## Engine all (CAR)

**Overview**

This document contains information on:

- **General**
- **Function requirements**
- **Fuel low-pressure circuit**
- **Function sequence for fuel low-pressure circuit**

**General**

The fuel supply system (low-pressure fuel circuit) provides fuel from the fuel tank for mixture formation under all operating conditions.

**Function requirements**

- Engine management ON (circuit 87M)
- Ignition ON (circuit 15)

**Fuel low-pressure circuit**

The fuel supply for mixture formation is guaranteed by the low-pressure fuel circuit.

The low-pressure fuel circuit mainly consists of the following components:

- Fuel tank
- Fuel feed module
- Fuel temperature sensor
- Fuel pressure and temperature sensor
- Fuel pump control unit
- Fuel filter module (for diesel engines)
- Fuel preheating control unit (for diesel engines)

The fuel is delivered from the fuel tank to the fuel high-pressure pump by the fuel delivery module with integrated fuel pump.

In spark-ignition engines, a fuel filter is integrated in the fuel delivery module to hold back impurities. There is a check valve at the feed point of the fuel filter which prevents reduction of the fuel pressure when the fuel pump is switched off.

In diesel engines, the fuel filter is located in the fuel filter module between the fuel delivery module and the fuel high-pressure pump. In diesel engines, the fuel filter module has the following tasks:

- Holding back impurities in the fuel
- Separating condensation
- Fuel preheating system

Depending on the fuel requirements, the fuel pressure is variably regulated to approx. 4.0 to 6.7 bar by the pressure limiting valve. The quantity control valve regulates the feed quantity in line with demand. This avoids excessive heating of the fuel. The fuel temperature can be kept low as a result.

**Function sequence for fuel low-pressure circuit**

The fuel pump is switched on as soon as the signal "fuel pump ON" is received by the fuel system control unit.

The fuel system control unit ascertains the fuel pressure through a voltage signal from the fuel pressure sensor and compares the actual pressure with the specified pressure. The fuel pump is actuated by the fuel system control unit via a pulse width modulated signal. In this way, the fuel specified pressure and the delivery rate are adapted to the current fuel requirements.

In order to determine the fuel specified pressure, the combustion engine control unit evaluates the actual fuel pressure and the load requirements. The evaluated information is passed on to the fuel system control unit.

The fuel temperature is constantly recorded and transmitted to the combustion engine control unit.

| | **Detailed information** | | |
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| | Fuel supply system, detailed information | Engine 608<br>Engine 260<br>Engine 282 | GF47.00-P-1100A<br>GF47.00-P-1100B<br>GF47.00-P-1100C |
| | **Control units** | | |
| | Fuel system control unit, basic function | Engine all (CAR) | GF47.40-P-9890A |
| | **Components** | | |
| | Fuel tank, basic function | Engine all (CAR) | GF47.10-P-2001A |