

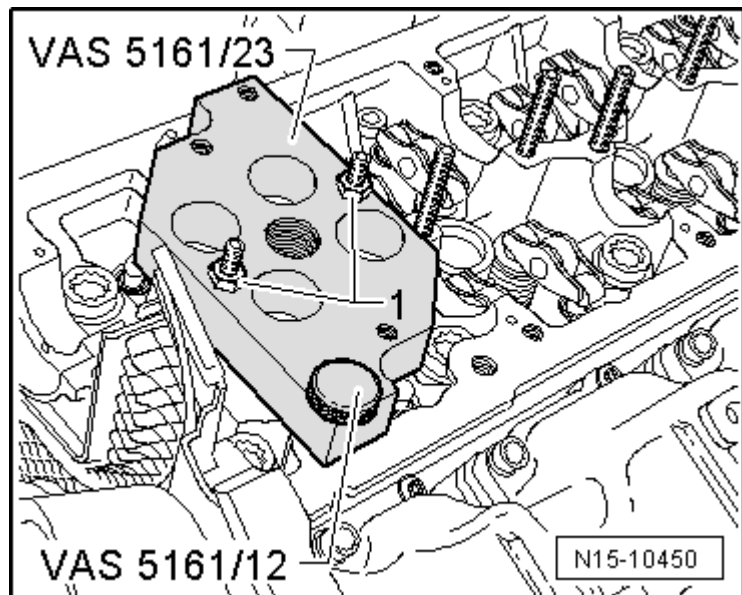
## Valve Stem Seals

### Special tools and workshop equipment required

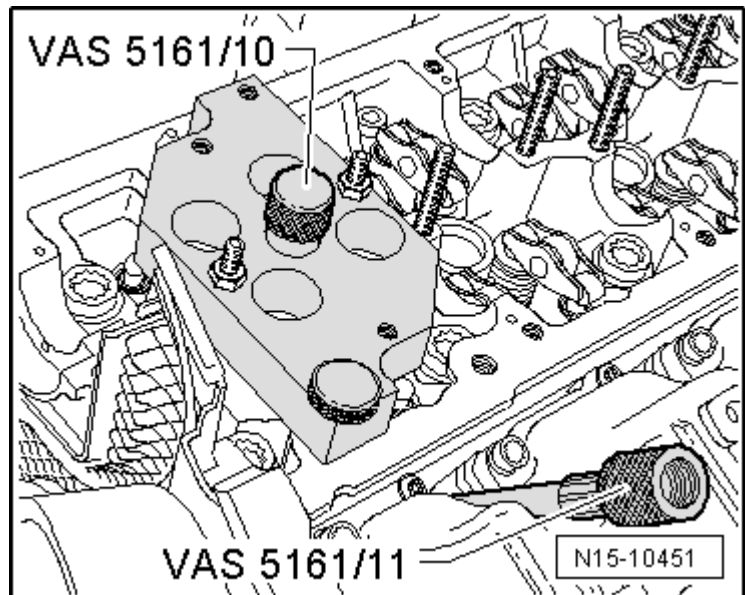
- ◆ Glow Plug Socket -3220-
- ◆ Puller - Valve Seal -3364-
- ◆ Seal Installer - Valve Stem -3365-
- ◆ Valve Cotter Tool Kit -VAS5161A-
- ◆ Valve Cotter Tool Kit - Guide Plate 23 -VAS5161/23-

### Removing

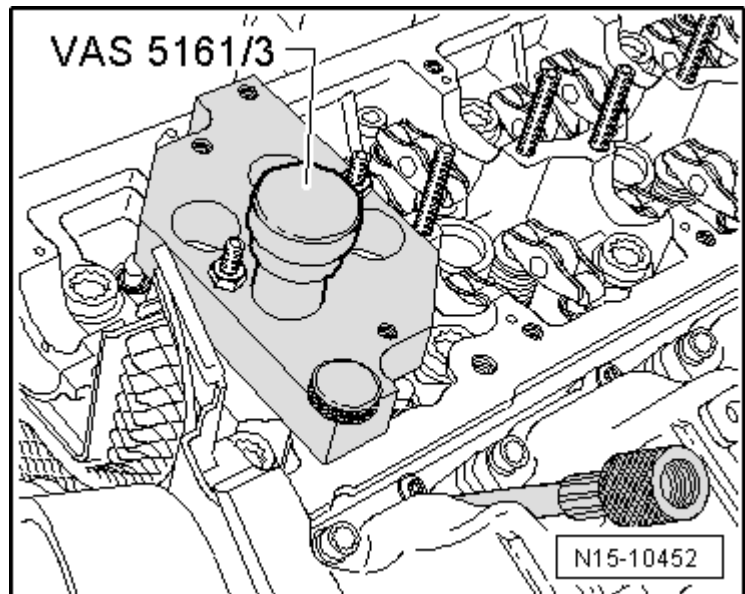
- Remove the glow plugs using the Glow Plug Socket -3220-. Refer to → [Chapter „Glow Plugs“](#).
- Remove the camshafts. Refer to → [Chapter „Camshaft“](#).
- Position the Valve Cotter Tool Kit - Guide Plate 23 - VAS5161/23- on the cylinder head.
- Attach the guide plate to the intake manifold side of the head using the Knurled Thumb Screws M6 -VAS 5161/12- and to the stud bolts hand tight with M6 nuts -1-.
- Install the Compression Stud for VAS 5161/9 -VAS 5161/10- in the guide plate.



- Install the Adapter for Compressed Air Connection -VAS 5161/11- in the glow plug threads and tighten hand tight.



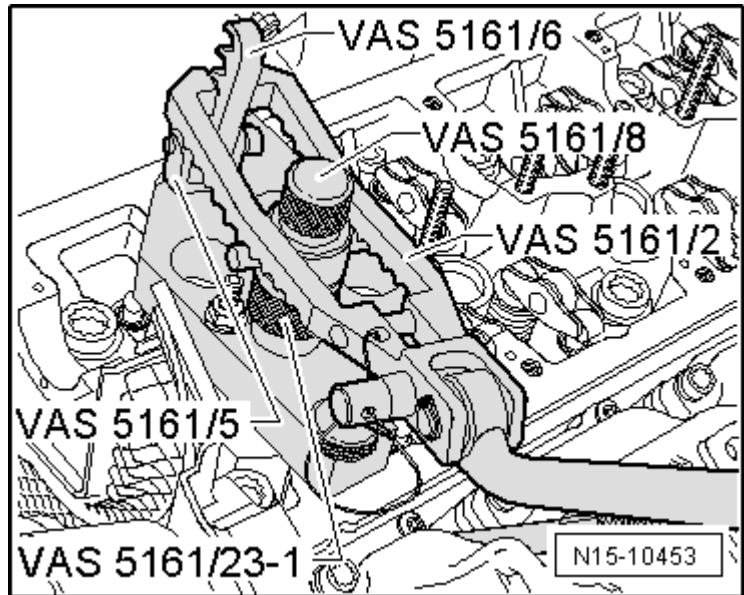
- Insert the Punch -VAS 5161/3A- into the guide plate and loosen the stuck valve retainers using a plastic mallet.



- Install the Guide Forks M6/M8 with Threaded Studs -VAS 5161/5- in the guide plate with the Retainer -VAS 5161/6-.
- Push the Valve Cotter Tool Kit - Guide Plate Sleeve -VAS5161/23-1- onto the Assembly Cartridge Ø 22 for 4 cyl. - 5 V/6 cyl. - 5 V/V8 - TDI 4 V -VAS 5161/8A-.
- Connect the Adapter for Compressed Air Connection -VAS 5161/11- to compressed air with a commercially available connector and apply a constant pressure.
  - Minimum pressure: 6 bar positive pressure.
- Engage the Pressure Fork with Lever for Assembly Cartridge -VAS 5161/2- at the

engaging device and press down the assembly cartridge.

- At the same time, turn the knurled thumb screw of the assembly cartridge to the right, until the points engage in the valve retainers.
- Lightly move the knurled thumb screw back and forth, this causes the valve retainers to be pressed apart and captured in the assembly cartridge.
- Release the pressure fork.
- Remove the assembly cartridge with the knurled spacer ring, the spring plate and the valve spring.

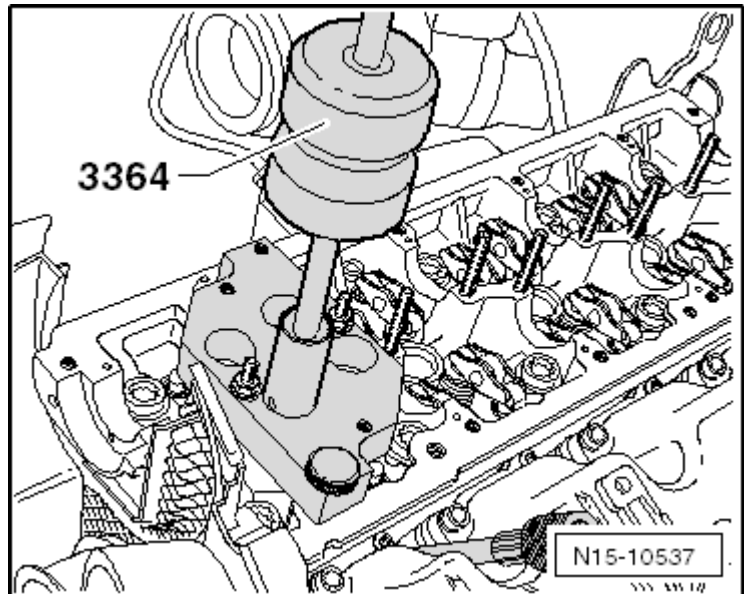


- Pull off the valve stem seal using the Puller - Valve Seal -3364-.

### Installing



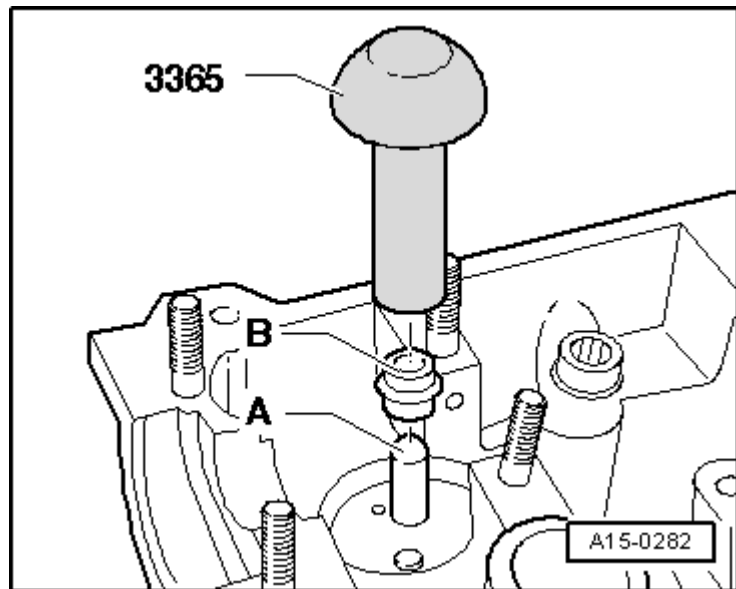
#### Note



*A plastic sleeve -A- is supplied with the new valve stem seals.*

- Place the plastic sleeve -A- on the valve stem to prevent damage to the new valve stem seal -B-.
- Lightly coat the sealing lips of the valve stem seal with oil.
- Push the valve stem seal onto the plastic sleeve.
- Carefully press the valve stem seal onto the valve guide using Seal Installer - Valve Stem -3365-.
- Tap lightly on the driver with a plastic mallet until the valve stem seal is seated.

- Remove the plastic sleeve.
- Insert the valve spring and spring plate on the cylinder head.

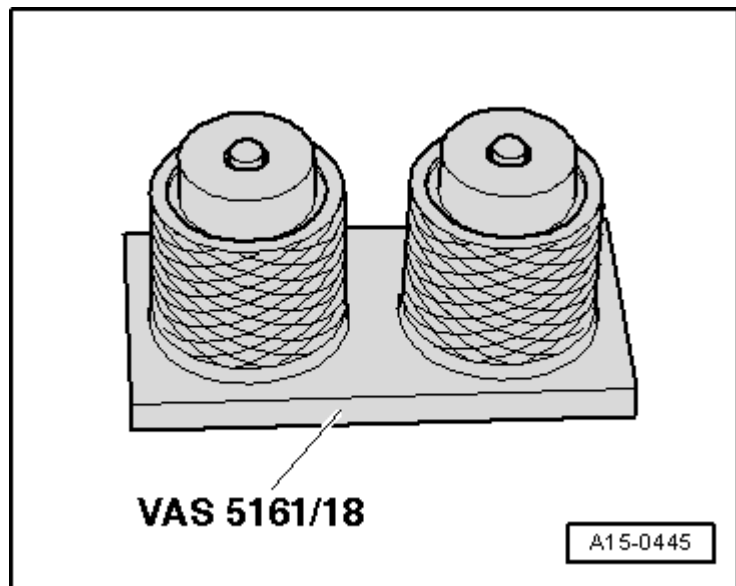


- If the valve retainers were removed from the assembly cartridge, they must then be inserted into the Valve Insertion Device (Ø 6 - Ø 7) -VAS 5161/18-.

**Note**

The large diameter of the valve retainers point upward.

- Press the assembly cartridge onto the valve insertion device from above and remove the valve retainers.



- Insert the Assembly Cartridge Ø 22 for 4 cyl. - 5 V/6 cyl. - 5 V/V8 - TDI 4 V - VAS 5161/8A- in the guide plate.
- Press the pressure fork down and pull the knurled thumb screw upward while turning it left and right to insert the valve retainers.
- Release the pressure fork with the knurled thumb screw still pulled.

Further installation is in the reverse order of removal. Note the following:

- Install the glow plugs. Refer to → [Chapter „Glow Plugs“](#).
- Install the camshafts. Refer to → [Chapter „Camshaft“](#).

**Note**

- ◆ *After installing the camshafts, do not crank the engine for at least 30 minutes. The hydraulic lash adjusters must seat themselves (otherwise the valves will crash into the pistons).*
- ◆ *After working on the valvetrain and adjusters, carefully rotate the crankshaft by hand at least 2 full revolutions before starting to be sure that the valves do not strike the pistons.*

