

A. Replacement of Heating Spiral

1. Disconnect the tension spring (1b) and pull the heating spiral (11) off the heater valve shaft (10) (see Fig. 14—5/1).
2. Do not reinstall burned-out heating spirals. They must always be replaced.
3. Fit the new heating spiral on the heater valve shaft so that the slanting end points toward the exhaust manifold side.

Then turn the heating spiral approx. $\frac{1}{2}$ turn so that it is under initial stress and attach the other end to the notched attaching pin (12).

4. Reinstall the tension spring (1b) and check that the heater valve is operating properly, i.e., with engine cold, it is so adjusted that warming of the air-fuel mixture can take place.

B. Replacement of Damper Spring

If the surface of the damper spring (6) is worn, install a new damper spring. When installing the new damper spring, fit it so

that with the heater valve open the spring rests against the notched attaching pin (2) (see Fig. 14—5/1).

C. Replacement of Heater Valve and Shaft

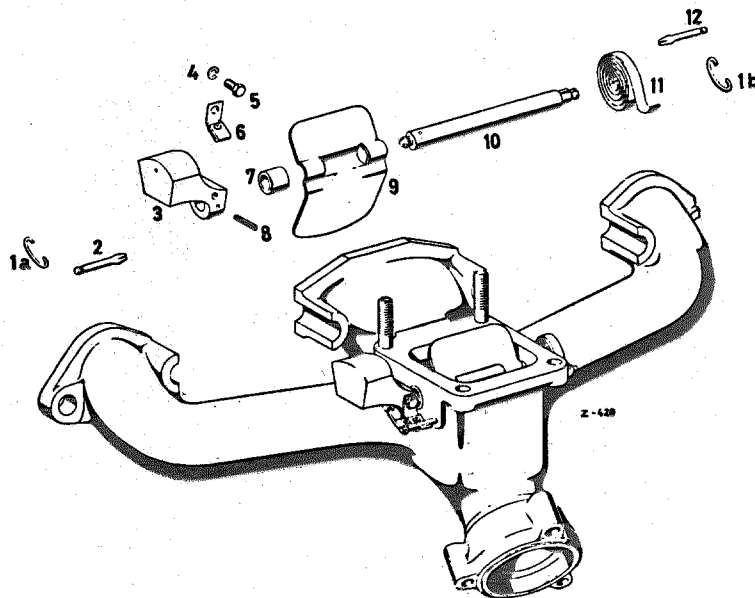


Fig. 14—5/1

- 1a and 1b Tension springs
- 2 Notched attaching pin
- 3 Balancing weight
- 4 Lock washer
- 5 Hexagon screw
- 6 Damper spring
- 7 Bushing
- 8 Dowel pin
- 9 Heater valve
- 10 Heater valve shaft
- 11 Heating spiral
- 12 Notched attaching pin

Removal:

1. Before replacing a jammed heater valve and heater valve shaft, try first to free up the valve by spraying with caramba or crude oil. If this is not successful, install a new heater valve, shaft and bushings.

2. To do this, disconnect the tension springs (1a and 1b) at both sides of the heater valve shaft (10) and remove the heating spiral (11) (Fig. 14—5/1).
3. Use a cutting torch to cut away the heater valve (9). This is necessary because the

valve is electrically welded to the shaft. Knock out the two remaining shaft ends.

4. Unscrew the damper spring (6) from the balancing weight (3). Then knock out the dowel pin (8) and force out the valve shaft stump from the balancing weight.
5. Replace worn or damaged bushings (7) in the exhaust manifold.

Heater Valve Mounting Dimensions in mm

Internal- \varnothing of bushing	$\frac{10.132}{10.159}$
External- \varnothing of bushing	$\frac{13.039}{13.028}$
Bore in exhaust manifold	$\frac{13.000}{13.018}$
Diameter of valve shaft	$\frac{9.995}{9.986}$

Installation:

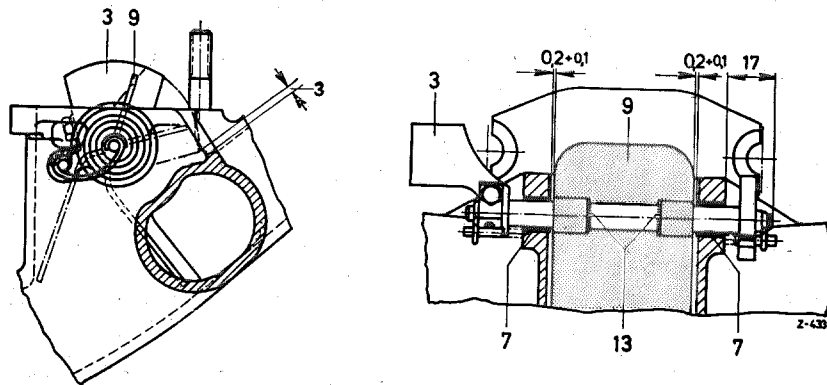


Fig. 14—5/2

3 Balancing weight
/ Bushing

9 Heater valve
13 Weld seam

6. Press the new bushings (7) into the bores in the exhaust manifold (Fig. 14—5/2).
7. Fit the heater valve (9); insert a suitable rod and adjust the heater valve so that it is closed and lies against the stop. Then press in the two bushings so that the heater valve is jammed in position. Then pull out the rod.
8. Press the balancing weight (3) onto the heater valve shaft (10) and lock it in position by means of the dowel pin (8) (Fig. 14—5/1).
9. Slide the heater valve shaft into the bores in the exhaust manifold and in the heater valve, until the shaft protrudes 17 mm and then turn the shaft so that there is a distance of not more than approx. 3 mm between the balancing weight (3) and the exhaust manifold with the heater valve closed. Then electrically weld the heater valve to the valve shaft (13) (Fig. 14—5/2).
10. After welding, tap the bushings slightly outward again by tapping the heater valve lightly in the axial direction, so that there is a play of from 0.2 to 0.3 mm between the bushing and the heater valve on each side.
11. Screw the damper spring (6) onto the balancing weight so that with the heater valve open it rests against the notched attaching pin (Fig. 14—5/2).
12. Press the heating spiral onto the heater valve shaft so that the slanting end points toward the exhaust manifold side. Then turn the heating spiral approx. $\frac{1}{2}$ turn so that it is under initial stress and attach the other end to the notched attaching pin (12).
13. Reinstall the tension springs (1a and 1b) and check that the heater valve is operating properly; i. e., with engine cold, it is so adjusted that warming of the air-fuel mixture can take place.