostatic	
Bore	65 mm	2.6 in
Stroke	120 mm	4.7 in
Rod Diameter	36 mm	1.4 in
Axle Oscillation	11°	
Turning Circle – 2WD/4WD (inner wheel not braked)		
Outside, Front Wheels	8.18 m	26'10"
Outside, Widest Loading Bucket	10.97 m	36'0"

415F2 IL Specifications

Service Refill Capacities

Cooling System with Air Conditioning	16.5 L	4.4 gal
Fuel Tank	160 L	42 gal
Engine Oil with Filter	8.8 L	2.3 gal
Transmission – Power Shuttle		
2WD	15 L	4 gal
4WD	15 L	4 gal
Rear Axle	16.5 L	4.4 gal
Planetaries	1.7 L	0.4 gal
Front Axle (4WD)	11 L	2.9 gal
Planetaries	0.7 L	0.2 gal
Hydraulic System	90 L	23.8 gal
Hydraulic Tank	40 L	10.6 gal

- Requires ultra-low sulfur fuel \leq 15 ppm fuel sulfur.

Tires

Standard configuration of front/rear tires:

- Front: 12.5 80/16.9; Rear: 16.9-24

Standards

Brakes	ISO 3450 1996
Cab – ROPS	SAE J1040 MAY94; ISO 3741 1994
Cab – FOPS	SAE J/ISO 3449 APR98 LEVEL II and ISO 3449: 1992 LEVEL II
Cab – Sound	ANSI/SAE J1166 OCT98 is 79 dB(A)
Exterior Sound	SAE J188 JUN86 is 76 dB(A)

Engine Features

- Regeneration is passive and does not require any input from the operator or disrupt work.
- Three-ring pistons made of lightweight, silicon/aluminum alloy for strength and maximum thermal conductivity.
- Forged chrome/molybdenum-steel crankshaft with salt bath nitrocarburized pins and journals.
- Front and rear crankshaft oil seals are “lip” type Viton and PTFE designs featuring an integral dust lip.
- For durability, inlet valves are nitrided, martensitic chrome silicon steel, while exhaust valves are nitrided, austenitic chrome manganese-nickel steel.
- 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 and efficiency.
- 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.
- Engine is equipped with electric fuel priming pump.

Brakes

Features:

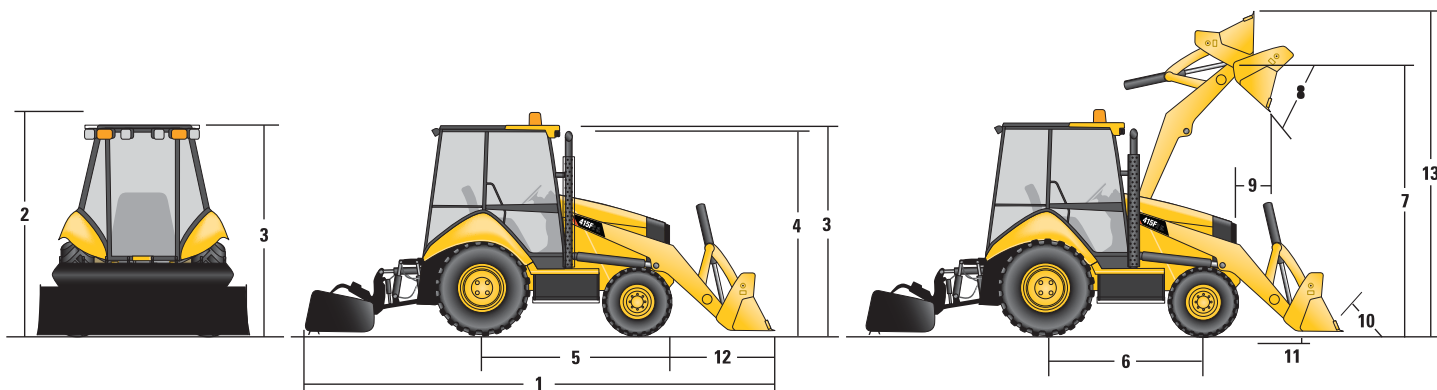
- Brakes meet ISO 3450 requirements.
- Self-adjusting, completely enclosed and sealed.
- Foot operated brake pedals can be interlocked for roading.
- Parking/secondary brakes are independent of the service brake system. Parking brake is mechanically applied through an adjustable hand lever located on the right console.

Counterweights – Front

Minimum Counterweight Recommendations

Loader Bucket	Power Train	kg	lb
GP	4WD	116	255
MP	4WD	no counterweight	

Dimensions



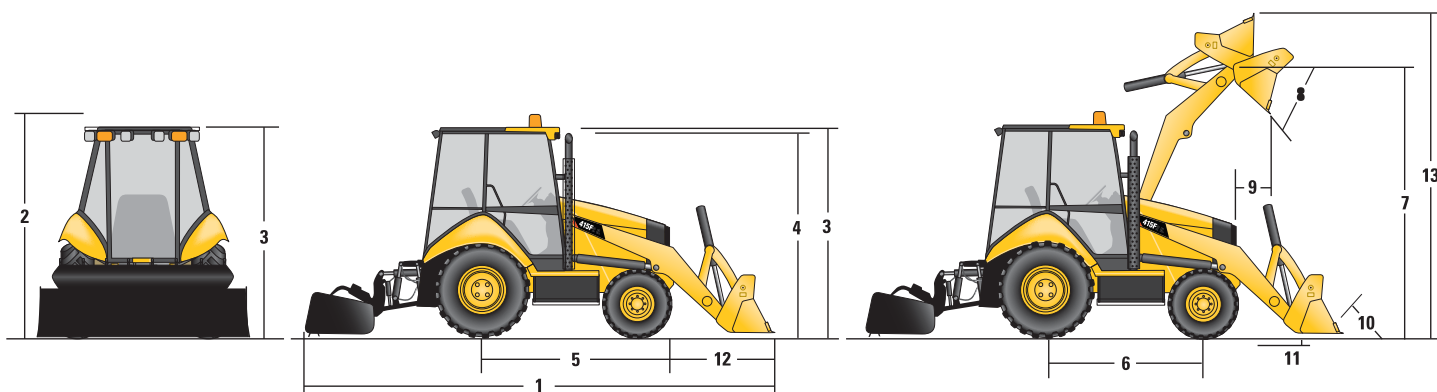
Single Tilt Loader

	0.76 m ³ (1.0 yd ³) GP Bucket		0.96 m ³ (1.25 yd ³) GP Bucket		1.0 m ³ (1.31 yd ³) MP Bucket		1.0 m ³ (1.31 yd ³) MP Bucket with Forks	
1 Overall Length (Loader on Ground) – with Box Blade	6256 mm	20'6"	6368 mm	20'11"	6286 mm	20'7"	6286 mm	20'7"
Overall Length (Loader on Ground) – Hitch Only	5146 mm	16'11"	5259 mm	17'3"	5177 mm	17'0"	5177 mm	17'0"
Overall Transport Length – with Box Blade	6314 mm	20'9"	6397 mm	21'0"	6360 mm	20'10"	6360 mm	20'10"
Overall Transport Length – Hitch Only	5158 mm	16'11"	5241 mm	17'2"	5205 mm	17'1"	5205 mm	17'1"
2 Overall Transport Height	3577 mm	11'9"	3577 mm	11'9"	3577 mm	11'9"	3577 mm	11'9"
Overall Width	2322 mm	7'7"	2322 mm	7'7"	2322 mm	7'7"	2322 mm	7'7"
3 Height to Top of Cab/Canopy	2819 mm	9'3"	2819 mm	9'3"	2819 mm	9'3"	2819 mm	9'3"
4 Height to Top of Exhaust Stack	2744 mm	9'0"	2744 mm	9'0"	2744 mm	9'0"	2744 mm	9'0"
Height to Loader Hinge Pin (transport)	381 mm	1'3"	381 mm	1'3"	432 mm	1'5"	432 mm	1'5"
Ground Clearance (left hand step)	294 mm	1'0"	294 mm	1'0"	294 mm	1'0"	294 mm	1'0"
Ground Clearance (AWD guard)	294 mm	1'0"	294 mm	1'0"	294 mm	1'0"	294 mm	1'0"
Ground Clearance (460 kg/1,015 lb counterweight)	274 mm	11"	274 mm	11"	274 mm	11"	274 mm	11"
5 Rear Axle Centerline to Front Grill	2705 mm	8'10"	2705 mm	8'10"	2705 mm	8'10"	2705 mm	8'10"
Front Wheel Tread Gauge	1895 mm	6'3"	1895 mm	6'3"	1895 mm	6'3"	1895 mm	6'3"
Rear Wheel Tread Gauge	1714 mm	5'7"	1714 mm	5'7"	1714 mm	5'7"	1714 mm	5'7"
6 Wheelbase 4WD	2200 mm	7'3"	2200 mm	7'3"	2200 mm	7'3"	2200 mm	7'3"

Dimensions and performance specifications shown are for machines equipped with 12.5/80-18 front tires, 16.9L-24 rear tires, ROPS canopy, 0.76 m³ (1.00 yd³) loader bucket and standard equipment unless otherwise specified.

415F2 IL Specifications

Loader Bucket Dimensions and Performance



Single Tilt Loader

	0.76 m ³ (1.0 yd ³) GP Bucket		0.96 m ³ (1.25 yd ³) GP Bucket		1.0 m ³ (1.31 yd ³) MP Bucket		1.0 m ³ (1.31 yd ³) MP Bucket with Forks	
Capacity (SAE Rated)	0.76 m ³	1.0 yd ³	0.96 m ³	1.25 yd ³	1.0 m ³	1.31 yd ³	1.0 m ³	1.31 yd ³
Overall Bucket Width	2262 mm	89 in	2262 mm	89 in	2279 mm	90 in	2279 mm	90 in
Lift Capacity at Maximum Height	2660 kg	5,864 lb	2566 kg	5,657 lb	2363 kg	5,209 lb	2248 kg	4,955 lb
Breakout Force	42 076 N	9,459 lbf	39 722 N	8,929 lbf	38 609 N	8,679 lbf	37 120 N	8,345 lbf
Tipping Load at Breakout Point	5496 kg	12,117 lb	5103 kg	11,250 lb	5116 kg	11,279 lb	4974 kg	10,965 lb
7 Maximum Hinge Pin Height	3474 mm	11'5"	3474 mm	11'5"	3474 mm	11'5"	3474 mm	11'5"
8 Dump Angle at Full Height	44°		44°		44°		44°	
Dump Height at Maximum Angle	2824 mm	9'3"	2746 mm	9'0"	2798 mm	9'2"	2798 mm	9'2"
9 Dump Reach at Maximum Angle	733 mm	2'5"	814 mm	2'8"	722 mm	2'4"	722 mm	2'4"
10 Maximum Bucket Rollback at Ground Level	37°		37°		38°		38°	
11 Digging Depth	83 mm	3"	83 mm	3"	110 mm	4"	110 mm	4"
Maximum Grading Angle	116°		112°		116°		116°	
Width of Dozer Cutting Edge	N/A		N/A		2262 mm	7'5"	2262 mm	7'5"
12 Grill to Bucket Cutting Edge, Carry Position	1405 mm	4'7"	1488 mm	4'11"	1451 mm	4'9"	1451 mm	4'9"
13 Maximum Operating Height	4206 mm	13'10"	4355 mm	14'3"	4404 mm	14'5"	4878 mm	16'0"
Jaw Opening Maximum	N/A		N/A		790 mm	2'7"	790 mm	2'7"
Bucket Jaw Clamping Force	N/A		N/A		50 600 N	11,375 lbf	50 600 N	11,375 lbf
Weight (does not include teeth or forks)	384 kg	847 lb	451 kg	994 lb	745 kg	1,642 lb	915 kg	2,017 lb

Dimensions and performance specifications shown are for machines equipped with 12.5/80-18 front tires, 16.9L-24 rear tires, ROPS canopy, 0.76 m³ (1.00 yd³) loader bucket and standard equipment unless otherwise specified.

Standard Equipment

Standard equipment may vary. Consult your Cat dealer for details.

POWER TRAIN

- Air cleaner
- Brake, secondary parking
- Brakes, hydraulically boosted, oil disc, dual pedals, interlocking
- Coolant/antifreeze, extended life
- Diagnostic port for engine
- Differential lock, floor mounted
- Differential lock, loader joystick
- Engine, Cat C3.4B, meets Tier 4 Final emission standards, diesel particulate filter
- Engine enclosure, sound suppression removal panels
- Fan, suction and guard
- Fast reversing shuttle, all gears
- Filters, spin-on: fuel, engine oil, transmission oil, water separator
- Filters, bowl and cartridge: hydraulic fluid
- High ambient cooling package
- Torque converter
- Transmission, four speed, syncromesh
- Transmission neutralizer switch
- Four Wheel Drive

OPERATOR ENVIRONMENT

- Box blade controls, finger lever pilot
- Canopy, ROPS/FOPS
- Coat restraint
- Drink holders, two
- Floor mat
- Gauge cluster: coolant temperature, fuel level, torque converter temperature, battery voltage
- Indicator lights and LCD warnings for system status
- Instrument panel lights
- LCD screen with machine system information
- Mirror, rearview
- Seat belt, retractable, 75 mm (3 in)
- Steering knob
- Seat, mechanical suspension, fabric or vinyl cover, with armrest
- Storage compartment, lockable
- Storage tray
- Throttle, foot, electronic

HYDRAULIC SYSTEM

- Face seals, O-ring
- Hydraulic hose, Cat XT™-3
- Hydraulic oil cooler
- Hydraulic oil level sight gauge
- Hydraulic valves, loader 3 function
- Hydraulic valves, rear 5 function
- Hydraulics, load sensing with variable displacement piston pump

ELECTRICAL

- Alarm, back-up
- Audible system fault alarm
- Battery, maintenance-free, 880 CCA
- Battery disconnect switch
- Battery remote jumpstart
- Dome light (cab only)
- Flashing hazards/signal lights
- Key start/stop system
- Lights, working (2 front, 2 rear)
- Power receptacle, 12 volt, 2 internal, 2 external roof mounted
- Starting system, glow plugs
- Stop and tail lights
- Warning horn, electric

OTHER

- Brace, lift cylinder
- Bucket level indicator
- Counterweight, bumper
- Fenders, rear
- Fuel tank, fully enclosed
- Fully hinged front grill for cooling package cleaning access
- Ground level fuel fill
- Hitch, rear 3-point
- Hood lock, inside cab
- Loader, self-leveling, return-to-dig and transmission disconnect switch
- Loader, single tilt
- Open circuit breather
- Power steering, hydrostatic
- Tires, 12.5/80-18 front, 16.9-24 rear
- Toolbox, external, lockable
- Transport tie-downs

Optional Equipment

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

- Battery, additional, 880 CCA
- Box, blade/scarifier
- Cab, standard with air conditioning
- Cold weather fuel (–30° C/–22° F)
- Cold weather package, including additional battery, engine block heater, radiator antifreeze (–50° C/–58° F), cold weather fuel (–30° C/–22° F) and mounting for an ether bottle
- Counterweights, 115 kg (255 lb), 240 kg (530 lb) or 460 kg (1,015 lb)
- Counterweight, rear 90 kg (198 lb)
- Dual tilt rear hitch
- Face fan
- Fenders, front with integral steps
- Hand throttle
- Product Link™, satellite, PL631E
- Product Link, cellular, PL641I
- Radio and CD player
- Radio and CD player, Bluetooth
- Ride Control
- Rotating beacon, magnetic mount
- Security system keypad
- Vandalism protection, gauge cover
- Work Tool Attachments such as buckets, forks, and material handling arms. See your Cat dealer for more information.

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com

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