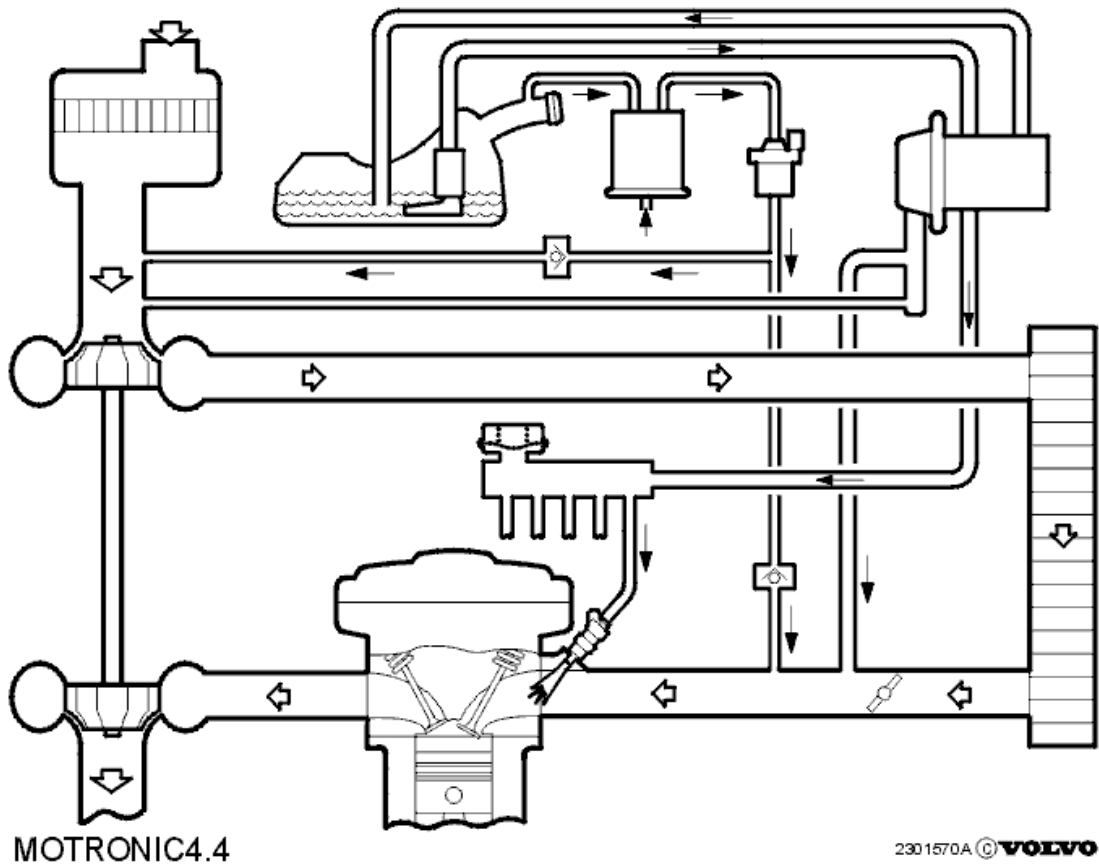


Motronic 4.4



Summary of new features

Compared to previous versions of Motronic 4.4 the following features are new:

- Atmospheric pressure sensor
- Outside temperature sensor. Only on variants with leakage diagnostic system (USA/CDN).
- Modified location of the rear oxygen sensor (HO2S). This is moved forward and is just behind the three-way catalytic converter (TWC) metal monolith.
- More effective EVAP system.
- The return lacking fuel system (RLFS) where the pressure regulator is located above the steering gear on the right hand side and hose routing is changed.

Tailored return lacking fuel system (RLFS)

Background

Last year the Return Lacking Fuel System (RLFS) was introduced on the B5254S with Motronic 4.4. The fuel pressure regulator is connected so that fuel pressure is retained at a constant level (300 kPa (43.5 psi)) above the pressure in the EVAP line to the fuel tank (\approx atmospheric pressure).

This gives an accurate enough control with today's fast processors in the engine control module (ECM) of a naturally aspirated engine. On a turbocharged engine on the other hand with larger pressure variations the intake manifold, this does not provide enough accuracy.

The advantage with not having a fuel return line from the fuel rail is that the engine does not heat the fuel, the temperature in the fuel tank remains low and the amount of evaporated fuel is reduced.

On the B5254T

The B5254T uses a fuel pressure regulator which holds the fuel pressure at a constant level (300 kPa (43.5 psi)) above the pressure in the intake manifold. This is done in the traditional way by connecting the fuel pressure regulator reference chamber to the intake manifold.

The pressure regulator is also connected to the fresh air intake upstream of the turbocharger (TC). The intention of this tube which has a small area is extract and condensation and moisture which may occur in the reference chamber. The background to the requirement to remove moisture is that the fuel pressure regulator has a more exposed location and is exposed to greater temperature changes.

"Three way unit"

The fuel flow is controlled as before via a three way unit which is integrated with the fuel pressure regulator. The following are connected to the three way unit:

- The fuel line from the fuel tank.
- The fuel line to the fuel rail.
- The return line to the fuel tank.

Pulsation damper

A pulsation damper which contains a spring-loaded diaphragm, is mounted on the fuel rail. The pulsation damper damps pressure shocks occurring in the fuel rail when the injectors open and close.

Improved EVAP system

To secure effective drainage of the canister the B5254T, in addition to the hose from the EVAP valve to the intake manifold, also has a hose from the EVAP hose to the fresh air

intake.

This is to be able to drain the EVAP canister even when there is over pressure in the intake manifold.

When the turbocharger (TC) is operating there is a vacuum in the fresh air intake hose. This means that EVAP fumes are drawn into the motor via the fresh air intake instead.

Check valves

There are check valves in the hoses for the fresh air intake and intake manifold.

The check valve in the intake manifold hose prevents over pressure in the intake manifold being drawn to the EVAP canister when the turbocharger is operating.

The check valve in the hose to the fresh air intake hose closes when there is vacuum in the intake manifold. This gives better drainage because a larger negative pressure will affect the EVAP canister.