

11 31 028

**Removing and installing / replacing
exhaust camshaft (N55)****Special tools required:**

- [00 9 120](#)
- [11 4 350](#)
- [11 4 461](#)
- [11 7 100](#)
- [11 8 550](#)
- [11 8 552](#)
- [11 8 553](#)
- [11 9 000](#)

**Important!**

It is absolutely essential to follow an exact procedure for removing and installing the exhaust camshaft.

Risk of damage!

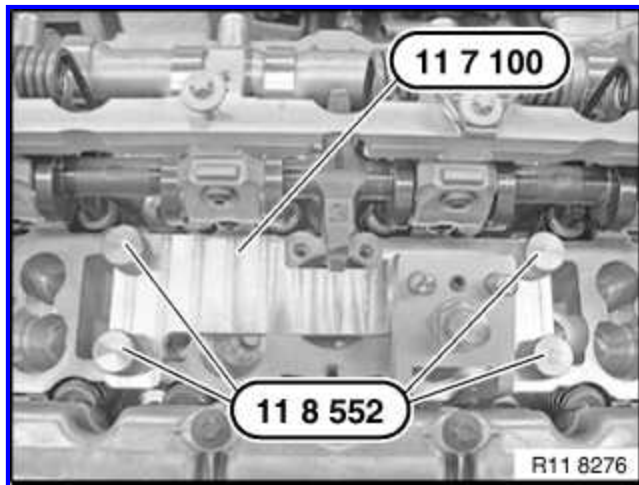
The upper and lower bearing strips must be preloaded with a total of six special tools [11 8 550](#).

**Necessary preliminary tasks:**

- Remove [cylinder head cover](#).
- Remove [all ignition coils and injector shafts](#).
- Remove [exhaust camshaft adjuster](#)
- Adjust [valve timing](#).

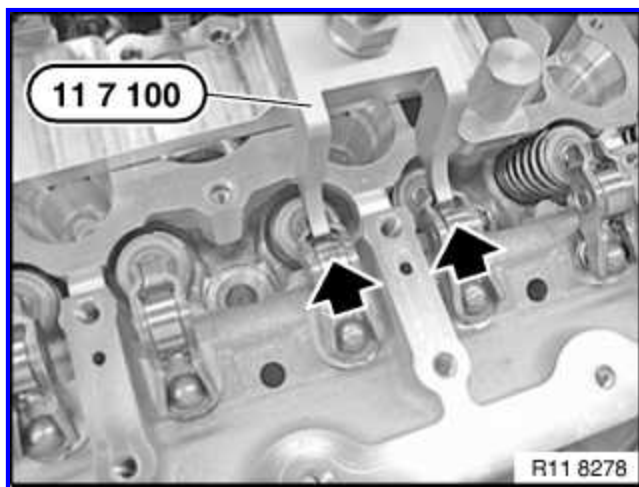
Position special tool [11 7 100](#) on cylinder 2.

Hand-tighten special tool [11 7 100](#) with special tool [11 8 552](#).

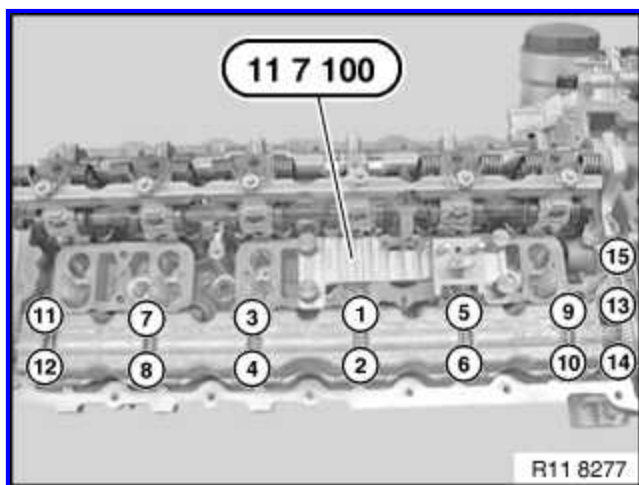


Note:

Graphic without bearing strip.



Screw in roller cam follower at 2nd cylinder using spindle nut of special tool [11 7 100](#) to end stop.



Release screw connection on bearing strip in sequence from 15 to 1.

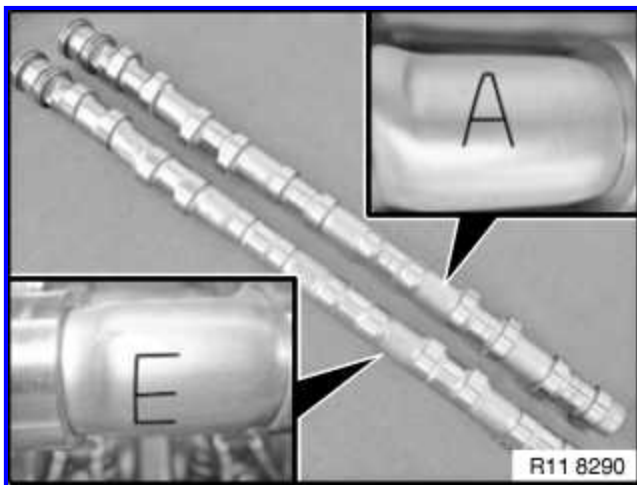
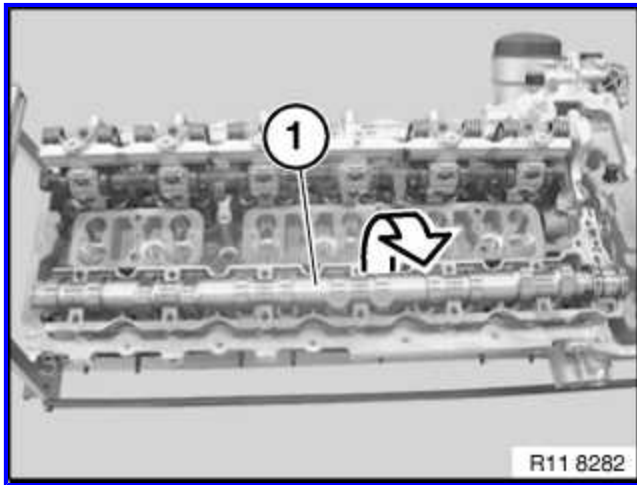
Remove upper bearing strip (1).

Note:

The upper and lower bearing strips (1) can also be lifted out completely with exhaust camshaft.

Remove exhaust camshaft (1) from bearing strip in direction of arrow.

Set down exhaust camshaft (1) on special tool.



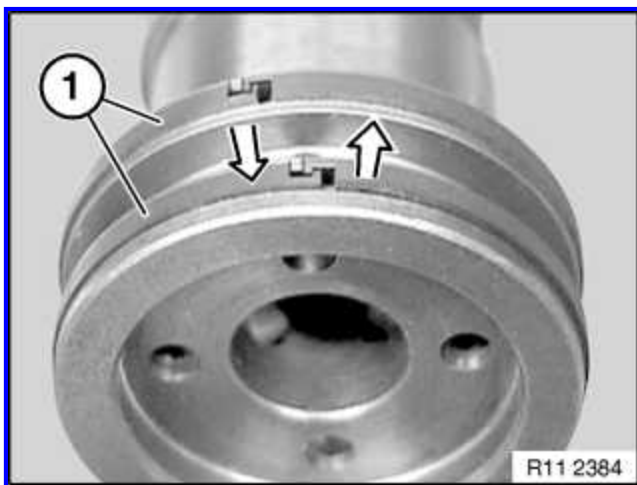
Important!

Marks of intake and exhaust camshafts are different.

Mixing up the intake and exhaust camshaft will result in **engine damage**.

A = Exhaust camshaft.

E = Intake camshaft



Metal plain rectangular compression ring:

Important!

Plain rectangular compression rings (1) can easily break.

Only replace plain rectangular compression rings (1) when they are broken.

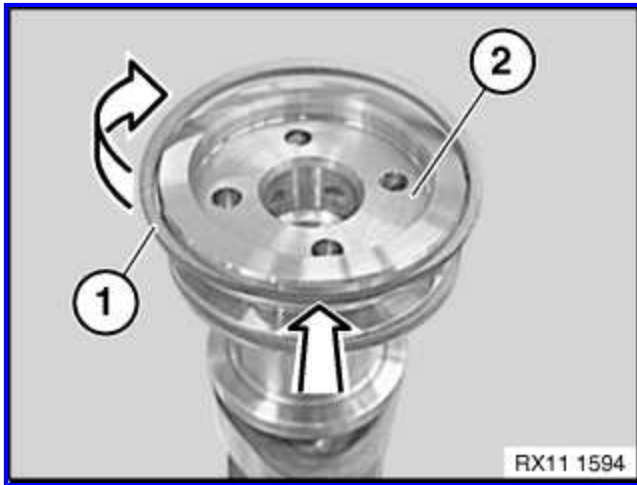
The plain rectangular compression rings have catches at the joint.

Press plain rectangular compression rings (1) apart upwards and downwards and removed towards front.

Make sure plain rectangular compression rings (1) can move freely.

Installation note:

When exhaust camshafts are inserted, no joint must point to a separating joint.



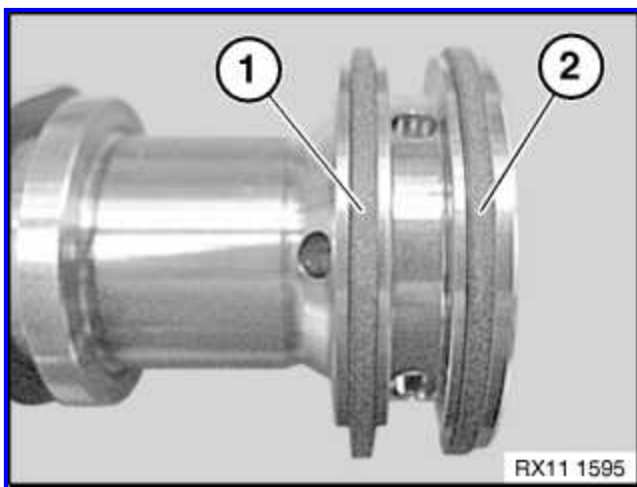
Plastic plain rectangular compression ring:

Installation note:

The plastic plain rectangular compression ring is maintenance free and does not have to be replaced.

Insert plastic rectangular compression ring (1) into groove of exhaust camshaft (2) (see arrow).

Lightly oil plastic rectangular compression ring (1) and rotate in direction of arrow until compression ring (1) is positioned on the exhaust camshaft.



Check plastic plain rectangular compression ring (1 and 2) for freedom of movement.

Important!

Removal on engine:

Set engine to ignition TDC at cylinder No. 1.

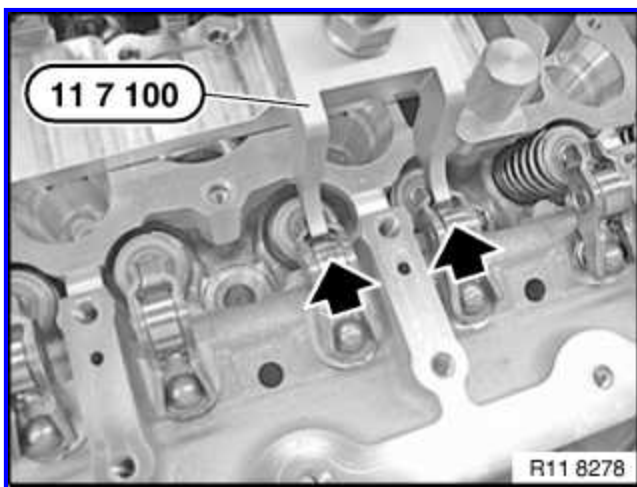
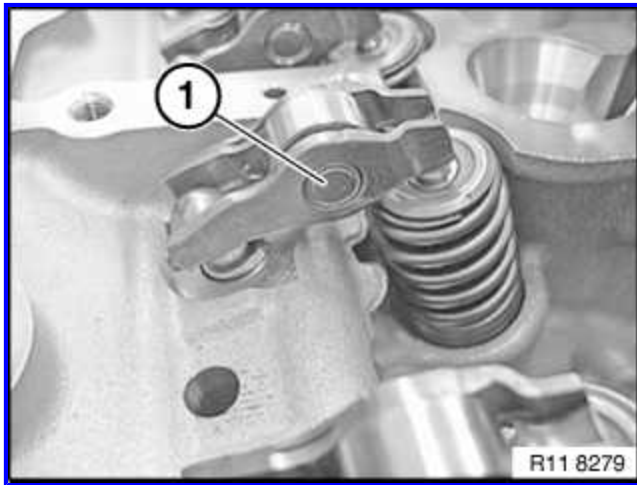
Removed cylinder head:

When using special tool [11 9 000](#), it will be necessary to remove the aluminium strip.

Installation note:

Before mounting the exhaust camshaft, ensure the correct fit of the rocker arm (1) on the hydraulic valve clearance compensating element and the valve.

See "Removing and installing/replacing all [roller cam followers](#)".



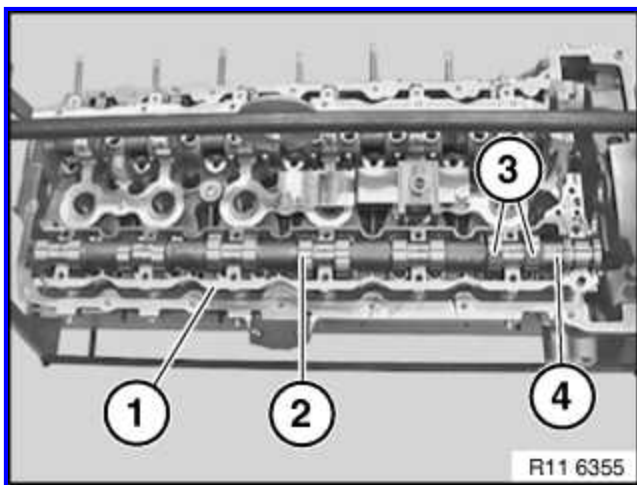
Mounting bearing strip:

Pre-install special tool [11 7 100](#) on cylinder no. 2.

Important!

Special tool [11 8 552](#) is a special screw.

Press down rocker arms (3) on cylinder no. 2 with spindle nut (2) of special tool [11 7 100](#).



Position lower bearing strip (1) with exhaust camshaft (2) on rocker arms.

Align exhaust camshaft (2).

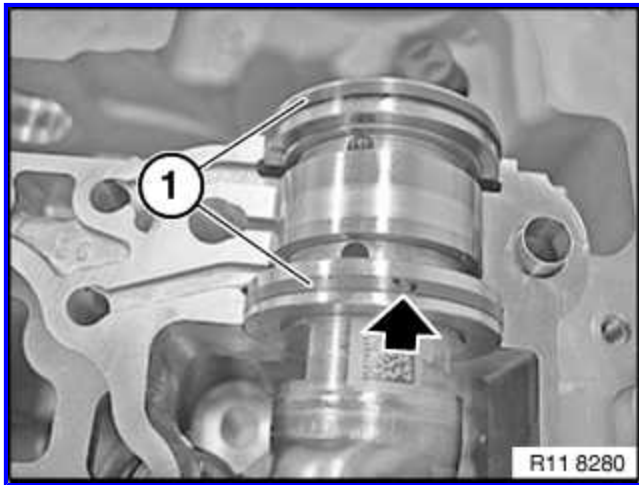
Cylinder nos. 2 and 4 are at valve overlap.

Cams (3) on cylinder no. 1 point upwards at an angle.

Part number (4) on mounting flats of exhaust camshaft (2) points upwards.

Insert exhaust camshaft so that none of the latching mechanisms for the plain rectangular compression rings (1) point to a bearing cap joint.

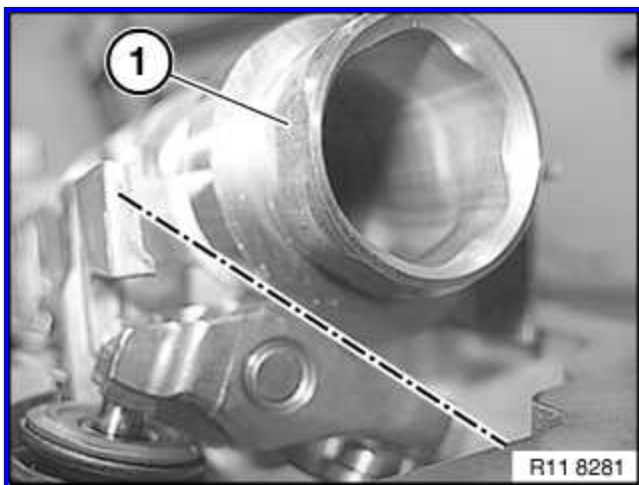
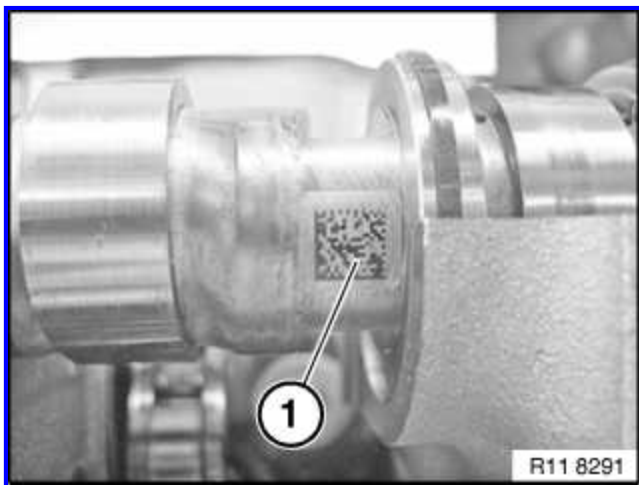
Centre latch mechanism of the plain rectangular compression rings with the bearing cap.



Insert exhaust camshaft so that the data code (1) on the mounting flats faces up.

Note:

Graphic of intake camshaft.



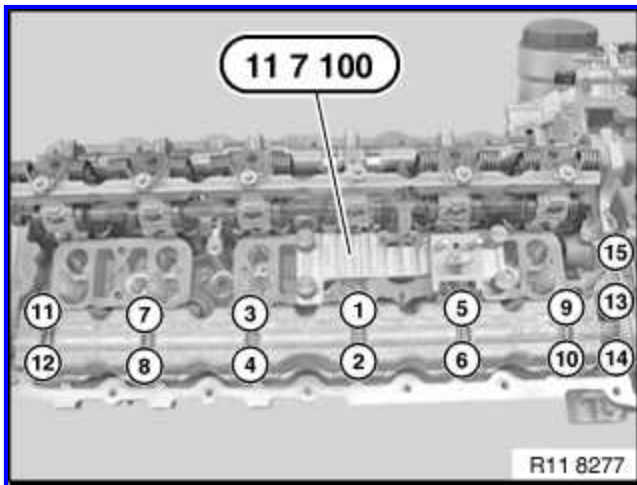
The cam (1) at cylinder 6 points downward at an angle.

Important!

There must be no oil residues in the cylinder head threaded holes.

Clean threaded holes.

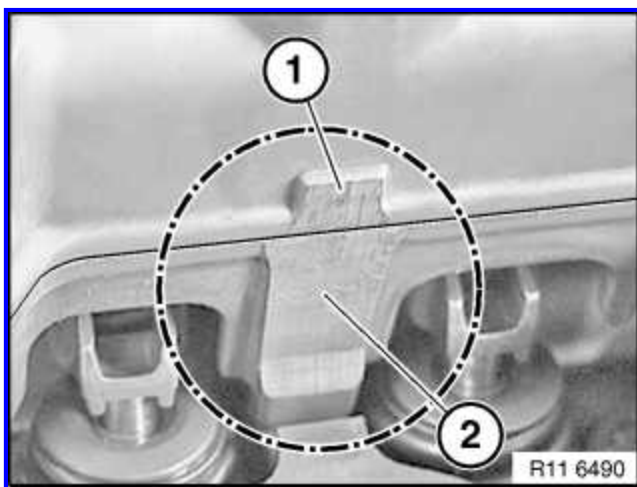
Fit upper bearing strip (1).



Insert bolts dry.

Join exhaust camshaft to lower and upper bearing strips (1) with torque wrench (2) to **8 Nm** in sequential order from 1 to 15.

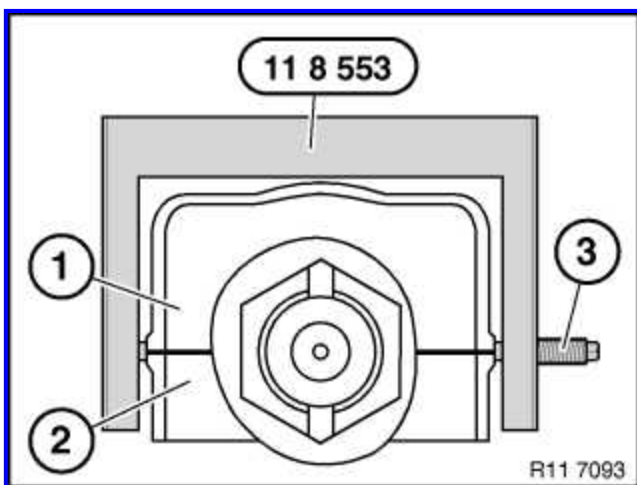
Release all screws of upper bearing strip (1) from outside inwards by 90°.



Installation note:

Upper and lower bearing strips must be aligned to each other at ground surfaces (1 and 2).

Make sure that the synchronising key and the shanks of special tools [11 4 461](#) rest on the milled surfaces.



Note:

Schematic diagram of special tool [11 8 553](#) at upper bearing strip (1) and lower bearing strip (2).

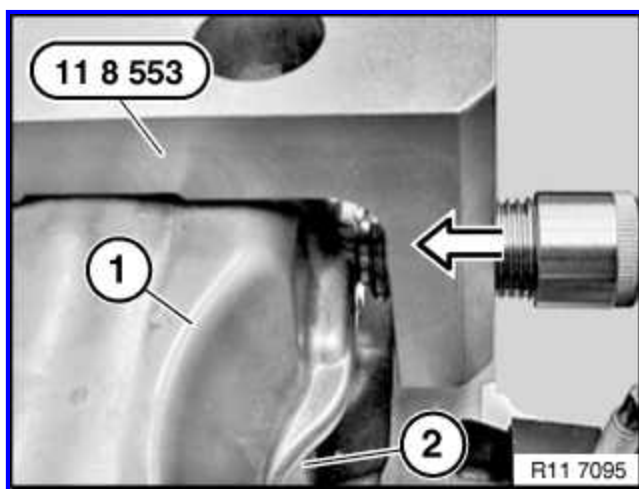
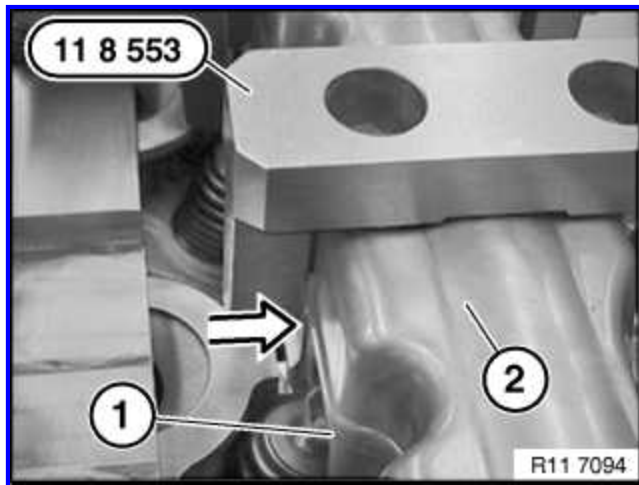
Preload all special tools [11 8 553](#) with special tool [11 4 350](#) only.

Important!

Tighten screw (3) on synchronising key to 2 Nm. **Risk of damage!**

Position special tool [11 8 553](#) over screw connection of bearing strips.

Make sure that the shanks rest exactly on the ground surfaces of the upper bearing strip (2) and lower bearing strip (1).



Initially tighten screw of special tool [11 8 553](#) to ground surfaces of upper bearing strip (1) and lower bearing strip (2).

Important!

Tighten screws on synchronising key to 2 Nm. **Risk of damage!**



Important!

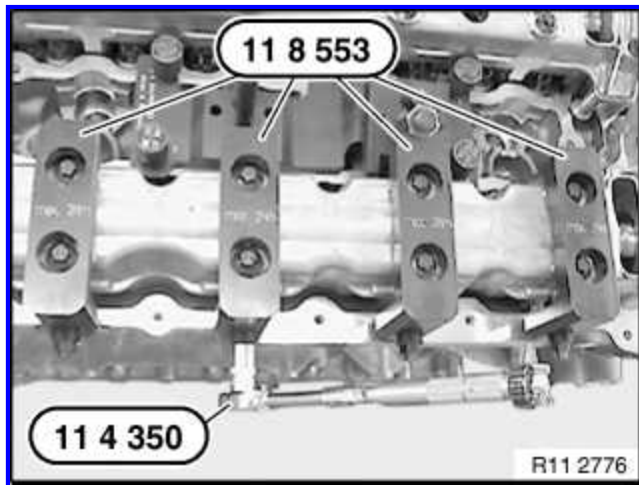
Set special tool [11 8 553](#) to 2 Nm.

Preload all special tools [11 8 553](#) with special tool [11 4 350](#) only.

Mount special tools [11 8 553](#) to inside of cylinder head with pressure bolt.

Mount special tool [11 8 553](#) on cylinder no. 2 with pressure bolt facing outward.

Position special tools [11 8 553](#) so that screw connections (2) of bearing strip are easily accessible.

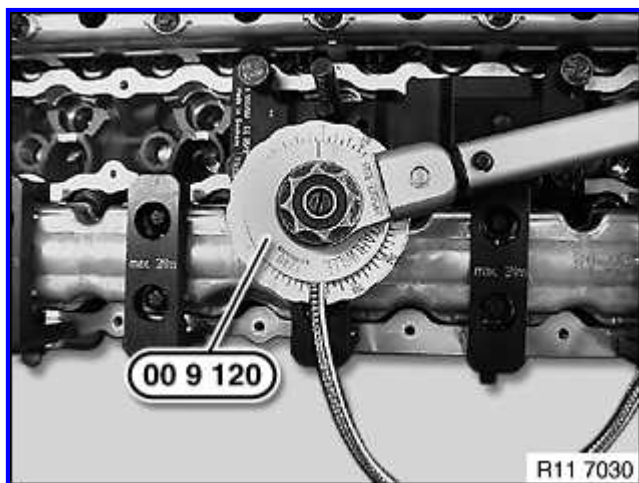


Tighten top and bottom bearing strip with special tool [00 9 120](#).

Tightening torque [11 31 1AZ](#).

Important!

Remove special tool [11 8 553](#) only when exhaust camshaft screw connection is completed.



Assemble engine.