CS-663E
CP-663E
CS-683E

Vibratory Soil Compactors

Cat® 3056 ATAAC Turbocharged Diesel Engine	
Gross Power	134 kW/179 hp
Compaction Width	2134 mm
Operating Weight (with ROPS/FOPS cab)	
CS-663E	17 100 kg
CP-663E	16 800 kg
CS-683E	18 800 kg

Reliability, Serviceability and Comfort in a Durable Package

The CS-663E, CP-663E and CS-683E Soil Compactors have been designed to offer enhanced production capabilities, simplified service and exceptional operator comfort.

Engine

✔ *Cat 3056 ATAAC Turbocharged Diesel* Engine delivers 134 kW (179 hp) and is built for performance and reliability without sacrificing fuel economy. **pg. 4**

Dual Propel Pumps

The exclusive dual pump propel system provides a separate balanced hydraulic flow to both the rear drive axle and the front drum drive motor. This system enables the operator to achieve superior gradeability and maintain machine control while compacting on a grade. Dual pumps also minimize drum and wheel spin-out in loose underfoot conditions. **pg. 4**

Setting industry standards... again.

Based upon the industry-proven reputation of the Caterpillar D-Series Soil Compactors, the new E-Series establishes new standards for productivity, comfort and serviceability in the soil compaction industry.

✔ *New feature*

Vibratory System
Pod-style weight housings ensure peak vibratory performance and minimal service. Pods are replaceable and feature bearing lubrication change intervals of 3 years/3000 hours. **pg. 5**

Visibility
✔ *The one-piece sloped hood design provides exceptional operator visibility to the outside edge of the rear tires and to the rear of the machine.* **pg. 6**

Operator's Station
Based on the successful Cat® G-Series Wheel Loader operator's station, the E-Series Soil Compactors feature excellent operator comfort and visibility. A tilting steering column, propel lever wrist rest, grouped control gauges and conveniently located control switches enhance operator productivity and reduce fatigue. Four heavy-duty isolation mounts provide a smooth ride. **pg. 6**

Cab
The cab on the E-Series Soil Compactors is engineered to provide the operator unparalleled viewing area and comfort. Integrated, factory installed air conditioning is an option. The cab may be an option in some areas and standard in others. Consult your dealer. **pg. 6**

Serviceability
✔ *The newly designed one-piece fiberglass hood tilts forward to allow access to the engine and daily maintenance points.*
✔ *A ground level lockable service door provides convenient access to the fuel*
✔ *fill port. Steps to the operator platform swing-out for easier access and replacement of the hydraulic oil filters.*
The operator's station tilts forward to provide access to the hydraulic pumps. **pg. 7**

Caterpillar® 3056 ATAAC Turbocharged Diesel Engine

Industry-proven Caterpillar technology designed to provide unmatched performance, reliability and fuel economy.

Turbocharged-Air-to-Air Aftercooled for top performance and efficiency especially at high altitudes – up to 2500 meters without derating.

Direct injection-rotary fuel pump provides accurate fuel delivery.

Highly-efficient combustion chamber increases power while lowering fuel consumption, engine emissions and noise.

Low cylinder pressure rise and low peak pressure provide outstanding reliability and durability.

Large oil cooler reduces oil deterioration and varnishing of internal parts.

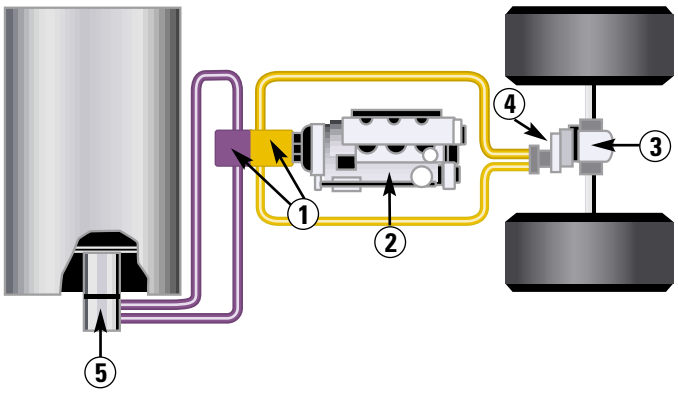
Low-mounted oil pump for quicker start-up lubrication.

Meets all known current worldwide engine emissions standards.

Thermal starting aid is standard.

Dual Pump Propel System

Superior tractive effort and gradeability for outstanding productivity in demanding environments.



Dual propel pumps provide separate, balanced flow to the rear wheel axle and the drum drive motors to help prevent spin-out in soft material; improves gradeability.

Limited slip differential provides balanced tractive effort to both rear wheels.

Two speed ranges for versatile operation. Low speed range for vibratory operation and maximum torque when grade climbing. High speed range moves machine quickly over longer distances.

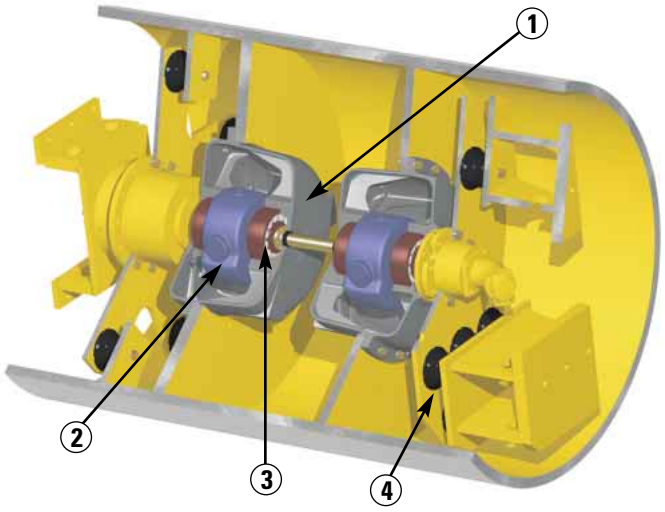
Flushing valves in each propel circuit helps keep hydraulic oil cool and clean.

High travel speed up to 12.2 km/h.

1 Dual Propel Pumps
2 Caterpillar 3056ATAAC Engine
3 Limited Slip Differential
4 Rear Wheel Drive Motor
5 Drum Drive Motor

Vibratory System

The pod-style weight system, proven reliable on D-Series Soil Compactors, delivers superior compactive force while offering serviceability advantages.



1 Pod-style Weight Housings
2 Patented Eccentric Weights
3 Heavy-duty Bearings
4 Isolation Mounts

Pod-style weight housings are assembled and sealed at the factory to ensure cleanliness, longer bearing life and easier field exchange or service.

Dual amplitude works efficiently in a wider range of applications. Changeable from the operator's station.

Vibratory Frequency of 30 Hz for maximum compaction results.

Large heavy-duty bearings for the eccentric weight shaft allow higher frequency for greater force.

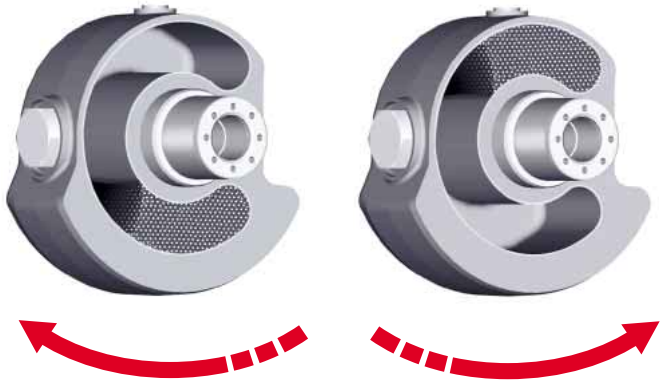
3 year/3000 hour vibratory bearing lube service interval for reduced maintenance.

Improved isolation mounts allow more force to be transmitted to the ground and less vibration to the operator.

Patented Eccentric Weights

Reliable dual amplitude selection and innovative design ensure precise performance.

High Amplitude **Low Amplitude**



Simplified control from the operator's station with a selection switch on the operator's console.

Positive amplitude selection is accomplished when the spherical steel shot is repositioned inside the hollow eccentric weight. Direction of weight shaft rotation determines amplitude.

Improved reliability no chance of shot wedging together. System reliability is superior to swinging mechanical weights.

Longer service life no heavy weights to slam together, no metal fragments to contaminate the bearing system.

Operator's Station

Ergonomically designed for maximum operator productivity. Optional cab offers excellent visibility and unmatched comfort.

Single lever control for propel and vibratory On/Off provides simple and low effort operation. Padded adjustable wrist rest helps reduce operator fatigue.

Steering console and operational gauges are infinitely adjustable within the tilt range to the desired position of the operator. Entire console tilts for simple entrance and exit.

Full-length glass windshield provides exceptional visibility to the drum and articulation area.

Comfortable and durable seat is fully adjustable to include fore/aft position, bottom cushion height, suspension stiffness and flip-up arm rests. A five position-rotating seat is standard on machines equipped with a cab.

Isolated operator's station with four heavy-duty rubber mounts reduce machine vibration transmitted to the operator.

One-Piece Hood Design

The new one-piece fiberglass hood design provides excellent service access and exceptional operator visibility.

The sloped hood allows the operator to see obstacles measuring 1 meter high located 1 meter to the rear of the machine. Visibility in front of the machine is equally as good. Excellent for working near obstructions or when maneuvering around the job site.

One-piece fiberglass hood tilts forward to provide unrestricted access to the engine and all service points.

Electric actuator lifts the hood with the flip of a switch located at the rear of the machine.

Low sound levels for the operator and the ground crew due to the one-piece hood design and the rear-mounted remote cooling package.

Serviceability

Simplified service access, extended service intervals and convenient daily inspection area minimizes maintenance time and increases work time.

Swing-out steps allows access to hydraulic oil filters for easier access and replacement.

Visual indicators allows easy check of radiator coolant, hydraulic oil tank and filters, and air restriction indicator.

One piece fiberglass hood tilts forward with an electric actuator for access to the engine and cooling system. Service points are accessible from ground level and are grouped on one side of the engine.

Operator's station tilts forward to allow convenient access to the hydraulic pumps.

Sealed-for-life bearings in the articulation hitch never need to be greased.

3 year/3000 hour vibratory bearing lube service interval for reduced maintenance.

Quick connect hydraulic test ports simplify system diagnostics.

Electrical wiring is color-coded and numbered to simplify troubleshooting.

Nylon braided wrap and all-weather connectors ensure electrical system integrity.

Maintenance-free Caterpillar batteries are protected by bolt-on covers in the rear of the machine on both sides. Caterpillar batteries are specifically designed for maximum cranking power and protection against vibration.

Scheduled Oil Sampling (S•O•S) ports allow for simple fluid collection.

Factory Reman parts are a cost-effective and reliable solution to keep your machines productive. Caterpillar offers a large choice of Reman components.

Ground level service door provides convenient access to the lockable fuel fill port.

The one piece fiberglass hood tilts for exceptional access to the engine and cooling system. Service points are accessible from ground level and are grouped on one side of the engine.

Engine

Four-stroke cycle, six cylinder Caterpillar® 3056 ATAAC turbocharged low emissions diesel engine.

Ratings at 2200 rpm	kW	hp
Gross power	134	179
Net Power		
EEC80/1269	123	165
ISO 9249	123	165

Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator. No derating required up to 2500 m altitude. Above ratings apply at 2200 rpm when tested under the specified standard conditions.

Dimensions

Bore	100 mm
Stroke	127 mm
Displacement	6.0 Liters

Dual-element, dry-type air cleaner with visual restriction indicator.

Operator and Machine Protective Equipment

Roll Over Protective Structure/Falling Object Protective Structure (ROPS/FOPS) canopy is a four-post structure that bolts directly onto flanges welded to the operator platform. The structure meets ISO 3449-1998. This structure may be an option in some areas and standard in others. Consult your dealer.

Backup Alarm – 112 dB(A) alarm sounds whenever the machine is in reverse. The backup alarm has three sound levels that can be changed with a switch located on the alarm.

Seat Belt – 76 mm wide seat belt is standard.

Transmission

Two variable displacement piston pumps supply pressurized flow to two dual displacement piston motors. One pump and motor drives the drum propel system while the other pump and motor drives the rear wheels. The two-pump system ensures equal flow to the drive motors regardless of the operating conditions. In case the drum or wheels lose traction, the other motor can still build additional pressure to provide added torque.

The drive motors have two swashplate positions allowing operation at either maximum torque for compaction and gradeability or greater speed for moving around the job site. A toggle switch at the operators console triggers an electric over hydraulic control to change speed ranges.

Speeds (forward and reverse):

Low Range	
CS-663E/CS-683E	6.0 km/h
CP-663E	6.1 km/h
High Range	
CS-663E/CS-683E	12.1 km/h
CP-663E	12.2 km/h

Vibratory System

Drum diameter (over drum)	
CP-663E	1295 mm
CS-663E/CS-683E	1524 mm
Drum diameter (over pads)	
CP-663E	1549 mm
Drum width	2134 mm
Drum shell thickness	40 mm
Pads (CP-663E only)	
Number of pads	140
Pad height	127 mm
Pad face area	89.4 cm^2
Number of chevrons	14
Eccentric weight drive	Hydrostatic drive
Frequency	30 Hz

Nominal Amplitude

High	1.8 mm
Low	0.9 mm

Centrifugal Force at 30 Hz

Maximum	332 kN
Minimum	166 kN

Weight at Drum (with ROPS/FOPS cab)

CP-663E	11 300 kg
CS-663E	11 600 kg
CS-683E	13 300 kg

Linear Force*

Static	
CP-663E	50.5 kg/cm^2
CS-663E	54.4 kg/cm
CS-683E	62.3 kg/cm
Centrifugal	
CP-663E	1.49 kN/cm^2
CS-663E/CS-683E	1.56 kN/cm

* Meets NFP 98736 class: VM5

Steering

A priority-demand hydraulic power-assist steering system provides smooth low-effort steering. The system always receives the power it needs regardless of other hydraulic functions.

Minimum turning radius	
Inside	3.68 m
Outside	5.81 m
Steering angle	
(each direction)	± 34°
Oscillation angle	
(each direction)	± 15°
Hydraulic system	
Two 76 mm bore, double-acting cylinders powered by a gear-type pump.	

Final Drives and Axle

Final drive is hydrostatic with gear reducer to the drum and hydrostatic with differential and planetary gear reduction to each wheel.

Axle
Heavy-duty fixed rear axle with a limited slip differential for smooth and quiet torque transfer. Axle width: 1.67 m

Tires
CS-663E/CS-683E:
587x 660 mm 12-ply flotation
CP-663E:
587 x 660 mm 12-ply traction

Brakes

Service brake features
Closed-loop hydrostatic drive system provides dynamic braking during operation.

Secondary brake features*
Spring-applied/hydraulically-released multiple disc type brake mounted on the drum drive gear reducer and within the rear axle. Secondary brakes are activated by: a button on the operator's console; loss of hydraulic pressure in the brake circuit; or when the engine is shut down. A brake interlock system helps prevent driving through the secondary brake.

* Braking system meets EN500-1995.

Frame

Fabricated from heavy gauge steel plate and rolled sections and joined to the drum yoke at the articulation pivot. Articulation area is structurally reinforced and joined by hardened steel pins. Two vertical pins provide a steering angle of ± 34° and a horizontal pin allows frame oscillation of ± 15°. Sealed-for-life hitch bearings never need greasing or shimming.

Electrical

The 24-volt electrical system consists of two maintenance-free Cat batteries, color-coded and numbered wiring wrapped in nylon braid. The starting system provides 750 cold cranking amps (cca). The system includes a 55-amp alternator.

Instrumentation

Alternator Light, Hour Meter, Fuel Gauge, Horn, Audible Warning Horn for the: Engine Oil Pressure Light, Engine Coolant Temperature Light, Hydraulic Oil Temperature Light, Low Charge Pressure Light.

Operating Weights

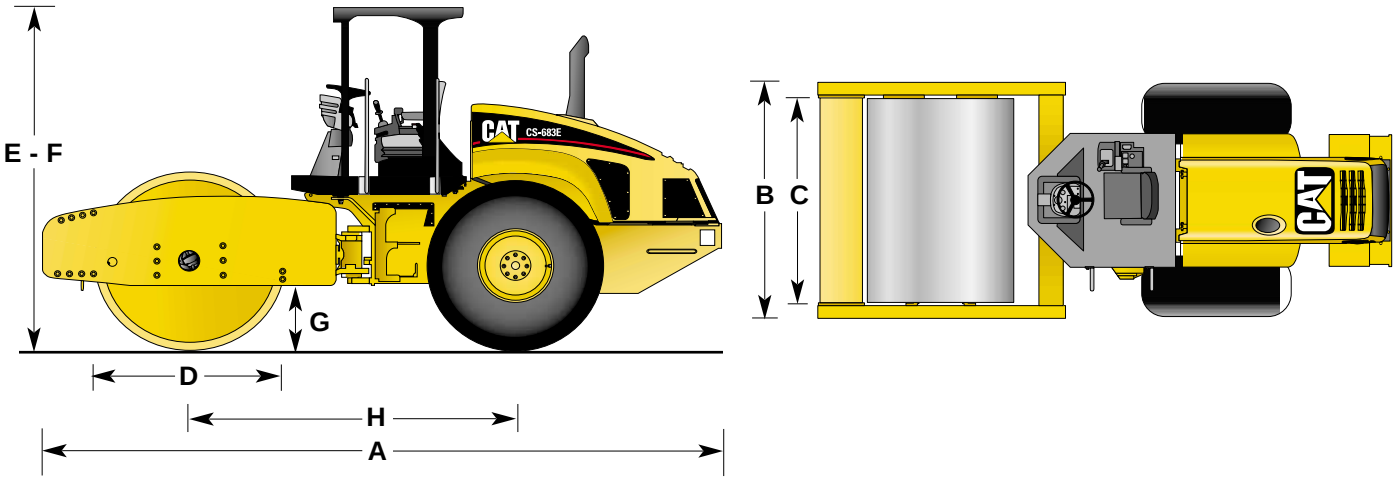
Weights include lubricants, coolant, full fuel and hydraulic tanks and a 80 kg operator.

Machine Weights	CS-663E kg	CP-663E kg	CS-683E kg
with open platform	16 400	16 200	18 200
with ROPS/FOPS canopy	16 700	16 500	18 500
with ROPS/FOPS cab	17 100	16 800	18 800
Weight at drum			
with open platform	11 360	11 100	13 100
with ROPS/FOPS canopy	11 470	11 200	13 200
with ROPS/FOPS cab	11 600	11 300	13 300

Service Refill Capacities

	Liters
Fuel tank	300
Cooling system	35
Crankcase	14
Vibratory bearing lube	24
Differential and final drives	28
Hydraulic system	80
Filtration system (pressure type)	
Propel	15 micron absolute
Vibratory	15 micron absolute

Dimensions



		CS-663E	CP-663E	CS-683E
A	Operating length	6.00 m	6.00 m	6.00 m
B	Max. machine width	2.36 m	2.36 m	2.46 m
	Outside turning radius	5.81 m	5.81 m	5.81 m
	Inside turning radius	3.68 m	3.68 m	3.68 m
C	Compaction width	2.13 m	2.13 m	2.13 m
D	Drum diameter	1524 mm	1295 mm	1524 mm
	Drum diameter over pads	–	1549 mm	–
E	Height at ROPS/FOPS canopy	3.02 m	3.10 m	3.02 m
F	Height at ROPS/FOPS cab	3.02 m	3.10 m	3.02 m
G	Ground clearance	525 mm	525 mm	525 mm
H	Wheelbase	2.90 m	2.90 m	2.90 m

Total Customer Support System

Parts availability – most parts on dealer's shelf when you need them. Computer-controlled, emergency search system backup.

Parts stock lists – dealer helps you plan on-site parts stock to minimize your parts investment while maximizing machine availability.

Machine management services – effective preventive maintenance programs, cost-effective repair options, customer meetings, operator and mechanic training.

Remanufactured parts – pumps and motors, engines, fuel system and charging system components available from dealer at 20 - 50% of new part cost.

Service capability – dealer's shop or fast field service by trained technicians using latest tools and technology.

Literature support – easy-to-use parts books, operation and maintenance manuals and service manuals to help you get maximum value from your Caterpillar equipment.

Flexible financing – your dealer can arrange attractive financing on the entire line of Caterpillar equipment. Terms structured to meet cash flow requirements. See how easy it is to own, lease or rent Cat equipment.

Optional Equipment

Some options listed may be an option in some areas and standard in others. Consult your dealer.

Roll Over Protective Structure/Falling Object Protective Structure (ROPS/FOPS) canopy is a four-post structure that bolts directly onto flanges welded to the operator platform. The structure meets ISO 3471-1994.

ROPS/FOPS Cab includes a cloth seat that rotates to five positions, one access door, tinted safety glass windows, electric wipers front and rear, heater/defroster, two vertically sliding side windows for ventilation, two exterior rear view mirrors, two front and two rear working lights, interior dome light and coat hook. Cab is fully EROPS rated and meets ISO 3449-1992 and ISO 3471-1994.

Rotating Seat has five positions to provide improved operator comfort when operating in the reverse direction.

Air Conditioning integral system provides operator comfort for cab configurations working in higher ambient temperatures.

Sun Visor for the front windshield can be installed on machines equipped with a ROPS/FOPS cab.

Roll-Down Sun Screen for the rear window can be installed on machines equipped with a ROPS/FOPS cab.

Rear View Mirrors are available for internal use on machines equipped with a ROPS/FOPS cab or external use on machines equipped with a ROPS/FOPS canopy.

Operator Platform/Cab Lift Cylinder is available and provides a hydraulic cylinder to raise and lower either the operator platform or cab.

Vibratory Tachometer is mounted on the console in front of the operator and displays the actual vibratory system frequency. Most useful when ordering the variable frequency option.

Engine Tachometer displays engine speed (rpm) on an analog dial. Available as a Custom Shop Order (CSO).

Variable Frequency is an electronic displacement control on the vibratory pump that is controlled by a frequency dial on the operator's station. Engine rpm remains unchanged for maximum hydraulic pump flow and torque to drive the vibratory motor. Frequency range from 23.3-30 Hz makes it easier to match frequency, amplitude and working speed to job conditions.

Recording Module provides a visual gauge for reading work time, machine speed, distance covered and amplitude selection.

Compaction Indicator provides a single display indicating material density on a LED panel. Integral LCD display shows travel speed and compaction meter value. Available as a Custom Shop Order (CSO), ROPS/FOPS cab recommended.

Compaction Meter Group assists the operator in determining compaction of material. Consists of a frequency gauge, a compaction value gauge and resonance value gauge. Available as a Custom Shop Order (CSO).

Working Light Package for machines equipped with a ROPS/FOPS canopy. Illuminates immediate work area under dim or dark conditions. Consists of two front and two rear flood lights. This system is intended for use under working conditions and not for highway transport purposes.

Rotating Beacon includes an amber beacon and mount that can be attached to machines with ROPS/FOPS canopy or ROPS/FOPS cab.

Brake Release Pump is available and allows the manual release of the secondary brake system for towing the machine.

Transmission Guard consists of a heavy plate which covers the rear axle, axle drive motor and input gearbox.

Steel Drum Scraper mounted at the rear of the drum for CS-663E and CS-683E.

Urethane Drum Scrapers for CS-663E and CS-683E provides a front and rear scraper for continuous contact with the drum surface and replaces the standard steel scraper.

Fast Fill Compatible Fuel Tank is available with additional connection points to accept a fast fuel system. Additional hoses and fast fuel system interfaces are required to be installed by a dealer. Consult your dealer for specifics.

Padded Drum Conversion Kit (CS-663E only) is interchangeable with the smooth drum. Two options are available. First option includes all drum components including hydraulic motor, brackets, gear and support boxes, shell, mounts, brackets and pods, front bumper and scrapers. Second option includes minimal drum components. Shell, drive plate, front bumper and scraper. Padded drum dimensions and performance are the same as on the CP-663E.

Smooth Drum Conversion Kit (CP-663E only) is interchangeable with the padded drum.Two options are available. First option includes all drum components including hydraulic motor, brackets, gear and support boxes, shell, mounts, brackets and pods, front bumper and scrapers. Second option includes minimal drum components. Shell, drive plate, front bumper and scraper. Smooth drum dimensions and performance are the same as on the CS-663E.

Tires with wheel loader design tread 20.5 R25, radial (L-2), 12-ply tubeless for smooth drum machines and offers enhanced durability in harsh applications.

Spare Tire w/Rim is available for both the diamond tread and the traction tread.

CS-663E, CP-663E and CS-683E Vibratory Soil Compactors

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