Fuel system information for PSA HDI engines

FOR 1C2X AND B0F7C AND DVY01 AND SINCE O 8001 OR

FOR 1CN6 AND B0F2X AND DVY01 AND SINCE O 8211 TO O 8687 OR

FOR 1CN7 AND B0F2X AND DVY01 AND SINCE O 8688 OR

FOR 1CX4 AND B0F2X AND DVY01 AND SINCE O 8688 OR

FOR 1CX4 AND B0F7C AND DVY01 AND SINCE O 8688 OR

FOR 1CU6 AND B0F7C AND DVY01 AND SINCE O 8276 OR

FOR 2CM4 AND B0F2X AND DVY01 AND SINCE O 8358 OR

FOR 1C6N AND B0F2X AND DVY01 AND SINCE O 8365 OR

FOR 2CU6 AND B0F7C AND DVY01 AND SINCE O 8421 OR

FOR 2CU6 AND B0F7U AND DVY01 AND SINCE O 8421

1 - Synopsis

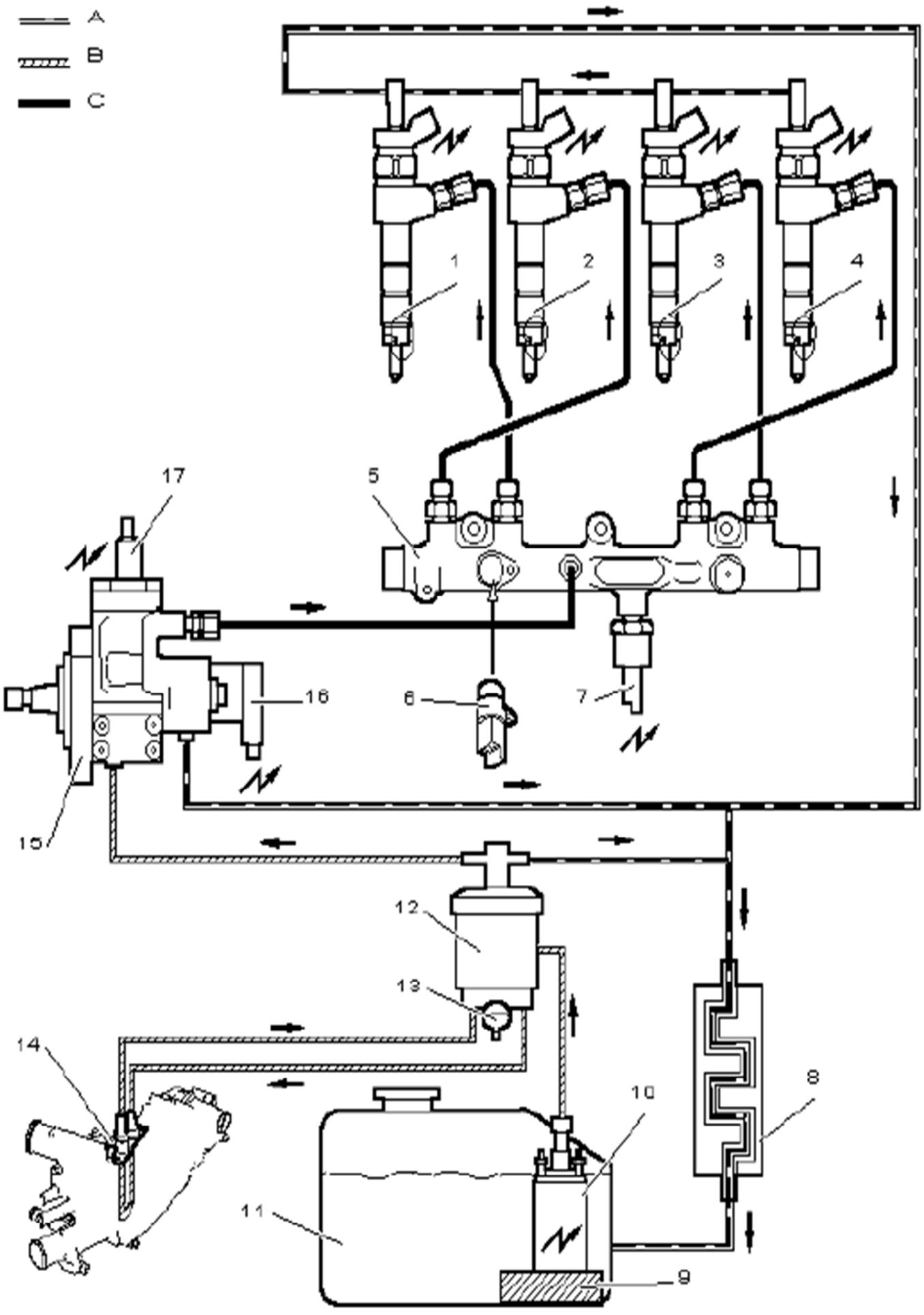

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Fig : B1HP10QP

Index :

- A Fuel tank return circuit.
- B Low pressure fuel circuit.
- C High pressure fuel circuit.

Marked	Description	Part number in the electrical diagrams
2	VAN CAR1	1131
		1132
		1133
		1134
5	Fuel high pressure common injection rail	-
6	Fuel temperature sensor	1221
7	Fuel high pressure sensor	1321
8	Fuel cooler	-
9	Fuel pre-filter	-
10	Booster pump (low pressure)	1211
11	Fuel tank	-
12	Fuel filter + water decanter + low pressure circuit pressure regulator	-
13	Water bleed screw	-
14	Fuel heater	-
15	High pressure fuel pump	-
16	High pressure fuel regulator on high pressure fuel pump	1322
17	Deactivator of the 3rd piston of the high pressure fuel pump	1208-6

2 - Fuel tank

The fuel tank is the same as on traditional diesel versions.

3 - Booster pump (low pressure) (1211)(1211)

3.1 - Role.

Role of the booster pump :

- To supply fuel to the high pressure pump.

- To provide the pressure required in the low pressure circuit.

3.2 - Description.

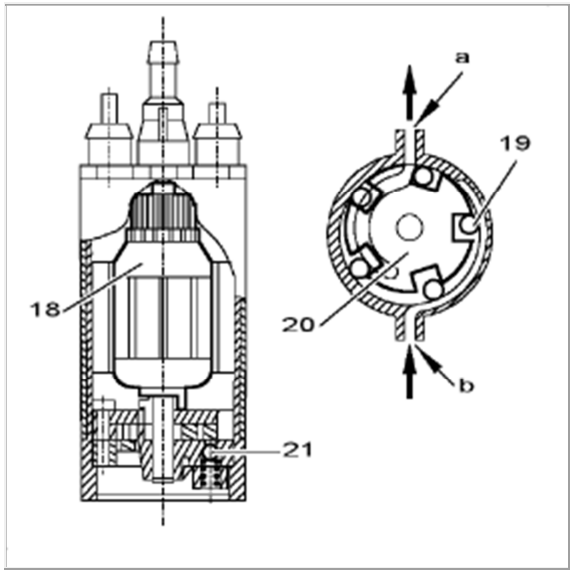


Fig : B1HP10RC

Manufacturer BOSCH (EKP3).

A:fuel outlet.

B:fuel inlet.

The booster pump, submerged in the tank, comprises the following components :

- (18) Direct current motor.
- (19) Roller pump.
- (20) Rotor.
- (21) Safety valve.

NOTE : Rating of the safety valve: 7 bar.

The booster pump is supplied with 12 volts through the double injection relay in the following cases :

- As soon as the engine is switched on, for 2 to 3 seconds.
- Engine running.

3.3 - Electrical features.

Control :

- Injection ECU.
- Double injection relay.

Allocation of the connector channels :

- Channel 1:Fuel level signal.
- Channel 2:Booster pump supply (+ 12 volts).

- Channel 3:Not used.
- Channel 4:Booster pump earth.
- Channel 5:Fuel sender earth.

3.4 - Location.

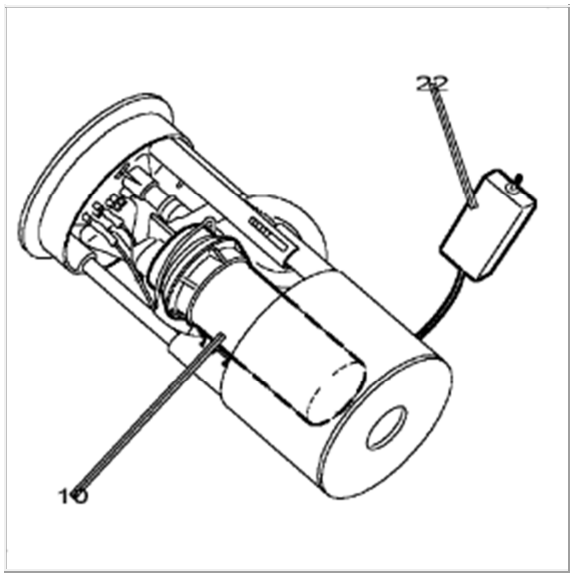


Fig : B1HP10SC

(10) booster pump (low pressure).

(22) fuel sender float.

The booster pump is incorporated into the sender/pump module.

The sender/pump module is located in the fuel tank and incorporates :
- A fuel pre-filter (300 microns).
- The sender function and the fuel range function (depending on the version).

4 - Fuel filter-Thermostatic sensor

4.1 - Fuel filter.

4.1.1 - Role.

Role of the fuel filter :
- To filter the fuel (filtering limit 5 microns).
- To decant the water.
- To control fuel heating (thermostatic element).
- To control the pressure of the low pressure fuel circuit (integrated low pressure regulator).

4.1.2 - Description.

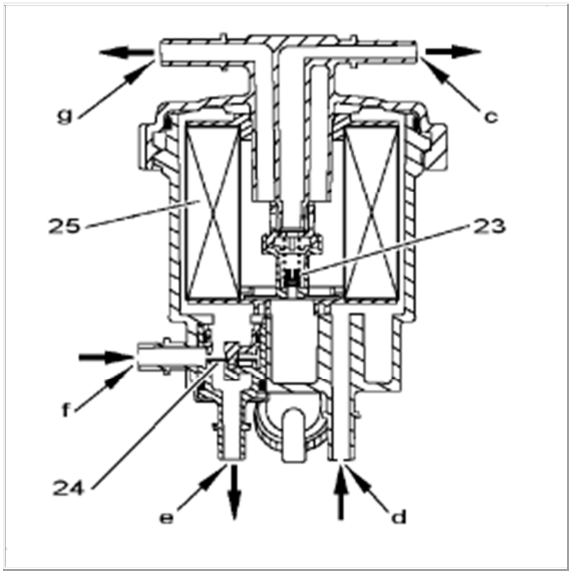


Fig : B1HP10TC

Direction of the fuel flow (as per arrows).

(23) low pressure regulator.

(24) thermostatic sensor.

(25) filter element.

C:return to fuel tank.

D:heated fuel inlet (coolant outlet housing).

E:fuel outlet (to coolant outlet housing).

F:fuel inlet.

G:fuel outlet (to high pressure fuel pump).

The low pressure regulator controls the pressure of the fuel in the low pressure circuit.

Circuit pressure:ð 2,5 bar.

Fuel filter :

- Replacement intervals:Every 60 000 km.
- Bleeding:Every 20 000 km.

NOTE : After replacing the fuel filter, the high pressure and low pressure circuits are bled automatically.

4.2 - Thermostatic unit.

4.2.1 - Role.

When cold, the thermostatic element diverts some of the fuel to the fuel heater.

When warm, the thermostatic element prevents fuel from being heated.

4.2.2 - Description.

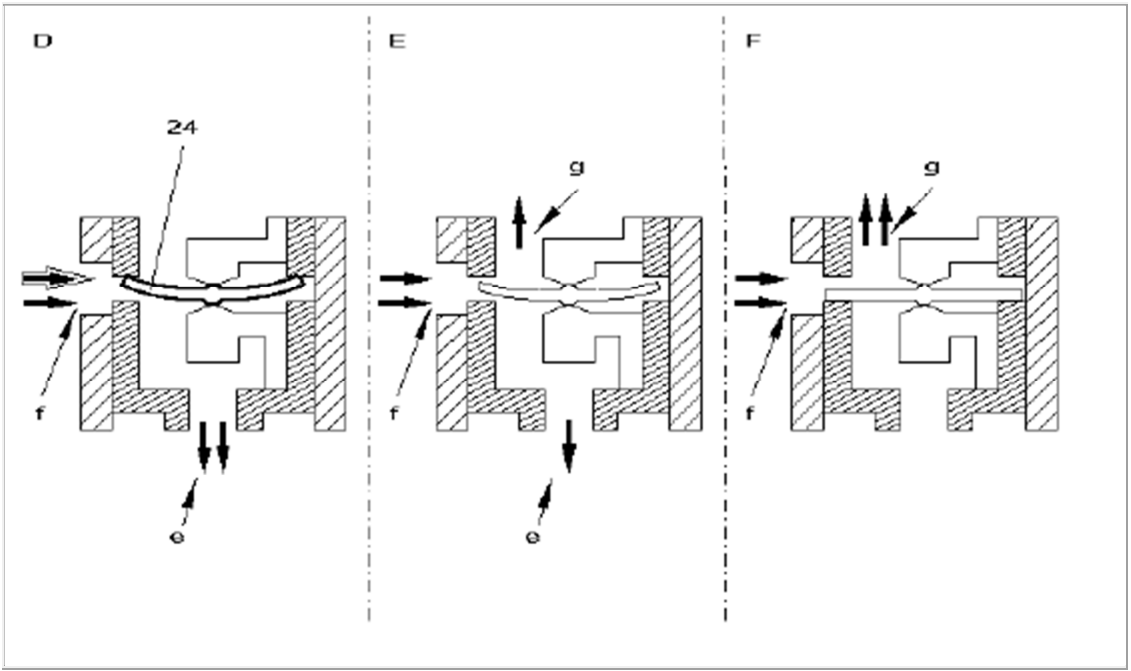


Fig : B1HP10UD

Direction of the fuel flow (as per arrows).

D.fuel temperature lower than 15 °C.

E.fuel temperature between 15 and 25 °C inclusive.

F.fuel temperature greater than 25°C.

E:fuel outlet (to coolant outlet housing).

F:fuel inlet.

G:fuel outlet (to filter element).

(24) thermostatic sensor.

The thermostatic element consists of a bi-metal strip which deflects depending on fuel temperature.

D .Fuel temperature lower than 15 °C :

- The thermostatic element lifts off its seat.

- The direct route to the filter is closed.
- The fuel is heated when in contact with the coolant outlet housing.

E .Fuel temperature between 15 and 25 °C inclusive :

- The thermostatic element is partially lifted off its seat.
- Part of the fuel is heated.

F .Fuel temperature greater than 25°C :

- The thermostatic element is resting on its seat.
- The fuel passes directly to the filter.

5 - Fuel heater

5.1 - Role.

The fuel heater raises the fuel to its working temperature.

5.2 - Description.

The fuel heater heats the fuel diverted by the thermostatic element (fuel filter).

The fuel heater consists of a tube submerged in the engine coolant.

Heat is exchanged between the coolant and the fuel.

5.3 - Location.

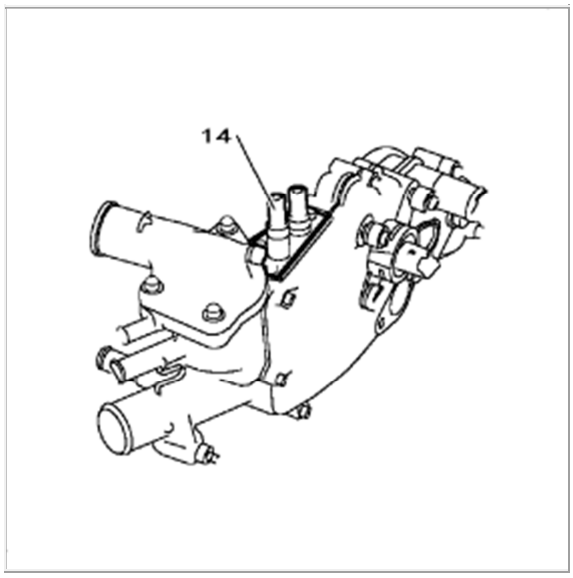


Fig : B1GP077C

(14) fuel heater.

Location:in the coolant outlet housing.

There are 2 assembly possibilities :

- Metal coolant outlet housing:The heater is incorporated into the coolant outlet housing.

- Plastic coolant outlet housing:The heater is secured to the coolant outlet housing.

6 - High pressure fuel pump

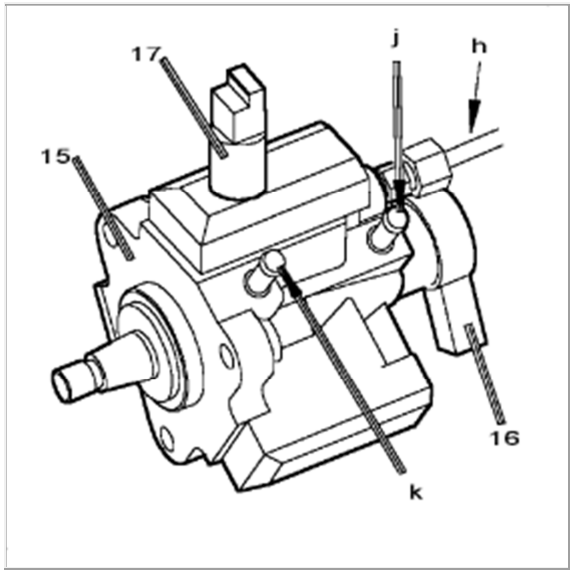


Fig : B1HP10VC

(15) high pressure fuel pump.

(16) fuel high pressure regulator.

(17) deactivator of the 3rd piston of the high pressure fuel pump.

H:high pressure fuel outlet (to the common injection rail).

J:return to fuel tank.

K:fuel supply.

Role of the high pressure fuel pump (BOSCH CP1 type with 3 pistons) :

- To supply high pressure fuel.
- To supply the diesel injectors through the high pressure common injection rail.

The high pressure fuel pump is driven by the timing belt (drive ratio 0,5).

NOTE : The fuel which is not used returns to the tank through the fuel cooler.

The high pressure fuel varies between 200 and 1350 bar.

The high pressure fuel is controlled by the high pressure fuel regulator.

When starting the engine, after 1,5 engine revolutions, the pressure supplied by the pump reaches 200 bar.

NOTE : The high pressure pump is not a distributing pump and does not need setting.
The deactivator of the 3rd piston of the high pressure fuel pump is used to reduce :

- The capacity of the high pressure fuel pump.
- The power absorbed by the high pressure fuel pump.

7 - Deactivator of the 3rd piston of the high pressure fuel pump (1208-6)(1208-6)

7.1 - Role.

To reduce the power absorbed by the high pressure pump if the vehicle is used at low load.

Whilst this component is being operated, the amount of fuel delivered decreases which reduces :

- The power absorbed by the high pressure fuel pump.
- The amount the fuel heats up (less laminating).

NOTE : If the fuel temperature exceeds 106 °C, the high pressure fuel pump only operates on 2 pistons.

7.2 - Location.

Location:on the high pressure fuel pump.

8 - Fuel high pressure regulator (1322)(1322)

8.1 - Role.

The high pressure fuel regulator regulates the pressure of the fuel at the outlet of the high pressure fuel pump.

8.2 - Location.

Location:on the high pressure fuel pump.

9 - Fuel high pressure common injection rail

9.1 - Role.

Role of the high pressure fuel common injection rail :

- To store the amount of fuel required by the engine regardless of the operating phase.
- To damp the pulses created by injections.
- To connect the components of the high pressure circuit.

Components connected to the fuel high pressure common injection rail :

- High pressure fuel supply pipe.
- Diesel injector supply pipes.
- Fuel temperature sensor.
- Fuel high pressure sensor.

IMPORTANT : Use a regularly checked torque wrench to ensure the correc

Diesel fuel injectors.

Fuel high pressure sensor.

High pressure fuel pipes.

9.2 - Description.

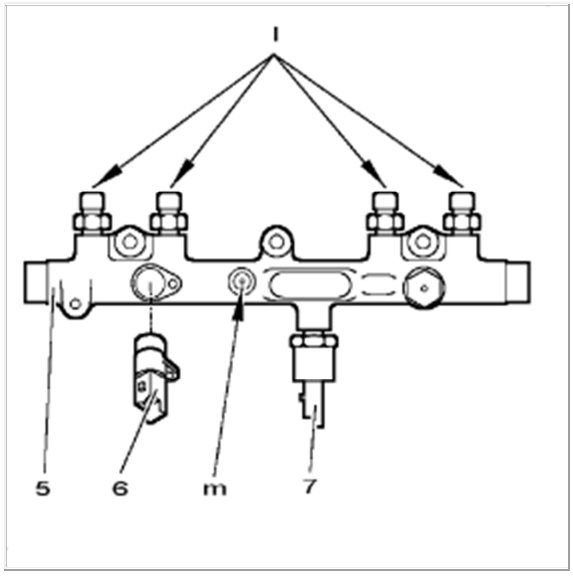


Fig : B1HP10WC

(5) fuel high pressure common injection rail.

(6) fuel temperature sensor.

(7) fuel high pressure sensor.

L:outlets to diesel injectors.

M:high pressure fuel supply.

NOTE : The high pressure fuel common injection rail is made from forged steel.

The volume of the fuel high pressure common injection rail is suited to the engine capacity.

9.3 - Location.

The common injection rail located between the high pressure pump and the diesel injectors is mounted on the cylinder head.

10 - Diesel fuel injectors (1131, 1132, 1133, 1134)(1131, 1132, 1133, 1134)

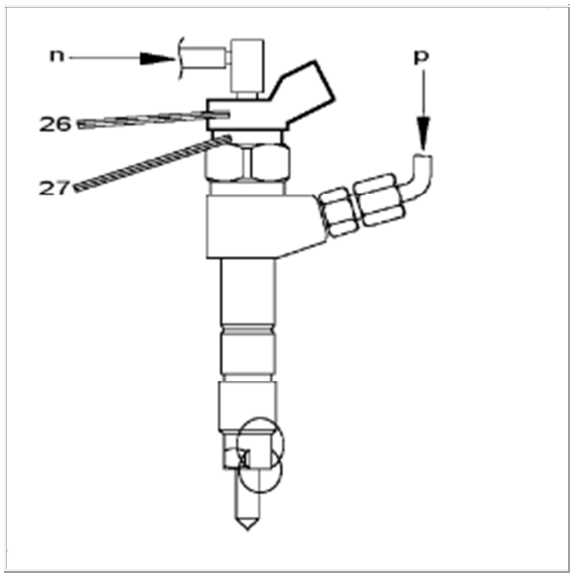


Fig : B1HP10XC

(26) diesel injector electrovalve connector.

(27) diesel injection control electrovalve.

N:fuel tank return circuit.

P:high pressure fuel supply (fuel high pressure common injection rail).

The diesel injectors are operated electrically by the injection ECU.

The diesel injectors consist of 2 parts :

- An electrical control part.
- A fuel spraying part.

The diesel injectors inject the amount of fuel required for the engine to operate.

The diesel injectors have 5 holes which encourage air/fuel mixing.

The amount of fuel injected depends on the following parameters :

- Duration of the electrical control (injection ECU).
- Opening speed of the diesel injector.
- Hydraulic flow of the diesel injector (number and diameter of holes).
- Fuel pressure in the fuel high pressure common injection rail.

The fuel can be injected in the following cases :

- Pre-injection.
- Main injection.
- Post-injection.

The diesel injectors are connected together by the fuel return circuit.

Fuel pressure in the return circuit: 0.7 bar.

11 - Fuel cooler

11.1 - Role.

The high pressure pump laminates the fuel from the booster pump which increases the fuel temperature.

The fuel cooler cools the fuel as it returns to the tank.

11.2 - Description.

The fuel cooler consists of a metal coil which encourages heat exchange between the fuel and the air.

11.3 - Location.

The fuel cooler is located under the body.