

Fuel Injection System

Job No.
07-3

The Figure 07-3/1 gives a general view of the injection system of the engine OM 636

The Figure 07-3/2 gives a general view of the injection system of the engine OM 621

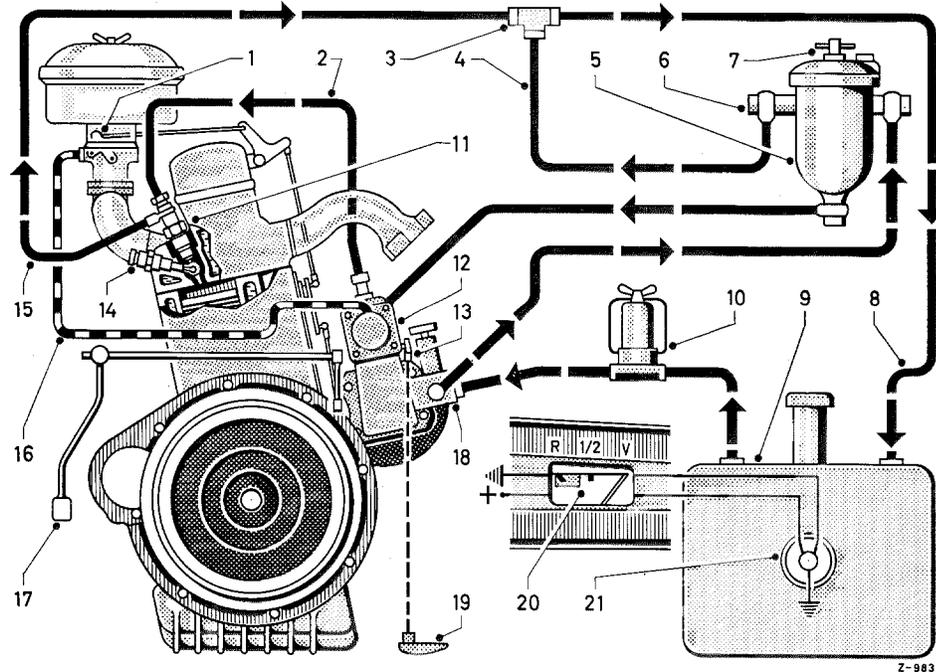


Figure 07-3/1

Injection System OM 636

- | | |
|---------------------------|--|
| 1 Throttle duct | 12 Injection pump |
| 2 Injection pressure line | 13 Adjusting lever |
| 3 T-section | 14 Glow plug |
| 4 By-pass line | 15 Drip-fuel line |
| 5 Main filter | 16 Vacuum line |
| 6 By-pass valve | 17 Gas pedal |
| 7 Bleeder screw | 18 Fuel feed pump |
| 8 Return line | 19 Start and Stop cable control
(glow starter switch) |
| 9 Fuel tank | 20 Fuel gauge with control light |
| 10 Pre-filter | 21 Fuel gauge transmitter |
| 11 Injection nozzle | |

The fuel feed pump is driven by the injection pump and sucks the fuel from the fuel tank through the pre-filter and presses the fuel through the fuel main filter into the suction end of the injection pump. The plungers of the four injection pump elements force the fuel through the pressure valves in the injection pump into the injection lines to the injection nozzles. The fuel comes through the injection nozzles, which operate at an opening pressure of 110 to 120 atm., into the pre-combustion chambers and the main combustion chambers.

The fuel feed pump always delivers more fuel than is needed for injection in the engine, thus preventing formation of bubbles and filling the suction space of the injection pump with fuel at a certain pressure. Furthermore, at temperatures below 0° C the larger circulating fuel volume pre-

vents the fuel lines from and to the fuel tank from being clogged due to clouding of the fuel. With the OM 636, the surplus of fuel returns to the fuel tank through the by-pass valve (attached to the fuel main filter), the fuel by-pass line and the fuel return line. With the OM 621, the by-pass valve is attached to the injection pump.

The fuel leaking at the injection nozzles also flows back to the fuel tank through the drip-fuel line and the fuel return line.

The injection process is controlled in relation to the gas pedal position, speed and load of the engine by the pneumatic or centrifugal governor mounted at the rear of the injection pump.

The satisfactory performance of the injection pump and/or the injection nozzles depends mainly on the purity of the fuel. Minor impurities such as dirt, thin hairs etc. can possibly cause failures of the injection pump ("knocking") and premature wear of the injection pump. The fuel filter elements must therefore be cleaned frequently according to instructions. Very soiled filters must be replaced.

The fuel lines are installed in such a way that they are protected against damages to prevent failures of the fuel delivery.

The original location of the fuel lines must therefore be adhered to when replacing fuel lines. Folding and torsioning of the lines must especially be avoided (also see Job No. 07-16).

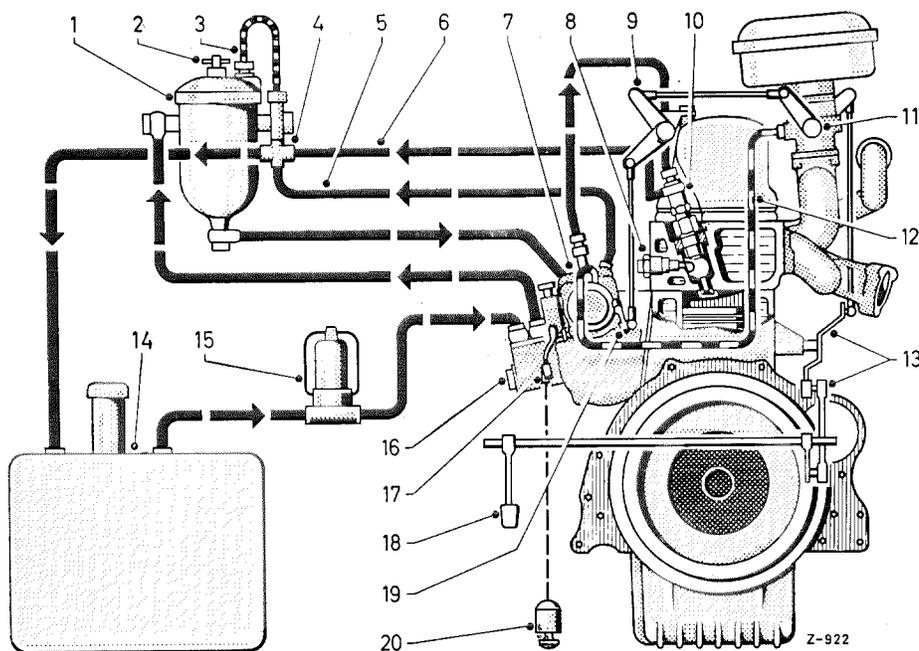


Figure 07-3/2

Injection system OM 621

- | | |
|---|---|
| 1 Fuel main filter | 11 Throttle duct |
| 2 Venting screw | 12 Vacuum line with throttle screw |
| 3 Venting line | 13 Linkage and lever for accelerator |
| 4 Cross fitting | 14 Fuel tank |
| 5 Overflow line | 15 Fuel pre-filter |
| 6 Leakage line before injection pump | 16 Fuel feed pump with hand primer |
| 7 Injection pump | 17 Re-adjusting lever |
| 8 Glow plug | 18 Accelerator |
| 9 Angular lever for mechanical additional control (Stupser) | 19 Lever for mechanical additional control |
| 10 Injection nozzle | 20 Glow starter switch with starting and stopping cable |
| | 21 Return flow line |

Maintenance Work on Injection Pumps

As from October 1962 injection pumps according to Figures 07-3/3 and 07-3/4 have instead of the oil dipstick in the pump housing or governor cover, respectively, an oil level inspection screw (1) varnished in red and provided with a cross hole at the left next to the delivery pump approx. 10 mm above the camshaft center on the pump housing.

An air compensation hole has been provided between the pump housing and the governor and the up to now used bottom closing plug with lubricating felt have been replaced by cup covers made of sheet metal.

In addition, injection pumps with centrifugal governors are provided with a common oil supply instead of the formerly used separation of the lube oil between the camshaft area and the governor housing, and for injection pumps with attached diaphragm governor an oil overflow tube is now screwed on by means of the oil level control plug through which the leak oil fuel can flow off.

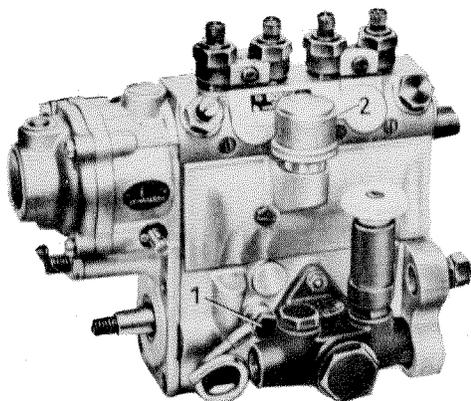


Fig. 07-3/3

New Type of Injection Pump with Pneumatic Governor as from Oct 62

- 1 Oil level control screw with oil overflow tube
- 2 Closing cap for pump elements with vent filter and oil filler hole

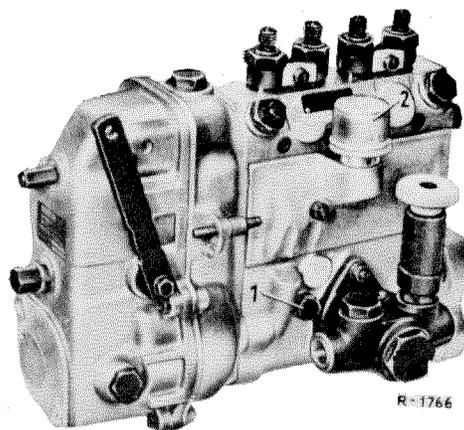


Fig. 07-3/4

New Type of Injection Pump with Centrifugal Governor as from Oct 62

- 1 Oil level control screw
- 2 Closing cap for pump elements with vent filter and oil filler hole

Maintenance

Loosen oil level control screw (1) at each engine oil change approx. 3-4 turns (hex head has SW 12 flats) and close only when no more leak fuel comes out.

If no oil comes out fill in engine oil heated to approx. 10-20° C until oil shows up at the oil level control screw (1). Fill in oil at filter neck of pump closing cover (2), the air filter (marked in red) can be screwed off by hand.

Tighten oil level control screw (1) and filter (2) again.

The mixture of lube oil and leak fuel should be completely drained at each pump overhaul and replaced by good engine oil until the level of the oil level control screw (1) has been reached.

There are also pumps which are connected to the **engine lubricating system**. They are recognized by their special pressure oil line which comes from the engine lube circuit and is connected to the pump housing next to the delivery pump (approx. 30 mm above camshaft center).

These pumps require no servicing and are therefore not provided with an oil level control screw.

After a repaired pump has been installed an initial filling of lube oil (good engine oil) should be applied prior to putting the engine in operation.

The following quantities are sufficient: Pump with diaphragm governor 0.2 ltr.
Pump with centrifugal governor 0.6 ltr.