

11 37 010**Removing and installing/replacing
intermediate levers (N55)****Special tools required:**

- [11 4 450](#)
- [11 4 481](#)
- [11 7 110](#)

**Warning!**

Risk of injury in event of incorrect use.

Important!

Improper handling. **Risk of damage!**

**Important!**

Aluminium screws/bolts must be replaced each time they are **released**.

Aluminium screws/bolts are permitted with and without colour coding (blue).

For reliable identification:

Aluminium screws/bolts are **not magnetic**.

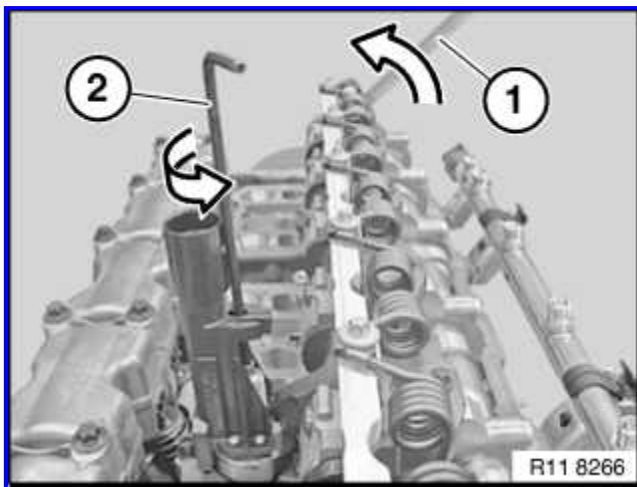
Jointing torque and angle of rotation must be observed without fail (**risk of damage**).

Necessary preliminary tasks:

- [Remove cylinder head cover.](#)
- Remove [all ignition coils and injector shafts.](#)



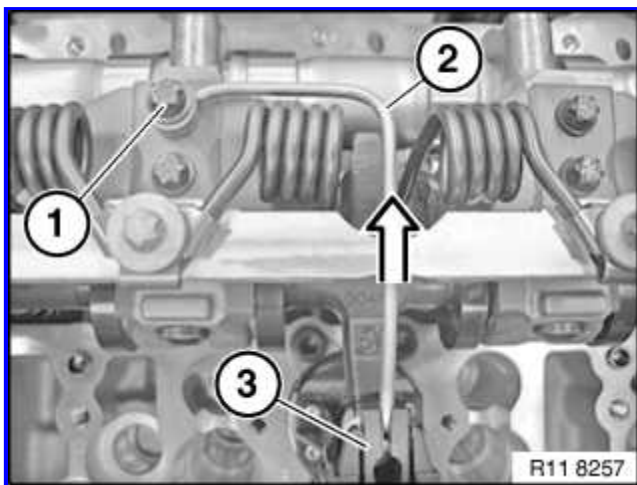
- Remove console for windscreen wiper (only E7x).



Slowly adjust eccentric shaft in direction of arrow to minimum stroke via the servomotor with a 4-mm hexagon socket wrench (2) and an open-end spanner (1).

Important!

Secure eccentric shaft with open-end spanner (1) (risk of return stroke).

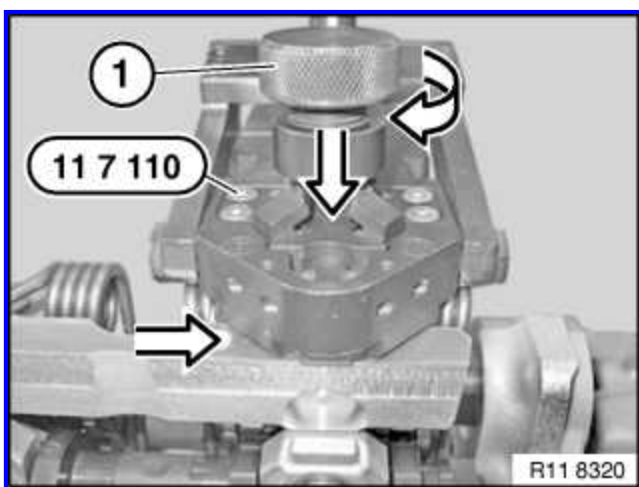
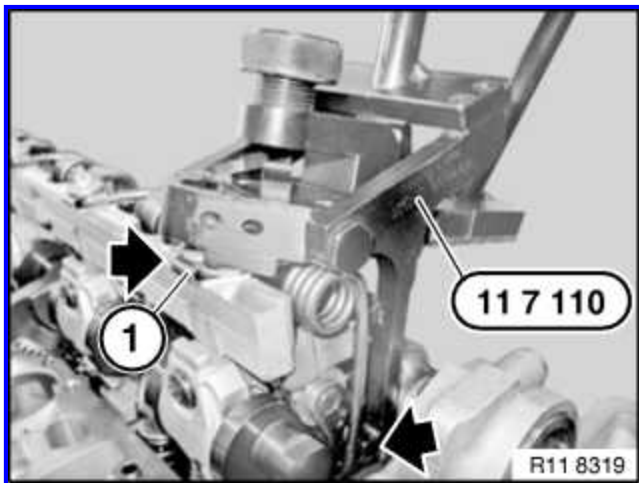


Release bolt (1) on the oil spray nozzle.

Tightening torque: [11 37 4AZ](#).

Unclip oil spray nozzle (2) from the bracket on the actuator drive (3) in direction of arrow.

Position special tool [11 7 110](#) on return spring (1) (see arrows).

**Warning!**

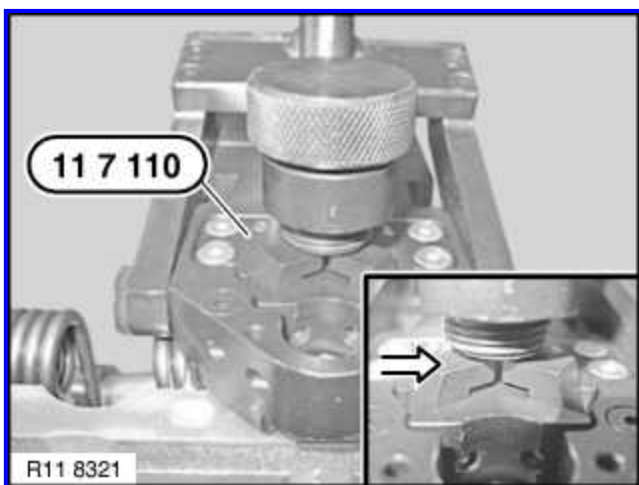
Risk of injury in event of incorrect use.

Important!

Improper handling. **Risk of damage!**

Place special tool [11 7 110](#) flat on cylinder head.

Turn knurled screw (1) in direction of arrow until both clamping levers secure return spring in gate.

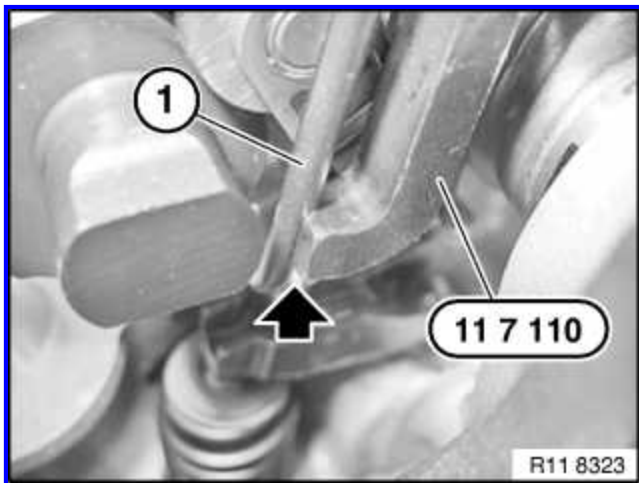


Return spring is correctly preloaded when both clamping levers are parallel to guide block.

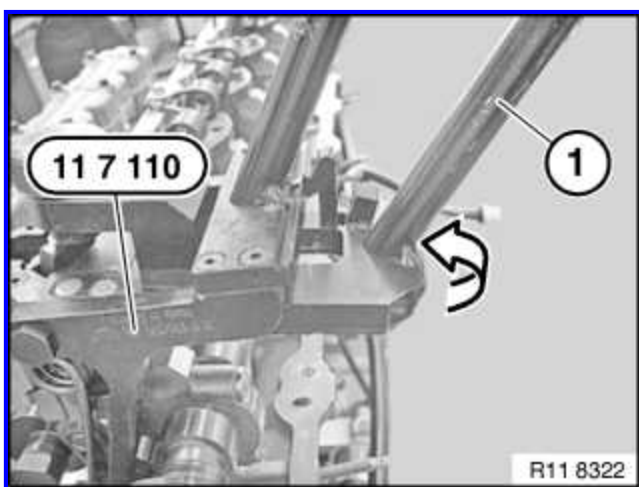
Important!

Risk of damage!

Left and right return springs (1) must be positioned in lateral guide of special tool [11 7 110](#).



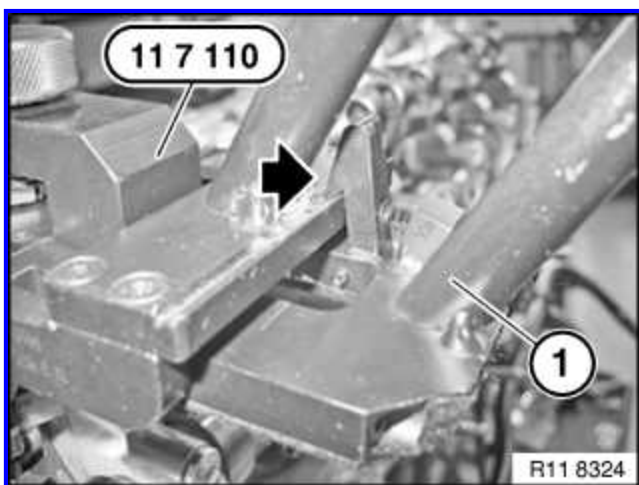
Preload return spring with lever (1) on special tool [11 7 110](#) in direction of arrow.



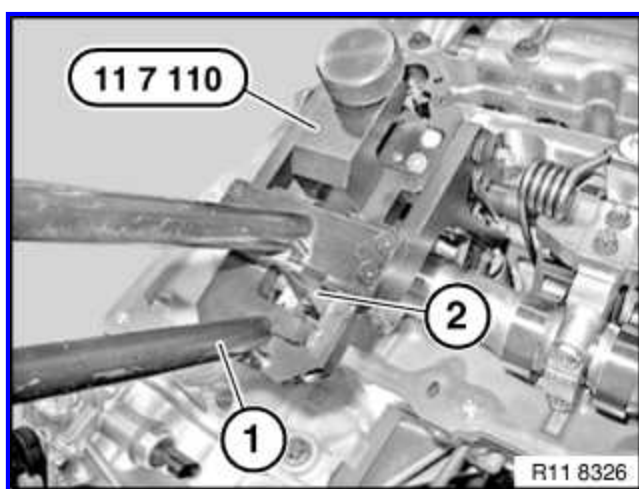
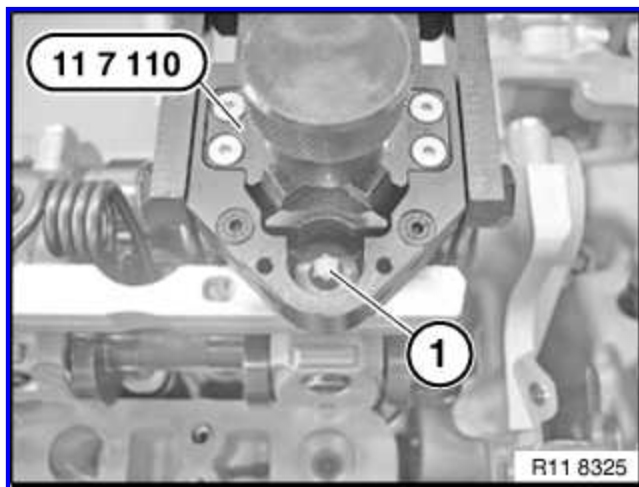
Lock special tool 11 7 110 with latching hook on lever (1).

Important!

Screw connection on return spring can first be released with secured special tool [11 7 110](#).



Release screw (1).



Warning!

Risk of injury in event of incorrect use.

Lever (1) is preloaded.

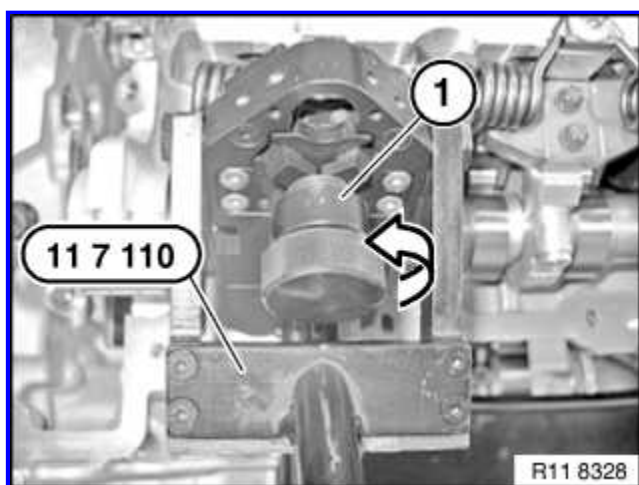
Important!

Improper handling. **Risk of damage!**

Secure lever (1).

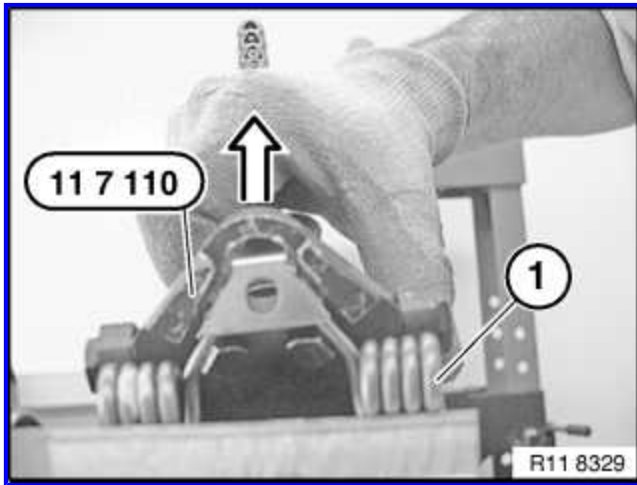
Press back latching hook (2).

Return spring tension can now be released.



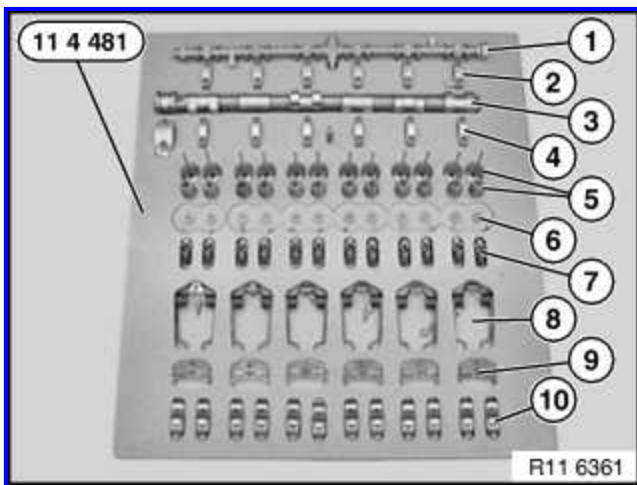
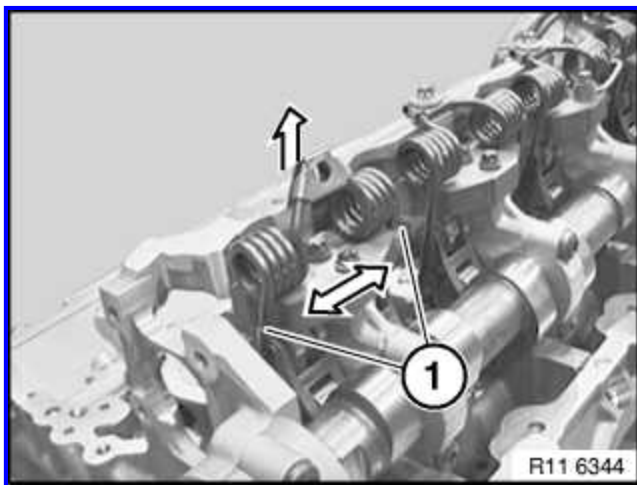
Release knurled screw (1) on special tool [11 7 110](#) in direction of arrow.

Release special tool [11 7 110](#) in direction of arrow from return spring (1).



Press return spring (1) apart.

Remove return spring (1) upward.



Important!

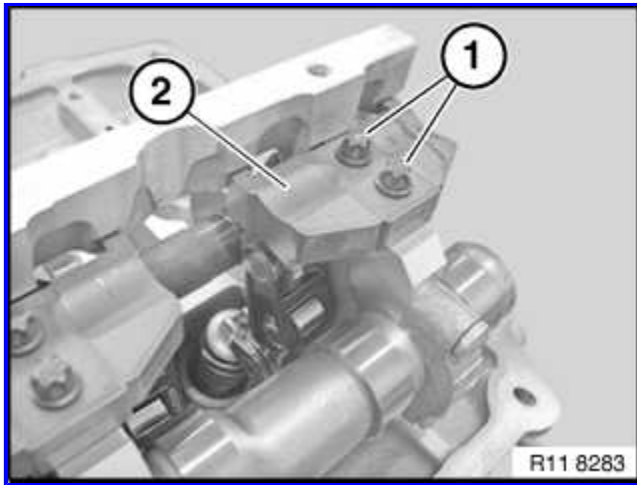
Uniform distribution must **not** be changed.

Place all components in clean and orderly condition in special tool [11 4 481](#).

All components must be reinstalled in the same positions in an engine which has already been in use.

- 1 Eccentric shaft with bearing
- 2 Bearing caps of eccentric shaft (set out in order)
- 3 Intake camshaft
- 4 Bearing caps of intake camshaft (set out in order)
- 5 Intake valves with valve springs
- 6 Valve heads and valve keys
- 7 Rocker arms with hydraulic valve clearance compensating elements (in neat order).
- 8 Return springs.
- 9 Gates (set out in order)

10 Intermediate levers (set out in order)



Release screws (1) on gate (2).

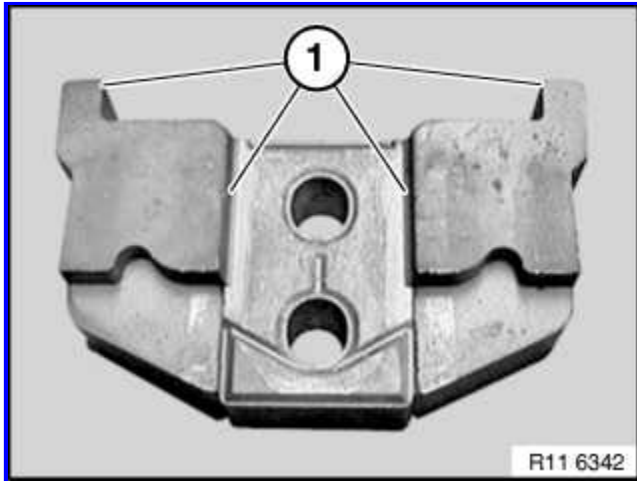
Tightening torque [11 37 1AZ](#).

Place all gates (2) in neat order in special tool [11 4 481](#).

Installation note:

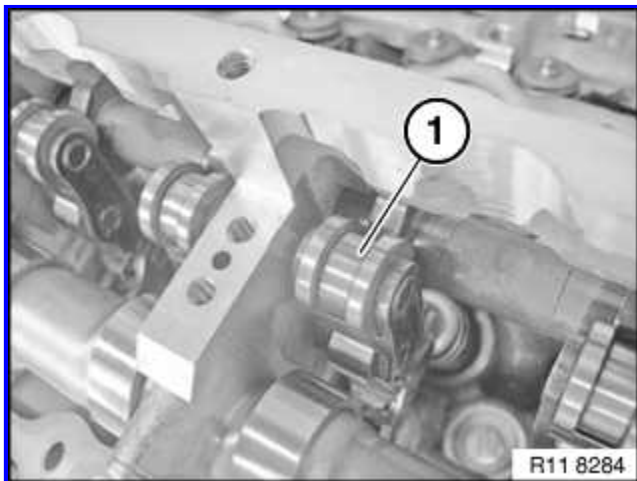
Mixing up the gates (2) will cause the engine to suffer idle-speed fluctuations.

This will result in maladjustment of uniform distribution.



Installation note:

All contact surfaces (1) of gates must be clean and free from oil and grease. If necessary, clean contact surfaces (1).



Lift out intermediate levers (1).

Place all intermediate levers (1) in neat order in special tool [11 4 481](#).

Installation note:

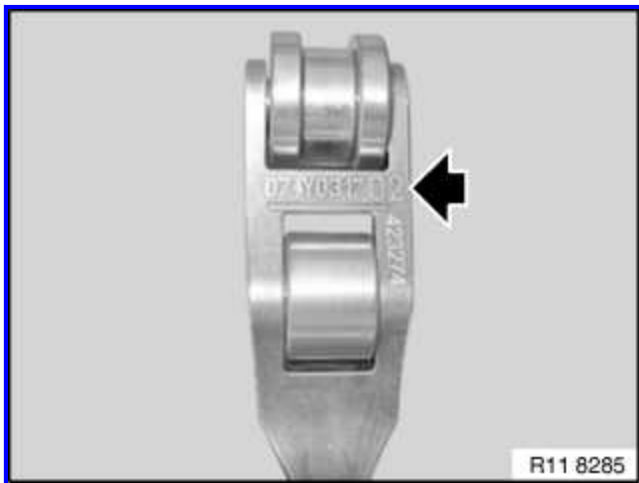
Mixing up the intermediate levers (1) will cause the engine to suffer idle-speed fluctuations.

Installation note:

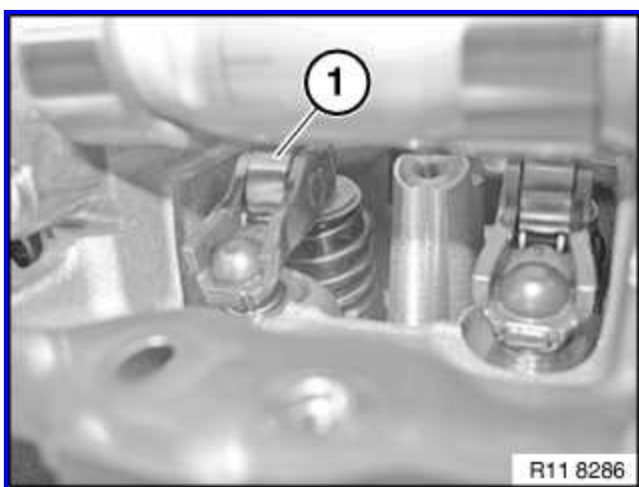
All contact surfaces must be clean and free of oil and grease. If necessary, clean contact surfaces.

All intermediate levers are classified.

All intermediate levers must be reinstalled in the same positions in an engine which has already been in use.



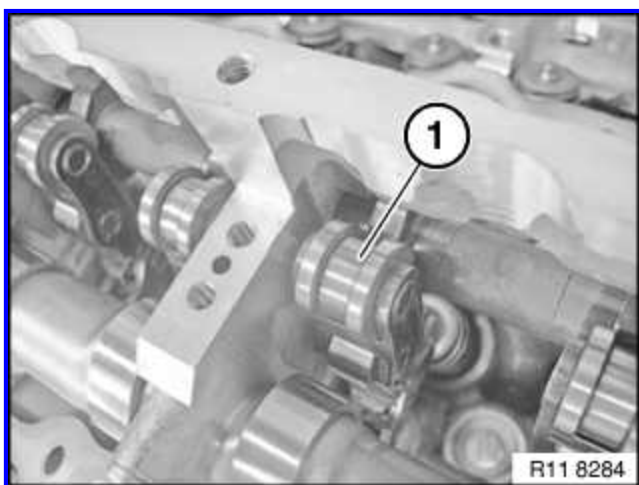
Intermediate levers are classified from 1 to 5.



Important!

Before installing intermediate levers (1), make sure rocker arms are correctly positioned.

Risk of damage!



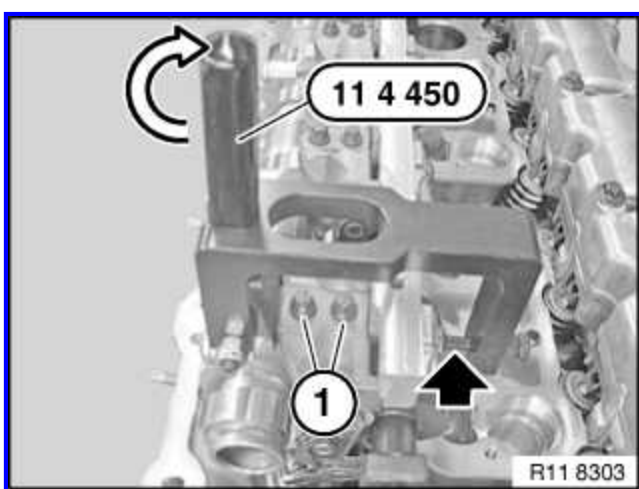
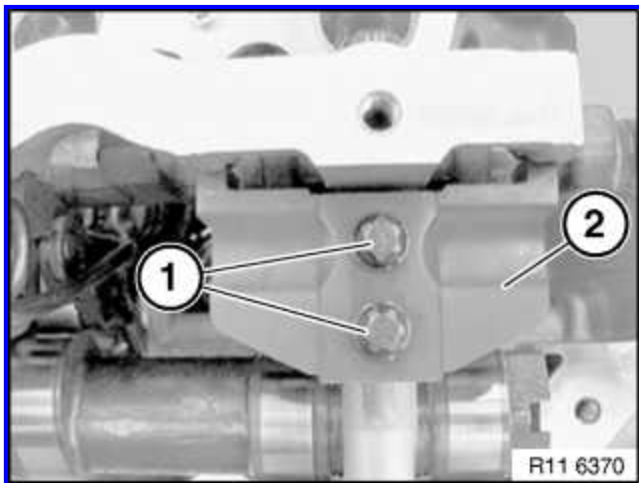
Install intermediate levers (1).

Fit gate (2) cleanly into recess.

Tighten screws (1) hand-tight.

Check that intermediate levers are in correct installation position.

Release screws (1) by a 1/4 turn.



Secure special tool [11 4 450](#) on screw connection (1) of eccentric shaft and set adjusting screw on special tool [11 4 450](#) if necessary.

Turn eccentric lever on special tool [11 4 450](#) in direction of arrow.

Gate is now preloaded.

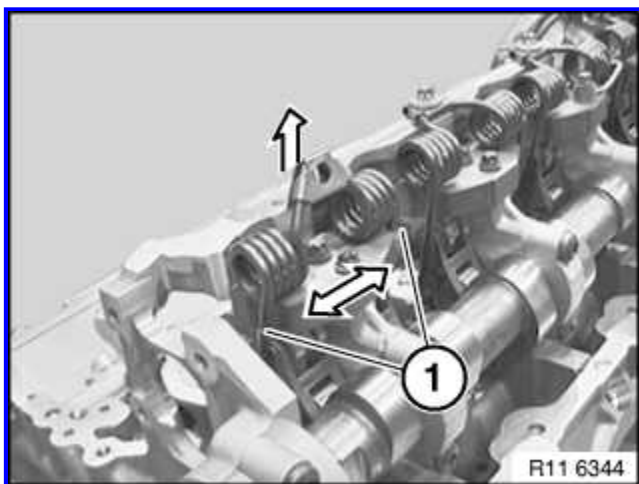
Insert screws (1) of gates.

Tightening torque [11 37 1AZ](#).

Installation note:

At cylinder no. 3, the gate can be pre-installed with one screw (internal) only.

Oil spray nozzle is fitted only after return spring has been installed.

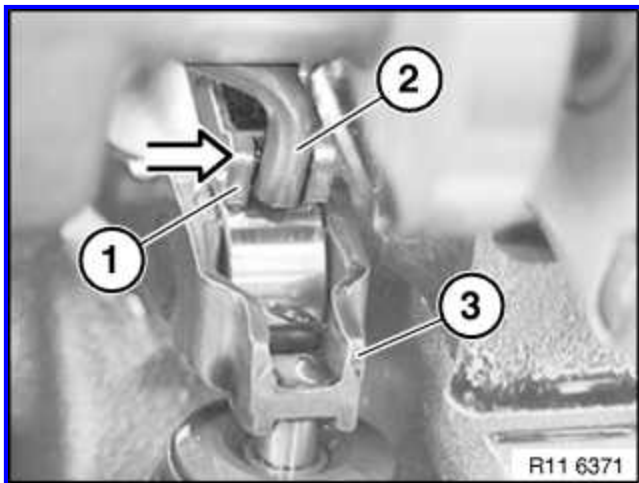


Press return spring (1) apart.

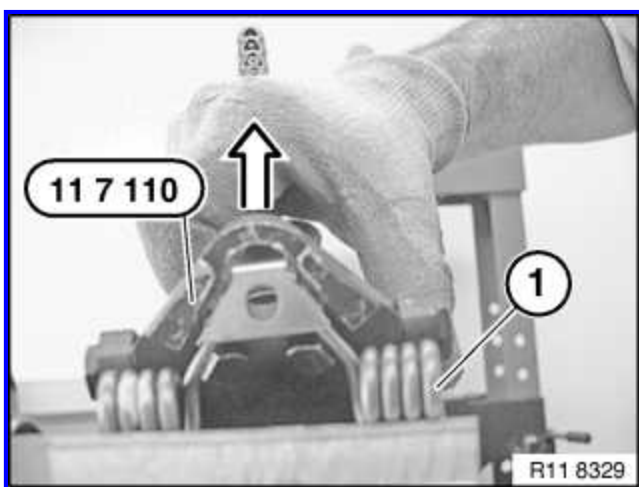
Install return spring (1).

Install return spring (2) on gate.

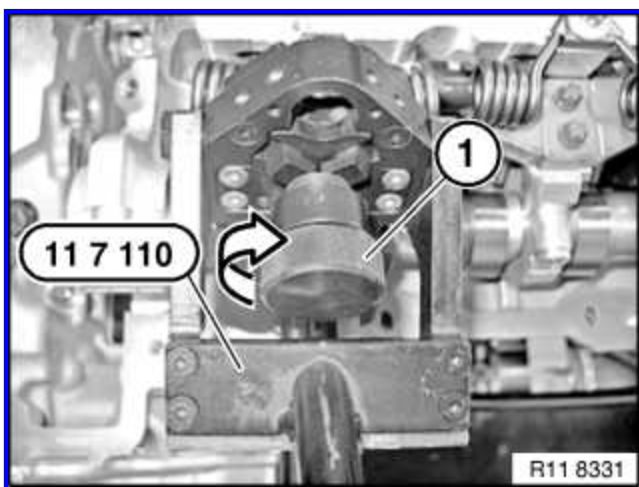
Installation note:



Insert return spring (2) in intermediate lever (1) (see arrow).
Check that rocker arm (3) is in correct installation position.

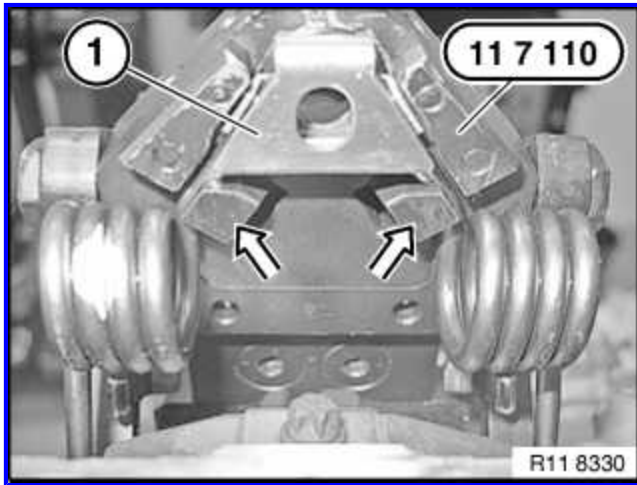


Position special tool [11 7 110](#) on return spring.



Clamp return spring with knurled screw (1) in direction of arrow.

Return spring (1) is positioned correctly when latching hooks surround return spring (1).

**Warning!**

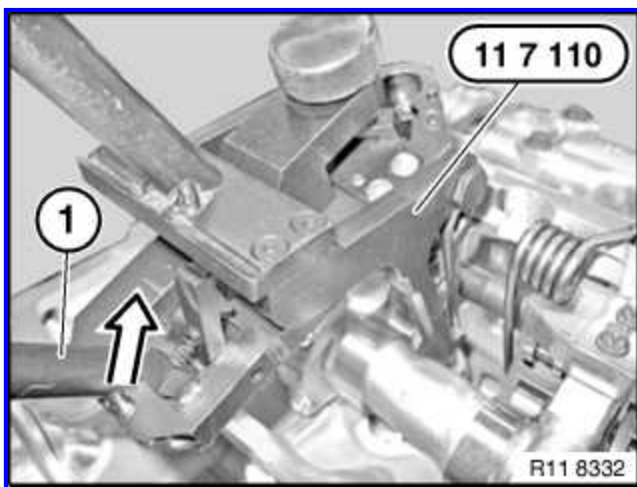
Risk of injury in event of incorrect use.

Important!

Improper handling. **Risk of damage!**

Check return spring on intermediate lever to ensure correct installation position.

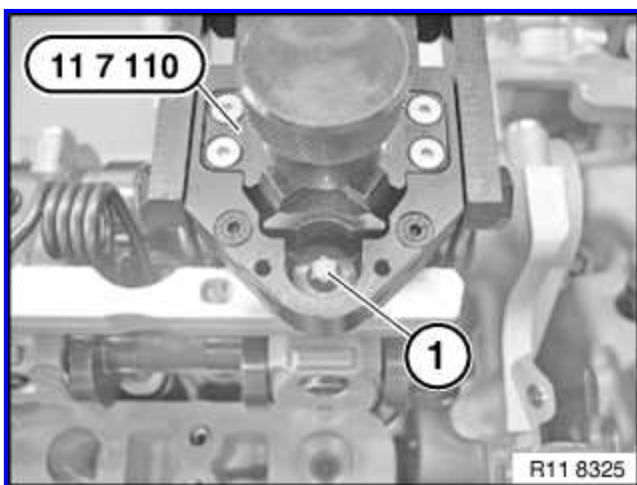
Press special tool [11 7 110](#) to stop in direction of arrow.

**Important!**

Pay attention to thread on cylinder head. **Risk of damage!**

Tighten bolt (1).

Tightening torque [11 37 2AZ](#).

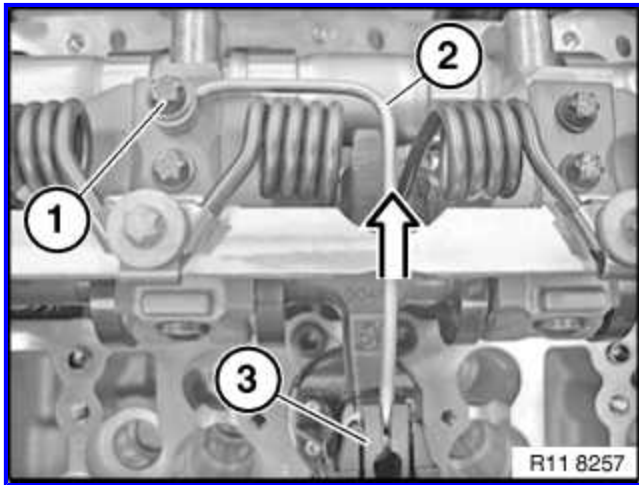


Retract oil spray nozzle (2) on actuator drive (3).

Engage bolt (1) and release back to 90°.

For exact positioning of the oil spray nozzle (2) audibly clip it in at the top.

Tightening torque [11 37 4AZ](#).



Assemble engine.