C18 ACERT® Petroleum
Engine

CAT® ENGINE SPECIFICATIONS

I-6, 4-Stroke-Cycle-Diesel

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions</td>
<td>EPA and CARB Non-Road Mobile Tier 3, EU Stage IIIA</td>
</tr>
<tr>
<td>Peak Torque at Speed</td>
<td>2000 lbs-ft</td>
</tr>
<tr>
<td>Bore</td>
<td>145 mm (5.71 in.)</td>
</tr>
<tr>
<td>Stroke</td>
<td>183 mm (7.2 in.)</td>
</tr>
<tr>
<td>Displacement</td>
<td>18 L (1100 cu. in.)</td>
</tr>
<tr>
<td>Aspiration</td>
<td>Turbocharged-Aftercooled</td>
</tr>
<tr>
<td>Governor and Protection</td>
<td>Electronic (ADEM™ A3)</td>
</tr>
<tr>
<td>Engine Weight, net dry (approx)</td>
<td>1273 kg (2807 lb)</td>
</tr>
<tr>
<td>Capacity for Liquids</td>
<td></td>
</tr>
<tr>
<td>Lube Oil System (refill)</td>
<td>34 L (9 gal)</td>
</tr>
<tr>
<td>Cooling System</td>
<td>50 L (13.2 gal)</td>
</tr>
<tr>
<td>Oil Change Interval</td>
<td>250 hours</td>
</tr>
<tr>
<td>Rotation (from flywheel end)</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>Flywheel and Flywheel Housing</td>
<td>SAE No. 0 or SAE No. 1</td>
</tr>
<tr>
<td>Flywheel Teeth</td>
<td>136 (SAE No. 0), 113 (SAE No. 1)</td>
</tr>
<tr>
<td>429-596 bkW</td>
<td>(575-800 bhp)</td>
</tr>
<tr>
<td>2100 rpm</td>
<td></td>
</tr>
</tbody>
</table>

FEATURES

Engine Design
- Proven reliability and durability
- Robust diesel strength design prolongs life and lowers owning and operating costs
- Broad operating speed range
- High power density — lightweight engine for weight-sensitive applications
- PTO drive options provide flexible access to auxiliary power for pumps and other needs

Advanced Digital Engine Management
ADEM A3 control system providing integrated ignition, speed governing, protection, and controls, including detonation-sensitive variable ignition timing. ADEM A3 has improved: user interface, display system, shutdown controls, and system diagnostics.

Optional Attachments
- Engine-Mounted Transmission Oil Cooler — integration with engine cooling system allows ease of installation and a tighter overall engine package
- Engine Brakes — braking capabilities for mobile applications

Custom Packaging
For any petroleum application, trust Caterpillar to meet your exact needs with a factory custom package. Cat® engines, generators, enclosures, controls, radiators, transmissions — anything your project requires — can be custom designed and matched to create a one-of-a-kind solution. Custom packages are globally supported and are covered by a one-year warranty after startup.

Transmissions
Caterpillar has a full line of engine-transmission packages that can be fully integrated with your axle, hydraulics, and operator interface. Cat transmissions deliver continuous operation under full load, smooth shifting at any speed, and maximum up time, with unmatched durability and easy maintenance.

Full Range of Attachments
Large variety of factory-installed engine attachments reduces packaging time

Testing
Every engine is full-load tested to ensure proper engine performance.

Product Support Offered Through Global Cat Dealer Network
More than 2,200 dealer outlets
Cat factory-trained dealer technicians service every aspect of your petroleum engine
Cat parts and labor warranty
Preventive maintenance agreements available for repair-before-failure options
S•O•S™ program matches your oil and coolant samples against Caterpillar set standards

Over 80 Years of Engine Manufacturing Experience
Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable products.
- Cast engine blocks, heads, cylinder liners, and flywheel housings
- Machine critical components
- Assemble complete engine

Web Site
For all your petroleum power requirements, visit www.catoolandgas.cat.com.
STANDARD EQUIPMENT

Air Inlet System
- Single turbocharger, mid-mounted, inlet 152.4 mm (6 in), hose connection
- Dual turbocharger, front and rear inlet 127.0 mm (5 in.), hose connection

Control System
- Electronic governing, PTO speed control
- Programmable ratings
- Cold mode start strategy
- Automatic altitude compensation
- Power compensation for fuel temperature
- Programmable low and high idle and TEL
- Electronic diagnostics and fault logging
- Engine monitoring and protection system (speed, temperature, pressure)
- J1939 Broadcast (diagnostic, engine status, and control)

Cooling System
- Thermostats and housing — outlet vertical
- Jacket water pump — gear-driven, centrifugal
- RH front water pump inlet
- All plugs/fittings are STOR for lines gp water

Exhaust System
- Exhaust manifold — dry
- Single turbo — front-facing turbo exhaust, full marmon connection, maximum load 10 kg for direct connection to turbo
- Dual turbo — exhaust elbow, dry 203 mm (8 in)

Flywheels and Flywheel Housings
- See Mandatory Options

Fuel System
- Electronic unit injector
- Fuel filter, secondary, mid-mount (LH 2 micron high performance)
- Fuel transfer pump, LH front
- Fuel priming pump, LH mid-mount
- Fuel sample valve, mounted on fuel filter base.

Lube System
- Crankcase breather — rear valve cover
- Oil cooler — RH (dual)
- Oil filter — RH, LH
- Oil pan — front sump
- Oil dipstick — LH front
- Oil pump

Mounting System
- Front support (shipping only)

Power Take-Offs
- Crankshaft pulley, 203.2 mm (8 in), 3 grooves 292.1 mm (11.5 in) 1 groove, all 15.9 mm (.63 in) width
- Hydraulic pump drive, SAE A, 11-tooth

General
- Vibration damper
- Paint — Cat yellow
- Lifting eyes
- Automatic variable timing, electronic
- Electronic installation kit 70-pin connector (connectors, pins, sockets)

Mandatory Options
- Throttle position sensor
- Single turbo only — exhaust system (front or rear)
- Flywheel housing or rear PTO
- Primary filter/water separator

OPTIONAL ATTACHMENTS

Air Compressor
- Air compressor governor
- Expansion chambers

Air Inlet System
- Air cleaners
- Air lines

Charging System
- Charging alternators
- Alternator mountings
- Alternator wiring
- Circuit breakers and mountings
- Alternator belt guard

Cooling System
- Radiator
- Fan drive with radiator packages
- Fan height instructions
- Vee belts
- Aftercooler lines with Caterpillar installed radiator
- Single turbo configuration rear-facing exhaust
- Twin turbo configuration
- Aftercooler lines
- Suction fan adapters
- Blower fan adapter
- Blower fan
- Suction fan
- Fan belt
- Coolant level sensor
- Dry charge coolant conditioners

Exhaust System
- Turbo exhaust connection
- Flexible fittings
- Elbows, flange, clamp, pipes
- Exhaust adapters
- Manifold
- Mufflers

Fuel Systems
- Flexible fuel lines
- Fuel filter location
- Fuel cooler
- Water separator

Instrumentation
- Gauges and instrument panels

Lube System
- Oil pans
- Drain and cover
- Oil level gauge
- Remote oil filters
- Oil filters
- Lubricating oils

Mounting System
- Structural steel base
- Front and rear engine support

Power Take-Offs
- Rear enclosed clutches
- Hydraulic pump drives
- Hydraulics gear pumps
- Clutch supports
- Crankshaft pulleys

Protection System
- Air shutoff

Starting System
- Air starting motors
- Air pressure regulator
- Air silencer
- Start switch
- Electric starting motors — 12V, 24V
- Battery sets — 24V
- Battery cable and rack
- Starting aids

Transmission Arrangement
- Transmission water lines
Turbocharged-Aftercooled
C (Intermittent) Rating — 522 bkW (700 bhp) @ 2100 rpm*
DM9661-00

PERFORMANCE CURVES

<table>
<thead>
<tr>
<th>Engine Speed rpm</th>
<th>Engine Power bkW</th>
<th>Engine Power bhp</th>
<th>Rej to JW bkW</th>
<th>Rej to JW Btu/min</th>
<th>Rej to Atmos bkW</th>
<th>Rej to Atmos Btu/min</th>
<th>Rej to Exh bkW</th>
<th>Rej to Exh Btu/min</th>
<th>From Aft Clr bkW</th>
<th>From Aft Clr Btu/min</th>
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<tbody>
<tr>
<td>2100</td>
<td>522.0</td>
<td>700.0</td>
<td>161</td>
<td>9156</td>
<td>128</td>
<td>7279</td>
<td>573</td>
<td>32586</td>
<td>146.0</td>
<td>8303.0</td>
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<tr>
<td>2000</td>
<td>522.0</td>
<td>700.0</td>
<td>154</td>
<td>8758</td>
<td>130</td>
<td>7393</td>
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<td>31847</td>
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<tr>
<td>1900</td>
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<td>700.0</td>
<td>153</td>
<td>8701</td>
<td>121</td>
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<tr>
<td>1800</td>
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<td>700.0</td>
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<td>692.0</td>
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<td>6142</td>
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<td>1600</td>
<td>505.0</td>
<td>677.2</td>
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<td>1500</td>
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<td>657.1</td>
<td>148</td>
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<tr>
<td>1400</td>
<td>469.0</td>
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<td>1300</td>
<td>430.0</td>
<td>576.6</td>
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<td>6085</td>
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<tr>
<td>1000</td>
<td>245.2</td>
<td>328.8</td>
<td>105</td>
<td>5971</td>
<td>54</td>
<td>3071</td>
<td>217</td>
<td>12341</td>
<td>19.0</td>
<td>1080.5</td>
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*Other engine ratings are available. Please contact dealer for performance data.
Engine Dimensions

<table>
<thead>
<tr>
<th></th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Engine Weight (dry)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1389 mm</td>
<td>919 mm</td>
<td>1227 mm</td>
<td>1273 kg</td>
</tr>
<tr>
<td></td>
<td>54.7 in</td>
<td>36.2 in</td>
<td>49.5 in</td>
<td>2807 lb</td>
</tr>
</tbody>
</table>

Note: Do not use for installation design. See general dimension drawings for detail (Drawing #258-8747).

RATING DEFINITIONS AND CONDITIONS

**Engine Performance** is corrected to inlet air standard conditions of 99 kPa (29.31 in. Hg) dry barometer and 25°C (77°F) temperature. These values correspond to the standard atmospheric pressure and temperature as shown in SAE J1995.

Performance measured using a standard fuel with fuel gravity of 35 degrees API having a lower heating value of 42,780 kJ/kg (18,390 BTU/lb) when used at 29°C (84.2°F) where the density is 838.9 g/L (7.001 lb/U.S. gal).

The corrected performance values shown for Cat engines will approximate the values obtained when the observed performance data is corrected to SAE J1995, ISO 3046-2, ISO 8665, ISO 2288, ISO 9249, ISO 1585, EEC 80/1269, and DIN 70020 standard reference conditions.

**IND-C (Intermittent)**

Intermittent service where maximum power and/or speed are cyclic (time at full load not to exceed 50%).