

Cummins Inc.

Marine Engine General Data Sheet

Engine Model: QSM11-M / D(M)

Data Sheet:

DS3021

Date:

18-Oct-12

GENERAL ENGINE DATA

Metric [U.S. Customary]

Type		4 Cycle, Inline, 6 Cylinder
Bore	mm [in]	125 [4.92]
Stroke	mm [in]	147 [5.79]
Displacement	liter [in ³]	10.8 [661]

ENGINE MOUNTING & ACCESSORY DRIVES

Max. Allowable Bending Moment at Rear Face of Block	N·m [ft·lb]	1356 [1000]
Max. Allowable Axial Thrust Load on Crankshaft	N [lb]	4670 [1050]
Min. Axial Clearance at Front Face of Crankshaft for Thermal Expansion	mm [in]	1.59 [0.063]
Max. Allowable Radial Load on Crankshaft		
At 0°	N [lb]	854 [192]
At 90°	N [lb]	2180 [490]
At 180°	N [lb]	4919 [1106]
At 270°	N [lb]	854 [192]

Installation/Operating Angles - OP 2120 (Additional Options Available)

Engine Installation Angles

In-Line drive: Installation: Static Installed Engine Pitch Angle

Engine Front Up From Horizontal	Min.	0°
Engine Front Up From Horizontal	Max.	12°

Vee Drive: Installation: Static Installed Engine Pitch

Engine Front Up From Horizontal	Min.	3°
Engine Front Up From Horizontal	Max.	12°

All Drives: Static Installed Engine Roll Angle

From vertical "Right/Left" Viewed from Flywheel End of Engine	Max. Right	45°
From vertical "Right/Left" Viewed from Flywheel End of Engine	Max. Left	37°

Engine Angles - Vessel Operating

Steady-State Operation - Engine Pitch Angle

Engine Front Up From Horizontal	Min.	-15°
Engine Front Up From Horizontal	Max.	31°

All Drives: Intermittent Operation - Eng. Roll Angle

From Vertical "Right/Left" viewed from Flywheel End of Engine	Max. Right	45°
From Vertical "Right/Left" viewed from Flywheel End of Engine	Max. Left	37°

All Drives: Intermittent Operation - Engine Pitch Angle

Engine Front Up From Horizontal	Min.	N.A.
Engine Front Up From Horizontal	Max.	N.A.

FUEL SYSTEM

Maximum Allowable Restriction to Fuel Pump

Clean Filter	kPa [in Hg]	20 [6.0]
Dirty Filter	kPa [in Hg]	34 [10.0]
Maximum Allowable Return Line Pressure	kPa [in Hg]	22 [6.5]
Maximum Static Pressure at Fuel Pump	kPa [in Hg]	20 [6]
Maximum Height of Fuel In Tank Above Fuel Pump	m [ft]	2.47 [8.1]

EXHAUST SYSTEM

Maximum Allowable Back Pressure	kPa [in Hg]	10 [3]
Maximum Bending Moment at Turbine Outlet Mounting Flange	N·m [ft·lb]	19 [14]
Maximum Incremental Direct Load at Turbine Outlet Mounting Flange	kg [lb]	9 [20]

AIR INDUCTION SYSTEM

Max. Allowable Intake Restriction - Turbocharged

Clean Filter	mm H ₂ O [in H ₂ O]	254 [10]
Dirty Filter	mm H ₂ O [in H ₂ O]	635 [25]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient	°C [°F]	17 [30]

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

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COLUMBUS, INDIANA

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<http://marine.cummins.com>

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LUBRICATION SYSTEM

Oil Consumption Rate (Volume Percent of Fuel Consumption Rate)	%	0.0008
Oil Pressure at Normal Operating Temperature		
Idle Speed - Minimum in Filter Head Upstream of Filter	kPa [psi]	69 [10]
Idle Speed - Minimum in Main Oil Gallery	kPa [psi]	69 [10]
Rated Speed - Measured in Filter Head Upstream of Filter (Low)	kPa [psi]	207 [30]
Rated Speed - Measured in Filter Head Upstream of Filter (High)	kPa [psi]	448 [65]
Rated Speed - Measured in Main Oil Gallery (Low)	kPa [psi]	207 [30]
Rated Speed - Measured in Main Oil Gallery (High)	kPa [psi]	448 [65]
Max. Allowable Oil Temperature (Sump)	°C [°F]	121 [250]
Oil Pan Capacity (Shallow)		
Low	liter [gal]	26.5 [7.0]
High	liter [gal]	30.3 [8.0]
Total System Capacity (Max. Sump + Filter)	liter [gal]	32.9 [8.7]
Oil Pan Capacity (Deep)		
Low	liter [gal]	30.3 [8.0]
High	liter [gal]	34.1 [9.0]
Total System Capacity (Max. Sump + Filter)	liter [gal]	36.7 [9.7]

COOLING SYSTEM

Coolant Capacity		
Engine Only	liter [gal]	28 [7.4]
Engine Including Heat Exchanger and Integral Expansion Tank	liter [gal]	36 [9.4]
Min. Coolant Makeup Capacity	liter [gal]	15 [4]
Max. Pressure Drop Across Any External Cooling System Circuit	kPa [psi]	34 [5]
Max. Allowable Block Coolant System Pressure	kPa [psi]	276 [40]
Max. Coolant Head From Crankshaft Centerline With 15 psi Pressure Cap	m [ft]	16 [51]
Max. Coolant Temperature at Engine Outlet	°C [°F]	96 [205]
Min. Block Coolant Temperature (Warm Engine)	°C [°F]	71 [160]
Min. Allowable Coolant Expansion Space	% of System Capacity	5
Sea Water Pump Specifications.....	Refer.to.MAB 0.08.17 - 07/16/2001	

ELECTRICAL AND STARTER SYSTEM

Electrical		<u>12V</u>	<u>24V</u>
Min. Recommended Battery Capacity			
Cold Cranking Amperes Rating (CCA)		1800	900
Marine Cranking Amperes Rating (MCA)		2250	1125
Reserve Capacity (Discharging 25 Amps @ 80°F)	minutes	320	320
Min. Allowable System Voltage (@ Battery While Running)	Volts	12	24
Min. Allowable System Voltage (@ Battery While Cranking)	Volts	9	15
Max. Allowable System Voltage (@ Battery While Running)	Volts	15.5	31.0
Max. Allowable Voltage Drop of Starting Circuit (While Cranking)	Volts	0.7	1.0
Min. Engine Cranking Torque	ft-lb	1150	600
Min. Break-away Engine Cranking Torque	ft-lb	N.A.	N.A.
Min. Engine Cranking Speed	rpm	150	150
Max. Engine (Running) Current Draw	Amps	25	15
Min. Ambient Temperature for Cold Start (No Aids)	°C [°F]	-7 [20]	-7 [20]
Air Starter			
Regulated Pressure for Air Starter System	kPa [psi]	N.A.	N.A.
Min. Air-Flow for Air Starter System	l/sec [cfm]	N.A.	N.A.
Min. Recommended Tank Volume	liter [gal]	N.A.	N.A.

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