Revision: Revised, new special tools added

A. Valve Stem Sealing System Versions

Diesel Engines

Inlet and Exhaust Valve

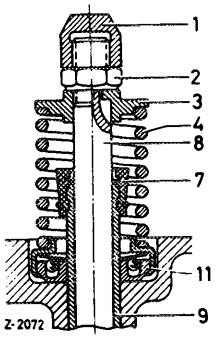

Fig. 05-3/1

1 Cap nut
2 Lock nut
3 Valve spring retainer
4 Valve spring
7 Valve seal
8 Valve
9 Valve guide
11 Valve rotator

Inlet and exhaust valves: Teflon sealing ring bedded in a rubber cap. The rubber cap is retained in the valve guide groove by means of a wire ring.

Carburetor Engines

Inlet and Exhaust Valve

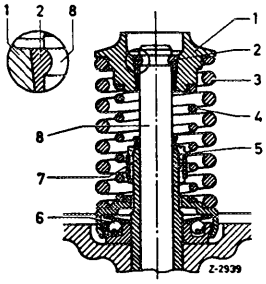

Fig. 05-3/2

1 Valve spring retainer
2 Valve cone half
3 Outer valve spring
4 Inner valve spring
5 Teflon sealing ring with clamping ring or annular spring and tightening strap
6 Valve rotator (Rotocap) or thrust ring
7 Valve guide
8 Valve with circular groove for valve cone

Carburetor Engines

Inlet Valve 1st Version Exhaust Valve 2nd Version

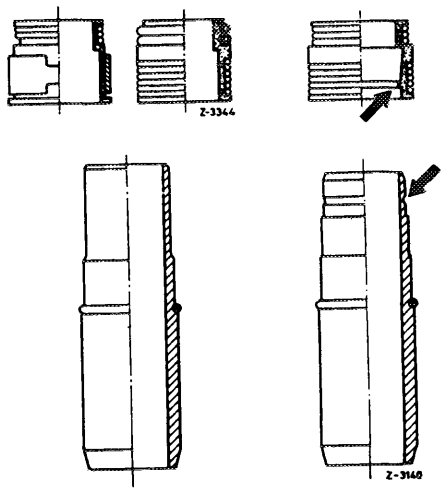

Fig. 05-3/3

Valve stem sealing system with associated valve guide for carburetor engines.
Inlet valve, 1st version: Teflon sealing ring with base tightening strap, and top clamping ring.
Inlet valve, 2nd version: Teflon sealing ring with base clamping ring and top annular spring.
Exhaust valve: Teflon sealing ring, head and base equipped with clamping ring.

B. Replacement of Valve Stem Sealing System with Cylinder Head Installed

Removal

1 Remove rocker arm (see Job No. 05-2).

2 For removal of the valve stem sealing assemblies, the piston concerned should be in the ignition TDC position.

For gasoline engines

3 Support exhaust valve by connecting the cylinder leakage tester CLT-228 or one hose of the available compressed air supply to the spark plug bore (pressure in the compression chamber should be approx. 5 atm).

4 T ap the valve spring retainer with a hammer so that the valve cone halves will come loose.

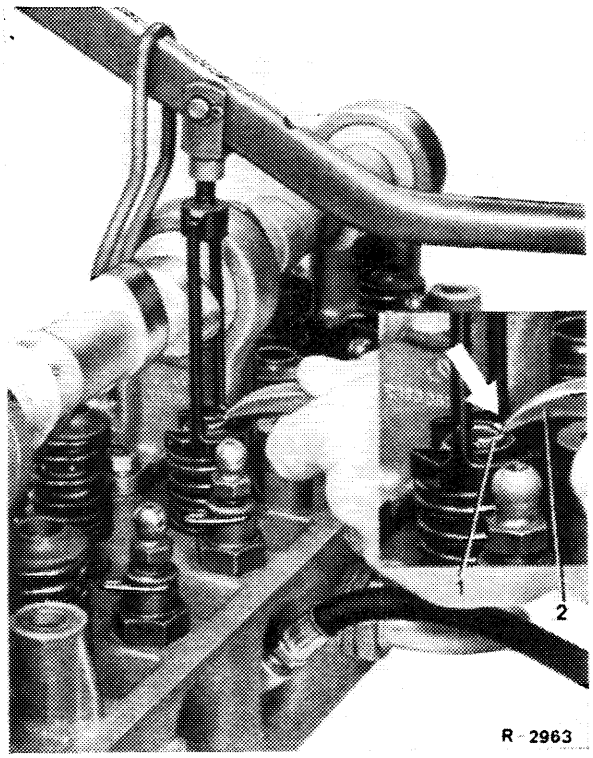

Fig. 05-3/4

1 Valve cone half 2 Magnetic lifting device 116 589 06 63 00

5 Use special tool 116 589 00 61 00 to press the valve spring retainer downward far enough so that the valve cone halves (1) are free and can be lifted out with the aid of the magnetic lifting device (2) (Fig. 05-3/4).

For diesel engines

6 Unscrew cap nut and lock nut (Fig. 05-3/1).

For gasoline and diesel engines

7 Remove valve spring retainer, valve spring, and valve seal (Figs. 05-3/1 and 2).

Installation

Installation of a new valve stem sealing ring is the reverse of the removal procedure; the following points should be carefully observed in the process:

a) The valve grooves for the valve cone halves must be free from burrs; valve spring retainers and valve cone halves must not be damaged by dents.

b) The valve stem seal must be oiled before it is slid on. A plastic sleeve should always be slid over the valve (except for the 11 mm dia. exhaust valve) in order to prevent damage from the grooves.

The plastic sleeves are supplied together with the valve stem seals.

c) For slipping-on of valve stem seals, pertinent assembly mandrels are available (Fig. 05-3/5 and Table)

d) In installed condition, clearance between valve cone halves should be identical on both sides.

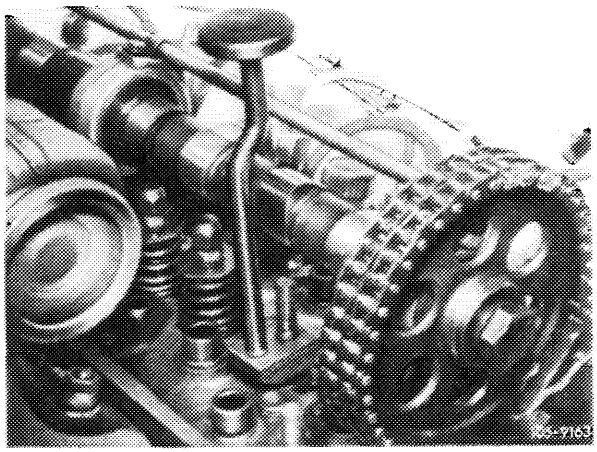

Fig. 05-3/5

Assembly Mandrels

Model	Part numbers		
	Intake	Exhaust	Intake and exhaust
200/8 220/8 230/8 250/8 250 E/8	116 589 00 43 00	116 589 01 43 00	-
200 D/8 220 D/8	-	-	615 589 00 43 00