

11 21 505**Sealing crankcase lower section (N55)****Special tools required:**

- [00 9 120](#)
- [11 0 300](#)
- [11 4 180](#)
- [11 4 370](#)
- [11 4 470](#)
- [11 8 181](#)
- [11 8 220](#)
- [11 8 640](#)
- [11 9 181](#)
- [11 9 182](#)
- [11 9 183](#)
- [11 9 184](#)
- [11 9 185](#)
- [11 9 231](#)
- [11 9 233](#)
- [11 9 234](#)
- [11 9 235](#)
- [11 9 260](#)
- [11 9 360](#)

**Important!****Aluminium-magnesium materials.**

No steel screws/bolts may be used due to the threat of electrochemical corrosion.

A magnesium crankcase requires aluminium screws/bolts exclusively.

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**.

Risk of damage!

Joining torque and angle of rotation must be observed without fail.

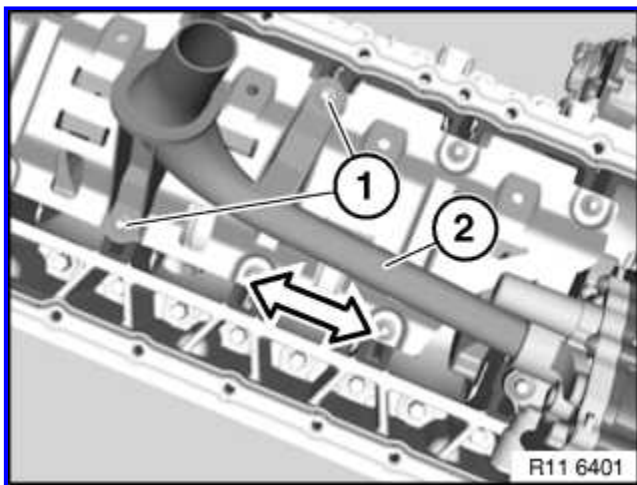
**Important!**

Changed procedure.

It is not necessary to remove the cylinder head and the crankshaft.

*Necessary preliminary tasks:*

- Remove [engine](#).
- [Mount engine on assembly stand](#).
- Remove clutch (if fitted).
- Remove [engine support arm](#) on left and right.
- Remove [oil sump](#).

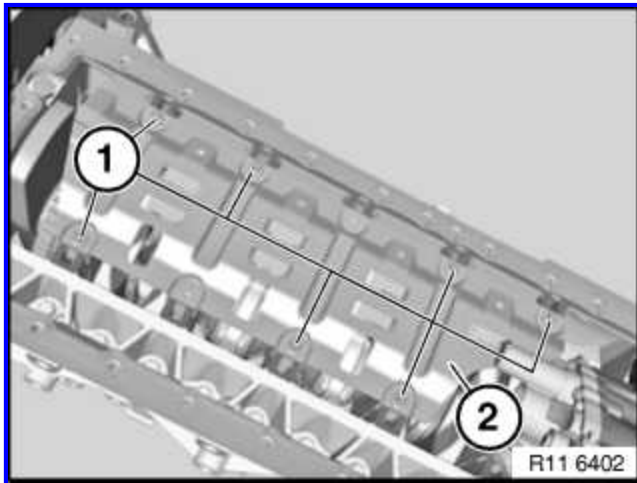


Release screws (1).

Pull out oil pump intake pipe (2).

Tightening torque: 11 13

Release screws (1).

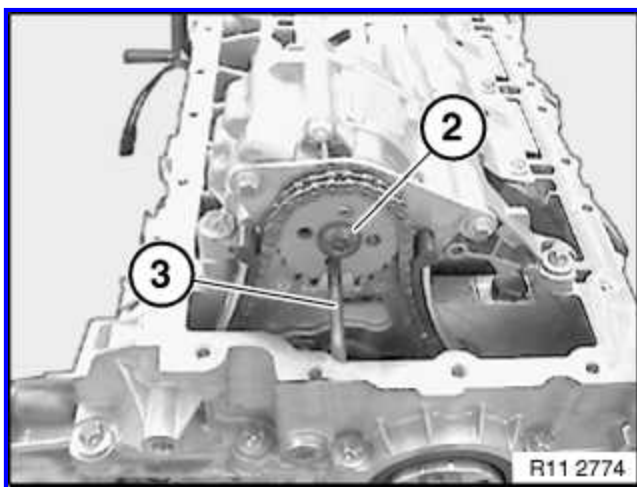


Tightening torque: [11 13 5AZ](#).

Installation note:

Replace aluminium screws.

Remove oil deflector (2).



Secure oil pump drive gear with 6.0 mm dia. steel pin (3) to oil pump.

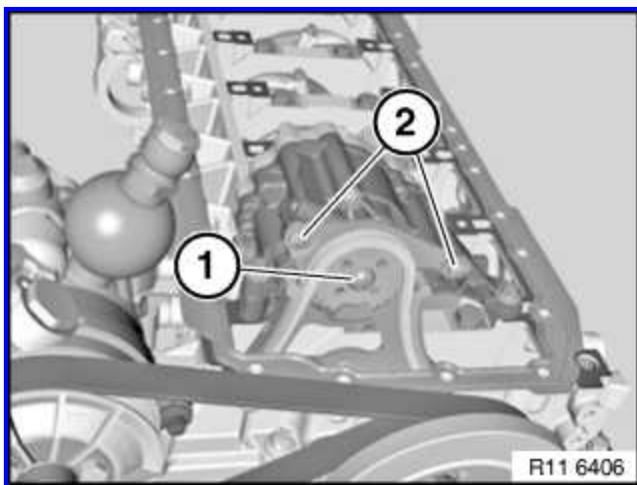
Important!

Release central bolt (2) only together with 6.0 mm dia. steel pin (3).

Do not remove sprocket.

Release central bolt (2).

Tightening torque: [11 41 5AZ](#).



Unfasten screws (2).

Tightening torque: [11 41 3AZ](#).

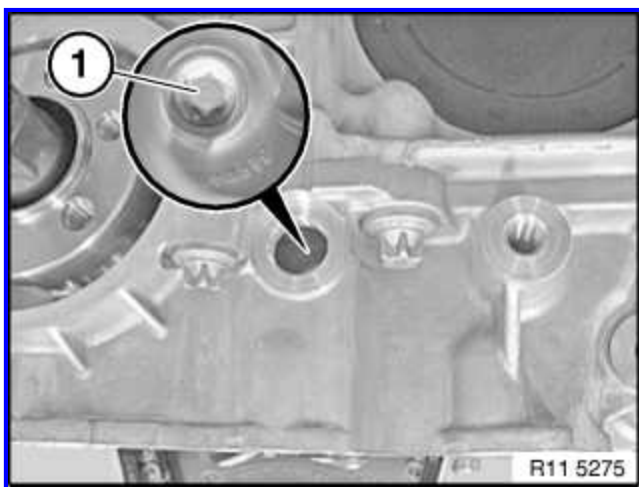
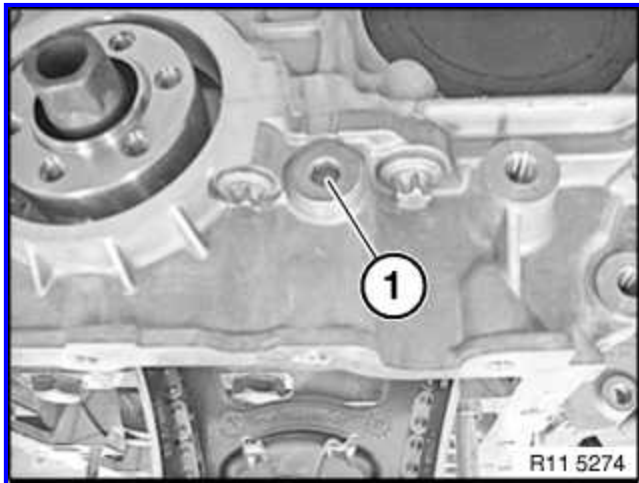
Installation note:

Replace aluminium screws.

Remove screw plug (1) from crankcase at front.

Note:

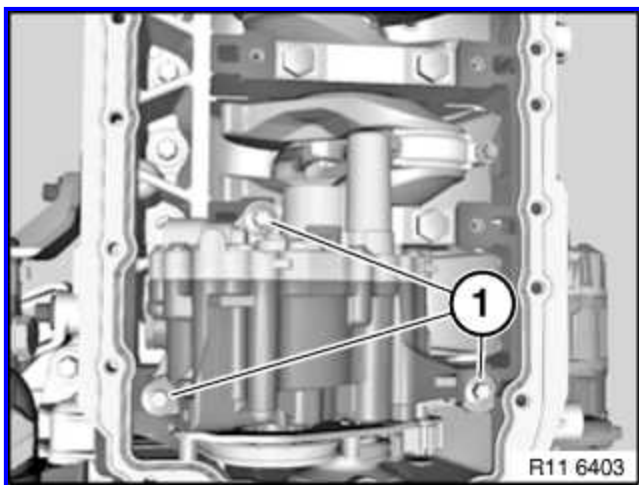
Replace gasket.



Release screw (1) for oil pump triangular drive with special tool [11 8 640](#).

Note:

It is not necessary to remove the triangular drive.



Version 1:

Attention!

Observe different screw lengths.

Release screws (1).

Tightening torque [11 41 2AZ](#).

Tightening torque [11 41 2AZ](#).

Installation note:

Replace aluminium screws.

Version 2:

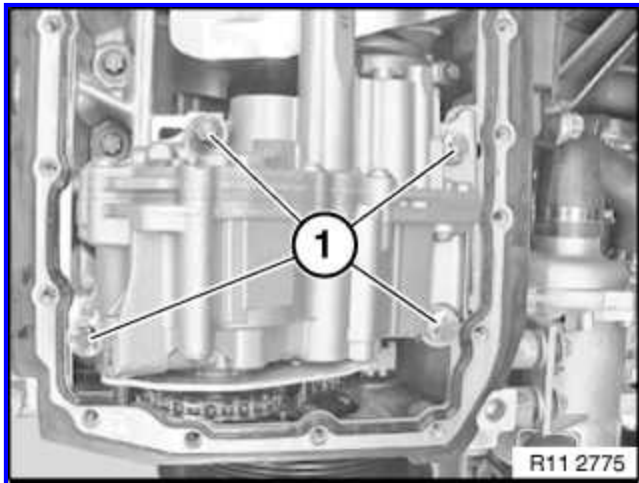
Attention!

Observe different screw lengths.

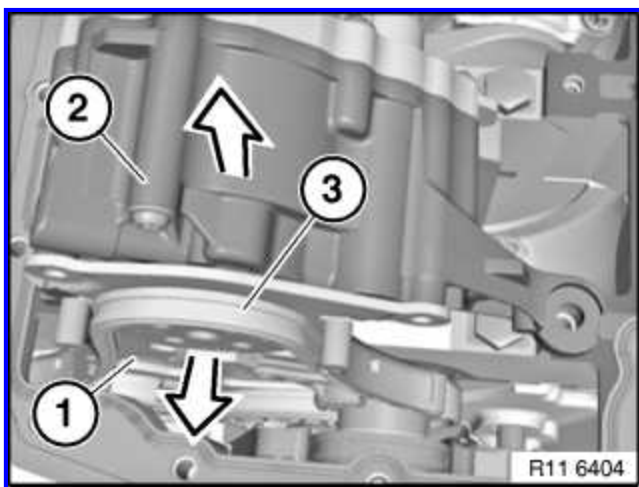
Release oil pump screws (1).

Tightening torque: [11 41 2AZ](#).

Installation note:



Replace aluminium screws.



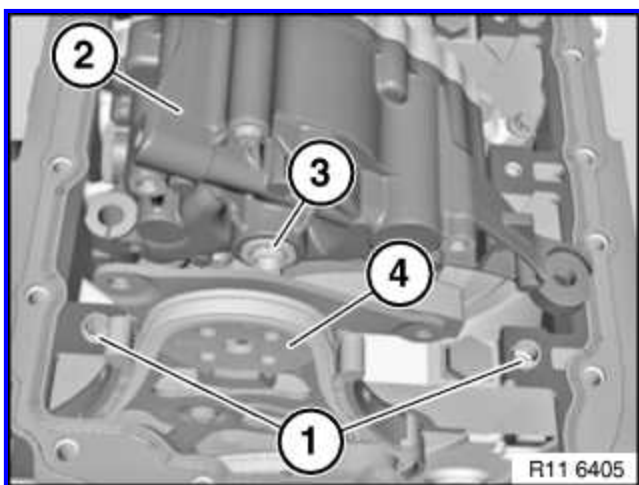
Detach sprocket (1) in direction of arrow.

Note:

The chain tensioner pushes the timing chain (3) of the triangular drive upward.

Do not remove camshaft sprocket.

Remove oil pump (2) in direction of arrow.



Installation note:

Check spacer bushings (1) for secure seating and damage; replace if necessary.

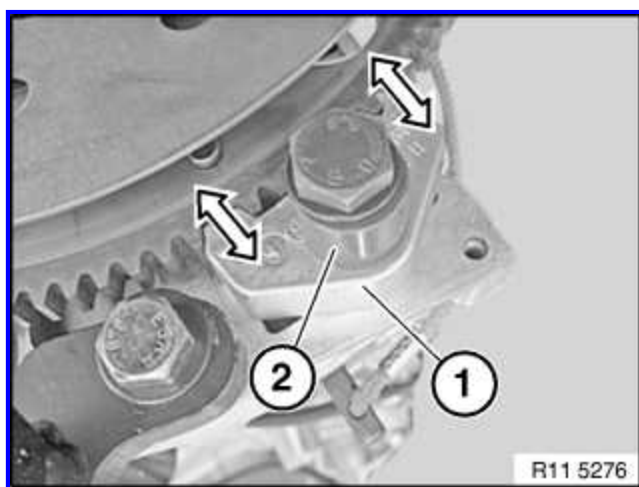
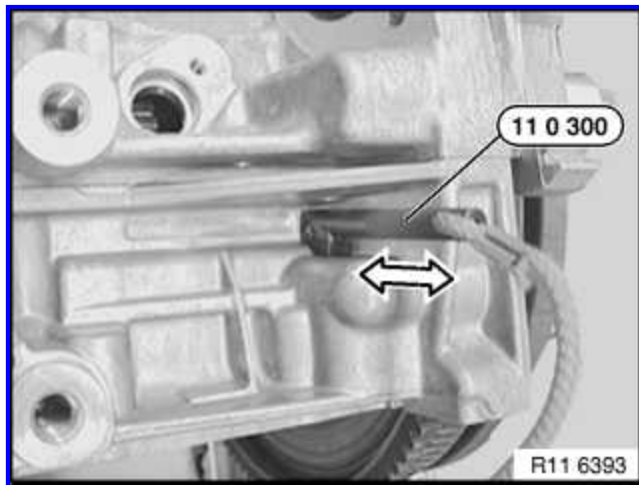
Align twin surface (3) on oil pump (2) to sprocket wheel.

Install oil pump (2).

Note:

The dowel hole for the TDC setting is located on the intake side underneath the starter motor.

Rotate engine at central bolt and secure flywheel in position with special tool [11 0 300](#).

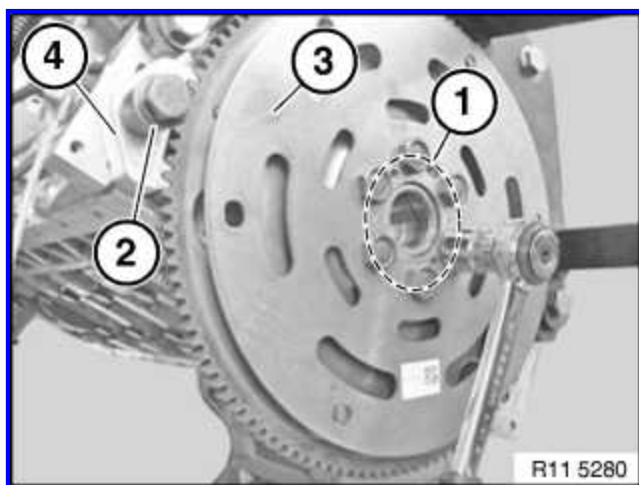


Secure flywheel with special tool (1) 11 9 260 and special tool (2) 11 9 266.

Tightening torque

Note:

Make sure that the special tool (1) completely engages in the flywheel teeth (see arrow)



Automatic transmission:

Release flywheel bolts (1).

Release special tool (2).

Remove flywheel (3).

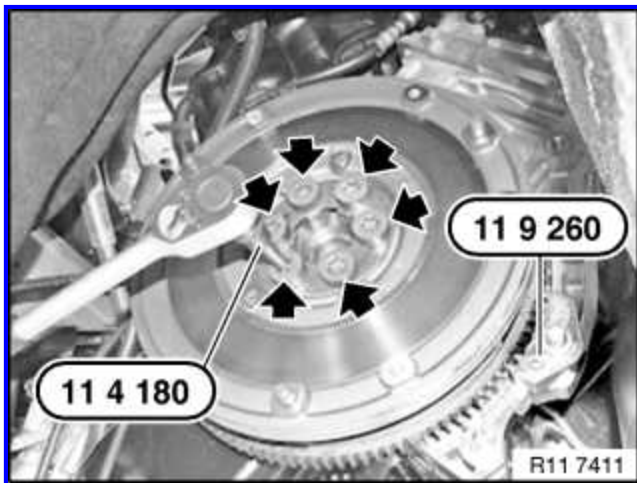
Manual transmission:

Important!

Position crankshaft at TDC.

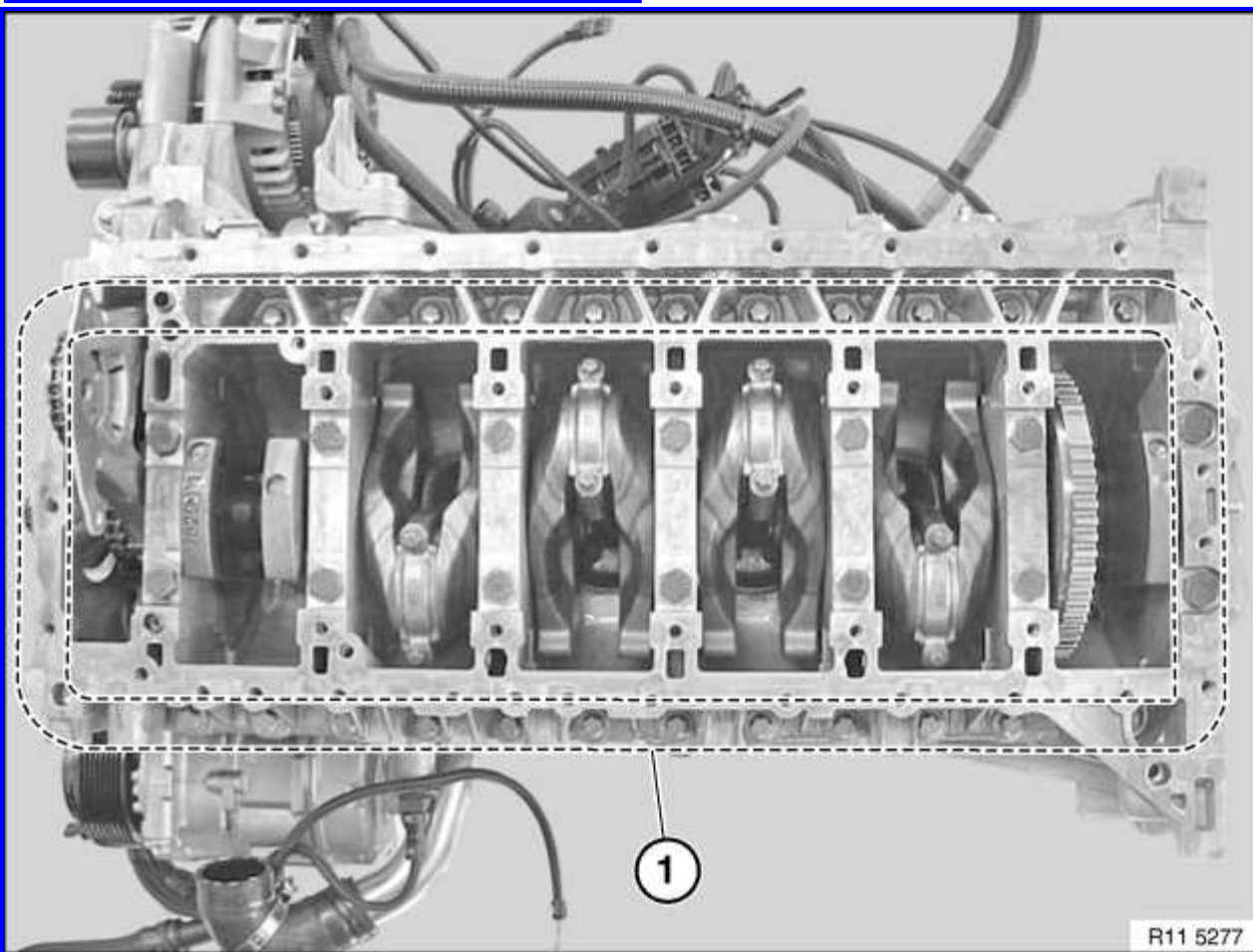
Remove dual-mass flywheel.

Secure flywheel with special tool [11 9 260](#).

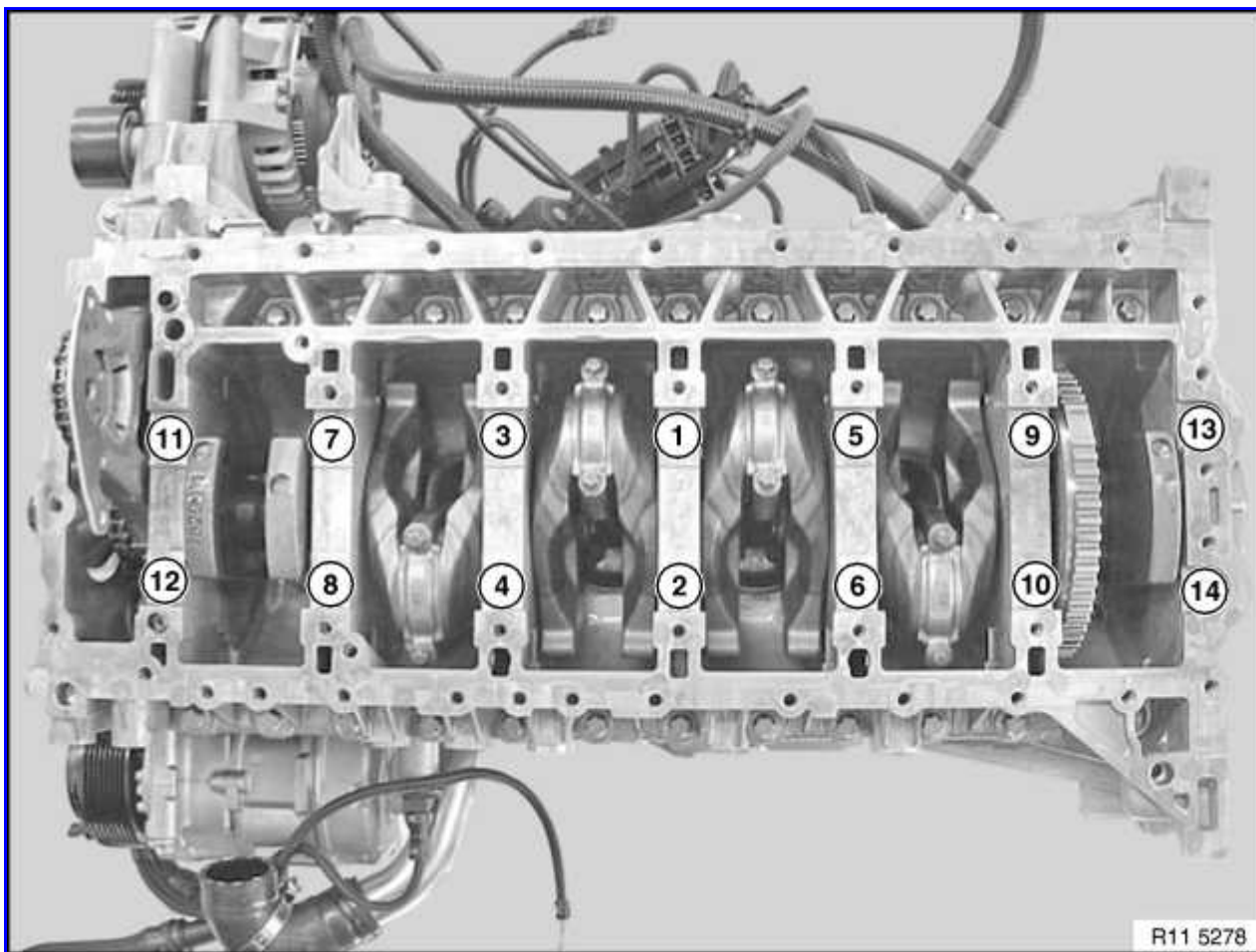


Remove [vibration damper](#).

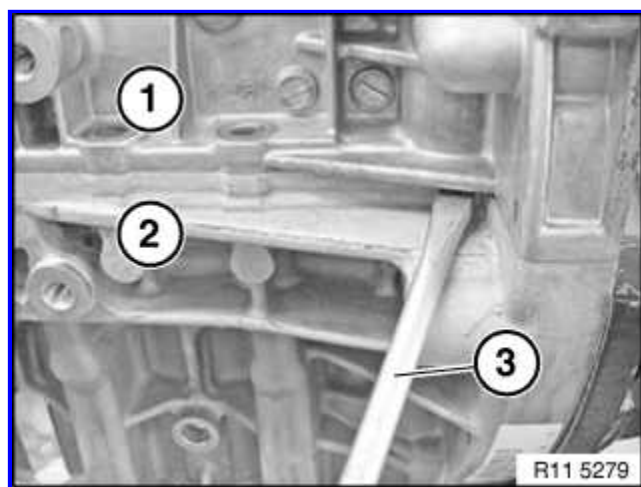
Release flywheel bolts with special tool [11 4 180](#)/



Release all crankcase bolts (1) along line (2).



Release crankcase bolts M10 in sequence 14 to 1.



Release crankcase lower section (1) from crankcase upper section (2) with suitable tool (3)

Remove crankcase lower section (1) upwards.

Important!

Do not rotate crankshaft without crankcase lower section (1) **(risk of damage)**.

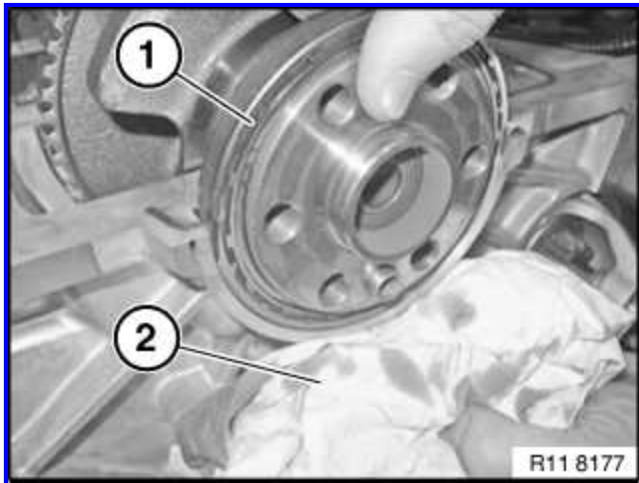
Important!

Timing chain is preloaded.

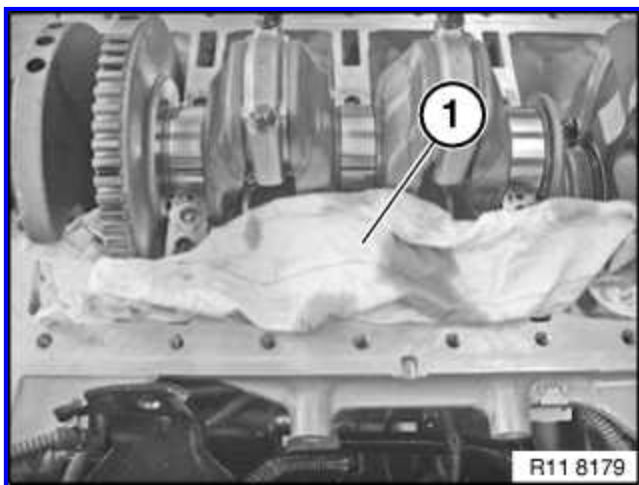
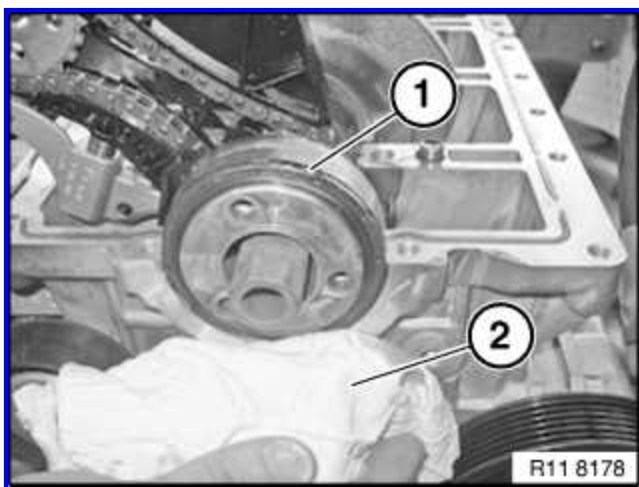
Do not raise crankshaft.

Carefully remove radial shaft seal (1).

Catch escaping engine oil with a cloth (2).



Carefully remove radial shaft seal (1) towards front.
Catch escaping engine oil with a cloth (2).



Important!

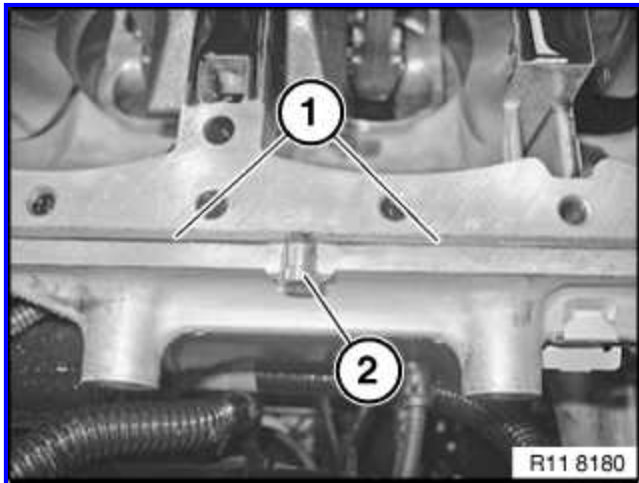
Protect crankcase against sealant residues with a cloth (1).

Remove sealing compound residues (1) with special tool [11 4 470](#).

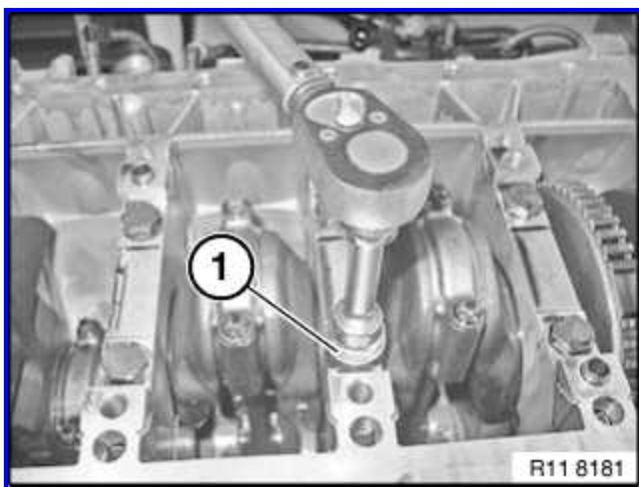
Remove injector nozzles (2) for liquid sealing compound on left and right.

Installation note:

Replace injector nozzles (2).



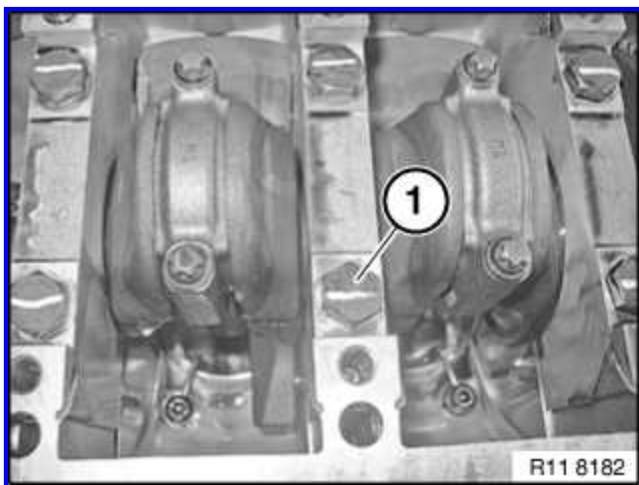
Clean all threads with compressed air.



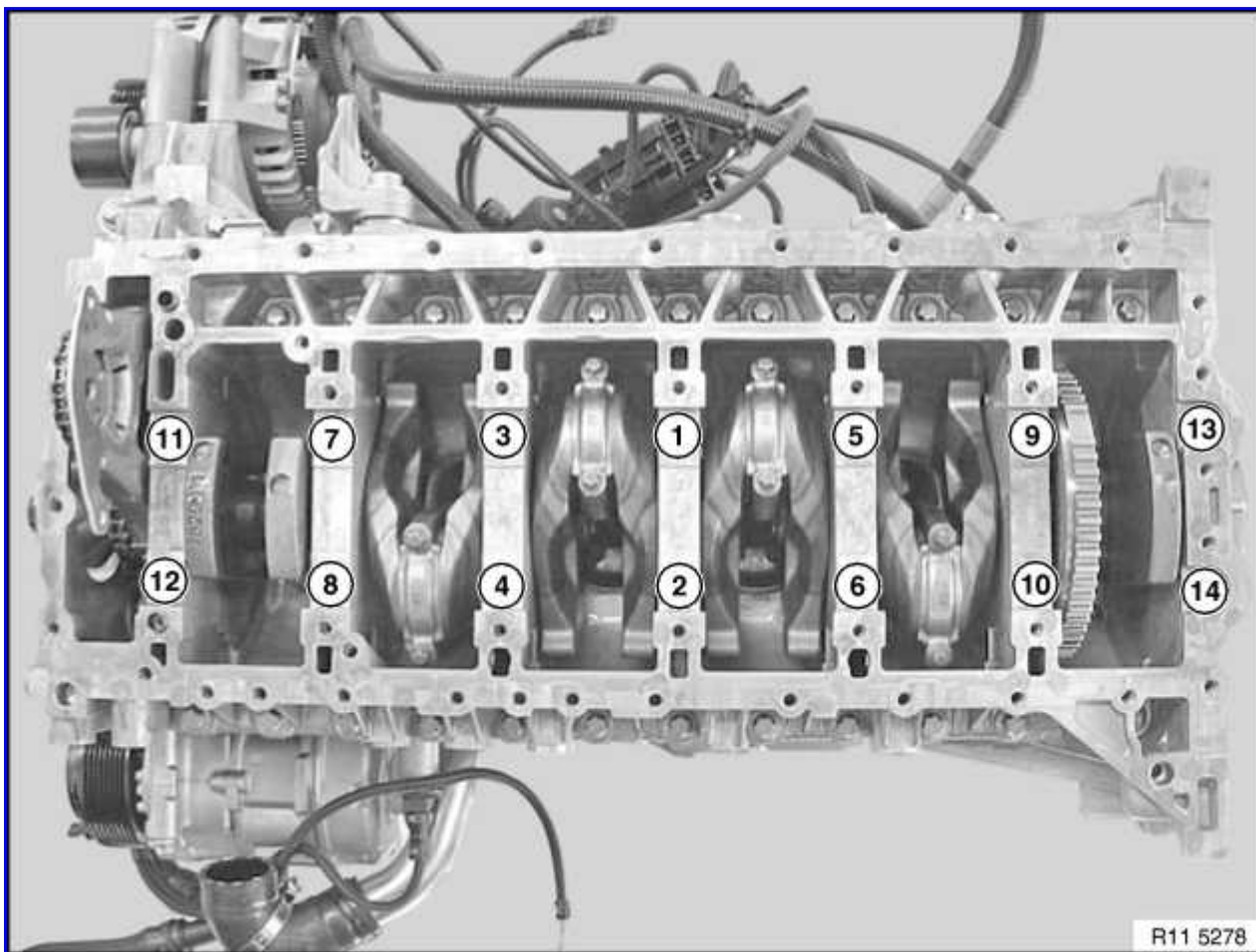
Position crankcase lower section (1) on crankcase upper section.

Screw in all M10 crankcase bolts.

Joint all M10 crankcase bolts (1) [20 Nm](#) from inside outwards.

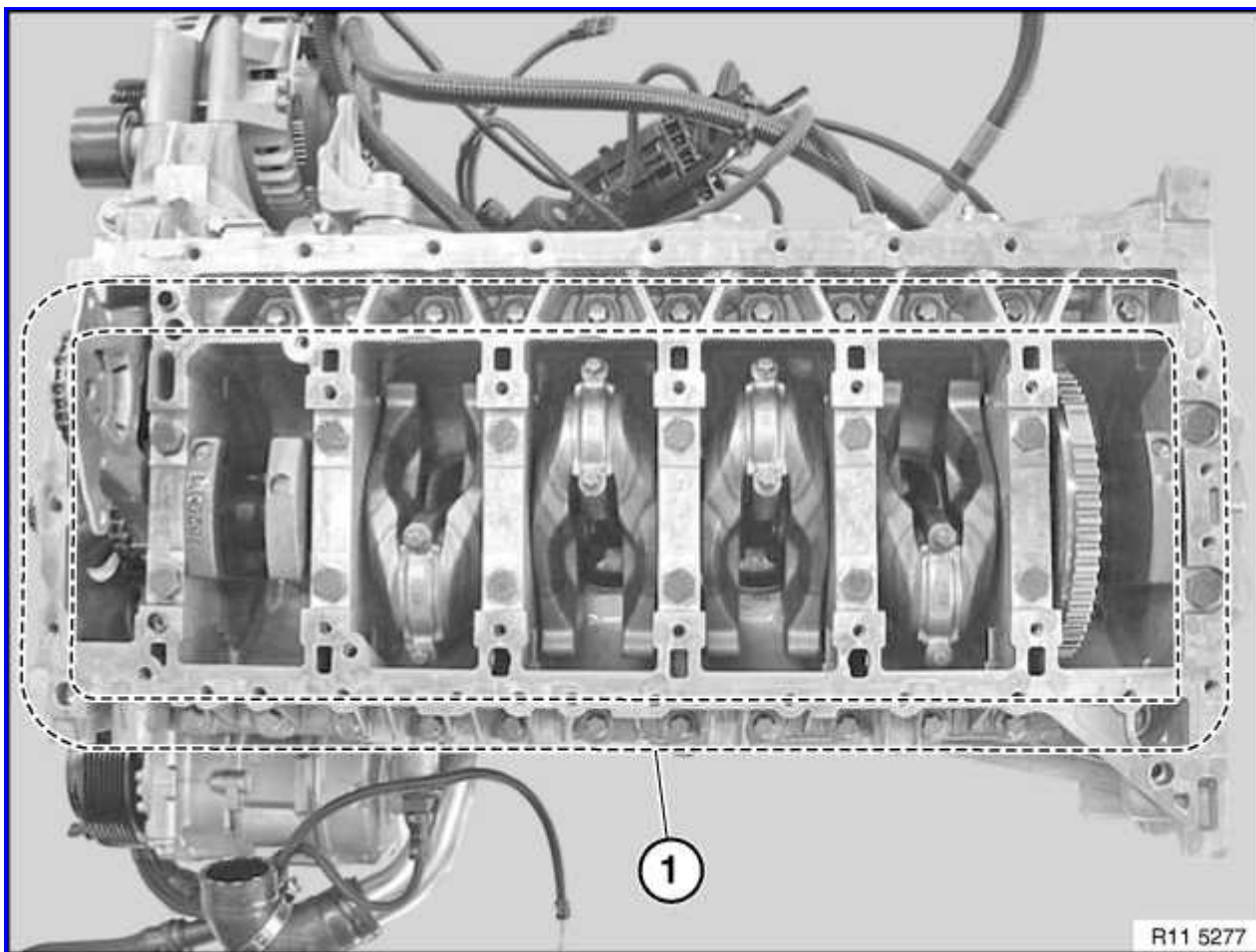


Identify all M10 crankcase bolts with a coloured marking (1) for checking.



Secure crankcase bolts M10 in sequence 1 to 14 with special tool [00 9 120](#).

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

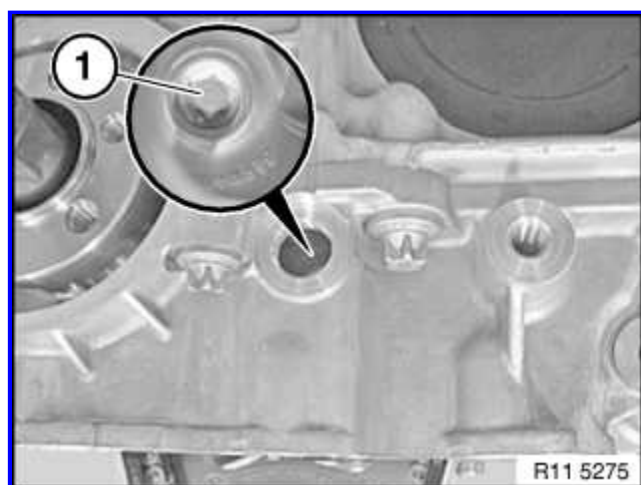


Insert all crankcase bolts (1).

Important!

Observe different lengths and sizes of the bolts.

Tightening torque: [11 11 2,3 and 4AZ](#).



Tighten screw (1) for oil pump triangular drive with special tool [11 8 640](#).

Note:

Replace screw.

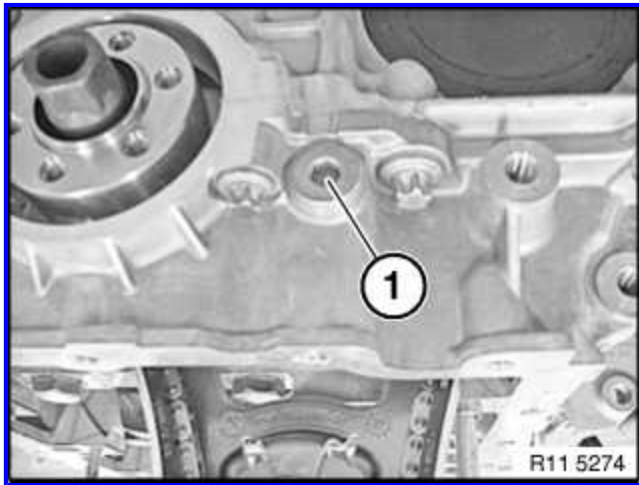
Tightening torque: [11 41 4 AZ](#).

Tighten screw plug on front of crankcase.

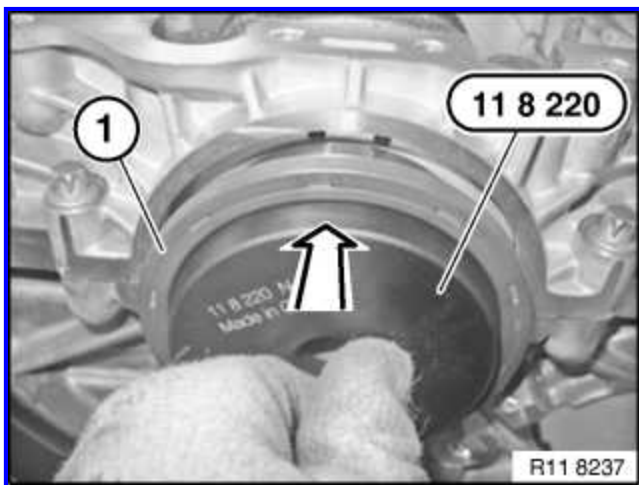
Tightening torque: [11 11 9](#)

Installation note:

Replace sealing ring.



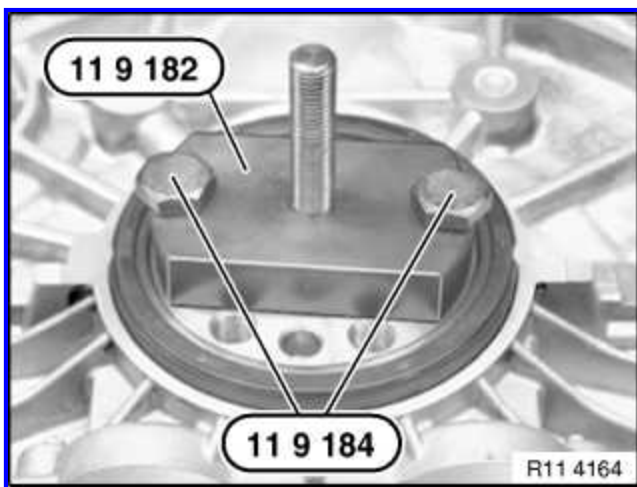
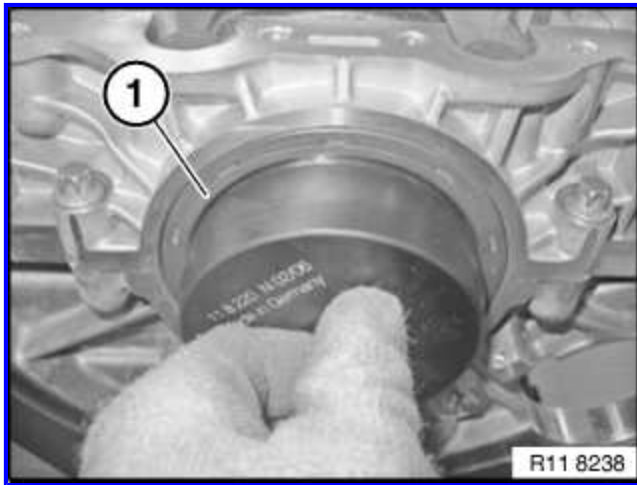
Prepare radial shaft seal (1) on special tool [11 8 220](#).



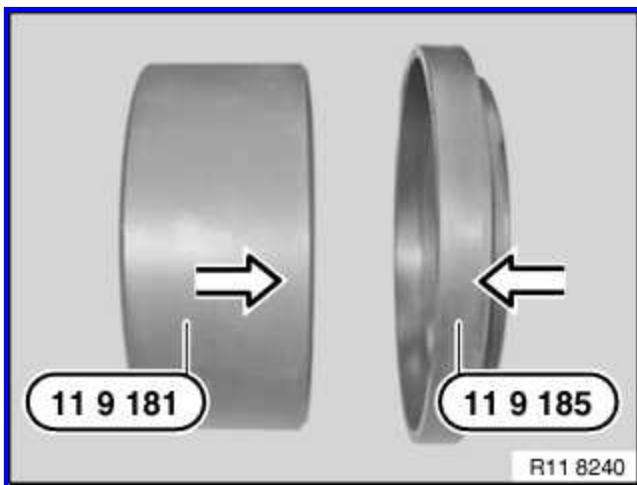
Position radial shaft seal (1) with special tool [11 8 220](#) on crankshaft.

Brush radial shaft seal (1) over special tool [11 8 220](#).

Move radial shaft seal (1) parallel up against the crankcase.



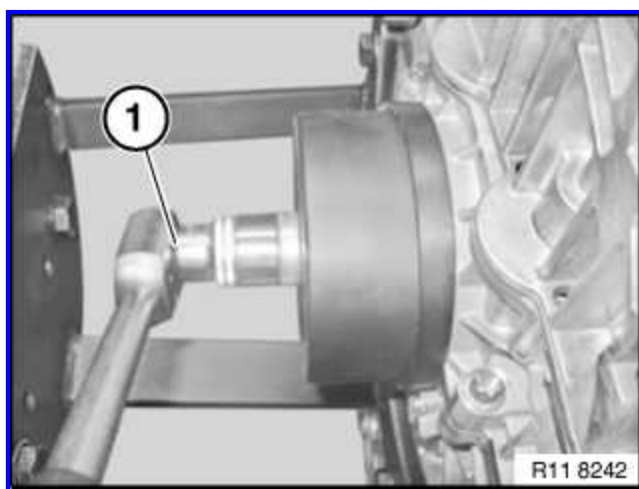
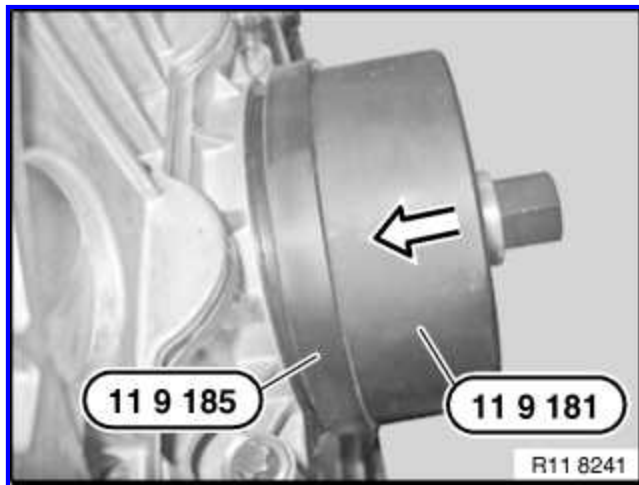
Screw special tool [11 9 182](#) with screws (special tool [11 9 184](#)) to crankshaft.



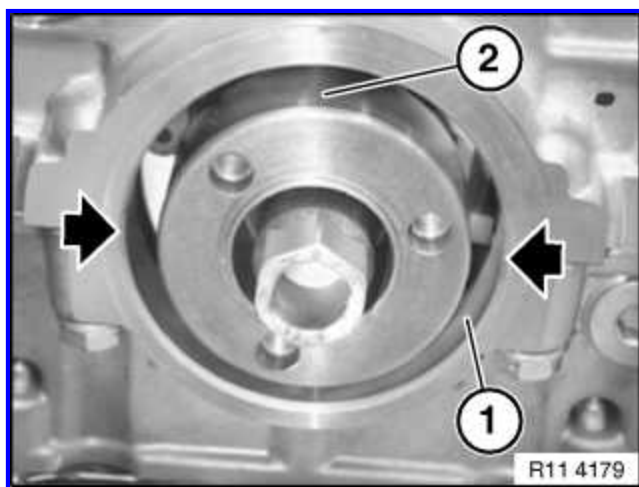
Installation note:

Prepare special tool [11 9 181](#) for installation. Connect special tool [11 9 185](#) onto special tool [11 8 181](#).

Pull on radial shaft seal with special tool [11 9 181](#) and [11 9 185](#) in combination with special tool [11 9 183](#).



Screw on radial shaft seal with special tool [11 9 183](#) to limit position.



Installation note:

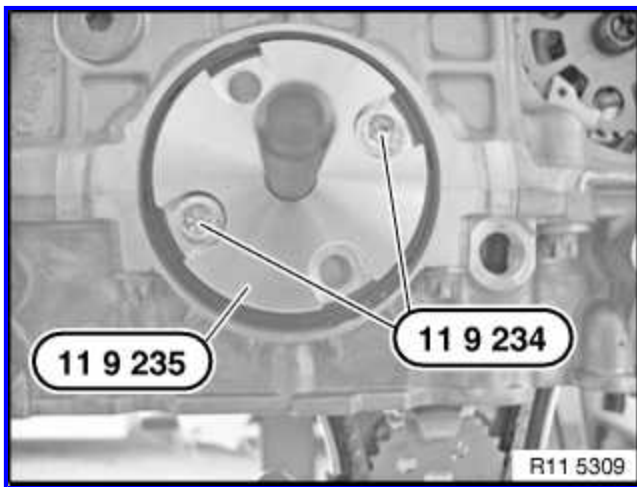
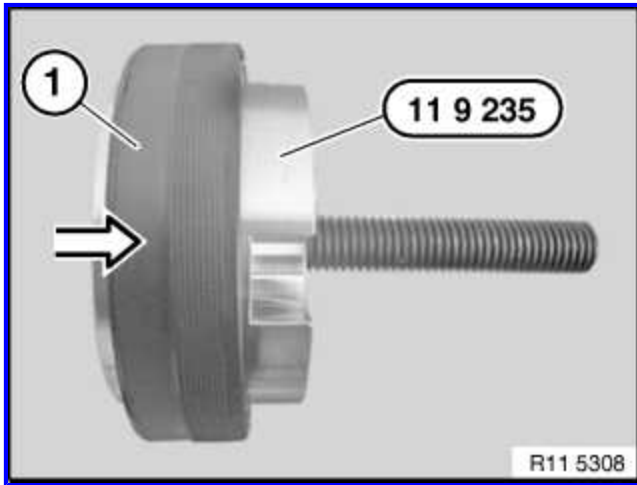
Clean sealing surface (1) and degrease thoroughly in area of housing partition.

Apply a light coat of oil to running surface (2) of radial shaft seal.

Note:

Graphic N42.

Push radial shaft seal (1) [11 9 235](#) carefully in direction of arrow on the special tool .

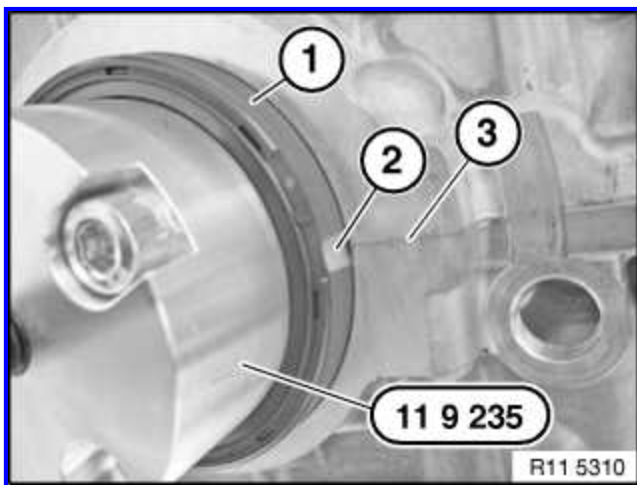


Important!

[11 9 235](#) Special tool can only be fastened with 2 opposite bolts.

Determine hole pattern on special tool.

Screw special tool [11 9 235](#) with special tool [11 9 234](#) on crankshaft.

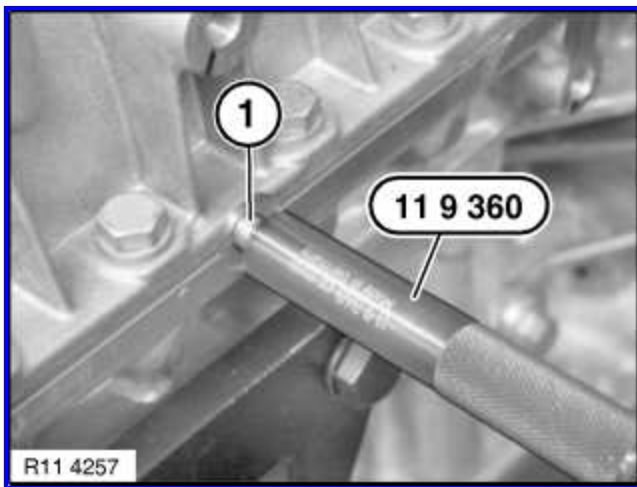
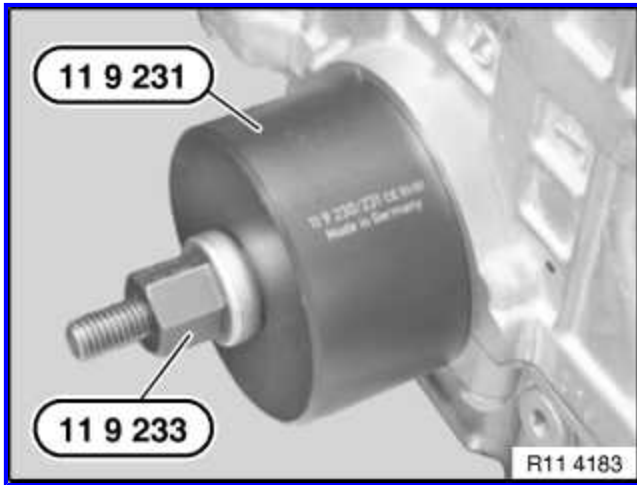


Align groove (2) of radial shaft seal (1) centred to the housing partition (3).

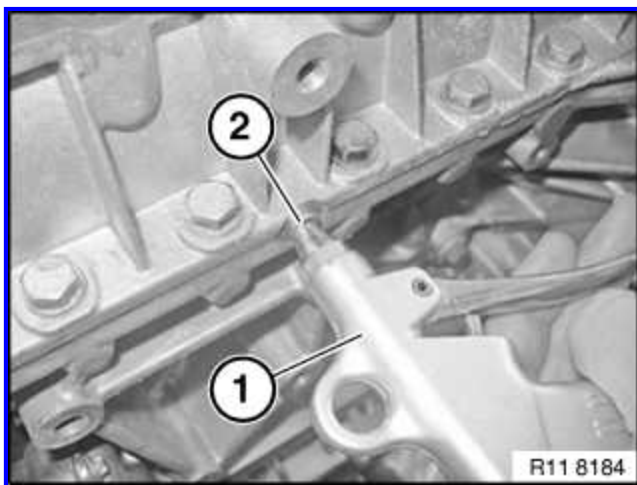
Important!

After installation, the grooves must be filled with sealing compound.

Draw in radial shaft seal with special tool [11 9 231](#) in conjunction with special tool [11 9 233](#) until flush.



Drive both injector nozzles (1) on left and right with special tool [11 9 360](#) into crankcase up to stop.



After fitting both sealing rings, check both sealing ducts for clearance.

Blow compressed air (1) at max. 6 bar into injector nozzle (2). Compressed air must emerge at both sealing rings on left and right from the outlet bores.

Important!

If the compressed air does not flow out of all ducts, the crankcase must again be taken apart and cleaned.

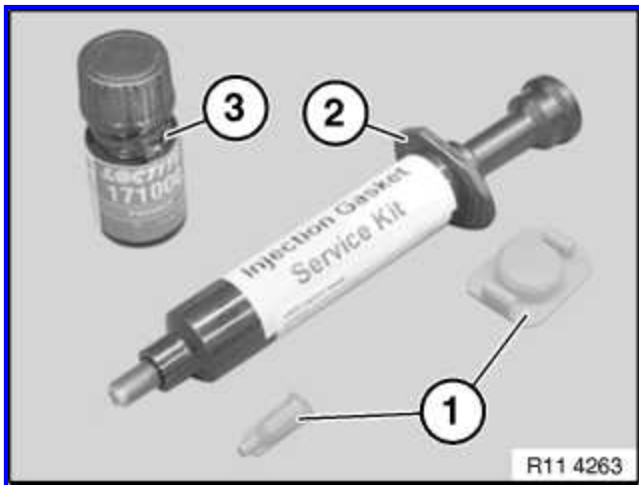
Installation note:

Use [primer 1.3 and liquid seal 1.4](#).

As an alternative,

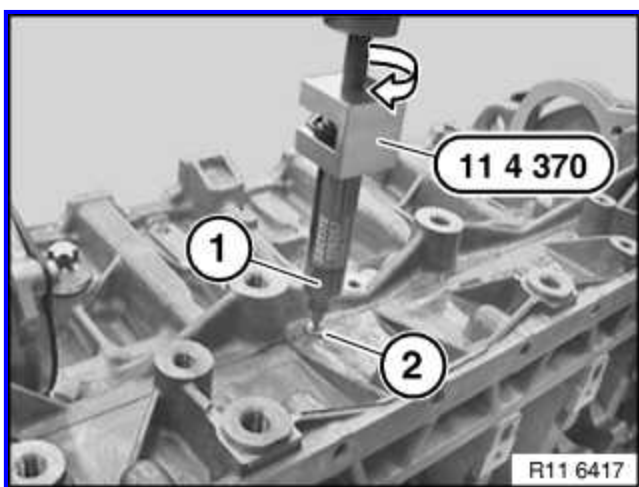
[primer 1.3 and liquid seal 1.2](#) can also be used.

Prepare liquid sealing compound (1) in special tool [11 4 370](#).



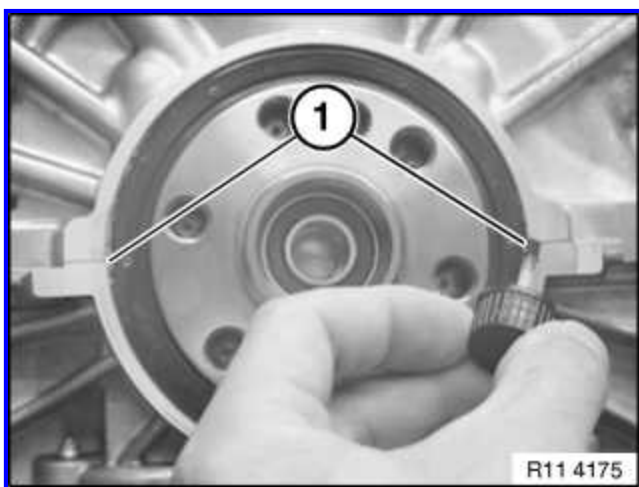
Injector nozzles for injecting sealing compound are not required.

Take note of the expiry date!



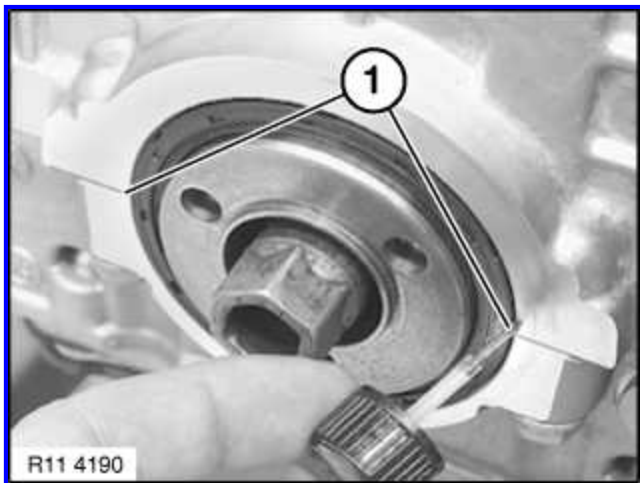
Slowly insert liquid sealing compound (1) with special tool [11 4 370](#) in direction of arrow.

Liquid sealing compound must emerge at radial shaft seals at front and rear.



Stop (seal off) escaping liquid sealing compound with primer 1.3.

Stop (seal off) escaping liquid sealing compound with primer 1.3.



Assemble engine.