

# 815F

## Soil Compactor



### Engine

Engine Model	Cat® 3176C ATAAC	
Gross Power	189 kW	254 hp
Flywheel Power	179 kW	240 hp

### Weights

Operating Weight	20 755 kg	45,765 lb
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### Shipping Specifications

Weight	20 345 kg	44,853 lb
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# 815F Soil Compactor

*Specifically designed for heavy-duty compaction operations.*

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## Power Train

- ✓ The Cat 3176C diesel engine with ATAAC delivers increased power and combined with Electronic Clutch Pressure Control and planetary powershift transmission offer superior performance and reliability in heavy-duty compaction applications. **pg. 4**

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## Operator Station and Controls

Operator comfort and productivity are maximized by excellent visibility, careful positioning of levers, switches and gauges, attention to air quality and sound control, as well as built-in convenience for your operator's personal items. **pg. 6**

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## Tamping Wheels and Tips

Tamping wheels, with a modified chevron pattern for the tips, offer greater traction, penetration and compaction for high production. **pg. 8**

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## Complete Customer Support

Your Cat dealer is your one safe source for all your equipment needs. They offer a wide range of services that will fit your operation and keep you working longer with lower cost. **pg. 14**

*The new 815F soil compactor gives you greater power, productivity and compaction. Combine this with the finest customer support system in the world – the Caterpillar® dealer network of service and parts – and you get the lowest operating cost with the best up-time in the industry!*



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### Blade

Designed for general production dozing, road grading, spreading and clean-up work. **pg. 10**

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### Optional Features

Air suspension seat, air conditioning, No-SPIN rear differential, fast fill adapter and heavy duty cleaner bar tips are available to enhance the 815F. **pg. 11**

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### Serviceability

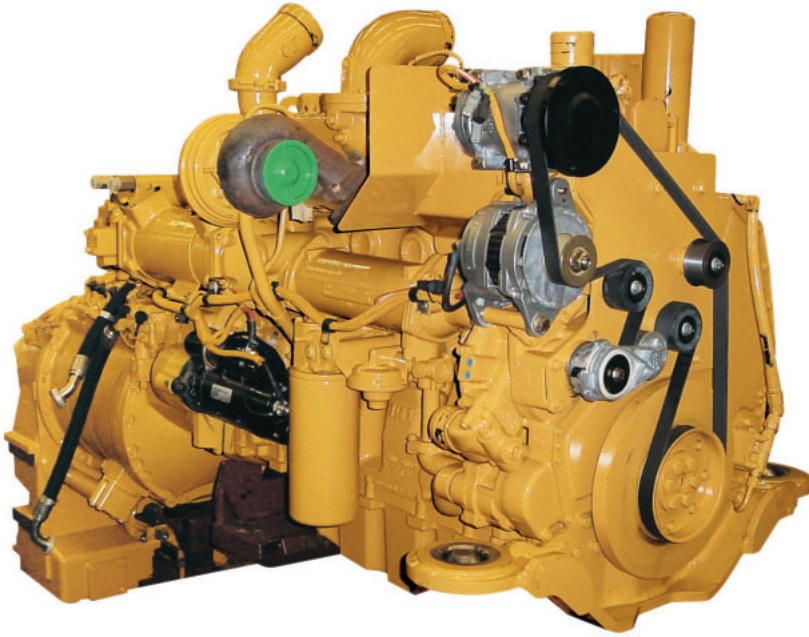
- ✓ Many convenient service features such as hinged service doors, accessible scheduled maintenance points, conveniently located sight gauges and a separated cooling system make servicing easy. **pg. 12**



✓ *New Feature*

## Power Train

*Delivers top performance, durability, reliability.*



### **Caterpillar 3176C Diesel Engine.**

Delivers, at a rated speed of 2,100 rpm, flywheel power of 179 kW (240 hp) and meets the U.S. Environmental Protection Agency Tier 2 emissions regulations and Stage II EU Emissions Directive 97/68/EC. With high horsepower and low displacement, this innovative engine provides excellent fuel economy and durability which can significantly reduce operating costs.

**Torque Rise.** Is increased as a result of the electronically controlled, computer actuated unit injection fuel system that provides high injection pressure and more precisely controlled fuel delivery as the engine lugs back from rated speed.

### **Advanced Diesel Engine Module**

**(ADEM™ III) Fuel System.** Is a Caterpillar electronic control module which provides improved engine response, performance, fuel efficiency, troubleshooting diagnostics and reduced emissions. It allows integration with the electronic transmission control for maximum power train efficiency.

**Turbocharger.** Packs more dense air into the cylinders for more complete combustion and lower emissions, improving performance and engine efficiency. These benefits are especially useful at high altitudes.

**Air-to-Air Aftercooler.** Reduces smoke and emissions by providing cooler inlet air for more efficient combustion. This also extends the life of the piston rings and bore.

**Dual Cooling Jets.** In the block spray oil on the piston skirt and cylinder bores keep ring temperatures low for long ring and liner life with excellent oil control.

**Pistons.** Are two piece articulated with forged steel crowns for excellent strength and aluminum skirts for reduced weight. Pistons are oil cooled for increased heat dissipation and longer life.

**Valves.** Four per cylinder allow for good air flow, enhancing fuel efficiency and heat rejection. Valves and unit injection system are camshaft-actuated for precise timing.

**Crankshaft.** Is steel-forged, carburized and induction-hardened for long-term durability. It is dynamically balanced for smooth operation. The crankshaft is completely regrindable, and the connecting rods can be removed through the tops of the cylinders for easy servicing.

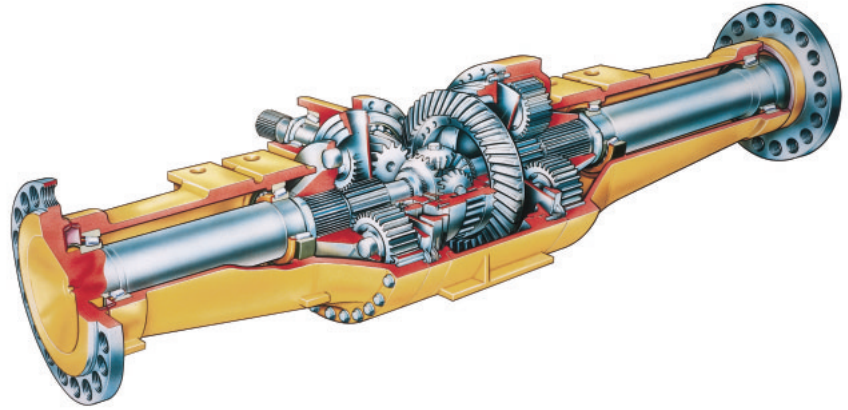
**Caterpillar Engine Oil.** Is formulated to optimize engine life and performance and is strongly recommended for use in Cat diesel engines. Engine oil change interval is increased to 500 hours.

**Cat Remanufactured Parts.** Are available, along with dealer proposed repair options, which increase machine availability and reduce total repair costs.

**Caterpillar Planetary Powershift Transmission.** Features heavy-duty components to handle tough jobs. The 345.4 mm (13.6 in) planet drives operate in all gears, forward and reverse. The addition of Electronic Clutch Pressure Control (ECPC) contributes to improved shift quality, reduced torque spikes and overall transmission durability.

**Heavy-Duty Axles and Brakes.** Are designed to last in all kinds of operating conditions. Two front axle disc brakes provide improved braking capability and better heat dissipation. Planetary final drives use free-floating, bronze sleeve bearings in the planet gears.

- Oil disc brakes are adjustment free and fully enclosed to lock out contaminants.



**Front Axle.** Is rigidly mounted to the frame to support the weight of the compactor, internal torque loads and external loads applied during compacting and dozing operations.

**Rear Axle.** Includes a trunnion, two trunnion supports and associated bearings, allowing it to oscillate plus or minus 12 degrees.

**Four Piece Axle.** Contains two axle shaft housings – the center housing and the intermediate housing. Features and benefits of this design include:

- Inboard brakes on the front axle only are positioned immediately adjacent to the differential and operate on the low torque side of the final drive, requiring less braking to stop the machine.

## Operator Station and Controls

*Comfort and control – a top quality operator's station will help maximize productivity.*



**1 Exceptional All-Around Viewing Area.**

Reduces strain and fatigue, making operators more productive.

**2 Caterpillar Monitoring System.**

With electronic analog gauges is a highly effective and reliable warning and diagnostic system.

As a warning system, it constantly checks machine functions and tells the operator when there is a problem. Easy-to-read gauges display fuel level, temperatures for engine coolant, transmission and hydraulic oil, engine rpm and gear range. Hour meter, odometer and analog tachometer readings are also displayed.

As a diagnostic system, it identifies conditions, shows current readings and plays back maximum or highest readings registered during recent operations.

The right side panel contains a three level warning system, providing full-time monitoring of key functions. The system alerts the operator of immediate or impending problems with air inlet temperature, brake oil pressure, electrical system, low voltage, engine oil pressure, engine over-speed, fuel filter status, parking brake status, steering oil pressure and transmission filter status.

**3 Quick Gear Kick Up/Down Button.**

Lets the operator easily downshift or upshift to a different gear. It is a convenient way to shift that saves time and effort.

**4 Ignition Key Start/Stop Switch.**

Is positioned for easy machine starting and stopping.

**5 12-Volt Power Supply and Cat Electronic Technician (ET) Diagnostics.**

Is provided inside the cab for powering radios, telephones or a laptop computer. This is particularly useful for powering a laptop running Cat ET to access the enhanced engine and transmission control system diagnostics.

**6 Steering Column.** Adjusts to multiple positions. The leather-like steering wheel and transmission control provide a sure grip and comfortable feel. The horn is conveniently located in the center of the steering wheel.

**7 Pilot-Operated Blade Controls.**

Are conveniently located and allow for precise blade movement.

**8 Contour Seat.** Is designed for comfort and support. Seat cushions reduce pressure on the lower back and thighs while allowing unrestricted arm and leg movement.

- A fully adjustable air suspension seat with self-contained compressor is available as an option.

**9 Built-In Storage Space.** Is designed to hold cups, lunch box, insulated bottle and personal items.

**10 Air Vents.** Throughout the cab keep fresh air flowing while improving the cab's heating, cooling, defrost and defog capability.

**11 Throttle Lock.** Allows and operator to set the engine speed and remove his foot from the governor (accelerator) pedal much like cruise control on an automobile. Using this feature increases productivity, fuel efficiency and improves operator comfort.

**12 Decelerator Pedal.** On the left acts as both an engine decelerator and a brake that overrides the engine speed selected by the throttle lock. This enables the operator to slow down when throttle lock is engaged and to return to throttle lock without pressing a button. It aids in maneuvering around scrapers, haul trucks, tractors or any other obstacle.

**13 Windshield Washers/Wipers.** With in-the-blade washer delivery system are standard features on front and rear windows. The front wiper has intermittent speed capability.

# Tamping Wheels and Tips

*The heart of any compaction system.*



**Wheel Design.** Gives the operator four-wheel width coverage in just two passes with front and rear wheel tracking that eliminates gaps and overlaps.



## **Chevron Tamping Wheel Tip Design.**

Is used for equal compaction in forward or reverse. Tips are full perimeter and are replaceable. The tip is welded to a base assembly, which is then welded directly to the drum. There are 12 tips per row and 60 tips per wheel for excellent compaction.



## **Symmetrical Tamping Wheel Tip Pattern.**

The modified chevron tamping wheel tip design provides greater ground pressure, more compaction, a smooth ride and excellent traction. Tip height is 190 mm (7.5 in) and width is 168 mm (6.6 in).





**Cleaner Bars.** Help keep the drums free of carry-over dirt regardless of rolling direction. A new pass-through bolt design allows for easier serviceability.



**Adjustable Cleaner Bar Tips.** Are constructed from a ductile iron casting which provides excellent durability and wear life.

**Compaction.** Is achieved from the bottom of the lift to the top. The tapered tips walk out of the lift without “fluffing” the soil. The top of the lift is compacted and the surface is relatively smooth and sealed so hauling units are able to maintain a high speed when traveling over the fill. 815F travel speed allows for four forces of compaction: pressure, manipulation, impact and vibration. Since it can also spread fill, the number of spreader tractors may be able to be reduced.

## Blade

*Multiple box-section construction with heat-treated moldboard and DH-2™ steel cutting edges and end bits contribute to long life.*



**Blade Package.** Consists of the blade, push-arms, trunnion mounting, dozer-length skid plate with replaceable wear plates, reversible cutting edges, self-sharpening end bits, hydraulic lines guard and hydraulic lift cylinders.

**Operator Controls.** Lift and tilt are both standard options, and the controls are seat-mounted and located in a convenient location to the right of the operator.



**Outside Mounted S-Blade.** With multiple box section construction including heat treated moldboard and DH-2 steel cutting edges and end bits for long life. The outside mounting is a stronger design because stresses are put on the frame rather than the blade so blade flexing is reduced. It also allows for higher lift and a wider blade can be used than with an inside mounted design.



**Applications.** The 815F excels at production dozing, spreading fill, backfilling, stockpiling, boosting scrapers and compacting. With the ability to work at higher speeds over other types of soil compactors, the 815F can keep up with a fast-moving scraper fleet or an articulated truck hauling operation. When speed and dozing capability are required duties for a soil compactor, the 815F is at the top of its class.

## Optional Features

*Available options augment the 815F to meet your needs.*



**Air Suspension Seat.** Provides added comfort for the operator so productivity stays high.

**Air Conditioner.** Uses blended air and R134a refrigerant for immediate temperature changes.

**Rear No-SPIN Differential.** Replaces the rear standard differential. It delivers maximum performance in low traction or inconsistent ground conditions.

**Fast Fill Adapter.** Used during peak periods when high production is needed and little down time can be afforded for fueling. Fuel is pumped into the tank through a filling nozzle at rates up to 378.5 liters (100 gallons) per minute. As fuel enters the tank, air is forced out through an open vent. When the tank is full, the vent closes and the filling nozzle automatically shuts off.

**Heavy Duty Cleaner Bar Tips.** The shape of these tips enables them to penetrate the wheel more efficiently than the standard cleaner bar tips, thereby reducing wheel drag and improving machine performance. Constructed from cutting edge steel used for blades and buckets, this high alloy steel is heat treated and direct hardened, which increases tip wear life by up to 240 percent over other designs in sticky, abrasive soil applications.

## Serviceability

*If maintenance is simple and accessible, it gets done.*



**500 Hour Oil Change Interval.** Increases uptime and production by doubling the time between oil and filter changes.

**Engine Access.** All metal engine enclosure and hinged access doors allow for easy daily maintenance and inspection.



**Left Side Service Access.** Provides convenient entry to the engine oil filter, grease points (lower), air filter (front), power train oil dipstick (top), coolant sight gauge (top), power train oil fill (below cab), power train oil filter and high speed engine oil fill.



**Right Side Service Access.** Features that are easily reached under the hood include fuel filter and water separator, fuel primer and engine oil dipstick.

**Hinged Hydraulic Oil Cooler.** Can be swung open 70 degrees without special tools.

**Hinged Air Conditioning Condenser.** Swings open 120 degrees and coupled with the swing out oil cooler, allows the cooling system to be cleaned quickly and easily.

**Operator Station.** Can be removed or replaced in about 45 minutes without having to disconnect hydraulic lines. Quick disconnect couplings allow fast disconnect of the air conditioning unit without releasing refrigerant.



**Engine Shutdown Switch.** Is located inside the left engine enclosure panel for simple access and extended switch life.



**Battery Box.** Is located in the right side bumper for convenient access to the maintenance-free batteries.

**Tool Box.** Is located in the left side bumper for additional protection against harsh work environments.

## Complete Customer Support

*Caterpillar dealers are the equipment experts.*

**Machine Selection.** Make detailed comparisons of the machines under consideration before purchase. Cat dealers can estimate component life, preventative maintenance cost and the true cost of lost production.

**Purchase.** Look past initial price. Consider the financing options available as well as day-to-day operating costs. Look at dealer services that can be included in the cost of the machine to yield lower equipment owning and operating costs over the long run.

**Customer Support Agreements.** Cat dealers offer a variety of product support agreements and work with customers to develop a plan that best meets specific needs. These plans can cover the entire machine, including attachments, to help protect the customer's investment.

**Product Support.** You will find nearly all parts at our dealer parts counter. Cat dealers use a worldwide computer network to find in-stock parts to minimize downtime. Save money with genuine Cat Reman parts. You receive the same warranty and reliability as new products at cost savings of 40 to 70 percent.

**Operation.** Improving operating techniques can boost your profits. Your Cat dealer has training video tapes, literature, application and equipment training courses and other ideas to help you increase productivity.



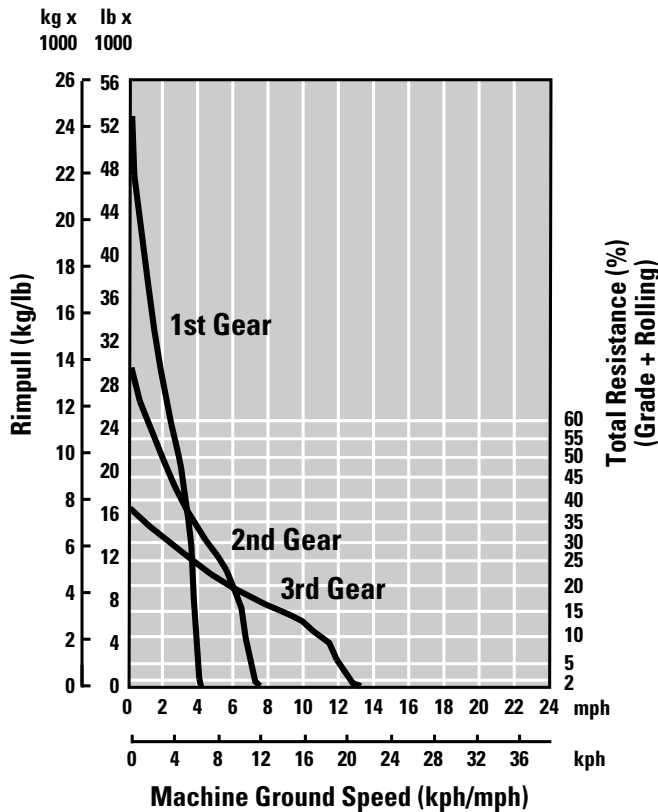
**Maintenance Services.** More equipment buyers are planning for effective maintenance before buying equipment. Choose from your dealer's wide range of maintenance services at the time you purchase your machine. Repair option programs guarantee the cost of repairs up front. Diagnostic programs such as 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.

## Engine

Engine Model	Cat 3176C ATAAC	
Gross Power	189 kW	254 hp
Flywheel Power	179 kW	240 hp
ISO 3046-2	179 kW	240 hp
ISO 9249	179 kW	240 hp
SAE J1349	179 kW	240 hp
EEC 80/1269	179 kW	240 hp
Torque Rise	45%	
Bore	125 mm	4.92 in
Stroke	140 mm	5.51 in
Displacement	10.3 L	628.5 in <sup>3</sup>

- Engine meets U.S. Environmental Protection Agency Tier 2 emissions regulations and Stage II EU Directive/97/68/EC.
- Engine power ratings apply at 2,100 rpm when tested under the specific standard conditions for the specified standard.
- Power rating conditions based on standard air conditions of 25° C (77° F) and 100 kPa (29.6 Hg) dry barometer, using 25° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) [reference a fuel density of 828.9 g/L (7.001 lb/gal)].
- Torque rise at 1,400 rpm.



## Transmission

Forward 1	6.2 kph	3.9 mph
Forward 2	10.8 kph	6.7 mph
Forward 3	17.9 kph	11.1 mph
Reverse 1	7.1 kph	4.4 mph
Reverse 2	12.2 kph	7.6 mph
Reverse 3	19.5 kph	12.1 mph

## Hydraulic System

Relief Valve Setting	15 550 kPa	2,255 psi
Lift Cylinder Bore x Stroke	101.6 mm x 627 mm 3.99 in x 24.68 in	

## Steering

Steering Angle	±36°
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## Wheels

Drum Width	991 mm	3.25 ft
Drum Diameter	1029 mm	3.38 ft
Outside Diameter	1425 mm	4.68 ft
Tips per Wheel	60	
Tips per Row	12	

## Axles

Front	Fixed
Rear	Oscillating ±12°

## Blade

Blade Capacity	2.16 m <sup>3</sup>	2.82 yd <sup>3</sup>
Moldboard Length	3652 mm	11.98 ft
Height, Including Cutting Edge	860 mm	2.82 ft
Maximum Depth of Cut	215 mm	0.7 ft
Maximum Lift Above Ground	814 mm	2.67 ft
Blade Tip Angle - Total	59.2°	
Blade Tilt Angle - Right - Mechanical	6.5°	
Blade Tilt Angle - Left - Mechanical	5.4°	
Width Over End Bits	3761 mm	12.3 ft

## Service Refill Capacities

Fuel Tank	446 L	117.8 gal
Cooling System	55 L	14.5 gal
Crankcase	34 L	9 gal
Transmission	50 L	13.2 gal
Differentials and Final Drives - Front	65 L	17.1 gal
Differentials and Final Drives - Rear	65 L	17.1 gal
Hydraulic Tank	88 L	23.2 gal

## Dimensions

Width over End Bits	3761 mm	12.34 ft
Width over Drums	3243 mm	10.64 ft

## Weights

Operating Weight	20 755 kg	45,765 lb
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## Operating Specifications

Turning Radius Blade - Outside	7221 mm	23.7 ft
Turning Radius Blade - Inside	3655 mm	12 ft

## Shipping Specifications

Weight	20 345 kg	44,853 lb
Height	3347 mm	11 ft
Width	3652 mm	11.98 ft
Depth	6845 mm	22.46 ft

## Brakes

Standards	Meet OSHA regulations
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## Cab

ROPS/FOPS	Meet SAE and ISO standards
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- Caterpillar cab and Rollover Protective Structure/Falling Object Protective Structure (ROPS/FOPS) are standard in North America, Europe and Japan.
- ROPS meets SAE J394, SAE 1040 APR88 and ISO 3471-1986 standards.
- FOPS meets SAE J231 JAN81 and ISO 3449-194 standards.

## Sound Performance

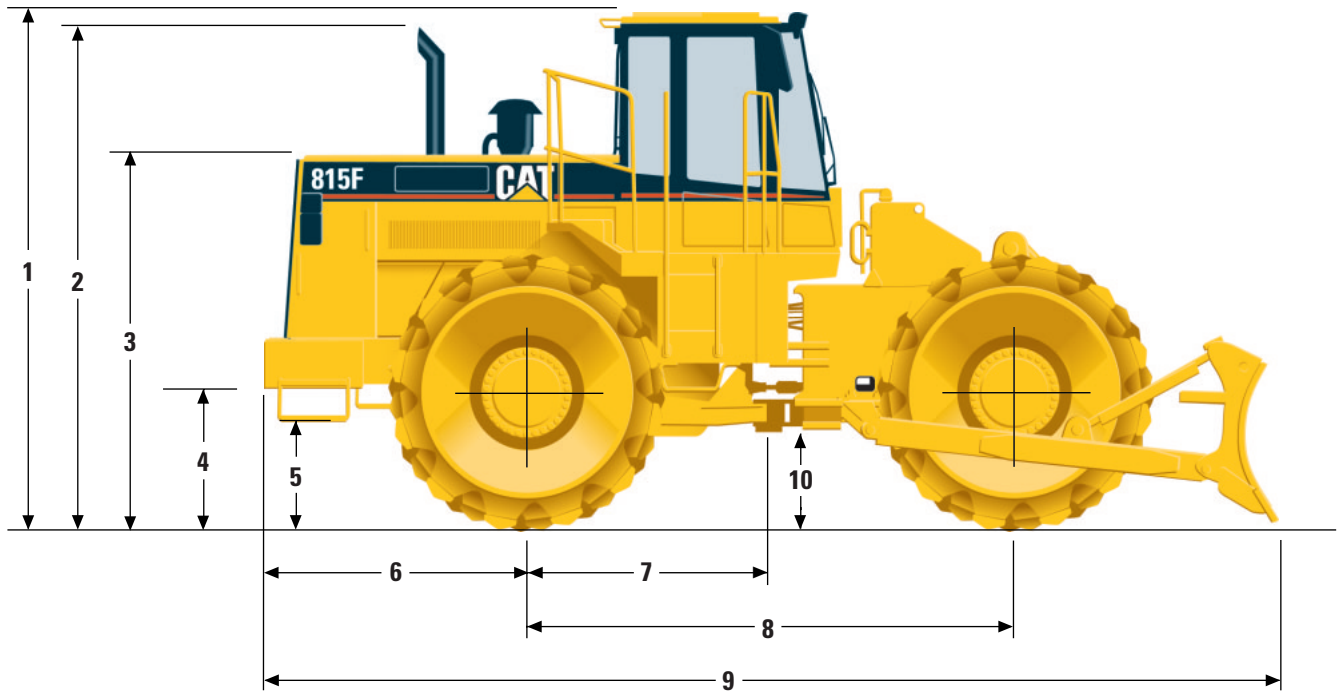
Standards	Meet required standards
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- The operator sound exposure Leq (equivalent sound pressure level) measured according to the work cycle procedures specified in ANSI/SAE J1166 OCT98 is 78 dB(A), for the cab offered by Caterpillar, when properly installed, maintained and tested with the doors and windows closed.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.
- The exterior sound pressure level for the standard machine measured at a distance of 15 m (49.2 ft) according to the test procedures specified in SAE J88 JUN86 mid-gear-moving operation is 80 dB(A).
- The sound power level is 111 dB(A) measured according to the dynamic test procedure and conditions specified in ISO 6395:1988/Amd. 1:1996 for a standard machine configuration.



## Dimensions

All dimensions are approximate.



<b>1</b>	Height to Top of Cab	3347 mm	10.98 ft
<b>2</b>	Height to Top of Exhaust Pipe	3225 mm	10.58 ft
<b>3</b>	Height to Top of Hood	2395 mm	7.86 ft
<b>4</b>	Height to Rear Bumper	770 mm	2.53 ft
<b>5</b>	Height to Bottom of Ladder	463 mm	1.52 ft
<b>6</b>	Center Line of Rear Axle to Edge of Rear Bumper	1871 mm	6.14 ft

<b>7</b>	Center Line of Rear Axle to Hitch	1675 mm	5.49 ft
<b>8</b>	Wheelbase	3350 mm	10.99 ft
<b>9</b>	Length with Blade on Ground	6845 mm	22.46 ft
<b>10</b>	Ground Clearance	390 mm	1.28 ft

## Standard Equipment

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

### ELECTRICAL

- Alarm, backup
- Alternator (70 amp)
- Batteries, maintenance-free
- Diagnostic connectors
- Lighting system, halogen (front, rear and cab-mounted)
- Starting and charging system (24-volt)
- Starting receptacle for emergency starts

### OPERATOR ENVIRONMENT

- Blade control system locks
- Cab, pressurized and sound suppressed (ROPS/FOPS)
  - includes antenna, speakers and converter (12-volt, 5 amp)
- Coat hook
- Cigar lighter and ashtray
- Caterpillar Monitoring System
  - Instrumentation, Gauges:
    - Engine coolant temperature
    - Fuel level
    - Hydraulic oil temperature
    - Speedometer/Tachometer
    - Transmission oil temperature
  - Instrumentation, Warning Indicators
    - Air inlet temperature
    - Brake oil pressure
    - Electrical system, low voltage
    - Engine oil pressure
    - Engine over-speed
    - Fuel filter status
    - Parking brake status
    - Steering oil pressure
    - Transmission filter status
- Dome light (cab)
- Heater and defroster
- Horn, electric (steering wheel mounted)
- Hydraulic steering
- Lunchbox and beverage holders
- Mirrors, rearview (interior mounted)
- Seat, KAB mechanical suspension
- Seatbelt, retractable, 76 mm (3 in) wide
- Steering column, adjustable
- Wet-arm wipers/washers (front and rear)
  - Intermittent front wiper

### POWER TRAIN

- Brakes, fully hydraulic, enclosed, wet-disc
- Engine, Cat 3176C with ATAAC
- Fuel priming pump
- Muffler
- Radiator, Advanced Modular Cooling System (AMOCS)
- Starting aid (ether)
- Torque converter
- Transmission, planetary (3 forward/3 reverse speeds)
  - Electronic Clutch Pressure Control

### OTHER STANDARD EQUIPMENT

- Caterpillar O-ring face seals/couplings
- XT hoses
- Cleaner bars
- Guards
  - Crankcase
  - Power train
  - Parking brake
  - Radiator
  - Drive shaft
- Hood, metallic with lockable service doors
- Hitch, drawbar with pin
- Hydraulic oil cooler
- Oil sampling valves
- Trunnion
- Tamper wheels
- Vandalism protection caplocks

### BULLDOZERS

Bulldozer blade, hydraulics and linkage are not included in standard equipment.

### ANTIFREEZE

Premixed 50 percent concentration of Extended Life Coolant with freeze protection to  $-34^{\circ}\text{C}$  ( $-29^{\circ}\text{F}$ )

## Optional Equipment

(with approximate change in operating weight)

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

	kg	lb
Air suspension seat	32	71
Air conditioner	36	80
Attachment cleaner bar/tips	141	311
Bulldozer arrangement includes blade, hydraulic cylinder, push arms, mounting gp and lines	1393	3072
Canopy, ROPS	176	-389
Differential, No-SPIN rear	1.8	4

	kg	lb
Extended Life Coolant -50° C (-58° F)	0	0
External mirrors	28	62
Fast fuel adapter	2.7	6
Heater, engine coolant	1.8	4
Hydraulic tilt cylinder	111	245
Internal (panoramic) mirror	1.9	11
Visor, cab	2.3	5

# 815F Soil Compactor

AEHQ5486-02 (11-02)  
Replaces AEHQ5486-01

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.  
See your Caterpillar dealer for available options.

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