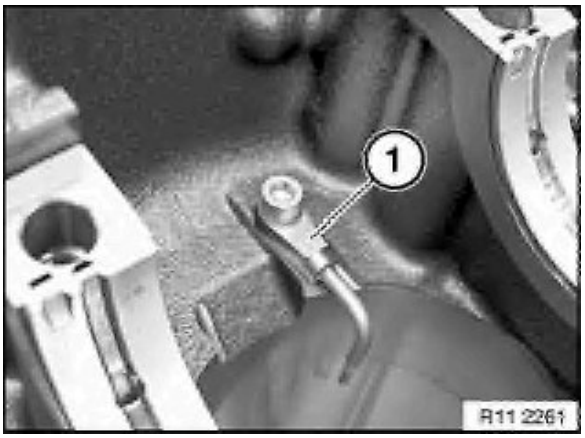
11 21 531 Replacing all crankshaft main bearing shells (S54)

(Engine dismantled)

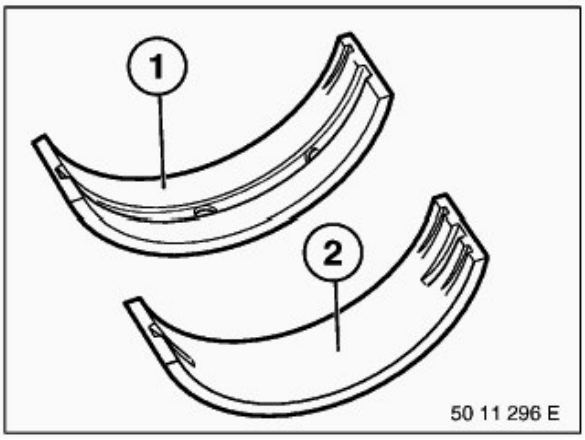
The preliminary operations are described in the section Replacing crankshaft.



Note:

Piston cooling spray nozzles are installed between the bearing seats.

Check spray nozzles for damage.



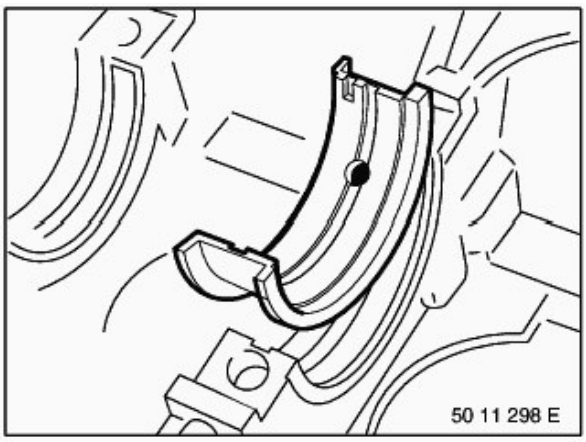
Note:

1) Install bearing shells with continuous lubricant groove and one retaining lug in engine block.
2) Fit bearing shells without continuous lubricant groove and two retaining lugs in bearing cover.

Installation:

When the bearing shells or the crankshaft are replaced, the classification for bearing shell arrangement in the engine block is eliminated.

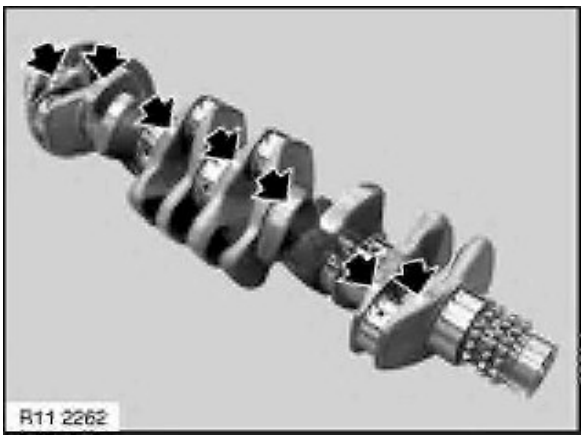
Only install yellow bearing shells in the engine block.



Note:

The axial guide on the crankshaft is fitted to bearing point 6.

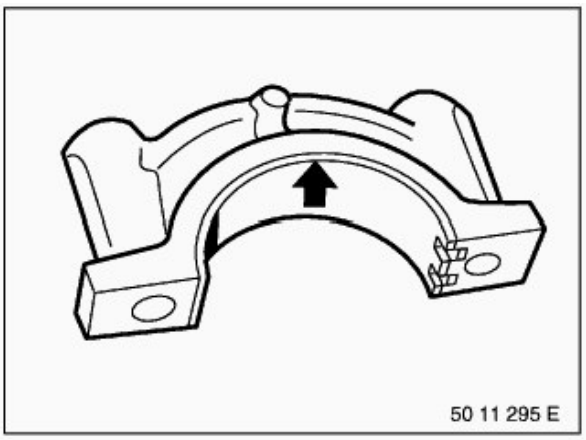
Insert pilot bearing shell in the engine block.



Note:

The crankshaft is marked with yellow, green or white paint according to the tolerance of the main journal.

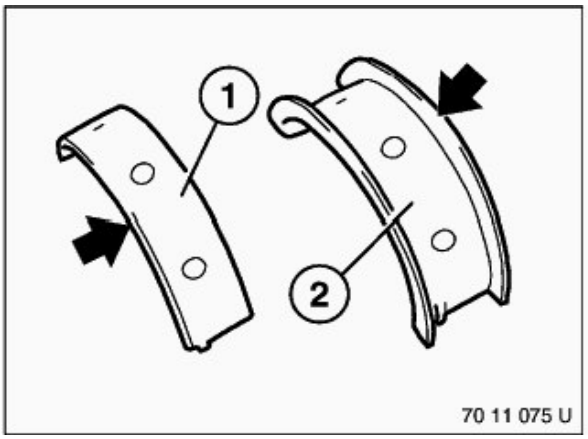
Insert crankshaft in engine block.



Installation:

The bearing shell classification for the bearing cover is marked on the crankshaft in yellow, green or white paint.

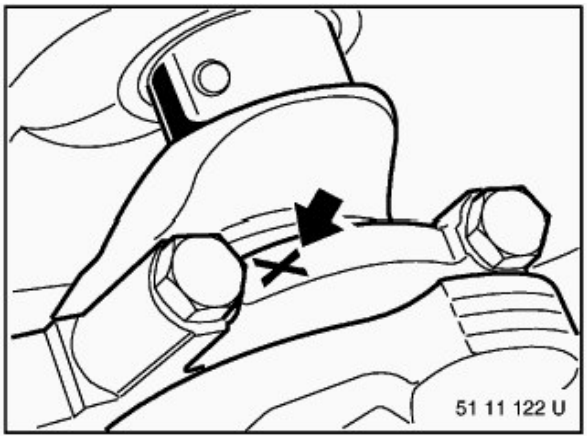
Place main bearing shells with same color code as that of crankshaft in main bearing caps.



The bearing shells are marked with yellow, green or white paint.

1) Bearing shell
2) Guide bearing

Observe grinding stage of main bearing journals.

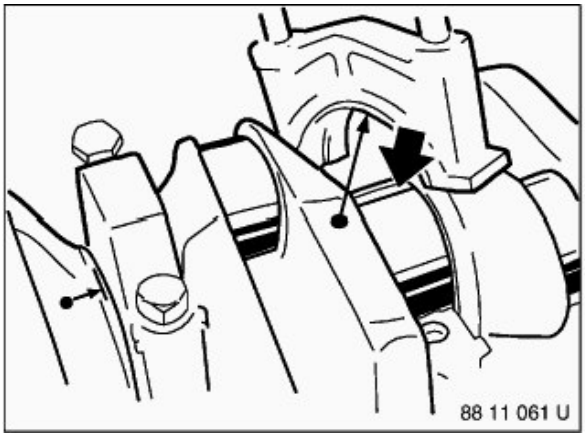


Note:

Main bearing caps 1 to 5 are marked on exhaust side.

Main bearing caps 6 and 7 are not marked.

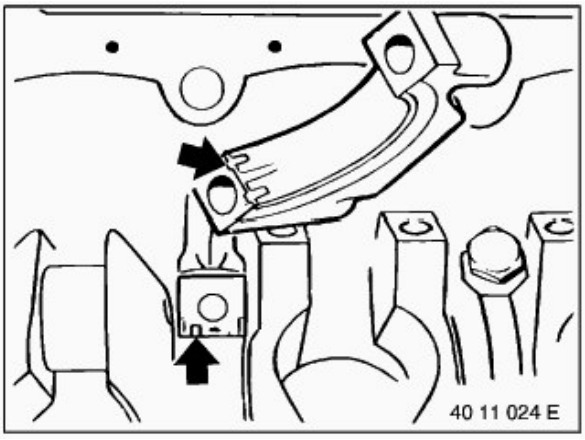
Main bearing cap 6 is thrust bearing.



Check clearance on main crankshaft bearing.

Install crankshaft and place special tool 00 2 590 (Plastigage Type PG1) on oil-free crankshaft.

Do not twist crankshaft.



Insert main bearing caps in such a way that guide grooves of main bearing shells lie on one side.

Align main bearing cap flush with side of bearing seat.

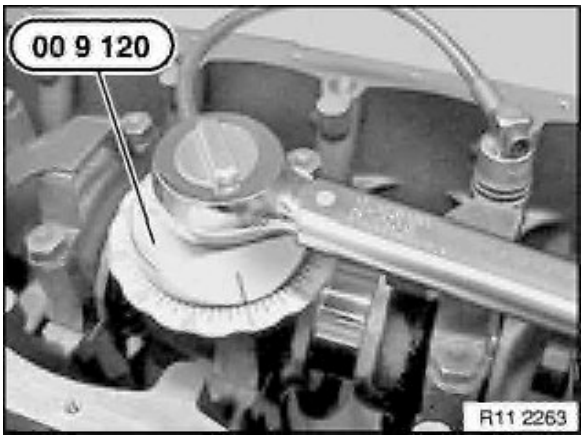
Installation:

To check main bearing clearance, use the old main bearing screws.

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

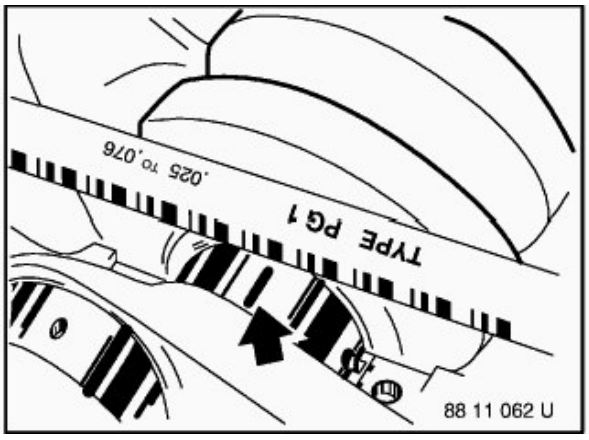
Note:

Wash and oil main bearing bolts.



1) Tighten down main bearing screws with jointing torque.
2) Tighten down main bearing screws using special tool 00 9 120 and torsion angle.

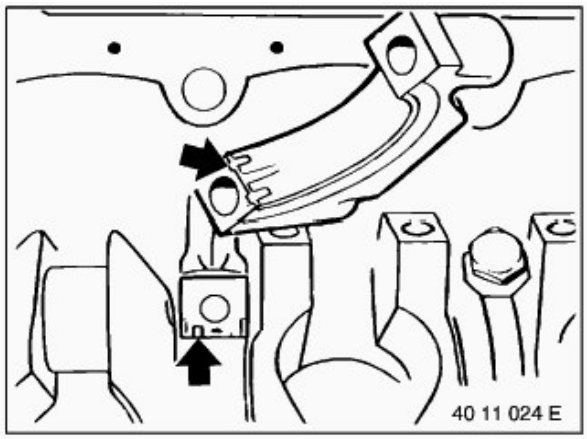
Tightening torque, 11 11 1AZ.



Remove main bearing cap and read off bearing clearance at width of pinched plastic thread on measuring scale.

Crankshaft bearing clearance radial.

If necessary, fit new bearing shells with a different color code to correct bearing clearance.



Note:

Remove plastic thread.

Coat main bearing shells and crankshaft with engine oil.

Insert main bearing cap in such a way that grooves of main bearing shell guide lie on one side.

Align main bearing cap flush with side of bearing seat.

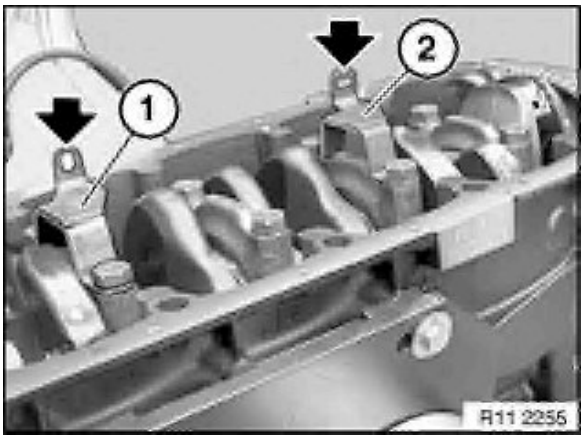
Installation:

Always replace screws of main bearing caps with new ones.

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

Note:

Wash and oil main bearing bolts.



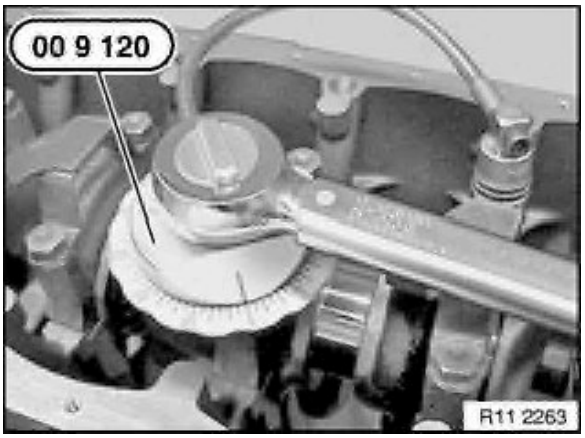
Holders for oil lines are fitted on main bearing caps 3 and 5.

Caution!

Holders (1 and 2) are different.

Holder (1) with elongated hole in vertical direction.

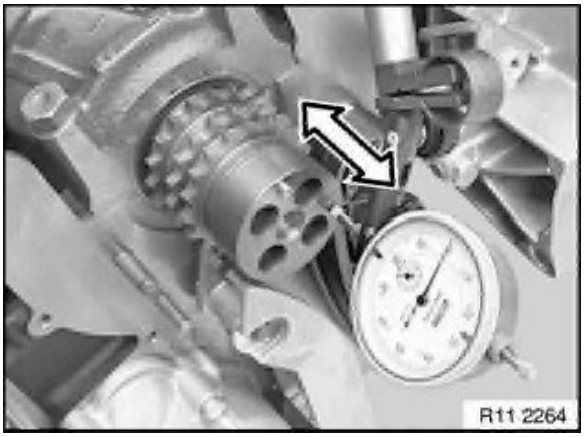
Holder (2) with elongated hole in horizontal direction.



Tightening specifications for main bearing:

1) Tighten all screws on main bearing cover with jointing torque.
2) Unfasten screws on main bearing cover 6.
3) Strike back and front of crankshaft with plastic hammer to center thrust bearing (do not damage crankshaft).
4) Tighten screws of main bearing cover 6 with jointing torque.
5) Tighten down all screws on main bearing caps with special tool 00 9 120 and torsion angle.

   Tightening torque, 11 11 1AZ.



Check axial play.

If permitted end float is exceeded, check crankshaft, guide bearing shells and engine block, replacing if necessary,

end float.