

## F. Accelerating Pump

The "neutral" pump No. 82 is used as an accelerating pump for both the sand-cast and the die-cast carburetor. With this type of pump the engine draws in fuel from the pump system via the injection tube according to the degree of vacuum obtaining in the intake pipe.

However, the main task of the accelerating pump is to spray additional fuel into the mixing chamber of the suction canal of stage 1 when the accelerator pedal is depressed; as a result, speed build-up and acceleration are improved.

The accelerating pump is located at the bottom of the carburetor housing between the two suction canals (Fig. 07-0/47).

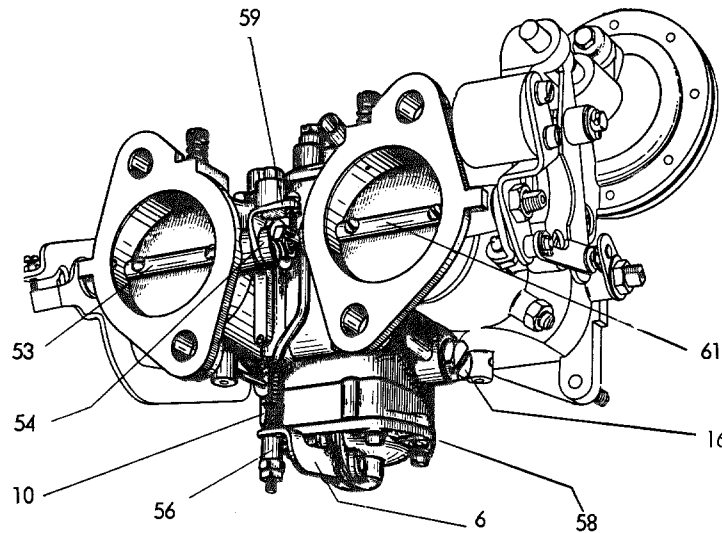


Fig. 07-0/47

- 6 Pump arm
- 10 Connecting rod with pressure spring
- 16 Main jet plug with main jet
- 53 Throttle valve shaft of stage 1
- 54 Transmission lever
- 56 Adjusting nuts
- 58 Accelerating pump
- 59 Relay lever for automatic return mechanism of stage 2
- 61 Throttle valve shaft of stage 2

The pump arm (6) of the accelerating pump is connected to the throttle valve shaft (53) of stage 1 by the adjustable connecting rod (10) and the transmission lever (54). When the throttle valve is closed, the diaphragm spring (4) presses the pump diaphragm (5) outward. Since the pump chamber is connected with the float chamber via the ball valve (55) the pump chamber is filled with fuel.

When the accelerator pedal is depressed, the pump arm (6) is moved via the connecting rod (10). The pump arm in turn presses the diaphragm (5) inward so that the fuel which is in front of the diaphragm is injected through the ball valve (3), the pump jet (2) and the graded injection tube (52).

During the injection period the ball valve (55) now operating as a check valve is closed. When the accelerator pedal is released, the diaphragm spring (4) presses the diaphragm (5) back. The ball valve (55) now operates as a through-way valve, whereas the ball valve (3) works as a check valve and prevents air from entering the pump system from the suction canal (Fig. 07-0/48).

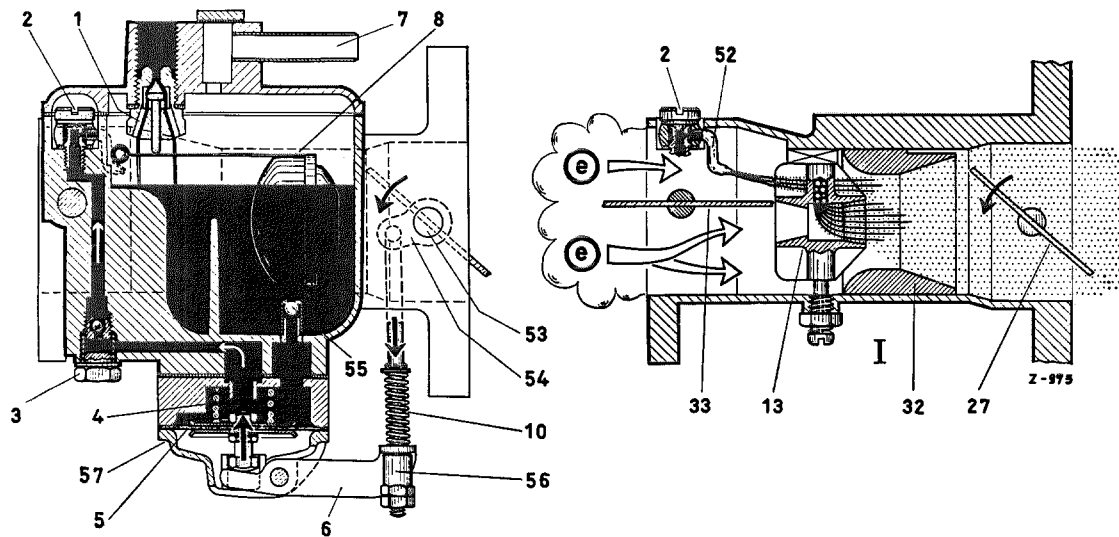


Fig. 07-0/48

#### Acceleration

##### I Stage 1

e) Entry of main air

- |  |                                     |
|--|-------------------------------------|
| 1 Float needle valve   | 13 Diffuser                         |
| 2 Pump jet   | 27 Throttle valve of stage 1        |
| 3 Ball valve of accelerating pump                                    | 32 Air horn                         |
| 4 Diaphragm spring   | 33 Choke valve                      |
| 5 Pump diaphragm   | 52 Injection tube                   |
| 6 Pump arm   | 53 Throttle valve shaft of stage 1  |
| 7 Connection for fuel overflow line<br>and float chamber ventilation | 54 Transmission lever               |
| 8 Float  | 55 Ball valve for accelerating pump |
| 10 Connecting rod with pressure spring                               | 56 Adjusting nuts                   |
|  | 57 Cover                            |

Depending on the degree of vacuum obtaining in the suction canal, extra fuel can be drawn in from the pump system without operating the pump arm of the accelerating pump.

The injection amount of the accelerating pump can be varied by adjusting the adjusting nuts (56) on the connecting rod (10). When the nuts are tightened, the pump stroke and in consequence the injection amount is increased and vice versa.

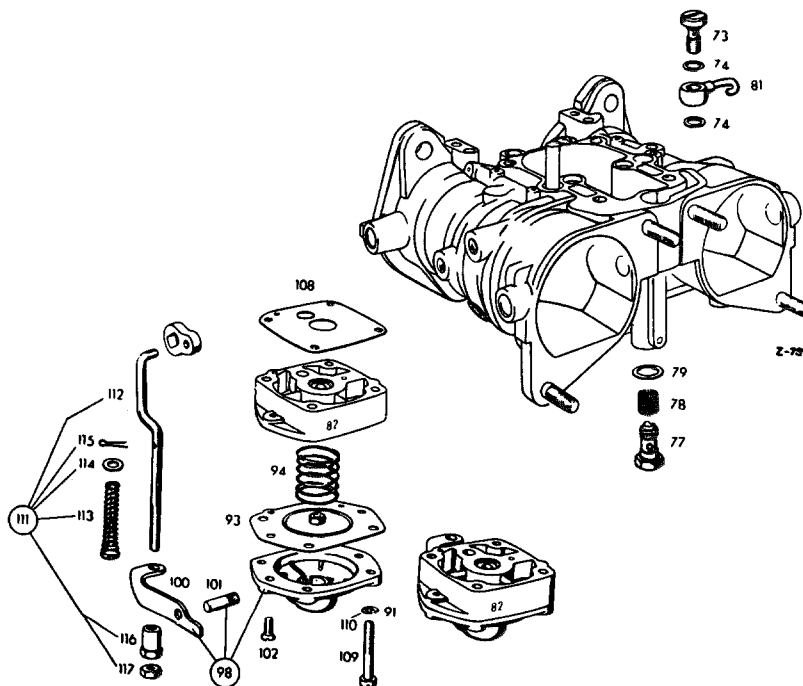


Fig. 07-0/49

Accelerating pump  
(Die-cast carburetor)

- |   |                                  |
|---|----------------------------------|
| 13 Transmission lever on throttle valve shaft stage 1 | 101 Pump arm shaft               |
| 73 Pump jet   | 102 Oval head countersunk screw  |
| 74 Fiber sealing ring                                 | 108 Rubberised-fabric gasket     |
| 77 Ball valve   | 109 Cheese head screw            |
| 78 Stainer for ball valve                             | 110 Lock washer                  |
| 79 Fiber sealing ring                                 | 111 Connecting rod (complete)    |
| 81 Injection tube                                     | 112 Connecting rod               |
| 91 Accelerating pump                                  | 113 Pressure spring              |
| 93 Pump diaphragm                                     | 114 Washer                       |
| 94 Diaphragm spring                                   | 115 Cotter pin                   |
| 98 Cover (complete)                                   | 116 Shoulder nut (adjusting nut) |
| 100 Pump arm  | 117 Hexagon nut (lock nut)       |

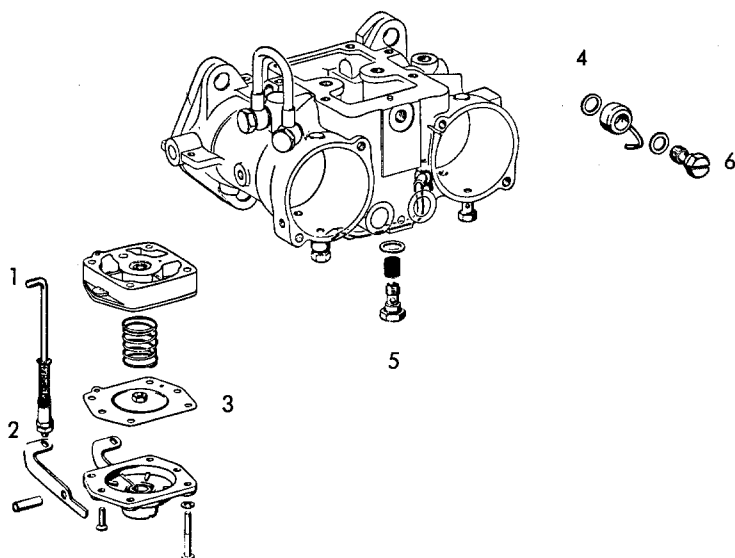


Fig. 07-0/50

Accelerating pump  
(Sand-cast carburetor)

- |                             |
|-----------------------------|
| 1 Connecting rod (complete) |
| 2 Pump arm                  |
| 3 Pump diaphragm            |
| 4 Injection tube            |
| 5 Ball valve                |
| 6 Pump jet                  |

The adjusting nuts (56) must not be tightened until the pump arm (6) moves away from the diaphragm since in that case injection would not take place immediately the throttle valve is opened. The injection amount of the accelerating pump should be 0.4–0.6 cc/stroke. Adjustment of the injection amount is described in Job No. 01-3, Section H.

**Note:** a) This version of the neutral accelerating pump has no plate valve as a stop for the diaphragm.

b) In the case of the die-cast carburetor the fuel line to the accelerating pump is calibrated by the ball valve (55) with a diameter of 0.5 mm (installed as a standard part as from Engine End No. 55 01823). In all engines with Engine End Nos between 55 00709 (in which the first die-cast carburetors were installed) and 55 01822 the fuel line to the accelerating pump can be calibrated subsequently by installing the calibrated sleeve Part No. 000 071 03 40 on the ball valve (see also Job No. 01-3, Section I).

c) Sand-cast and die-cast carburetors differ in the arrangement of the canals in the carburetor housing and in the arrangement and design of the injection tube and the pump jet (Figs. 07-0/49 and 07-0/50).

## G. Fuel Exhaust Device

When the throttle valves of stages 1 and 2 are suddenly closed at high engine speeds, some fuel may remain in the suction canals of the carburetors.

This would enrich the mixture in stage 2 and would have an undesirable effect both at idling speed and when the throttle valves are opened. For this reason the fuel left in stage 2 is drawn off via the fuel suction line (4) and passes into the suction canals of stage 1 and from there into the mixing chambers of the suction canals.

When the engine is not running, the fuel accumulating in stage 1 of both carburetors runs off through the fuel outlet line (16) and ensures that the engine will start properly when hot. The arrangement of the fuel suction line and the fuel outlet line for the die-cast carburetors is shown in Fig. 07-0/51.

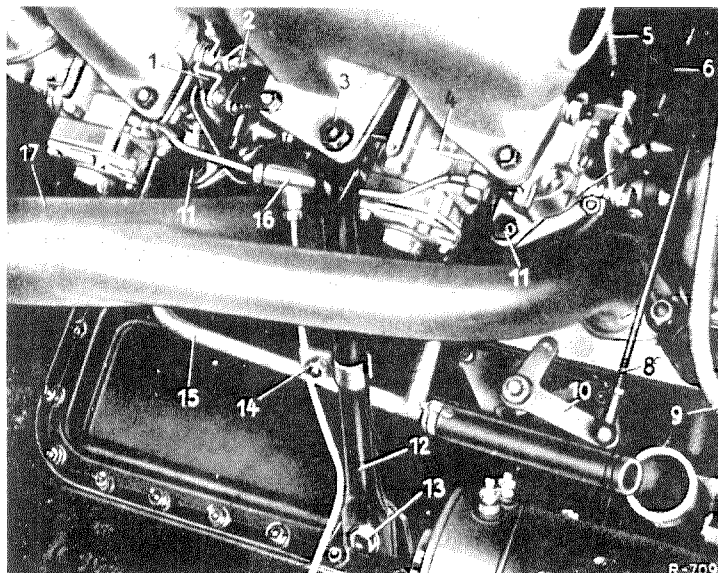


Fig. 07-0/51

- 1 Choke valve lever of rear carburetor
- 2 Choke valve lever of front carburetor
- 3 Hexagon nut
- 4 Fuel suction line
- 5 Return spring for carburetor linkage
- 6 Push rod from control shaft to throttle valve lever of front carburetor
- 7 Throttle valve lever
- 8 Push rod from angle lever on crankcase to control shaft
- 9 Fuel overflow line
- 10 Angle lever
- 11 Hexagon screw
- 12 Strut for supporting air suction tube
- 13 Hexagon screw
- 14 Pipe clip
- 15 Cooling water return line for pre-heating of intake pipe
- 16 Fuel outlet line
- 17 Exhaust manifold