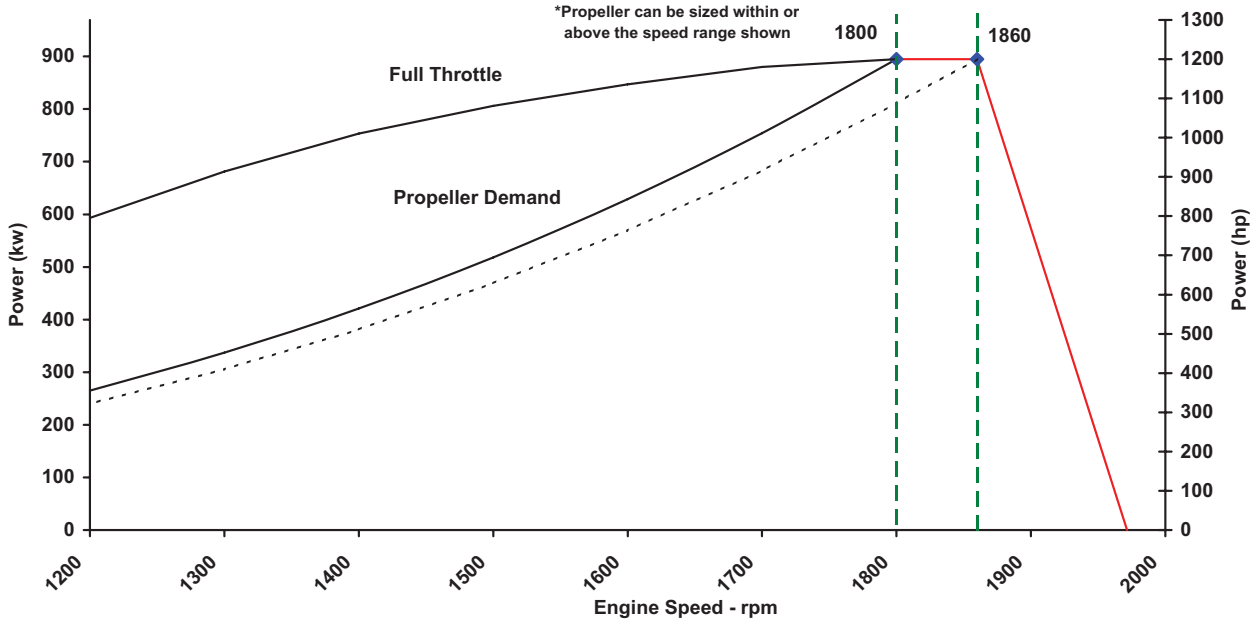
CUMMINS INC. Columbus, IN 47201	Basic Engine Model	Curve Number:	
Marine Performance Curves	KTA38-M2	M-6192	
	Engine Configuration	CPL Code:	Date:
	D233034MX02	2404	21-Sep-09

Displacement:	**37.7 liter**	**[2301 in³]**	Rated Power:	**895 kw**	**[1200 bhp]**
Bore:	**159 mm**	**[6.25 in]**	Rated Speed:	**1800 rpm**	
Stroke:	**159 mm**	**[6.25 in]**	Rating Type:	**Continuous Duty**	
Fuel System:	**PT**		Aspiration:	**Turbocharged / Jacket Water Aftercooled**	
Cylinders:	**12**				

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:
IMO - NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13



Speed	Full Throttle- Power		Full Throttle- Torque		Fuel Cons.- Prop. Curve 3.0 Exp.	
rpm	kw	(hp)	N·m	(ft-lb)	L/hr	(gal/hr)
1860	895	(1200)	4595	(3389)		
1800	895	(1200)	4748	(3502)	224.4	(59.3)
1600	847	(1136)	5056	(3730)	164.4	(43.4)
1400	754	(1011)	5141	(3792)	117.1	(30.9)
1200	593	(796)	4723	(3483)	78.9	(20.9)

* Cummins Full Throttle Requirements:

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engines in variable displacement boats (such as pushboats, tugboats, net draggers, etc.) achieve no less than 100 rpm below rated speed at full throttle during a dead push or bollard pull
- Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

Rated Conditions: Ratings are based upon ISO 15550 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidy. Power is in accordance with IMCI procedure. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%.

Full Throttle curve represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. 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. F] having LHV of 42,780 kj/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

Continuous Rating (CON): Intended for continuous use in applications requiring uninterrupted service at full power. This rating is an ISO 15550 standard power rating.

CHIEF ENGINEER

Propulsion Marine Engine Performance Data

Curve No.	**M-6192**
DS :	**4983**
CPL :	**2404**
DATE:	**21-Sep-09**

General Engine Data

Engine Model	KTA38-M2
Rating Type	Continuous Duty
Rated Engine Power ....kW [hp]	895 [1200]
Rated Engine Speed ....rpm	1800
Rated Power Production Tolerance ....±%	3
Rated Engine Torque ....N·m [lb·ft]	4747 [3501]
Peak Engine Torque @ 1500 rpm....N·m [lb·ft]	5210 [3843]
Brake Mean Effective Pressure ....kPa [psi]	1582 [229]
Indicated Mean Effective Pressure....kPa [psi]	N.A. [N.A.]
Maximum Allowable Engine Speed ....rpm	2375
Maximum Torque Capacity from Front of Crank[2] ....N·m [lb·ft]	4341 [3202]
Compression Ratio	13.9:1
Piston Speed ....m/sec [ft/min]	9.5 [1875]
Firing Order	1R-6L-5R-2L-3R-4L-6R-1L-2R-5L-4R-3L
Weight (Dry) - Engine Only - Average ....kg [lb]	4218 [9300]
Weight (Dry) - Engine With Heat Exchanger System - Average....kg [lb]	4538 [10005]
Weight Tolerance (Dry) Engine Only ....3xStd Dev(±%)	10.5

Governor Settings

Default Droop Value....Refer to MAB 2.04.00-03/23/2006 for Droop explanation	6%
Minimum Droop Allowed....	N/A
Maximum Droop Allowed....	N/A
High Speed Governor Break Point....rpm	1860
Minimum Idle Speed Setting ....rpm	650
Normal Idle Speed Variation ....±rpm	25
High Idle Speed Range Minimum ....rpm	1860
Maximum ....rpm	2016

Noise and Vibration

Average Noise Level - Top	(Idle).. ....dBA @ 1m	N.A.
	(Rated) ....dBA @ 1m	N.A.
Average Noise Level - Right Side	(Idle).. ....dBA @ 1m	N.A.
	(Rated) ....dBA @ 1m	N.A.
Average Noise Level - Left Side	(Idle).. ....dBA @ 1m	N.A.
	(Rated) ....dBA @ 1m	N.A.
Average Noise Level - Front	(Idle).. ....dBA @ 1m	N.A.
	(Rated) ....dBA @ 1m	N.A.

Fuel System[1]

Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle ....l/hr [gal/hr]	153.1 [40.4]
Fuel Consumption at Rated Speed ....l/hr [gal/hr]	224.4 [59.3]
Approximate Fuel Flow to Pump ....l/hr [gal/hr]	397.5 [105.0]
Maximum Allowable Fuel Supply to Pump Temperature ....°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank ....l/hr [gal/hr]	173.0 [45.7]
Approximate Fuel Return to Tank Temperature ....°C [°F]	68.4 [155]
Maximum Heat Rejection to Drain Fuel ....kW [Btu/min]	2.5 [143]
Fuel Transfer Pump Pressure Range....kPa [psi]	N.A.
Fuel Pressure - Pump Out/Rail . Mechanical Gauge ....kPa [psi]	841 [122]
INSITE Reading ....kPa [psi]	883 [128]

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.**
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

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Propulsion Marine Engine Performance Data

Curve No.	**M-6192**
DS :	**4983**
CPL :	**2404**
DATE:	**21-Sep-09**

Air System[1]		
Intake Manifold Pressure	kPa [in Hg]	183 [54]
Intake Air Flow	l/sec [cfm]	1227 [2599]
Heat Rejection to Ambient	kW [Btu/min]	78 [4461]
Exhaust System[1]		
Exhaust Gas Flow	l/sec [cfm]	2970 [6,293]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	454 [849]
Exhaust Gas Temperature (Manifold)	°C [°F]	N.A.
Emissions (in accordance with ISO 8178 Cycle E3)		
NOx (Oxides of Nitrogen)	g/kw·hr [g/hp·hr]	8.51 [6.35]
HC (Hydrocarbons)	g/kw·hr [g/hp·hr]	0.20 [0.15]
CO (Carbon Monoxide)	g/kw·hr [g/hp·hr]	0.56 [0.42]
PM (Particulate Matter)	g/kw·hr [g/hp·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]
Max. Pressure Drop Across Any External Cooling System Circuit	kPa [psi]	34 [5]
Engines without Low Temperature Aftercooling (LTA)		
Jacket Water Aftercooled Engine (JWAC)		
Coolant Flow to Engine Heat Exchanger	l/min [gal/min]	1268 [335]
Standard Thermostat Operating Range (Start to Open)	°C [°F]	82 [180]
Standard Thermostat Operating Range (Full Open)	°C [°F]	95 [202]
Heat Rejection to Engine Coolant[3]	kW [Btu/min]	563 [32072]
Engines with Low Temperature Aftercooling (LTA)		
Two Loop LTA		
Main Engine Circuit		
Coolant Flow to Main Cooler (with blocked open thermostat)	l/min [gal/min]	980 [259]
Standard Thermostat Operating Range — Start to open	°C [°F]	82 [180]
Standard Thermostat Operating Range — Full open	°C [°F]	95 [202]
Heat Rejection to Engine Coolant[3]	kW [Btu/min]	424 [24130]
Aftercooler (LTA) Circuit		
Coolant Flow to LTA Cooler (with blocked open thermostat)	l/min [gal/min]	288 [76]
LTA Thermostat Operating Range — Start to open	°C [°F]	66 [150]
LTA Thermostat Operating Range — Full open	°C [°F]	80 [175]
Heat Rejection to Engine Coolant[3]	kW [Btu/min]	140 [7941]
Maximum Coolant Inlet Temperature from LTA Cooler	°C [°F]	71 [160]

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