**CAT® ENGINE SPECIFICATIONS**

**V-12, 4-Stroke-Cycle-Diesel**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions</td>
<td>2006 EPA/CARB Tier 2</td>
</tr>
<tr>
<td>Peak Torque at Speed</td>
<td>4376 lb-ft</td>
</tr>
<tr>
<td>Bore</td>
<td>170 mm (6.7 in)</td>
</tr>
<tr>
<td>Stroke</td>
<td>215 mm (8.5 in)</td>
</tr>
<tr>
<td>Displacement</td>
<td>58.6 L (3574 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>Capacity for Liquids</td>
<td></td>
</tr>
<tr>
<td>Lube Oil System (refill)</td>
<td>318 L (84 U.S. gal)</td>
</tr>
<tr>
<td>Cooling System (engine only)</td>
<td>157.1 L (41.5 U.S. gal)</td>
</tr>
<tr>
<td>Cooling System (radiator)</td>
<td>244.2 L (64.5 U.S. gal)</td>
</tr>
<tr>
<td>Oil Change Interval</td>
<td>500 hours</td>
</tr>
<tr>
<td>Rotation (from flywheel end)</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>Flywheel and Flywheel Housing</td>
<td>SAE No. 00</td>
</tr>
<tr>
<td>Flywheel Teeth</td>
<td>183</td>
</tr>
</tbody>
</table>

**FEATURES**

**Engine Design**
- Proven reliability and durability
- Robust diesel strength design prolongs life and lowers owning and operating costs
- Market-leading power density
- Designed to perform in oilfield conditions, including high ambient high altitude applications
- Long overhaul life proven in oilfield applications
- Core engine components designed for reconditioning and reuse at overhaul

**Emissions**
2006 EPA/CARB Tier 2 non-road emissions certified

**Advanced Digital Engine Management**
ADEM A3 has improved user interface, display system, shutdown controls, system diagnostics, and allows electronic integration with transmissions.

**Safety**
- E-Stop pushbutton on instrument panel
- Air shutoff and explosion relief valves
- Configurable alarm and shutdown features
- Extra alarm switches available for customer-supplied panel
- Instrument panel (LH analog and digital display of key package operation parameters)

**Improved Serviceability**
Large inspection openings allow convenient access to core engine internals

**Reduction of Owning and Operating Costs**
- Long filter change intervals, aligned with service intervals
- Excellent fuel economy – direct injection electronic unit injectors precisely meter fuel
- Torsional vibration analysis available from factory to maximize component life

**Custom Packaging**
For any petroleum application, trust Caterpillar to meet your project needs with custom factory generator sets and mechanical packages. Cat® engines, generators, controls, radiators, and transmissions can be custom-designed and matched in collaboration with our local dealers to create unique solutions. Custom packages are globally supported and are covered by a one-year warranty after startup.

**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
Caterpillar parts and labor warranty
Preventive maintenance agreements available for repair-before-failure options
S•O•SSM™ program matches your oil and coolant samples against Caterpillar set standards to determine:
- Internal engine component condition
- Presence of unwanted fluids
- Presence of combustion by-products
- Site-specific oil change interval

**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.catoilandgasinfo.com
### STANDARD EQUIPMENT

**Air Inlet System**
- Aftercooler core – corrosion resistant
- Air cleaner – regular duty with soot filter
- Service indicators

**Control System**
- ADEM A3 ECU – LH
- Includes adjustable speed droop capability
- Pneumatic speed control, 10-100 psi

**Cooling System**
- Radiator-cooled land-based
- Outlet controlled thermostat and housing
- Jacket water pump – gear-driven
- Dual outlet
- Aftercooler fresh water cooling pump (SCAC) – gear-driven, centrifugal

**Exhaust System**
- Exhaust flexible fitting, adapter, flange

**Flywheels and Flywheel Housings**
- Flywheel – SAE No. 00 and housing

**Fuel System**
- Fuel filter – LH, priming pump – LH
- Fuel transfer pump
- Flexible fuel lines
- Electronically controlled unit injectors

**Instrumentation**
- Electronic instrument panel – RH
- Analog gauges with digital display data for: engine oil pressure gauge, engine water temperature gauge, fuel pressure gauge, system DC voltage gauge, air inlet restriction gauge, exhaust temperature gauge, fuel filter differential pressure gauge, oil filter differential pressure gauge, service meter, tachometer, instantaneous fuel consumption, total fuel consumed, engine start-stop (off, auto start, manual start, cooldown timer)

**Lube System**
- Crankcase breather
- Oil cooler
- Oil filter, LH
- Oil pan drain valve, 2” NPT female connection

**Mounting System**
- Rails – mounting, floor type, 254 mm (10 in)

**Power Take-Offs**
- Accessory drive
- Lower LH front (available for PTO usage)
- Front housing – two-sided

**Protection System**
- ADEM A3 ECU monitoring system provides engine protection strategies to protect against adverse operating conditions. Selected parameters are customer programmable.

**Starting System**
- Air starting motor – RH, 620 to 1034 kPa (90 to 150 psi), LH control
- Air silencer

**General**
- Paint – Caterpillar yellow
- Vibration damper and guard
- Lifting eyes

### OPTIONAL EQUIPMENT

**Air Compressor**
- Air cleaners
- Remote air inlet adapters

**Charging Systems**
- Battery chargers and charging alternators

**Control System**
- Load sharing modules
- Local speed throttle control
- Governor conversion
- Throttle position sensors

**Cooling Systems**
- High gloss black folded core radiators and conventional core radiators
- Belt guard
- Blower fan
- Fan drive and fan pulley
- Radiator cover
- Water level switch gauge
- Coolant level sensors
- Air separator

**Exhaust System**
- Flexible fitting
- Elbows
- Flange and exhaust expanders
- Mufflers

**Flywheel and Flywheel Housing**
- Fuel priming pumps, flexible fuel lines
- Fuel filter
- Fuel cooler, fuel level switch

**Instrumentation**
- Remote panel display, remote cylinder temperature display
- Gauges and instrument panels

**Lube System**
- Fumes disposal
- Oil filters
- Prelube pumps, sump pumps

**Mounting System**
- Flexible couplings, coupling hubs
- Front accessory drives
- Auxiliary drive shafts and pulleys
- Front stub shaft and flywheel stub shaft
- Pulleys

**Protection System**
- Shutoffs
- Switches and contactors
- Explosion relief valves
- Oil pressure monitor

**Starting System**
- Starting motors – air, gas, electric
- Air pressure regulators, controls and silencer
- Air controls – manual, electric
- Redundant start systems
- Start switch
- Starting aids (JW heater and ether injection)
- Battery sets – 24 volts with rack

**General**
- Special paint
- Cat data link wire
- Flywheel guard
- Tool set
PERFORMANCE CURVES

Turbocharged-Aftercooled
P/D MECH Rating – 1100 bkW (1475 bhp) @ 1200 rpm
DM8277-02

Heat Rejection Data

<table>
<thead>
<tr>
<th>Engine Speed rpm</th>
<th>Engine Power bkW</th>
<th>Engine Power bhp</th>
<th>Rej to JW kW</th>
<th>Rej to Atmos kW</th>
<th>Rej to Exh kW</th>
<th>From Aft Clr kW</th>
<th>From Aft Clr Btu/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>1100</td>
<td>1475</td>
<td>420</td>
<td>23,896</td>
<td>114</td>
<td>6510</td>
<td>296</td>
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<tr>
<td>1100</td>
<td>1034</td>
<td>1386</td>
<td>381</td>
<td>21,651</td>
<td>109</td>
<td>6205</td>
<td>249</td>
</tr>
<tr>
<td>1000</td>
<td>962</td>
<td>1291</td>
<td>347</td>
<td>19,716</td>
<td>112</td>
<td>6363</td>
<td>208</td>
</tr>
<tr>
<td>900</td>
<td>887</td>
<td>1189</td>
<td>349</td>
<td>19,854</td>
<td>125</td>
<td>7122</td>
<td>164</td>
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<tr>
<td>800</td>
<td>505</td>
<td>677</td>
<td>242</td>
<td>13,758</td>
<td>129</td>
<td>7339</td>
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<tr>
<td>700</td>
<td>338</td>
<td>454</td>
<td>183</td>
<td>10,383</td>
<td>107</td>
<td>6085</td>
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<tr>
<td>600</td>
<td>213</td>
<td>286</td>
<td>108</td>
<td>6135</td>
<td>82</td>
<td>4649</td>
<td>–</td>
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<tr>
<td>450</td>
<td>90</td>
<td>121</td>
<td>28</td>
<td>1612</td>
<td>64</td>
<td>3655</td>
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</table>

Approximate Power (bhp) as function of Altitude and Inlet Manifold Temperature for DM8277-02

<table>
<thead>
<tr>
<th>Inlet Manifold Temp. (°F)</th>
<th>Altitude (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10,499</td>
</tr>
<tr>
<td>50</td>
<td>1171</td>
</tr>
<tr>
<td>68</td>
<td>1130</td>
</tr>
<tr>
<td>86</td>
<td>1093</td>
</tr>
<tr>
<td>104</td>
<td>1058</td>
</tr>
<tr>
<td>122</td>
<td>1026</td>
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<tr>
<td>Normal</td>
<td>1172</td>
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</table>
### 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>Length</td>
<td>2682.24 mm</td>
<td>1790.7 mm</td>
<td>2019.3 mm</td>
<td>5423 kg</td>
</tr>
<tr>
<td>Width</td>
<td>2682.24 mm</td>
<td>1790.7 mm</td>
<td>2019.3 mm</td>
<td>11,945 lb</td>
</tr>
<tr>
<td>Height</td>
<td>1790.7 mm</td>
<td>2019.3 mm</td>
<td>11,945 lb</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Do not use for installation design. See general dimension drawings for detail. (Drawing #281-9127)

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### RATING DEFINITIONS AND CONDITIONS

**Prime Power** – 6,000 hrs./year, for applications with load factors less than or equal to 60%. Rated load (100%) usage is limited to 1 hour in 12. 10% overload available.

**Ratings** are based on SAE J1995 standard conditions of 100 kPa (29.61 in Hg) and 25°C (77°F). These ratings also apply at ISO3046/1, DIN6271, and BS5514 standard conditions of 100 kPa (29.61 in Hg), 27°C (81°F), and 60% relative humidity. Ratings are valid for air cleaner inlet temperatures up to and including 50°C (122°F).

**Fuel consumption** has a tolerance of +5% and is based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18 390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal). Fuel consumption shown with all oil, fuel, and water pumps, engine driven.

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