

814F

Wheel Dozer

CAT[®]



Cat[®] 3306 Engine

Gross power	175 kW	235 hp
Flywheel power	164 kW	220 hp
Maximum operating weight	20 952 kg	46,096 lb

814F Wheel Dozer

Specifically designed for mobility, maneuverability and good speed.

Power Train Components

Caterpillar® 3306 turbocharged and aftercooled diesel engine, planetary power shift transmission, and heavy duty axles and brakes deliver superior performance and reliability in the toughest conditions. **pg. 4-5**

Operator's Station

Operator comfort and productivity are maximized by excellent visibility, careful positioning of levers, switches, and gauges, and attention to air quality and sound control. **pg. 6-7**

Top performance.

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

Reliable, durable operation.

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



S-Blade

Designed for light production, cleanup work. **pg. 8**

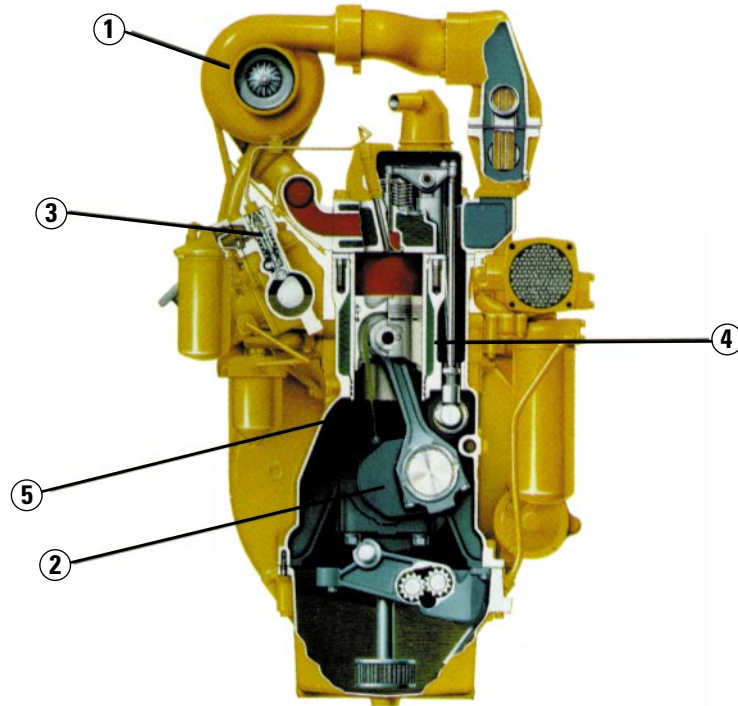
Customer Support

Many convenient service features, as well as parts availability supported by a worldwide computer network, combine to give you a machine with Caterpillar's total commitment to customer support. **pg. 9**



3306 Engine

The six-cylinder, turbocharged aftercooled engine is built for power, reliability and economy.



Powerful performance. The 814F performs at full-rated gross power of 175 kW (235 hp). The four-stroke cycle design delivers long power strokes and efficient fuel combustion. The turbocharged aftercooled Caterpillar 3306 engine is precisely engineered and stringently tested to maintain a tradition of quality and to meet the current and future regulations of the U.S. Environmental Protection Agency, California Air Resources Board and European Union. It does it all with profit-boosting performance, heavy duty durability and reliability, built-in serviceability and excellent fuel economy.

1 Turbocharger enhances performance and engine efficiency, especially at high altitudes.

2 Crankshaft is forged and induction hardened for long-term durability.

3 High-pressure direct injection fuel system provides excellent fuel atomization for unmatched fuel economy, reliability and durability.

4 Full-length water cooled cylinder liners provide maximum heat transfer.

5 Oil-cooled pistons increase heat dissipation and promote longer piston life.

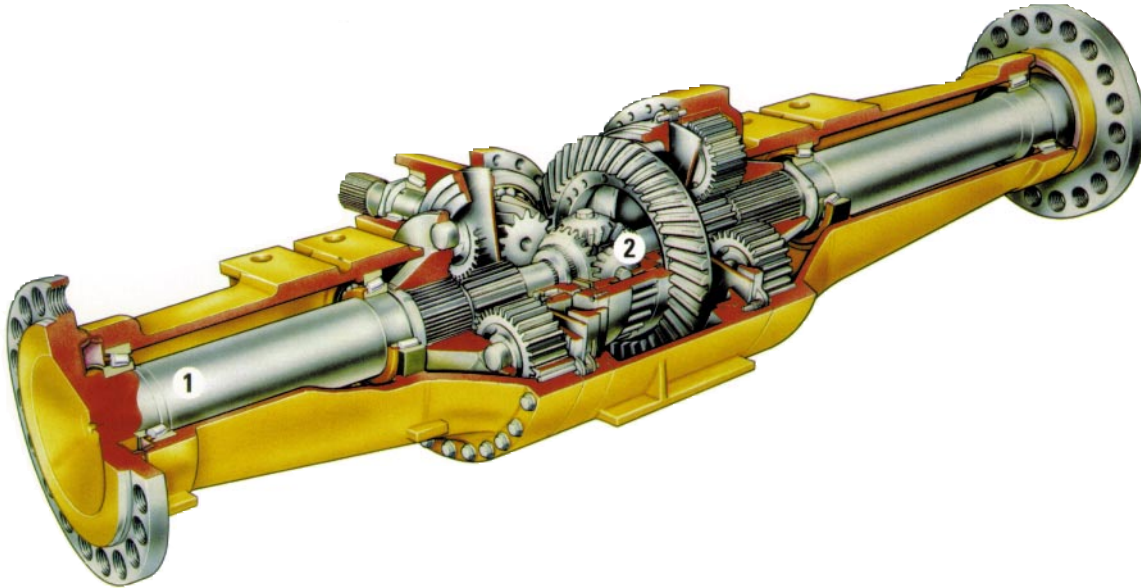
Modular radiator cools efficiently. Easy repair or installation of individual modules and sight gauge allows for quick check of coolant level.

Easy maintenance. The engine can be rebuilt for a second life. Caterpillar remanufactured parts are available to economically replace many components. Some innovative maintenance features of the 3306 engine:

- Connecting rods can be removed through the tops of the cylinders.
- Camshaft followers and pushrods can be easily replaced without removing the camshaft.
- Water pump can be serviced as a unit or rebuilt.

Power Train

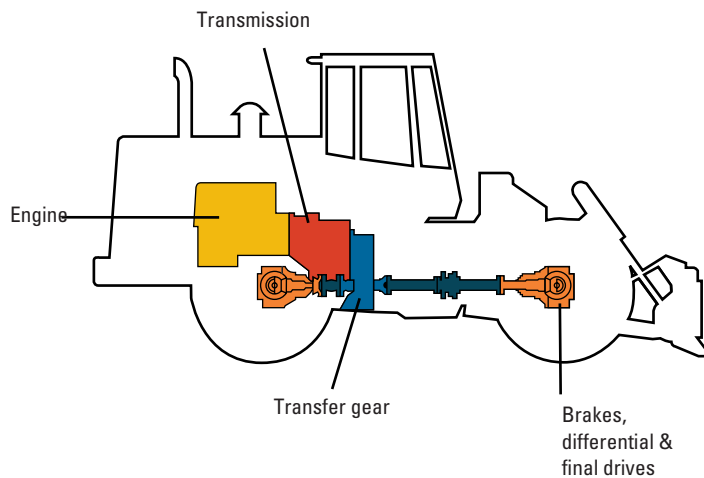
The Cat power train makes dependable performance a standard feature.



1 Heavy duty axles and brakes are designed to last in all kinds of operating conditions. Planetary final drives use full-floating bronze sleeve bearings in the planet gears and differential pinion. Oil-disc brakes are adjustment free and fully enclosed to lock out contaminants. Patented Duo-Cone Seals between the axle shafts and housings keep lubrication in and dirt out. Oscillating rear axle ensures four-wheel ground contact for traction and stability, even on rugged terrain.

2 NoSPIN front differential is available to deliver maximum traction in low traction or inconsistent ground conditions.

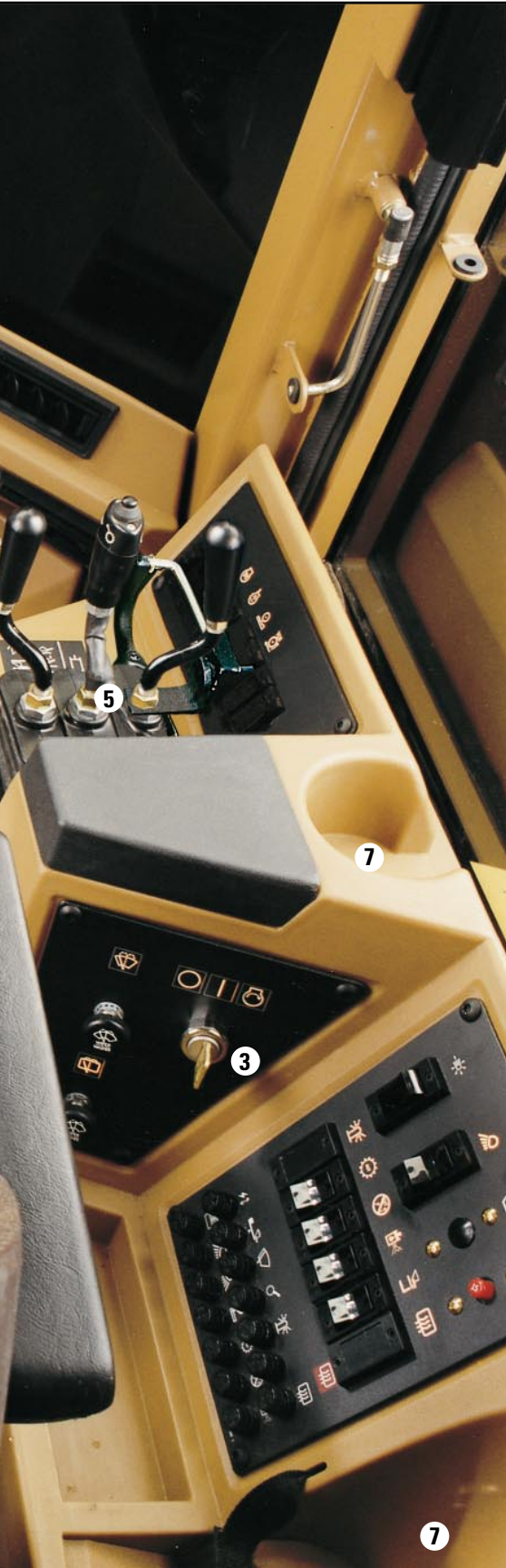
Planetary power shift transmission's hydraulic modulation cushions the shift and reduces stress on components. Large diameter, perimeter-mounted clutch plates are continuously oil-cooled for dependable, long life.



Operator's Station

Comfort and control — top-quality operator's station will help maximize productivity.





1 Exceptional all-around viewing area reduces strain and fatigue, making operators more productive.

2 Computerized 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's a problem. Easy-to-read gauges display fuel level, temperatures for engine coolant, transmission and hydraulic oil, engine rpm and gear range. Also displays hour meter, odometer and analog tachometer readings. As a diagnostic system, it identifies conditions, shows current readings and plays back maximum or highest readings registered during recent operations.

3 Ignition key start/stop switch positioned for easy machine starting and stopping.

4 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.

5 Convenient pilot-operated blade controls allow for precise blade movement.

6 New 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.

7 Built-in storage space is designed to hold cups, lunch box, thermos and personal items.

8 Repositioned vents throughout the cab keep fresh air flowing while improving the cab's heating, cooling, defrost and defog capability.

Radio ready means this cab includes 12-volt converter (2-amp), speakers, antenna, all wiring and brackets for entertainment or communications radio installation.

Windshield washers/wipers with in-the-blade washer delivery system are standard features on front and rear windows. Front wiper has intermittent speed capability.

S-Blade

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



Does light production including dozing and spreads fill, backfills, stockpiles, charges hoppers, and cleans up around shovels and trucks.

Two levers at operator's right control dozer lift/tilt and tip.

Complete unit consists of 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 blade cylinders.

Complete Customer Support

Cat dealer services help you operate longer with lower costs.

Your Cat dealer offers a wide range of services that can be set up under a customer support agreement when you purchase your equipment. The dealer will help you choose a plan that can cover everything from machine and attachment selection to replacement, to help you get the best return on your investment.

Selection. Make detailed comparisons of the machines you are considering before you buy. How long do components last? What is the cost of preventive maintenance? What is the true cost of lost production? Your Cat dealer can give you precise answers to these questions.

Purchase. Look past initial price. Consider the financing options available as well as day-to-day operating costs. This is also the time to 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.

Operation. Improving operating techniques can boost your profits. Your Cat dealer has training videotapes, literature and other ideas to help you increase productivity.



Maintenance. More and 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 Scheduled Oil Sampling and Technical Analysis help you avoid unscheduled repairs. In addition to the servicing features built into the engine (see page 4), the 814F includes:

- Hinged doors for access to battery boxes.
- Diagnostic connector to analyze electrical functions quickly.
- Ground-level access to lubrication points.
- Hydraulic pressure taps for checking hydraulic pressures.

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

Product support. You will find nearly all parts at our dealer parts counter. Cat dealers utilize a world-wide computer network to find in-stock parts to minimize machine down time. Save money with remanufactured parts. You receive the same warranty and reliability as new products at cost savings of 40 to 70 percent.

Engine

Four-stroke cycle, six cylinder 3306 turbocharged aftercooled diesel engine.

Power rating

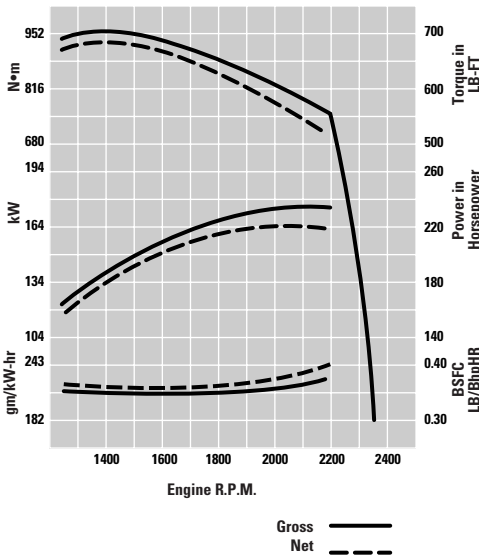
Ratings at 2200 rpm*	kW	hp
Gross power	175	235
Net power	164	220

The following ratings apply at 2200 rpm when tested under the specific standard conditions for the specified standard:

NET POWER	kW	hp	PS
ISO 1585	164	220	—
ISO 9249	164	220	—
ISO 3046-2	164	220	—
EEC 80/1269	164	220	—
DIN 70020	—	—	170

Dimensions

Bore	120.7 mm	4.75 in.
Stroke	152.4 mm	6.0 in.
Displacement	10.5 liters	638 cu in.



*Power rating conditions

- based on SAE J1349 standard conditions of 25°C (77°F) and 100 kPa (29.6")
- used 35° API, 16°C (60°F), gravity fuel
- fuel had LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F)
- fuel density of 838.9 g/L (7.001 lb/gal)
- flywheel power ratings are for engine equipped with fan, alternator, air cleaner, water pump, fuel pump, muffler, and lubricating oil pump
- no derating required up to 3000 m (9840 ft) altitude

Features

- direct-injection fuel system with individual adjustment-free injection pumps and valves
- 3-ring aluminum-alloy pistons, cam-ground, tapered and cooled by oil spray
- spiral ground, stellite faced valves
- tapered connecting rods
- one-piece cylinder head design with integrally cast intake manifold
- deep-skirted cast cylinder block
- induction-hardened, forged crankshaft
- gear driven water pump, air compressor and power steering pump
- direct-electric 24-volt starting and charging system with 12-volt, 100 amp-hour batteries
- standard ether starting aid
- standard oil cooler

Transmission

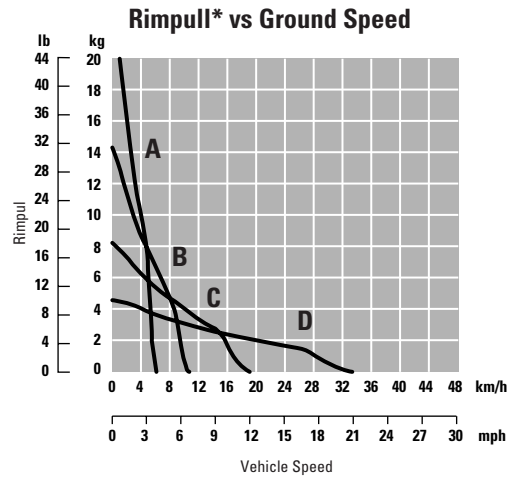
Planetary power shift transmission with four speeds forward and reverse.

Maximum travel speeds

		km/h	mph
Forward	1	5.6	3.5
	2	9.8	6.1
	3	17.2	10.7
	4	29.9	18.6
Reverse	1	6.3	3.9
	2	11.3	7.0
	3	19.6	12.2
	4	34.1	21.2

Features

- single lever to control both speed and direction
- single-stage, single-speed torque converter



*Usable pull will depend on weight and traction of equipped machine.

Note: speeds are calculated without rolling resistance.

Brakes

System meets OSHA regulations.

Service brake features

- fully enclosed hydraulic, oil-immersed multiple-disc brakes on rear and front
- self-adjusting with modulated engagement

Parking brake features

- dry drum parking brake acts on main driveline
- spring-applied, hydraulic-released

Secondary brake features

- uses parking brake
- automatically applies when hydraulic pressure drops below 6895 kPa/69 bar (1000 psi)
- CMS indicates parking brake pressure drop

Steering

Center-point articulated frame.

Minimum turning radius over wheels	6067 m	19' 11"
Minimum turning radius over blade	6423 m	21' 1"
Hydraulic pump output at 2092 RPM and 6900 kPa (1000 psi)	144 L/min	37 gpm
Relief valve setting	17 241 kPa/172 bar	2500 psi

Features

- full hydraulic, flow amplified system
- two 101.6 mm (4") bore, double acting cylinders powered by vane-type pump
- steering wheel-operated metering pump controls flow to steering cylinders
- full-flow filtering
- adjustable steering column
- front and rear wheels track

Axles

Front axle fixed, rear axle oscillates $\pm 12^\circ$.

Features

- maximum single-wheel rise and fall: 467 mm (18.4")
- differentials, enclosed brakes and final drives included
- threaded nuts to set bearings pre-load
- Duo-Cone Seals between axle and housing
- uses SAE 30W (oil change interval: 2000 hours or 1 year)

Hydraulic System

Vane pump output at 2092 rpm and 6900 kPa (1000 psi)	112 L/min	29 gpm
Relief valve setting	15 500 kPa	2248 psi
Lift cylinder bore x stroke	120.6 mm x 928 mm 4.7" x 36.5"	

Frame

Articulated frames fabricated from steel plate and rolled box sections.

Features

- front and rear frames coupled by two hardened steel pins
- each pin rides in two tapered roller bearings
- robotically welded for increased fatigue strength

Final Drives

Planetary final drives consist of ring gears and planetary carrier assemblies.

Features

- ring gears are pressed in and doweled to axle housings
- carrier assemblies include:
 - planet gears with full-floating bronze sleeve bearings
 - planet shafts
 - retaining pins
 - bearings
 - sun gear shafts
 - planetary carriers

Weight (approximate)

Operating, with full fuel tank, blade and operator, and without tire ballast and front counterweight

16 958 kg (37,308 lb)

Cab

Caterpillar cab and Rollover Protection Structure (ROPS) are standard in North America, Europe and Japan.

Features

- meets OSHA and MSHA limits for operator sound exposure with doors and windows closed (according to ANSI/SAE J1166 MAY 90)
- ROPS meets the following criteria:
 - SAE J394
 - SAE J1040 APR88
 - ISO 3471-1:1986
 - ISO 3471-1:1994
- also meets the following criteria for Falling Objects Protective Structure:
 - SAE J231 JAN81
 - ISO 3449:1992 Level II

Note

When properly installed and maintained, the cab offered by Caterpillar when tested with doors and windows closed according to ANSI/SAE J1166 MAY90, meets OSHA and MSHA requirements for operator sound exposure limits in effect at time of manufacture. The operator sound pressure level is 75 dB(A) when tested according to ISO 6394 or 86/662/EEC.

Blades

Straight Blade

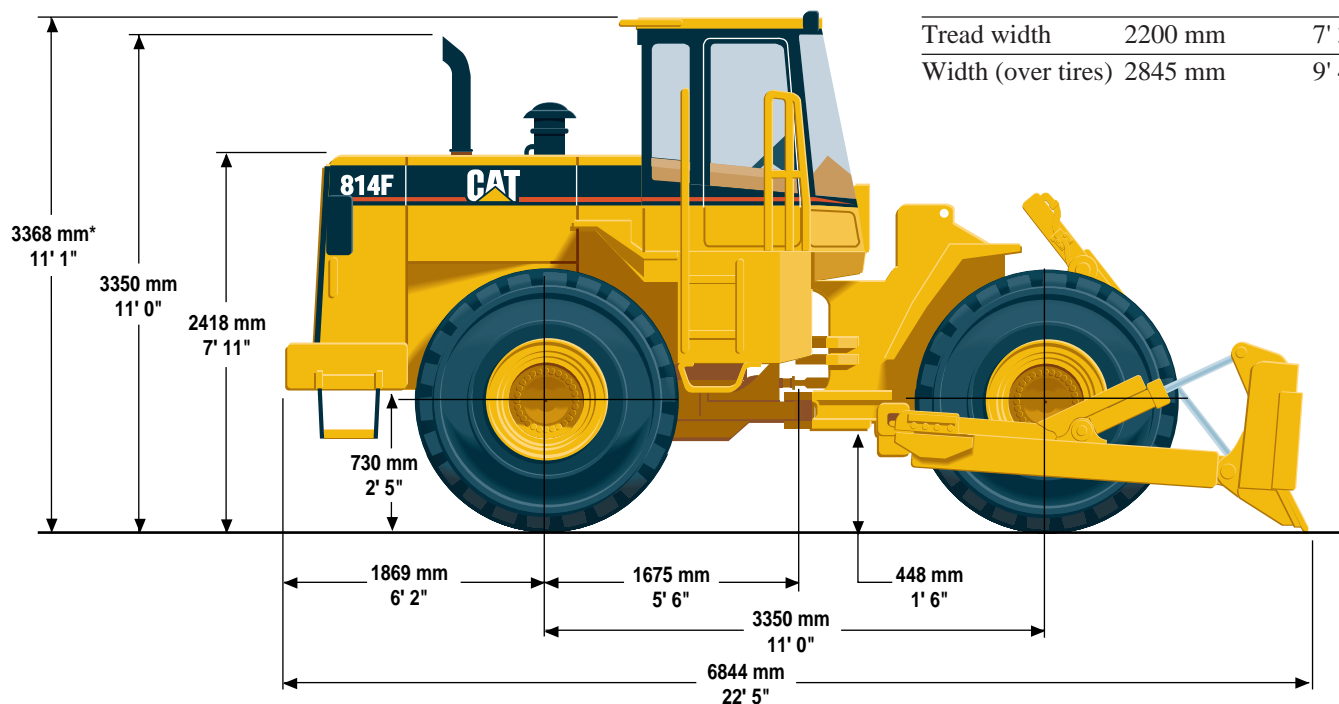
Length	3650 mm	12' 0"
Height	1004 mm	39.5"
Overall length including machine	6823 mm	22' 5"
Ground clearance below skid shoe, maximum	940 mm	37"
Depth of cut, maximum	460 mm	18.1"
Tilt adjustment (from horizontal)	747 mm	29.4"
Tip adjustment, maximum		18°
Moldboard material	heat-treated steel	
Construction	multiple box-section	
Cutting edges and end bits	heat-treated steel	
Skid plates, reversible	through-hardened DH-2 steel	

Service Refill Capacities

	L	Gallons
Fuel tank	464	122.6
Cooling system	66	17.2
Crankcase	28	7.3
Transmission	59	15.0
Differentials and final drives		
front	67	17.4
rear	66	17.2
Hydraulic system (including tank)	137	36.2
Hydraulic tank	87	23.0

Dimensions

All dimensions are approximate.



* Overall height increases 65 mm (2.56") with optional 26.5-25 L2 or L3 tires

Standard Equipment

Standard and optional equipment may vary. Consult your Caterpillar dealer for specifics.

Alternator, 50-amp	Gauges (coolant, transmission oil, and hydraulic oil temperatures, fuel level)	Seat, suspension (fully adjustable)
Back up alarm	Heater/defroster/pressurizer	Seat belt, retractable
Batteries (two 12-volt, 100 amp-hour)	Horn, electric	Sight gauge (for engine coolant and hydraulic tank)
Brake system (service, parking, secondary)	Hydraulic steering	Starting and charging system (24-volt)
Cab with sound suppressed, canopy and rollover protective structure (ROPS)	Indicators (engine air filter and service hour meter)	Windshield wiper/washer (front and rear), front intermittent
Coat hook	Key (single key for cab and access doors)	* Function analyzed Computerized Caterpillar Monitoring System
Computerized Caterpillar Monitoring System*	Lights (front and rear), halogen	Category I: Alternator and fuel level
Coolers (engine oil, hydraulic oil and transmission oil)	Lock (hydraulic implement control levers)	Category II: Coolant, hydraulic oil and transmission oil temperatures
Cup and thermos holders	Muffler	Category III: Engine oil and brake air pressures, parking brake engaged, low hydraulic oil level indicator
Diagnostic connector	Radiator, Multi-Row Modular	
Drawbar hitch pin	Radio ready cab	
Ether starting aid, canister not included	Rearview mirrors, interior	

Optional Attachments

(with approximate change in operating weight)

	kg	lb		kg	lb
Air conditioning	71	161	Engine coolant heater	3	7
Alternator (75 amp)	0	0	Fast oil change system	4	9
Blades, straight	2970	6549	Fuel heater	12	26
Cab removal	-177	-390	Guard, driveshaft	134	294
Counterweight, front	1700	3740	Mirrors, outside mounted	28	62
Differential, NoSPIN	-2	-4	Seat, air suspension	0	0

814F Wheel Dozer

AEHQ5189 (12-96)
(Replaces AEHQ5100)

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Materials and specifications are subject to change without notice.

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