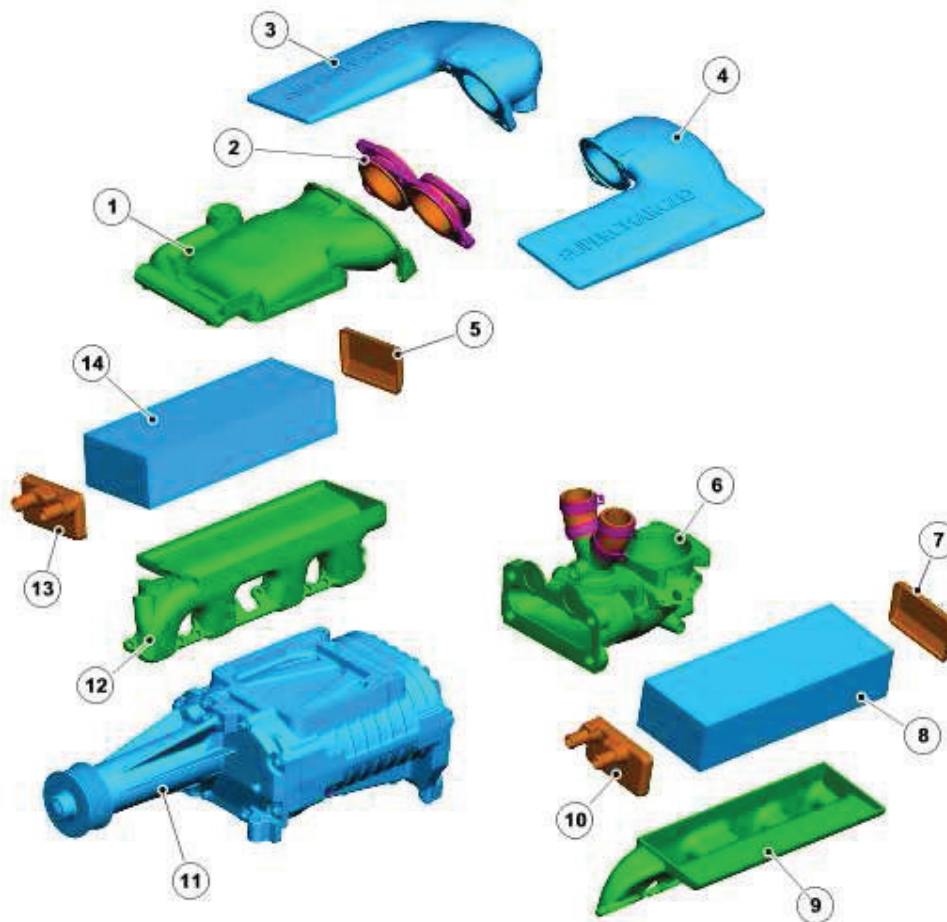


sluggish due to increased viscosity, and at high oil-temperatures the reduced viscosity may impair operation if the oil pressure is too low. To maintain satisfactory VVT performance, an increased capacity oil pump is installed, plus an engine oil temperature sensor to enable monitoring by the ECM. The VVT system is normally under closed-loop control except in extreme temperature conditions, such as cold starts below 0°C. At extremely high oil temperatures, the ECM may limit the amount of VVT advance to prevent the engine from stalling when returning to idle speed.

The VVT does not operate when engine oil-pressure is below 1 bar (14.5 psi), as there is insufficient pressure to control the phasing. This usually occurs when the engine is shutting-down and the VVT has returned to the retarded position. The stopper pin locks the camshaft to the VVT unit to ensure camshaft stability during the next engine start-up.

SUPERCHARGER



E84501

Item	Part Number	Description
1		Supercharger outlet assembly

2		Supercharger outlet duct clamp
3		RH intercooler air inlet duct
4		LH intercooler air inlet duct
5		RH Intercooler coolant return connection
6		Throttle body and by-pass valve adapter assembly
7		LH Intercooler coolant return connection
8		LH intercooler
9		LH intercooler adapter
10		LH Intercooler coolant inlet and outlet connection
11		Supercharger assembly
12		RH intercooler adapter
13		RH Intercooler coolant inlet and outlet connection
14		RH intercooler

The supercharger is a compressor used to pump air into the cylinders. This increases the concentration of oxygen and fuel in the charge to create a more powerful combustion inside the cylinder. This increases cylinder pressure upon ignition and creates more power.

As the supercharger compresses the air its temperature increases. This raise in air temperature reduces the potential for power gains. By installing intercoolers the air is cooled to overcome this.

The supercharger is an Eaton M112 unit attached to the 3 mounting bosses between the 'V' of the cylinder block. Positive alignment with the drive belt is provided by a dowled mounting bracket. An 8-ribbed belt drives the supercharger, via the crankshaft, at 2.1 engine speed. The maximum pressure increase is approximately 0.8 bar.

On the 4.2L V8 supercharged engine the intake manifold is replaced by:

- A supercharger
- Two intercoolers
- Outlet assembly
- A bypass valve
- A bypass valve actuator