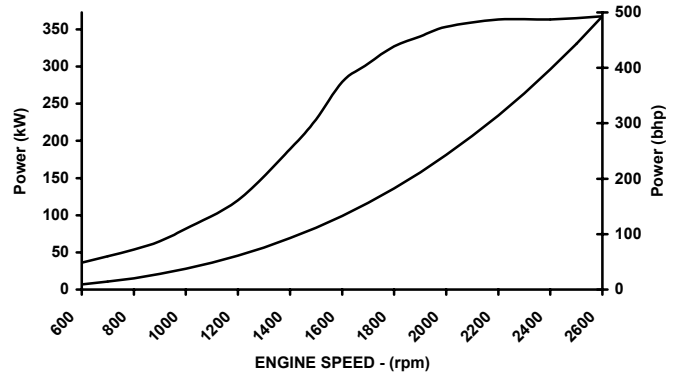
CUMMINS MERCRUISER DIESEL Charleston, SC 29405 Marine Performance Curves	Basic Engine Model: **QSC8.3-500 HO**	Curve Number: **M-91714**	
	Engine Configuration: **D413038MX03**	CPL Code **8017**	Date: **13-Feb-06**

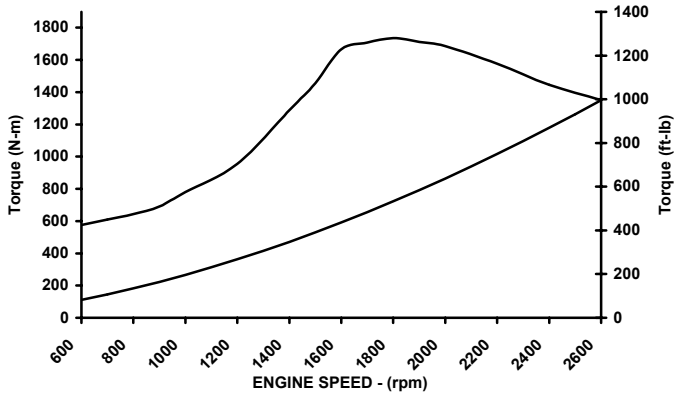
Displacement:	**8.3 liter**	**[505 in^3]**	kW [bhp, mhp] @ rpm	
Bore:	**114 mm**	**[4.49 in]**	Advertised Power:	**368 [493, 500] @ 2600**
Stroke:	**135 mm**	**[5.31 in]**		
Fuel System:	**HPCR**		Aspiration:	**Turbocharged / Sea Water Aftercooled**
Cylinders:	**6**		Rating Type:	**High Output**

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.



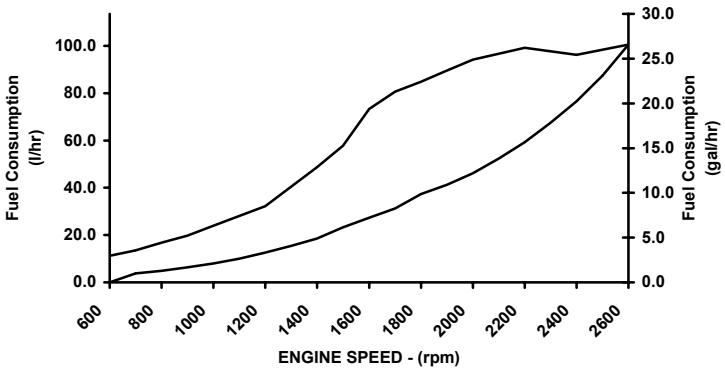
RATED POWER OUTPUT CURVE

rpm	kW	bhp
2600	368	493
2400	363	487
2200	363	487
2000	353	474
1800	327	439
1600	279	374
1400	189	253
1200	120	161
1000	82	109
800	54	72
600	36	49



FULL LOAD TORQUE CURVE

rpm	N-m	ft-lb
2600	1350	996
2400	1445	1066
2200	1577	1163
2000	1687	1244
1800	1735	1280
1400	1288	950
1200	956	705
1000	780	575
800	644	475
600	576	425



FUEL CONSUMPTION - PROP CURVE

rpm	l/hr	gal/hr
2600	100.6	26.6
2400	76.7	20.3
2200	59.3	15.7
2000	46.1	12.2
1800	37.3	9.9
1600	27.4	7.2
1400	18.6	4.9
1200	12.6	3.3
1000	8.0	2.1
800	4.9	1.3
700	3.8	1.0

Rated Conditions: Ratings are based upon ISO 8665 and SAE J1228 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25 deg. 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 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. F0 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 500 hours per year.

James D Kuhlenbeck

CHIEF ENGINEER

Marine Engine Performance Data

Curve No.: M-91714
DS-3038
DATE: 13Feb06

General Engine Data

Engine Model		QSC8.3-500 HO
Rating Type		High Output
Rated Engine Power	kW [bhp]	368 [493]
Rated Engine Speed	rpm	2600
Rated HP Production Tolerance	±%	5
Rated Engine Torque	N•m [ft•lb]	1350 [996]
Peak Engine Torque @ 1800 rpm	N•m [ft•lb]	1735 [1280]
Brake Mean Effective Pressure	kPa [psi]	2052 [298]
Indicated Mean Effective Pressure	kPa [psi]	N.A.
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 [ft•lb]	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 only - Average	kg [lb]	N.A.
Weight (Dry) Engine With Heat Exchanger System - Average	kg [lb]	896 [1975]
Weight Tolerance (Dry) Engine only	3xStd Dev(±%)	N.A.

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]

Average Fuel Consumption – ISO 8178 E3 Standard Test Cycle		l/hr [gal/hr]	65.8 [17.4]
Fuel Consumption @ Rated Speed		l/hr [gal/hr]	101 [26.6]
Approximate Fuel Flow to Pump		l/hr [gal/hr]	151 [40]
Maximum Allowable Fuel Supply to Pump Temperature		°C [°F]	71 [160]
Approximate Fuel Flow Return to Tank		l/hr [gal/hr]	51 [13]
Approximate Fuel Return to Tank Temperature	Without Cooler	°C [°F]	85 [185]
	With Cooler	°C [°F]	40 [104]
Maximum Heat Rejection to Drain Fuel[5]		kW [Btu/min]	1 [67]
Fuel Transfer Pump Pressure Range		kPa [psi]	N.A.
Fuel Rail Pressure	INSITE	kPa [psi]	160,000 [23,206]

Air System[1]

Intake Manifold Pressure	kPa [in Hg]	189 [55.8]
Intake Air Flow	l/sec [cfm]	461 [976]
Heat Rejection to Ambient	kW [Btu/min]	100 [5700]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient	°C [°F]	17 [30]

Exhaust System[1]

Exhaust Gas Flow		l/sec [cfm]	1109 [2350]
Exhaust Gas Temperature	Turbine Out	°C [°F]	481 [897]
	Manifold	°C [°F]	669 [1236]

BD = To Be Decided **N/A = Not Applicable** **N.A. = Not Available**

[1]All Data at Rated Conditions
[2]Consult Installation Direction Booklet for Limitations
[3]Heat 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.
[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

Marine Engine Performance Data

Curve No.: M-91714
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Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw·hr [g/hp·hr]	5.64 [4.202]
HC (Hydrocarbons)	g/kw·hr [g/hp·hr]	0.13 [0.097]
CO (Carbon Monoxide)	g/kw·hr [g/hp·hr]	0.40 [0.295]
PM (Particulate Matter)	g/kw·hr [g/hp·hr]	0.06 [0.047]

Cooling System[1]

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

Sea Water Aftercooled Engine (SWAC)

Coolant Flow to Engine Heat Exchanger	l/min [gal/min]	454 [120]
Standard Thermostat Operating Range Start to Open	°C [°F]	71 [160]
Full Open	°C [°F]	81 [178]
Heat Rejection to Engine Coolant[3]	kW [Btu/min]	234 [13337]

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

1All Data at Rated Conditions
2Consult Installation Direction Booklet for Limitations
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4Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
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