

814F Series 2

Wheel Dozer

CAT®



Engine

Engine Model	Cat® C9 ACERT™	
Gross Power	189 kW	253 hp
Net Power	173 kW	232 hp

Weights

Operating Weight	21 713 kg	47,877 lb
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Blade Specifications

Straight Blade – Capacity	2.66 m ³	3.49 yd ³
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814F Series 2 Wheel Dozer

Specifically designed for mobility, maneuverability and good speed in tough applications.

Power Train

- ✓ The Cat® C9 engine with ACERT™ Technology delivers power and combines with the Electronic Clutch Pressure Control and planetary powershift transmission to offer superior performance and reliability in heavy-duty dozing applications. **pg. 4**

Structures

Advanced design, materials and robotic welding contribute to increased durability and overall machine strength. **pg. 6**

Straight Blade

Designed for light production, cleanup work. **pg. 7**

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. 12**

Top performance...

Caterpillar design combines power, mobility and operator comfort for high productivity.

Reliable, durable operation...

Rugged construction and easy maintenance provide long life with low operating costs.



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. 8**

Optional Features

- ✓ Air suspension seat, air conditioning and fast fill adapter are a few of the options available to enhance the 814F Series 2. Rear view monitor and satellite radio options help make the operator more comfortable and efficient. **pg. 10**

Serviceability

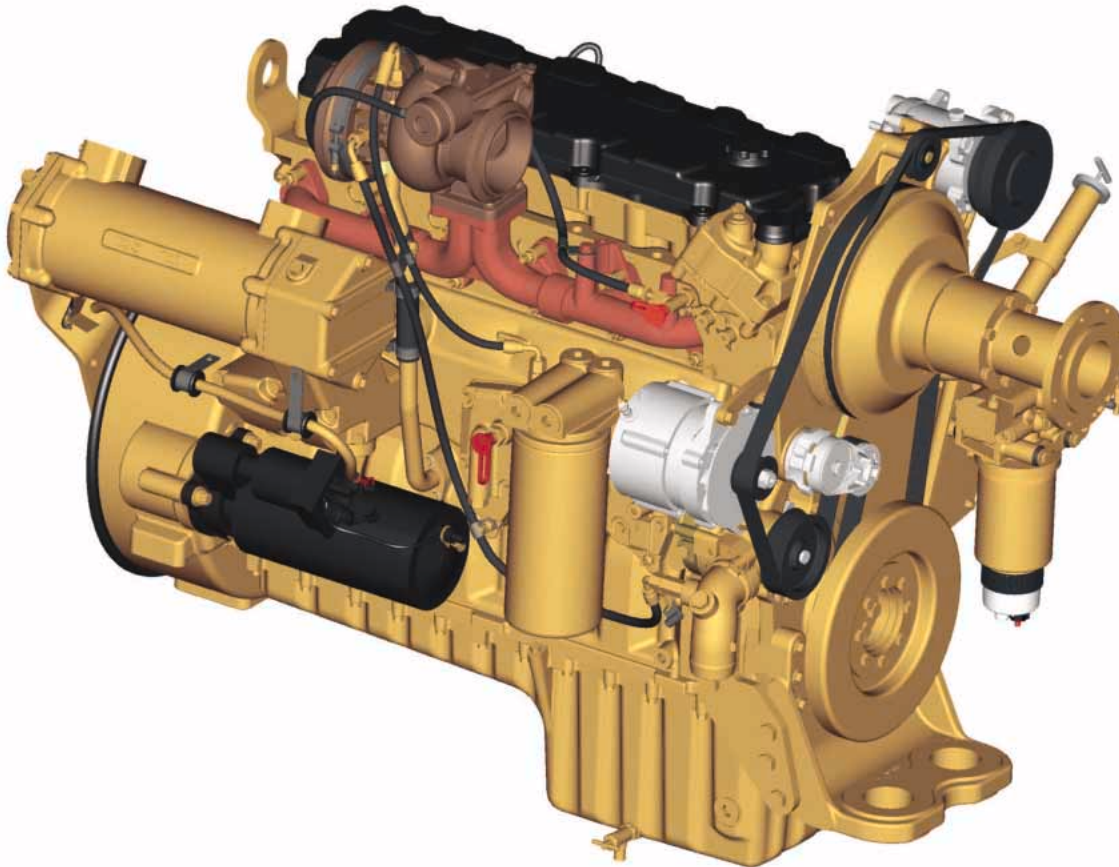
- ✓ Many convenient service features such as hinged service doors, accessible scheduled maintenance points, conveniently located sight gauges, in-cab blade-type fuses and a separated cooling system make servicing easy. **pg. 11**



✓ *New Feature*

Power Train

Delivers top performance, durability and reliability.



Cat® C9 ACERT Engine. Delivers, at a rated speed of 2,100 rpm, flywheel power of 173 kW (232 hp) and meets the U.S. Environmental Protection Agency Tier 3 emissions regulations and Stage IIIA 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 fuel system that provides high injection pressure and more precisely controlled fuel delivery as the engine lugs back from rated speed.

ADEM™ IV 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 airflow, enhancing fuel efficiency and heat rejection. Valves and unit injection system are camshaft-actuated for precise timing.

Crankshaft. Is a 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.

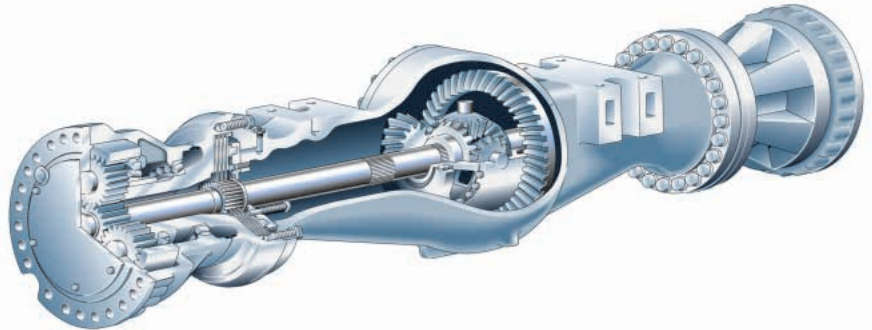
Cat Engine Oil. Is formulated to optimize engine life and performance and is strongly recommended for use in Cat diesel engines. Engine oil change interval is 500 hours.

Cat 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.

Heavy-Duty Axles and Brakes.

Are designed to last in all kinds of operating conditions. Two front axles 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.

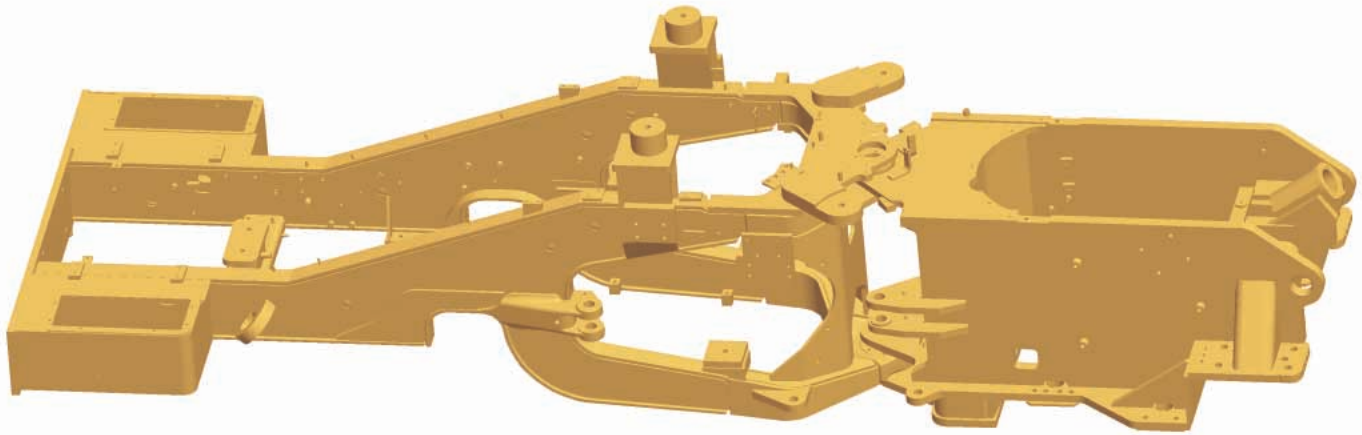
Rear Axle. Includes a trunnion, two trunnion supports and associated bearings, allowing it to oscillate plus or minus 12 degrees.

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.

Structures

Enhanced design and materials provide superior strength to the purpose built structures of the 814F Series 2.



Structure Construction. Combines the use of robotic welding on up to 90 percent of the 814F Series 2 with castings in several areas to increase strength by helping spread the loads and reduce the number of parts. This provides highly consistent welds with deep plate penetration and excellent plate fusion. The benefits are increased durability and fatigue strength. The computer controlled machining ensures the alignment of pin bore, axle pad, cab mount and transmission/engine components.

Box Section End Frame. Designed to resist twisting and torsional forces, the box section engine end frame provides a solid foundation for the axles, engine and transmission.

Front Frame. With two plates provides maximum structural strength during compaction and dozing applications.

Spread Hitch Design. Improves load distribution by reducing loads to the hitch bearings. The large center hitch design improves hydraulic line routing and makes service access easier.

Upper and Lower Hitch Pins.

Pivot on double-tapered roller bearings. Box-style sections in the hitch pins and crossmember assembly improve frame structure strength. Increased diameter lower hitch pins add to the robust design.

Engine and Transmission Mounts.

With rubber isolation mount design reduces noise and vibration.

Straight Blade

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

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

Straight Blade. Is standard on the 814F Series 2.

Dozer Front Frame. Built specifically to handle greater amounts of rimpull, the machine can readily push its weight plus the weight of the material for long distances in heavy dozing applications.

Operator Controls. Lift and tilt/tip are standard options and the levers are located to the right of the operator.

Application. The 814F Series 2 excels at dozing, spreading fill, backfilling, stockpiling, charging hoppers, maintaining roads and cleaning up around trucks and shovels.

Blade Options. Contact Cat Work Tools and Services for additional blade options which include:

- Coal scoop with tilt
- Woodchip scoop with tilt
- Coal U-blade with 25 degree wing angle



Operator Station and Controls

Comfort and control – a top quality operator's station helps 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 Operator 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 Repositioned Vents. Throughout the cab keep fresh air flowing while improving the cab's heating, cooling, defrost and defog capability.

11 Throttle Lock. Allows an 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 shovels, 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.

14 Rear Vision Camera Monitor.

Connected to a camera mounted on the radiator guard, this monitor allows the operator to see the area behind the machine.

Optional Features

Available options augment the 814F Series 2 to meet your needs.



Rear Vision Camera. Uses a camera mounted on the radiator guard and a monitor in the cab to allow the operator to see the area directly behind the machine.

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.

Radios. Several radio options are available factory installed: AM/FM CD or AM/FM CD with satellite radio (a service contract is required from a satellite radio provider).

Product Link. Allows the customer and/or dealer to monitor the machine from a remote location.

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.

High Speed Oil Change. Uses an evacuation system to speed up the engine oil change which helps to reduce the service time.

Turbine Pre-Cleaner Group. Replaces the standard statatube air cleaner with a turbine-style air intake cleaner which is useful in dry, dusty work conditions.



Counterweight. Is located on either side of the push arms. For each specific application, there is a correct machine weight for proper balancing of traction, flotation, mobility and response. Lower machine weight is usually required for typical second gear applications such as fill spreading, stockpiling, road maintenance, towing implements and shovel cleanup. Higher machine weight is usually required for such typical first gear applications as heavy dozing and push loading.

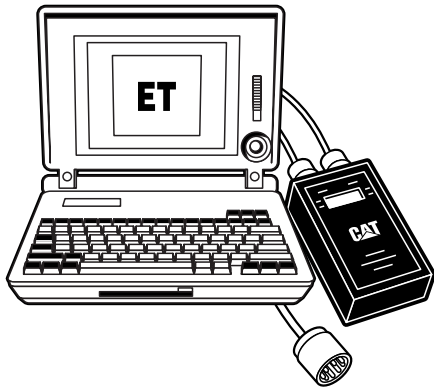
Tire Options. Are available from Michelin (two options).

High Intensity Discharge (HID) Lights. Adds four lights on the cab and two on the radiator guard to brighten up the work area. HID lights are two times brighter than the standard halogen lights.

Note: These lights will be available mid-2007.

Serviceability

If maintenance is simple and areas easily accessible, it gets done.



Cat Electronic Technician (ET). Is a software program which allows the service technician to find and identify a problem on a machine and to analyze how to fix it quickly. Cat ET provides the capability to access the electronic control modules from a personal computer.

Cat ET is used for:

- Viewing active and non-active diagnostic codes and clearing them after repair.
- Displaying the status of all parameters such as engine speed, gear engaged, control levers position, control switch position, etc.
- Performing diagnostic tests and calibrations of electro-hydraulic components.
- Viewing current configurations and changing parameter settings.
- Flashing new Caterpillar software in the electronic control modules.
- Recording all parameters during machine operation.

A customer version of Cat ET is also available for your fleet of Cat equipment. Contact your Caterpillar dealer for more detailed information.

Caterpillar Monitoring System.

Provides diagnostics that allow technicians to review a machine's operation and quickly troubleshoots problems. Operating parameters, diagnostic codes and out-of-range readings are displayed through the diagnostic connector.

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

Left Side Service Access. Provides convenient entry to the engine oil filter, grease points, air filter, power train oil dipstick, coolant sight gauge, power train oil fill, 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.

500 Hour Oil Change Interval.

Increases uptime and production by doubling the time between oil and filter changes without requiring increased oil sump capacity.

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

Blade-Style Fuses. Are new to the 814F Series 2. They are located in the cab and improve reliability and serviceability.



Caterpillar Scheduled Oil Sampling.

Helps ensure better performance, longer life and increased customer satisfaction. It is an extremely thorough and reliable early warning system which detects traces of metals, dirt and other contaminants in your engine, axle, transmission and hydraulic oil. S-O-SSM sampling can predict potential trouble early, thus avoiding costly unscheduled failures. Your Caterpillar dealer can give you results and specific recommendations shortly after receiving your sample.



Hinged Hydraulic Oil Cooler and Air Conditioning Condenser. Swing open without special tools and allows the cooling system to be cleaned quickly and easily.

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

Cat 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.

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

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 videotapes, 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-SSM and Coolant Sampling and Technical Analysis help you avoid unscheduled repairs.

Engine

Engine Model	Cat® C9 ACERT™	
Gross Power	189 kW	253 hp
Net Power	173 kW	232 hp
ISO 3046-2	173 kW	232 hp
ISO 9249	175 kW	235 hp
SAE J1349	173 kW	232 hp
EEC 80/1269	175 kW	235 hp
Torque Rise	30%	
Bore	112 mm	4.4 in
Stroke	149 mm	5.9 in
Displacement	8.8 L	537 in ³
Cylinders	6	

- Engine meets U.S. Environmental Protection Agency Tier 3 emissions regulations and Stage IIIA 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 HLV 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 1,200 rpm.

Transmission

Forward 1	5.7 km/h	3.6 mph
Forward 2	10.2 km/h	6.4 mph
Forward 3	17.9 km/h	11.2 mph
Forward 4	31 km/h	19.3 mph
Reverse 1	6.5 km/h	4.1 mph
Reverse 2	11.6 km/h	7.3 mph
Reverse 3	20.4 km/h	12.7 mph
Reverse 4	34.9 km/h	21.8 mph

Hydraulic System

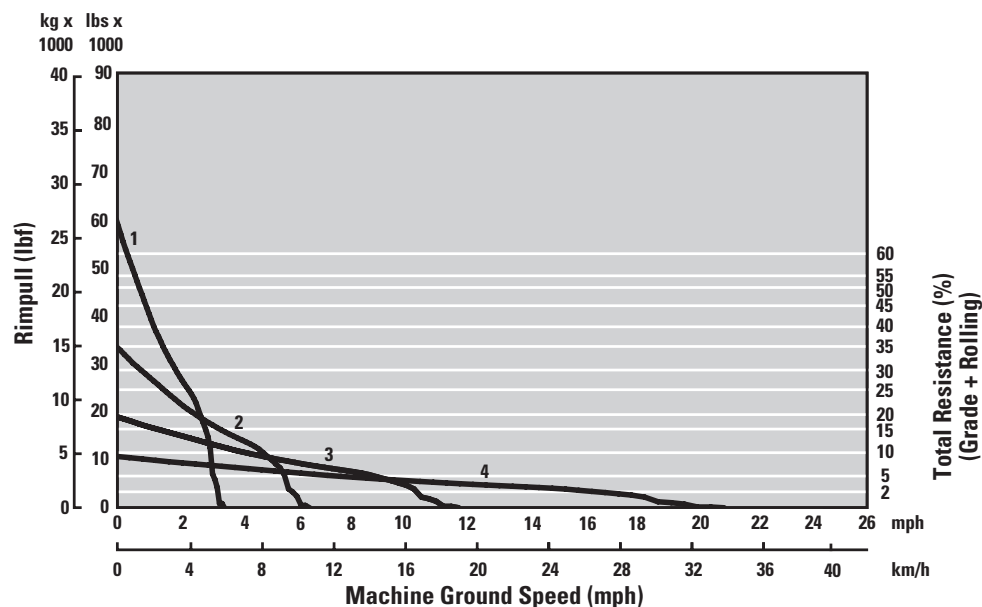
Lift cylinder, bore and stroke	120.62 mm × 913.9 mm
	4.74 in × 35.98 in
Steering cylinder, bore and stroke	101.6 mm × 597 mm
	3.99 in × 23.5 in
Relief valve setting	15 500 kPa 2,255 psi

Brakes

Brakes	Meet OSHA regulations
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Axles

Front	Fixed
Rear	Oscillating ±12°



Steering

Steering Angle	$\pm 36^{\circ}$	
Turning Radius, Outside Corner of Blade	7168 mm	23 ft 6 in
Turning Radius, Inside Corner of Blade	3727 mm	12 ft 3 in

Tires

- L-2 Traction Tread – penetration ability provides improved traction under some soil conditions.
- L-3 Rock Tread – offers improved traction and more cut resistant rubber for use on any hard, smooth surface such as rock, concrete or compacted earth.

Weights

Operating Weight	21 713 kg	47,877 lb
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Service Refill Capacities

Fuel Tank – standard	446 L	117.8 gal
Cooling system	55 L	14.5 gal
Crankcase	34 L	9 gal
Transmission	50 L	13.2 gal
Hydraulic tank	88 L	23.2 gal
Differentials and final drives – Front	65 L	17.1 gal
Differentials and final drives – Rear	65 L	17.1 gal

Cab

Cab	Meets 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 3449-1994 standards.

Sound Performance

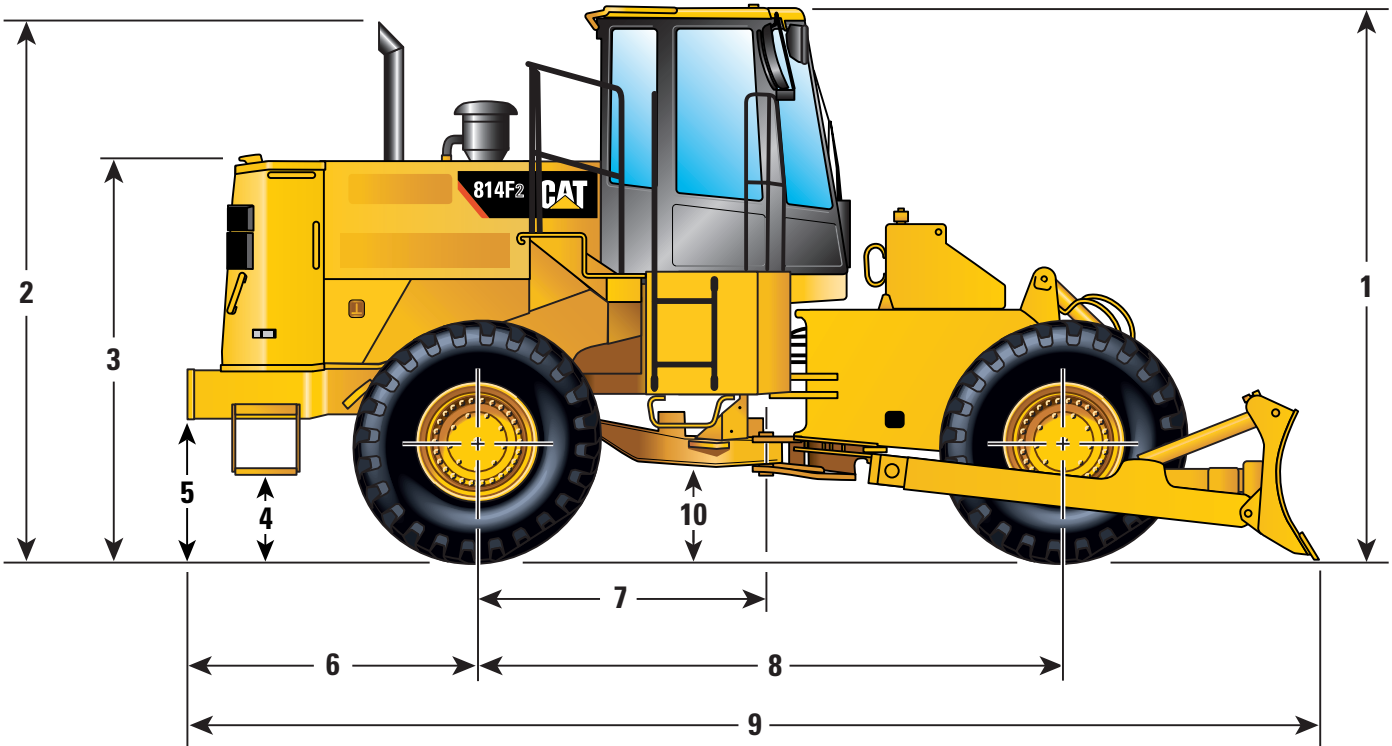
Standards	Meet required standards
<ul style="list-style-type: none">• The operator sound exposure Leq (equivalent sound pressure level) measured according to the work cycle procedures specified in ANSI/SAE J1166 OCT98 is 78 dB(A), for the cab offered by Caterpillar, when properly installed, maintained 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.	

Blade Specifications

Straight Blade – Capacity	2.66 m ³	3.49 yd ³
Moldboard Length	3596 mm	11 ft 10 in
Straight Blade – Height	1110 mm	3 ft 8 in
Straight Blade – Digging Depth	528 mm	1 ft 9 in
Maximum Lift Above Ground	718 mm	2 ft 5 in
Blade Tip Angle – Total	51.9°	
Blade Tip Angle – Forward	10°	
Blade Tip Angle – Back	4.5°	
Blade Tilt Angle – Right	4.5°	
Blade Tilt Angle – Left	8°	
Straight Blade – Maximum Tilt	795 mm	2 ft 8 in

Dimensions

All dimensions are approximate.



1	Height to Top of Cab	3326 mm	10 ft 11 in
2	Height to Top of Exhaust Pipe	3304 mm	10 ft 11 in
3	Height to Top of Hood	2373 mm	7 ft 10 in
4	Height to Bottom of Ladder	441 mm	1 ft 6 in
5	Ground Clearance to Bumper	748 mm	2 ft 6 in
6	Center Line of Rear Axle to Edge of Bumper	1871 mm	6 ft 2 in

7	Center Line of Rear Axle to Hitch	1675 mm	5 ft 6 in
8	Wheelbase	3350 mm	11 ft
9	Length with Blade on Ground	6881 mm	22 ft 7 in
10	Ground Clearance	366 mm	1 ft 3 in

Standard Equipment

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

ELECTRICAL

- Alarm, backup
- Alternator (80 amp)
- Batteries, maintenance-free (2)
- Diagnostic connectors
- Lighting system, halogen (front, rear and cab-mounted)
- Starting and charging system (24-volt)
- Starting receptacle for emergency start

OPERATOR ENVIRONMENT

- Blade control system locks
- Cab, pressurized and sound suppressed (ROPS/FOPS)
 - Radio ready (entertainment) includes antenna, speakers and converter (12-volt, 10-15 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 overspeed
 - Fuel filter status
 - Parking brake status
 - Steering oil pressure
 - Transmission filter status
- Dome light (cab)
- Fuses, blade-type, in-cab
- Heater and defroster
- Horn, electric (steering wheel mounted)
- Hydraulic steering
- Lunchbox and beverage holder
- Mirrors, rearview (internally-mounted)
- Seat, mechanical suspension
- Seat belt, retractable, 76 mm (3 in) wide
- Wet-arm wipers/washers (front and rear)
 - Intermittent front wiper

POWER TRAIN

- Brakes, hydraulic enclosed, wet-disc service brakes
- Engine, Cat® C9 ACERT™
- Fuel priming pump
- Muffler
- Radiator, Next Generation Modular (NGMR)
- Starting aid (ether)
- Torque converter
- Transmission, planetary (4 forward/4 reverse speeds)
 - Electronic Clutch Pressure Control

Optional Equipment

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

	kg	lb
Air conditioner	36	80
Air suspension seat	32	71
Bulldozer – fill spreading includes trunnion gp, mounting gp, hydraulic cylinders and lines gp	1725	3,802
Cab visor	2	5
Canopy, ROPS	–176	–389
Drive shaft guard	55	121
Engine coolant heater	2	4
Extended Life Coolant –50° C (–58° F)	0	0
External mirrors	28	62
Fast fill adapter	3	6
Front counterweight	1656	3,651

	kg	lb
HID lights	9.8	21.6
High speed oil change	3.4	7.5
Internal (panoramic) mirrors	5	11
Power train guard	102	224
Precleaner turbine	7	15.4
Product Link	4.4	9.7
Radios		
Radio CD AM/FM	1.6	3.5
Radio CD AM/FM (SIRIUS Satellite)	5.8	12.8
Radio CD AM/FM (XM Satellite)	5.8	12.8
Rear vision camera	7.9	17.4
Spectator sound suppression	52	114

Mandatory Attachments

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

	kg	lb
Tires, rims and wheels All tires are tubeless, include rims and come in a set of four.		
Michelin		
23.5 R25 XHA MX L3	408	900
26.5 R25 XHA MX L3	0	0

Tire weights represent known variance from the standard tire weight, which is included in the machine operating weight.

814F Series 2 Wheel Dozer

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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Materials and specifications are subject to change without notice.
Featured machines in photos may include additional equipment.
See your Caterpillar dealer for available options.

AEHQ5726-01 (5-07)

Replaces AEHQ5726

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