CUMMINS INC.	Basic Engine Model	Curve Number:	
Charleston, SC 29405	QSB 6.7	M-93961	
Marine Performance Curves	Engine Configuration	CPL Code:	Date:
marine.cummins.com	D313011MX03	3887	8-May-13

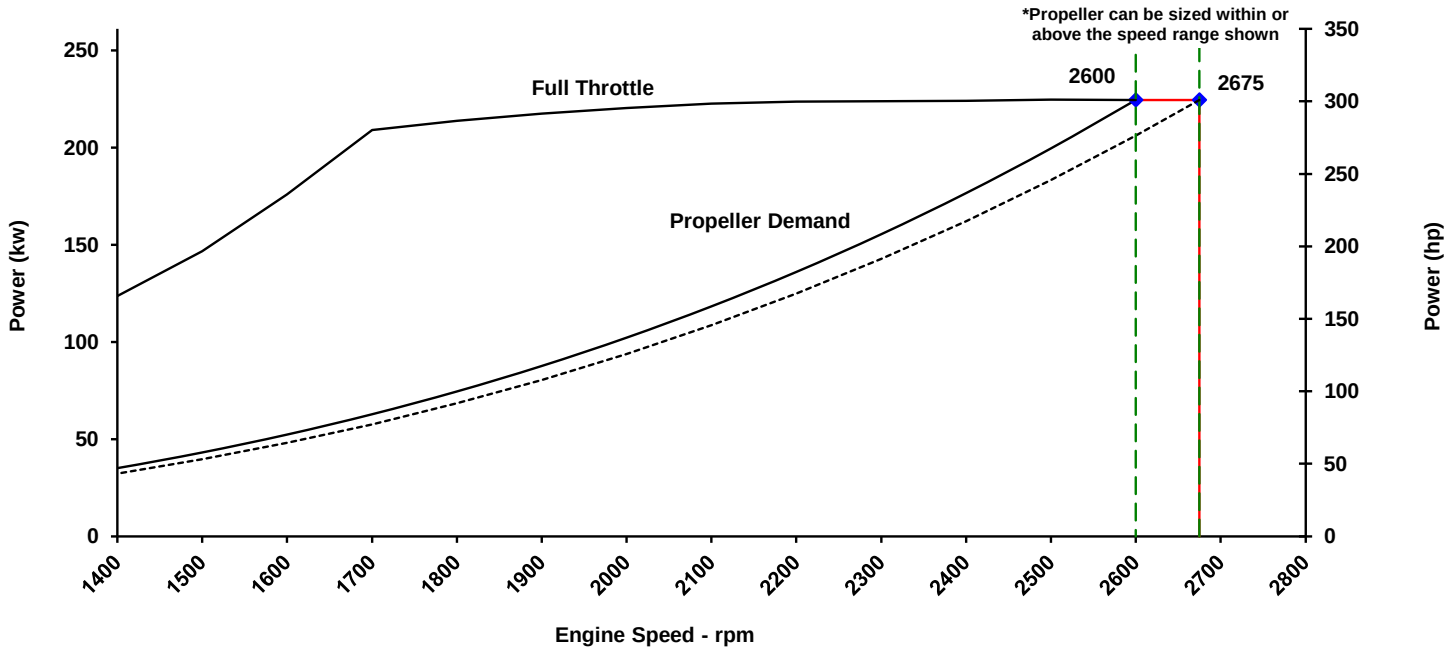
Displacement:	6.7 liter	[408 in³]	Rated Power:	224 kw	[301bhp, 305mhp]
Bore:	107 mm	[4.21 in]	Rated Speed:	2600 rpm	
Stroke:	124 mm	[4.88 in]	Rating Type:	Medium Continuous Duty	
Cylinders:	6		Aspiration:	Turbocharged / Sea Water Aftercooled	
Fuel System:	HPCR Bosch CRIN 3.0				

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:

EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)

EU Stage IIIa - EC Nonroad Mobile Machinery Directive (2004/26/EC)

IMO Tier II (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13



Speed	Full Throttle				Propeller Demand					
	Power		Torque		Power		Torque		Fuel Consumption	
rpm	kw	(hp)	N·m	(ft-lb)	kw	(hp)	N·m	(ft-lb)	L/hr	(gal/hr)
2675	224	(301)	801	(591)						
2600	224	(301)	824	(608)	224	(301.0)	824	(608.0)	55.7	(14.7)
2500	225	(301)	858	(633)	202	(270.8)	771	(568.8)	51.2	(13.5)
2400	224	(300)	891	(657)	181	(242.5)	719	(530.7)	45.8	(12.1)
2300	224	(300)	929	(685)	161	(216.2)	669	(493.6)	40.2	(10.6)
2200	224	(300)	971	(716)	143	(191.7)	621	(457.7)	35.6	(9.4)
2100	222	(298)	1011	(746)	126	(169.1)	573	(422.9)	31.7	(8.4)
2000	220	(296)	1052	(776)	111	(148.2)	528	(389.2)	27.7	(7.3)
1900	217	(292)	1093	(806)	96	(129.1)	484	(356.7)	23.8	(6.3)
1800	214	(287)	1133	(836)	83	(111.5)	441	(325.4)	20.6	(5.5)
1700	209	(280)	1174	(866)	71	(95.6)	400	(295.3)	18.1	(4.8)
1600	176	(236)	1049	(774)	61	(81.1)	361	(266.4)	15.5	(4.1)
1500	147	(196)	933	(688)	51	(68.2)	324	(238.7)	12.9	(3.4)
1400	124	(166)	843	(622)	42	(56.6)	288	(212.3)	10.6	(2.8)
1300	107	(144)	786	(580)	35	(46.3)	254	(187.1)	8.8	(2.3)
1200	92	(124)	733	(541)	28	(37.3)	221	(163.3)	7.1	(1.9)
1100	78	(105)	678	(500)	22	(29.5)	191	(140.9)	5.8	(1.5)
1000	65	(87)	620	(457)	17	(22.8)	162	(119.8)	4.6	(1.2)
900	55	(73)	580	(428)	13	(17.2)	136	(100.2)	3.6	(1.0)
800	45	(61)	541	(399)	9	(12.5)	111	(82.0)	2.8	(0.7)
700	38	(51)	521	(384)	6	(8.7)	89	(65.3)	2.1	(0.5)
600	31	(42)	500	(369)	4	(5.7)	68	(50.3)	1.5	(0.4)

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

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].

Medium Continuous (MCD): Intended for continuous use in variable load applications where full power is limited to six hours out of every twelve hours of operation. Also, reduced power operations must be at or below 200 rpm of the maximum rated rpm. This rating is an ISO 15550 fuel stop power rating and is for applications that operate less than 3,000 hours per year.

TECHNICAL DATA DEPT. **CHIEF ENGINEER**

Propulsion Marine Engine Performance Data

Curve No. M-93961
DS: D31-MX-2
CPL: 3887
DATE: 8-May-13

General Engine Data

Engine Model		QSB 6.7
Rating Type		Medium Continuous Duty
Rated Engine Power	kW [hp]	224 [301]
Rated Engine Speed	rpm	2600
Rated Power Production Tolerance	±%	5
Rated Engine Torque	N·m [lb·ft]	824 [608]
Peak Engine Torque @ 1700 rpm	N·m [lb·ft]	1174 [866]
Brake Mean Effective Pressure	kPa [psi]	1548 [225]
Indicated Mean Effective Pressure	kPa [psi]	1548 [225]
Maximum Allowable Engine Speed	rpm	2675

Maximum Continuous Torque Capacity from Front of Crank Specifications

Maximum Torque Capacity from Front of Crank[2]	N·m [lb·ft]	824 [608]
Compression Ratio		16.5:1
Piston Speed	m/sec [ft/min]	10.7 [2115]
Firing Order		1-5-3-6-2-4
Weight (Dry) - Engine With Heat Exchanger System - Average	kg [lb]	663 [1462]

Governor Settings

Default Droop Value	Refer to MAB 2.04.00-03/23/2006 for Droop explanation		0%
High Speed Governor Break Point		rpm	2675
Minimum Idle Speed Setting		rpm	550
Normal Idle Speed Variation		±rpm	10
High Idle Speed Range	Minimum	rpm	2670
	Maximum	rpm	2680

Noise and Vibration

Average Noise Level - Top	(Idle)	dBA @ 1m	75
	(Rated)	dBA @ 1m	100
Average Noise Level - Right Side	(Idle)	dBA @ 1m	75
	(Rated)	dBA @ 1m	100
Average Noise Level - Left Side	(Idle)	dBA @ 1m	76
	(Rated)	dBA @ 1m	102
Average Noise Level - Front	(Idle)	dBA @ 1m	76
	(Rated)	dBA @ 1m	101

Fuel System[1]

Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	l/hr [gal/hr]	39.2 [10.4]
Fuel Consumption at Rated Speed	l/hr [gal/hr]	55.6 [14.7]
Approximate Fuel Flow to Pump	l/hr [gal/hr]	215.8 [57.0]
Maximum Allowable Fuel Supply to Pump Temperature	°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	160.1 [42.3]
Approximate Fuel Return to Tank Temperature	°C [°F]	65.6 [150]
Maximum Heat Rejection to Drain Fuel	kW [Btu/min]	2.1 [119]

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 INC.
COLUMBUS, INDIANA

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Propulsion Marine Engine Performance Data

Curve No. M-93961
DS: D31-MX-2
CPL: 3887
DATE: 8-May-13

Air System[1]		
Intake Manifold Pressure	kPa [in Hg]	138 [41]
Intake Air Flow	l/sec [cfm]	284 [602]
Heat Rejection to Ambient	kW [Btu/min]	17 [946]
Exhaust System[1]		
Exhaust Gas Flow	l/sec [cfm]	599 [1,269]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	436 [817]
Exhaust Gas Temperature (Manifold)	°C [°F]	574 [1,065]
Emissions (in accordance with ISO 8178 Cycle E3)		
NOx (Oxides of Nitrogen)	g/kw·hr [g/hp·hr]	4.70 [3.50]
HC (Hydrocarbons)	g/kw·hr [g/hp·hr]	0.10 [0.07]
CO (Carbon Monoxide)	g/kw·hr [g/hp·hr]	0.48 [0.36]
PM (Particulate Matter)	g/kw·hr [g/hp·hr]	0.09 [0.07]
CO_2 (Carbon dioxide)	g/kw·hr [g/hp·hr]	687.00 [512.30]
Cooling System[1]		
Sea Water Pump Specifications	MAB 0.08.17-07/16/2001	
Pressure Cap Rating	kPa [psi]	103 [15]
Max. Coolant Outlet Pressure from the Engine	kPa [psi]	414 [60]
Sea Water Aftercooled Engine (SWAC)		
Standard Thermostat Operating Range (Start to Open)	°C [°F]	71 [160]
Standard Thermostat Operating Range (Full Open)	°C [°F]	83 [182]

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