CATERPILLAR® ENGINE SPECIFICATIONS

Bore — in (mm) ...................... 5.4 (137)
Stroke — in (mm) .................... 6.5 (165)
Displacement — cu in (L) ............ 893 (14.6)
Aspiration .......... Turbocharged for ATAAC¹
Rotation (from flywheel end) . . Counterclockwise
AMA Rating for USA tax purposes — hp . . . 70.0
Cooling System² — gal (L) ........... 5.5 (20.8)
Lube Oil System (refill) — gal (L) ...... 9.0 (34.1)
Weight, Net Dry (approx) — lb (kg)
with standard equipment ........ 2695 (1225)

¹ Air-to-Air AfterCooling
² Engine only. Capacity will vary with radiator size and use of cab heater.

STANDARD EQUIPMENT

Crankcase breather, valve cover mounted
Electronic control module (ECM)
Electronic data link, ATA/SAE
Electronically controlled unit injector fuel system (EUI)
Fan drive mounting bracket
Fuel — spin-on filter, transfer pump
Gear-driven jacket water pump
Governor — full-range electronically controlled
Lifting eyes
Lubricating — cooler, right hand filler, full flow filter, gear-driven pump, front or rear sump
pan
SAE No. 1 flywheel housing
Turbocharger
Vibration damper

ACCESSORY EQUIPMENT

Air compressor, gear driven 13.2, 16.5, or 31 cfm
Air inlet elbows
Alternator (12 Volt-65 Amp, 24 Volt-45 Amp or 60 Amp)
Auxiliary pulleys and drives
BrakeSaver (hydraulic retarder) — front or rear sump
Coolant conditioner, dry-charge
Exhaust couplings
Fan and fan accessories
Fan drive, adjustable
Flywheels
Front support
Fuel priming pump
Hydraulic steering pump drive, SAE A
Jacobs® engine brake Model 340B
Primary fuel filter
Refrigerant compressor mounting
Sound suppression panels — block
Starter, 12 or 24 Volt
Transmission mountings

DIMENSIONS

435/500 hp MT-T4
455 hp MT-T4
475/500 hp MT-T2
500 hp MT-T2

Diesel Truck Engine

Multi-Torque Ratings

2100 rpm

435/500 hp MT-T4
455 hp MT-T4
475/500 hp MT-T2
500 hp MT-T2

Shown with Optional Equipment

LEHT9325
MULTI-TORQUE (MT) OPERATION

The electronics in the ECM continuously monitor a ratio of engine rpm/vehicle mph. For example: 1400 rpm divided by 19.5 mph = 71.5 factor. When the factor is 71.5 or below, the ECM automatically operates on the higher horsepower/torque performance curve.

This extra horsepower/torque capability can be provided in the top gears of the transmission. As an example:
- Top 1 gear: ratio is 27.9 and below (MT-T1)
- Top 2 gears: ratio is 37.6 and below (MT-T2)*
- Top 4 gears: ratio is 71.5 and below (MT-T4)

* T2 ratings can be used with Eaton Top 2 transmissions with torque ratings of 100 lb·ft. or less.

PERFORMANCE CURVES

PERFORMANCE DATA

Operating Range (rpm) .......... (1200–2100) 900
Maximum Engine rpm ........... 2120
Governed Speed — rpm .......... 2100
Advertised hp (kW) ............. 455 (339)
Max hp @ 1600 rpm (kW) ....... 470 (351)
Peak Torque —
  lb-ft (N·m) .................. 1550 (2108)/1750 (2380)
Peak Torque — rpm ............. 1200
Torque rise (%) .................. 36/54
Altitude Capability — ft (m) ...... 7500 (2288)

Operating Range (rpm) .......... (1200–2100) 900
Maximum Engine rpm ........... 2120
Governed Speed — rpm .......... 2100
Advertised hp (kW) ............. 475 (354)/500 (373)
Max hp @ 1600 rpm (kW) ....... 490 (366)/515 (384)
Peak Torque —
  lb-ft (N·m) .................. 1650 (2244)/1850 (2516)
Peak Torque — rpm ............. 1200
Torque rise (%) .................. 39/48
Altitude Capability — ft (m) ...... 7500 (2288)
**PERFORMANCE DATA**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Operating Range (rpm)</th>
<th>Maximum Engine rpm</th>
<th>Governed Speed — rpm</th>
<th>Advertised hp (kW)</th>
<th>Max hp @ 1700 rpm (kW)</th>
<th>Peak Torque — lb-ft (N•m)</th>
<th>Peak Torque — rpm</th>
<th>Torque rise (%)</th>
<th>Altitude Capability — ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-15</td>
<td>(1200–2100) 900</td>
<td>2120</td>
<td>2100</td>
<td>475 (354)/500 (373)</td>
<td>490 (366)/515 (384)</td>
<td>1650 (2244)/1750 (2380)</td>
<td>1200</td>
<td>39/40</td>
<td>7500 (2288)</td>
</tr>
</tbody>
</table>

**PERFORMANCE CURVES**

**475/500 hp MT-T2 (354/373 kW)**
DM4917/4921

**500 hp MT-T2 (373 kW)**
DM4923/4926

**PERFORMANCE DATA**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Operating Range (rpm)</th>
<th>Maximum Engine rpm</th>
<th>Governed Speed — rpm</th>
<th>Advertised hp (kW)</th>
<th>Max hp @ 1700 rpm (kW)</th>
<th>Peak Torque — lb-ft (N•m)</th>
<th>Peak Torque — rpm</th>
<th>Torque rise (%)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>C-15</td>
<td>(1200–2100) 900</td>
<td>2120</td>
<td>2100</td>
<td>435 (325)/500 (373)</td>
<td>450 (336)/515 (384)</td>
<td>1550 (2108)/1650 (2380)</td>
<td>1200</td>
<td>42/32</td>
<td>7500 (2288)</td>
</tr>
</tbody>
</table>

**PERFORMANCE CURVES**

**435/500 hp MT-T4 (325/373 kW)**
DM4908/4911
GEARING CONSIDERATIONS

Caterpillar® C-15 Truck Engines offer a wide operating range and high torque rise which promotes the use of transmissions with fewer gears. Even with this built-in feature, heavy/specialty haulers must remember their trucks should be geared to achieve the appropriate compromise between startability and desired road speed. Typical loads of 80 000 lb or less are less affected by improper drive train speicing than are heavy haulers. In general, either application shares one similar recommendation — gear fast/run slow is essential for good fuel consumption.

If any of the following conditions are present, special attention should be given to proper transmission and axle specifications. A complete Caterpillar Truck Engine Pro (TEP) analysis is available from your local Caterpillar or truck dealer.

1. Poor road surface
2. Adverse grades — 8% plus
3. GVW in excess of 80 000 lb

For best balance between fuel economy and performance requirements on linehaul vehicles with 80 000 lb or less use the following guidelines:

For 9, 10, or 15 speed single overdrive transmissions, gear to cruise at:
- 1550 rpm @ 65 mph for 410 hp and below
- 1500 rpm @ 65 mph for 435 hp and above

For 13 or 18 speed dual overdrive transmissions, gear to cruise at:
- 1450 rpm @ 65 mph

Maximum recommended engine speed at cruise — 1550 rpm

ELECTRONIC FEATURES

- ADEM 2000: Year 2000 compliant
- Electronic self-diagnostics
- Passive sensors — increased reliability
- Electronically tabulated total fuel consumption, hours, idle time, and miles
- User-selectable, reprogrammable vehicle operating parameters — vehicle speed limiting, engine speed limiting, cruise control, intermediate gears and low gear rpm limits, geardown protection, and a full range of programmable PTO features.

- J1939 Data Link for full range of operational programs for vehicle, driver, driveline, and brake control.

ENGINE RETARDATION

<table>
<thead>
<tr>
<th>Engine Brake Performance - hp</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.6 L high hp</td>
</tr>
</tbody>
</table>

| BrakeSaver |
| 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 |

| BrakeSaver with Jacobs 340B |

Data provided by Jacobs® Vehicle Systems for Model 340B.

RATING DEFINITIONS AND CONDITIONS

**Performance** is based on SAE J1995 standard conditions of 29.61 in. Hg (100 kPa) and 77° F (25° C).

**Fuel consumption** is based on fuel oil having an LHV of 18 390 Btu/lb (42 780 kJ/kg) and weighing 7.001 lb/U.S. gal (839 g/liter).

The curves shown are for a standard engine without fan, but equipped with air compressor and fuel, lubricating oil and jacket water pumps.

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

The International System of Units (SI) is used in this publication.

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