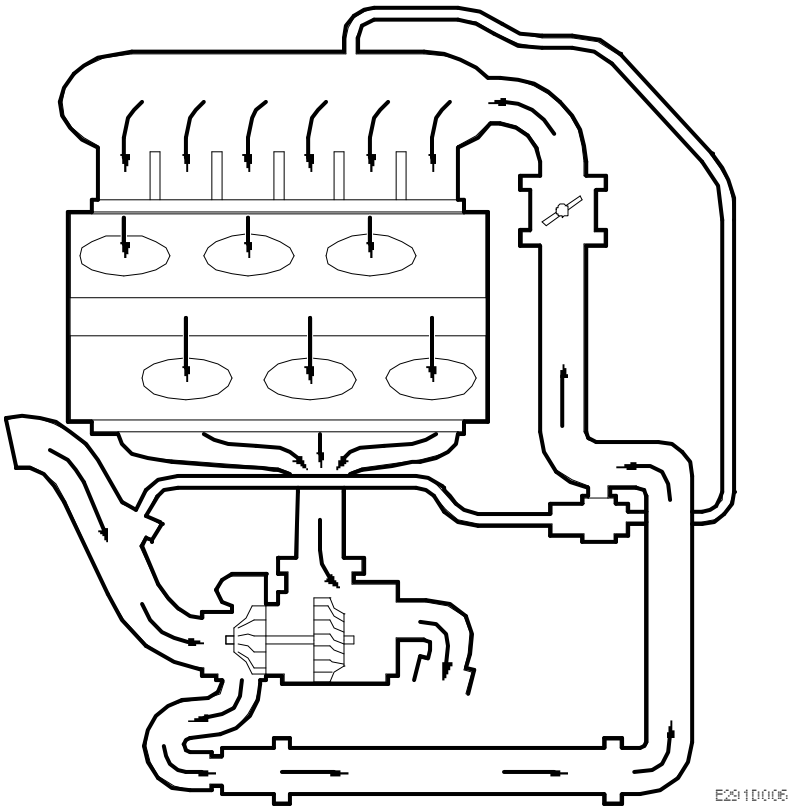
System overview, V6



Brief description

General

The turbo on the Saab 9-5 belongs to a new turbo family, the Garrett 17 (GT 17).

The V6t Ecopower is the first car engine in the world with asymmetric turbocharging which means that the turbo is driven by the exhaust gases from only three cylinders (2-4-6). However, the turbo supercharges all the cylinders. The asymmetric turbocharging was designed to combine the supercharged engine's superior torque, low fuel consumption, and environmental advantages, with the softer running and dampened noise of the V6 engine.

The asymmetric turbocharging means that the engine develops its maximum torque of 310 Nm already at 2100 rpm. This means that the engine runs very quietly and it is more comfortable to drive the car because high engine speeds are not needed to achieve the best performance.

Supercharging

Supercharging is achieved using a turbocharger. The engine exhaust gases are ducted through an exhaust turbine thus causing the turbine wheel to rotate. A compressor wheel is mounted on the same shaft as the turbine wheel and rotates at the same speed as the turbine. The compressor wheel is located in the engine air intake system and increases the pressure of the air entering the engine. In this way a larger mass of air enters the combustion chamber and results in more efficient combustion, increased power and a greater torque. Thus the performance of the engine is comparable to a larger engine but it retains the

advantages of a smaller engine such as fuel economy, size, weight, environmental effects, etc. The turbocharger is designed to start working already at low engine speeds and the engine can therefore give a high torque in the engine speed range that is used for normal driving purposes.