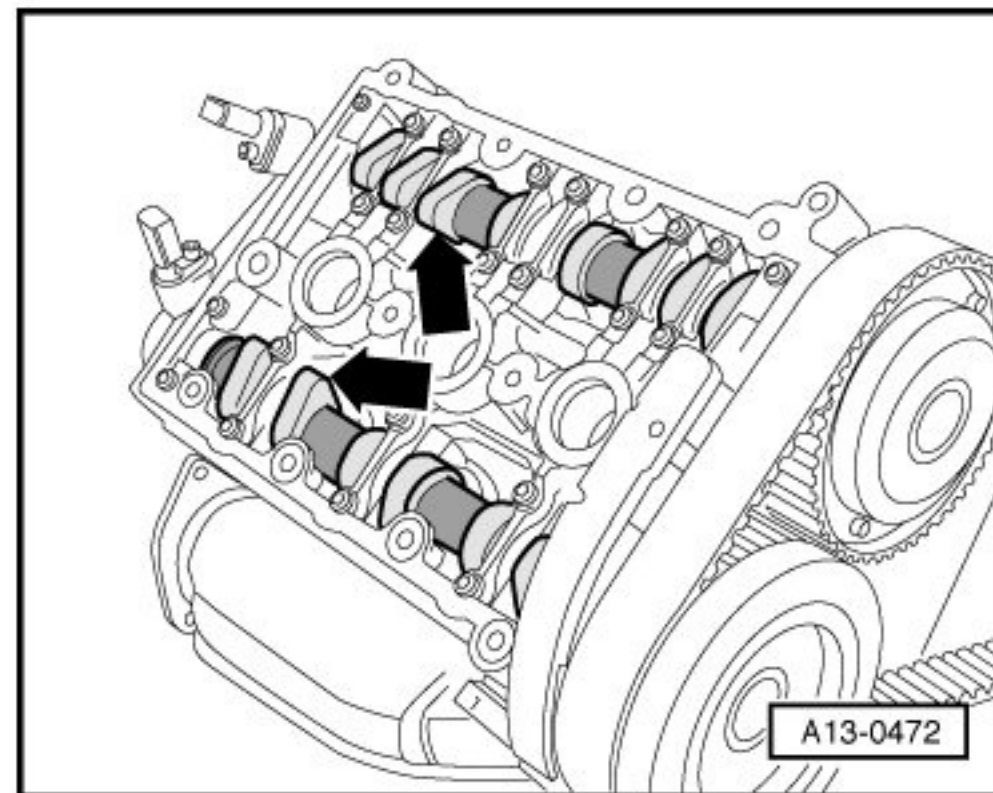



- Turn the engine at the crankshaft center bolt until the cam lobes -arrows- on the intake and exhaust camshafts of cylinder 3 (right cylinder bank) face upward evenly.

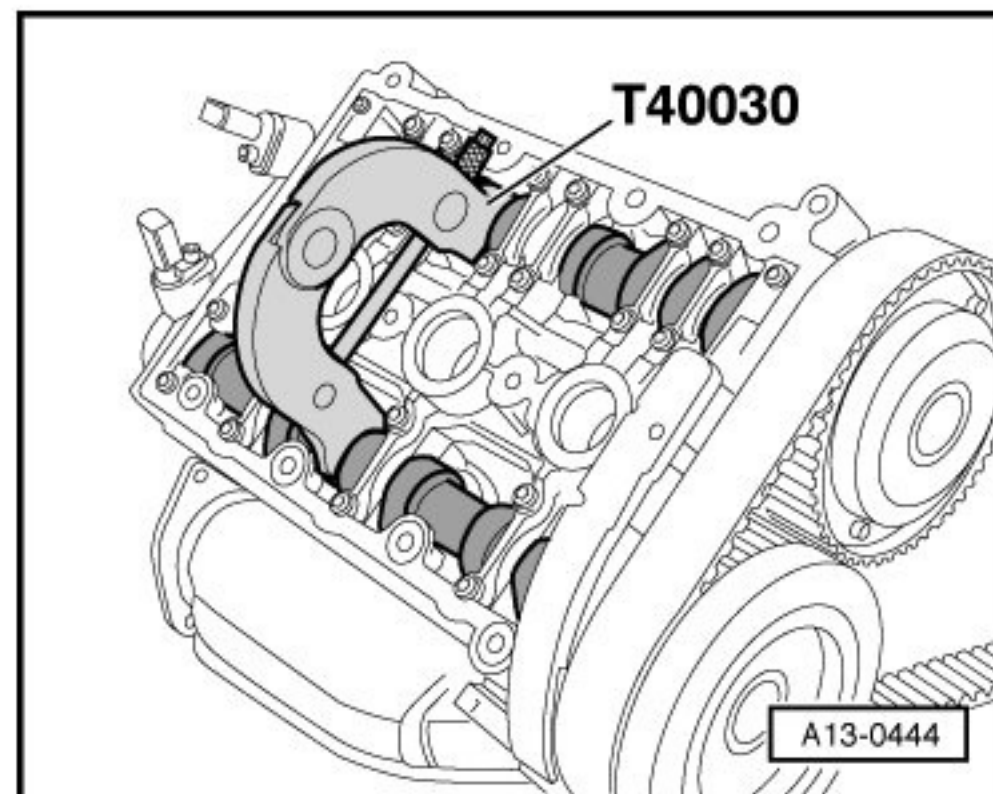


- Insert -T40030- into right cylinder head camshafts.

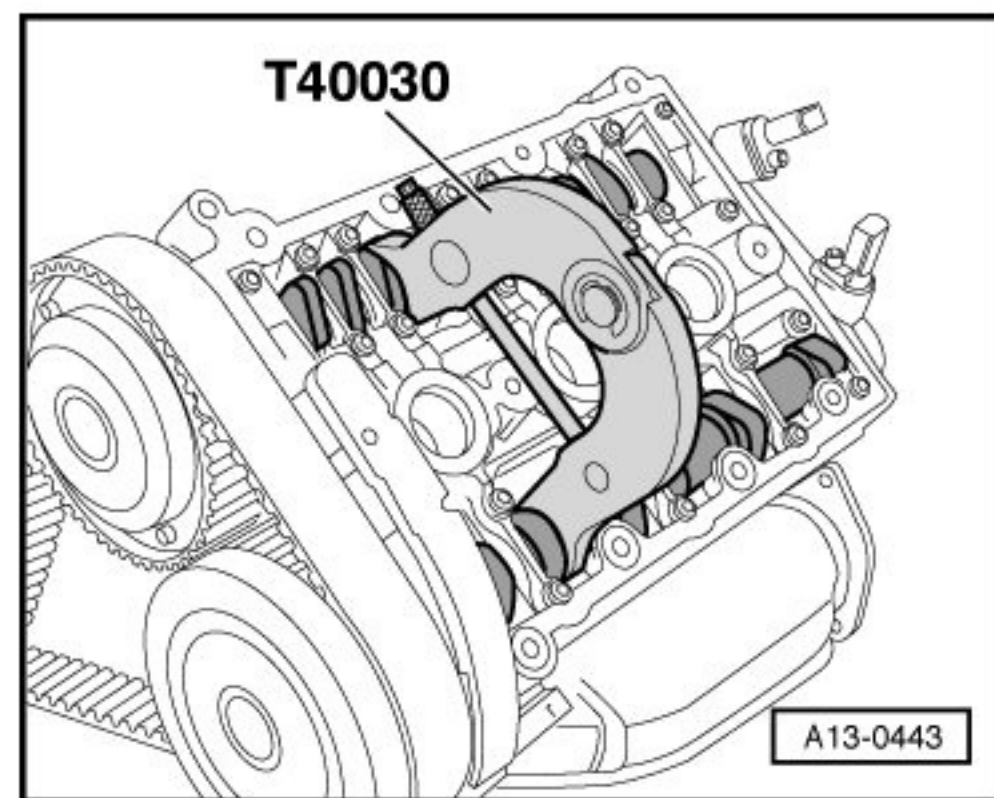
 **Note**

Turn crankshaft back and forth slightly so that -T40030- claws can engage on camshafts correctly.

- Spread -T40030- with threaded rods (specified torque max. 10 Nm) until it is seated with no play.



- Insert -T40030- in the same way in left cylinder head.
- If equipped, disconnect electrical connector to after-run coolant pump -V51-.
- Remove the sealing plugs for the TDC marking from the cylinder block.

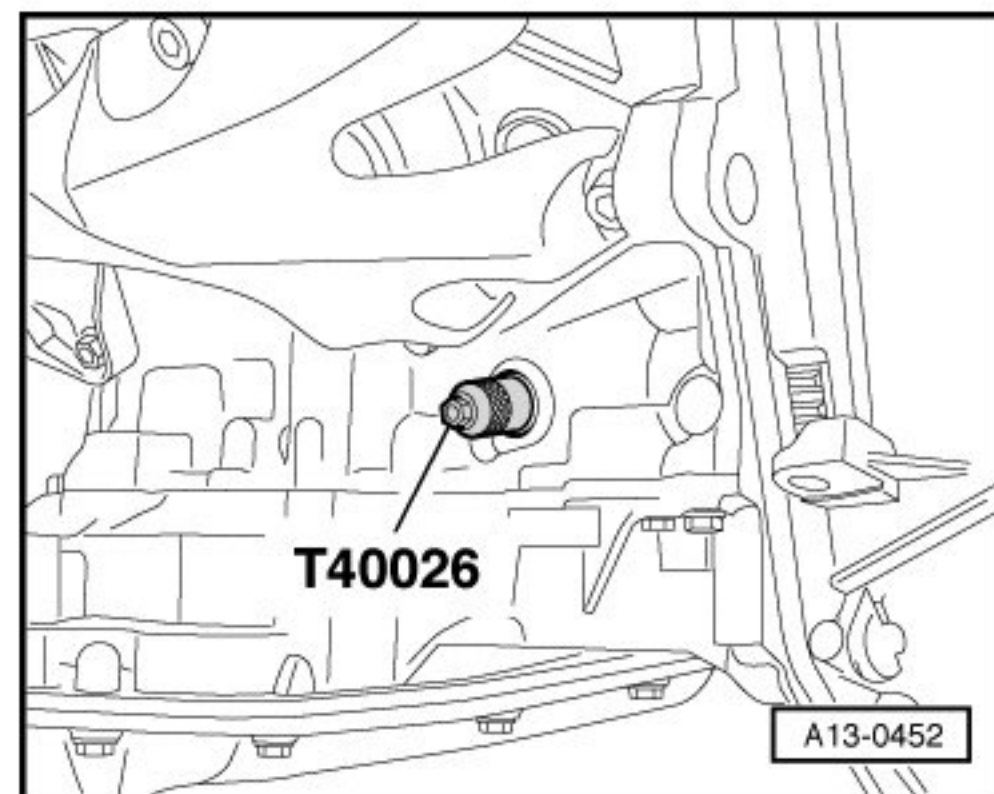


- Install -T40026- into hole, if necessary rotate crankshaft very slightly back and forth to completely center the bolt.

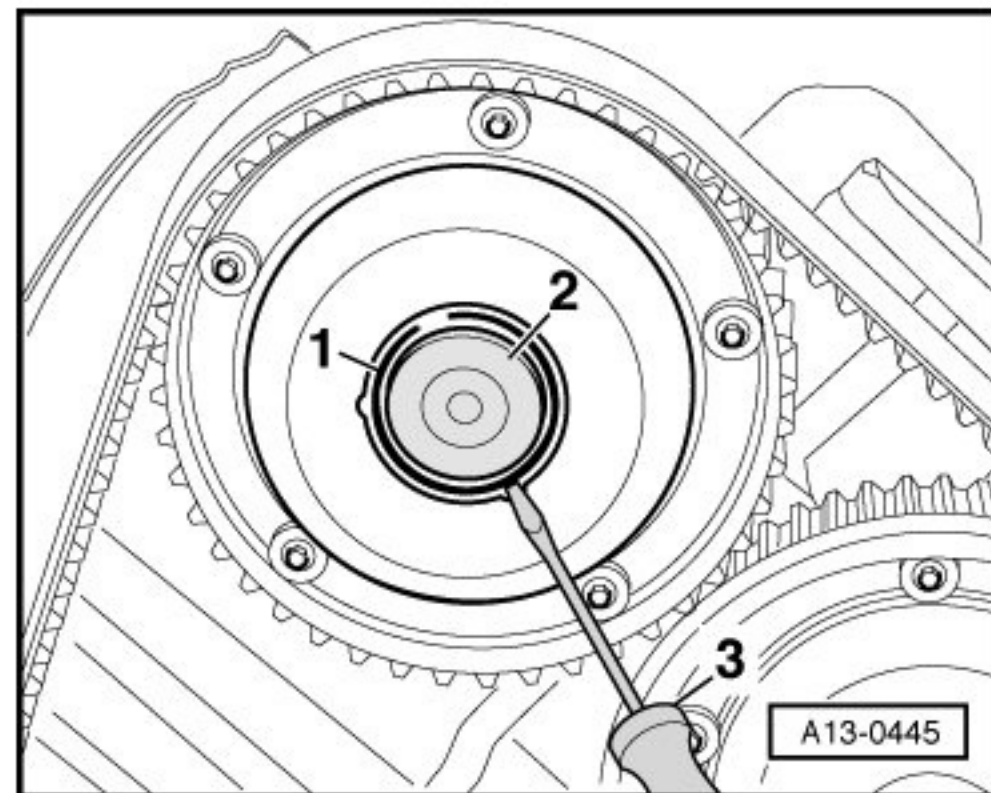


Note

Place a rag beneath to catch escaping oil.



- Pry circlips -1- for cover caps -2- with a screwdriver -3- at all camshaft gears.

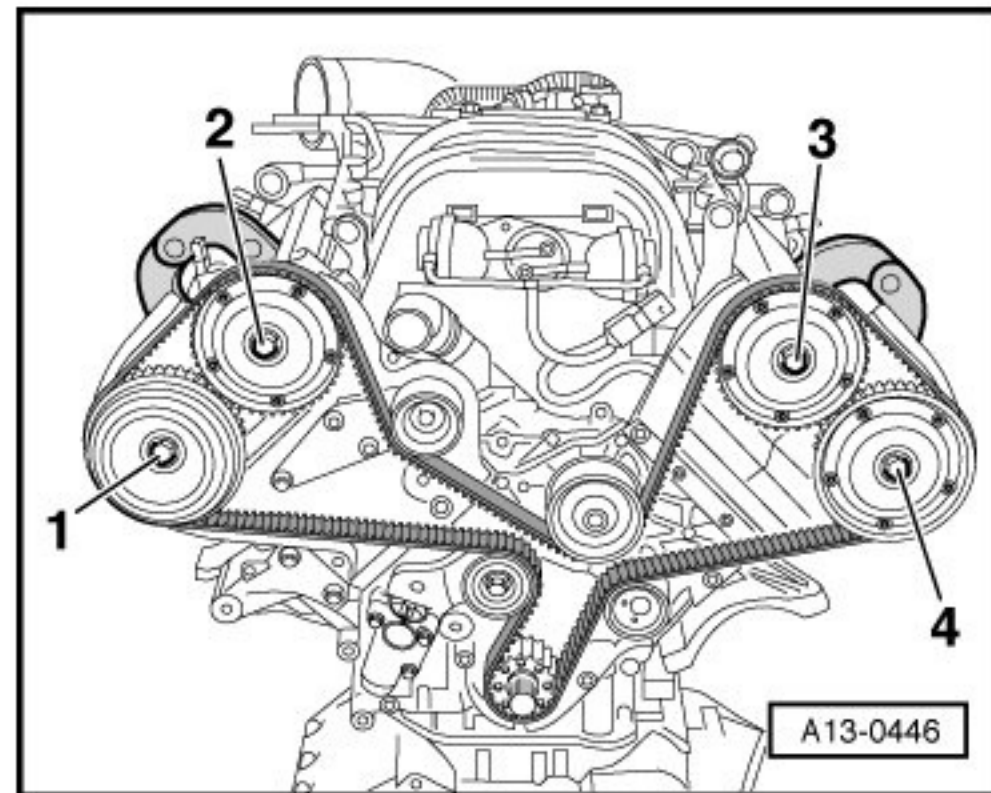


- Loosen camshaft gear bolts -1 to 4-



Note

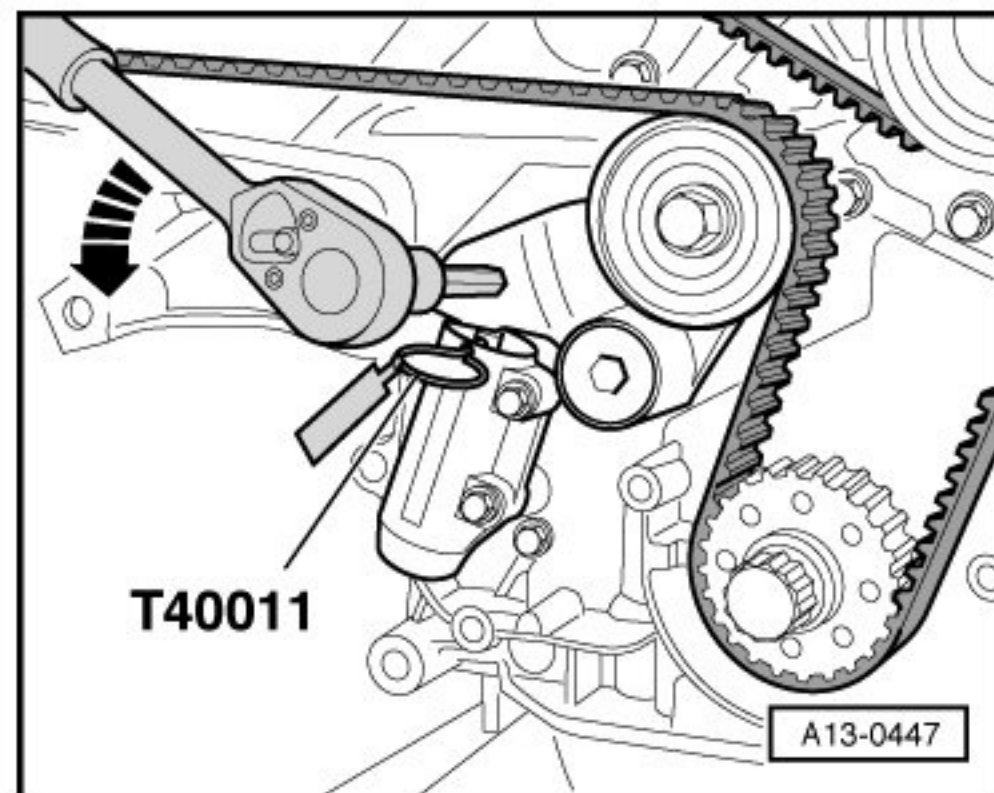
The bolts remain loose but screwed in.



- Turn toothed belt tensioning roller using 8 mm hex socket in direction of -arrow- until tensioning element on tensioning lever is pushed together enough that -T40011- can be inserted in piston and housing holes.

Note

- ◆ The toothed belt tensioner is oil-dampened. Compress it by slowly applying constant pressure.
- ◆ Before removing toothed belt, mark the turning direction on it with chalk or a felt tip pen. A reversed turning direction can cause damage to the used toothed belt.



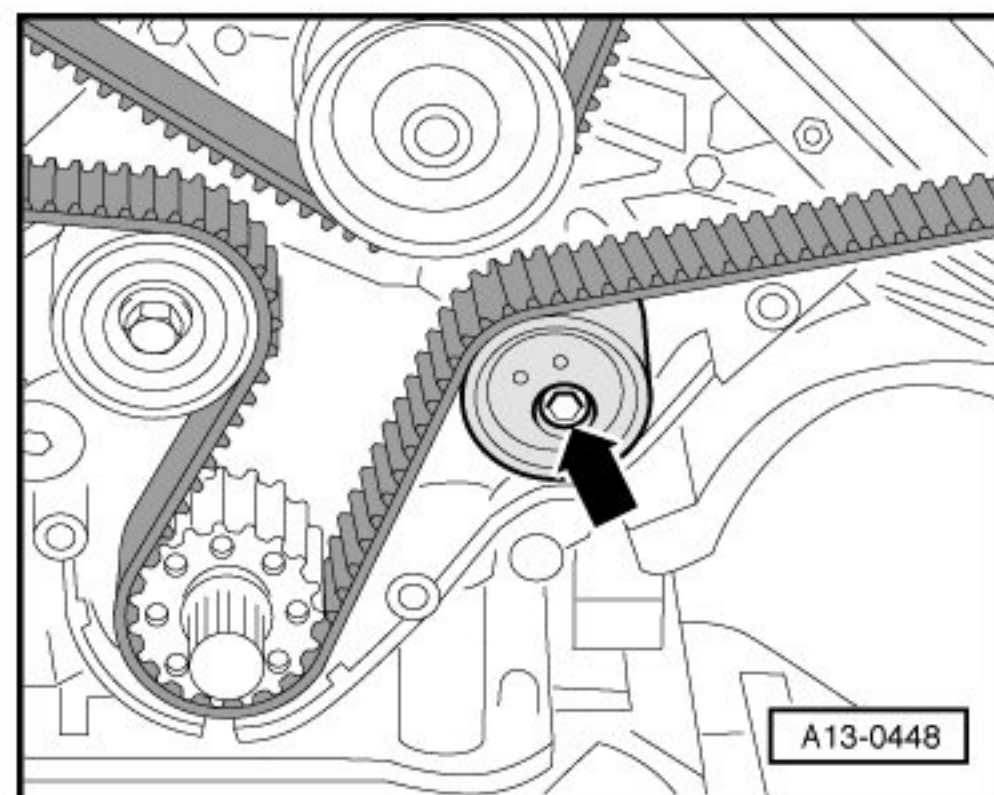
- Loosen bolt -arrow- of eccentric pulley.
- Remove toothed belt.

Installing (adjusting valve timing)

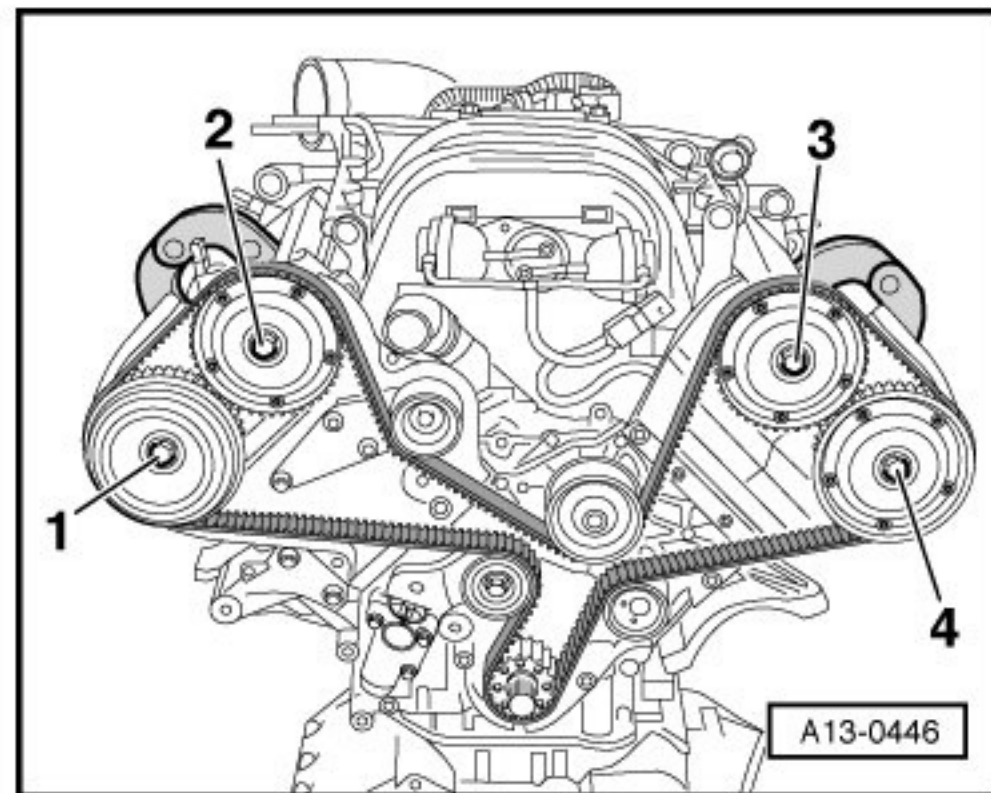
- Camshafts locked with -T40030-.
- Secure crankshaft using -T40026-.
- Camshaft gears loosened.

Note

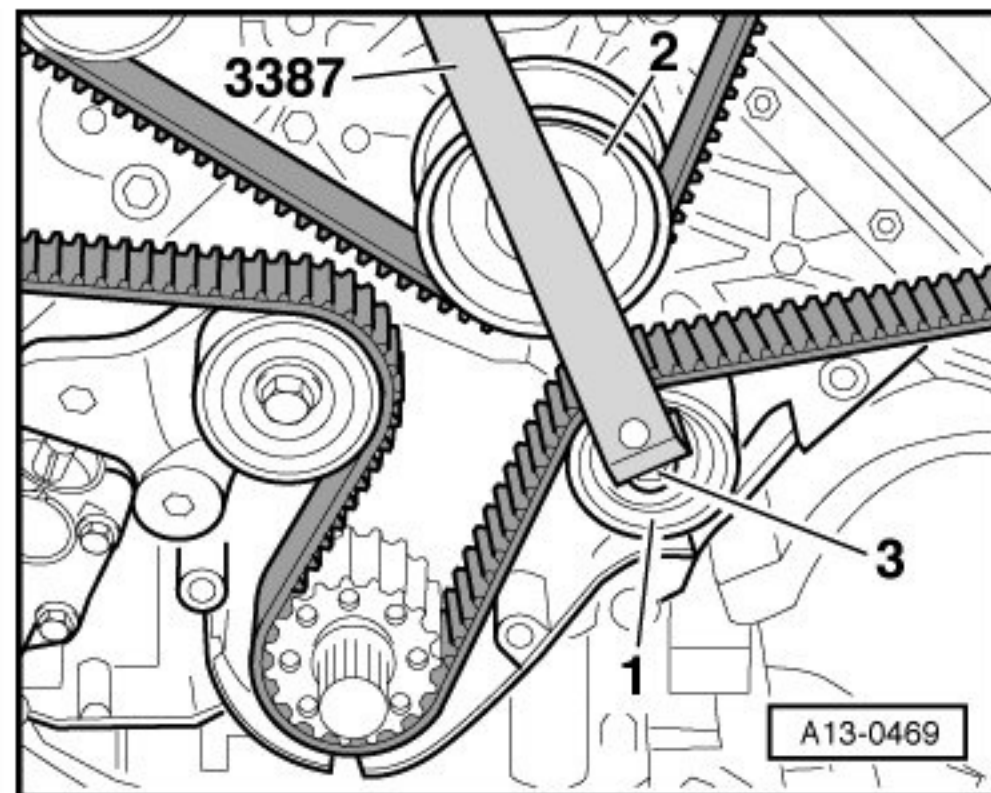
- ◆ Replace seals, sealing rings, O-rings and self-locking fasteners.
- ◆ When turning camshaft crankshaft must not be at TDC for any cylinder. Valves and/or pistons may be damaged.



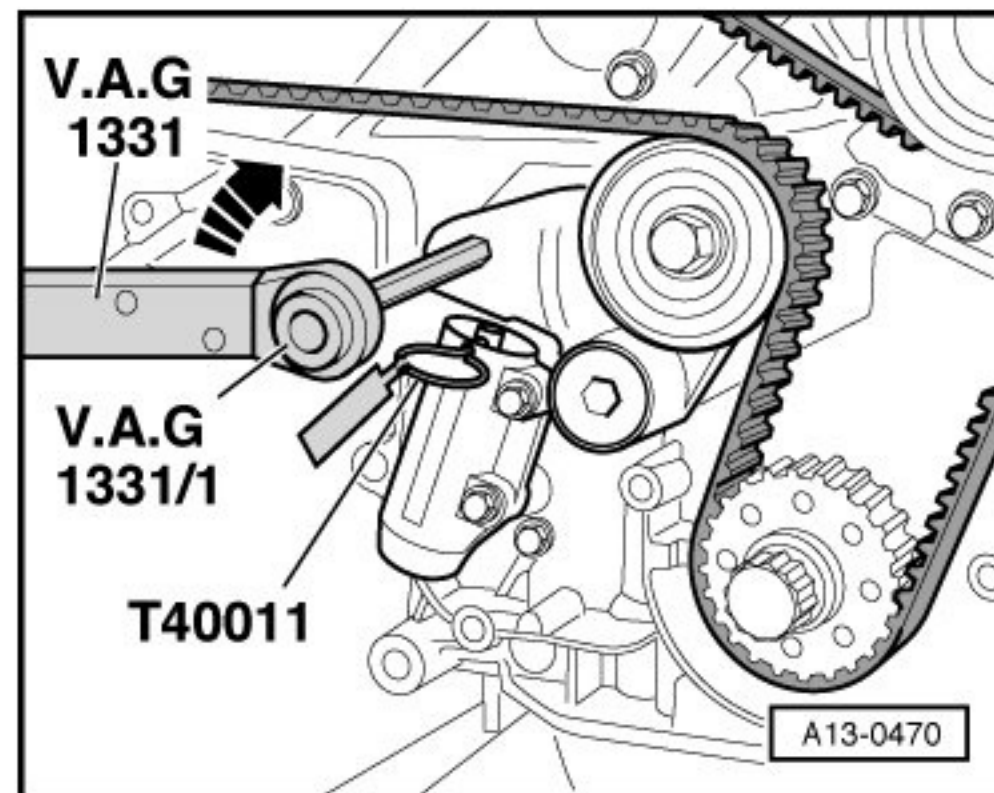
- Screw in camshaft gears -1- to 4- until they rotate straight and do not tilt.
- Place toothed belt as shown in the illustration.
- Toothed belt and all toothed belt gears must fit exactly on front edge for a precise valve timing adjustment.



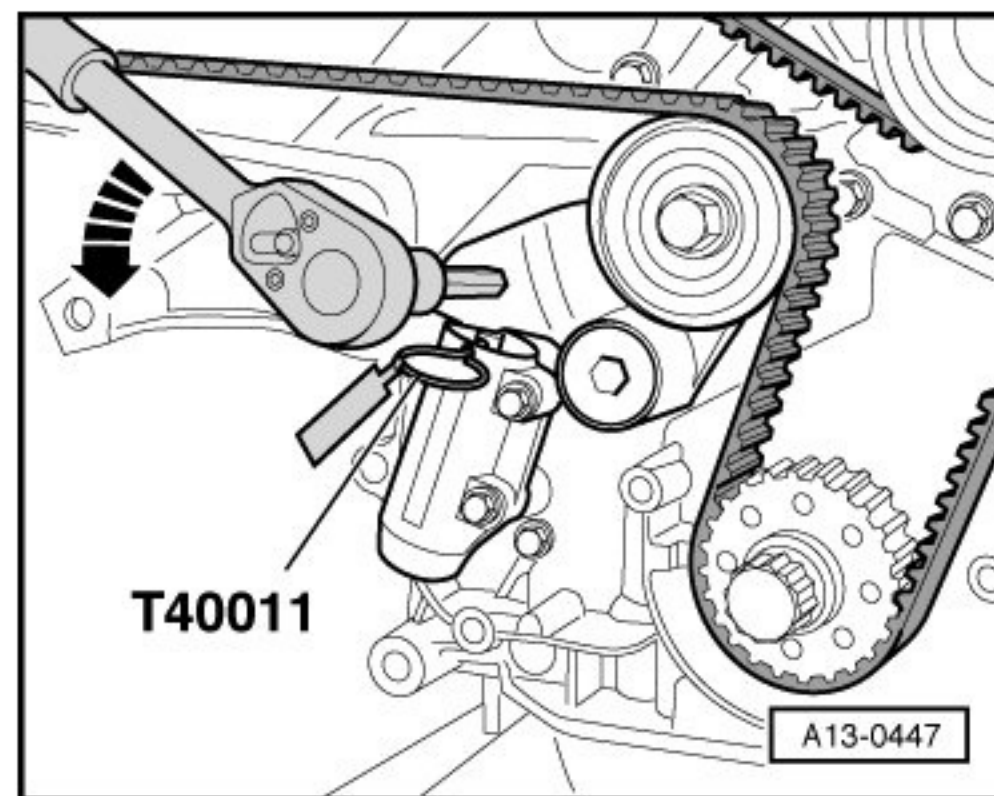
- Turn eccentric roller -1- using -3387- clockwise until spanner wrench handle lies directly over coolant pump sprocket center axis -2-.
- Hold -3387- securely in this position and tighten bolt -3- to 45 Nm.
- Place torque wrench horizontally on tensioning lever hex socket.



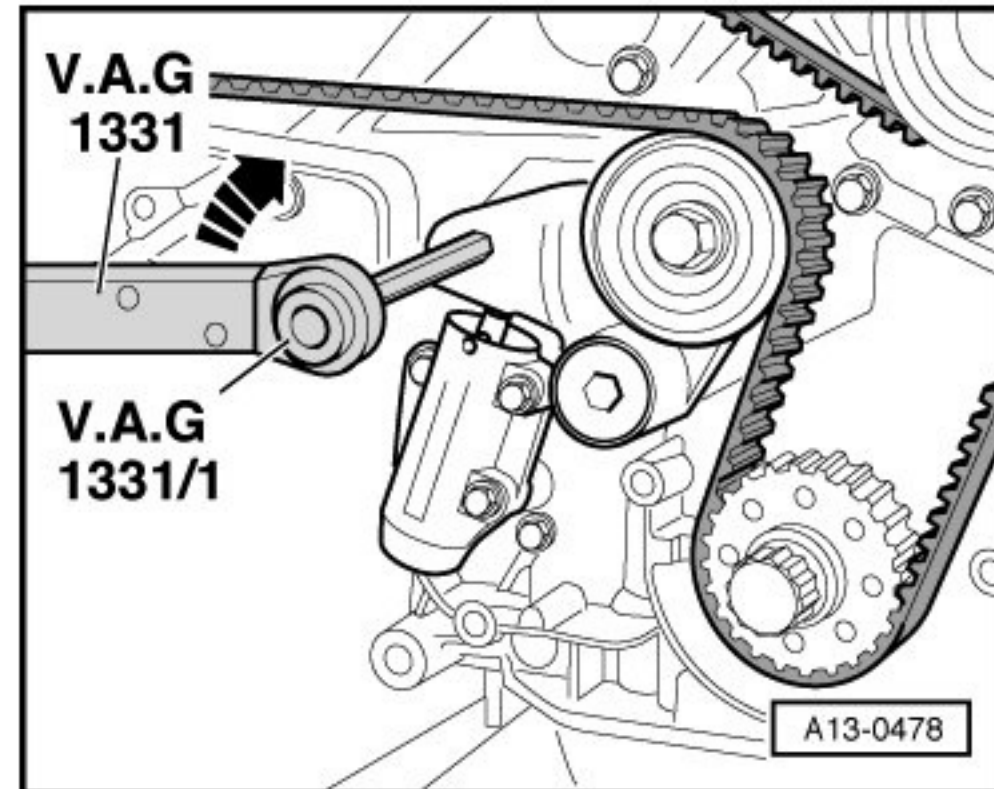
- Turn toothed belt to 45 Nm in direction of -arrow- to pretension.



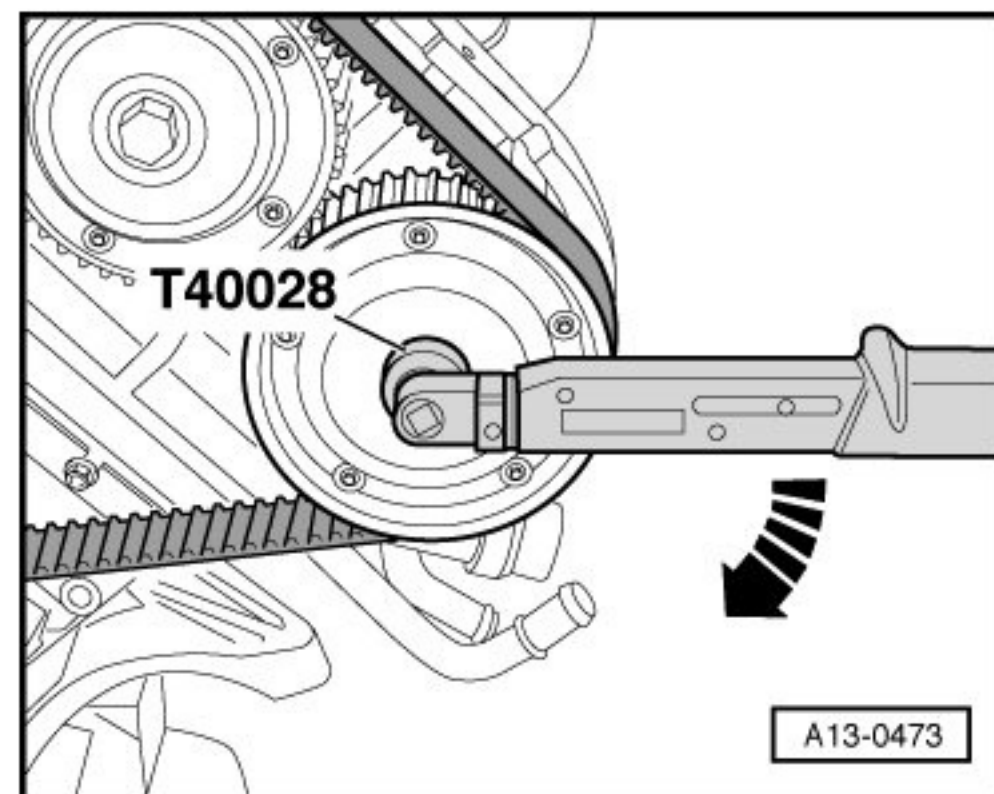
- Rotate toothed belt tensioning roller with 8 mm hex socket in direction of -arrow- until - T40011- can be removed.



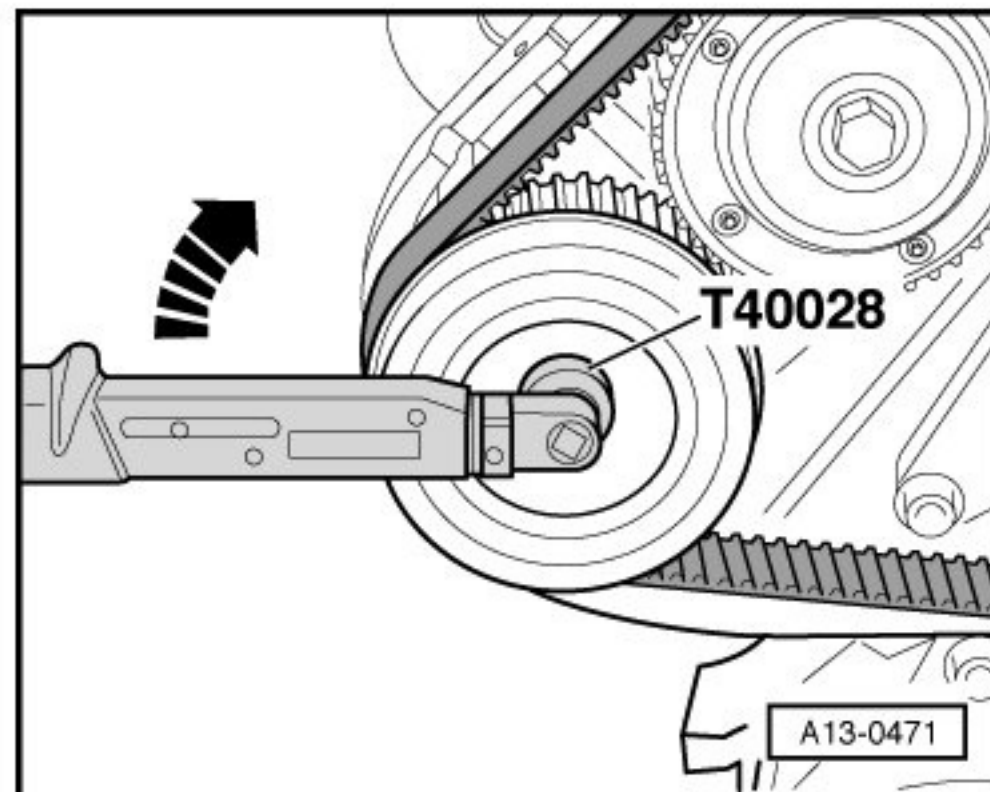
- Place torque wrench horizontally on tensioning lever hex socket.
- Turn toothed belt to 25 Nm in direction of -arrow- to tension.



- Place -T40028- on exhaust camshaft adjuster on left cylinder bank.
- Rotate camshaft adjuster rotor counterclockwise to 10 Nm to stop -arrow-.



- Rotate camshaft adjuster rotor on right cylinder bank counterclockwise to 10 Nm to stop - arrow-.
- Tighten the camshaft gears to 100 Nm.



- Insert cover caps -2- with new O-rings -1- on camshaft gears and secure with circlip.

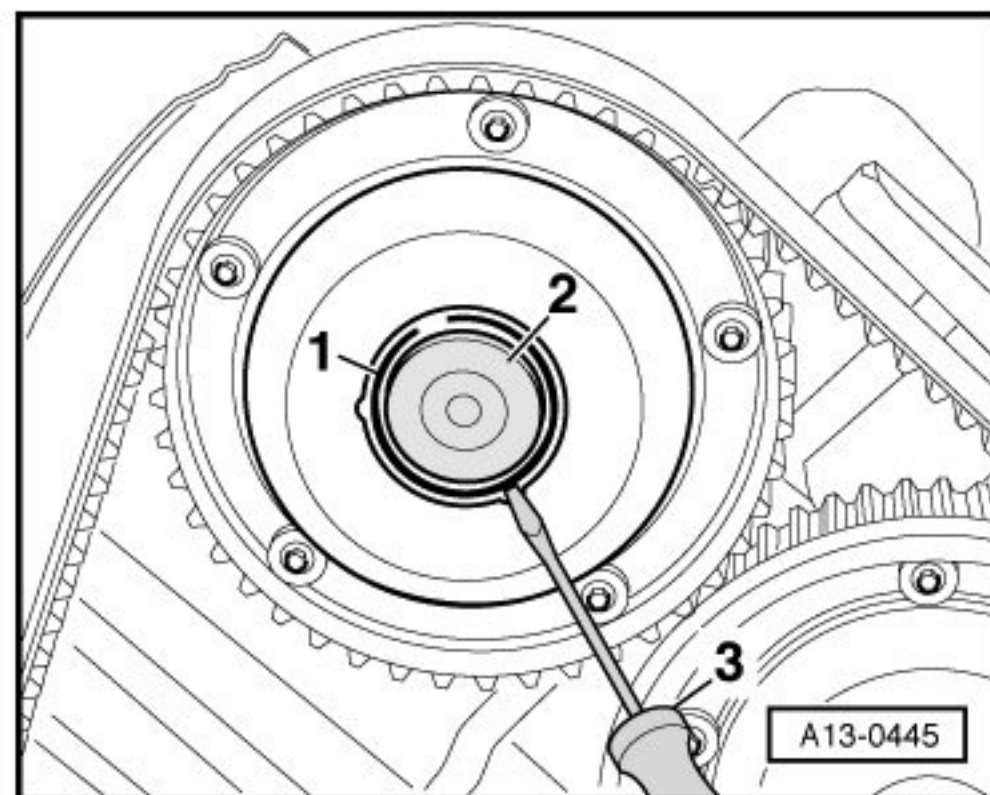
Note

Ignore -3-.

- Remove -T40030-.
- Remove the -T10026- and install the sealing plugs for the TDC marking with the new O-ring in the cylinder block.

The rest of the installation is in reverse order of removal, note the following:

- Install the cylinder head cover, refer to → [Chapter „Left Cylinder Head Cover“](#) or → [Chapter „Right Cylinder Head Cover“](#).
- Install toothed belt covers. Refer to → [Chapter „Toothed Belt Covers Component Overview“](#).
- Install vibration damper. Refer to → [Chapter „Vibration Damper“](#).



- Install ribbed belt tensioner. Refer to → [Chapter „Ribbed Belt Tensioner“](#).
- Install the ribbed belt. Refer to → [Chapter „Ribbed Belt“](#).
- Install the lock carrier with attachments. Refer to → [Body Exterior; Rep. Gr.50](#).
- Install front bumper. Refer to → [Body Exterior; Rep. Gr.63](#).

Tightening Specifications

| Component | Nm |
|--|-----|
| Eccentric roller to front sealing flange | 45 |
| Camshaft sprocket to camshaft | 100 |
| Sealing plugs in cylinder block | 25 |
| Belt pulley to power steering pump | 23 |