CUMMINS INC.	Basic Engine Model:	Curve Number:	
Charleston, SC 29405	**QSM11-M**	**DM-20039**	
Marine Performance Curves	Engine Configuration:	CPL Code:	Date:
	D353021MX03	**8590**	**14-May-14**

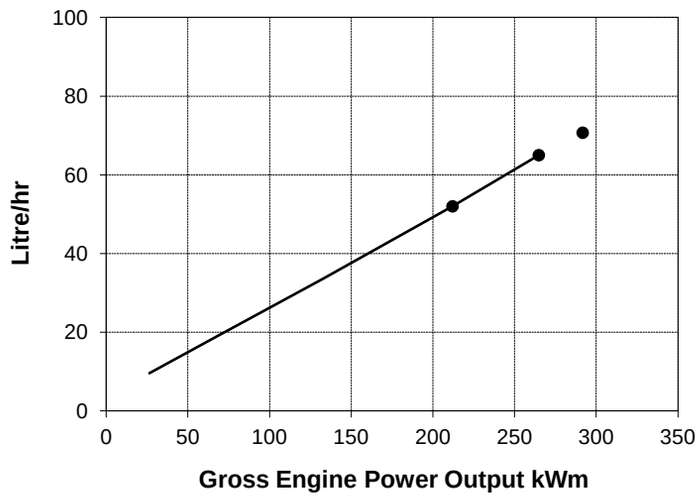
Displacement:	**10.8 liter**	**[660.00 in³]**		kW [hp] @ rpm
Bore:	**125 mm**	**[4.92 in]**	Advertised Power:	**265[355]@1500**
Stroke:	**147 mm**	**[5.79 in]**	Aspiration:	**Turbocharged Aftercooled**
Fuel System:	**CELECT**		Exhaust Type:	**Wet**
Cylinders:	**6**			

CERTIFIED: This marine diesel engine complies with or is certified to the:
IMO - NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13
EPA Tier 2 - Model year requirements of the EPA marine regulation (40CFR94)

Engine Speed	Overload Capacity		Prime Power		Continuous Power	
RPM	kWm	BHP	kWm	BHP	kWm	BHP
1500	292	391	265	355	212	284

Engine Performance Data @ 1500 rpm

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/kWh	Lb/ BHP-h	Liter/ hour	U.S. Gal/ hour
10% OVERLOAD CAPACITY						
110%	292	391	0.206	0.339	70.7	18.7
PRIME POWER						
100%	265	355	0.209	0.343	65.0	17.2
75%	199	266	0.209	0.345	48.9	12.9
50%	132	178	0.215	0.354	33.5	8.9
25%	66	89	0.238	0.392	18.6	4.9
10%	26	36	0.309	0.508	9.6	2.5
CONTINUOUS POWER						
80%	212	284	0.209	0.345	52	14



Rating Conditions: Ratings are in accordance with ISO 15550 and ISO 8528-5 reference conditions; air pressure at 100 kPa (29.61 in Hg), air temperature 25°C (77°F), and 30% relative humidity. The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/liter (7.001 lb/U.S. gal).

Power output curves are based on the engine operating with fuel system, water pump, and lubricating oil pump; not included are battery charging alternator, fan, optional equipment, and driven components.

Values from engine control modules and displayed on instrument panels are not absolute. Tolerance varies, but is generally less than +/-5% when operating within 30% of rated power.

Unless otherwise specified, tolerance on all values is +/-5%.

Prime Power Rating is applicable for supplying continual electrical power at varied load. The following are the Prime Rating parameters:
* Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours.
* The total operating time at 100% Prime Power shall not exceed 500 hours per year.
* There is a 10% overload capability for a period of 1 hour within a 12 hour period of operation. Total operating time at 10% overload shall not exceed 25 hours per year.

TECHNICAL DATA DEPT.

CHIEF ENGINEER

Auxiliary Marine Engine Performance Data

Curve No.	**DM-20039**
DS :	**DS-3021**
CPL :	**8590**
DATE:	**14-May-14**

General Engine Data

Engine Model		QSM11-M			
Rating Type		Prime Power		Overload	
Rated Engine Power	kW [hp]	265	[355]	292	[391]
Governed Engine Speed	rpm		1500		
Rated HP Production Tolerance	±%		5		
Rated Engine Torque	N·m [lb·ft]	1685	[1243]	1856	[1369]
Low Idle Speed Range Minimum	rpm		600		
Low Idle Speed Range Maximum	rpm		900		
Maximum Torque Capacity from Front of Crank[2]	N·m [lb·ft]	813	[600]		
Brake Mean Effective Pressure	kPa [psi]	1958	[284]	2157	[313]
Compression Ratio			15.9:1		
Piston Speed	m/sec [ft/min]	7	[1448]		
Firing Order			1-5-3-6-2-4		
Friction Power	kW [hp]	20	[27]		
Steady State Stability Band at Constant Load	%		TBD		
Weight Dry - Engine Only	kg [lb]	1118	[2464]		
Weight Dry - Engine With Heat Exchanger	kg [lb]	1184	[2610]		

Noise and Vibration

Average Noise Level - Top	(Idle) dBA @ 1m		80
	(Rated) dBA @ 1m		95
Average Noise Level - Right Side	(Idle) dBA @ 1m		80
	(Rated) dBA @ 1m		95
Average Noise Level - Left Side	(Idle) dBA @ 1m		80
	(Rated) dBA @ 1m		95

Fuel System[1]

Approximate Fuel Flow to Pump	l/hr [gal/hr]	181.7	[48.0]	181.7	[48.0]
Maximum Allowable Fuel Supply to Pump Temperature	°C [°F]	60	[140]	60	[140]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	116.7	[30.8]	111.0	[29.3]
Approximate Fuel Return to Tank Temperature	°C [°F]	71	[160]	71	[160]
Maximum Heat Rejection to Drain Fuel	kW [Btu/min]	3	[171]	3	[168]
Fuel Rail Pressure	kPa [psi]	1082	[157]	1076	[156]
Average Fuel Consumption- Emissions ISO 8178 D2 Test Cycle	l/hr [gal/hr]	32.1	[8.5]		

Air System[1]

Intake Manifold Pressure	mm Hg [in Hg]	156	[46]	173	[51]
Intake Air Flow	l/sec [cfm]	289	[612]	310	[657]
Heat Rejection to Ambient	kW [Btu/min]	20	[1145]	22	[1262]

Exhaust System[1]

Exhaust Gas Flow	l/sec [cfm]	693	[1469]	748	[1585]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	444	[830]	449	[839]
Exhaust Gas Temperature (Manifold)	°C [°F]	601	[1114]	615	[1139]
Heat Rejection to Exhaust	kW [Btu/min]	110	[6271]	116	[6628]

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

1 **Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.**
2 **No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. 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.**

CUMMINS ENGINE COMPANY, INC

COLUMBUS, INDIANA

Auxiliary Marine Engine Performance Data

		Curve No.	**DM-20039**		
		DS :	**DS-3021**		
		CPL :	**8590**		
		DATE:	**14-May-14**		
Emissions (in accordance with ISO 8178 Cycle D2)					
NOx (Oxides of Nitrogen)	g/kw·hr [g/bhp·hr]	6.513	[4.857]		
HC (Hydrocarbons)	g/kw·hr [g/bhp·hr]	0.252	[0.188]		
CO (Carbon Monoxide)	g/kw·hr [g/bhp·hr]	0.856	[0.638]		
PM (Particulate Matter)	g/kw·hr [g/bhp·hr]	0.169	[0.126]		
Emissions (in accordance with ISO 8178 Cycle E2)					
NOx (Oxides of Nitrogen)	g/kw·hr [g/bhp·hr]	6.330	[4.720]		
HC (Hydrocarbons)	g/kw·hr [g/bhp·hr]	0.201	[0.150]		
CO (Carbon Monoxide)	g/kw·hr [g/bhp·hr]	0.764	[0.570]		
PM (Particulate Matter)	g/kw·hr [g/bhp·hr]	0.161	[0.120]		
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]		
Singe Loop LTA					
Coolant Flow to Main Cooler (with open thermostat)	l/min [gal/min]	150	[39.6]		
Standard Thermostat Operating Range	Start to open °C [°F]	66	[150]		
	Full open °C [°F]	80	[175]		
Heat Rejection to Engine Coolant[3]	kW [Btu/min]	241	[13720]	265	[15100]
Maximum Coolant Inlet Temperature from Keel Cooler	°C [°F]	49	[120]		
Engines with Radiator Cooling					
Coolant Flow to Radiator (Blocked open thermostat)	l/min [gal/min]	150	[39.6]		
Standard Thermostat Operating Range	Start to open °C [°F]	66	[150]		
	Full open °C [°F]	80	[175]		
Heat Rejection to Engine Coolant[3]	kW [Btu/min]	241	[13720]	265	[15100]
Maximum Coolant Inlet Temperature from Radiator					
For Radiator @ 35° C [95° F] Ambient Air	°C [°F]	54	[130]		
For Radiator @ 50° C [122° F] Ambient Air	°C [°F]	68	[155]		

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COLUMBUS, INDIANA

All Data is Subject to Change Without Notice - Consult the following Cummins intranet site for most recent data: http://marine.cummins.com