**Ratings:**

- **Power:** 375-500 HP
- **Torque:** 1450-1750 lb-ft

**Base Engine Configuration**

- 4 cycle / Inline Six

**2010 Emissions**

- SCR Selective Catalytic Reduction

**Aspiration**

- Sliding Nozzle Variable Geometry Turbocharger

**Cam / Valve Configuration**

- SOHC / 4 Valves per Cylinder

**Cylinder Head**

- One Piece Rigid Deck Cylinder Head

**Injection System**

- Dual Solenoid Electronic Unit Injection

**Fuel Injection Pressure, psi (bar)**

- 35,000 (2,400)

**Electronic Management System**

- Volvo VECTRO

**Rating Uprateability**

- Software Only, Throughout Range

**Displacement, cu. in. (L)**

- 780 (12.8)

**Compression Ratio**

- 16.0:1

**Bore & Stroke, in. (mm)**

- 5.16 x 6.22 (131 x 158)

**Cylinder Spacing, in. (mm)**

- 6.61 (168)

**Full Dress Dry Weight, lb. (kg)**

- 2676 (1214)

**Fuel and Lubrication:**

- **Fuel Specification:** Ultra Low Sulfur Diesel, 15 ppm
- **Fuel Filtration:** Primary plus Secondary
- **Total Lube Oil Capacity, qts. (L)**
  - 38 (36)
  - 35,000 (56,000)
- **Oil Specification:** Volvo VDS-4, SAE 10W-30
- **FLOCS Oil Drain Kit:** Optional

**Engine Equipment:**

- **Air Compressor, CFM**
- **Retarder**
- **Engine Brake Rating at 2200 rpm**
  - 500 hp @ 2200 rpm
- **Engine Brake Rating at 1500 rpm**
  - 350 hp @ 1500 rpm
- **Engine Brake Weight, lbs. (kg)**
  - 25 (12)
- **PTO Port for Live Rear PTO Pump or Shaft**
- **Preheater, Electrical**

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All Volvo’s 2010 engines fully comply with the true EPA ’10 mandate of 0.2 g/hp-hr NOx. This means all regulated pollutants have been reduced by 99% from untreated levels. Yet Volvo meets these demands with outstanding reliability and fuel economy. This is because we use a Selective Catalytic Reduction (SCR) system designed for the highest efficiency. Which allowed us to pursue a passive regeneration concept that uses NOx in place of diesel fuel to regenerate the soot, further reducing your cost of operation.
<table>
<thead>
<tr>
<th><strong>FEATURE</strong></th>
<th><strong>BENEFIT</strong></th>
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</thead>
<tbody>
<tr>
<td>&quot;No-Regen&quot; DPF strategy, regenerating soot with only Passive (NO₂-based)</td>
<td>Eliminates Active (oxygen-based) DPF Regenerations and the diesel fuel usage they require, for lower cost of operation</td>
</tr>
<tr>
<td>Regeneration; no 7th injector fueling for regeneration</td>
<td></td>
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<tr>
<td>Available “Early Upshift” software encourages progressive shifting</td>
<td>Lower total engine revs; better fuel economy</td>
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<tr>
<td>Volvo D11, D13, D16 are the only EPA '10 diesels using the same base engine and EGR systems as in 2007 (i.e., the image on the reverse side is the same as 2007)</td>
<td>Systems proven over time operate with greater durability for reduced cost of operation</td>
</tr>
<tr>
<td>Volvo D11, D13, D16 share common design philosophies throughout the family</td>
<td>More thorough component development assures better design and evaluation</td>
</tr>
<tr>
<td>Eight headbolts around each piston; four bolts on each connecting rod</td>
<td>Higher number of bolts assures more even clamping and greater clamping force for longer design life</td>
</tr>
<tr>
<td>Ultra-high 35,000 psi fuel injection pressure</td>
<td>Finer fuel atomization for cleaner burn, reduced emissions and better fuel economy</td>
</tr>
<tr>
<td>Damper on camshaft</td>
<td>Reduced injection system generated torsional vibration and high frequency “buzz,” for longer component life</td>
</tr>
<tr>
<td>Precision-Flow Cooled Exhaust Gas Recirculation with Delta-F sensor for accurate EGR measurement</td>
<td>Together with accurate turbocharger and EGR valve, this closed-loop system is tuned to give just the EGR flow needed, no more, no less, for optimum fuel consumption</td>
</tr>
<tr>
<td>Oil-Cooled EGR valve with dual port design</td>
<td>Consistent temperature and accurate flow; balanced pressure design with reduced opening force for high reliability and stick resistance</td>
</tr>
<tr>
<td>Available I-VEB engine brake—strongest in class engine brake at cruise rpm</td>
<td>Exceptional retardation at the rpm you drive</td>
</tr>
<tr>
<td>I-VEB intelligently modulates the engine brake power for “downhill cruise” to maintain a steady vehicle speed during descent</td>
<td>Greater driving comfort; improved safety</td>
</tr>
<tr>
<td>‘Performance Bonus Guide’ software helps the driver operate in the most efficient zone</td>
<td>By altering the driver’s behavior through incentives, fuel savings can be significant and driver retention can be increased</td>
</tr>
</tbody>
</table>

**HIGH-EFFICIENCY AFTERTREATMENT SYSTEM**

Volvo’s EPA ’10 engines include high-efficiency aftertreatment systems that save you fuel and reduce maintenance.

For example, our SCR catalyst has a full 40˝ between the point of introduction of the Diesel Exhaust Fluid and where it meets the catalyst. This allows for the DEF to fully and completely convert to ammonia.

More importantly, our SCR catalyst has three bricks where others have two. This added capacity allows a greater catalyst efficiency, which enables our No-Regen strategy. We can adjust the EGR flow rate down while still eliminating all of the NOx in the catalyst. This allows us to deliver better fuel economy.

**D13 DRIVETRAIN RECOMMENDATIONS**

It is critical to specify the truck properly to achieve maximum fuel economy and performance.

Ask your salesman to help you choose a rear axle ratio appropriate for your expected cruising speed and gross combination weight.

2010 engines have been designed to achieve maximum fuel economy by cruising at low engine rpm. In D13 line haul specifications, the target is 1375 rpm at 65 mph.

For example, with 80K lbs GCW, 1650 lbs-ft torque, 295/75R22.5 drive tires and 0.74 top gear ratio, the 3.36:1 axle ratio would come closest to the 1375 rpm at 65 mph recommendation.

With 0.78 ratio transmission, you should use a 3.21:1 ratio for the same rpm at 65.

Never specify an EPA ’10 Volvo engine for a cruise speed above 1600 rpm.