



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

Basic Engine Model  
**QSM11-455 MCD**

Curve Number:  
**M-20036**

Engine Configuration  
**D353021MX03**

CPL Code:  
**8590**

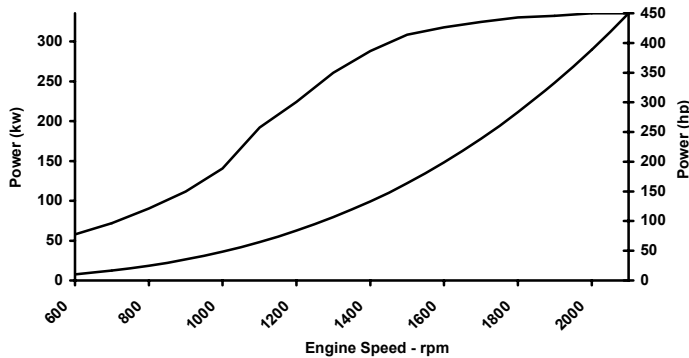
Date:  
**18-Jul-06**

Displacement: **10.8 liter [660 in<sup>3</sup>]**  
 Bore: **125 mm [4.92 in]**  
 Stroke: **147 mm [5.79 in]**  
 Fuel System: **CELECT**  
 Cylinders: **6**

kW [bhp, mhp] @ rpm  
 Advertised Power: **336 [450, 455] @ 2100**

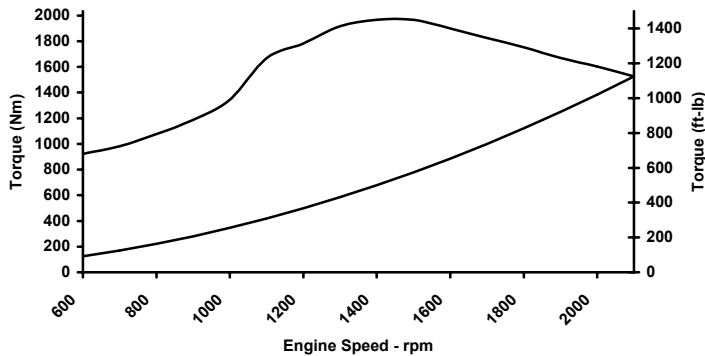
Aspiration: **Turbocharged/Jacket Water Aftercooled**  
 Rating Type: **Medium Continuous Duty**

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.



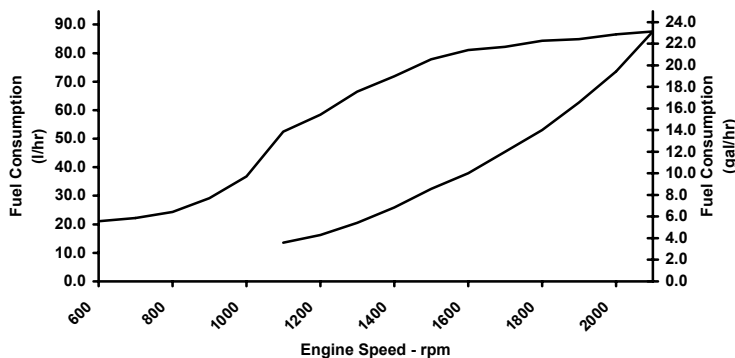
**RATED POWER OUTPUT CURVE**

rpm	kw	bhp
2100	336	450
1900	332	446
1700	325	435
1600	318	427
1400	288	387
1300	261	350
1200	224	300
1100	192	258
1000	141	188
800	90	121
700	72	97
600	58	78



**FULL LOAD TORQUE CURVE**

rpm	N-m	ft-lb
2100	1525	1125
1900	1670	1232
1700	1824	1345
1600	1898	1400
1400	1966	1450
1300	1916	1413
1200	1783	1315
1100	1668	1230
1000	1342	990
800	1078	795
600	922	680



**FUEL CONSUMPTION - PROP CURVE**

rpm	l/hr	gal/hr
2100	87.6	23.1
2000	74.6	19.7
1900	64.6	17.1
1800	55.5	14.7
1700	48.4	12.8
1600	41.1	10.9
1500	35.9	9.5
1400	29.3	7.7
1300	23.7	6.3
1200	19.2	5.1
1100	16.4	4.3

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 3.0 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].

**Medium Continuous Duty (MCD)** 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 rating is an ISO 3046 fuel stop power rating and is for applications that operate less than 3,000 hours per year.

CHIEF ENGINEER



# Propulsion Marine Engine Performance Data

**Curve No.**    **M-20036**  
**DS :**            **3021**  
**CPL :**          **8590**  
**DATE:**        **18-Jul-06**

**Exhaust System<sup>1</sup>**

Exhaust Gas Flow .....	/sec [cfm]	960 [2035]
Exhaust Gas Temperature (Turbine Out) .....	°C [°F]	407 [764]
Exhaust Gas Temperature (Manifold) .....	°C [°F]	601 [1113]

**Emissions (in accordance with ISO 8178 Cycle E3)**

NOx (Oxides of Nitrogen) .....	g/kw-hr [g/hp-hr]	6.19 [4.62]
HC (Hydrocarbons) .....	g/kw-hr [g/hp-hr]	0.22 [0.16]
CO (Carbon Monoxide) .....	g/kw-hr [g/hp-hr]	0.36 [0.27]
PM (Particulate Matter) .....	g/kw-hr [g/hp-hr]	0.14 [0.11]

**Cooling System<sup>1</sup>**

**Sea Water After Cooled Engine**

Sea Water Pump Specifications .....	MAB 0.08.17-07/16/2001	
Pressure Cap Rating .....	kPa [psi]	103 [15]
Thermostat Operating Range (Start to Open) .....	°C [°F]	71 [160]
Thermostat Operating Range(Full Open) .....	°C [°F]	80 [175]

**Engines with Single Loop Keel Cooling**

Coolant Flow to Keel Cooler (with blocked open thermostat) .....	l/min [gal/min]	198 [52]
LTA Thermostat Operating Range (Start to Open) .....	°C [°F]	66 [150]
LTA Thermostat Operating Range (Full Open) .....	°C [°F]	80 [175]
Heat Rejection to Engine Coolant <sup>3</sup> .....	kW [Btu/min]	309 [17607]
Maximum Coolant Inlet Temperature from LTA Cooler .....	°C [°F]	54 [130]

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

All Data is Subject to Change Without Notice - Consult the following Cummins intranet site for most recent data:

<http://www.cummins.com>