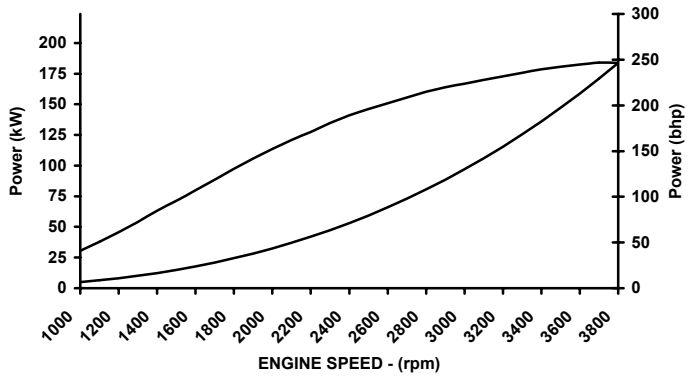
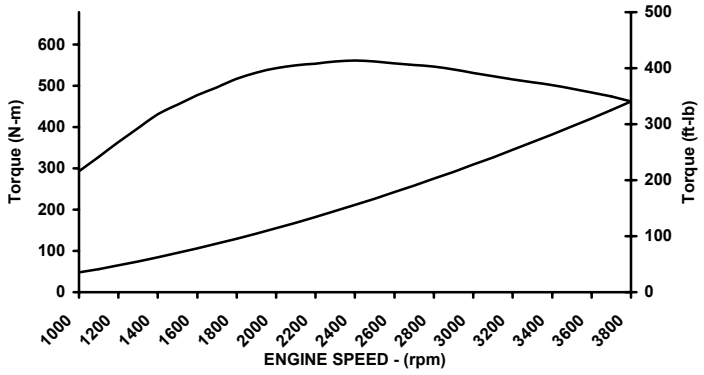
CUMMINS MERCRUISER DIESEL Charleston, SC 29405 Marine Performance Curves	Basic Engine Model: 4.2L EI 250	Curve Number: BC 9122	
	Engine Configuration: D913002MX03	Inboard	Date: 15-Oct-04

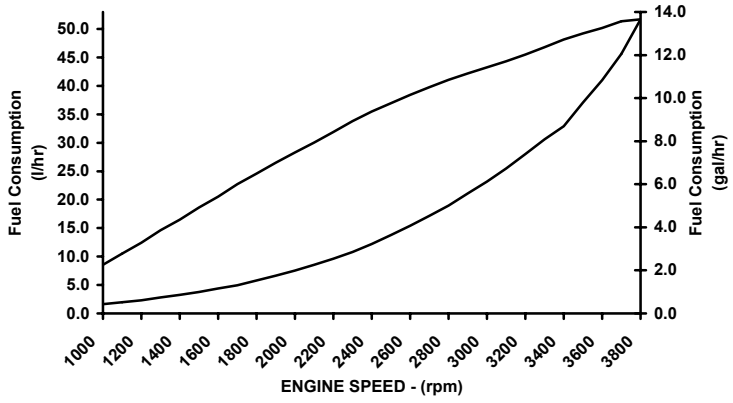
Displacement:	**4.2 liter**	**[254 in^3]**	kW [bhp, mhp] @ rpm	
Bore:	**94 mm**	**[3.7 in]**	Advertised Power:	**184 [246, 250] @ 3800**
Stroke:	**100 mm**	**[3.94 in]**		
Fuel System:	**Bosch VP37**		Aspiration:	**Turbocharged / Sea Water Aftercooled**
Cylinders:	**6**		Rating Type:	**High Output**

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.

Preliminary







RATED POWER OUTPUT CURVE

rpm	kW	bhp
3800	184	246
3600	182	245
3400	178	239
3200	173	232
3000	167	224
2800	160	215
2600	151	202
2400	141	189
2200	127	171
2000	114	152
1800	97	131
1500	71	96
1000	31	41

FULL LOAD TORQUE CURVE

rpm	N-m	ft-lb
3800	462	340
3600	484	357
3400	501	370
3200	515	380
3000	531	392
2800	546	403
2600	554	409
2400	561	414
2200	553	408
2000	542	400
1800	517	381
1500	454	335
1000	293	216

FUEL CONSUMPTION - PROP CURVE

rpm	l/hr	gal/hr
3800	51.7	13.7
3600	41.0	10.8
3400	32.9	8.7
3200	28.0	7.4
3000	23.2	6.1
2800	18.9	5.0
2600	15.4	4.1
2400	12.2	3.2
2200	9.6	2.5
2000	7.6	2.0
1800	5.8	1.5
1500	3.8	1.0
1000	1.6	0.4

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 300 hours per year.

James D Kuhlenbeck

CHIEF ENGINEER

Marine Engine Performance Data

Preliminary

Curve No.: BC9122

DATE: 15Oct04

General Engine Data

Engine Model		4.2L EI 250
Rating Type		High Output
Rated Engine Power	kW [bhp]	184 [246]
Rated Engine Speed	rpm	3800
Rated HP Production Tolerance	±%	5
Rated Engine Torque	N•m [ft•lb]	462 [340]
Peak Engine Torque @ 2400 rpm	N•m [ft•lb]	561 [414]
Brake Mean Effective Pressure	kPa [psi]	1393 [202]
Indicated Mean Effective Pressure	kPa [psi]	N/A
Minimum Idle Speed Setting	rpm	600
Normal Idle Speed Variation	±rpm	50
High Idle Speed Range Minimum	rpm	4220
Maximum	rpm	4280
Maximum Allowable Engine Speed	rpm	4280
Maximum Torque Capacity from Front of Crank[2]	N•m [ft•lb]	0
Compression Ratio		17:1
Piston Speed	m/sec [ft/min]	12.7 [2493]
Firing Order		1-5-3-6-2-4
Weight (Dry) Engine With Heat Exchanger System - Average	kg [lb]	460 [1015]

Fuel System[1]

Fuel Consumption @ Rated Speed	l/hr [gal/hr]	51.7 [13.7]
Approximate Fuel Flow to Pump	l/hr [gal/hr]	N.A.
Maximum Allowable Fuel Supply to Pump Temperature	°C [°F]	60 [140]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	N.A.
Approximate Fuel Return to Tank Temperature	°C [°F]	70 [158]
Maximum Heat Rejection to Drain Fuel[5]	kW [Btu/min]	2 [87]
Fuel Transfer Pump Pressure Range	kPa [psi]	N.A.

Air System[1]

Intake Manifold Pressure	kPa [in Hg]	190 [56]
Intake Air Flow	l/sec [cfm]	251 [532]
Heat Rejection to Ambient	kW [Btu/min]	28 [1594]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient	°C [°F]	17 [30]

Exhaust System[1]

Exhaust Gas Flow	l/sec [cfm]	490 [1039]
Exhaust Gas Temperature Turbine Out	°C [°F]	510 [949]
Manifold	°C [°F]	N.A.

Cooling System[1]

Sea Water Pump Specifications Restriction	kPa [in.Hg]	17 [5]
Flow	l/min [gal/min]	114 [30]
Pressure Cap Rating (With Heat Exchanger Option)	kPa [psi]	103 [15]
Coolant Flow to Engine Heat Exchanger/Keel Cooler	l/min [gal/min]	300 [79]
Standard Thermostat Operating Range Start to Open	°C [°F]	80 [176]
Full Open	°C [°F]	95 [202]
Heat Rejection to Engine Coolant[3]	kW [Btu/min]	174 [9906]

TBD = 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.

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