

**CUMMINS MERCURISER DIESEL**

Charleston, SC 29405

Marine Performance Curve

Basic Engine Model:

480C-E

Curve Number:

M-90821

Marine

Pg. No.

6C**59**

Engine Configuration:

D413050MX02

CPL Code:

2960

Date:

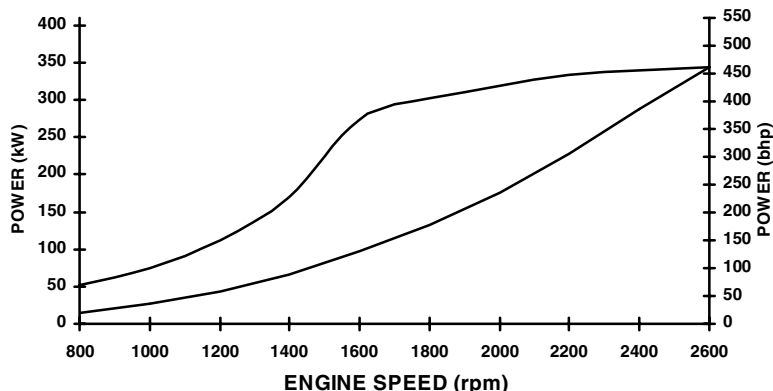
28Oct02

Displacement: **8.3 litre** [504.5 in.³]
Bore: **114 mm** [4.49 in.]
Stroke: **135 mm** [5.32 in.]
Fuel System: **Bosch P7100**
Cylinders: **6**

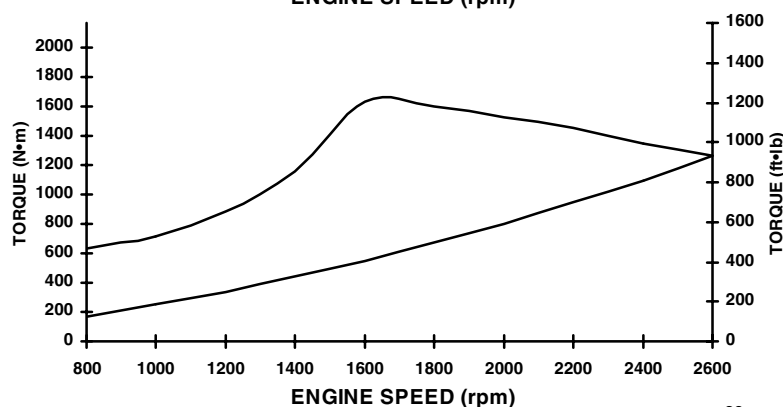
Advertised Power: **344 [460, 480] @ 2600** kW [bhp, mhp] @ rpm

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

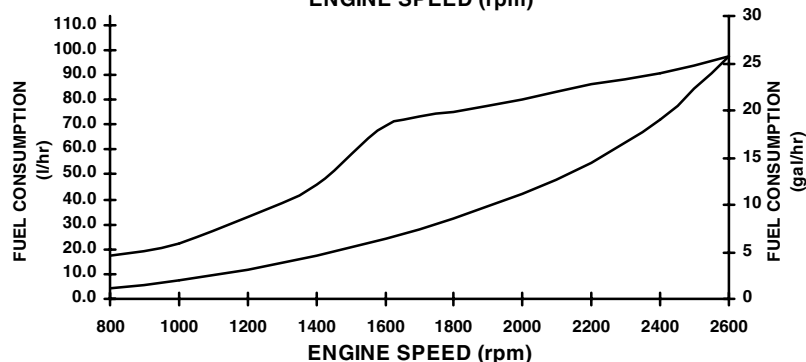
CERTIFIED: This marine diesel engine conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

RATED POWER OUTPUT CURVE

rpm	kW	bhp
2600	344	460
2400	339	455
2200	334	448
2000	319	428
1800	302	405
1600	274	367
1400	171	229
1200	111	149
1000	75	100
800	53	71

FULL LOAD TORQUE CURVE

rpm	N·m	ft·lb
2600	1261	930
2400	1349	995
2200	1451	1070
2000	1524	1124
1800	1601	1181
1600	1634	1205
1400	1163	858
1200	886	653
1000	712	525
800	628	463

FUEL CONSUMPTION - PROP CURVE

rpm	l/hr	gal/hr
2600	97.3	25.7
2400	72.0	19.0
2200	54.9	14.5
2000	42.4	11.2
1800	32.2	8.5
1600	24.1	6.4
1400	17.1	4.5
1200	11.5	3.0
1000	7.4	1.9
800	4.5	1.2

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].

High Output Rating: This Rating is 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 operations must be at or below 200 RPM of the maximum rated RPM. This rating is for pleasure/non-revenue generating applications that operate 300 hours per year or less.

CHIEF ENGINEER

Marine Engine Performance Data

Curve No. M-90821
DS-4961
CPL: 2960
DATE: 28Oct02

6C

60

General Engine Data

Engine Model.....	480C-E
Rating Type	High Output
Rated Engine Power	344 [460, 480]
Rated Engine Speed	2600
Rated HP Production Tolerance.....	±5
Rated Engine Torque	1261 [930]
Peak Engine Torque	1634 [1205]
Brake Mean Effective Pressure	1917 [278]
Indicated Mean Effective Pressure	2199 [319]
Minimum Idle Speed Setting.....	600
Normal Idle Speed Variation.....	±10
High Idle Speed Range - Minimum.....	2650
High Idle Speed Range - Maximum.....	2700
Maximum Allowable Engine Speed.....	2685
Maximum Torque Capacity from Front of Crank ²	N/A
Compression Ratio	15.35:1
Piston Speed	11.7 [2305]
Firing Order	1-5-3-6-2-4
Weight (Dry) Engine Only - Average	801 [1765]
Weight (Dry) Engine With Heat Exchanger System - Average.....	841 [1855]
Weight Tolerance (Dry) Engine Only.....	N.A.

Noise and Vibration

Average Noise Level - Top	(Idle).....	dBa @ 1m	N.A.
	(Rated).....	dBa @ 1m	N.A.
Average Noise Level - Right Side	(Idle).....	dBa @ 1m	N.A.
	(Rated).....	dBa @ 1m	N.A.
Average Noise Level - Left Side	(Idle).....	dBa @ 1m	N.A.
	(Rated).....	dBa @ 1m	N.A.
Average Noise Level - Front	(Idle).....	dBa @ 1m	N.A.
	(Rated).....	dBa @ 1m	N.A.

Fuel System¹

Average Fuel Consumption - ISO 8178 E3 Standard Test Cycle.....	l/hr [gal/hr]	58 [15]
Fuel Consumption @ rated speed.....	l/hr [gal/hr]	97 [26]
Approximate Fuel Flow to Pump	l/hr [gal/hr]	231 [61]
Maximum Allowable Fuel Supply to Pump Temperature.....	°C [°F]	66 [150]
Approximate Fuel Flow Return to Tank.....	l/hr [gal/hr]	134 [35]
Approximate Fuel Return to Tank Temperature	°C [°F]	41 [105]
Maximum Heat Rejection to Drain Fuel ⁵	kW [Btu/min]	2 [101]
Fuel Transfer Pump Pressure	kPa [psi]	172 [25]
Fuel Rail Pressure - Gauge.....	kPaG [psig]	N.A.
Fuel Rail Pressure - INSITE	kPaA [psia]	N/A

Air System¹

Intake Manifold Pressure.....	mm Hg [in. Hg]	1676 [66]
Intake Air Flow	l/sec [cfm]	477 [1011]
Heat Rejection to Ambient.....	kW [Btu/min]	114 [6500]

Exhaust System¹

Exhaust Gas Flow	l/sec [cfm]	1085 [2300]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	449 [840]
Exhaust Gas Temperature (Manifold)	°C [°F]	677 [1250]

Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw•hr [g/bhp•hr]	8.01 [5.97]
HC (Hydrocarbons).....	g/kw•hr [g/bhp•hr]	0.82 [0.61]
CO (Carbon Monoxide)	g/kw•hr [g/bhp•hr]	0.34 [0.25]
PM (Particulate Matter).....	g/kw•hr [g/bhp•hr]	N.A.
CO ² (Carbon Dioxide)	g/kw•hr [g/bhp•hr]	N.A.

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

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<http://www.cummins.com>

Cooling System¹

Sea Water Flow (With Heat Exchanger Option) ⁴	l/min [gal/min]	257 [68]
Pressure Cap Rating (With Heat Exchanger Option)	kPa [psi]	103 [15]

Engines with Standard Aftercooling

Coolant Flow to Engine Heat Exchanger/Keel Cooler	l/min [gal/min]	329 [87]
Standard Thermostat Operating Range (Min.)	°C [°F]	71 [160]
Standard Thermostat Operating Range (Max.)	°C [°F]	83 [182]
Heat Rejection to Engine Coolant ³	kW [Btu/min]	232 [13,200]

Engines with Low Temperature Aftercooling (if applicable)

Main Cooler

Coolant Flow to Engine Heat Exchanger/Keel Cooler	l/min [gal/min]	N/A
Standard Thermostat Operating Range (Min.)	°C [°F]	N/A
Standard Thermostat Operating Range (Max.)	°C [°F]	N/A
Heat Rejection to Engine Coolant ³	kW [Btu/min]	N/A

LTA Cooler

Coolant Flow to LTA Heat Exchanger/Keel Cooler	l/min [gal/min]	N/A
LTA Thermostat Operating Range (Min.)	°C [°F]	N/A
LTA Thermostat Operating Range (Max.)	°C [°F]	N/A
Heat Rejection to LTA Coolant ³	kW [Btu/min]	N/A

INSTALLATION DRAWING

.....	3170480
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