How SCR Emissions Technology Works
Selective Catalytic Reduction (SCR) is a complete emissions system that combines exhaust gas recirculation (EGR), diesel particulate filter (DPF), diesel oxidation catalyst (DOC) and a selective catalyst to efficiently meet current emissions standards. SCR treats the exhaust gases downstream of the engine instead of requiring complex changes under the hood. It does this by injecting a small amount of diesel exhaust fluid (DEF) into the exhaust stream which reacts with the NOx in the SCR catalyst, forming nitrogen and water. Lastly, the nitrogen and water, safe elements in the air we breathe, are released into the environment.

**SCR Air/Exhaust Flow** – Exhaust leaves the engine then flows through the DOC and DPF, and then it is mixed with DEF before it passes through the SCR catalyst. Finally, it exits the tailpipe as nitrogen and water.

**DDECDetroit Diesel Electronic Controls (DDEC®)** is a suite of innovative features that enable you to better manage fuel economy, engine performance, driving efficiency and maintenance. In addition to our Detroit Connect Virtual Technician™ integrated remote diagnostic system, you can utilize technology to better control speed, assist in passing, optimize idle efficiency and even reward your drivers for reaching fuel economy targets. With DDEC, you can maximize efficiency, and profitability.

**VIRTUAL TECHNICIAN**
Detroit Connect, a suite of proprietary connected vehicle solutions, is designed to improve your bottom line. Detroit Connect provides fleets with services and tools to improve uptime, fuel efficiency, safety, and performance. These tools provide them information about their vehicle they can’t get anywhere else to better manage their business operations.

The Detroit Connect Virtual Technician integrated remote diagnostic system takes the guesswork out of engine repair. When a coach’s check engine light illuminates, data is collected immediately, providing a technical snapshot of the engine’s status before, during and after a fault code event. This information is sent to you and to the Detroit Customer Support Center (CSC), where a trained representative can diagnose the issue, recommend service and even contact the nearest authorized locations with parts in stock. The CSC can tell you if you need to pull over so you don’t cause further damage, or if you can stay on the road. Put simply, it’s like having a technician in every truck.
DETROIT IS RECOGNIZED AS AN INDUSTRY LEADER IN THE ENGINE BUSINESS. THROUGH THE YEARS, CUSTOMERS ACROSS THE COUNTRY HAVE RELIED ON OUR ENGINES FOR THEIR PERFORMANCE, RELIABILITY AND SUPERIOR FUEL EFFICIENCY.

That’s still true today. And when emission requirements grew more stringent to protect the environment, Detroit answered the call. Combining our long heritage of innovation with the vast resources of our parent company, Daimler, we produced a new line of engines that are the most advanced and environmentally-friendly generation of Detroit™ engines ever built.

With billions of dollars of investment, the work of the world’s top engineers, and millions of miles of real-world testing, the Detroit™ DD13® engine has proven reliable when it really counts.

ECONOMY

Smart, fuel-efficient design makes the most of every gallon

• Pulls strong down to 1000 RPM so drivers can spend more time in top gear
• Amplified Common Rail System (ACRS™) optimizes each injection event to minimize fuel consumption
• Advanced cooling system allows for decreased fan on-time, minimizing fuel consumption
• Selective Catalytic Reduction (SCR) virtually eliminates excessive, fuel-consuming regenerations
• Compliant with 2017 Greenhouse Gas (GHG17) requirements
DD13: THE STRONG, SILENT TYPE.

The DD13 is designed to deliver the advantages that matter most to motorcoach operators and their passengers:

- A broad peak torque range from 1000 to 1600 RPM gives drivers a wider “sweet spot,” enabling quicker trips with less shifting
- Cast iron engine block features specially-designed stiffening ribs to reduce noise, vibration and harshness (NVH)
- Engine braking is much quieter by employing a three-stage integrated Jacobs® brake
- Amplified Common Rail System (ACRS) and an advanced cooling system minimize fuel consumption without sacrificing performance
- Technology that meets GHG17 emission requirements with a simple, economical and proven SCR system
- Longer scheduled maintenance intervals and 1,000,000-mile B50 life reduce overall cost of ownership

SERVICEABILITY

Reduce your cost of ownership with easier serviceability

- Longest scheduled maintenance intervals in its class
- Maintenance-free crankcase breather
- The motorcoach model of the DD13 is practically identical to the truck model, which means unmatched parts availability at your local Detroit service location
- Differentiating features for the motorcoach engine include an aluminum low-profile oil pan and the water pump belt drive
- Common serviceability with other Detroit engines ensures trained technicians are available when you need them
- Overall robust design provides B50 life of 1 million miles

PERFORMANCE

- Motorcoach fleets rely on Detroit performance for better overall productivity
- Enjoy less shifting with an extremely wide and flat torque curve
- Three-stage integrated Jacobs® brake offers quieter engine braking and provides superior braking horsepower for extended service brake life
- Sturdy rear gear train and ribbed cast iron block minimize noise, vibration and harshness (NVH)
- Asymmetrical turbocharger has fewer moving parts (compared with VGT design) for proven performance

---

**DD13 SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Inline 6 Cylinder</td>
</tr>
<tr>
<td>Displacement</td>
<td>781 cu. in. (12.8 L)</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>18.4:1</td>
</tr>
<tr>
<td>Bore</td>
<td>5.20 in. (132 mm)</td>
</tr>
<tr>
<td>Stroke</td>
<td>6.15 in. (156 mm)</td>
</tr>
<tr>
<td>Weight (Dry)</td>
<td>2460 lb. (1116 kg)</td>
</tr>
<tr>
<td>Electronics</td>
<td>DDEC®</td>
</tr>
</tbody>
</table>
### Power Ratings

**DD13 Engine Power Ratings**

<table>
<thead>
<tr>
<th>Power Rating</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>410 HP @ 1625 RPM</td>
<td>1450 lb-ft @ 975 RPM</td>
</tr>
<tr>
<td>450 HP @ 1625 RPM</td>
<td>1550 lb-ft @ 975 RPM</td>
</tr>
<tr>
<td>450 HP @ 1625 RPM</td>
<td>1650 lb-ft @ 975 RPM</td>
</tr>
</tbody>
</table>

### Maintenance Intervals

<table>
<thead>
<tr>
<th>Maintenance Item</th>
<th>Severe-Duty</th>
<th>Short-Haul</th>
<th>Long-Haul</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Oil and Filter Change*</td>
<td>25,000</td>
<td>35,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Fuel Filter Change</td>
<td>25,000</td>
<td>35,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Initial Valve Lash Adjustment</td>
<td>Adjust at 100,000, 500,000 and then every 500,000 thereafter†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diesel Particulate Filter</td>
<td>A Check Engine light will illuminate when ash requires removal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEF Pump Filter</td>
<td>Replace filter every 3 years or 500,000 (800,000 km) miles, whichever comes first.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Based on using Detroit’s lube oil and oil analysis program.
Severe-duty is up to 30,000 annual miles and a vehicle that averages less than 5 miles per gallon (mpg). Short-haul is between 30,000 and 60,000 annual miles and a vehicle that averages between 5 and 6 mpg. Long-haul is over 60,000 annual miles and a vehicle that averages greater than 6 mpg.
† See Owner’s Manual for subsequent valve lash adjustments intervals.

### Standard Warranty

<table>
<thead>
<tr>
<th>Item</th>
<th>Warranty Limits (Whichever Occurs First)</th>
<th>Repair Charge (Paid by Owner)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Months</td>
<td>Miles / Kilometers</td>
</tr>
<tr>
<td>Engine</td>
<td>0-24</td>
<td>Unlimited</td>
</tr>
<tr>
<td>Injectors</td>
<td>0-24</td>
<td>200,000 mi 320,000 km</td>
</tr>
</tbody>
</table>

Upon expiration of the 24-month warranty coverage, but within 500,000 mi / 800,000 km of use, the warranty continues to apply as follows:

| Major Components | 25-60 | 500,000 mi 800,000 km | No charge | Not covered |

### Torque Curve

#### 410 bhp @ 1625 r-min - 1450 lb-ft

- Torque: 1450 lb-ft
- Horsepower: 410 HP
- Engine Speed: 1625 r-min
- Torque at 1966 N-m
- Peak Torque at 1250-1600 r-min

#### 450 bhp @ 1625 r-min - 1550 lb-ft

- Torque: 1550 lb-ft
- Horsepower: 450 HP
- Engine Speed: 1625 r-min
- Torque at 1972 N-m
- Peak Torque at 1250-1600 r-min

#### 450 bhp @ 1625 r-min - 1650 lb-ft

- Torque: 1650 lb-ft
- Horsepower: 450 HP
- Engine Speed: 1625 r-min
- Torque at 2237 N-m
- Peak Torque at 1250-1600 r-min
DETOUR SUPPORT. ANYWHERE.

- Unmatched parts availability
- Factory-certified technicians
- Live technical support
- More than 800 authorized service outlets in North America