Marine Propulsion Engine
3304B
123 bkW (165 bhp) 167 mhp @ 2200 rpm

SPECIFICATIONS
I-4, 4-Stroke-Cycle-Diesel
Emissions ...................................... Non-IMO
Displacement ....................... 7 L (425 cu. in.)
Bore ........................................... 121 mm (4.8 in.)
Stroke ........................................... 152 mm (6.0 in.)
Aspiration ........................... Turbocharged
Governor ................................. Hydra-mechanical
Engine Weight, Net Dry (approx)
Heat Exchanger Cooled ............ 810 kg (1786 lb)
Keel Cooled ............................... 768 kg (1690 lb)
Capacity for Liquids
Cooling System ............... 12.9 L (3.4 U.S. gal)
Lube Oil System (refill) ........ 19.0 L (5.0 U.S. gal)
Oil Change Interval ......................... 250 hr
Caterpillar DEO 10W30 or 15W40
Rotation (from flywheel end) ...... Counterclockwise

STANDARD EQUIPMENT
Air Inlet System
Regular duty single stage dry air cleaner

Cooling System
Gear driven self-priming auxiliary sea water pump with rubber impeller (heat exchanger engines only), gear driven centrifugal jacket water pump, engine oil cooler, expansion tank, engine-mounted heat exchanger with removable tube bundle (heat exchanger engines only), thermostat and housing, transmission oil cooler

Exhaust System
Watercooled manifold and turbocharger; dry elbow and flange, 102 mm (4 in.)

Flywheel and Flywheel Housing
SAE No. 2 (156 teeth)

Fuel System
Fuel priming pump, fuel transfer pump, fuel filter, flexible fuel lines

Instruments
Fuel pressure gauge, service meter, heavy-duty tachometer drive

Lube System
Top-mounted crankcase breather, LH oil filter and oil level gauge

Mounting System
Front support

General
Caterpillar yellow paint, lifting eyes

ACCESSORY EQUIPMENT
Air Starting Motor
Alarm Contactor (Oil Pressure, Water Temperature)
12V 51 Amp, 24V 35 Amp, 24V 60 Amp Alternator
Auxiliary Drive Pulley
Digital Tachometer
Double Wall Fuel Lines
Duplex Fuel Filters
Electric Overspeed Shutoff
Electric Starting Motor
Ether Starting Aid
Exhaust Elbows, Pipes, Rain Caps, Flexible Fittings
Front Enclosed Clutch
Fuel Ratio Control
Hydraulic Pump Drive
Magnetic Pickup
Manual Shutoff
Pilot House Instrument Panel
Primary Fuel Filter/Water Separator
Remote-Mounted Pilot House Controls
Remote Positive Locking Governor Control
Solenoid Shutoffs
Spare Parts Kit
PERFORMANCE CURVES

C Rating — TM1529-02

### Metric Performance Data

<table>
<thead>
<tr>
<th>Engine Speed (rpm)</th>
<th>Engine Power (kW)</th>
<th>Engine Torque (Nm)</th>
<th>BSFC (g/kW-hr)</th>
<th>Fuel Rate (L/hr)</th>
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</thead>
<tbody>
<tr>
<td>2200</td>
<td>123</td>
<td>534</td>
<td>249.0</td>
<td>36.5</td>
</tr>
<tr>
<td>2000</td>
<td>92</td>
<td>441</td>
<td>234.0</td>
<td>25.8</td>
</tr>
<tr>
<td>1800</td>
<td>67</td>
<td>357</td>
<td>266.0</td>
<td>21.4</td>
</tr>
<tr>
<td>1600</td>
<td>47</td>
<td>282</td>
<td>261.0</td>
<td>14.7</td>
</tr>
<tr>
<td>1500</td>
<td>39</td>
<td>248</td>
<td>220.0</td>
<td>10.2</td>
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<tr>
<td>1400</td>
<td>32</td>
<td>216</td>
<td>210.0</td>
<td>7.9</td>
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<tr>
<td>1200</td>
<td>20</td>
<td>159</td>
<td>240.0</td>
<td>5.7</td>
</tr>
<tr>
<td>1000</td>
<td>12</td>
<td>110</td>
<td>323.0</td>
<td>4.4</td>
</tr>
<tr>
<td>800</td>
<td>6</td>
<td>71</td>
<td>323.0</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Cubic prop demand curve with 3.0 exponent for displacement hulls only.

### English Performance Data

<table>
<thead>
<tr>
<th>Engine Speed (rpm)</th>
<th>Engine Power (hp)</th>
<th>Engine Torque (lb ft)</th>
<th>BSFC (lb/hp-hr)</th>
<th>Fuel Rate (gph)</th>
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</thead>
<tbody>
<tr>
<td>2200</td>
<td>165</td>
<td>394</td>
<td>.409</td>
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<tr>
<td>2000</td>
<td>124</td>
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<td>.385</td>
<td>6.8</td>
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<td>1800</td>
<td>90</td>
<td>263</td>
<td>.437</td>
<td>5.7</td>
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<td>1600</td>
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<td>3.9</td>
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<td>1500</td>
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<tr>
<td>1000</td>
<td>16</td>
<td>81</td>
<td>.531</td>
<td>1.2</td>
</tr>
<tr>
<td>800</td>
<td>8</td>
<td>52</td>
<td>.531</td>
<td>.6</td>
</tr>
</tbody>
</table>

Power produced at the flywheel will be within standard tolerances up to 50°C (122°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.
### DIMENSIONS *

<table>
<thead>
<tr>
<th></th>
<th>mm</th>
<th>in.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Length</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length from front to rear face of block</td>
<td>1420.9</td>
<td>55.9</td>
</tr>
<tr>
<td>Length from rear face of block to back of flywheel housing</td>
<td>986.6</td>
<td>38.8</td>
</tr>
<tr>
<td></td>
<td>146.3</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Overall Height</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height from crankshaft centerline to top of engine</td>
<td>1141.3</td>
<td>44.9</td>
</tr>
<tr>
<td>Height from crankshaft centerline to bottom of engine</td>
<td>827.7</td>
<td>32.6</td>
</tr>
<tr>
<td></td>
<td>313.6</td>
<td>12.4</td>
</tr>
<tr>
<td><strong>Overall Width</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width from crankshaft centerline to port side (left side)</td>
<td>953.0</td>
<td>37.5</td>
</tr>
<tr>
<td>Width from crankshaft centerline to starboard side (right side)</td>
<td>430.3</td>
<td>16.9</td>
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<td></td>
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<tr>
<td><strong>Customer mounting hole diameter</strong></td>
<td>16.7</td>
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<td><strong>Width from crankshaft centerline to side</strong></td>
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<td>11.3</td>
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<tr>
<td><strong>Length from rear face of block to front</strong></td>
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<td>26.0</td>
</tr>
<tr>
<td></td>
<td>697.5</td>
<td>27.5</td>
</tr>
</tbody>
</table>

*Illustrations and dimensions from drawing: 118-7824

### RATING DEFINITIONS AND CONDITIONS

**C Rating** –

Typical Application . . . Vessels such as ferries, harbor tugs, fishing boats moving at higher speeds out and back (e.g. lobster, crayfish, and tuna), offshore service boats, and also displacement hull yachts and short trip coastal freighters where engine load and speed are cyclical.

Typical Hours Per Year ........... 2000 to 4000

Time at Rated Speed ............. Up to 50%

Load Factor .................... 20 to 80%

Typical Time at Full Load ..... 6 out of 12 hours

Rated Speed .................. 2200 rpm

Maximum Cruise Speed .......... 2100 rpm

Maximum Continuous Cruise Speed . . . . 2000 rpm

**Engine Performance Parameters**

- Power ........................................... ±3%
- Specific Fuel Consumption ........... ±3%
- Fuel Rate ................................... ±5%

**Ratings** are based on SAE J1228/ISO8665 standard conditions of 100 kPa (29.61 in. Hg), 25°C (77°F), and 30% relative humidity. These ratings also apply at ISO3046/1, DIN6271/3, and BS5514 conditions of 100 kPa (29.61 in. Hg), 27°C (81°F), and 60% relative humidity.

**Fuel rates** are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/L (7.001 lb/U.S. gal).

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

TM Reference No.: TM1529-02 (6-19-01)
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**Marine Propulsion Engine**

**3304B**

**104 bkW (140 bhp) 142 mhp @ 2000 rpm**

**SPECIFICATIONS**

**I-4, 4-Stroke-Cycle-Diesel**

- **Emissions** ................................ Non-IMO
- **Displacement** .............................. 7 L (425 cu. in.)
- **Bore** ...................................... 121 mm (4.8 in.)
- **Stroke** ..................................... 152 mm (6.0 in.)
- **Aspiration** ................................. Turbocharged
- **Governor** ................................. Hydra-mechanical

**Engine Weight, Net Dry (approx)**

- Heat Exchanger Cooled .................. 810 kg (1786 lb)
- Keel Cooled ................................. 768 kg (1690 lb)

**Capacity for Liquids**

- **Cooling System** ......................... 12.9 L (3.4 U.S. gal)
- **Lube Oil System (refill)** ............. 19.0 L (5.0 U.S. gal)
- **Oil Change Interval** .................... 250 hr

**Caterpillar DEO 10W30 or 15W40**

**Rotation (from flywheel end)** ........ Counterclockwise

**STANDARD EQUIPMENT**

**Air Inlet System**

- Regular duty single stage dry air cleaner

**Cooling System**

- Gear driven self-priming auxiliary sea water pump with rubber impeller (heat exchanger engines only), gear driven centrifugal jacket water pump, engine oil cooler, expansion tank, engine-mounted heat exchanger with removable tube bundle (heat exchanger engines only), thermostat and housing, transmission oil cooler

**Exhaust System**

- Watercooled manifold and turbocharger; dry elbow and flange, 102 mm (4 in.)

**Flywheel and Flywheel Housing**

- SAE No. 2 (156 teeth)

**Fuel System**

- Fuel priming pump, fuel transfer pump, fuel filter, flexible fuel lines

**Instruments**

- Fuel pressure gauge, service meter, heavy-duty tachometer drive

**Lube System**

- Top-mounted crankcase breather, LH oil filter and oil level gauge

**Mounting System**

- Front support

**General**

- Caterpillar yellow paint, lifting eyes

**ACCESSORY EQUIPMENT**

**Air Starting Motor**

- Alarm Contactor (Oil Pressure, Water Temperature)
- 12V 51 Amp, 24V 35 Amp, 24V 60 Amp Alternator

**Auxiliary Drive Pulley**

- Digital Tachometer
- Double Wall Fuel Lines
- Duplex Fuel Filters
- Electric Overspeed Shutoff
- Electric Starting Motor
- Ether Starting Aid

**Exhaust Elbows, Pipes, Rain Caps, Flexible Fittings**

**Front Enclosed Clutch**

**Fuel Ratio Control**

**Hydraulic Pump Drive**

**Magnetic Pickup**

**Manual Shutoff**

**Pilot House Instrument Panel**

**Primary Fuel Filter/Water Separator**

**Remote-Mounted Pilot House Controls**

**Remote Positive Locking Governor Control**

**Solenoid Shutoffs**

**Spare Parts Kit**
**B Rating — TM1530-02**

<table>
<thead>
<tr>
<th>Engine Speed - rpm</th>
<th>Engine Power kW</th>
<th>Engine Torque N·m</th>
<th>BSFC g/kW-hr</th>
<th>Fuel Rate L/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>105</td>
<td>499</td>
<td>234.0</td>
<td>29.2</td>
</tr>
<tr>
<td>1800</td>
<td>76</td>
<td>404</td>
<td>232.0</td>
<td>21.0</td>
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<tr>
<td>1600</td>
<td>54</td>
<td>319</td>
<td>255.0</td>
<td>16.2</td>
</tr>
<tr>
<td>1500</td>
<td>44</td>
<td>281</td>
<td>223.0</td>
<td>11.7</td>
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<td>1400</td>
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<tr>
<td>1000</td>
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<td>125</td>
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<tr>
<td>800</td>
<td>7</td>
<td>80</td>
<td>308.0</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Cubic prop demand curve with 3.0 exponent for displacement hulls only.

Power produced at the flywheel will be within standard tolerances up to 50°C (122°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.
Typical Application . . . Vessels such as midwater trawlers, purse seiners, crew and supply boats, ferries, and towboats where locks, sandbars, and curves dictate frequent slowing, and engine load and speed are constant with some cycling.

Typical Hours Per Year ........... 3000 to 5000
Time at Rated Speed .............. Up to 80%
Load Factor ........................ 40 to 80%
Typical Time at Full Load ....... 10 out of 12 hours

Rated Speed ....................... 2000 rpm
Maximum Cruise Speed ........... 1900 rpm
Maximum Continuous Cruise Speed . . . 1800 rpm

Engine Performance Parameters
Power ........................................ +3%
Specific Fuel Consumption .......... +3%
Fuel Rate .............................. +5%

Ratings are based on SAE J1228/ISO8665 standard conditions of 100 kPa (29.61 in. Hg), 25°C (77°F), and 30% relative humidity. These ratings also apply at ISO3046/1, DIN6271/3, and BS5514 conditions of 100 kPa (29.61 in. Hg), 27°C (81°F), and 60% relative humidity.

Fuel rates are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/L (7.001 lb/U.S. gal).

Additional ratings may be available for specific customer requirements. Consult your Caterpillar representative for additional information.
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.
**Marine Propulsion Engine 3304B**

93 bkW (125 bhp) 127 mhp @ 2000 rpm

**SPECIFICATIONS**

I-4, 4-Stroke-Cycle-Diesel

- Emissions: Non-IMO
- Displacement: 7 L (425 cu. in.)
- Bore: 121 mm (4.8 in.)
- Stroke: 152 mm (6.0 in.)
- Aspiration: Turbocharged
- Governor: Hydra-mechanical

Engine Weight, Net Dry (approx)
- Heat Exchanger Cooled: 810 kg (1786 lb)
- Keel Cooled: 768 kg (1690 lb)

Capacity for Liquids
- Cooling System: 12.9 L (3.4 U.S. gal)
- Lube Oil System (refill): 19.0 L (5.0 U.S. gal)
- Oil Change Interval: 250 hr

Caterpillar DEO 10W30 or 15W40

Rotation (from flywheel end): Counterclockwise

**STANDARD EQUIPMENT**

- **Air Inlet System**: Regular duty single stage dry air cleaner
- **Cooling System**: Gear driven self-priming auxiliary sea water pump with rubber impeller (heat exchanger engines only), gear driven centrifugal jacket water pump, engine oil cooler, expansion tank, engine-mounted heat exchanger with removable tube bundle (heat exchanger engines only), thermostat and housing, transmission oil cooler
- **Exhaust System**: Watercooled manifold and turbocharger; dry elbow and flange, 102 mm (4 in.)
- **Flywheel and Flywheel Housing**: SAE No. 2 (156 teeth)
- **Fuel System**: Fuel priming pump, fuel transfer pump, fuel filter, flexible fuel lines
- **Instruments**: Fuel pressure gauge, service meter, heavy-duty tachometer drive
- **Lube System**: Top-mounted crankcase breather, LH oil filter and oil level gauge
- **Mounting System**: Front support
- **General**: Caterpillar yellow paint, lifting eyes

**ACCESSORY EQUIPMENT**

- **Air Starting Motor**
- **Alarm Contactor (Oil Pressure, Water Temperature)**
- **12V 51 Amp, 24V 35 Amp, 24V 60 Amp Alternator**
- **Auxiliary Drive Pulley**
- **Digital Tachometer**
- **Double Wall Fuel Lines**
- **Duplex Fuel Filters**
- **Electric Overspeed Shutoff**
- **Electric Starting Motor**
- **Ether Starting Aid**
- **Exhaust Elbows, Pipes, Rain Caps, Flexible Fittings**
- **Front Enclosed Clutch**
- **Fuel Ratio Control**
- **Hydraulic Pump Drive**
- **Magnetic Pickup**
- **Manual Shutoff**
- **Pilot House Instrument Panel**
- **Primary Fuel Filter/Water Separator**
- **Remote-Mounted Pilot House Controls**
- **Remote Positive Locking Governor Control**
- **Solenoid Shutoffs**
- **Spare Parts Kit**
PERFORMANCE CURVES

A Rating — TM1531-02

Cubic prop demand curve with 3.0 exponent for displacement hulls only.

Power produced at the flywheel will be within standard tolerances up to 50°C (122°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.
Typical Application . . . For heavy-duty service in vessels such as freighters, tugboats, bottom drag trawlers, and deep river towboats where the engine is operated at rated load and speed up to 100% of the time without interruption or load cycling.

Typical Hours Per Year .......... 5000 to 8000
Time at Rated Speed............... Up to 100%
Load Factor .......................... 80 to 100%
Typical Time at Full Load .......... No limit

**RATING DEFINITIONS AND CONDITIONS**

**A Rating**

**Dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>mm</th>
<th>in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Length</td>
<td>1420.9</td>
<td>55.9</td>
</tr>
<tr>
<td>Length from front to rear face of block</td>
<td>986.6</td>
<td>38.8</td>
</tr>
<tr>
<td>Length from rear face of black to back of flywheel housing</td>
<td>146.3</td>
<td>5.8</td>
</tr>
<tr>
<td>Overall Height</td>
<td>1141.3</td>
<td>44.9</td>
</tr>
<tr>
<td>Height from crankshaft centerline to top of engine</td>
<td>827.7</td>
<td>32.6</td>
</tr>
<tr>
<td>Height from crankshaft centerline to bottom of oil pan</td>
<td>313.6</td>
<td>12.4</td>
</tr>
<tr>
<td>Overall Width</td>
<td>953.0</td>
<td>37.5</td>
</tr>
<tr>
<td>Width from crankshaft centerline to port side (left side)</td>
<td>430.3</td>
<td>16.9</td>
</tr>
<tr>
<td>Width from crankshaft centerline to starboard side (right side)</td>
<td>522.7</td>
<td>20.6</td>
</tr>
</tbody>
</table>

Customer mounting hole diameter
Width from crankshaft centerline to mounting holes
Length from rear face of block to mounting holes

*Illustrations and dimensions from drawing: 118-7824

**Engine Performance Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>±3%</td>
</tr>
<tr>
<td>Specific Fuel Consumption</td>
<td>±3%</td>
</tr>
<tr>
<td>Fuel Rate</td>
<td>±5%</td>
</tr>
</tbody>
</table>

**Ratings** are based on SAE J1228/ISO8665 standard conditions of 100 kPa (29.61 in. Hg), 25°C (77°F), and 30% relative humidity. These ratings also apply at ISO3046/1, DIN6271/3, and BS5514 conditions of 100 kPa (29.61 in. Hg), 27°C (81°F), and 60% relative humidity.

**Fuel rates** are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/L (7.001 lb/U.S. gal).

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TM Reference No.: TM1531-02 (6-19-01)
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