## Engine Performance Data @ 1500 RPM

<table>
<thead>
<tr>
<th>RPM</th>
<th>Overload Power Rating</th>
<th>Prime Power Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kWm</td>
<td>BHP</td>
</tr>
<tr>
<td>1500</td>
<td>1429</td>
<td>1915</td>
</tr>
<tr>
<td>1800</td>
<td>-----</td>
<td>-----</td>
</tr>
</tbody>
</table>

### Output Power

<table>
<thead>
<tr>
<th>%</th>
<th>kWm</th>
<th>BHP</th>
<th>kg/ kWm·h</th>
<th>lb/ BHP·h</th>
<th>litre/ hour</th>
<th>U.S. Gal/ hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERLOAD POWER</td>
<td>100</td>
<td>1429</td>
<td>1915</td>
<td>0.206</td>
<td>0.338</td>
<td>345</td>
</tr>
<tr>
<td>PRIME POWER</td>
<td>100</td>
<td>1287</td>
<td>1725</td>
<td>0.204</td>
<td>0.336</td>
<td>309</td>
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<tr>
<td></td>
<td>75</td>
<td>965</td>
<td>1294</td>
<td>0.210</td>
<td>0.345</td>
<td>238</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>644</td>
<td>863</td>
<td>0.221</td>
<td>0.363</td>
<td>167</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>322</td>
<td>431</td>
<td>0.232</td>
<td>0.383</td>
<td>88</td>
</tr>
</tbody>
</table>

### Fuel Consumption

The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/litre (7.1 lbs./U.S. gal).

Engine Critical Parts List: 2354 (1P/2L), 2859 (2P/2L)

Date: 21Jan02

Displacement: 50.3 litre (3067 in³)
Bore: 159 mm (6.25 in.)
Stroke: 159 mm (6.25 in.)

No. of Cylinders: 16

Aspiration: Turbocharged and Low Temperature Aftercooled
POWER RATING APPLICATION GUIDELINES
FOR EMERGENCY STANDBY ENGINES FOR APPLICATION IN
CORPORATE GENERATOR SETS ONLY

These guidelines have been formulated to ensure proper application of generator drive engines in Cummins corporate generator set installations. Generator drive engines are not designed for and shall not be used in variable speed D.C. generator set applications.

Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this standby rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Emergency Standby Power rating. This rating should be applied where reliable utility power is available. An emergency standby rated engine should be sized for a maximum of an 70% typical load factor and 200 hours of operation per year. This includes a maximum of 1 hour in a 12 hour period at the Emergency Standby Power rating. Emergency Standby rating should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

Reference Standards:
BS-5514 and DIN-6271 standards are based on ISO-3046.

Operation At Elevated Temperature And Altitude:
For sustained operation above these conditions, derate by an additional 4.6% per 300m (1000ft) and 12% per 10°C (18°F).

NOTE: Derates shown are based on 15” Hg0 air intake restriction and 2” Hg exhaust back pressure.
GENERAL ENGINE DATA
Type........................................................................................................... 4-Cycle; 60° Vee; 16-Cylinder Diesel
Aspiration.................................................................................................. Turbocharged & Low Temp. Aftercooled
Bore x Stroke ............................................................................................ 6.25 x 6.25 (159 x 159)
Displacement ............................................................................................. 3067 (50.3)
Compression Ratio .................................................................................... 14.9 : 1

Damp Weight
Fan to Flywheel Engine ........................................................................... — lb (kg) 11820 (5360)
Wet Weight
Fan to Flywheel Engine ........................................................................... — lb (kg) 12485 (5662)
Moment of Inertia of Rotating Components
• with FW 6009 Flywheel ........................................................................ — lbm • ft^2 (kg • m^2) 271 (11.4)
• with FW 6017 Flywheel ........................................................................ — lbm • ft^2 (kg • m^2) 515 (21.7)
Center of Gravity from Rear Face of Flywheel Housing (FH 6024)........... — in (mm) 47.5 (1206)
Center of Gravity Above Crankshaft Centerline ..................................... — in (mm) 11.0 (279)
Maximum Static Loading at Rear Main Bearing ...................................... — lb (kg) 2000 (908)

ENGINE MOUNTING
Maximum Bending Moment at Rear Face of Block............................... — lb • ft (N • m) 4500 (6100)

EXHAUST SYSTEM
Maximum Back Pressure .......................................................................... — in Hg (mm Hg) 2 (51)

AIR INDUCTION SYSTEM
Maximum Intake Air Restriction
• with Dirty Filter Element .................................................................... — in H2O (mm H2O) 25 (635)
• with Clean Filter Element .................................................................... — in H2O (mm H2O) 15 (381)

COOLING SYSTEM (Low Temperature Aftercooling)
Coolant Capacity — Engine Only.............................................................. — US gal (liter) 43.5 (165)
Maximum Coolant Friction Head External to Engine — 1500 rpm [High Flow] —— psi (kPa) 10 (70)
— 1500 rpm [Low Flow] —— psi (kPa) 5 (35)
Maximum Static Head of Coolant Above Engine Crank Centerline ......... — ft (m) 60 (18.3)
Standard Thermostat Modulating Range — High Flow (Jacket) ............ — °F (°C) 180 - 200 (82 - 93)
— Low Flow (Aftercooler) ................................................................. — °F (°C) 150 - 175 (66 - 79)
Minimum Pressure Cap (For Cooling Systems with less than 2 m [6 ft] Static Head) —— psi (kPa) 14 (96)
Maximum Top Tank Temperature for Overload Power / Prime Power...... — °F (°C) 220 / 212 (104 / 100)
Target Coolant Inlet Temperature to Aftercoolers @ 77 °F (25 °C) Ambient —— °F (°C) 130 (55)
Maximum Coolant Temperature to Aftercoolers — Overload Power / Prime Power...... — °F (°C) 160 / 150 (71 / 66)

LUBRICATION SYSTEM
Oil Pressure @ Idle Speed........................................................................ — psi (kPa) 20 (138)
@ Governed Speed.................................................................................. — psi (kPa) 50 - 70 (345 - 483)
Maximum Oil Temperature ....................................................................... — °F (°C) 250 (121)
Oil Capacity with OP 6027 Oil Pan : High - Low ..................................... — US gal (liter) 47 - 39 (178 - 148)
Total System Capacity (Including Bypass Filter) ..................................... — US gal (liter) 54 (204)

FUEL SYSTEM
Type Injection System ............................................................................... Direct Injection Cummins PT
Maximum Restriction at PT Fuel Injection Pump — with Clean Fuel Filter —— in Hg (mm Hg) 4.0 (102)
— with Dirty Fuel Filter ........................................................................ — in Hg (mm Hg) 8.0 (203)
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head) —— in Hg (mm Hg) 6.5 (165)
Maximum Fuel Flow to Injection Pump ................................................... — US gph (liter / hr) 151 (570)
ELECTRICAL SYSTEM
Cranking Motor (Heavy Duty, Positive Engagement) .................................................. — volt 24
Battery Charging System, Negative Ground.............................................................. — ampere 35
Maximum Allowable Resistance of Cranking Circuit.............................................. — ohm 0.002
Minimum Recommended Battery Capacity
  • Cold Soak @ 50°F (10°C) and Above .......................................................... — 0°F CCA 1280
  • Cold Soak @ 32°F to 50°F (0°C to 10°C).................................................... — 0°F CCA 1800
  • Cold Soak @ 0°F to 32°F (-18°C to 0°C).................................................... — 0°F CCA 1800

COLD START CAPABILITY
Minimum Ambient Temperature for Aided (with Coolant Heater) Cold Start within 10 seconds .......................................................... — °F (°C) 50 (10)
Minimum Ambient Temperature for Unaided Cold Start........................................ — °F (°C) 45 (7)

PERFORMANCE DATA
All data is based on:
  • Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan, and optional driven components.
  • Engine operating with fuel corresponding to grade No. 2-D per ASTM D975.
  • ISO 3046, Part 1, Standard Reference Conditions of:
    Barometric Pressure : 100 kPa (29.53 in Hg)
    Altitude : 110 m (361 ft)
    Relative Humidity : 30%

Steady State Stability Band at any Constant Load .................................................. — % +/- 0.25
Estimated Free Field Sound Pressure Level of a Typical Generator Set;
Excludes Exhaust Noise; at Rated Load and 7.5 m (24.6 ft); 1500 rpm............................. — dBA 92.4
Exhaust Noise at 1 m Horizontally from Centerline of Exhaust Pipe Outlet Upwards at 45° .................................................. — dBA N.A.

Governed Engine Speed.................................................. — rpm
Engine Idle Speed.................................................. — rpm
Gross Engine Power Output.................................................. — BHP (kW m)
Brake Mean Effective Pressure.................................................. — psi (kPa)
Piston Speed.................................................. — ft / min (m / s)
Friction Horsepower.................................................. — HP (kW m)

Engine Data with Dry Type Exhaust Manifold
  Intake Air Flow .................................................. — cfm (liter / s)
  Exhaust Gas Temperature .................................................. — °F (°C)
  Exhaust Gas Flow .................................................. — cfm (liter / s)
  Air to Fuel Ratio .................................................. — air : fuel
  Radiated Heat to Ambient .................................................. — BTU / min (kW m)
  Heat Rejection to Exhaust .................................................. — BTU / min (kW m)

Additional Engine Aftercooler Data (2 Pump / 2 Loop)
Engine Jacket Coolant Flow at Stated Friction Head External to Engine:
  • 4 psi Friction Head .................................................. — US gpm (liter / s)
  • Maximum Friction Head .................................................. — US gpm (liter / s)
  Heat Rejection to Coolant (Aftercooler) .................................................. — BTU / min (kW m)
  Heat Rejection to Coolant (Engine) .................................................. — BTU / min (kW m)

Aftercooler Coolant Flow at Stated Friction Head External to Engine:
  • 2 psi Friction Head .................................................. — US gpm (liter / s)
  • Maximum Friction Head .................................................. — US gpm (liter / s)

Additional Engine Aftercooler Data (1 Pump / 2 Loop)
Engine Jacket Coolant Flow at Stated Friction Head External to Engine:
  • 4 psi Friction Head .................................................. — US gpm (liter / s)
  • Maximum Friction Head .................................................. — US gpm (liter / s)
  Heat to be Rejected by Low Temperature Radiator ...................................... — BTU / min (kW m)
  Heat to be Rejected by Jacket Water Radiator ...................................... — BTU / min (kW m)

Aftercooler Coolant Flow at Stated Friction Head External to Engine:
  • 2 psi Friction Head .................................................. — US gpm (liter / s)
  • Maximum Friction Head .................................................. — US gpm (liter / s)

* See AEB 90.39 1 Pump / 2 Loop KTA50-G8/9 system.

Cummins Inc.