

HIGH PRESSURE REGULATOR

FUNCTION

The high pressure regulator modulates fuel pressure at the high pressure pump outlet.

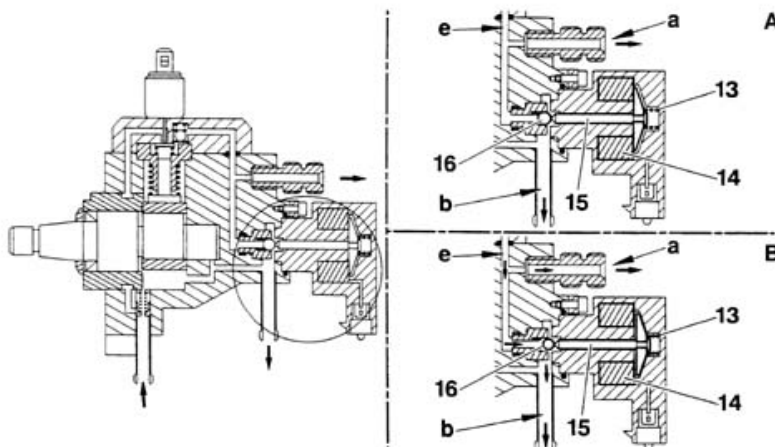
DESCRIPTION

The high pressure regulator includes 2 pressure control circuits:

- an electric circuit that acts directly on the high fuel pressure that controls the high pressure regulator electromagnet (engine management control unit);
- a mechanical circuit that ensures a minimum pressure and damps pressure pulses;



After turning off the engine, wait 30 seconds before beginning work. No residual pressure is left in the fuel high pressure circuit when the engine has been turned off for 30 seconds.



- A - high pressure regulator not supplied with power;
- B - high pressure regulator supplied with power;
- a - high pressure fuel outlet (to fuel manifold);
- b - fuel return to tank;
- e - high fuel pressure circuit;
- 13 - spring;
- 14 - electrical coil;
- 15 - magnetic core;
- 16 - ball.

MECHANICAL CONTROL

The high pressure circuit undergoes pressure changes.

Fuel pressure increases when a pump piston is pressed and decreases when an injector is opened.

The ball moves to damp pressure changes.

ELECTRICAL CONTROL

1 When the high pressure regulator is not supplied with power:

- the high fuel pressure counters the mechanical action of spring (13);
- the regulator opens for a high pressure greater than spring load (= 100 bars);
- fuel released by the high pressure regulator returns to the tank through the outlet.

2 Pressure increase control stages:

- the engine management unit supplies the high pressure regulator with a duty-cycle;
- the high pressure regulator coil drives the magnetic core (magnetic force);
- the effort applied to the ball is the sum of the force of spring (13) and the magnetic force of the core;
- the high pressure regulator setting increases.

3 Pressure reduction control stages:

- the engine management unit reduces the duty-cycle that supplies the high pressure regulator coil;
- the high pressure regulator coil drives the magnetic core (magnetic force);
- the effort applied to the ball decreases;
- the high pressure regulator setting decreases.

ELECTRICAL PROPERTIES

Variable DC (Duty Cycle) voltage control:

- maximum voltage (maximum DC) = maximum pressure;
- minimum voltage (minimum DC) = minimum pressure.

When the high pressure regulator is not supplied with power pressure is limited to = 100 bar.