



Control units for fuel pumps

Instructions for replacement

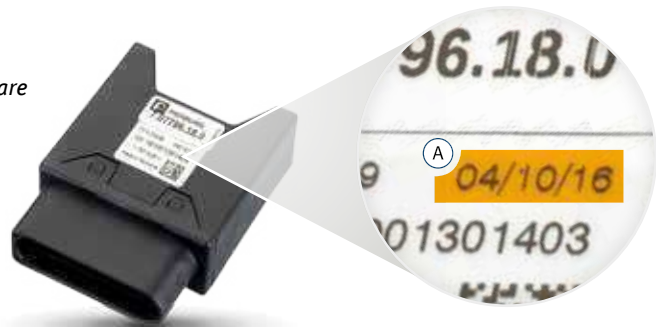


Product image

Potential complaints:

- Loss of power
- Fuel pressure lost
- Engine light on
- Limp home function
- Engine won't start

Imprinted software version



Possible OBD diagnostic trouble codes:

- P025A ... P025D, P027A ... P027D, P064A, P069E – fuel pump control unit
P0087 – fuel system rail/system pressure too low
P0191 – sender for fuel pressure – unplausible signal

Possible causes:

There are other possible causes in addition to a failure in the fuel pump control unit:

- Fuel pressure sensor faulty
- Fuel pump relay faulty
- Wiring harness faulty
- Blocked fuel filter
- Empty fuel tank (due to incorrect tank indicator)
- Fuel pump faulty

During the replacement, note that:

The characteristic curve saved in the fuel pump control unit is specific to the vehicle engine and model.

During replacement, the imprinted software version (A) must be equal to or higher than the installed unit.

Depending on the vehicle, the fuel pump control unit must be taught in the engine control unit.

To improve the start behaviour, the fuel pump is often triggered for a few seconds when the driver door is opened, causing pressure to build up in the fuel system – even though the ignition is still switched off.

This means that, for the period while the fuel pump control unit is being replaced, the relevant fuse must be removed if the battery is not disconnected (e.g. Audi A3: no. 27, see relevant circuit diagrams).



Attention:

Electrical components can be damaged by electrostatic supercharging. Never touch electrical contacts directly.



Background information

In the case of an "unregulated" fuel supply, the fuel pump always delivers at maximum performance in the fuel tank. Excess fuel flows back into the fuel tank via the return line.

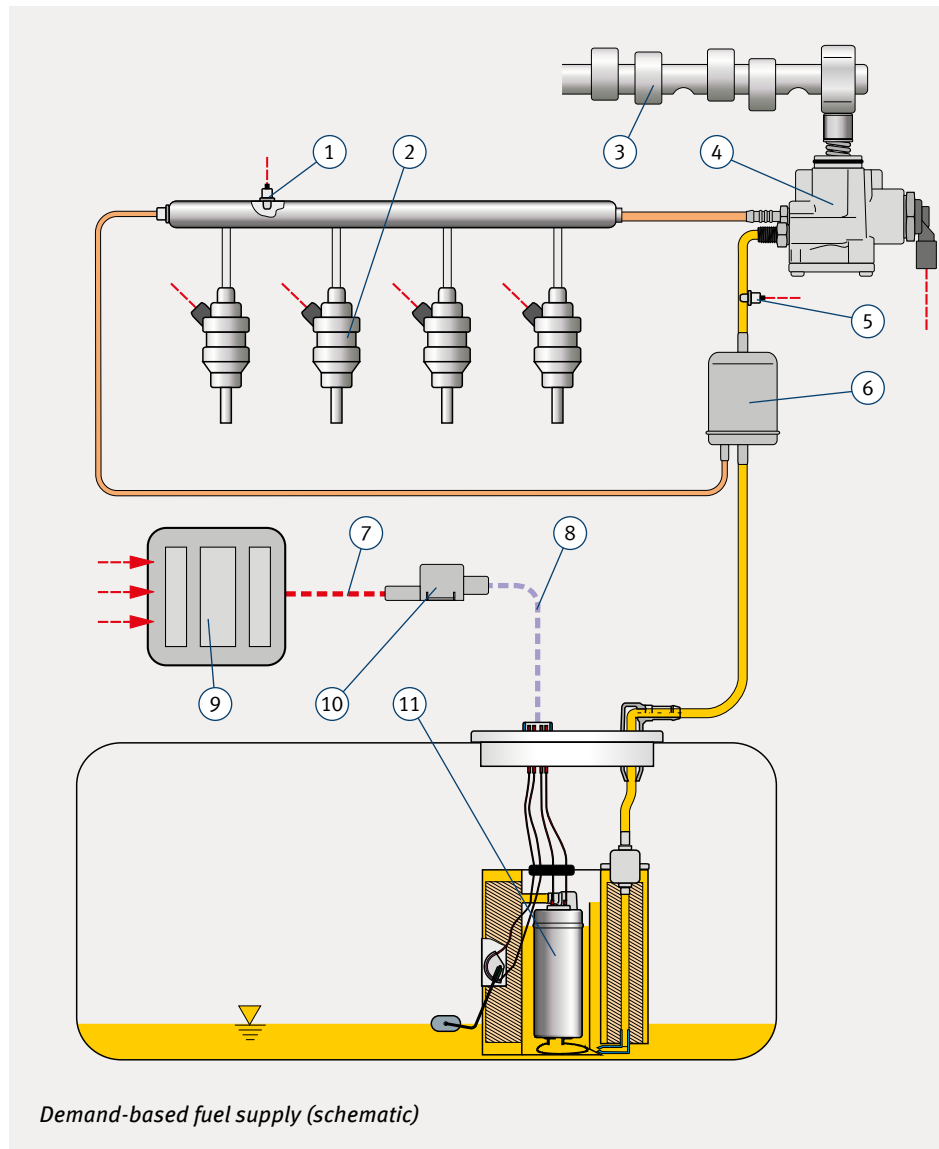
With "regulated" or "demand-based" fuel supply, the fuel pump (11) is triggered by the fuel pump control unit (10) with a pulse width modulation signal (PWM signal).

Advantages:

- Only the required amount of fuel is supplied.
- The fuel is heated less, reducing the risk of vapour locks.
- Noise reduction
- Reduced power consumption, resulting in fuel savings

The fuel pump in the fuel tank (11) conveys the fuel to the low-pressure system of the high-pressure pump (4). The fuel pressure in the low-pressure system is between 0.5 and 5 bar during normal operation. During a cold start and a warm engine start, the fuel pressure is increased to up to 6.5 bar: During a cold start, this creates a higher starting pressure in the high-pressure system, resulting in a quicker engine start. During a warm start, the increased pressure prevents fuel vapour locks.

A return side may be present, however, e.g. for operating suction jet pumps in the saddle tank.



Demand-based fuel supply (schematic)

- 1 Pressure sensor (high pressure)
- 2 Injection nozzles
- 3 Camshaft
- 4 High-pressure pump
- 5 Pressure sensor (low pressure)
- 6 Fuel filter with pressure regulator
- 7 Bus signal
- 8 Pulse width modulation signal
- 9 Engine control unit
- 10 Fuel pump control unit
- 11 Fuel delivery module