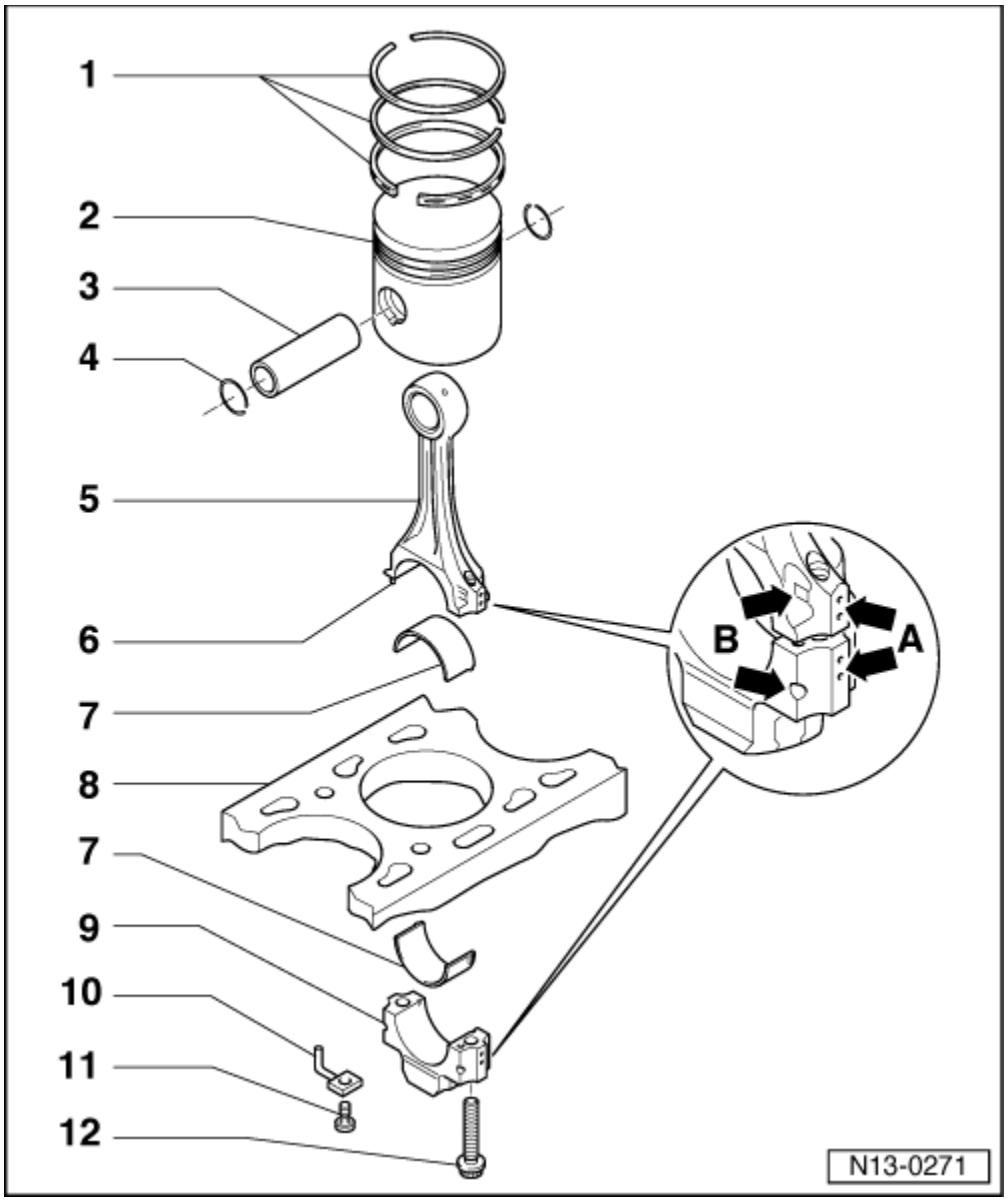
Piston and Connecting Rod Overview



1 - Piston Rings

- Offset gaps by 120°
- Use piston ring pliers for removal and installation.
- "TOP" faces toward piston crown.
- Checking ring gap, refer to → Anchor.
- Checking piston ring groove clearance, refer to → Anchor.

2 - Piston

- With the combustion chamber.
- Mark the installed position and cylinder allocation.
- Installed position and allocation, piston/cylinder, refer to → Anchor.
- Arrow on piston face points toward the belt pulley side.
- Install with piston ring compressor.
- Replace if piston skirt is cracked.
- Checking piston position at Top Dead Center (TDC). Refer to → Chapter „Piston Position, Checking at TDC".

3 - Piston Pin

- If difficult to move, heat piston to 60 °C (140 °F).
- Remove and install using the pilot drift -VW 222 A-.

4 - Circlip

5 - Connecting Rod

- Only replace as set.
- Mark affiliation to the cylinder -A-.
- Installed position: the marks -B- face the belt pulley side.

6 - Alignment Pin

- The alignment pins must fit securely inside the connecting rod and not in the cap.

7 - Bearing Shell

- Note the installed position.
- Do not interchange used bearing shells.
- Check for a secure fit in the retaining tabs.
- Axial play wear limit: 0.37 mm
- Measure the radial play using a Plastigage: wear limit: 0.08 mm at the radial play, do not turn the crankshaft.

8 - Cylinder Block

- Checking cylinder bore, refer to → Anchor.
- Piston and cylinder dimensions, refer to → Chapter „Piston and Cylinder Dimensions“.

9 - Connecting Rod Bearing Cap

- Note the installed position.

10 - Oil Spray Jet

- For piston cooling.

11 - Bolt

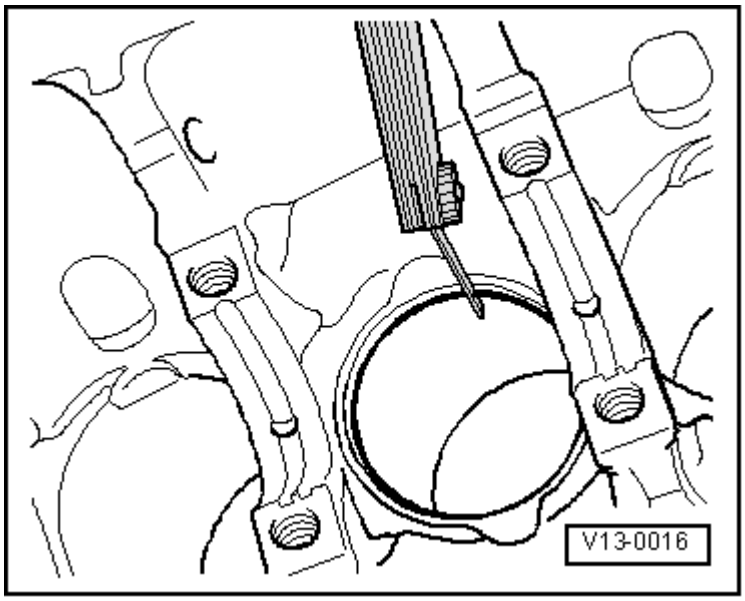
- 25 Nm
- Install without sealant.

12 - Bolt

- 30 Nm + 90° (1/4) additional turn.
- Replace
- Lubricate the threads and contact surface.
- Use the old bolt to measure radial play.

Piston Ring Gap, Checking

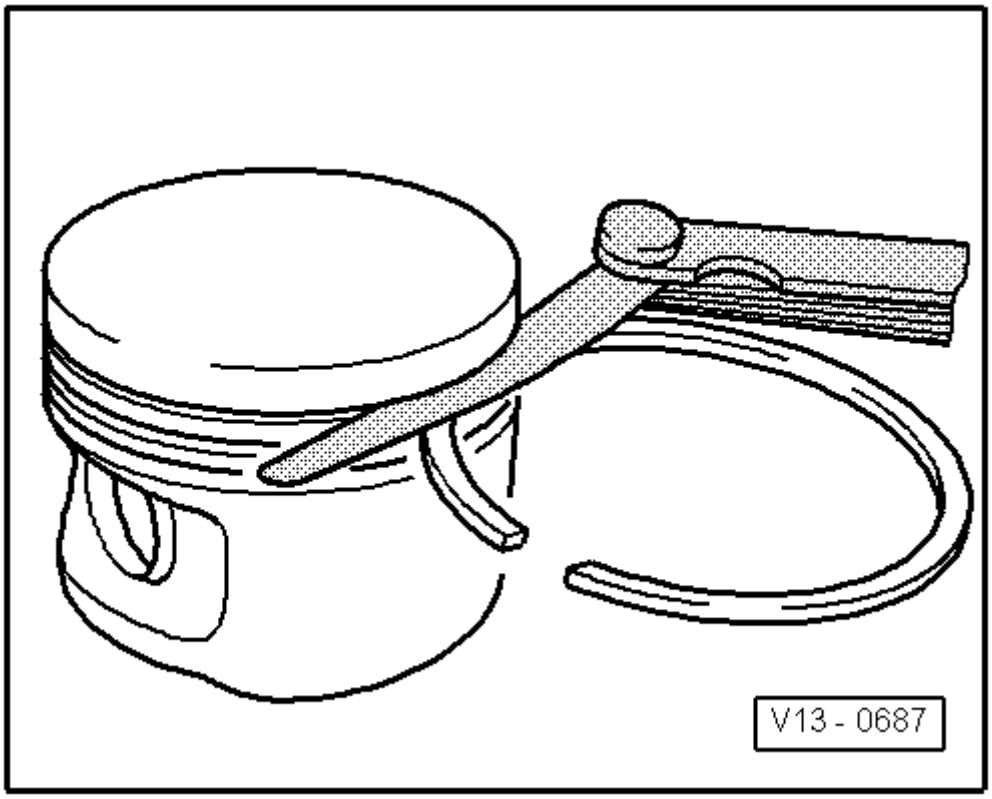
– Insert ring into lower cylinder bore at a right angle from above, approximately 15 mm from cylinder edge.



Piston Ring Dimensions in mm	New	Wear limit
1. Compression ring	0.20 to 0.40	1.,0
2. Compression ring	0.20 to 0.40	1.0
Oil scraping ring	0.25 to 0.50	1.0

Piston Ring Groove Clearance, Checking

Clean the ring groove before checking.



Piston Ring Dimensions in mm	New	Wear limit
1. Compression ring	0.06 to 0.09	0.25
2. Compression ring	0.05 to 0.08	0.25
Oil scraping ring	0.03 to 0.06	0.15

Cylinder Bore, Checking

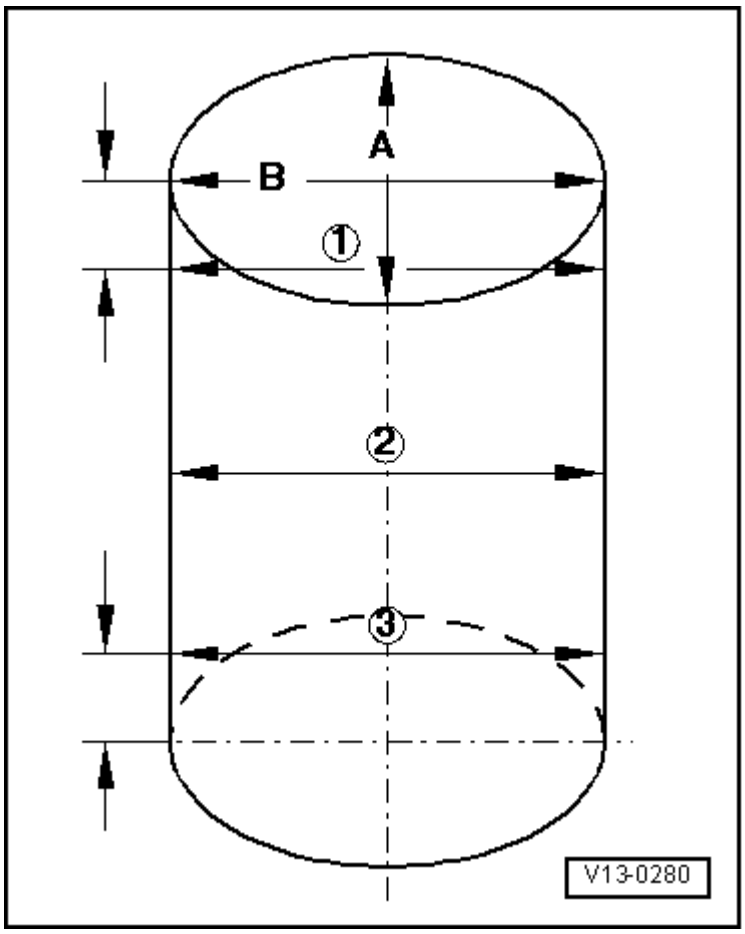
Special tools and workshop equipment required

- Internal Dial Gauge 50-100 mm

– Measure diagonally at 3 positions transversely -A- and longitudinally -B-. Deviation from nominal dimension: <ax. 0.10 mm

Note

Cylinder bore measurement must not be performed if cylinder block is secured to assembly stand using the holding fixture -VW 540-, since inaccurate measurements are possible.



Installed Position of Piston and Piston/Cylinder Allocation

Pistons in cylinder 1 and 2:

Large valve pocket for intake valve toward flywheel side -arrows-

Pistons in cylinder 3 and 4:

Large valve pocket for intake valve toward belt pulley side -arrows-

Note

- *On new pistons, the cylinder allocation is stamped on the piston face in paint.*
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Piston for cylinders 1 and 2: identification 1/2

- *Piston for cylinders 3 and 4: identification 3/4*