



On-Highway Diesel Engine with ACERT® Technology

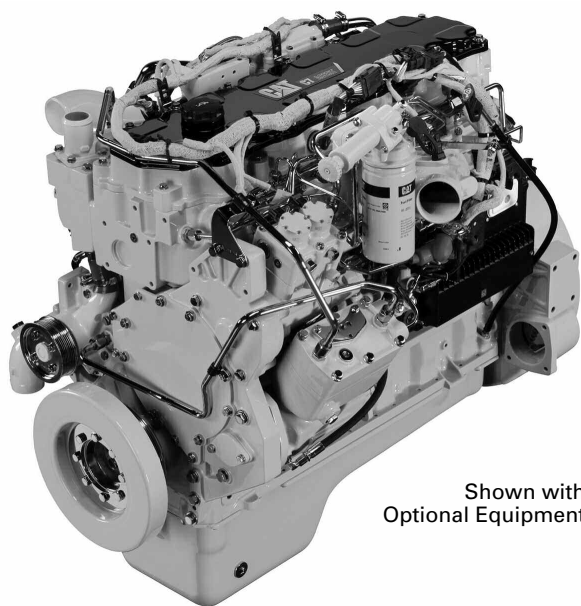
C7

EPA 07 Certified

210-230 hp @ 2500 rpm

230-300 hp @ 2400 rpm

520-860 lb-ft @ 1440 rpm Peak Torque



Shown with
Optional Equipment

CATERPILLAR® ENGINE SPECIFICATIONS

In-line 6-Cylinder, 4-Stroke-Cycle Diesel

Bore — in (mm) 4.33 (110)

Stroke — in (mm) 5.0 (127)

Displacement — cu in (L) 441 (7.2)

Aspiration Turbocharged

Compression Ratio 16.5:1

Rotation (from flywheel end) .. Counterclockwise

Cooling System¹ — gal (L) 3.99 (15.1)

Lube Oil System (refill) — gal (L) 4.75 (18)²

Weight, Net Dry (approx) — lb (kg)

including flywheel 1425 (647)

¹ Engine only. Capacity will vary with radiator size and use of cab heater.

² Optional 6.75 gal (25L) oil pan also available in some OEM chassis.

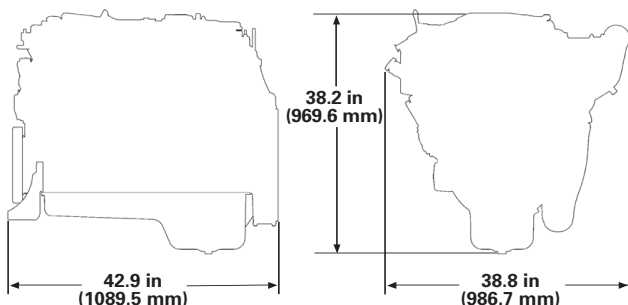
STANDARD EQUIPMENT

Air inlet manifold heater
Cat® common rail fuel system
Caterpillar® Regeneration System
Closed crankcase breather
Cooling: belt-driven water pump, oil cooler
Diesel particulate filter
Electronic Control Module (ECM)
Electronic Data Link, SAE/ATA, SAE/J1939
Fuel: spin-on secondary filter, transfer pump
Governor: full-range, electronically controlled
Lifting eyes
Lubrication: gear-driven pump, front or rear
sump pan, full flow spin-on filter, oil filler, oil
level gauge (dipstick)
SAE No. 1 or SAE No. 2 flywheel housing
Variable nozzle turbocharger
Vibration damper

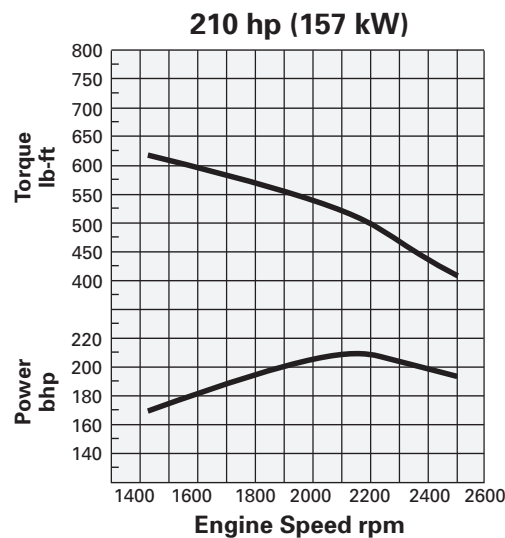
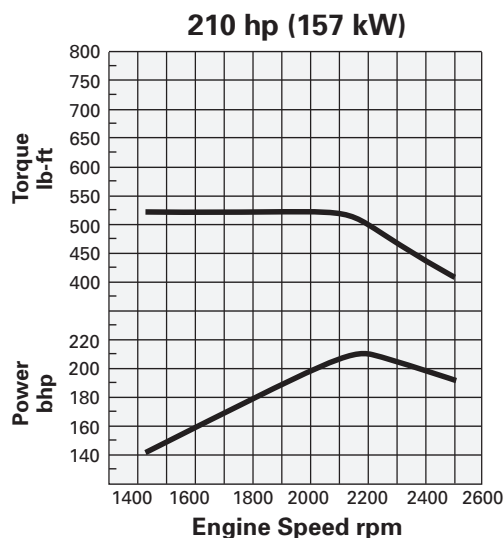
ACCESSORY EQUIPMENT

Air compressor: 16.1 cfm (0.46 m³/min) with
drive through capability
Air conditioner compressor mounting
Air inlet elbow
ATAAC inlet elbow
Automatic transmission adapter
Cat engine brake available
Fan drive
Fan drive mounting bracket
Flywheel
Front engine support
Front PTO adapter
Fuel priming pump
Hydraulic pump drive, SAE A
Jacket water heater
Primary fuel filter (10 micron)
Rear PTO (RPTO)
Starting motor: 12V or 24V

DIMENSIONS



PERFORMANCE CURVES

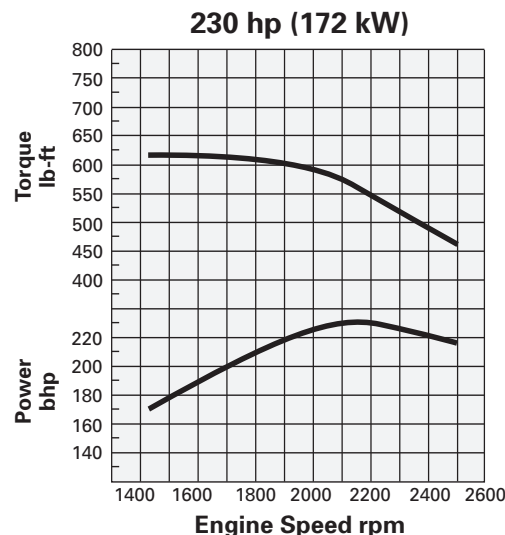
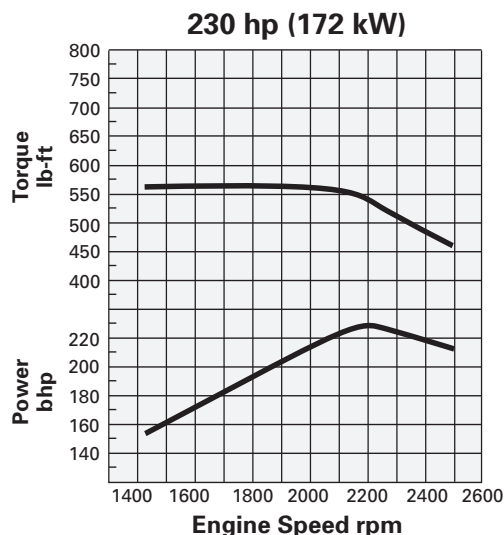


PERFORMANCE DATA

Operating Range (rpm) 1440–2500
Governed Speed — rpm **2500**
 Advertised hp (kW) 210 (157)
 Max hp (kW) 210 (157)
Peak Torque — lb-ft (N·m) **520 (705)**
 Peak Torque — rpm 1440
 Torque rise (%) 28
 Altitude Capability — ft (m) 10,000 (3048)

Operating Range (rpm) 1440–2500
Governed Speed — rpm **2500**
 Advertised hp (kW) 210 (157)
 Max hp (kW) 210 (157)
Peak Torque — lb-ft (N·m) **620 (841)**
 Peak Torque — rpm 1440
 Torque rise (%) 43
 Altitude Capability — ft (m) 10,000 (3048)

PERFORMANCE CURVES

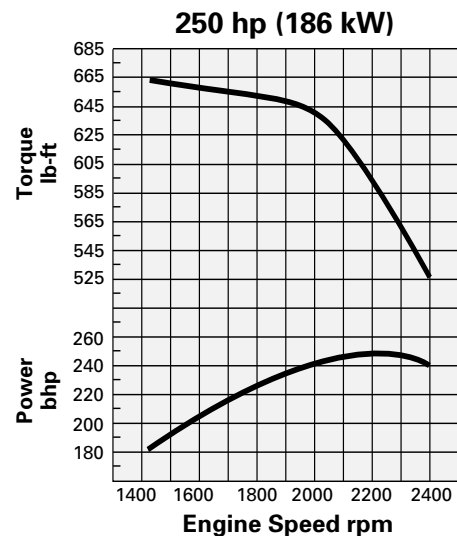
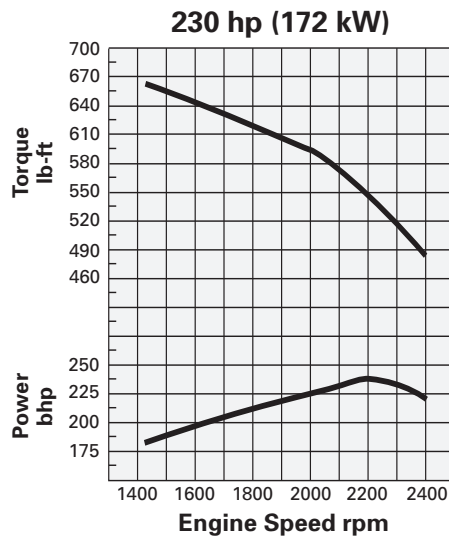


PERFORMANCE DATA

Operating Range (rpm) 1440–2500
Governed Speed — rpm **2500**
 Advertised hp (kW) 230 (172)
 Max hp (kW) 230 (172)
Peak Torque — lb-ft (N·m) **560 (759)**
 Peak Torque — rpm 1440
 Torque rise (%) 16
 Altitude Capability — ft (m) 10,000 (3048)

Operating Range (rpm) 1440–2500
Governed Speed — rpm **2500**
 Advertised hp (kW) 230 (172)
 Max hp (kW) 230 (172)
Peak Torque — lb-ft (N·m) **620 (841)**
 Peak Torque — rpm 1440
 Torque rise (%) 28
 Altitude Capability — ft (m) 10,000 (3048)

PERFORMANCE CURVES

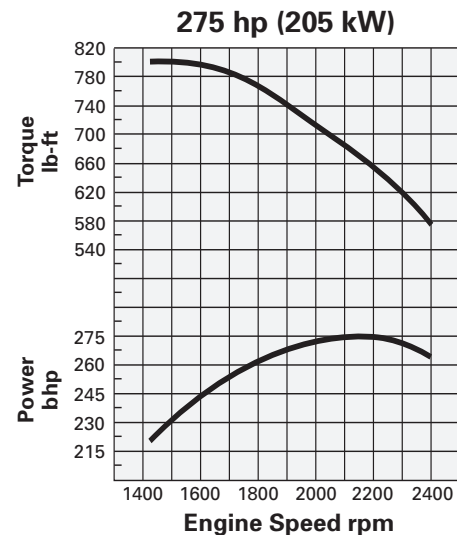
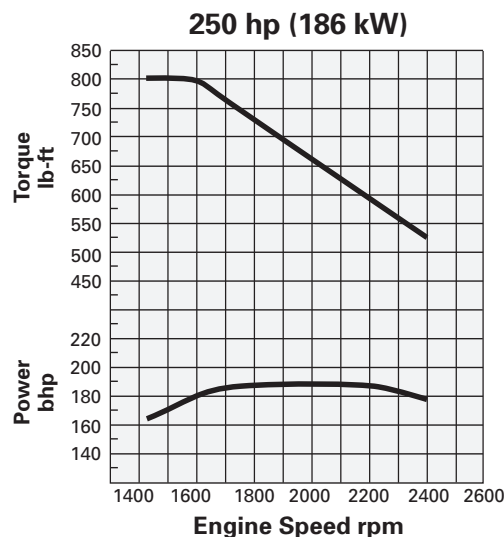


PERFORMANCE DATA

Operating Range (rpm) 1440-2400
Governed Speed — rpm **2400**
 Advertised hp (kW) 230 (172)
 Max hp (kW) 230 (172)
Peak Torque — lb-ft (N·m) **660 (895)**
 Peak Torque — rpm 1440
 Torque rise (%) 37
 Altitude Capability — ft (m) 10,000 (3048)

Operating Range (rpm) 1440-2400
Governed Speed — rpm **2400**
 Advertised hp (kW) 250 (186)
 Max hp (kW) 250 (186)
Peak Torque — lb-ft (N·m) **660 (895)**
 Peak Torque — rpm 1440
 Torque rise (%) 26
 Altitude Capability — ft (m) 10,000 (3048)

PERFORMANCE CURVES

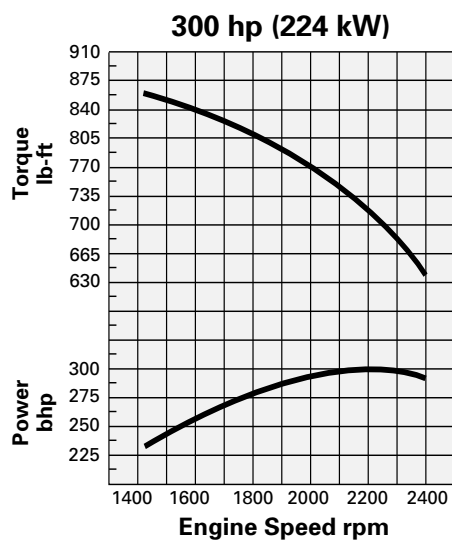


PERFORMANCE DATA

Operating Range (rpm) 1440-2400
Governed Speed — rpm **2400**
 Advertised hp (kW) 250 (186)
 Max hp (kW) 250 (186)
Peak Torque — lb-ft (N·m) **800 (1085)**
 Peak Torque — rpm 1440
 Torque rise (%) 52
 Altitude Capability — ft (m) 10,000 (3048)

Operating Range (rpm) 1440-2400
Governed Speed — rpm **2400**
 Advertised hp (kW) 275 (205)
 Max hp (kW) 275 (205)
Peak Torque — lb-ft (N·m) **800 (1085)**
 Peak Torque — rpm 1440
 Torque rise (%) 39
 Altitude Capability — ft (m) 10,000 (3048)

PERFORMANCE CURVES



PERFORMANCE DATA

Operating Range (rpm) 1440-2400
Governed Speed — rpm 2400
 Advertised hp (kW) 300 (224)
 Max hp @ 1600 rpm (kW) 300 (224)
Peak Torque — lb-ft (N•m) 860 (1166)
 Peak Torque — rpm..... 1440
 Torque rise (%) 38
 Altitude Capability — ft (m)..... 10,000 (3048)

GEARING CONSIDERATIONS

The C7 is designed and built to take full advantage of a “gear fast, run slow” strategy. The fully electronic C7 does not need to be gearbound to limit maximum vehicle speed — this should be done using Vehicle Speed Limiting (VSL) and VSL Protection parameters. (It is recommended that VSL be set to prevent excessive mph).

For the best balance of performance and fuel economy, spec axle ratios and tire sizes to obtain: **2000 rpm @ 60 mph** (97 km/h). Maximum recommended cruise speed is **65 mph** (105 km/h).

Minimum recommended engine speed is **1800 rpm**, typically with a cruise speed of 55 mph (89 km/hr).

If GCW is 50,000 lb or higher, spec. your truck to cruise at **2200 rpm @ 60 mph**.

The minimum startability requirements are 10% for pick-up and delivery, 14% for linehaul, 20% for on/off highway, and 25% for off-highway. At peak torque rpm in top gear, the recommended gradeability is 1.8% (1.5% minimum). At cruise speed in top gear, 1.0% is the ideal gradeability.

To optimize your truck’s performance characteristics, a computerized spec’ing tool called Design Pro is offered by your Caterpillar dealer. It calculates effects of various driveline variables on engine operation such as transmissions, axles, and tires. This analysis allows you to verify that your truck’s driveline specifications are best suited to your application.

FUEL AND LUBE OIL REQUIREMENTS

FUEL

Model year 2007 and newer Caterpillar on-highway diesel engines require the use of ULSD fuel in order to meet the United States (U.S.) Environmental Protection Agency (EPA) 2007 emissions regulations for on-highway diesel engines. Failure to use ULSD in these engines is punishable with civil penalties.

Ultra Low Sulfur Diesel (ULSD) fuel will have ≤ 15 ppm (0.0015%) sulfur using the ASTM D5453, ASTM D2622, or DIN 51400 test methods.

CRANKCASE LUBE OIL

Diesel engine oils meeting the Cat ECF-3 (Engine Crankcase Fluid-3) specification are strongly **recommended** for use in 2007 model year and newer Caterpillar on-highway diesel engines. The Cat ECF-3 specification was developed in order to protect emissions control systems, help comply with the emissions standards, reduce engine wear, and control piston deposits and oil consumption in 2007 model year and newer on-highway diesel engines that are designed to use fuels with ≤ 15 ppm (0.0015%) sulfur.

The combination of ULSD fuel **and** API CJ-4 compliant diesel engine oil is strongly recommended for optimum engine system performance.

Note: Oils that meet the API CJ-4 oil category requirements are Cat ECF-3 compliant.

ELECTRONIC FEATURES

- Customer selectable, re-programmable operational parameters:
 - 2-speed fast idle capabilities
 - Adjustable low idle rpm
 - Automated transmission compatibility
 - Cat engine brake operational modes
 - Cooling fan control
 - Cruise control with exclusive Soft Cruise
 - Customer password protection
 - Engine Monitoring System — warning, derate, or shutdown
 - Enhanced theft deterrent and secure idle (Cat Messenger or Pocket Tec required)
 - Fleet Information Software capability
 - Idle shutdown timer & override
 - Maintenance monitor [miles (km) or hours]
 - OEM parameter lockout
 - Progressive shifting and gear-down protection
 - Selectable AT/MT/HT shift points for automatic transmission
 - Vehicle speed [mph (km/h)] limiting and protection
- Real time clock with date and time stamping of critical events
- Electronic self-diagnostics
- Compatible with Caterpillar Electronic Technician (ET)
- Cold weather startup strategy and electronic idle control functions
- ECM storage of operational, maintenance, diagnostic codes and diagnostic data
- J1939 compatible
- Programmable Power Take-Off (PTO) functions:
 - Adjustable maximum engine rpm speed
 - Adjustable minimum engine rpm speed
 - Adjustable ramp rate up or down between PTO set speed(s)
 - Adjustable rpm “bump” intervals
 - Adjustable speed control [mph (km/h)] of vehicle while in PTO mode
 - Limit engine torque to driven equipment
 - Multi-speed PTO set speed capability
 - Selectable PTO configuration for “in cab” or station of remote operation

RATING DEFINITIONS AND CONDITIONS

Performance is based on SAE J1995 standard conditions of 29.61 in. Hg (100 kPa) and 77° F (25° C).

The curves shown are for a standard engine without fan, but equipped with air compressor and fuel, lubricating oil, and water pumps.

Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication. CAT, CATERPILLAR, their respective logos, ACERT, “Caterpillar Yellow” and the POWER EDGE trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.