



CUMMINS MERCURISER DIESEL
 Charleston, SC 29405
Marine Performance Curves

Basic Engine Model
MR706LH

Curve Number:
BC9156

Engine Configuration
D913003MX03

CPL Code:

Date:

17-Oct-06

Displacement: **4.2 liter 254 in³**
 Bore: **94 mm 3.70 in**
 Stroke: **100 mm 3.94 in**
 Fuel System: **Bosch Common Rail (CRS 2.0)**
 Cylinders: **6**

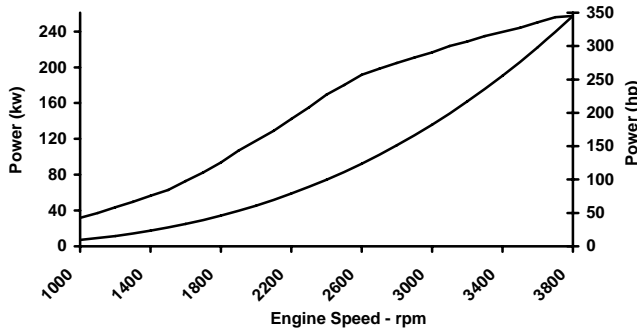
kW [bhp, mhp] @ rpm
 Advertised Power: **257 [345,350] @ 3800**

Aspiration: **Turbocharged/Sea Water Aftercooled**
 Rating Type: **High Output**

PRELIMINARY

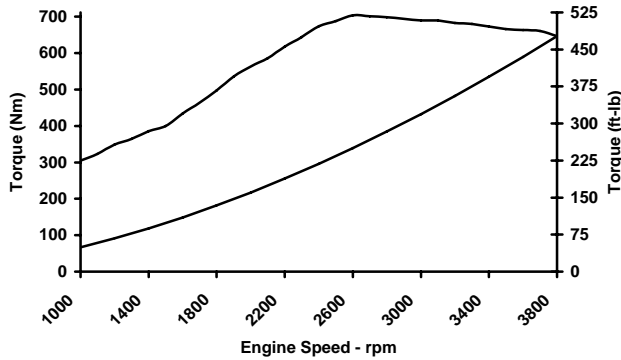
CERTIFIED: This marine diesel engine is certified to the model year requirements of EPA Marine Tier 2 per 40 CFR 94 and conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

RATED POWER OUTPUT CURVE



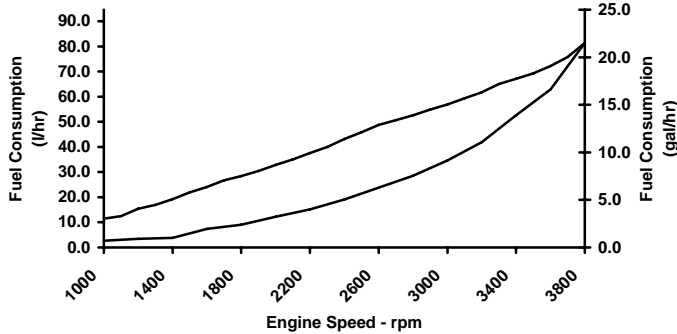
| rpm | kw | bhp |
|------|-----|-----|
| 3800 | 257 | 345 |
| 3600 | 250 | 336 |
| 3400 | 240 | 321 |
| 3200 | 229 | 307 |
| 3000 | 217 | 291 |
| 2800 | 205 | 275 |
| 2600 | 192 | 257 |
| 2400 | 169 | 227 |
| 2000 | 118 | 158 |
| 1600 | 73 | 98 |
| 1400 | 57 | 76 |
| 1000 | 32 | 43 |

FULL LOAD TORQUE CURVE



| rpm | N-m | ft-lb |
|------|-----|-------|
| 3800 | 647 | 477 |
| 3600 | 664 | 490 |
| 3400 | 673 | 496 |
| 3200 | 683 | 504 |
| 3000 | 690 | 509 |
| 2800 | 699 | 515 |
| 2600 | 704 | 519 |
| 2400 | 674 | 497 |
| 2000 | 563 | 415 |
| 1600 | 434 | 320 |
| 1400 | 386 | 285 |
| 1000 | 305 | 225 |

FUEL CONSUMPTION - PROP CURVE



| rpm | l/hr | gal/hr |
|------|------|--------|
| 3800 | 81.4 | 21.5 |
| 3600 | 62.9 | 16.6 |
| 3400 | 52.6 | 13.9 |
| 3200 | 41.9 | 11.1 |
| 3000 | 34.7 | 9.2 |
| 2800 | 28.6 | 7.5 |
| 2600 | 23.8 | 6.3 |
| 2400 | 19.1 | 5.1 |
| 2000 | 12.2 | 3.2 |
| 1600 | 7.4 | 1.9 |
| 1400 | 3.8 | 1.0 |
| 1000 | 2.7 | 0.7 |

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

Rated Curves (upper) represents 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 deg. API gravity at 16 deg C [60 deg. 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 (HO) Intended 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 must be at or below 200 rpm of the maximum rated rpm. This power rating is for pleasure/non-revenue generating applications that operate 500 hours per year or less.

Propulsion Marine Engine Performance Data

Curve No. BC9156
 DS :
 CPL :
 DATE: 17-Oct-06

PRELIMINARY

General Engine Data

| | |
|--|-------------|
| Engine Model | MR706LH |
| Rating Type | High Output |
| Rated Engine Power | 257 [345] |
| Rated Engine Speed | 3800 |
| Rated Power Production Tolerance | ±% 5 |
| Rated Engine Torque | 647 [477] |
| Peak Engine Torque @ 2600 rpm | 704 [519] |
| Brake Mean Effective Pressure | 1952 [283] |
| Indicated Mean Effective Pressure | 1952 [283] |
| Minimum Idle Speed Setting | 600 |
| Normal Idle Speed Variation | 25 |
| High Idle Speed Range Minimum | 3880 |
| High Idle Speed Range Maximum | 3920 |
| Maximum Allowable Engine Speed | 3900 |
| Compression Ratio | 17.5:1 |
| Piston Speed | 12.7 [2493] |
| Firing Order | 1-5-3-6-2-4 |
| Weight (Dry) - Engine Only - Average | [TBD] |
| Weight (Dry) - Engine With Heat Exchanger System - Average | 460 [1014] |
| Weight Tolerance (Dry) Engine Only | [TBD] |

Noise and Vibration

| | | | |
|----------------------------------|---------------|----------|-------|
| Average Noise Level - Top | (Idle)..... | dBa @ 1m | [TBD] |
| | (Rated) | dBa @ 1m | [TBD] |
| Average Noise Level - Right Side | (Idle)..... | dBa @ 1m | [TBD] |
| | (Rated) | dBa @ 1m | [TBD] |
| Average Noise Level - Left Side | (Idle)..... | dBa @ 1m | [TBD] |
| | (Rated) | dBa @ 1m | [TBD] |
| Average Noise Level - Front | (Idle)..... | dBa @ 1m | [TBD] |
| | (Rated) | dBa @ 1m | [TBD] |

Fuel System¹

| | | |
|---|---------------|------------|
| Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle | l/hr [gal/hr] | 52.7 [14] |
| Fuel Consumption at Rated Speed | l/hr [gal/hr] | 81.4 [22] |
| Approximate Fuel Flow to Pump | l/hr [gal/hr] | [TBD] |
| Maximum Allowable Fuel Supply to Pump Temperature | °C [°F] | 60.0 [140] |
| Approximate Fuel Flow Return to Tank | l/hr [gal/hr] | [TBD] |
| Approximate Fuel Return to Tank Temperature With Cooler | °C [°F] | 41.1 [106] |
| Maximum Heat Rejection to Drain Fuel | kW [Btu/min] | [TBD] |

Air System¹

| | | |
|---------------------------------|--------------|-----------|
| Intake Manifold Pressure | kPa [in Hg] | 227 [67] |
| Intake Air Flow | l/sec [cfm] | 326 [690] |
| Heat Rejection to Ambient | kW [Btu/min] | [TBD] |

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

- ¹ All Data at Rated Conditions.
- ² Consult Installation Direction Booklet for Limitations.
- ³ Heat rejection to coolant 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 Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
- ⁵ May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

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 COLUMBUS, INDIANA

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<http://www.cummins.com>

Propulsion Marine Engine Performance Data

Curve No. BC9156
 DS :
 CPL :
 DATE: 17-Oct-06

PRELIMINARY

| | | |
|--|------------------------|-------------|
| Exhaust System¹ | | |
| Exhaust Gas Flow | l/sec [cfm] | [TBD] |
| Exhaust Gas Temperature (Turbine Out) | °C [°F] | 583 [1081] |
| Exhaust Gas Temperature (Manifold) | °C [°F] | 668 [1234] |
| Emissions (in accordance with ISO 8178 Cycle E3) | | |
| NOx (Oxides of Nitrogen) | g/kw-hr [g/hp-hr] | 4.38 [3.26] |
| HC (Hydrocarbons) | g/kw-hr [g/hp-hr] | 0.12 [0.09] |
| CO (Carbon Monoxide) | g/kw-hr [g/hp-hr] | 1.63 [1.22] |
| PM (Particulate Matter) | g/kw-hr [g/hp-hr] | [TBD] |
| Emissions (ISO 8178 Cycle E5 - for Traditional Propulsion Applications) | | |
| NOx (Oxides of Nitrogen) | g/kw-hr [g/hp-hr] | 4.16 [3.10] |
| HC (Hydrocarbons) | g/kw-hr [g/hp-hr] | 0.19 [0.14] |
| CO (Carbon Monoxide) | g/kw-hr [g/hp-hr] | 1.58 [1.18] |
| PM (Particulate Matter) | g/kw-hr [g/hp-hr] | 0.37 [0.28] |
| Cooling System¹ | | |
| Sea Water Pump Specifications | MAB 0.08.17-07/16/2001 | |
| Pressure Cap Rating (With Heat Exchanger Option) | kPa [psi] | 103 [15] |
| Engines without Low Temperature Aftercooling (LTA) | | |
| Sea Water Aftercooled Engine (SWAC) | | |
| Standard Thermostat Operating Range (Start to Open) | °C [°F] | 80 [176] |
| Standard Thermostat Operating Range (Full Open) | °C [°F] | 95 [202] |

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