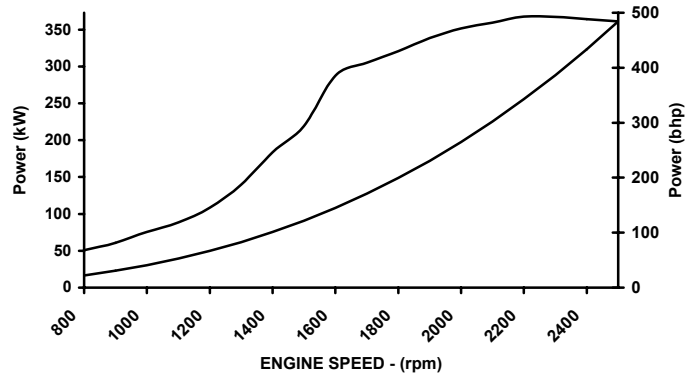
CUMMINS MERCRUISER DIESEL Charleston, SC 29405 Marine Performance Curves	Basic Engine Model: QSC8.3-490 HO	Curve Number: M-91454	
	Engine Configuration: D413038MX03	CPL Code 8017	Date: 13-Feb-06

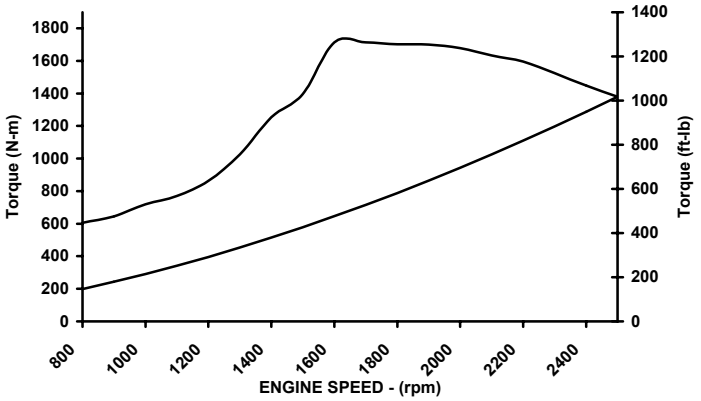
Displacement:	**8.3 liter**	**[505 in^3]**	kW [bhp, mhp] @ rpm	
Bore:	**114.020 mm**	**[4.49 in]**	Advertised Power:	**361 [484, 490] @ 2500**
Stroke:	**135.000 mm**	**[5.31 in]**		
Fuel System:	**HPCR**		Aspiration:	**Turbocharged / Sea Water Aftercooled**
Cylinders:	**6**		Rating Type:	**High Output**

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.



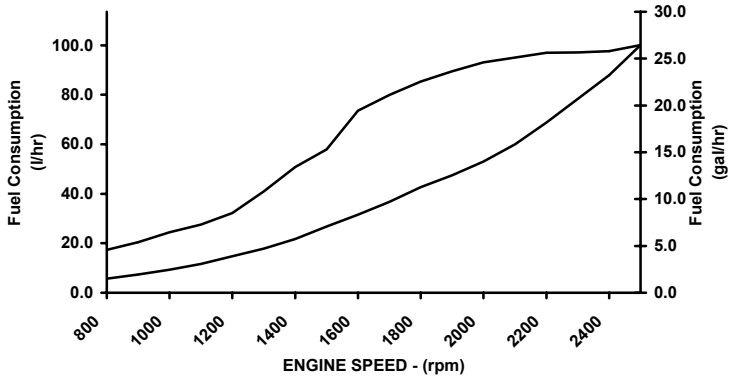
RATED POWER OUTPUT CURVE

rpm	kW	bhp
2500	361	484
2400	364	488
2200	368	493
2000	352	472
1800	321	430
1600	287	385
1400	184	246
1200	108	145
1000	75	101
800	51	68



FULL LOAD TORQUE CURVE

rpm	N-m	ft-lb
2500	1379	1017
2400	1449	1069
2200	1596	1177
2000	1679	1238
1800	1702	1255
1600	1713	1264
1400	1253	924
1200	863	636
1000	720	531
800	605	446



FUEL CONSUMPTION - PROP CURVE

rpm	l/hr	gal/hr
2500	100.2	26.5
2400	87.9	23.2
2200	68.8	18.2
2000	53.0	14.0
1800	42.7	11.3
1600	31.6	8.4
1400	21.7	5.7
1200	14.7	3.9
1000	9.4	2.5
800	5.7	1.5

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-91454
DS-3038
DATE: 13Feb06

General Engine Data

Engine Model			QSC8.3 HO
Rating Type			High Output
Rated Engine Power		kW [bhp]	361 [484]
Rated Engine Speed		rpm	2500
Rated HP Production Tolerance		±%	5
Rated Engine Torque		N•m [ft•lb]	1379 [1017]
Peak Engine Torque @ 1700 rpm		N•m [ft•lb]	1715 [1265]
Brake Mean Effective Pressure		kPa [psi]	2095 [304]
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	2565
	Maximum	rpm	2585
Maximum Allowable Engine Speed		rpm	2585
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]	11.3 [2215]
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 E3Standard Test Cycle		l/hr [gal/hr]	64 [17]
Fuel Consumption @ Rated Speed		l/hr [gal/hr]	100.1 [26.5]
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 [14]
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]	202 [59.8]
Intake Air Flow	l/sec [cfm]	452 [958]
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]	1098 [2326]
Exhaust Gas Temperature	Turbine Out	°C [°F]	485 [904]
	Manifold	°C [°F]	679 [1253]

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-91454
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Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw·hr [g/hp·hr]	5.66 [4.217]
HC (Hydrocarbons)	g/kw·hr [g/hp·hr]	0.06 [0.0447]
CO (Carbon Monoxide)	g/kw·hr [g/hp·hr]	0.34 [0.2535]
PM (Particulate Matter)	g/kw·hr [g/hp·hr]	0.10 [0.0753]

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]

Engines with Standard Aftercooling

Coolant Flow to Engine Heat Exchanger/Keel Cooler	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
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.
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