

# Cummins Engine Company, Inc.

## Marine Engine General Data Sheet

Marine

Pg. No.

**4B**

**3**

Engine Model: 4B/4BT/4BTA-M

Data Sheet: DS-4959

Date: 12Aug04

### General Engine Data

### Metric [U.S. Customary]

Type .....	4 cycle, Inline, 4 cylinder
Bore & Stroke .....	102 [4.02] x 119 [4.72]
Displacement .....	3.9 [239]
C.G. Distance from Front Flywheel Housing Mounting Face (Engine Only) .....	269 [10.6]
C.G. Distance above Crankshaft Centerline (Engine Only) .....	168 [6.6]

### Engine Mounting

Maximum Allowable Bending Moment at Rear Face of Block .....	N•m [lb-ft]	1356 [1000]
Minimum/Maximum Static Installation Angle for In-line Drives (Front Up) .....	Degrees	0 / 12
Minimum/Maximum Static Installation Angle for V drives (Front Up) .....	Degrees	3 / 12

Note: Front up refers to front of engines. In V-Drives it faces the back of the boat.

### Fuel System

Maximum Allowable Restriction to Fuel Pump - With Clean Filter .....	mm Hg [in. Hg]	63.5 [2.5]
Maximum Allowable Restriction to Fuel Pump - With Dirty Filter .....	mm Hg [in. Hg]	100 [4]
Maximum Allowable Return Line Pressure 4B/BT .....	mm Hg [in. Hg]	259 [10.2]
Maximum Allowable Return Line Pressure 4BTA .....	mm Hg [in. Hg]	517 [20.4]

### Exhaust System

Maximum Allowable Back Pressure .....	mm Hg [in. Hg]	75 [3]
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### Air Induction System

Maximum Allowable Intake Restriction		
4 B Clean/Dirty Element .....	mm H <sub>2</sub> O [in. H <sub>2</sub> O]	254 / 508 [10 / 20]
BT, BTA Clean/Dirty Element .....	mm H <sub>2</sub> O [in. H <sub>2</sub> O]	380 / 635 [15 / 25]
Maximum Allowable Engine Intake $\Delta$ T		
Engine Intake Air-Ambient Air At Rated Condition .....	°C [°F]	17 [30]

### Lubrication System

Oil Pressure		
At Idle Speed-Minimum .....	kPa [PSI]	69 [10]
Normal Operating Range .....	kPa [PSI]	207 - 448 [30 - 65]
Maximum Allowable Oil Temperature ( <b>Sump</b> ).....	°C [°F]	120 [250]
Oil Pan Capacity High/Low .....	litre [U.S. qts]	9.5 / 8.5 [10 / 9]
Total System Capacity .....	litre [U.S. qts]	10.4 [11]
Maximum Operational Angularity of Oil Pan (See Engine Mounting)		
Front Down .....	Degrees	20
Front Up .....	Degrees	45
Side-to-Side .....	Degrees	45

### Cooling System

Coolant Capacity - Engine Only .....	litre [U.S. qts]	8.3 [8.8]
Coolant Capacity - Engine with Heat Exchanger - 4B/BT .....	litre [U.S. qts]	13.2 [14.0]
Coolant Capacity - Engine with Heat Exchanger- 4BTA .....	litre [U.S. qts]	17.4 [18.4]
Maximum External Pressure Loss in Cooling System .....	kPa [PSI]	35 [5]
Maximum Static Pressure of Coolant (exclusive of Pressure Cap).....	kPa [PSI]	103 [15]
Standard Thermostat (modulating) Range .....	°C [°F]	83 - 95 [181 - 203]
Maximum Coolant Temperature .....	°C [°F]	96 [205]
Minimum Allowable Coolant Expansion Space .....	% of System Capacity	5
Minimum Coolant Makeup Capacity .....	litre [U.S. qts]	1.7 [1.8]
Maximum Sea Water Pressure .....	kPa [PSI]	103 [15]

**Sea Water Pump Specifications..... Refer to MAB 0.08.17-07/16/2001**

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### Electrical System

	<u>12V</u>	<u>24V</u>
Minimum Recommended Battery Capacity		
4B/4BT Cold Soak at -18°C (0°F) ..... Cold Cranking Amperes (CCA)	800	400
Cold Soak at 0°C (32°F) ..... Marine Cranking Amperes (MCA)	1000	500
4BTA Cold Soak at -18°C (0°F) ..... Cold Cranking Amperes (CCA)	1100	500
Cold Soak at 0°C (32°F) ..... Marine Cranking Amperes (MCA)	1375	625
Reserve Capacity..... minutes	160	160
Voltage Drop..... Volt s	02	0.2
Maximum Allowable Resistance of Starting Circuit ..... Ohms	0.0012	0.004
Wiring Diagram Number 4B/BT .....	3920181	
Wiring Diagram Number 4BTA .....	TBD	

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