CUMMINS INC.	Basic Engine Model:	Curve Number:	
Charleston, SC 29405	KTA50-D(M1)	D(M)-6387	
Marine Performance Curves	Engine Configuration:	CPL Code:	Date:
	D283036MX02	8063	14-Jun-12

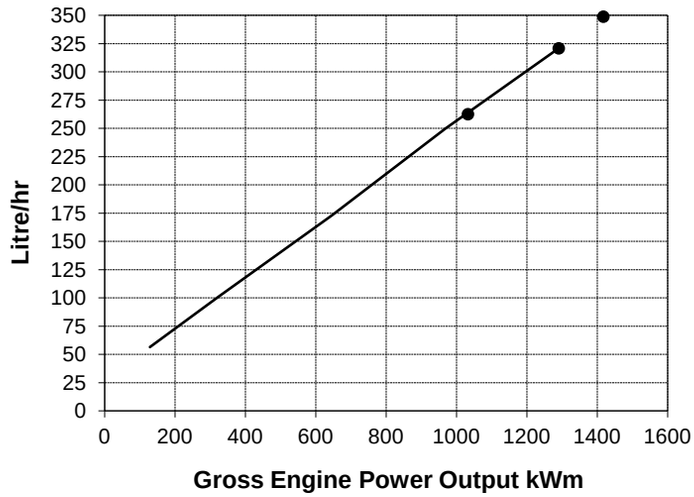
Displacement:	**50 liter**	**[3067 in^3]**		kW [hp] @ rpm
Bore:	**159 mm**	**[6.25 in]**	Advertised Power:	**1291 [1730] @ 1800**
Stroke:	**159 mm**	**[6.25 in]**	Aspiration:	**Turbocharged/Aftercooled**
Fuel System:	**Direct Injection Cummins STC**		Exhaust Type:	**Dry**
Cylinders:	**16**			

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

Engine Speed	Overload Capacity		Prime Power		Continuous Power	
RPM	kWm	BHP	kWm	BHP	kWm	BHP
1800	1417	1900	1291	1730	1032	1384

Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	Kg/ kW-h	Lb/ BHP-h	Liter/ hour	U.S. Gal/ hour
10% OVERLOAD CAPACITY						
110%	1417	1900	0.209	0.344	348.8	92.1
PRIME POWER						
100%	1291	1730	0.211	0.348	320.8	84.7
75%	968	1298	0.219	0.361	249.8	66.0
50%	645	865	0.228	0.375	172.9	45.7
25%	323	433	0.266	0.438	101.1	26.7
10%	129	173	0.373	0.614	56.6	15.0
CONTINUOUS POWER						
80%	1032	1384	0.216	0.356	262.5	69.4



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.	**D(M)-6387**
DS :	**DS-4998**
CPL :	**8063**
DATE:	**14-Jun-12**

General Engine Data

Engine Model	KTA50-D(M1)			
Rating Type	Prime Power		Overload	
Rated Engine Power ....kW [hp]	1291	[1730]	1417	[1900]
Governed Engine Speed ....rpm		1800		
Rated HP Production Tolerance ....±%		5		
Rated Engine Torque ....N·m [lb·ft]	6844	[5048]	7516	[5544]
Low Idle Speed Range Minimum ....rpm		725		
Maximum ....rpm		775		
Maximum Torque Capacity from Front of Crank[2] ....N·m [lb·ft]	4341	[3202]		
Brake Mean Effective Pressure ....kPa [psi]	1705	[247]	1872	[272]
Compression Ratio		13.9:1		
Piston Speed ....m/sec [ft/min]	9.5	[1876]		
Firing Order	1R-1L-3R-3L-2R-2L-5R-4L-8R-8L-6R-6L-7R-7L-4R-5L			
Friction Power ....kW [hp]	168	[225]		
Steady State Stability Band at Constant Load ....%		[0.25]		
Weight Dry - Engine Only ....kg [lb]	4853	[10700]		
Weight Dry - Engine With Heat Exchanger ....kg [lb]	5173	[11405]		

Noise and Vibration

Average Noise Level - Top	(Idle).. ....dBA @ 1m		90
	(Rated) ....dBA @ 1m		100
Average Noise Level - Right Side	(Idle).. ....dBA @ 1m		89
	(Rated) ....dBA @ 1m		98
Average Noise Level - Left Side	(Idle).. ....dBA @ 1m		90
	(Rated) ....dBA @ 1m		98
Average Noise Level - Front	(Idle).. ....dBA @ 1m		89
	(Rated) ....dBA @ 1m		98

Fuel System[1]

Approximate Fuel Flow to Pump ....l/hr [gal/hr]	609.5	[161.0]	609.5	[161.0]
Maximum Allowable Fuel Supply to Pump Temperature ....°C [°F]	60	[140.0]	60	[140.0]
Approximate Fuel Flow Return to Tank ....l/hr [gal/hr]	288.6	[76.3]	260.6	[68.9]
Approximate Fuel Return to Tank Temperature ....°C [°F]	71	[160]	71	[160]
Maximum Heat Rejection to Drain Fuel ....kW [Btu/min]		[N.A.]		[N.A.]
Fuel Rail Pressure ....kPa [psi]	924	[134]	1148	[166.46]
Average Fuel Consumption- Emissions ISO 8178 D2 Test Cycle....l/hr [gal/hr]	168.6	[44.6]		

Air System[1]

Intake Manifold Pressure ....kPa [in Hg]	207	[61]	236 ′559055118]	

Exhaust System[1]

Exhaust Gas Flow ....l/sec [cfm]	4108	[8705]	4259	[9025]
Exhaust Gas Temperature (Turbine Out) ....°C [°F]	446	[835]	464	[867.425]
Exhaust Gas Temperature (Manifold) ....°C [°F]	582	[1078]	604	[1118]
Heat Rejection to Exhaust ....kW [Btu/min]	966	[54971]	1038	[59100]

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.	**D(M)-6387**		
			DS :	**DS-4998**		
			CPL :	**8063**		
			DATE:	**14-Jun-12**		
Emissions (in accordance with ISO 8178 Cycle D2)						
NOx (Oxides of Nitrogen)		g/kw·hr [g/bhp·hr]	8.93	[6.660]		
HC (Hydrocarbons)		g/kw·hr [g/bhp·hr]	0.40	[0.300]		
CO (Carbon Monoxide)		g/kw·hr [g/bhp·hr]	0.64	[0.480]		
PM (Particulate Matter)		g/kw·hr [g/bhp·hr]		[N.A.]		
Emissions (in accordance with ISO 8178 Cycle E2)						
NOx (Oxides of Nitrogen)		g/kw·hr [g/bhp·hr]	8.79	[6.555]		
HC (Hydrocarbons)		g/kw·hr [g/bhp·hr]	0.32	[0.240]		
CO (Carbon Monoxide)		g/kw·hr [g/bhp·hr]	0.54	[0.405]		
PM (Particulate Matter)		g/kw·hr [g/bhp·hr]		[N.A.]		
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]		
One Pump Two Loop Low Temperature Aftercooling (LTA)						
Main Engine Circuit						
Coolant Flow to Main Cooler (with open thermostat)		l/min [gal/min]	1117	[295]		
Standard Thermostat Operating Range	Start to open	°C [°F]	82	[180]		
	Full open	°C [°F]	95	[202]		
Heat Rejection to Engine Coolant[3]		kW [Btu/min]	481	[27367]	509	[28980]
Aftercooler (LTA) Circuit						
Coolant Flow to LTA Cooler (with open thermostat)		l/min [gal/min]	288	[76]		
LTA 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]	227	[12908]	250	[14250]
Maximum Coolant Inlet Temperature from LTA Cooler						
For Keel Cooled		°C [°F]	71	[160]		

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