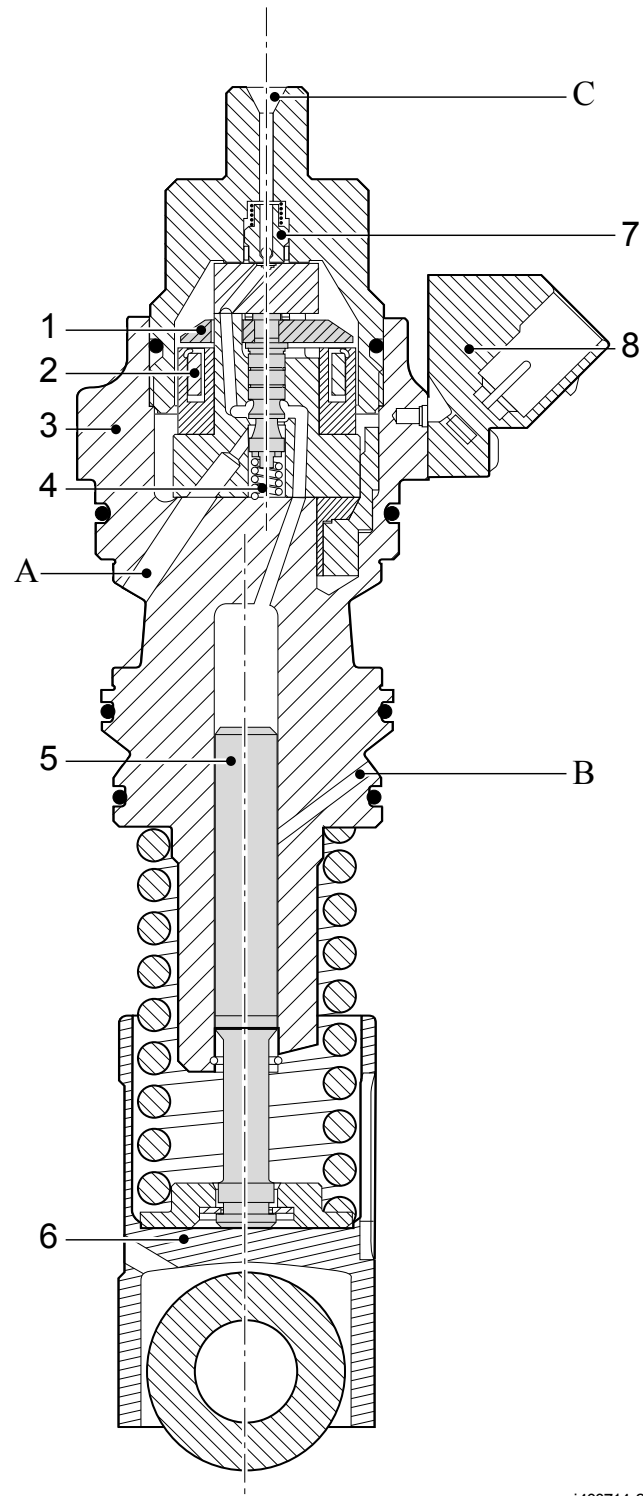


Solenoid valve, pump unit (B131, B132, B133, B134, B135, B136)

General

The pump unit supplies fuel to the injector. The pump unit consists of a metal housing (3) in which an electrical coil (2) opens a valve (1). In the rest position, the valve (1) is pushed up by a spring (4). The electrical connection (8) is screwed onto the outside of the pump unit. The roller lifter (6) rotates around the camshaft and actuates the plunger (5), which builds up the fuel pressure. The fuel enters the pump unit via the fuel gallery opening (A). This opening goes into the fuel supply gallery in the engine block. The fuel leaves the pump unit in the direction of the injector via a delivery valve (7). The fuel pipe is fitted to the injector supply connection (C). Leak-off and lubricating fuel from the plunger is fed back into the return gallery in the engine block via the return opening (B).



i400714-2

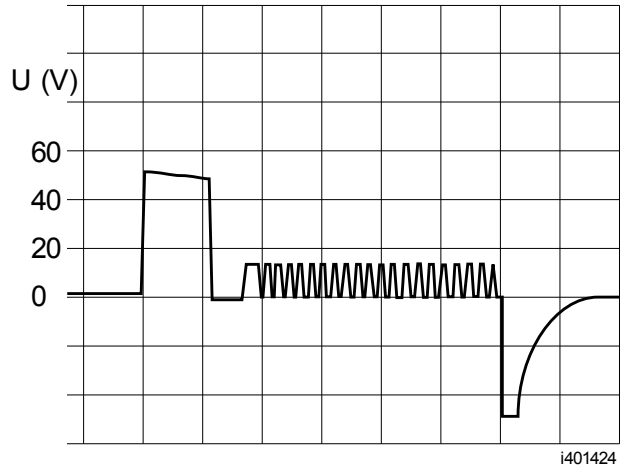


- A. Fuel gallery opening
- B. Return opening
- C. Injector inlet connection
- 1. Lid
- 2. Coil
- 3. Pump unit housing
- 4. Spring

5. Plunger
6. Roller lifter
7. Delivery valve
8. Electrical connection

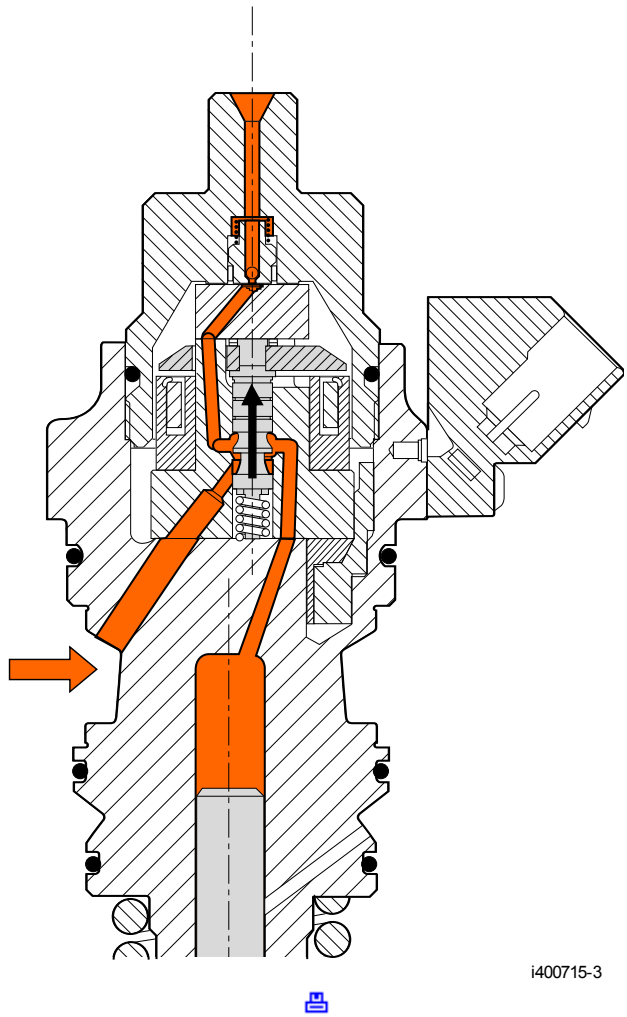
Electrical control

The pump unit is activated with a voltage of approximately 50 V. This voltage is discharged by a capacitor in the PMCI-2 electronic unit. The current increases rapidly because of this relatively high voltage. As a result, the valve in the pump unit opens quickly. This is the pull phase. If the current were not limited, it would become too high and damage the coil in the pump unit. The increase in current is limited by switching to pulsating control of approximately 12 V after discharging the capacitor. This is the hold phase. The current now remains high enough to hold the valve open. The length of the pull phase stays practically the same under all circumstances. The length of the hold phase varies depending on the calculations carried out by the electronic unit. When the pump unit is deactivated, a negative induction peak is created by switching off the current through the pump unit coil.



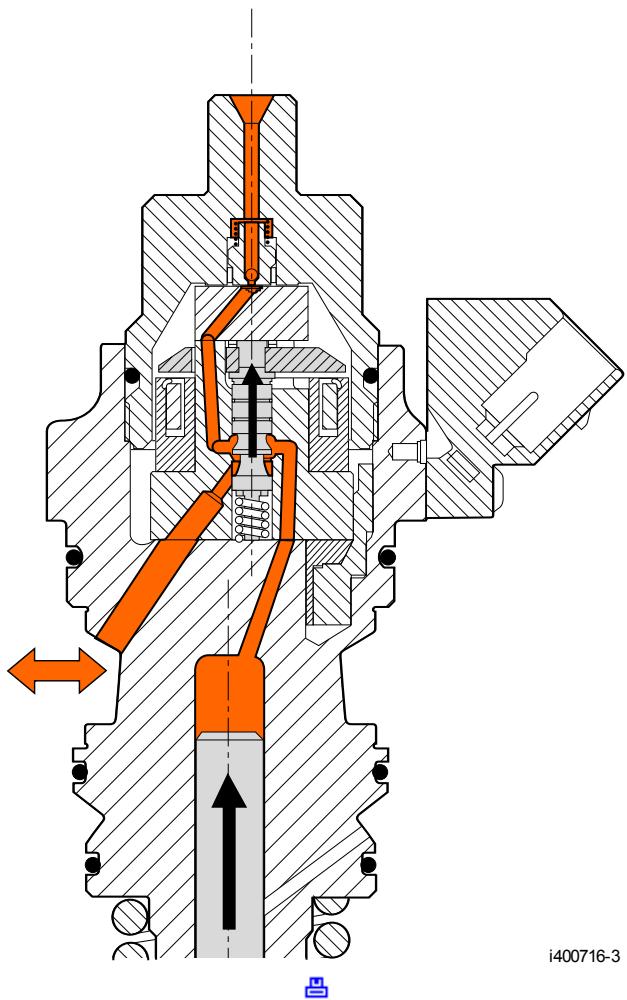
Operation

The fuel is supplied to the pump unit via the gallery in the engine block and flows toward the delivery chamber above the plunger. The delivery chamber now fills.

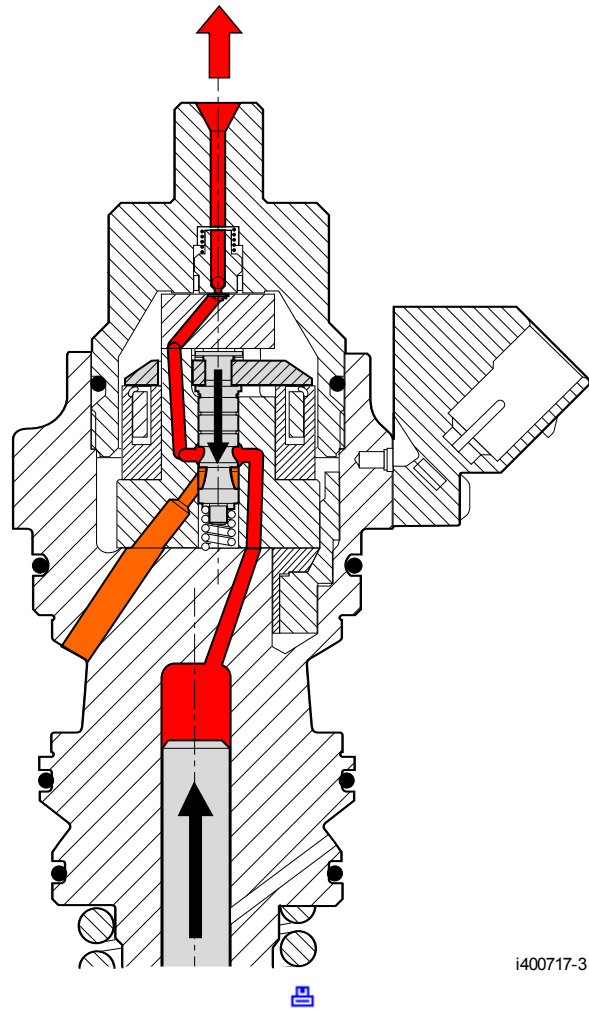


i400715-3

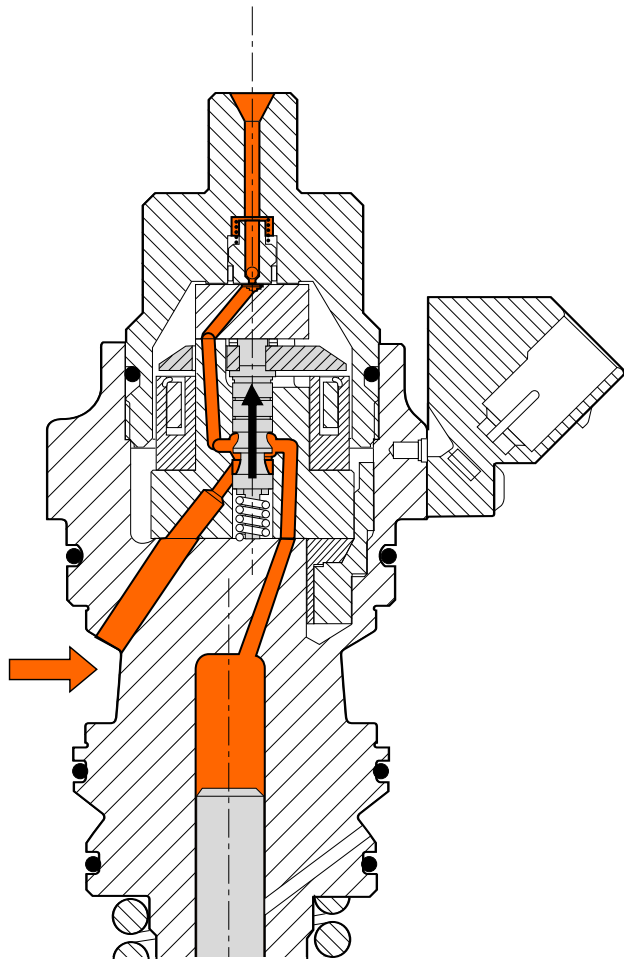
The pressure does not build up immediately when the plunger is pushed up by the camshaft. The fuel can still flow back to the fuel gallery via the supply opening.



When the coil is activated, the valve is pulled down and the opening to the fuel gallery closes. Not until now does the plunger start building up pressure. The fuel cannot flow back to the gallery and must now flow toward the injector outlet via the delivery valve. Fuel is now supplied to the injector.



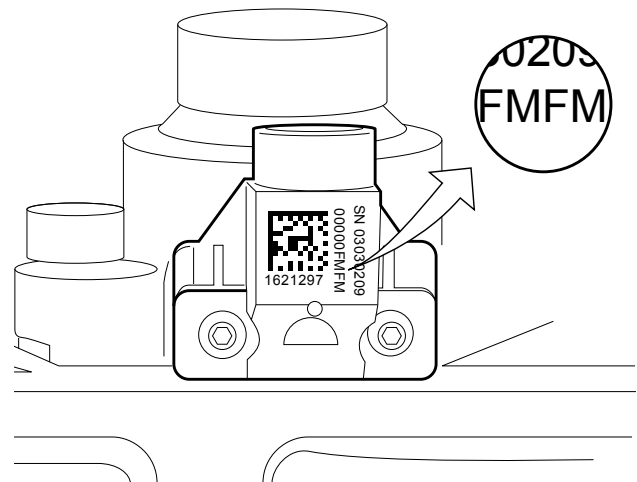
When the electronic unit deactivates the coil, the valve is pushed up again by the spring and the opening to the fuel gallery is released again. This stops the supply of fuel to the injector.



i400715-3



Every pump unit is calibrated after production to compensate for any inaccuracies and differences in production. There is a four-letter calibration code on the housing of the electrical connections. This code is also programmed into the electronic unit so that the unit can optimize controls for fuel injection. If the pump unit is replaced or moved, make sure that the calibration code is programmed (again) into the electronic unit using DAVIE.



i400771



M026771 - 02.22.2010

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