**SPECIFICATIONS**

*In-Line 6, 4-Stroke-Cycle-Diesel*

- **Emissions**: IMO II/EPA Tier 2 compliant
- **Displacement**: 111 L (6,773 cu. in.)
- **Low Idle Speed**: 350 rpm
- **Rated Speed**: 900 rpm
- **Bore**: 280 mm (11.0 in.)
- **Stroke**: 300 mm (11.8 in.)
- **Compression Ratio**: 13:1
- **Aspiration**: Turbocharged-Aftercooled
- **Governor**: Electronic
- **Cooling System**: Keel or Heat Exchanger
- **Weight, Dry**: 15,682 kg (34,574 lbs)

**Refill Capacities**

- **Cooling System**: 900-1075 L (238-284 gal)
- **Lube Oil System**: 697 L (184 gal)
- **Oil Change Interval**: 1025 hours
- **Rotation (from flywheel end)**: CCW or CW
- **Serial Number Prefix**: SCB

*A new S•O•S™ analysis must be done to determine actual oil change intervals.*

---

**STANDARD ENGINE EQUIPMENT**

**Air Intake and Exhaust System**
Charge air cooler, air inlet shutoff, high flow turbocharger, dry manifold with soft or hard shielding

**Basic Engine Arrangement**
In-line engine with one-piece grey iron cylinder block, individual cylinder heads with four intake/exhaust valves, right- or left-hand service side available

**Control System**
Dual ADEM™ A3 electronic engine control unit (ECU) with electronic unit injector fuel system, rigid wiring harness (10 amp, 24 volt power required to drive ECU)

**Cooling System**
Single or combined system, engine mounted freshwater and seawater pumps, engine coolant water drains

**Fuel System**
Engine operates on MDO; fuel injection system consists of engine-driven fuel transfer pump and an electronic unit injector for each cylinder, engine-mounted duplex fuel filters, and flexible connections

**Lube Oil System**
Top-mounted crankcase breather, two centrifugal oil filters with single shutoff, gear-driven pump, duplex oil filter, crankcase explosion relief, oil filler and dipstick

**Monitoring, Alarm, and Safety Control System**
Alarms and shutdowns provided as required by marine society for unmanned machinery spaces. Marine Monitoring System II [listed as Programmable Logic Control (PLC) in the Price List] or Engine Control Panel are available; systems include temperature, pressure, and speed sensors; optional: oil mist detector or particle detector available

**ECU Functions**
Key-switch, desired engine speed, programmable low idle, SAE J1939 data link, Cat® data link, Messenger (displays engine data, diagnostics, etc.), diagnostics, general alarm, programmable parameters (system, application, and tattletales), Cat ET service tool interface, remote shutdown, shutdown notify, load feedback, overspeed shutdown, overspeed verify, engine power correction, droop, dual dynamics

**General**
Four lifting eyes mounted to cylinder heads, Cat yellow paint, parts books and maintenance manuals, shrink wrap

**Optional Supplied Equipment**
Torsional coupling, fresh water heat exchanger, fuel cooler, expansion tank, emergency pumps and connections, jacket water heater, flexible connections, and anti-vibration isolators
**C280-6** MARINE PROPULSION

**2352 mhp (2320 bhp) 1730 bkW**

### MARINE ENGINE PERFORMANCE

#### MARINE ENGINE PERFORMANCE

**C280-6 DIESEL ENGINE TECHNICAL DATA**

- **RATED SPEED (RPM):** 900
- **RATED POWER** (bkW): 1730
- **BMEP @ 100% LOAD (kPa):** 2082
- **COMPRESSION RATIO:** 13:1
- **AFTERCoolER WATER (°C):** 32
- **JACKET WATER OUTLET (°C):** 90
- **IGNITION SYSTEM:** EUI
- **FIRING PRESSURE, MAXIMUM (kPa):** 16200

**ENGINE RATING:**
- **Marine CSR**

**CERTIFICATION:**
- IMO II/EPA MARINE TIER II

**TURBOCHARGER PART #:** 157-5514

**COMBUSTION:** DI

**FUEL TYPE:** Distillate

**EXHAUST MANIFOLD:** DRY

**MEAN PISTON SPEED (m/s):** 9

**BMEP @ 100% LOAD (kPa):** 2082

**TURBOCHARGER PART #:** 157-5514

**COMPRESSION RATIO:** 13:1

**AFTERCOOLER WATER (°C):**
- **32 F**

**JACKET WATER OUTLET (°C):**
- **90 C**

**EXHAUST MANIFOLD:** DRY

**IGNITION SYSTEM:** EUI

**FIRING PRESSURE, MAXIMUM (kPa):** 16200

**ENGINE PERFORMANCE ZONE LIMIT DATA**

| Operating Condition | Fuel Boost | Air Exh | Exh Stack | Load | Engine Cons | Fuel Rate | Fuel Press | Exh Stack | Turb Temp | Exhaust | Exh Flow | Engine Speed (rpm) |
|---------------------|------------|--------|----------|------|-------------|-----------|-------------|----------|-----------|----------|----------|-------------|-------------------|
| 900                 | 1557       | 21.5   | 399.9    | 253  | 186.8       | 545       | 375         | 359.8    |           |           |          |             | (Curve P1)         |
| 850                 | 1522       | 21.5   | 355.4    | 207  | 137.5       | 543       | 393         | 303.7    |           |           |          |             |                   |
| 800                 | 1584       | 21.5   | 276.3    | 148  | 105.2       | 547       | 413         | 239.8    |           |           |          |             |                   |
| 750                 | 1618       | 21.5   | 227.5    | 103  | 81.0        | 560       | 428         | 189.0    |           |           |          |             |                   |
| 700                 | 1667       | 21.5   | 187.8    | 71   | 63.9        | 563       | 433         | 154.4    |           |           |          |             |                   |
| 650                 | 1718       | 21.5   | 152.9    | 48   | 51.3        | 547       | 423         | 119.2    |           |           |          |             |                   |
| 600                 | 1775       | 21.5   | 121.6    | 31   | 41.7        | 512       | 395         | 92.7     |           |           |          |             |                   |
| 550                 | 1829       | 21.5   | 94.6     | 18   | 34.1        | 462       | 348         | 74.4     |           |           |          |             |                   |
| 500                 | 1883       | 21.5   | 94.6     | 18   | 34.1        | 462       | 348         | 74.4     |           |           |          |             |                   |

**Propeller Demand Data**

<table>
<thead>
<tr>
<th>Engine Speed (rpm)</th>
<th>Fuel Rate</th>
<th>Fuel Press</th>
<th>Exh Stack</th>
<th>Turb Temp</th>
<th>Exhaust</th>
<th>Exh Flow</th>
<th>Engine Power (bkW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>1557</td>
<td>21.5</td>
<td>399.9</td>
<td>253</td>
<td>186.8</td>
<td>545</td>
<td>375</td>
</tr>
<tr>
<td>850</td>
<td>1522</td>
<td>21.5</td>
<td>355.4</td>
<td>207</td>
<td>137.5</td>
<td>543</td>
<td>393</td>
</tr>
<tr>
<td>800</td>
<td>1584</td>
<td>21.5</td>
<td>276.3</td>
<td>148</td>
<td>105.2</td>
<td>547</td>
<td>413</td>
</tr>
<tr>
<td>750</td>
<td>1618</td>
<td>21.5</td>
<td>227.5</td>
<td>103</td>
<td>81.0</td>
<td>560</td>
<td>428</td>
</tr>
<tr>
<td>700</td>
<td>1667</td>
<td>21.5</td>
<td>187.8</td>
<td>71</td>
<td>63.9</td>
<td>563</td>
<td>433</td>
</tr>
<tr>
<td>650</td>
<td>1718</td>
<td>21.5</td>
<td>152.9</td>
<td>48</td>
<td>51.3</td>
<td>547</td>
<td>423</td>
</tr>
<tr>
<td>600</td>
<td>1775</td>
<td>21.5</td>
<td>121.6</td>
<td>31</td>
<td>41.7</td>
<td>512</td>
<td>395</td>
</tr>
<tr>
<td>550</td>
<td>1829</td>
<td>21.5</td>
<td>94.6</td>
<td>18</td>
<td>34.1</td>
<td>462</td>
<td>348</td>
</tr>
<tr>
<td>500</td>
<td>1883</td>
<td>21.5</td>
<td>94.6</td>
<td>18</td>
<td>34.1</td>
<td>462</td>
<td>348</td>
</tr>
</tbody>
</table>

**Heat Rejection @ 100% Load and 25°C Air**

- **Lube Oil Cooler kW:** (Btu/minute) 182 (10356)
- **Jacket Water kW:** (Btu/minute) 387 (22020)
- **AfterCooler kW:** (Btu/minute) 518 (29474)
- **Total Heat Rejection to Raw Water kW:** (Btu/minute) 1087 (61850)
- **Exhaust Gas** (Btu/minute) 1321 (75165)

**Radiation kW:** 86 (4893)

**Notes**

1. Ratings are based on ISO 3046/1 and SAE J1995 Jan 90 standard reference conditions of 100 kPa, 25°C, and 30% relative humidity at the stated aftercooler water temperature.

2. Exhaust Heat rejection is based on fuel LHV and is not normally recoverable in total.

3. At 100% load with JW and Oil pumps, without seawater pump, ±3%. Performance and fuel consumption are based on 35 API, 16°C fuel having a lower heating value of 42,780 kJ/kg used at 29°C with a density of 838.9 g/liter.

4. Air flows are shown for 25°C air inlet to the turbocharger and 32°C cooling water to the charge air cooler.

5. This engine's exhaust emissions are in compliance with the INTERNATIONAL MARINE ORGANIZATION'S (IMO) standard as described in REGULATION 13 of ANNEX VI of MARPOL 73/78 and ISO 8178 for measuring HC, CO, PM, and NOx.
**DIMENSIONS**

**Engine Dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Overall Length</td>
<td>4011 mm</td>
<td>157.9 in.</td>
</tr>
<tr>
<td>(2) Overall Width</td>
<td>1796 mm</td>
<td>70.7 in.</td>
</tr>
<tr>
<td>(3) Overall Height</td>
<td>2734 mm</td>
<td>107.6 in.</td>
</tr>
</tbody>
</table>

Note: Do not use for installation design. See general dimension drawings for detail.

**Engine Weights**

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Dry Weight</td>
<td>15,682 kg</td>
<td>34,574 lb</td>
</tr>
<tr>
<td>Shipped Loose Items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torsional Coupling</td>
<td>319 kg</td>
<td>702 lb</td>
</tr>
<tr>
<td>Plate-Type Heat Exchanger</td>
<td>400 kg</td>
<td>880 lb</td>
</tr>
<tr>
<td>Instrument/Alarm Panel</td>
<td>200 kg</td>
<td>440 lb</td>
</tr>
<tr>
<td>Fluids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lube Oil</td>
<td>634 kg</td>
<td>1,395 lb</td>
</tr>
<tr>
<td>Jacket Water</td>
<td>400 kg</td>
<td>880 lb</td>
</tr>
<tr>
<td>Heat Exchanger (FW, SW, LO)</td>
<td>70 kg</td>
<td>154 lb</td>
</tr>
</tbody>
</table>
Continuous Service Rating — 100% of the engine operating hours at 100% of rated power.

Ratings are based on SAE J1995/ISO3046 standard conditions of 100 kPa (29.61 in. Hg), 25°C (77°F), and 30% relative humidity at the stated charge air cooler water temperature. Ratings also meet classification society maximum temperature requirements of 45°C (113°F) air temperature to the turbocharger and 32°C (90°F) seawater temperature without derate.

Additional ratings may be available for specific customer requirements. Consult your Cat representative for additional information.

Fuel rates are based on 35° API, 16°C (60°F) fuel used at 29°C (85°F) with a density of 838.9 g/liter (7.001 lbs/U.S. gal). Lower Heat Value (LHV) of 42 780 kJ/kg (18,390 Btu/lb). Tolerance is +5%. Includes all engine mounted pumps. BSFC without pumps is 3% less.

Marine Certification — Ratings are marine classification society approved by ABS, BV, CCS, DnV, GL, KR, LRS, NKK, RINA, and RS. These societies have also granted C280 factory line production approval which eliminates requirement for society surveyor witness test.

Performance data is calculated in accordance with tolerances and conditions stated in this specification sheet and is only intended for purposes of comparison with other manufacturers’ engines. Actual engine performance may vary according to the particular application of the engine and operating conditions beyond Caterpillar’s control.

Power produced at the flywheel will be within standard tolerances up to 49°C (120°F) combustion air temperature measured at the air cleaner inlet, and fuel temperature up to 52°C (125°F) measured at the fuel filter base. Power rated in accordance with NMMA procedure as crankshaft power. Reduce crankshaft power by 3% for propeller shaft power.

CAT, CATERPILLAR, their respective logos, ADEM, S•O•S, “Caterpillar Yellow” and the “Power Edge” trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

TMI Reference No.: DM8389-01

LEHM7087-01 (3-10)

©2010 Caterpillar
All rights reserved.
Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.