



**CUMMINS MARINE**  
Columbus, Indiana 47201  
**Marine Performance Curve**

Basic Engine Model:  
**6BT5.9-D(M)**

Curve Number:  
**D(M)-90441**

Marine  
Pg. No.  
**B**  
**15**

Engine Configuration:  
**D402051MX02**

CPL Code:  
**1524**

Date:  
**25May00**

Displacement: **5.88 litre [359 in.<sup>3</sup>]**  
Bore: **102 mm [4.02 in.]**  
Stroke: **120 mm [4.72]**  
Fuel System: **Stanadyne DB4**  
Cylinders: **6**

Aspiration: **Turbocharged**  
Exhaust Type: **Wet**

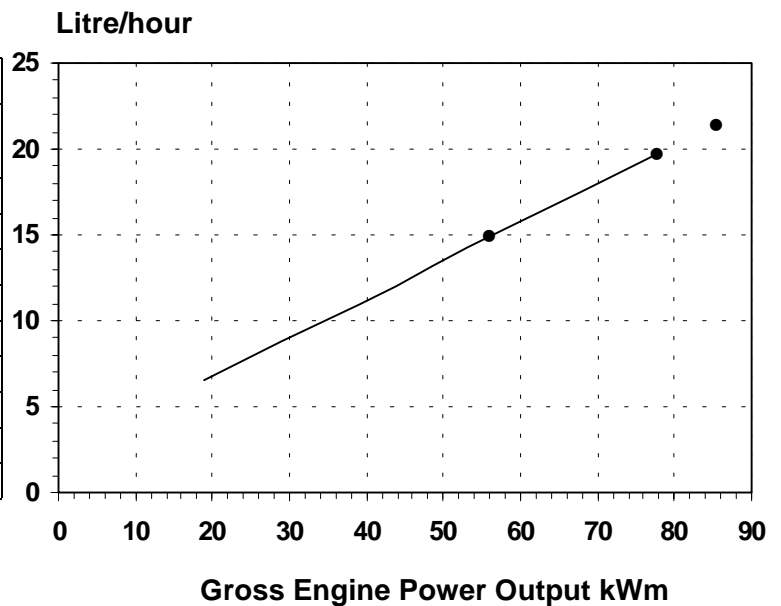
**Prime Power Rating** kW [HP] @ RPM  
**78 [104] @ 1500**

**PRELIMINARY**

Engine Speed RPM	Overload Capacity		Prime Power		Continuous Power	
	kWm	BHP	kWm	BHP	kWm	BHP
1500	86	115	78	104	56	75

**Engine Performance Data @ 1500 RPM**

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm·h	lb/ BHP·h	litre/ hour	U.S. Gal/ hour
<b>10% OVERLOAD CAPACITY</b>						
110%	86	115	0.215	0.354	21.7	5.74
<b>PRIME POWER</b>						
100	78	104	0.217	0.358	19.8	5.24
75	58	78	0.226	0.371	15.4	4.08
50	39	52	0.241	0.396	11.0	2.09
25	19	26	0.289	0.475	6.6	1.74
<b>CONTINUOUS POWER</b>						
100	56	75	0.227	0.373	14.9	3.94



**Rating Conditions:** Ratings are in accordance with ISO 3046 reference conditions; air pressure at 100 kPa (29.61 in. Hg.), air temperature 25°C (77°F), and 30% relative humidity. The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/litre (7.1 lb/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.

Operation at elevated temperatures for sustained operation above 40°C (104°F), derate 2% per 11°C (1% per 10°F).

**Prime Power Rating** is applicable for supplying continual electrical power at varied load. The following are the Prime Rating parameters:

\* Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours.

\* The total operating time at 100% Prime Power shall not exceed 500 hours per year.

\* There is a 10% overload capability for a period of 1 hour within a 12 hour period of operation. Total operating time at 10% overload shall not exceed 25 hours per year.

**Continuous Power Rating** is applicable for supplying continual power at a constant 100% load for an unlimited number of hours per year. There is no overload capability for this rating.

**TECHNICAL DATA DEPT.**

**CHIEF ENGINEER**

# PRELIMINARY

## Marine Auxiliary Engine Performance Data

### General Engine Data<sup>1</sup>

Engine Model .....	6BT5.9-D(M)	
Rating Type .....	Prime Power	Overload
Rated Engine Power .....	78 [104]	86 [115]
Governed Engine Speed .....	1500	1500
Rated HP Production Tolerance .....	±5	
Rated Engine Torque .....	494 [364]	546 [403]
Idle Speed Range .....	950-1150	
Brake Mean Effective Pressure .....	1055 [153]	1166 [169]
Compression Ratio .....	16.5:1	
Piston Speed .....	6.0 [1180]	
Firing Order .....	1-5-3-6-2-4	
Friction Power .....	17	
Steady State Stability Band at any Constant Load .....	0.5	

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

Approximate Fuel Flow to Pump .....	litre/hr [GPH]	123 [33]	123 [33]
Max. Allowable Fuel Supply to Pump Temperature .....	°C [°F]	60 [140]	60 [140]
Approximate Fuel Flow Return to Tank .....	litre/hr [GPH]	103 [27]	103 [27]

### Weight<sup>1</sup>

Dry - Engine Only .....	kg [lb]	426 [940]	
Dry - Engine With Heat Exchanger .....	kg [lb]	508 [1120]	

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

Intake Manifold Pressure .....	mm Hg [in Hg]	TBD	TBD
Intake Air Flow .....	litre/sec [CFM]	85 [180]	94 [200]
Heat Rejection to Ambient .....	kW [BTU/min]	11 [630]	12 [695]

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

Exhaust Gas Flow .....	litre/sec [CFM]	203 [430]	224 [475]
Exhaust Gas Temperature (Turbine Out) .....	°C [°F]	374 [705]	416 [780]
Exhaust Gas Temperature (Manifold) .....	°C [°F]	TBD	TBD
Heat Rejection to Exhaust .....	kWm [BTU/min]	51 [2900]	54 [3095]

### Cooling System<sup>1</sup>

Coolant Flow to Engine Heat Exchanger/Keel Cooler			
At 1 psi Friction Head External to Engine .....	litre/min [GPM]	121 [32]	
At 5 psi Friction Head External to Engine .....	litre/min [GPM]	91 [24]	
Standard Thermostat Operating Range (Min.) .....	°C [°F]	82 [180]	
Standard Thermostat Operating Range (Max.) .....	°C [°F]	95 [203]	
Heat Rejection to Engine Coolant <sup>3</sup> .....	kWm [BTU/min]	60 [3400]	66 [3760]
Sea Water Flow @ 10 psi Pump Discharge Pressure .....	litre/min [GPM]	34 [9]	
Pressure Cap Rating (With Heat Exchanger Option) .....	kPa [PSI]	69 [10]	

Installation drawings ..... 3170397

Engine General Data Sheet ..... **DS-4020**

TBD = To Be Decided

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.

**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://marketingtechdata.cummins.com/curves/database/htmlfiles/curvemainpage.htm>