Marine Performance Curve

**Basic Engine Model:** 6BTA5.9-M  
**Engine Configuration:** D403041MX02  
**CPL Code:** 8457  
**Date:** 04Aug03  
**Displacement:** 5.9 liter [359 cubic in]  
**Bore:** 102 mm [4.02 inch]  
**Stroke:** 120 mm [4.72 inch]  
**Fuel System:** Bosch P7100  
**Cylinders:** 6  
**Rated Power Output Curve**

<table>
<thead>
<tr>
<th>Engine Speed (rpm)</th>
<th>Rated Power (kW)</th>
<th>Advertised Power (bhp, mhp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000</td>
<td>265</td>
<td>355</td>
</tr>
<tr>
<td>2800</td>
<td>268</td>
<td>359</td>
</tr>
<tr>
<td>2600</td>
<td>259</td>
<td>347</td>
</tr>
<tr>
<td>2400</td>
<td>246</td>
<td>330</td>
</tr>
<tr>
<td>2200</td>
<td>229</td>
<td>307</td>
</tr>
<tr>
<td>2000</td>
<td>209</td>
<td>281</td>
</tr>
<tr>
<td>1800</td>
<td>184</td>
<td>246</td>
</tr>
<tr>
<td>1600</td>
<td>155</td>
<td>208</td>
</tr>
<tr>
<td>1400</td>
<td>101</td>
<td>135</td>
</tr>
<tr>
<td>1200</td>
<td>73</td>
<td>98</td>
</tr>
<tr>
<td>1000</td>
<td>52</td>
<td>69</td>
</tr>
<tr>
<td>800</td>
<td>37</td>
<td>50</td>
</tr>
</tbody>
</table>

**Full Load Torque Curve**

<table>
<thead>
<tr>
<th>Engine Speed (rpm)</th>
<th>Torque (N•m)</th>
<th>Torque (ft•lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000</td>
<td>842</td>
<td>621</td>
</tr>
<tr>
<td>2800</td>
<td>914</td>
<td>674</td>
</tr>
<tr>
<td>2600</td>
<td>949</td>
<td>700</td>
</tr>
<tr>
<td>2400</td>
<td>979</td>
<td>722</td>
</tr>
<tr>
<td>2200</td>
<td>993</td>
<td>732</td>
</tr>
<tr>
<td>2000</td>
<td>999</td>
<td>737</td>
</tr>
<tr>
<td>1800</td>
<td>975</td>
<td>719</td>
</tr>
<tr>
<td>1600</td>
<td>925</td>
<td>682</td>
</tr>
<tr>
<td>1400</td>
<td>686</td>
<td>506</td>
</tr>
<tr>
<td>1200</td>
<td>582</td>
<td>429</td>
</tr>
<tr>
<td>1000</td>
<td>495</td>
<td>365</td>
</tr>
<tr>
<td>800</td>
<td>445</td>
<td>328</td>
</tr>
</tbody>
</table>

**Fuel Consumption - Prop Curve**

<table>
<thead>
<tr>
<th>Engine Speed (rpm)</th>
<th>Fuel Consumption (l/hr)</th>
<th>Fuel Consumption (gal/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000</td>
<td>76.1</td>
<td>20.1</td>
</tr>
<tr>
<td>2800</td>
<td>59.6</td>
<td>15.7</td>
</tr>
<tr>
<td>2600</td>
<td>46.1</td>
<td>12.2</td>
</tr>
<tr>
<td>2400</td>
<td>37.0</td>
<td>9.8</td>
</tr>
<tr>
<td>2200</td>
<td>30.3</td>
<td>8.0</td>
</tr>
<tr>
<td>2000</td>
<td>23.8</td>
<td>6.3</td>
</tr>
<tr>
<td>1800</td>
<td>18.4</td>
<td>4.9</td>
</tr>
<tr>
<td>1600</td>
<td>14.1</td>
<td>3.7</td>
</tr>
<tr>
<td>1400</td>
<td>10.3</td>
<td>2.7</td>
</tr>
<tr>
<td>1200</td>
<td>7.0</td>
<td>1.9</td>
</tr>
<tr>
<td>1000</td>
<td>4.9</td>
<td>1.3</td>
</tr>
<tr>
<td>800</td>
<td>3.0</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Rating Conditions: Ratings are based upon ISO 8665 and SAE J1228 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25°C [77°F], and 30% relative humidity. Power is rated in accordance with IMCI procedures. Member NMMA.

Rated Curves (upper) represent rated power at the crankshaft for mature gross engine performance capabilities obtained and corrected in accordance with ISO 3046. Propeller Curve (lower) is based on a typical fixed propeller demand curve using a 2.7 exponent. Propeller Shaft Power is approximately 3% less than rated crankshaft power after typical reverse/reduction gear losses and may vary depending on the type of gear or propulsion system used.

Fuel Consumption is based on fuel of 35° API gravity at 16°C [60°F] having LHV of 42,780 kJ/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

**High Output Rating:** This Rating is for use in variable load applications where full power is limited to one (1) hour out of every eight (8) hours of operation. Also, reduced power operations must be at or below 200 RPM of the maximum rated RPM. This rating is for pleasure/non-revenue generating applications that operate 300 hours per year or less.

**CHIEF ENGINEER**
Marine Engine Performance Data

CUMMINS ENGINE COMPANY, INC.
COLUMBUS, INDIANA

All Data is Subject to Change Without Notice - Consult the following Cummins intranet site for most recent data: http://www.cummins.com

6BTA5.9-M

General Engine Data

Engine Model: 6BTA5.9-M
Rating Type: High Output
Rated Engine Power: 265 [355] kW [bhp]
Rated Engine Speed: 3000 rpm
Rated Engine Torque: 842 [621] N•m [ft•lb]
Peak Engine Torque @ 2200 rpm: 952 [732] N•m [ft•lb]
Indicated Mean Effective Pressure: 1796 [261] kPa [psi]
Compression Ratio: 16.5:1
Firing Order: 1-5-3-6-2-4
Weight (Dry) Engine With Heat Exchanger System - Average: 581 [1280] kg [lb]
Weight (Dry) Engine Only - Average: 533 [1175] kg [lb]

Noise and Vibration

Average Noise Level - Top (Idle): N.A.
Average Noise Level - Right Side (Idle): N.A.
Average Noise Level - Left Side (Idle): N.A.
Average Noise Level - Front (Idle): N.A.
Approximate Fuel Flow to Pump: 277 [73] l/hr [gal/hr]
Approximate Fuel Return to Tank: 201 [53] l/hr [gal/hr]

Fuel System

Fuel Consumption @ Rated Speed: 76 [20] l/hr [gal/hr]
Approximate Fuel Flow to Pump: 277 [73] l/hr [gal/hr]
Maximum Allowable Fuel Supply to Tank Temperature: 60 [140] °C [°F]
Approximate Fuel Flow Return to Tank: 201 [53] l/hr [gal/hr]
Maximum Heat Rejection to Drain Fuel: 1 [36] kW [Btu/min]
Fuel Transfer Pump Pressure Range: 165-331 [24-48] kPa [psi]

Air System

Intake Manifold Pressure: 210 [62] kPa [in Hg]
Intake Air Flow: 361 [765] l/sec [cfm]
Heat Rejection to Ambient: 35 [2012] kW [Btu/min]

Exhaust System

Exhaust Gas Temperature: 477 [890] °C [°F]

TBD = To Be Decided
N/A = Not Applicable
N.A. = Not Available

1All Data at Rated Conditions
2Consult Installation Direction Booklet for Limitations
3Heat rejection values are based on 50% water/ 50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler, a service fouling factor should be applied according to the cooler manufacturer’s recommendation.
4May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.
Emissions (in accordance with ISO 8178 Cycle E3)

- NOx (Oxides of Nitrogen): 8.77 [6.54] g/kW·hr [g/kW·hr]
- HC (Hydrocarbons): N.A. g/kW·hr [g/kW·hr]
- CO (Carbon Monoxide): N.A. g/kW·hr [g/kW·hr]
- PM (Particulate Matter): N.A. g/kW·hr [g/kW·hr]

Cooling System¹

Sea Water Pump Specifications: MAB 0.08.17-07/16/2001
- Pressure Cap Rating (With Heat Exchanger Option): 103 [15] kPa [psi]

Engines with Standard Aftercooling

- Standard Thermostat Operating Range: Start to Open: 83 [181] °C [°F]
  Full Open: 95 [203] °C [°F]
- Heat Rejection to Engine Coolant³: 184 [10,500] kW [Btu/min]

Engines with Low Temperature Aftercooling (if applicable)

Main Cooler

- Coolant Flow to Engine Heat Exchanger/Keel Cooler: N/A l/min [gal/min]
- Standard Thermostat Operating Range: Start to Open: N/A °C [°F]
  Full Open: N/A °C [°F]
- Heat Rejection to Engine Coolant³: N/A kW [Btu/min]

LTA Cooler

- Coolant Flow to LTA Heat Exchanger/Keel Cooler: N/A l/min [gal/min]
- LTA Thermostat Operating Range: Start to Open: N/A °C [°F]
  Full Open: N/A °C [°F]
- Heat Rejection to LTA Coolant³: N/A kW [Btu/min]

Single Loop Low Temperature Aftercooling (if applicable)

- Coolant Flow to LTA Heat Exchanger/Keel Cooler: N/A l/min [gal/min]
- LTA Thermostat Operating Range: Start to Open: N/A °C [°F]
  Full Open: N/A °C [°F]
- Heat Rejection to LTA Coolant³: N/A kW [Btu/min]

¹ All Data at Rated Conditions
² Consult Installation Direction Booklet for Limitations
³ Heat rejection values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler, a service fouling factor should be applied according to the cooler manufacturer's recommendation.
⁴ May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

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