

11 14 110 Removing and installing, sealing / replacing rear gear case cover (N57 D30 U/O/T 0/1)



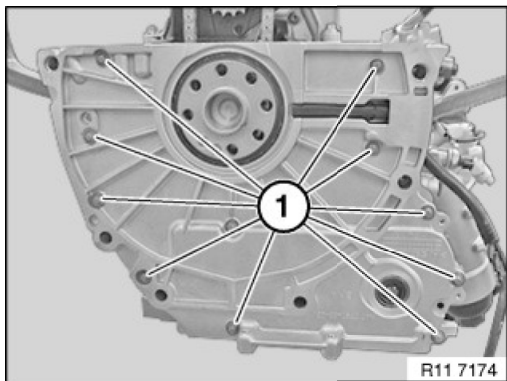
Special tools required:

- [00 9 120](#)
- [11 8 815](#)
- [11 4 470](#)

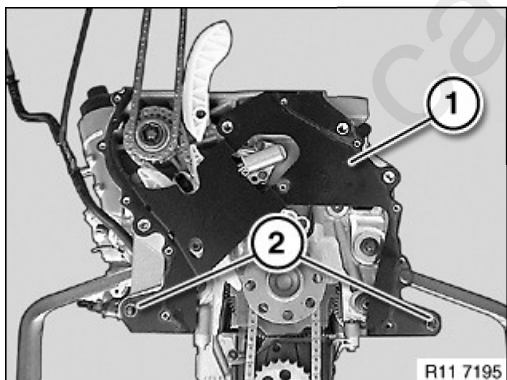


Necessary preliminary work:

- Remove [engine](#).
- Mount engine on assembly stand.
- Remove [flywheel](#).
- Remove [cylinder head](#).
- Removing [oil sump](#).



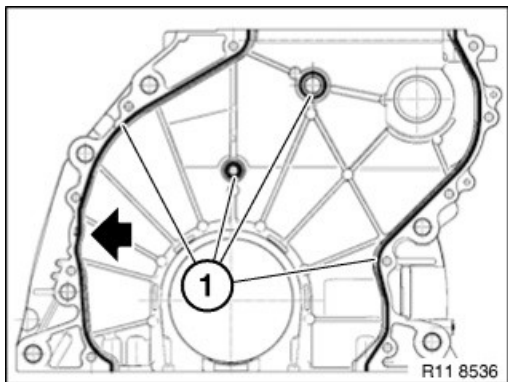
Release bolt holding high pressure pump.
Release screws (1).



On engines N57 and up to 03/2011.

Remove beaded metal gasket (1).

Check fitting sleeves (2) for damage, replace if necessary.



On engines N57 from 03/2011.

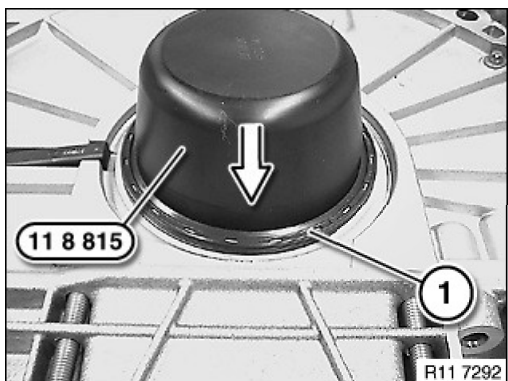
Installation note:

Application time of sealing bead (1) max. 12 min.

Remove gasket remnants with special tool [11 4 470](#).

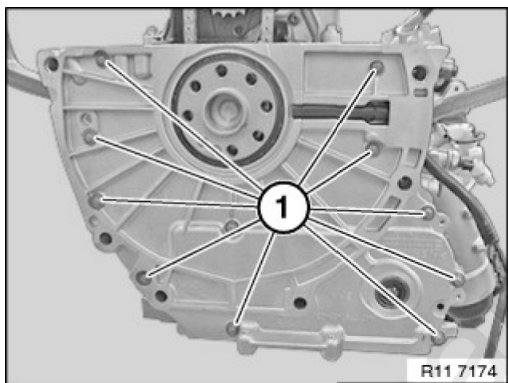
Apply sealing bead (1) at marked points.

Thickness of [sealing bead](#): **1.5 to 2.0 mm.**

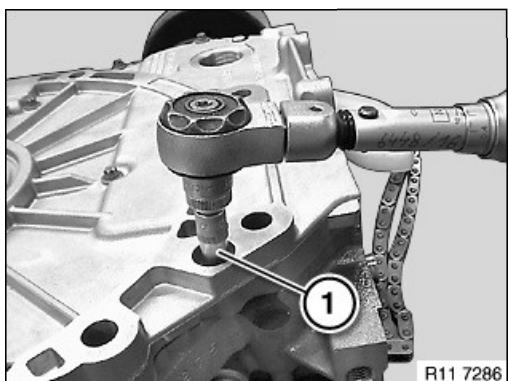


Preassemble special tool [11 8 815](#) on crankshaft.

Fit accelerator pedal module ring (1) with end cover dry and without lubricant.

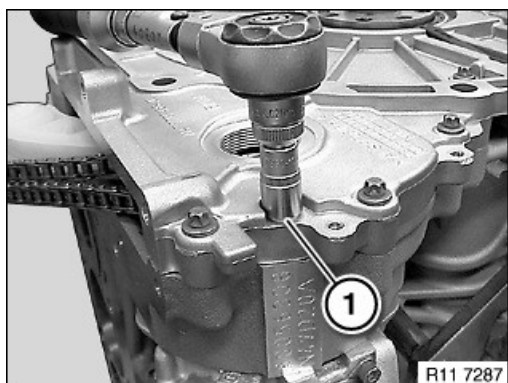


Insert bolts (1).



Secure special tool [00 9 120](#) with bolts (1).

Tightening torque: [11 14 2AZ](#).



Insert screw (1) of high pressure pump (if fitted).



Assemble engine.

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**Special tools required:**

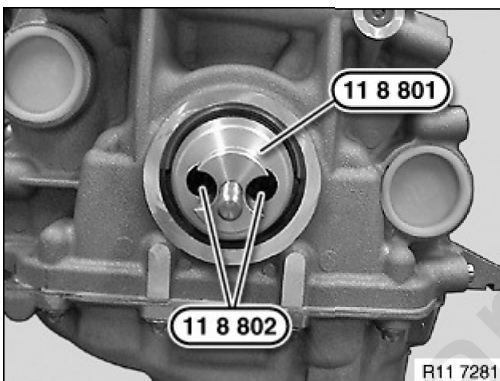
- [11 8 801](#)
- [11 8 802](#)
- [11 8 803](#)
- [11 8 804](#)

**Important!**

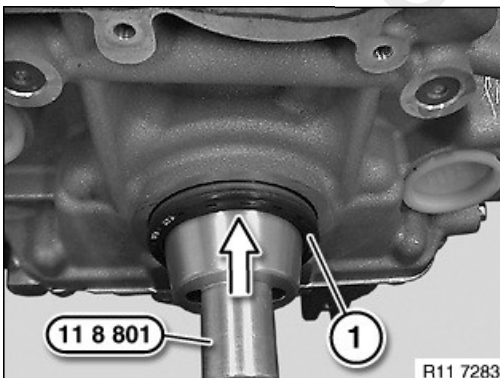
Accelerator pedal module rings must be installed in a dry condition.
Do not use engine oil or lubricant.

**Necessary preliminary tasks:**

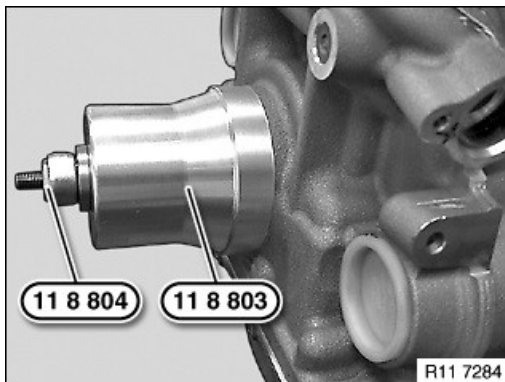
- Remove [vibration damper](#).
- Lever out FPM ring using suitable tool.



Fasten special tool [11 8 801](#) with [11 8 802](#) on the crankshaft. *Note:* Graphic N47.



Position accelerator pedal module ring on the special tool [11 8 801](#). *Note:* Graphic N47.



Pull on accelerator pedal module- ring with special tool [11 8 803](#) and [11 8 804](#) .

Screw in special tool [11 8 803](#) until it is flush with the crankcase.

Note:
Graphic N47.



Assemble engine.

Important!

Do not start engine without drive belt **(risk of damage!)**.

Check engine for leak tightness.

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**Special tools required:**

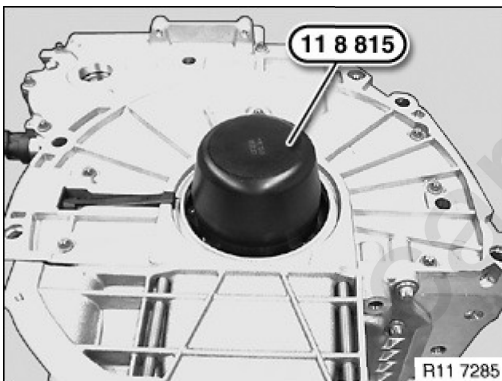
- [11 8 810](#)
- [11 8 811](#)
- [11 8 812](#)
- [11 8 813](#)
- [11 8 814](#)
- [11 8 815](#)

**Necessary preliminary tasks:**

- [Drain off engine oil](#)
- [Remove flywheel](#)
- Remove accelerator pedal module ring using suitable tool

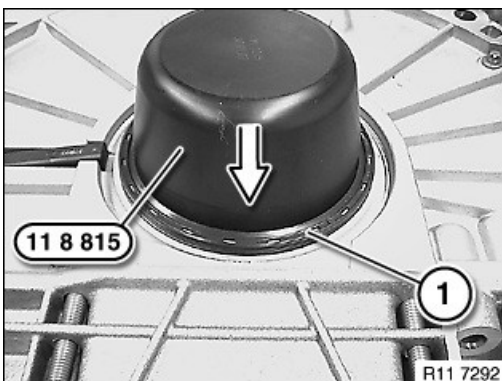
**Important!**

Accelerator pedal module rings must be installed in a dry condition.
Do not use engine oil or lubricant.

**Important!**

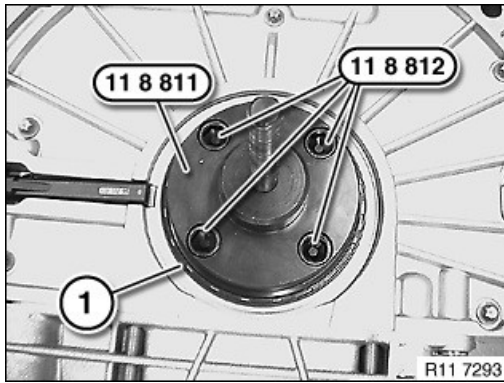
Risk of damage to special tool at chamfer in area of end face.

Position special tool [11 8 815](#) on crankshaft.

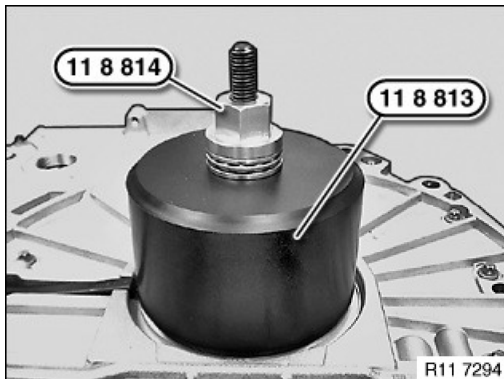


Use special tool [11 8 815](#) to fit FPM ring (1) in direction of arrow just up to gear case cover and position.

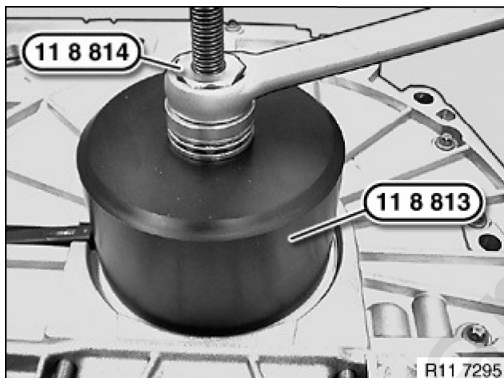
Remove special tool [11 8 815](#).



Fasten special tool [11 8 811](#) with special tool [11 8 812](#) on the crankshaft.
Position accelerator pedal module ring (1).



Slide on special tool [11 8 813](#) .
Screw down special tool [11 8 814](#) .



Press in accelerator pedal module ring with special tool [11 8 813](#) .
Screw in special tool [11 8 813](#) up to gear case cover.



Remove all special tools [11 8 810](#) .
Assemble engine.
Check engine for leak tightness.

**Special tools required:**

- [00 2 590](#)

**Important!**

Replace main bearing bolts.

There must be no oil in the blind holes (**risk of cracking**).

Do not wash off bolt coating.

Incorrect installation of the bearing cap leads to damage to the crankcase.

Check [grinding stage of crankshaft](#).

**Installation note:**

The assignment of the bearing shells in the crankcase (classification) may no longer apply after the crankshaft has been replaced.

Install yellow bearing shells in crankcase (see BMW Parts installation instructions).

Bearing classification from 1 to 3 possible.

- 1: Bearing colour - yellow
- 2: Bearing colour - green
- 3: Bearing colour - white

**Necessary preliminary tasks:**

- Remove [crankshaft](#).

**Bearing classification in bearing cap:**

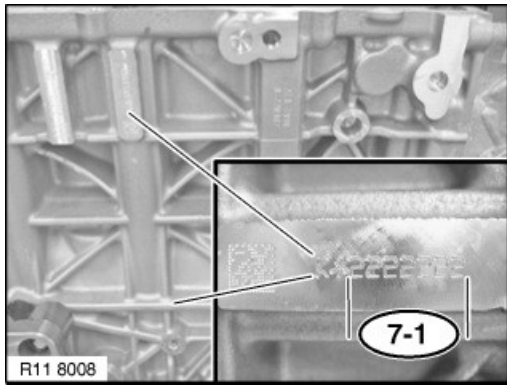
The number combination from left to right is from 1 to 7.

The designation (K) stands for "Kupplungsseite" (German = clutch end).

Possible combination of bearing colours.

- 1: 2 = green
- 2: 1 = yellow
- 3: 1 = yellow
- 4: 2 = green
- 5: 2 = green
- 6: 2 = green
- 7: 2 = green

See graphic.



Bearing classification in crankcase:

The letter K= "Kupplungsseite" (German = clutch end).

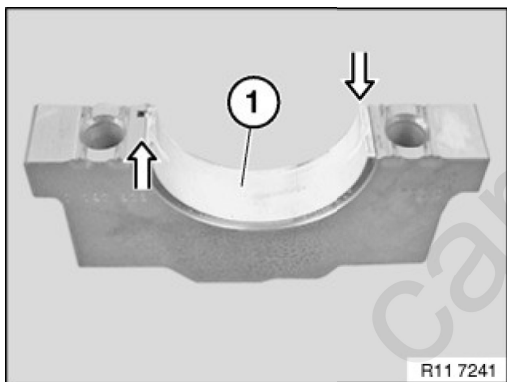
The number combination from left to right is from bearing seat 7 to 1.

Possible combination of bearing colours.

- | | |
|----|-----------|
| 1: | 2 = green |
| 2: | 2 = green |
| 3: | 2 = green |
| 4: | 2 = green |
| 5: | 2 = green |
| 6: | 2 = green |
| 7: | 2 = green |

See graphic.

(1) Bearing cap / yellow	(1) Bearing cap / yellow	(2) Bearing cap / green
(1) Crankcase / yellow	(2) Crankcase / green	(2) Crankcase / green
(2) Bearing cap / green	(2) Bearing cap / green	(2) Bearing cap / green
(1) Crankcase / yellow	(2) Crankcase / green	(3) Crankcase / white
(2) Bearing cap / green	(3) Bearing cap / white	(3) Bearing cap / white
(2) Crankcase / green	(2) Crankcase / green	(3) Crankcase / white

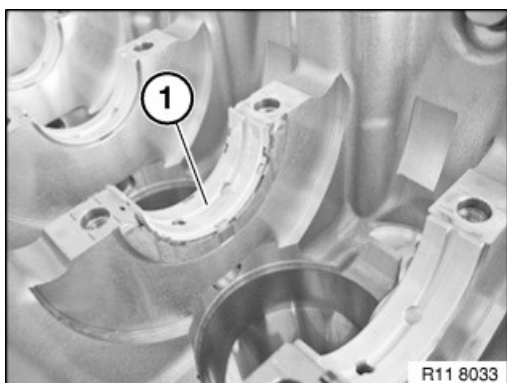


Place main bearing shell (1) with no lubricating groove in the bearing cap (see arrows).

Installation note:

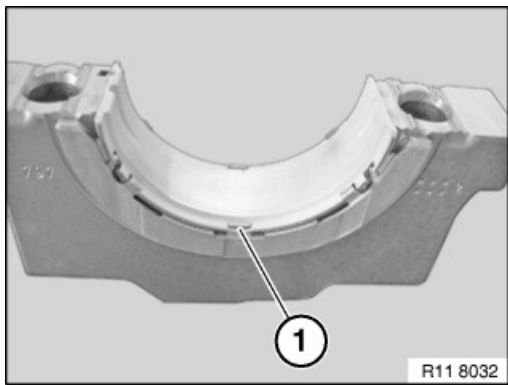
Note guide lug on main bearing shell (1).

Observe combination of bearing colours according to the table.



Place main bearing shell (1) with lubricating groove in crankcase (see arrows).

Observe combination of bearing colours according to the table.

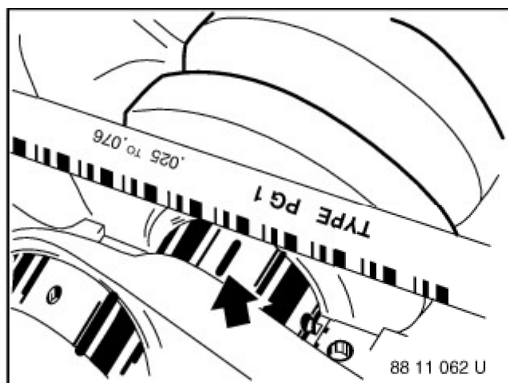


Installation note:

Thrust bearing (1) on the crankshaft is installed at bearing position 4.

Observe combination of bearing colours according to the table.

Observe [grinding stage of main bearing journals](#).



Position special tool [00 2 590](#) on main bearing to be measured and bolt to main bearing cap.

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

Remove main bearing cap. Read off bearing clearance at width of crushed plastic thread (Plastigage) with aid of measuring scale.

If necessary, install new bearing shells or bearing shells with different colour coding to correct radial clearance.



Assemble engine.

**Special tools required:**

- [00 2 010](#)
- [00 9 120](#)
- [11 6 251](#)
- [11 6 252](#)
- [11 6 480](#)

**Important!**

Replace main and connecting rod bolts.

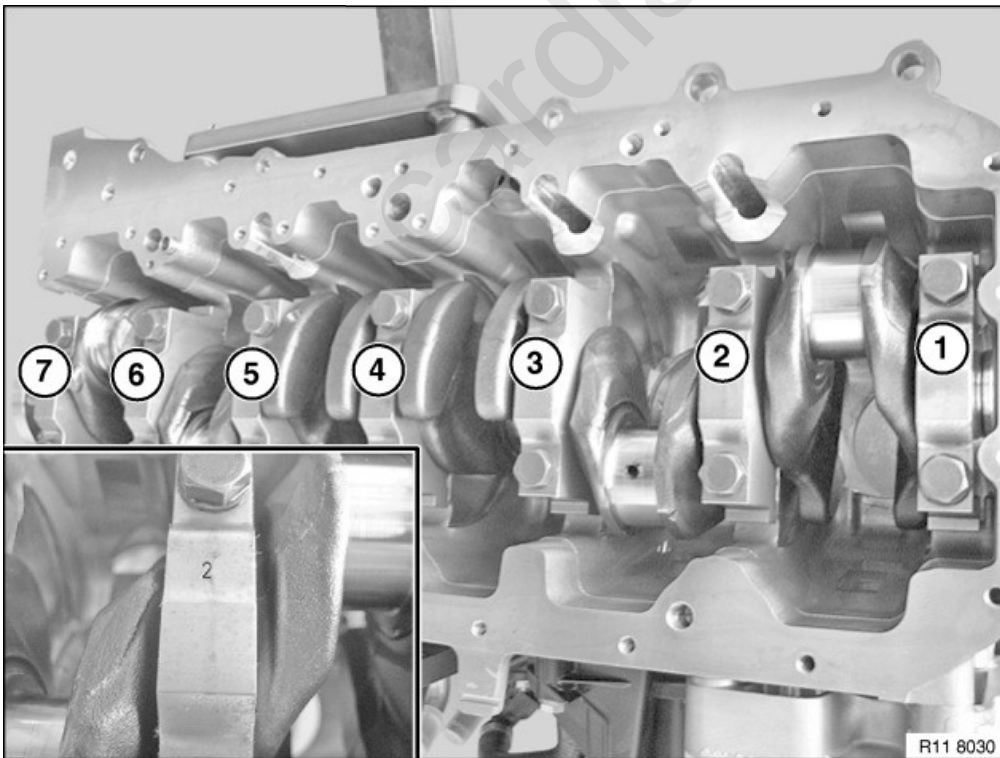
There must be no oil in the blind holes (**risk of cracking**).

Do not wash off bolt coating.

Incorrect installation of the bearing caps will result in damage to the crankcase.

**Necessary preliminary tasks:**

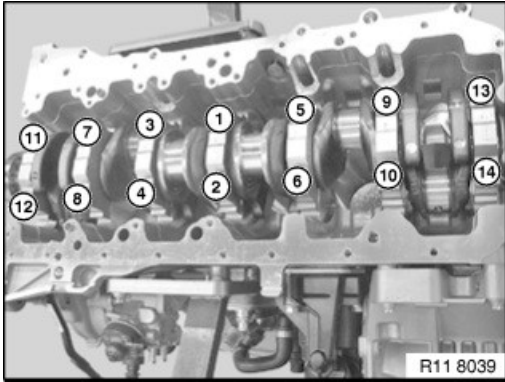
- Remove [engine](#).
- Remove [oil pump](#).
- Remove [end cover](#) at rear.
- [Remove all pistons](#).
- Remove both [timing chains](#).

**Note:**

Bearing caps 1...7 are marked on the intake end.

Bearing cap 4 is installed as a thrust bearing.

Graphic at bearing seat number 2.



Release main bearing screw connections in sequence 14 to 1 on main bearing caps.

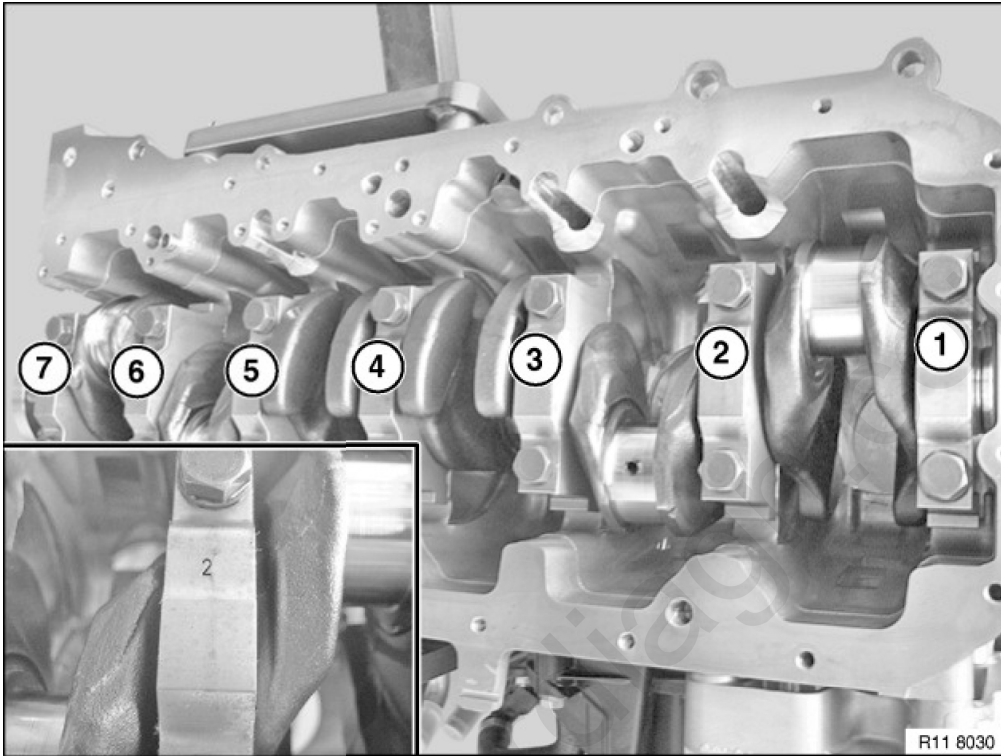
Remove main bearing caps 1...7.

Important!

With the assistance of a second person, remove crankshaft and carefully place to one side.

Pay attention to oil hole in bearing shell.

Pay attention to installation position of [crankshaft main bearing shells](#).



Note:

Lubricate all bearing shells.

Install crankshaft.

Fit bearing caps 1 to 7 in such a way that the identification numbers always face towards the intake side.

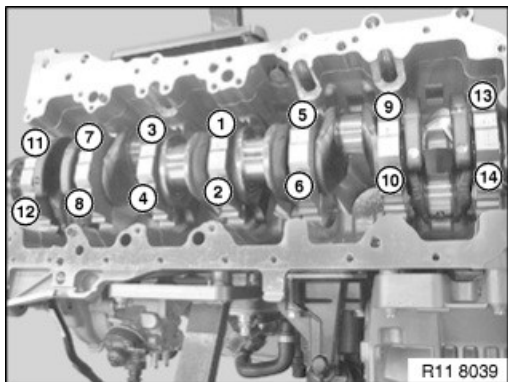
Both locating grooves of bearing shells in crankcase and on bearing cap must be mounted on one side.

Important!

The crankcase will be damaged if the bearing caps are installed incorrectly or in the wrong position.

Damage to moulding on crankcase.

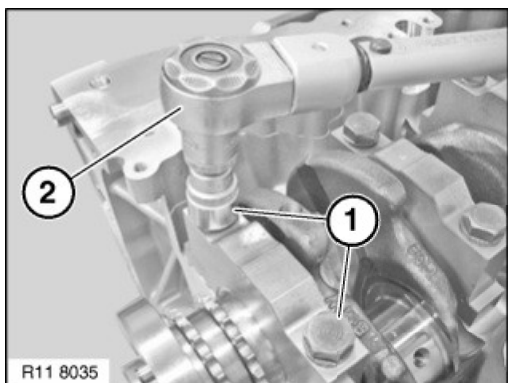
Align all bearing caps.



Fit main bearing bolts.

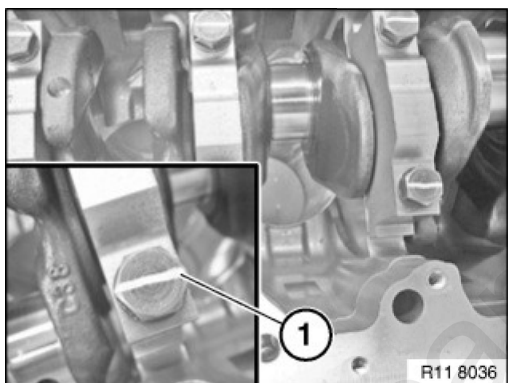
Tighten main bearing bolts in sequence (1 to 14) (follow bolt tightening specifications).

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



Join all main bearing bolts (1) in sequence 1 to 14 with a torque wrench (2).

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



Installation note:

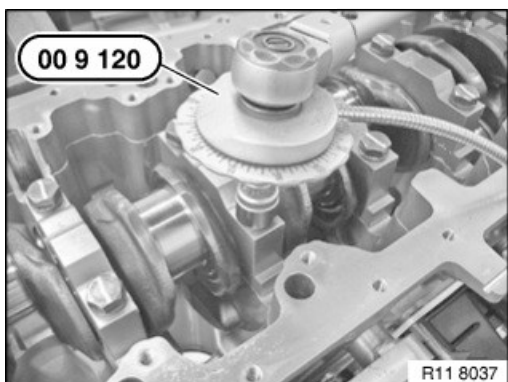
To visually check the main bearing bolts, apply a marking (1) to the bolt head after joining the main bearing bolts for the first time.

Mark all main bearing bolts with a coloured line (1) in the same axial direction.

Join all main bearing bolts in sequence 1 to 14 (second joining).

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

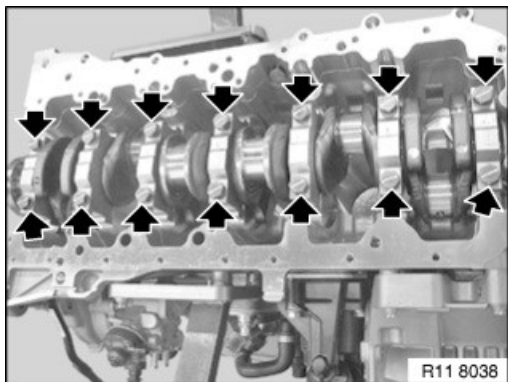
Visually check main bearing bolts.



Secure main bearing bolts with special tool [00 9 120](#) .

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

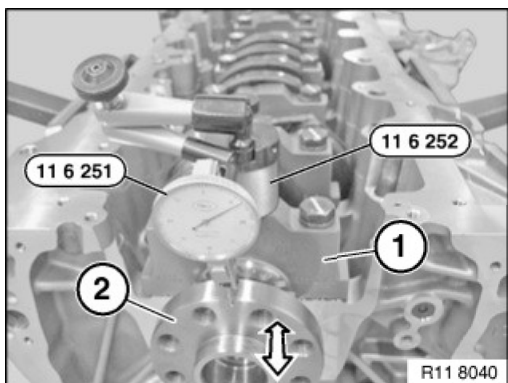
Visually check main bearing bolts.



Installation note:

If the screw connection at the main bearing bolts is concluded, check the colour coding.

All colour coding on the main bearing bolts must point in the same direction.

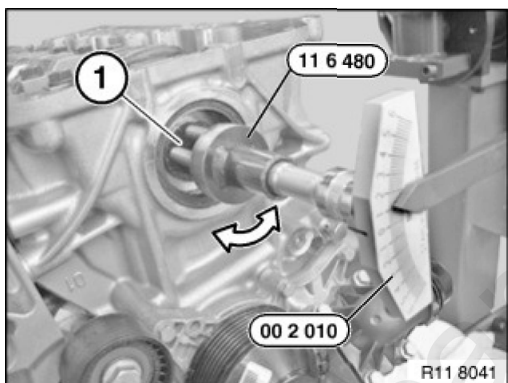


Secure special tool [11 6 252](#) to bearing seat (7) with magnet.

Alternately slide crankshaft (2) in direction of arrow onto block.

Set special tool [11 6 251](#) to zero.

Check [side clearance](#).



Determining crankshaft breakaway torque:

Insert all vibration damper bolts (1) by hand.

Rotate crankshaft in direction of arrow with special tool [00 2 010](#) in conjunction with special tool [11 6 480](#).

[Friction coefficient](#) of crankshaft.



Assemble engine.