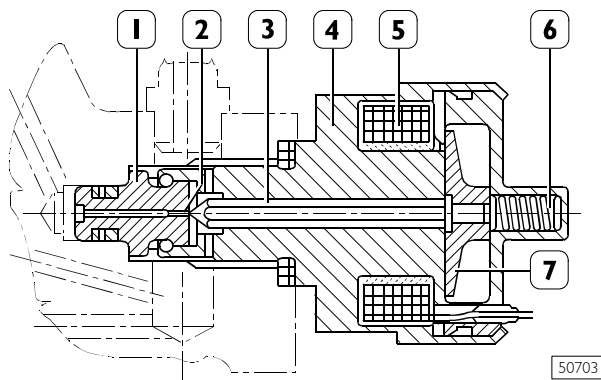


3rd pumping element exclusion device

The 3rd pumping element exclusion device is composed of a solenoid valve (1, Figure 244) that by means of the push rod (2, Figure 244) keeps the inlet valve (3, Figure 244) open during the delivery phase of the 3rd pumping element (5, Figure 244). It is activated by the electronic control unit when the engine, running above 4200 rpm, does not increase the power. The fuel thus discharged (approx. 1/3 of the delivery), before being put into the recirculation circuit, increases the efficiency of the high-pressure pump.

771034 Pressure control valve

Figure 245



1. Valve - 2. Ball shutter - 3. Pin - 4. Body - 5. Coil - 6. Pre-loading spring - 7. Anchor

It is mounted on the high-pressure pump and operated by the electronic control unit. It regulates the supply pressure of the fuel for the electro-injectors.

The pressure regulator is mainly composed of:

- a ball shutter (2)
- a pin (3) controlling the valve (1)
- a pre-loading spring (6)
- a coil (5).

With the solenoid de-energized, the delivery pressure depends on the pre-load of the spring.

Pressure modulation is obtained by supplying the solenoid coil in PWM (Pulse Width Modulation) and closing the regulation loop by feedback from the pressure sensor, the PWM signal has a carrier of 1000 Hz and the duty cycle can be varied via software from 1% to 95%.

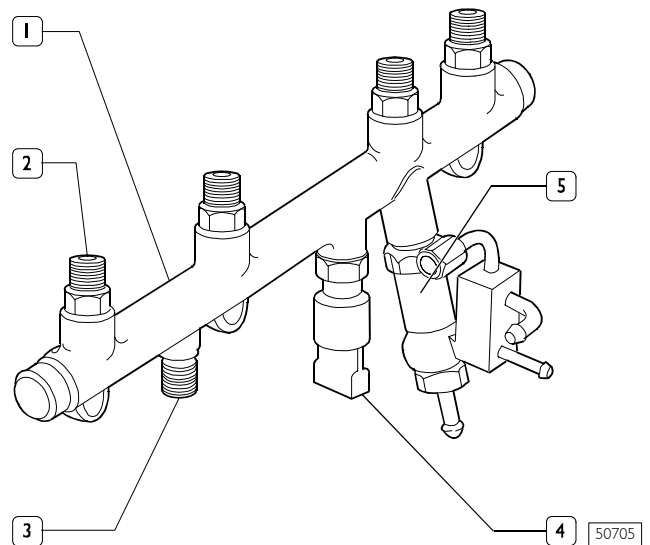
774510 Hydraulic accumulator (rail)



For engine 8140.43S only.

Since engine No. 3089322, a rail with the same configuration but without flow limiters and pressure relief valve has been mounted. Component description given in the following pages stands valid for engines up to this serial No.

Figure 246



The hydraulic accumulator is mounted on the cylinder head on the opposite side to the intake.

With its volume of approximately 29 cm³ dampens the pressure ripples of the fuel due to:

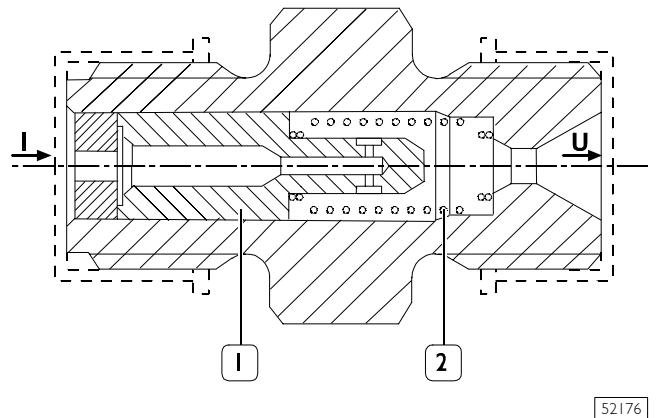
- the operation of the high-pressure pump
- the opening of the electro-injectors.

The flow limiters (2) are mounted on the top of the hydraulic accumulator (1).

The fuel pressure sensor (4) and pressure relief valve (5) are mounted on the bottom.

774512 Flow limiters

Figure 247



These ensure engine operation protecting the vehicle against the risk of fire in the event of fuel leakage: internal (electro-injector jet jammed open) or external (pipe fittings, loose or damaged electro-injectors under high pressure).

Under regular conditions, piston (1) is kept in open position by spring (2) and fuel pressure that, due to section difference between piston (1) internal and external surface operates highly on the latter one. When there is high pressure loss at limiter outlets, inlet pressure prevails and overcoming spring (2) reaction moves piston (1), closing fuel outlet U.