



**CUMMINS MERCURISER DIESEL**  
Charleston, SC 29405  
**Marine Performance Curves**

Basic Engine Model

**MR706LH**

Engine Configuration

**D913003MX03**

Curve Number:

**BC9153, BC9156**

CPL Code:

Date:

**12-Aug-08**

Displacement: **4.2 liter 254 in<sup>3</sup>**  
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**

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**

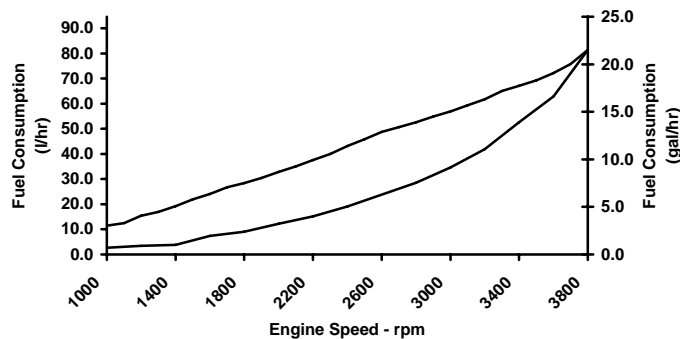
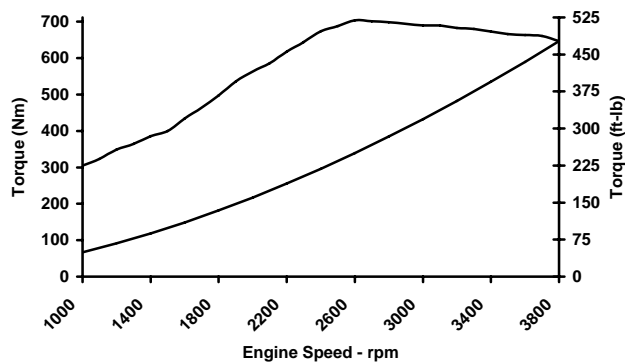
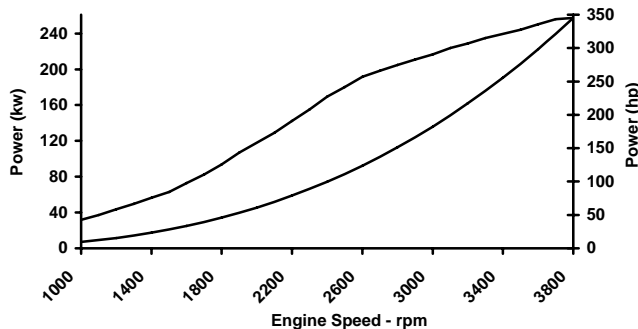
rpm	kW	bhp
3800	257	345
3600	250	336
3400	240	321
3200	229	307
3000	217	291
2800	205	275
2600	192	257
2400	169	227
2000	118	158
1600	73	98
1400	57	76
1000	32	43

**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 400 rpm of the maximum rated rpm. This power rating is for pleasure/non-revenue generating applications that operate 500 hours per year or less.

*James D. Kuhlendorf*

CHIEF ENGINEER

# Propulsion Marine Engine Performance Data

Curve No.  
DS :  
CPL :  
DATE:

BC9153, BC9156

12-Aug-08

## General Engine Data

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

## Fuel System<sup>1</sup>

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]
Maximum Allowable Fuel Supply to Pump Temperature .....°C [°F]	60.0 [140]
Approximate Fuel Return to Tank Temperature With Cooler.....°C [°F]	41.1 [106]

## Air System<sup>1</sup>

Intake Manifold Pressure .....kPa [in Hg]	227 [67]
Intake Air Flow .....l/sec [cfm]	326 [690]

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

<sup>1</sup> All Data at Rated Conditions.

<sup>2</sup> Consult Installation Direction Booklet for Limitations.

<sup>3</sup> 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.

<sup>4</sup> Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.

<sup>5</sup> May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

CUMMINS ENGINE COMPANY, INC  
COLUMBUS, INDIANA

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## Exhaust System<sup>1</sup>

Exhaust Gas Temperature (Turbine Out) .....	°C [°F]	583 [1081]
Exhaust Gas Temperature (Manifold) .....	°C [°F]	668 [1234]

## 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 System<sup>1</sup>

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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