Displacement: 5.9 litre [359 in.³]  
Bore: 102 mm [4.02 in.]  
Stroke: 119 mm [4.72]  
Fuel System: In Line Bosch - P7100  
Cylinders: 6

Rating Conditions: Ratings are based upon ISO 8665 reference conditions; air pressure of 100 kPa [29.612 in. Hg] air temperature 25°C [77°F] and 30% relative humidity. Propeller Shaft Power represents the net power available after typical reverse/reduction gear losses and is 97% of rated power. Fuel consumption is based on fuel of 35° API gravity at 16°C (60°F) having LHV of 42,780 kj/kg (18,390 Btu/lb) and weighing 838.9 g/liter (7.001 lb/U.S. gal).

1. Brake power kW / (HP)  
2. Shaft power kW / (HP) with Reverse / Reduction Gear  
3. Typical Propeller Power Curve (2.7 exponent)  
4. Fuel Consumption for Brake and Shaft power.  
5. Fuel Consumption for Typical Propeller.

Medium Continuous Rating: This power rating is intended for continuous use in variable load applications where full power is limited to six (6) hours out of every twelve (12) hours of operation. Also, reduced power operations must be at or below 200 RPM of the maximum rated RPM. This is an ISO 3046 Fuel Stop Power Rating and is for applications that operate 3,000 hours per year or less.
**General Engine Data***

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Model</td>
<td>6BTA5.9-M (JW)</td>
</tr>
<tr>
<td>Rating Type</td>
<td>Medium Continuous</td>
</tr>
<tr>
<td>Rated Engine Power kW [HP]</td>
<td>164 [220]</td>
</tr>
<tr>
<td>Rated Engine Speed RPM</td>
<td>2500</td>
</tr>
<tr>
<td>High Idle Speed Range RPM</td>
<td>2800-2900</td>
</tr>
<tr>
<td>Idle Speed Range RPM</td>
<td>550-650</td>
</tr>
<tr>
<td>Engine Torque Nm [ft/lb]</td>
<td>626 [462]</td>
</tr>
<tr>
<td>Brake Mean Effective Pressure kPa [PSI]</td>
<td>1338 [194]</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>15.3:1</td>
</tr>
<tr>
<td>Piston Speed m/sec [ft/min]</td>
<td>10 [1967]</td>
</tr>
<tr>
<td>Average Noise Level dBA at 1m</td>
<td>N.A.</td>
</tr>
<tr>
<td>Maximum Torque Capacity from Front of Crank**</td>
<td></td>
</tr>
</tbody>
</table>

**Firing Order**

1-5-3-6-2-4

**Fuel System***

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Consumption litre/hr [GPH]</td>
<td>45.0 [11.9]</td>
</tr>
<tr>
<td>Approximate Fuel Flow to Pump litre/hr [GPH]</td>
<td>231 [61] est.</td>
</tr>
<tr>
<td>Fuel Transfer Pump Pressure Range kPa [PSI]</td>
<td>124-172 [18-25]</td>
</tr>
</tbody>
</table>

**Weight (Dry)**

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Only kg [lb]</td>
<td>470 (1035)</td>
</tr>
<tr>
<td>With Heat Exchanger Cooling System kg [lb]</td>
<td>443 (95)</td>
</tr>
</tbody>
</table>

**Air System***

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake Manifold Pressure mm Hg [in Hg]</td>
<td>1295 [51]</td>
</tr>
<tr>
<td>Intake Air Flow litre/sec [CFM]</td>
<td>247 [523]</td>
</tr>
<tr>
<td>Heat Rejection to Ambient kW [BTU/min]</td>
<td>N.A.</td>
</tr>
<tr>
<td>Min Ambient Temp for Cold Start (No Aids) °C [°F]</td>
<td>10 (50)</td>
</tr>
</tbody>
</table>

**Exhaust System***

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Gas Flow litre/sec [CFM]</td>
<td>564 [1195]</td>
</tr>
<tr>
<td>Exhaust Gas Temperature °C [°F]</td>
<td>384 [724]</td>
</tr>
</tbody>
</table>

**Cooling System***

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Rejection to Coolant kW [BTU/min]</td>
<td>N.A.</td>
</tr>
<tr>
<td>Engine Water Flow litre/min [GPM]</td>
<td>173 [46]</td>
</tr>
<tr>
<td>Pressure Cap Rating w/Heat Exchanger kPa [PSI]</td>
<td>103 [15]</td>
</tr>
</tbody>
</table>

**INSTALLATION DIAGRAMS:**

[Diagram reference: 3884673]

---

*All Data at Rated Conditions
**Consult Installation Direction Booklet for Limitations

CUMMINS ENGINE COMPANY, INC.
COLUMBUS, INDIANA

All Data is Subject to Change Without Notice
Cummins Engine Company, Inc.

Marine Engine General Data Sheet

Engine Model: 6B/6BT/6BTA-M

Data Sheet: DS - 4960
Date: 01Mar97

General Engine Data

Type: 4 cycle, In-line, 6 cylinder
Displacement: 5.9 [359]
C.G. Distance from Front Face of Block (Engine Only): 338 [13.3]
C.G. Distance above Crankshaft Centerline (Engine Only): 168 [6.6]

Engine Mounting

Maximum Allowable Bending Moment at Rear Face of Block: 1356 [1000]
Minimum/Maximum Static Installation Angle for In-line Drives (Front Up): 0/12
Minimum/Maximum Static Installation Angle for V drives (Front Up): 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: 63.5 [2.5]
Maximum Allowable Restriction to Fuel Pump - With Dirty Filter: 100 [4]
Maximum Allowable Return Line Pressure - 6B/6BT: 259 [10.2]
Maximum Allowable Return Line Pressure - 6BTA: 518 [20.4]

Exhaust System

Maximum Allowable Back Pressure: 75 [3.0]

Air Induction System

Maximum Allowable Intake Restriction
6B Clean/Dirty Element: 254 / 508 [10 / 20]
6BT/6BTA Clean/Dirty Element: 380 / 635 [15 / 25]
Maximum Allowable Engine Intake ΔT: 14.1 / 12.3 [15 / 13]
Engine Intake Air-Ambient Air At Rated Condition: 15 [16]

Lubrication System

Oil Pressure
At Idle Speed-Minimum: 69 [10]
Normal Operating Range: 207 - 448 [30 - 65]
Maximum Allowable Oil Temperature: 120 [250]
Oil Pan Capacity High/Low: 14.1 / 12.3 [15 / 13]
Total System Capacity: 15 [16]
Maximum Operational Angularity of Oil Pan (See Engine Mounting): 15
Front Down: 15
Front Up: 45
Side-to-Side: 35

Cooling System

Coolant Capacity - Engine Only: 12.9 [13.6]
Coolant Capacity - Engine with Heat Exchanger: 20.6 [21.6]
Maximum External Pressure Loss in Cooling System: 35.0 [5.0]
Maximum Static Pressure of Coolant (exclusive of Pressure Cap): 103 [15.0]
Standard Thermostat (modulating) Range: 83 - 96 [181 - 203]
Maximum Coolant Temperature: 96 [205]
Minimum Allowable Coolant Expansion Space: 5
Minimum Coolant Makeup Capacity: 2.4 [2.7]
Maximum Raw Water Pressure: 103 [15.0]
Maximum Raw Water Pump Inlet Restriction: 270 [5.0]
Maximum Raw Water Pump Initial Suction Lift: 3.0 [10.0]

Electrical System

12V

Minimum Recommended Battery Capacity
6B/6BT/6BTA-M (JW) Cold Soak at -18°C (0°F) or Above - Cold Cranking Amperes (CCA): 950 475
6BTA-M (SW) Cold Soak at -18°C (0°F) or Above - Cold Cranking Amperes (CCA): 1100 550
Reserve Capacity - minutes: 160 160
Maximum Allowable Resistance of Starting Circuit - Ohms: 0.001 0.0020
Wiring Diagram Number: 3920281
## General Engine Data

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: 4 cycle, Inline, 6 cylinder</td>
<td></td>
</tr>
<tr>
<td>Bore - mm [in.] &amp; Stroke</td>
<td>mm [in.] 102 [4.02] x 119 [4.72]</td>
</tr>
<tr>
<td>Displacement</td>
<td>litre [in.] 5.9 [359]</td>
</tr>
<tr>
<td>C.G. Distance from Front Face of Block (Engine Only)</td>
<td>mm [in.] 338 [13.3]</td>
</tr>
<tr>
<td>C.G. Distance above Crankshaft Centerline (Engine Only)</td>
<td>mm [in.] 168 [6.6]</td>
</tr>
</tbody>
</table>

## 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 - 6B/6BT: mm Hg [in. Hg] 259 [10.2]
- Maximum Allowable Return Line Pressure - 6BTA: mm Hg [in. Hg] 518 [20.4]

## Exhaust System

- Maximum Allowable Back Pressure: mm Hg [in. Hg] 75 [3.0]

## Air Induction System


## 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: °C [°F] 120 [250]
- Oil Pan Capacity High/Low: litre [U.S. qts] 14.1 / 12.3 [15 / 13]
- Maximum Operational Angularity of Oil Pan (See Engine Mounting)
  - Front Down: Degrees 15
  - Front Up: Degrees 45
  - Side-to-Side: Degrees 35

## Cooling System

- Maximum External Pressure Loss in Cooling System: kPa [PSI] 35.0 [5.0]
- Maximum Static Pressure of Coolant (exclusive of Pressure Cap): kPa [PSI] 103 [15.0]
- Maximum Coolant Temperature: °C [°F] 96 [205]
- Minimum Allowable Coolant Expansion Space: % of System Capacity 5
- Minimum Coolant Makeup Capacity: litre [U.S. qts] 2.4 [2.7]
- Maximum Raw Water Pressure: kPa [PSI] 103 [15.0]
- Maximum Raw Water Pump Inlet Restriction: mm Hg [in. Hg] 127.0 [5.0]
- Maximum Raw Water Pump Initial Suction Lift: m [ft] 3.0 [10.0]

## Electrical System

- 12V
  - Minimum Recommended Battery Capacity: 6B/6BT/6BTA-M (JW) Cold Soak at -18°C (0°F) or Above - Cold Cranking Amperes (CCA): 950 [475]
  - 6BTA-M (SW) Cold Soak at -18°C (0°F) or Above - Cold Cranking Amperes (CCA): 1100 [550]
  - Reserve Capacity: minutes 160 [160]
  - Maximum Allowable Resistance of Starting Circuit - Ohms: 0.001 [0.0020]
  - Wiring Diagram Number: 3920281

- 24V