



CUMMINS MERCURISER DIESEL
 Charleston, SC 29405
Marine Performance Curves

Basic Engine Model

QSD2.0-170 HO

Curve Number:

BC9157, BC9296

Engine Configuration

D0D3003MX03

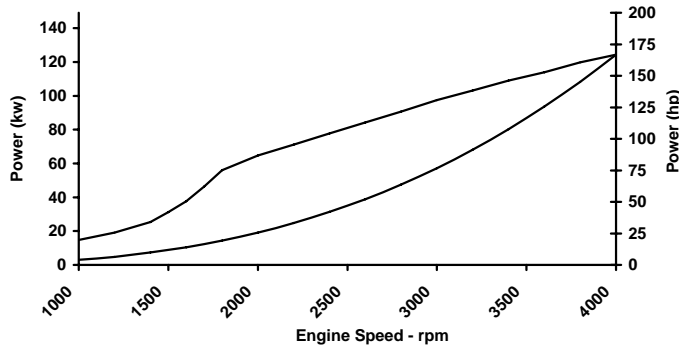
CPL Code:

Date:

9-Jul-09

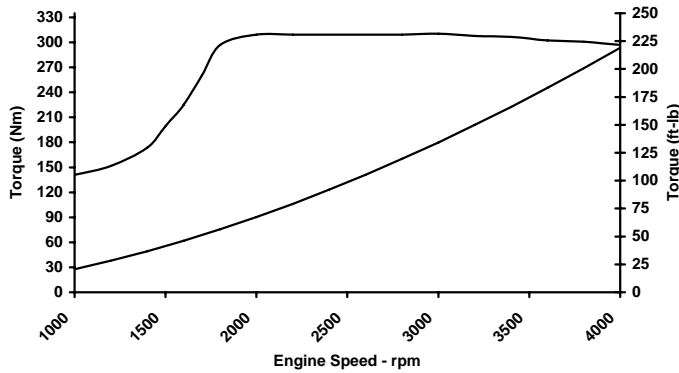
Displacement: **2.0 liter 122 in³** kW [bhp, mhp] @ rpm
 Bore: **83 mm 3.27 in** Advertised Power: **124[167, 170] @ 4000**
 Stroke: **92 mm 3.62 in**
 Fuel System: **Bosch Common Rail (CRS 2.0)** Aspiration: **Turbocharged/Sea Water Aftercooled**
 Cylinders: **4** Rating Type: **High Output**

CERTIFIED: This marine diesel engine complies with or is certified to the:
 IMO - NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13
 EPA Tier 2 - Model year requirements of the EPA marine regulation (40CFR94)



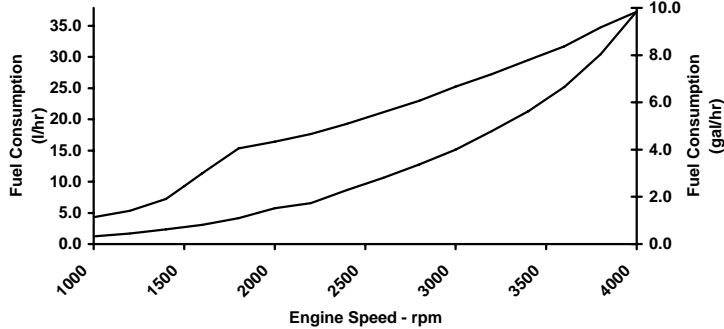
RATED POWER OUTPUT CURVE

rpm	kw	bhp
4000	124	167
3800	120	161
3600	114	153
3400	109	146
3200	103	138
3000	98	131
2600	84	113
2400	78	104
2000	65	87
1600	38	51
1400	25	34
1000	15	20



FULL LOAD TORQUE CURVE

rpm	N-m	ft-lb
4000	297	219
3800	301	222
3600	302	223
3400	306	226
3200	308	227
3000	310	229
2600	309	228
2400	309	228
2000	309	228
1600	225	166
1400	174	128
1000	141	104



FUEL CONSUMPTION - PROP CURVE

rpm	l/hr	gal/hr
4000	37.3	9.9
3800	30.4	8.0
3600	25.2	6.7
3400	21.3	5.6
3200	18.1	4.8
3000	15.1	4.0
2600	10.6	2.8
2400	8.7	2.3
2000	5.7	1.5
1600	3.1	0.8
1400	2.4	0.6
1000	1.2	0.3

Rated Conditions: Ratings are based upon ISO 15550 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 15550. 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.

CHIEF ENGINEER

Propulsion Marine Engine Performance Data

Curve No. BC9157,BC9296
DS : D0D-MX-1
CPL :
DATE: 9-Jul-09

General Engine Data

Engine Model	QSD2.0-170 HO
Rating Type	High Output
Rated Engine Power	124 [167]
Rated Engine Speed	4000
Rated Power Production Tolerance	5
Rated Engine Torque	297 [219]
Peak Engine Torque @ 3000 rpm	310 [229]
Brake Mean Effective Pressure	1874 [272]
Indicated Mean Effective Pressure	2681 [389]
Minimum Idle Speed Setting	700
Normal Idle Speed Variation	25
High Idle Speed Range Minimum	4080
Maximum	4120
Maximum Allowable Engine Speed	4100
Compression Ratio	17.5:1
Piston Speed	12.3 [2415]
Firing Order	1-3-4-2
 Weight (Dry) - Engine With Heat Exchanger System - Average	 250 [551]

Fuel System¹

Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	23.3 [6]
Fuel Consumption at Rated Speed	37.3 [10]
Maximum Allowable Fuel Supply to Pump Temperature	60.0 [140]
Approximate Fuel Return to Tank Temperature Without Cooler	78.4 [173]
With Cooler	41.1 [106]

Air System¹

Intake Air Flow	146 [309]
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TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

- ¹ Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.
- ² No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. 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.

CUMMINS ENGINE COMPANY, INC
 COLUMBUS, INDIANA

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<http://marine.cummins.com>

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Curve No. BC9157,BC9296
DS : D0D-MX-1
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Exhaust System¹

Exhaust Gas Flow	l/sec [cfm]	381 [807]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	599 [1110]
Exhaust Gas Temperature (Manifold)	°C [°F]	781 [1437]

Emissions (ISO 8178 Cycle E5 - for Traditional Propulsion Applications)

NOx (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	5.75 [4.29]
HC (Hydrocarbons)	g/kw-hr [g/hp-hr]	0.35 [0.26]
CO (Carbon Monoxide)	g/kw-hr [g/hp-hr]	0.99 [0.74]
PM (Particulate Matter)	g/kw-hr [g/hp-hr]	0.23 [0.17]

Cooling System¹

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

Engines without Low Temperature Aftercooling (LTA)

Sea Water Aftercooled Engine (SWAC)

Standard Thermostat Operating Range (Start to Open)	°C [°F]	70 [158]
Standard Thermostat Operating Range (Full Open)	°C [°F]	90 [194]

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