



CUMMINS ENGINE COMPANY, INC
Columbus, Indiana 47201

Marine Performance Curve

Basic Engine Model:
6BTA5.9-M (SW)

Curve Number:
M-90210

Marine
Pg. No.

Engine Configuration:
D403041MX02

CPL Code:
1975

Date:
28Aug04

**M
43**

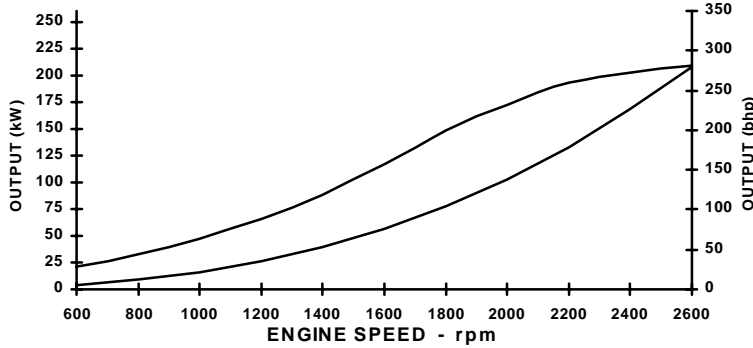
Displacement: **5.9 liters [359 in.³]**
Bore: **102 mm [4.02 in.]**
Stroke: **120 mm [4.72 in.]**
Fuel System: **Inline Bosch P7100**
Cylinders: **6**

Advertised Power: **kW [bhp] @ rpm**
209 [280] @ 2600

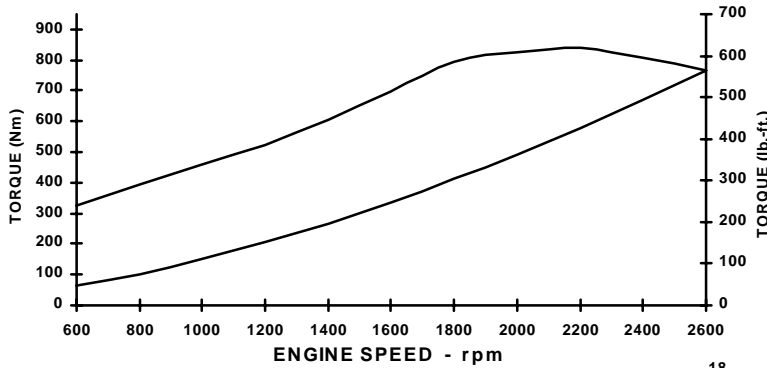
Aspiration: **Turbocharged / Sea Water Aftercooled**
Rating Type: **Medium Continuous**

CERTIFIED: This marine diesel engine conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

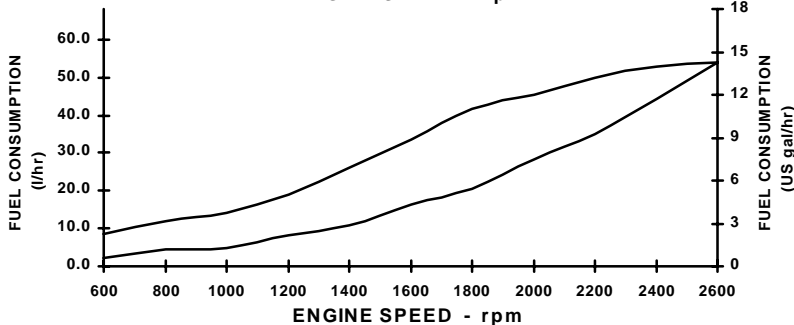
RATED POWER OUTPUT CURVE



FULL LOAD TORQUE CURVE



FUEL CONSUMPTION - PROP CURVE



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].

Medium Continuous Rating: This power rating is intended for continuous use in variable load applications where full power is limited to six (6) hours out of every twelve (12) hours of operation. Also, reduced power operations must be at or below 200 RPM of the maximum rated RPM. This is an ISO 3046 Fuel Stop Power Rating and is for applications that operate 3,000 hours per year or less.

CHIEF ENGINEER

Marine Engine Performance Data

Curve No. M-90210
DS-4960
CPL: 1975
DATE: 28Aug04

General Engine Data

Engine Model	6BTA5.9-M (SW)
Rating Type	Medium Continuous
Rated Engine Power	209 [280]
Rated Engine Speed	2600
Rated HP Production Tolerance	±5
Rated Engine Torque.....	767 [566]
Peak Engine Torque @ 2200 RPM	841 [620]
Brake Mean Effective Pressure.....	1638 [238]
Minimum Idle Speed Setting	600
Normal Idle Speed Variation	±50
High Idle Speed Range - Minimum	2925
High Idle Speed Range - Maximum	3025
Maximum Torque Capacity from Front of Crank ²	N.A.
Compression Ratio.....	15.3:1
Piston Speed.....	10.4 [2045]
Firing Order.....	1-5-3-6-2-4
Weight (Dry) Engine Only - Average	538 [1185]
Weight (Dry) Engine With Heat Exchanger System - Average	581 [1280]

Fuel System¹

Approximate Fuel Flow to Pump	108 [29]
Maximum Allowable Fuel Supply to Pump Temperature	60 [140]
Approximate Fuel Flow Return to Tank	54 [14]
Approximate Fuel Return to Tank Temperature With Fuel Cooler	N.A.
Maximum Heat Rejection to Drain Fuel⁵	N.A.
Fuel Transfer Pump Pressure Range	124 - 172 [18-25]

Air System¹

Intake Manifold Pressure	1118 [44]
Intake Air Flow	248 [525]
Heat Rejection to Ambient	31 [1750]

Exhaust System¹

Exhaust Gas Flow	649 [1375]
Exhaust Gas Temperature (Turbine Out)	441 [825]
Exhaust Gas Temperature (Manifold).....	N.A.

Emissions (in accordance with ISO8178 Cycle E3)

NOx (Oxides of Nitrogen)	9.08 [6.77]
HC (Hydrocarbons)	0.28 [0.21]
CO (Carbon Monoxide)	2.09 [1.56]
PM (Particulate Matter)	0.21 [0.16]

Cooling System¹

Coolant Flow to Engine Heat Exchanger/Keel Cooler	273 [72]
Standard Thermostat Operating Range (Min.)	83 [181]
Standard Thermostat Operating Range (Max.)	95 [203]
Heat Rejection to Engine Coolant ³	119 [6,800]
Sea Water Flow (With Heat Exchanger Option)⁴	227 [60]
Pressure Cap Rating (With Heat Exchanger Option).....	103 [15]

INSTALLATION DRAWING

Engine Only	3626425
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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.

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

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

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>