Adjustment of valve clearance

Commercially available tools:

- Rotation angle gauge: 8190
- Open-ended wrench SW13: 8196
- Screwdriver insert for slot head screws: 8191
- Screwdriver insert for hexagonal pins (5 mm): 8193

Special tools:

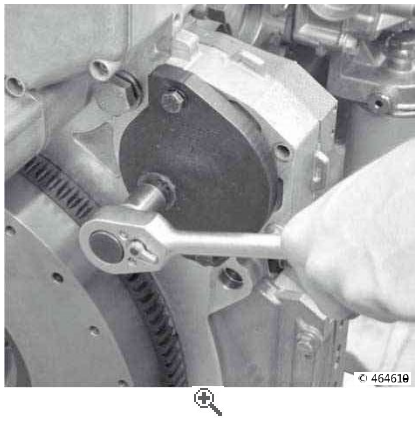
- Rotation device: 100320

NOTE

Leave the engine to cool for at least 30 minutes before adjusting valve clearance, . Engine oil temperature < 80°C.

Bring the engine to valve overlap position

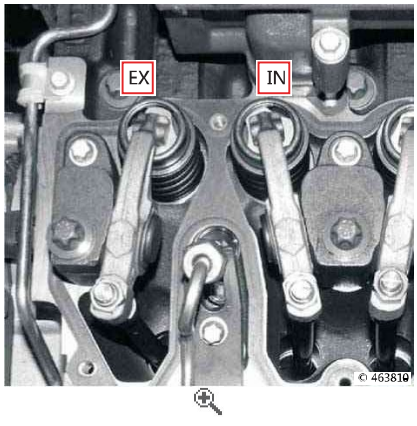
- Fit the rotation device.
  See para.
- Remove the cylinder head cover.
  See para.
- Turn the crankshaft with the rotation tool into the valve overlap position for cylinder 1.



1.

Positions of the intake and exhaust valves:

IN = intake valve. EX = exhaust valve



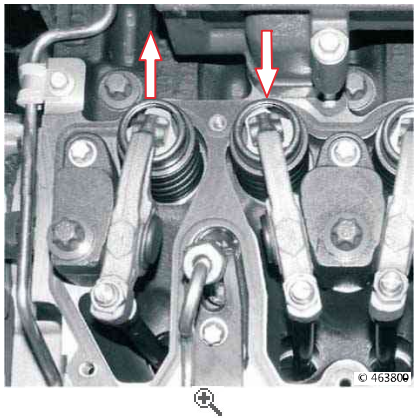
2.

4 cylinders. Firing order:

1 – 3 – 4 – 2

Valves	Cylinders			
at overlap angle	1	3	4	2
set	**4**	**2**	**1**	**3**

Valve overlap means that:



3. the intake valve starts to open and the exhaust valve starts to close.

Adjustment of the intake valve clearance

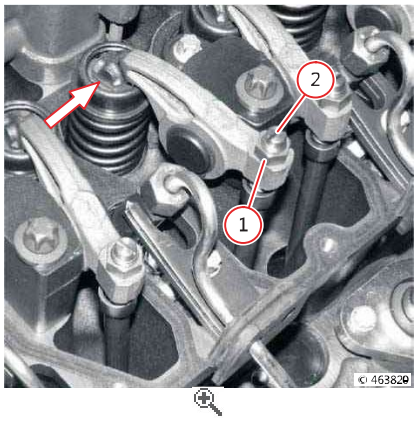
- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.

NOTE

The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance.

WARNING

Pay attention to the version of the adjustment screws (slot, hexagon, internal hexagon).

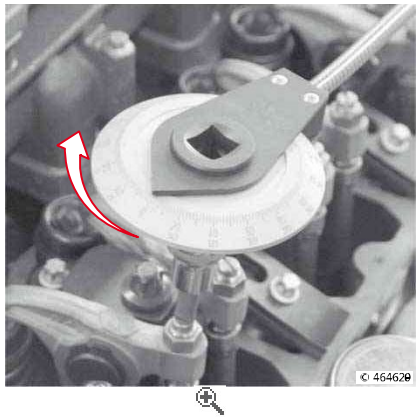


1.

- Position rotation angle disc with screwdriver insert on adjuster screw.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".

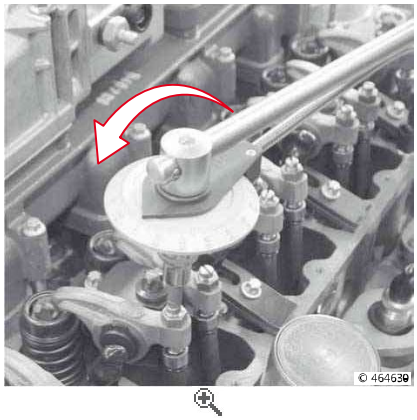
NOTE

Do not move the adjustment screw.



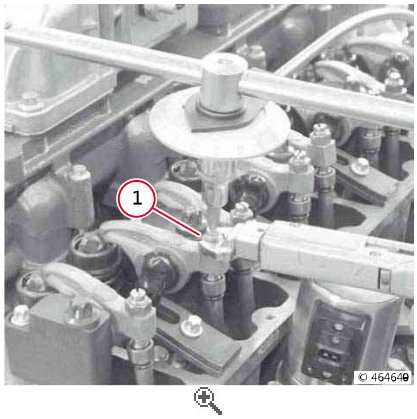
2.

- Turn the adjustment screw in the direction of the arrow.
  - Intake: 75°.



3.

- Hold the adjustment screw in this position.
- Tighten the check nut (1) using the open-ended wrench: 20 Nm.
- Remove the rotation angle gauge.

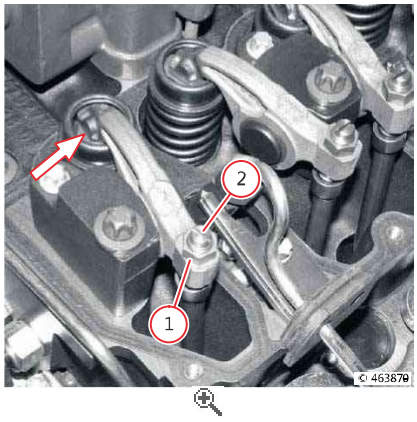


4.

Adjustment of the exhaust valve clearance

- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.

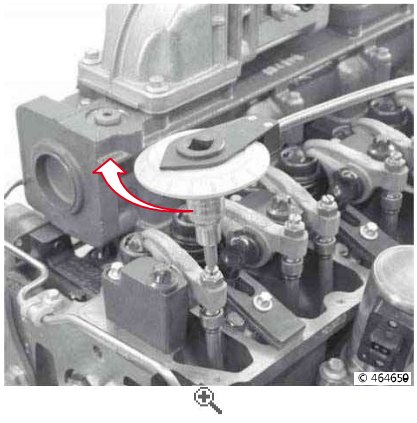
> **NOTE**
> The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance.



1.

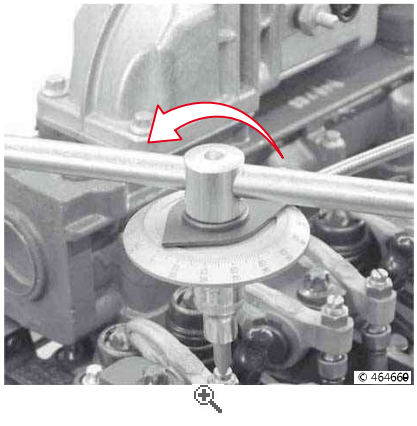
- Locate the rotation angle gauge with the slot head screwdriver insert on the adjustment screw.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".

> **NOTE**
> Do not move the adjustment screw.



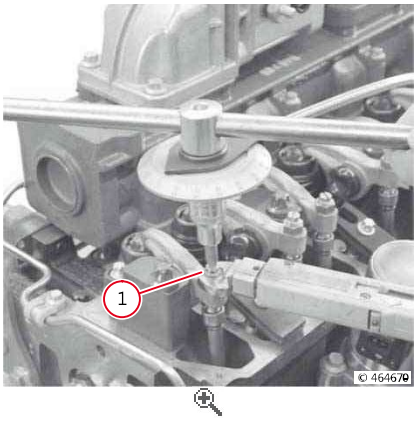
2.

- Turn the adjustment screw in the direction of the arrow.
  - Exhaust: 120°.



3.

- Hold the adjustment screw in this position.
- Tighten the check nut (1) using the open-ended wrench: 20 Nm.
- Remove the rotation angle gauge.
- Fit the cylinder head cover.
  See para.
- Remove the rotation device.
  See para.



4.

Removal and refitting of the rocker arms and pedestals

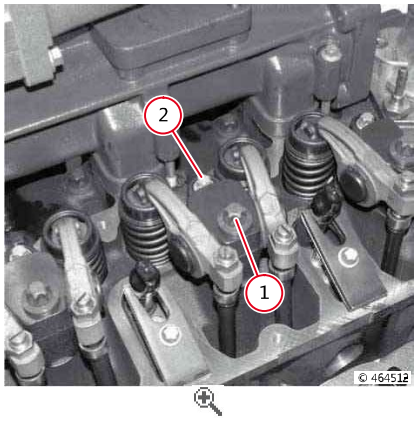
Commercially available tools:

- Box spanner insert Torx E14: 8113
- Rotation angle gauge: 8190

Removal of the rocker arms and pedestals

- Remove the cylinder head cover.
  See para.
- Undo the cylindrical head screw (1) using the socket wrench insert.
- Unscrew screw (2)
- Remove the rocker mount.

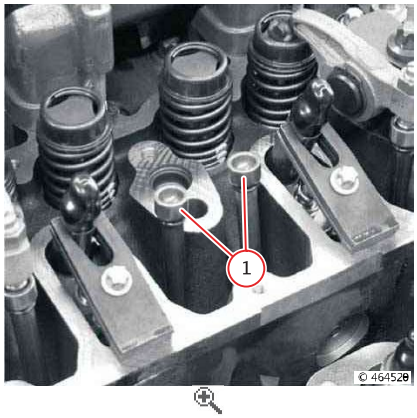
NOTE
Put the components to one side in the order in which they were removed.



1.

- Withdraw pushrods (1).

NOTE
Put the components to one side in the order in which they were removed.



2.

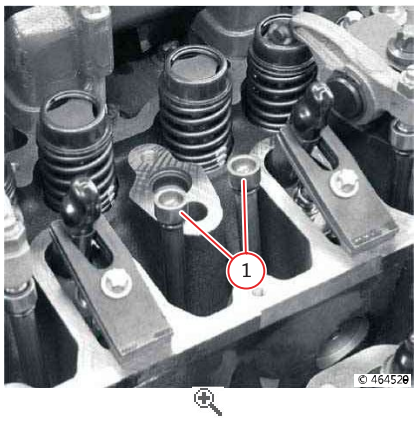
- Carry out a visual inspection of the components.

3.

Refitting the rocker arms and pedestals

- Insert pushrods (1).

NOTE
Take care to insert the pushrods in their original positions. The ball ends of the pushrods must locate in the cups of the tappets.

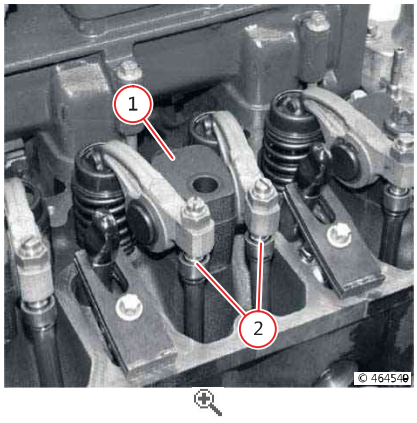


1.

- Fit rocker pedestal (1).

NOTE

The ball heads (2) must be in the pivots of the pushrods.

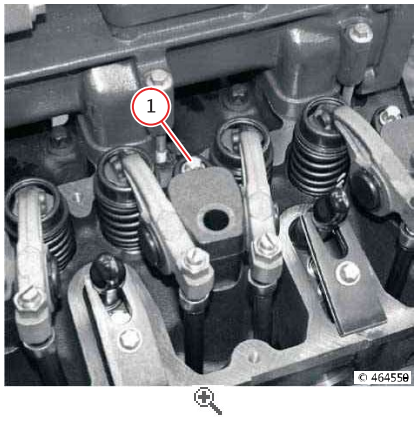


2.

- Screw in the screw (1).

NOTE

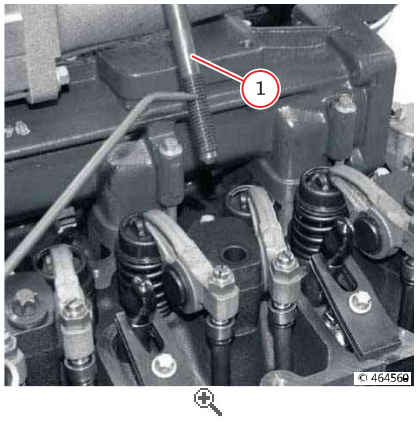
Do not tighten the screw at this stage.



3.

WARNING

In the case of written certification, the cylindrical head screws can be used a maximum of 3 times, otherwise replace them each time they are removed.



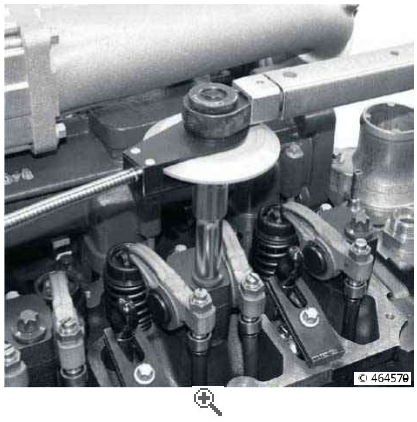
- Lightly oil the cylindrical head screw (1).
- Screw the cylindrical head screw (1).

4.

- Orient the rocker pedestals symmetrically about the axes of the valves
- Tighten the cylindrical head screws using the box spanner insert.
  - Pretightening value: 30 Nm.

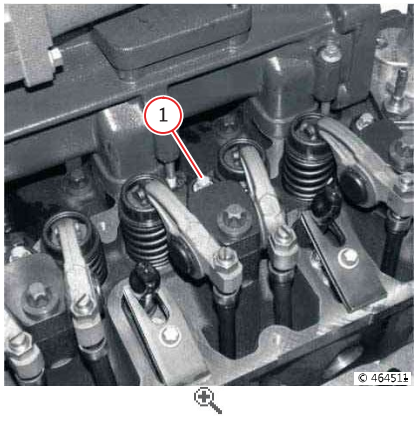
WARNING

Before tightening the screw, check that the pushrods are not under load due to valve overlap.



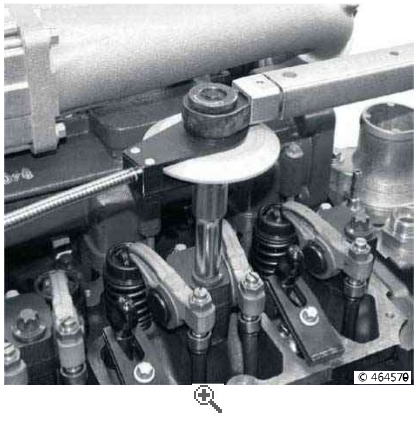
5.

- Tighten (1) the screw: 21 Nm.



6.

- Tighten the cylindrical head screws using the box spanner insert.
  - Retightening value: + 80 Nm + 90°.
- Adjust valve clearance.
  See para.



7.

Disassemble and complete the rocker and support, check

Commercially available tools:

- Internal bore meter
- Palmer
- Circlip pliers

Special tools:

- Dial gauge: 100400

Disassembly of the rocker support

- Disassemble the rocker and the support.
  See para.
- Remove the circlip with the specific plier.

1.

- Remove the rocker.

> **NOTE**
> Put the components to one side in the order in which they were removed.

2.

Rocker check

- Measure the rocker hole.
  - Exhaust: 21.02 (+0.033,- 0) mm.
  - Intake: 21.02 (+0.033,- 0) mm.

> **NOTE**
> The rocker wear limit was reached, replace it.

1.

- Unscrew the check nut (1).
- Unscrew the adjustment screw (2).

> **WARNING**

Pay attention to the version of the adjustment screws (slot, hexagon, internal hexagon).

NOTE

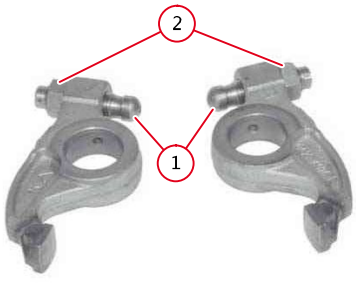
Put the components to one side in the order in which they were removed.

2.

- Visually check the wear of the components.
- Check that the oil channels (arrow) are completely free.

3.

- Tighten the adjustment screws (1).
- Tighten the check nuts (2).



4.

Check the rocker pins

- Measure the diameter of the main journals with the palmer: 21 (+0,-0.052) mm.

NOTE

The rocker support wear limit was reached, replace it.

1.

Completion of the rocker support

- Lightly oil the rocker pins.
- Push the rockers (1) on the pins.
- Push the rockers (2) on the pins.

Thank you so much for reading.

Please click the “Buy Now!” button below to download the complete manual.

After you pay.

You can download the most perfect and complete manual in the world immediately.

Our support email:

ebooklibonline@outlook.com