

11 25 530**Removing and installing/replacing all pistons (N55)****Special tools required:**

- [00 9 120](#)
- [11 4 491](#)
- [11 4 492](#)
- [11 8 141](#)
- [11 8 562](#)
- [11 8 564](#)
- [11 8 590](#)

**Warning!**

Safety goggles must be worn when working on the gudgeon pin circlip.

**Important!**

If pistons, connecting rods and connecting rod bearing shells are reused, they must be reinstalled in the same places.

Piston and gudgeon pins are paired and must not be fitted individually.

Individual connecting rod replacement is not permitted; they are classified by weight class.

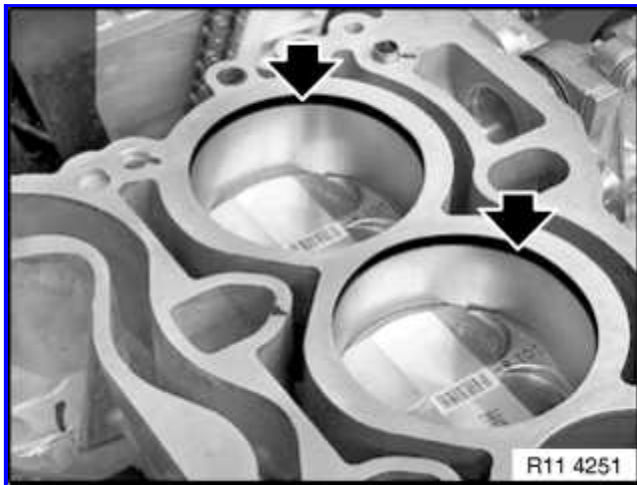
Connecting rods and connecting rod bearing caps are marked with the same pairing letters; mixing them up will result in engine damage.

Necessary preliminary work:

- Remove [engine](#).



- Mount engine on [assembly stand](#).
- Remove [intake plenum](#).
- Remove [cylinder head](#).
- Remove [oil sump](#).
- Remove [oil pump](#).



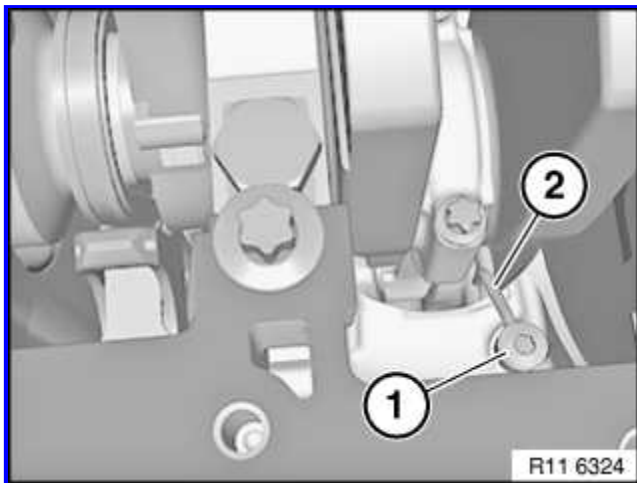
Note:

In event of heavy oil carbon residue:

Carefully remove oil carbon residue from cylinder wall.

Note:

Graphic shows N46.



Important!

Do **not** release screw (1).

[Oil spray nozzle](#) (2) must not be maladjusted or bent.

If necessary, readjust (**risk of damage**).

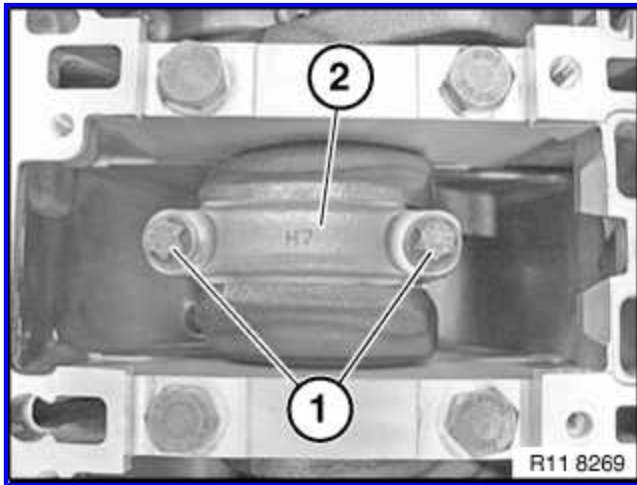
Release connecting rod bolts (1).

Tightening torque [11 24 1AZ](#).

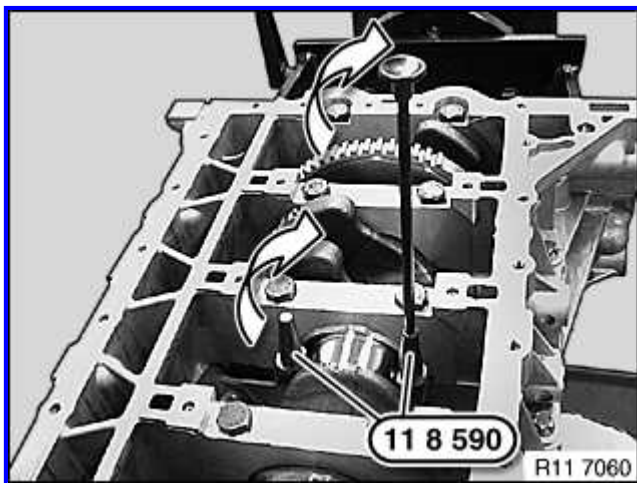
Remove connecting rod bearing cap (2).

Important!

Connecting rods and connecting rod bearing caps are marked with the same pairing letters; mixing them up will



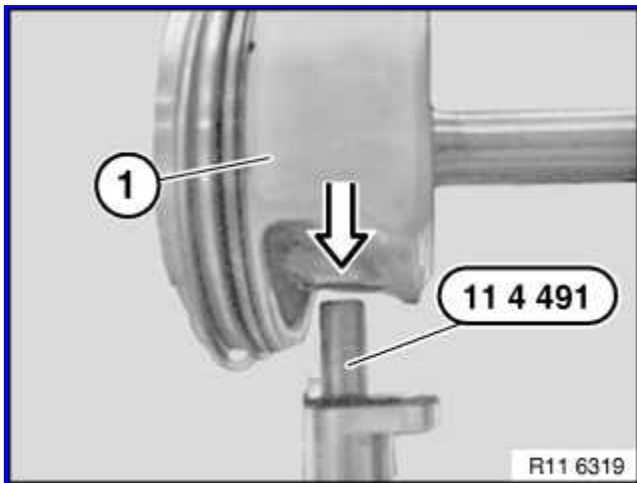
result in engine damage.



Screw special tool [11 8 590](#) into big end of connecting rod.
Press out connecting rod and piston to cylinder head side.

Important!

Risk of damage to oil spray nozzle.



Preliminary work:

Secure special tool [11 4 491](#) in vice.

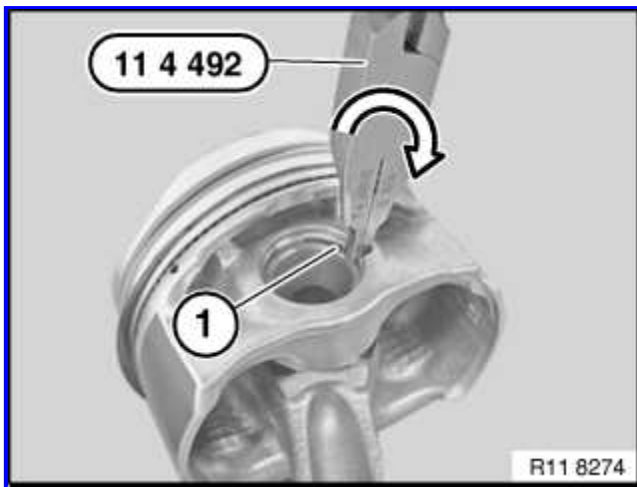
Secure piston (1) with connecting rod to special tool [11 4 491](#).

Note:

Graphic shows N52.

Warning!

Safety goggles must be worn for the next operation.

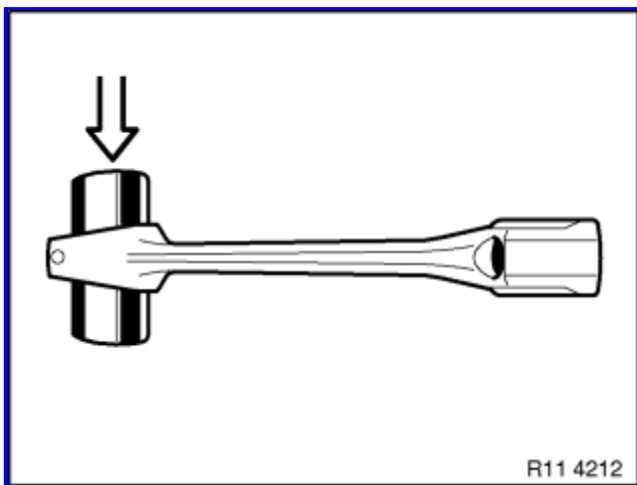


Warning!

Safety goggles must be worn.

To lever out piston circlip (1), support with special tool [11 4 492](#) on piston (2).

Lever out piston circlip (1) with special tool [11 4 492](#) in direction of arrow.



Important!

Connecting rods are divided into weight classes and are only available as a set.

Old and new connecting rods must not be installed in mixed combinations.

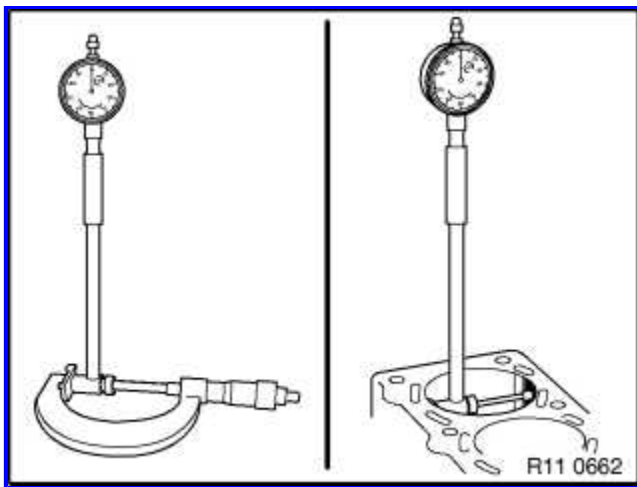
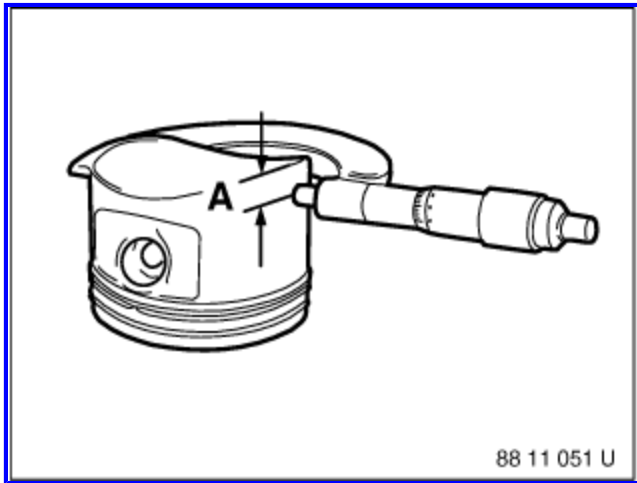
Installation note:

The gudgeon pin must be able to be pressed through the bush by hand with little force and must not display any significant play.

Measuring [piston installation clearance](#):

Measure piston diameter with micrometre at measuring point A from lower edge of piston and offset at 90° to the axis of the gudgeon pin.

Piston diameter at measuring point A.



Adjust micrometre to cylinder bore of engine block. Set internal measuring device on micrometre to zero. Measure bottom, centre and top of cylinder bore in direction of travel and direction of rotation.

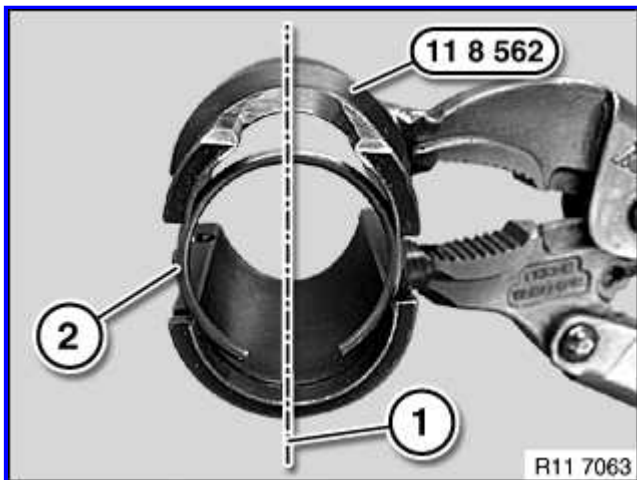
Diameter of cylinder bore.

Piston installation clearance.

Permissible [total wear clearance](#).

Installation note:

If necessary, replace piston.



Warning!

Safety goggles must be worn.

Important!

The opening of the piston pin circlip must be installed on the piston in the **6 o'clock position**.

Risk of damage!

Insert piston circlip (2) into groove of special tool [11 8 562](#).

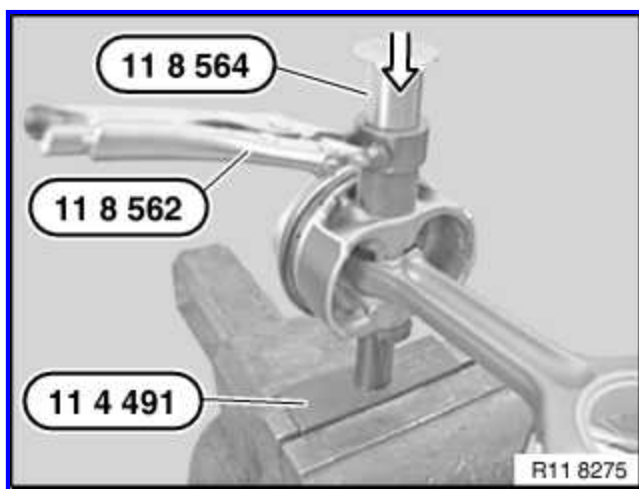
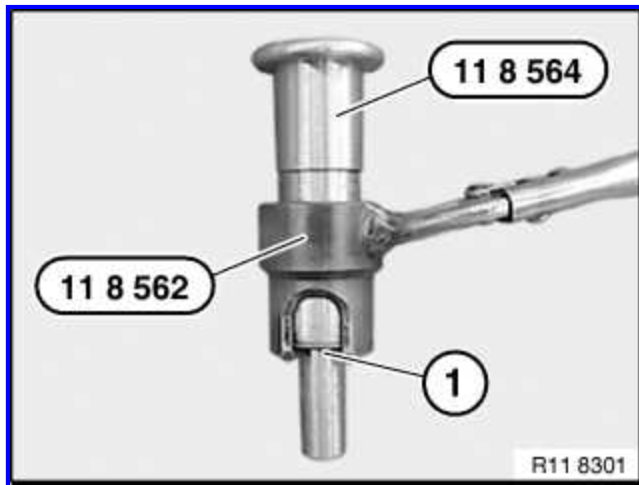
Bring piston circlip (2) into working position (1).

Warning!

Safety goggles must be worn.

Slide on special tool [11 8 564](#) up to piston pin circlip (1)

Special tools [11 8 562](#) and [11 8 564](#) are prepared.



Warning!

Safety goggles must be worn.

The aperture on special tool [11 8 562](#) must point to piston crown; only then can special tool [11 8 564](#) be fitted correctly.

If the special tools [11 8 562](#) and [11 8 564](#) are not positioned correctly, the piston pin circlip must be driven in using a plastic hammer in direction of arrow.

Note:

See graphic.



Piston pin circlip is correctly installed when opening (1) points downwards.

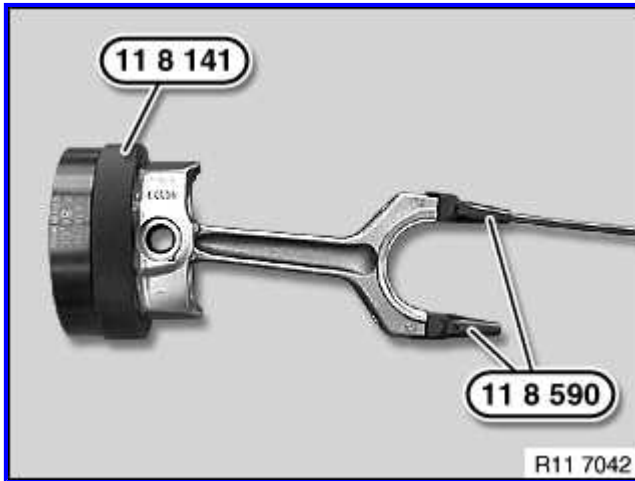
Install all [piston rings](#).

Install all [bearing shells](#).

Coat piston and piston rings with oil.

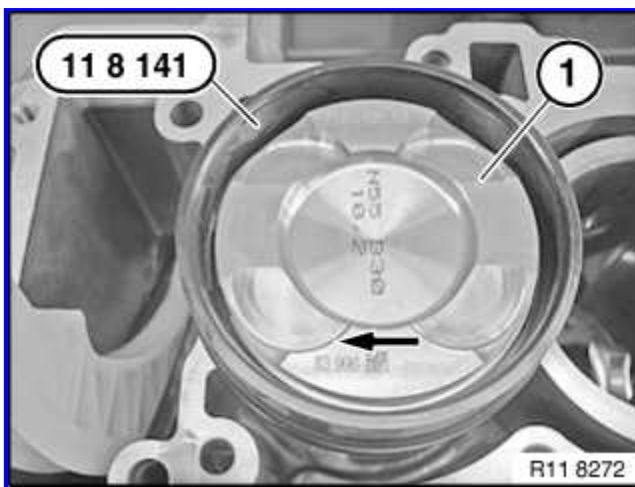
Pre-install piston (2) in special tool [11 8 141](#).

Screw on special tool [11 8 590](#) in connecting rod (2).



Installation note:

Make sure protective lugs (1) on special tool [11 8 590](#) are positioned correctly and check for damage.



Insert piston with connecting rod in cylinder.

Important!

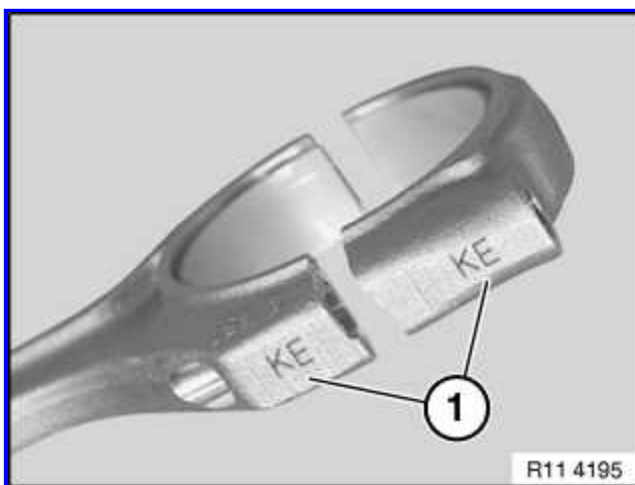
Risk of damage to oil spray nozzle.

Risk of breakage of piston rings.

Press in piston in direction of arrow with finger pressure only, do not drive in.

Insert piston so that arrow on piston crown points to camshaft drive.

Press in piston (1) with special tool [11 8 141](#).



Important!

Connecting rod and connecting rod bearing cap are marked with pairing letters (1) and must not be mixed up.

Swapping or incorrectly fitting the connecting rod bearing cap on the big end will result in **engine damage**.

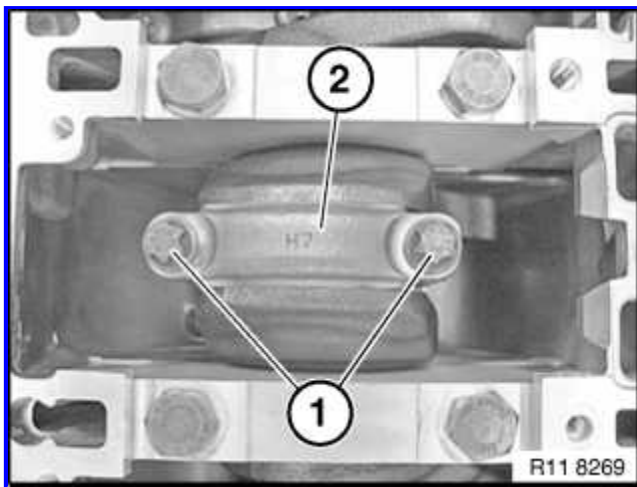
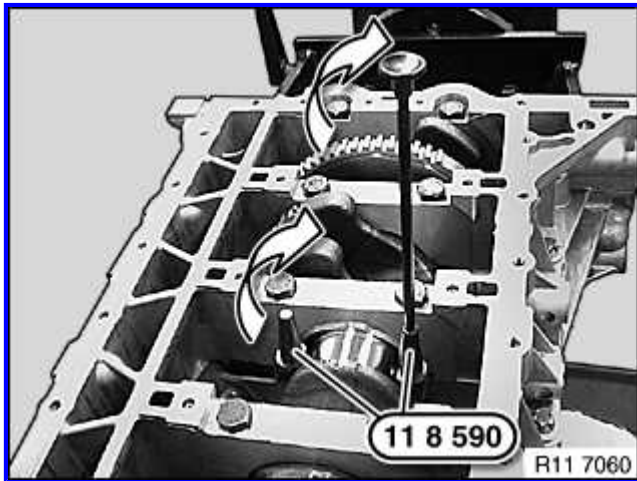
Apply a light coat of oil to crankshaft journal.

Assemble connecting rod and crankshaft journal.

Screw off special tool [11 8 590](#) in anti-clockwise direction.

Note:

Illustration shows N54.

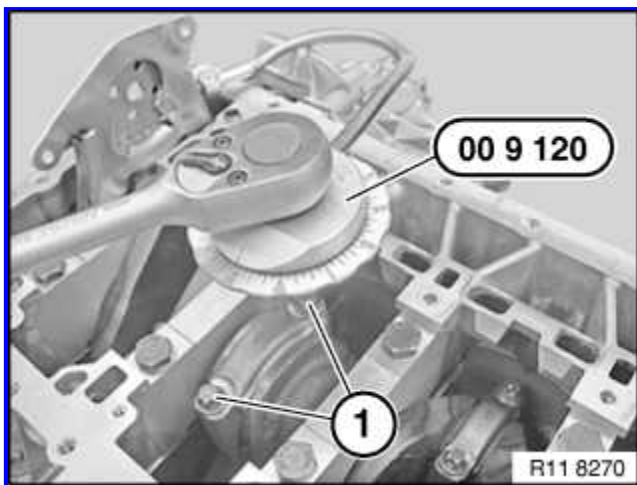


Fit bearing caps (2) so that pairing letters match up.

Install new connecting rod bolts (1).

Join connecting rod bolts (1).

Tightening torque [11 24 1AZ](#).



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

Tightening torque [11 24 1AZ](#).

Assemble engine.

