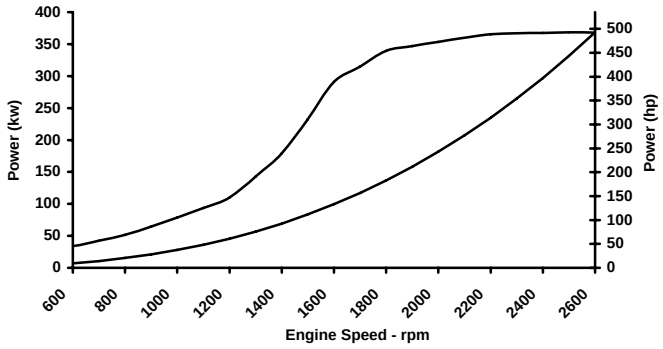
CUMMINS MERCRUISER DIESEL Charleston, SC 29405 Marine Performance Curves	Basic Engine Model QSC8.3-500 INT	Curve Number: M-92044	
	Engine Configuration D413038MX03	CPL Code: 0906	Date: 2-Oct-07

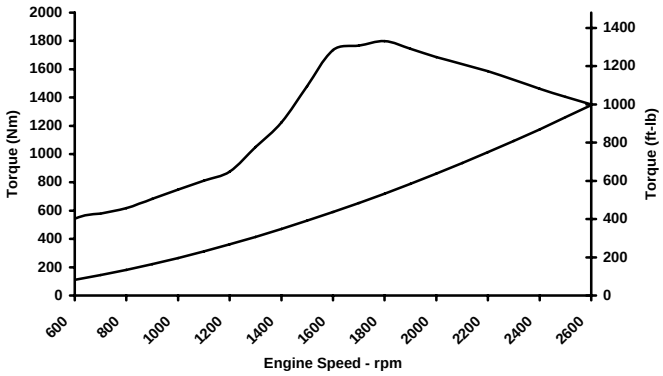
Displacement:	**8.3 liter**	**[505 in^3]**	kW [bhp, mhp] @ rpm	
Bore:	**114 mm**	**[4.49 in]**	Advertised Power:	**368[493, 500] @ 2600**
Stroke:	**135 mm**	**[5.31 in]**		
Fuel System:	**HPCR**		Aspiration:	**Turbocharged / Sea Water Aftercooled**
Cylinders:	**6**		Rating Type:	**Intermittent Duty**

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.



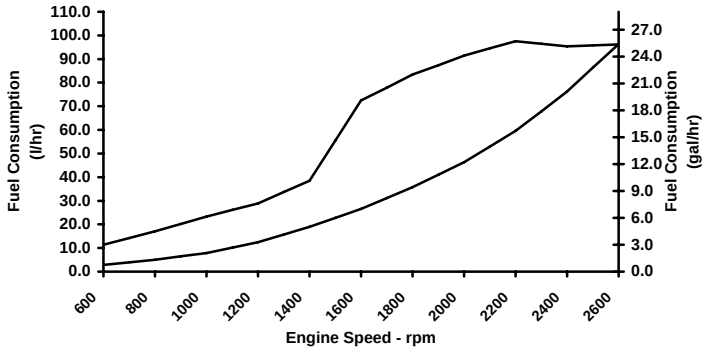
RATED POWER OUTPUT CURVE

rpm	kw	bhp
2600	368	493
2400	367	493
2200	366	490
2000	353	474
1800	339	455
1600	291	390
1400	179	240
1200	110	147
1000	79	105
800	52	69
600	34	46



FULL LOAD TORQUE CURVE

rpm	N-m	ft-lb
2600	1350	996
2400	1462	1078
2200	1586	1170
2000	1687	1244
1800	1799	1327
1600	1735	1280
1400	1223	902
1200	874	645
1000	750	553
800	617	455
600	542	400



FUEL CONSUMPTION - PROP CURVE

rpm	l/hr	gal/hr
2600	96.1	25.4
2400	76.1	20.1
2200	59.4	15.7
2000	46.2	12.2
1800	35.7	9.4
1600	26.5	7.0
1400	18.9	5.0
1200	12.4	3.3
1000	7.8	2.1
800	5.0	1.3
600	2.8	0.7

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 humidy. 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 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].

Intermittent Rating: This power rating is intended for intermittent use in variable load application where full power is limited to two (2) hours out of every eight (8) hours of operation. Also, reduced power operation 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 application that operate less than 1,500 hours per year.

James D Kahlenbach

CHIEF ENGINEER

Propulsion Marine Engine Performance Data

Curve No.	**M-92044**
DS :	**3038**
CPL :	**0906**
DATE:	**2-Oct-07**

General Engine Data

Engine Model		QSC8.3-500 INT
Rating Type		Intermittent Duty
Rated Engine Power	kW [hp]	368 [493]
Rated Engine Speed	rpm	2600
Rated Power Production Tolerance	±%	5
Rated Engine Torque	N·m [lb·ft]	1350 [996]
Peak Engine Torque @ 1800 rpm	N·m [lb·ft]	1799 [1327]
Brake Mean Effective Pressure	kPa [psi]	2052 [298]
Minimum Idle Speed Setting	rpm	600
Normal Idle Speed Variation	rpm	10
High Idle Speed Range Minimum	rpm	2665
Maximum	rpm	2685
Maximum Allowable Engine Speed	rpm	2685
Maximum Torque Capacity from Front of Crank[2]	N·m [lb·ft]	271 [200]
Compression Ratio		16.3:1
Piston Speed	m/sec [ft/min]	11.7 [2303]
Firing Order		1-5-3-6-2-4
Weight (Dry) - Engine With Heat Exchanger System - Average	kg [lb]	896 [1975]

Noise and Vibration

Average Noise Level - Top	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98
Average Noise Level - Right Side	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98
Average Noise Level - Left Side	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98
Average Noise Level - Front	(Idle)	dBA @ 1m	82
	(Rated)	dBA @ 1m	98

Fuel System[1]

Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	l/hr [gal/hr]	65.3 [17]
Fuel Consumption at Rated Speed	l/hr [gal/hr]	96.1 [25]
Approximate Fuel Flow to Pump	l/hr [gal/hr]	151.4 [40]
Maximum Allowable Fuel Supply to Pump Temperature	°C [°F]	71.2 [160]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	55.3 [15]
Approximate Fuel Return to Tank Temperature	°C [°F]	85.1 [185]
Maximum Heat Rejection to Drain Fuel	kW [Btu/min]	1.3 [73]
Fuel Pressure - Pump Out/Rail ..INSITE Reading	kPa [psi]	160000 [23206]

Air System[1]

Intake Manifold Pressure	kPa [in Hg]	202 [60]
Intake Air Flow	l/sec [cfm]	452 [958]
Heat Rejection to Ambient	kW [Btu/min]	100 [5700]

TBD= To Be Determined **N/A = Not Applicable** **N.A. = Not Available**

1 **All Data at Rated Conditions.**
2 **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

Propulsion Marine Engine Performance Data

Curve No.	**M-92044**
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Exhaust System[1]

Exhaust Gas Flow ……l/sec [cfm]	1098 [2326]
Exhaust Gas Temperature (Turbine Out) ….°C [°F]	455 [850]
Exhaust Gas Temperature (Manifold) ….°C [°F]	649 [1200]

Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen) ……g/kw·hr [g/hp·hr]	5.62 [4.19]
HC (Hydrocarbons) ……g/kw·hr [g/hp·hr]	0.12 [0.09]
CO (Carbon Monoxide) ……g/kw·hr [g/hp·hr]	0.31 [0.23]
PM (Particulate Matter) ……g/kw·hr [g/hp·hr]	0.10 [0.08]

Cooling System[1]

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]	81 [178]

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