

825G

Soil Compactor



Cat® 3406C Engine

Gross power	254 kW	340 HP
Flywheel power	235 kW	315 HP
Operating weight	31 740 kg	69,828 lb

825G Soil Compactor

Specifically designed for heavy duty compaction operations.

Wheels and Tamping Feet

Tamping foot design and chevron pattern give traction, penetration and compaction for high production. **pg. 4**

Top performance.

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

Reliable, durable operation.

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

Blade

Outside-mounted S-blade for fill spreading and other light production dozing. Operator controls blade with lever at operator's right. **pg. 5**

Power Train Components

Caterpillar® 3406C 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. 6-7**

Hydraulics

✓ *Innovative hydraulics* play a key role in the 825G performance and provide low operator effort. Increased flow rate results in faster hydraulics. Rugged XT-3 and XT-5 hose, O-ring face seals and large-bore cylinders carry on the tradition of reliable, high-performance Caterpillar hydraulics. **pg. 8**

Operator's Controls and Station

Experience a new level of efficiency with one-hand operation provided by ✓ *Command Control steering with integrated transmission controls*. Increased operator productivity and ✓ *comfort with low-effort implement controls, improved visibility*, increased roominess, greatly reduced sound levels, improved ventilation and easier entry and exit. **pg. 9-11**

Customer Support/Serviceability

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. 12-13**



✓ *New feature*

Wheels and Tamping Feet

The heart of any compaction system.



Modified chevron tamping foot design

provides greater pressure, more compaction, smooth ride, and excellent traction.

Symmetrical tamping foot design for equal compaction, forward or reverse.

Two cleaner bars per wheel keep drums free of carry-over dirt regardless of rolling direction, maximizing efficiency.

Blades

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



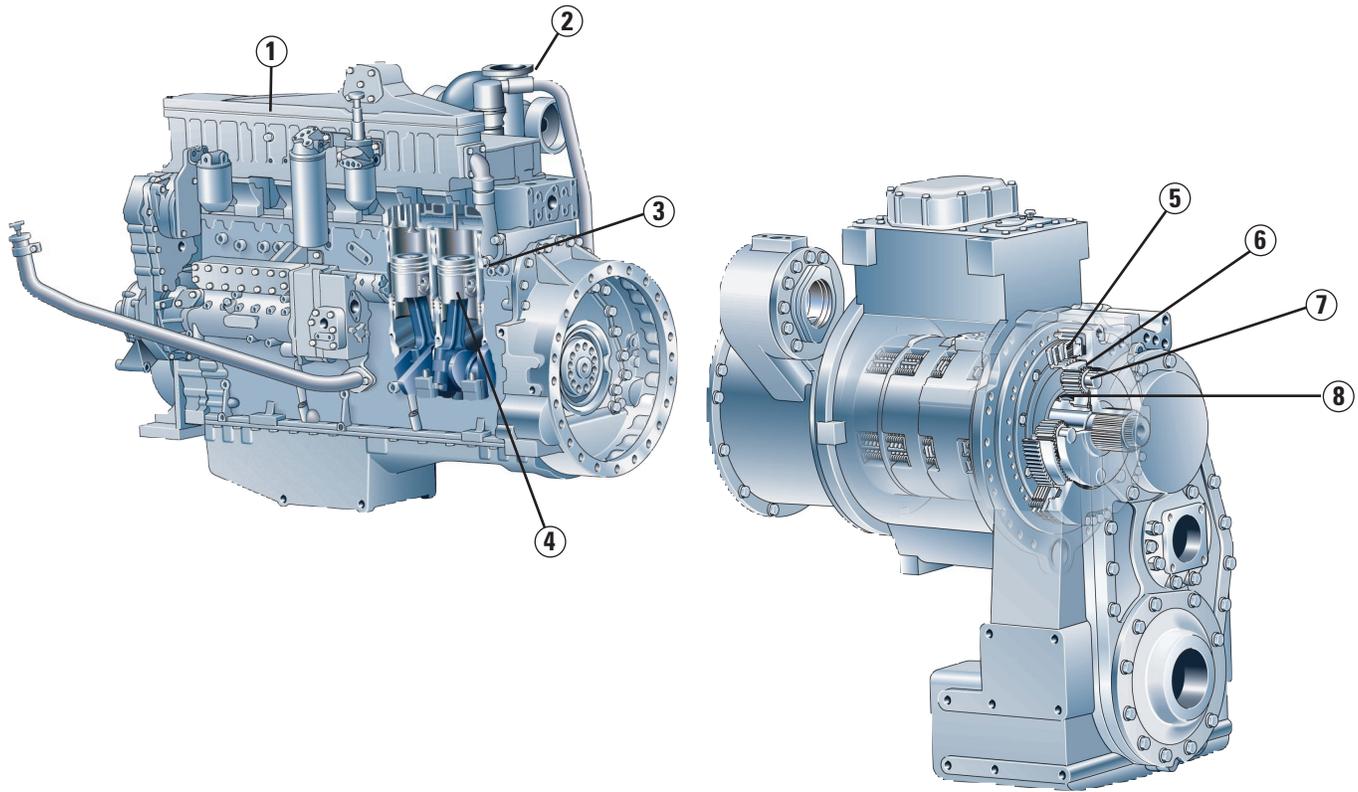
Does light production dozing and spreads fill, backfills, stockpiles, charges hoppers, and cleans up around trucks.

Lever at operator's right controls dozer lift, tilt and tip. (Note: blade controls vary with hydraulic options.)

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 lift cylinders.

Power Train

Cat power train delivers top performance and durability in tough applications.



Caterpillar 3406C engine

The six-cylinder, turbocharged and aftercooled 3406C engine is one of the most developed and proven engines offered by Caterpillar. It has a strong reputation for reliability, durability and performance. Thanks to redesigned pistons, cylinder head, turbo and aftercooler, it's now cleaner running, too.

- The 3406C delivers a full-rated net power of 235 kw (315 hp). High torque rise delivers performance you can feel. The result is more rimpull and faster cycle times.
- The four-stroke engine delivers fuel economy, durability and reliability in the most demanding conditions. Improved intake and combustion chamber designs help meet the latest emission standards.

- Resilient engine mounts dampen vibration for lower sound levels.

1 Aftercooler

2 Turbocharger

3 Cylinder liners

4 Oil-cooled pistons

Transmission

The Caterpillar planetary, power shift transmission features heavy duty components to handle the toughest jobs. Electronic controls provide features to enhance productivity, durability and serviceability.

- A heavy duty transmission, utilizing 432 mm (17") extreme service four planet drive components, is standard. The torque converter uses a high-capacity impeller to handle the engine's increased torque rise and power.

- The flywheel interface uses a long spline oil dam, and the pump drive and output transfer use high contact ratio gears to reduce sound levels.

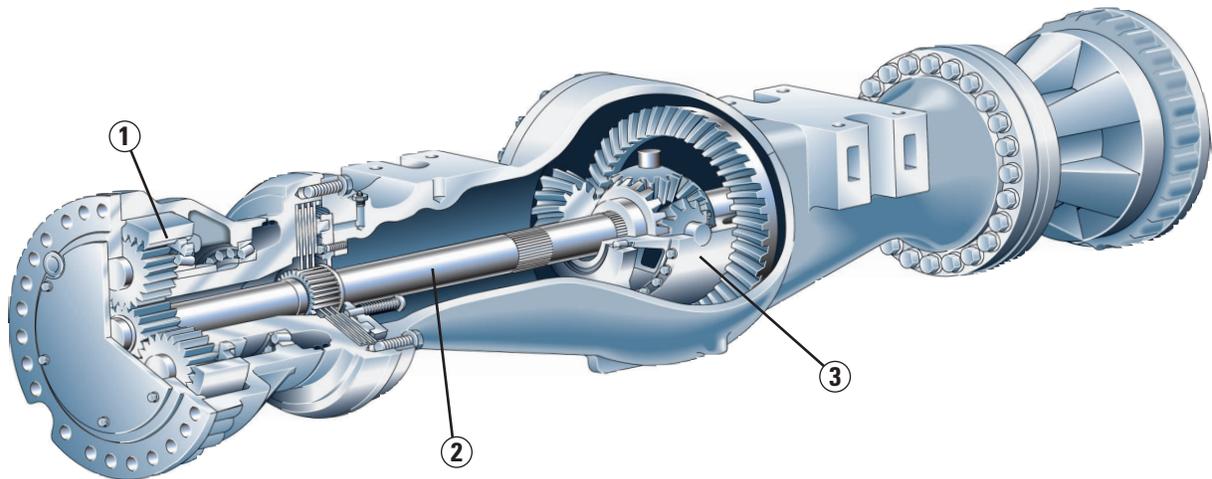
- Perimeter-mounted, large diameter clutch packs control inertia for smooth shifting and increased component life.

5 Clutch packs

6 Ring gear

7 Planet gears

8 Sun gear



Axles

Heavy duty axles feature stronger gears and bearings in both the differentials and final drives for increased durability. Permanently lubricated maintenance-free U-joints and redesigned final drives result in fewer parts and improved serviceability.

- Larger, shot peened gears and increased bolt capacity improve the durability of the standard differentials. Axle shafts are stronger and feature more splines to help spread the load.
- Redesigned spindles and final drives reduce the number of parts and greatly improve serviceability, allowing easier access to the Duo-Cone Seals without removing the center housing from the machine.

1 Final drives

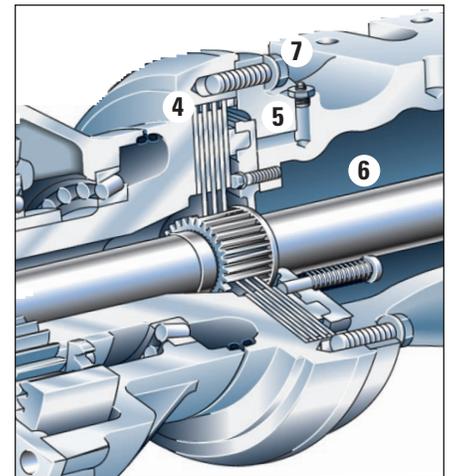
2 Axle shafts

3 Differential

Brakes

Oil-enclosed, multiple-disc brakes feature fewer parts, better heat rejection and improved serviceability. Fully hydraulic actuator circuits improve performance and reliability.

- Brakes operate on the low torque side of the final drive requiring less force. Improved axle oil circulation provides additional cooling to the brake discs. A combination of thicker reaction plates and improved cooling help improve durability.
- Fewer parts and the location of the brake discs improve serviceability by allowing technicians to remove the spindle, final drive and brake pack as one unit without disturbing the wheel bearings.
- Internal brake lines for increased reliability and performance.



4 Oil-cooled discs

5 Hydraulic piston

6 Increased brake oil flow

7 Service brake discs

Hydraulics

Well balanced hydraulics deliver precise low-effort control and trouble-free operation.



Revolutionary hydraulic system

provides low-effort implement control. Armrest-mounted levers send electrical signals to a pilot valve mounted on the front frame. This moves the noise, heat and effort caused by a hydraulic valve out of the operator's station.

Low-effort, Command Control steering

is another result of innovative design. A new mechanical feedback system and a redesigned valve ratio provide quarter-turn side-to-side steering. Unlike systems that rely on steering wheel velocity to activate steering cylinders, this system directly links steering wheel position to articulation angle. The benefit is precise control, quicker response and dramatically reduced operator motion and effort.

Positive-displacement hydraulic pumps

perform with high efficiency and great reliability. For improved serviceability, all hydraulic pumps are mounted on a single pump drive.

Caterpillar's XT-3 and XT-5 hose,

O-ring face seals and large capacity lift cylinder top off the hydraulic system, delivering the performance and durability owners expect. Reliable components reduce the risk of leaks and blown lines, helping protect the environment, and reduce operating costs.

Operator's Controls

A revolutionary way to operate with easy-to-use, low-effort controls.



One of the most exciting benefits of the 825G is the dramatic reduction in operator motion effort provided by Command Control steering, integrated transmission controls, low-effort implement controls and fully hydraulic brakes. These features combine to produce the easiest operating machine in its class.

1 Command Control steering allows one hand operation of steering and transmission controls. Quarter turn steering (left or right) from center achieves full articulation. Tilt and telescoping steering column help fit the machine to the operator.

2 Low-effort implement control lever requires very low operator effort and reduced travel. Adjust the armrest-mounted lever pod up and down, forward and back to find the most comfortable position.

3 Integrated transmission controls are part of the steering control design, providing one hand operation. Select forward, neutral or reverse with the three-position rocker switch. Use the thumb-operated upshift and downshift buttons for manual shifting.

Dual-pedal braking lets the left pedal function as a brake and as a transmission neutralizer. The right pedal functions as a regular brake. With the selectable neutralizer, the operator can maintain high engine RPM for full hydraulic flow.

Operator's Station

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



The 825G sets a new industry standard for operator station comfort and efficiency. It offers easier entry and exit, 65 percent more volume, improved visibility and reduced sound levels.

1 Internal ROPS improves visibility and styling, giving the 825G a sleek new look. Four large bolts attach the operator's station to the frame through isolated mounts, reducing vibration and sound levels for increased operator comfort and productivity.

2 Larger windows improve visibility in all directions. Bonded glass in the windshield eliminates distracting metal window frames and improves serviceability.

Downsloped hood also contributes to improved rearward visibility by allowing the operator to see objects on the ground closer to the machine.

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

3 Right and left rear-hinged doors provide a walk-through operator's station. Both doors can be fully opened. Improved ladders and platforms also make entry and exit easier.

4 Non-metallic floor is rust-proof and slopes to assist water drainage and clean-out.

Reduced sound level is the result of several new designs. The thick, non-metallic floor, removal of hydraulics from the cab, redesigned power train components and the separate cooling system all contribute to a very quiet work environment.

5 Increased storage space provides room for a lunch cooler, a thermos, a cup, coat hook and other personal items.

6 Caterpillar Contour Series seat is 6-way adjustable, providing comfort and support. The seat cushions reduce the pressure on the lower back and thighs, while offering unrestricted arm and leg movement. Air suspension adds to the overall comfort level by smoothing the ride over rough terrain.

7 825G Monitoring System provides gauges, tachometer/speedometer and 3-level warning to provide full time monitoring of key functions. The system alerts the operator of immediate or impending problems with engine oil pressure, parking brake, brake oil pressure, charging system, low fuel, hydraulic oil level, transmission filter and primary steering.

8 Improved ventilation ducts and vents, in better locations, provide more air flow to the operator and the windows.

9 Optional air-conditioning uses blended air for immediate temperature changes, clears windows with ease and improves operator comfort. The system is located out of the way behind the operator's seat and uses environmentally safe R134a refrigerant.

10 Dual-pedal braking

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.

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.

Serviceability

Keep your machine up and running with easy-to-perform daily maintenance.



Daily maintenance has never been more accessible than on the 825G. Lockable, ground level service doors give quick access to engine oil fill and dipstick, coolant sight gauge, grease fittings for the rear frame, relay panel and electrical breakers. All four maintenance-free batteries are secure in a built-in battery box in the right rear frame. U-joints are lifetime lubricated, leaving the slip joint as the only driveline component needing grease.

Sloped hood tilts for complete access to the engine, cooling system and other major components. An electric screwjack tilts the hood up to 75 degrees. If needed, the whole hood enclosure removes quickly and easily by pulling three pins and one harness connector. Lift it off by using the three built-in lifting points.

Scheduled maintenance points are well within reach. An air filter service indicator is visible from the cab or platform, with the air filter reachable from the left platform and the engine oil filter from the rear platform. Removable treadplates in the platform give access to less commonly serviced components.

Separated cooling system isolates the fan and radiator away from the engine for a quieter running machine. The oil cooler and air-conditioning condenser swing away for easy cleaning. Individual Multi-Row Modular core reduces time to repair or replace the radiator.

825G Monitoring System provides diagnostics, allowing technicians to review a machine's operation and quickly troubleshoot problems. Display operating parameters, diagnostic codes and out-of-range gauge readings through the diagnostic connector. The 825G also provides pressure taps for easy hydraulic system checks.

Operator's station may be removed or replaced in about 45 minutes without having to disconnect hydraulic lines. Machines equipped with air-conditioning feature quick-disconnect couplings which allow fast disconnect of the air conditioning unit without releasing the refrigerant.

Engine

Four-stroke cycle, six cylinder 3406C turbocharged and aftercooled diesel engine.

Ratings at 2100 RPM*	kW	HP
Gross power	254	340
Net power	235	315

The following ratings apply at 2100 RPM when tested under the specific standard conditions for the specified standard:

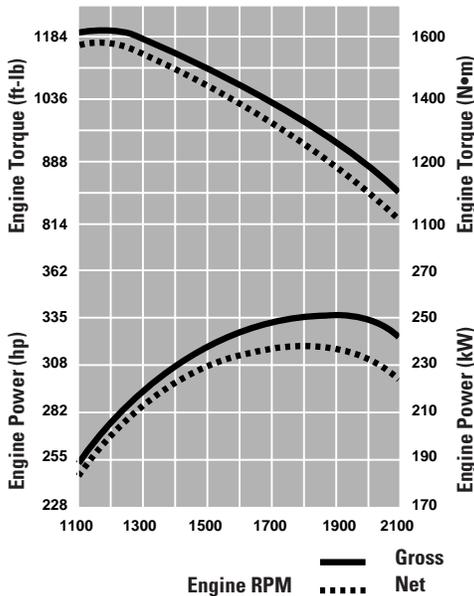
NET POWER	kW	HP	PS
ISO 2288	235	315	—
ISO 3046-2	235	315	—
ISO 9249	235	315	—
SAE J1349	233	312	—
EEC 80/1269	235	315	—
DIN 70020	—	—	327
ISO 1585	233	315	—
ISO 8665	233	315	—

Peak torque (net) @ 1200 RPM

	1636 Nm	1207 lb-ft
Torque rise		53%

Dimensions

Bore	137 mm	5.4 in
Stroke	165 mm	6.5 in
Displacement	14.6 liters	893 cu in



*Power rating conditions

- based on standard air conditions of 25°C (77°F) and 99 kPa (29.32 in Hg) dry barometer
- used 35° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 30°C (86°F) [ref. a fuel density of 838.9 g/L (7.001 lb/gal)]
- net power advertised is the power available when the engine is equipped with alternator, air cleaner, muffler and hydraulic fan drive
- no derating required up to 2300 m (7500 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
- steel-backed, copper-bonded aluminum bearings
- high carbon steel alloy crankshaft with hardened journals
- pressure lubrication with full-flow, filtered oil and heat exchanger oil cooler
- dry-type air cleaner with primary and secondary elements with automatic dust ejector and service indicator
- direct-electric 24-volt starting and charging system with ether starting aid (ether canister not included)

Transmission

Planetary power shift transmission with two speeds forward and reverse.

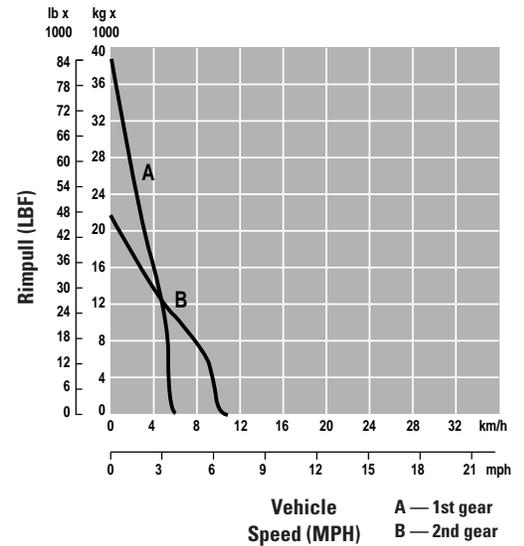
Maximum travel speeds

		km/h	MPH
Forward	1	6.3	3.9
	2	11.2	6.9
Reverse	1	7.5	4.7
	2	13.5	8.4

Features

- integrated controls in steering wheel for both speed and direction
- single-stage, single-phase torque converter
- separate lock to keep transmission in neutral

Rimpull* vs. Ground Speed



Steering

Full hydraulic power steering.

Features

- center-point frame articulation
- front and rear wheels track
- hydraulic power with flow-amplified system
- steering-wheel operated pilot valve controls flow to steering cylinders
- full-flow filtering
- adjustable steering column
- steering angle $\pm 42^\circ$

*Usable pull will depend on weight and traction of equipped tractor.
Note: Speeds are calculated without rolling resistance

Wheels

Drum width	1125 mm	3' 8"
Diameter	1295 mm	4' 3"
Feet per wheel	65	
Rows per wheel	5	
Feet per row	13	
Foot length	203 mm	8"
End area per foot	192 m ²	29.75 in ²

Hydraulic System

Vane pump output at 2100 RPM and 6900 kPa (1000 psi)	76 L/min	19.76 gpm
Relief valve setting	24 100 kPa	3500 psi
Lift cylinder bore x stroke	95.25 mm x 711 mm	3.75" x 28.0"

Axles

Fixed front, oscillating rear ($\pm 10^\circ$).

Features

- conventional differential is standard in front
- free-floating axle shafts can be removed independently from wheels and planetary final drives

Brakes

Meets the following standards: OSHA, SAE J1473 DEC84, ISO 3450-1985.

Service brake features

- brakes located on two front wheels with stopping capability provided to all four wheels through full-time all-wheel driveline
- completely enclosed
- self adjusting with modulated engagement
- two brake pedals allow standard braking with right pedal and transmission neutralization braking with left pedal
- ease of service by unbolting spindle joint to expose brake components

Parking brake features

- spring applied, oil-released, dry drum brake
- mounted on transmission output shaft driveline for manual operation
- electronic monitoring system alerts operator if transmission is engaged while parking brake is applied

Secondary brake features

- electronic monitoring system alerts operator if pressure drops and automatically applies parking brake
- operator can apply manually

Final Drives

All-wheel drive.

Features

- planetary reduction at each wheel
- torque developed at the wheel, less stress on the axle shafts
- planetary units can be removed independently from the wheels and brakes

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 1040 APR88
 - ISO 3471-1986
- also meets the following criteria for Falling Objects Protective Structure:
 - SAE J231 JAN81
 - ISO 3449-1984

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.

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

Blades

Straight Blade

Height	991 mm	3' 3"
Moldboard length	4410 mm	14' 5"
Height, including cutting edge	1034 mm	3' 4"
Maximum depth of cut	312 mm	1' 0"
Maximum lift above ground	932 mm	3' 1"
Blade tip angle:		
Total		13.5°
Forward		6.9°
Back		6.6°
Blade tilt angle:		
Right — mechanical		4.3°
Left — mechanical		4.3°
Right — hydraulic		5.6°
Left — hydraulic		5.6°
Right full		10°
Left full		10°
Total tilt adjustment	787 mm	2' 6"
Width over end bits	4535 mm	14' 9"

Weight (approximate)

Operating, with ROPS cab, full fuel tank, coolant, lubricant, blade and operator 31 740 kg (69,828 lb)

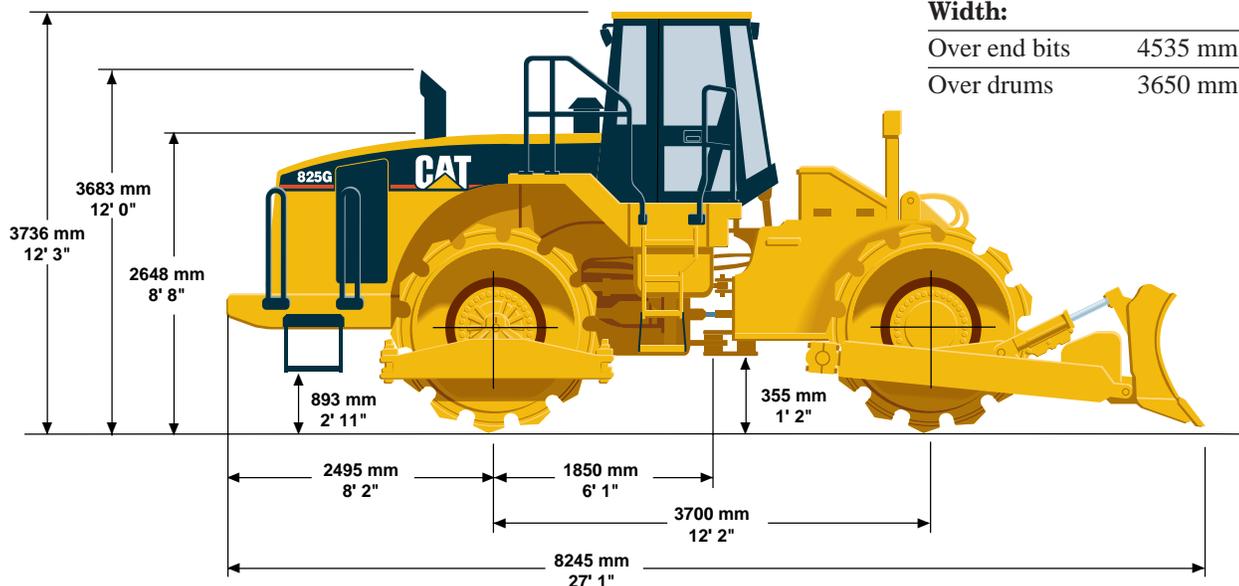
Note: Optional equipment weight varies.

Service Refill Capacities

	L	Gallons
Fuel tank	630	166.5
Cooling system	81	21.4
Crankcase	34	9.0
Transmission	62	16.4
Differentials and final drives		
front	90	23.8
rear	90	23.8
Hydraulic system (including tank)		
	N/A	
Hydraulic tank	88	23.2

Dimensions

All dimensions are approximate.



Width:

Over end bits	4535 mm	14' 9"
Over drums	3650 mm	12' 0"

Standard Equipment

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

Electrical

- 50-ampere alternator
- Back up alarm
- Electric starter (heavy duty)
- External lighting system (front and rear)
- Maintenance-free batteries
- Master disconnect, lockable
- Starting receptacle for emergency starting
- Starting and charging system diagnostic connector

Operator environment

- Air suspension seat with head rest
- Cigar lighter (24-volt)
- Dome lights, two (cab)
- Electric horns
- Electro-hydraulic implement controls
- Gear selection display
- Heater and defroster
- Hour meter display
- Implement system lock
- Integrated ROPS structure

Monitoring system

- Gauges:
 - brake oil pressure
 - engine coolant temperature
 - fuel level
 - hydraulic oil temperature
 - speedometer
 - tachometer
 - transmission oil temperature
- Radio-ready cab for entertainment or 2-way radio (3-point mounting)
- Rearview mirrors (interior and exterior mounted)
- Retractable seat belt, 76 mm (3") wide
- Sound-suppressed pressurized cab
- Steering, pilot operated
- Wet-arm wiper/washers (front and rear)

Power train

- Cat 3406C DITA direct injected turbocharged and aftercooled diesel engine with 24-volt direct electric starting system

- Engine air intake precleaner
- Ether starting aid
- Fuel priming aid
- Full hydraulic, enclosed, wet multiple-disc brakes
- Hydraulically driven automatically reversible radiator fan
- Multi row module radiator
- Planetary power shift transmission with full speed range control
- Sound suppressed muffler
- Torque converter
- Transmission neutralizer on/off switch

Other standard equipment

- Drawbar hitch with pin
- Hydraulic oil cooler
- Locking engine enclosures
- Power tilt engine enclosure
- Vandalism protection caplocks

Wheels

- Tamping foot wheels with wheel cleaners

Optional Equipment

With approximate changes in operating weights.

	kg	lb	
Air conditioning	46.6	103	Field installed attachments:
Blades, straight	5149	11,353	Fast fill systems:
Differentials, NoSPIN, front	1	2	Fuel
Fast fill system:			Oil
Fuel	4	9	Heater, engine coolant
Oil	1.2	2.6	Light, warning, rotating beacon
Heater, engine coolant	1.8	4	Radio, AM/FM, cassette
Mirrors, outside mounted	28	62	Tool box, locking, waterproof
Sound suppression	103	227	Tool kit

825G Soil Compactor

AEHQ5104-01 (8-98)
(Replaces AEHQ5104)

© 1998 Caterpillar
Printed in U.S.A.

Materials and specifications are subject to change without notice.

CATERPILLAR[®]