**Engine Performance Data @ 1500 RPM**

<table>
<thead>
<tr>
<th>Engine Speed</th>
<th>Overload Power Rating</th>
<th>Prime Power Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</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>

<table>
<thead>
<tr>
<th>OUTPUT POWER</th>
<th>FUEL CONSUMPTION</th>
<th>OVERLOAD POWER</th>
<th>PRIME POWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>kWm</td>
<td>BHP</td>
<td>kg/ litre/hour</td>
</tr>
<tr>
<td>Prime Power</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>1429</td>
<td>1915</td>
<td>0.206</td>
</tr>
<tr>
<td>75</td>
<td>1287</td>
<td>1725</td>
<td>0.204</td>
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<tr>
<td>50</td>
<td>965</td>
<td>1294</td>
<td>0.210</td>
</tr>
<tr>
<td>25</td>
<td>644</td>
<td>863</td>
<td>0.221</td>
</tr>
</tbody>
</table>

**Engine Performance Data @ 1800 RPM**

Not Available at 1800 RPM

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**CONVERSIONS:**

- (Litres = U.S. Gal x 3.785)
- (kWm = BHP x 0.746)
- (U.S. Gal = Litres x 0.2642)
- (BHP = Engine kWm x 1.34)

Data shown above represent gross engine performance capabilities obtained and corrected in accordance with ISO-3046 conditions of 100 kPa (29.53 in. Hg.) barometric pressure [110 m (361 ft.) altitude], 25°C (77°F) air inlet temperature, and relative humidity of 30% with No. 2 diesel or a fuel corresponding to ASTM D2.

See reverse side for application rating guidelines.

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

Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan, optional equipment and driven components.

TECHNICAL DATA DEPT. CERTIFIED WITHIN 5% CHIEF ENGINEER

D.K. Trueblood
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.

![Graph showing derate as a function of altitude and ambient temperature](image)

**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" H2O 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
- **Dry Weight**:
  - Fan to Flywheel Engine: — lb (kg) 11820 (5360)
  - Wet Weight: — lb (kg) 12485 (5662)
- **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)
- **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**: — US gal (liter) 47 - 39 (178 - 148)
- **Total System Capacity (Including Bypass Filter)**: — US gal (liter) 54 (204)

# FUEL SYSTEM

- **Type**: 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): 1500 rpm
- Battery Charging System, Negative Ground: 35 ampere
- Maximum Allowable Resistance of Cranking Circuit: 0.002 ohm

### Minimum Recommended Battery Capacity

- Cold Soak @ 50°F (10°C) and Above: 1280 CCA
- Cold Soak @ 32°F to 50°F (0°C to 10°C): 1800 CCA
- Cold Soak @ 0°F to 32°F (-18°C to 0°C): 1800 CCA

## COLD START CAPABILITY

- Minimum Ambient Temperature for Aided (with Coolant Heater) Cold Start within 10 seconds: 50°F (10°C)
- Minimum Ambient Temperature for Unaided Cold Start: 45°F (7°C)

## 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:
  - Altitude: 110 m (361 ft)
  - Relative Humidity: 30%
  - Barometric Pressure: 100 kPa (29.53 in Hg)
  - Air Temperature: 25°C (77°F)

### Steady State Stability Band at any Constant Load

Estimates are ±0.25% for ±0.25%.

Estimated Free Field Sound Pressure Level of a Typical Generator Set:

- Exhaust Noise at 1 m Horizontally from Centerline of Exhaust Pipe Outlet Upwards at 45°: 92.4 dBA

## OVERLOAD POWER

<table>
<thead>
<tr>
<th>Engine Speed</th>
<th>PRIME POWER</th>
<th>OVERLOAD POWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500 rpm</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>725 - 775</td>
<td>725 - 775</td>
<td>12250</td>
</tr>
<tr>
<td>1915 (1429)</td>
<td>12250</td>
<td>1915 (1429)</td>
</tr>
<tr>
<td>300 (2275)</td>
<td>300 (2275)</td>
<td>300 (2275)</td>
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<tr>
<td>1562 (7.9)</td>
<td>1562 (7.9)</td>
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<tr>
<td>155 (116)</td>
<td>155 (116)</td>
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</tr>
<tr>
<td>3500 (1655)</td>
<td>3500 (1655)</td>
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</tr>
<tr>
<td>950 (510)</td>
<td>950 (510)</td>
<td>950 (510)</td>
</tr>
<tr>
<td>9210 (4350)</td>
<td>9210 (4350)</td>
<td>9210 (4350)</td>
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<tr>
<td>23.2 : 1</td>
<td>23.2 : 1</td>
<td>23.2 : 1</td>
</tr>
<tr>
<td>12000 (210)</td>
<td>12000 (210)</td>
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</tr>
<tr>
<td>54200 (954)</td>
<td>54200 (954)</td>
<td>54200 (954)</td>
</tr>
<tr>
<td>10700 (299)</td>
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</tr>
<tr>
<td>47500 (835)</td>
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<td>47500 (835)</td>
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<tr>
<td>3350 (1581)</td>
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<td>930 (499)</td>
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<td>24.5 : 1</td>
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</tr>
<tr>
<td>10000 (198)</td>
<td>10000 (198)</td>
<td>10000 (198)</td>
</tr>
</tbody>
</table>

## Additional Engine Data

### Engine Data with Dry Type Exhaust Manifold

- Intake Air Flow: 3500 (1655) cfm (liter / s)
- Exhaust Gas Temperature: 950 (510) °F
- Exhaust Gas Flow: 9210 (4350) cfm (liter / s)
- Heat Rejection to Exhaust: 8555 (4038) BTU / min (kW m)

### Additional Engine Aftercooler Data (2 Pump / 2 Loop)

- Engine Jacket Coolant Flow at Stated Friction Head External to Engine: 440 (27.8) US gpm (liter / s)
- Heat Rejection to Coolant: 400 (25.2) BTU / min (kW m)
- Heat Rejection to Coolant (Engine): 15600 (275) BTU / min (kW m)
- Heat Rejection to Coolant (Aftercooler): 35000 (615) BTU / min (kW m)

### Additional Engine Aftercooler Data (1 Pump / 2 Loop)

- Engine Jacket Coolant Flow at Stated Friction Head External to Engine: 440 (27.8) US gpm (liter / s)
- Heat Rejection to Coolant: 400 (25.2) BTU / min (kW m)
- Heat Rejection to Coolant (Engine): 15600 (275) BTU / min (kW m)
- Heat Rejection to Coolant (Aftercooler): 35000 (615) BTU / min (kW m)

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