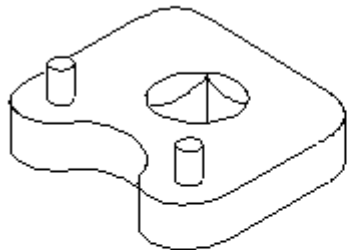
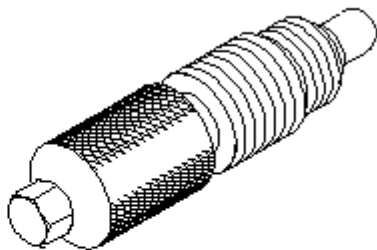
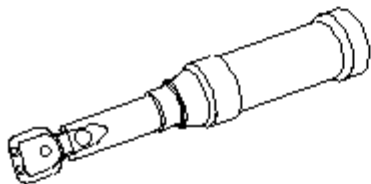
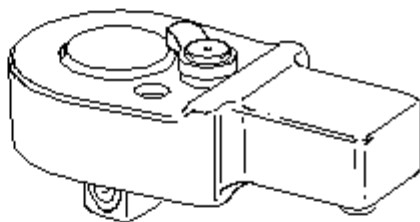
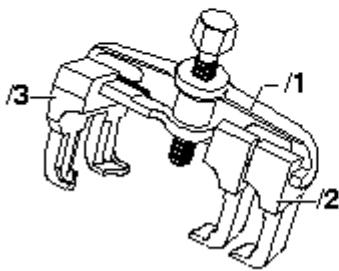



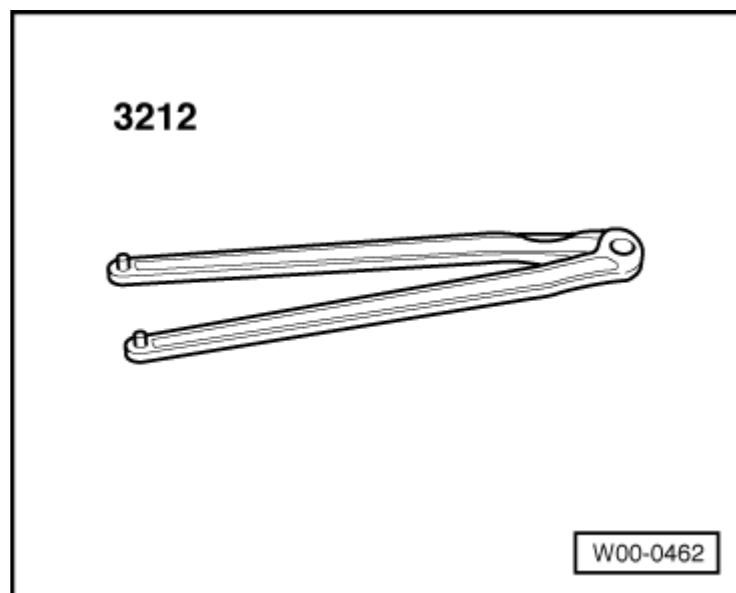
# Removing and installing toothed belt

<p><b>T40009</b></p> 	<p><b>3242</b></p> 
<p><b>V.A.G 1783</b></p> 	<p><b>VAS 6234</b></p> 
<p><b>T40001</b></p> 	<p><b>T40005</b></p>  <p>G13-10028</p>

Special tools and workshop equipment required

- t Tensioner wrench -T40009-
- t Locking pin -3242-
- t Torque wrench -V.A.G 1783-
- t Ratchet insert 1/4" -VAS 6234-
- t Two-arm puller -T40001- with claws -T40001/2-
- t Camshaft clamp -T40005-
- t Locking pin -T40011-
- t Pin wrench -3212-

Removing

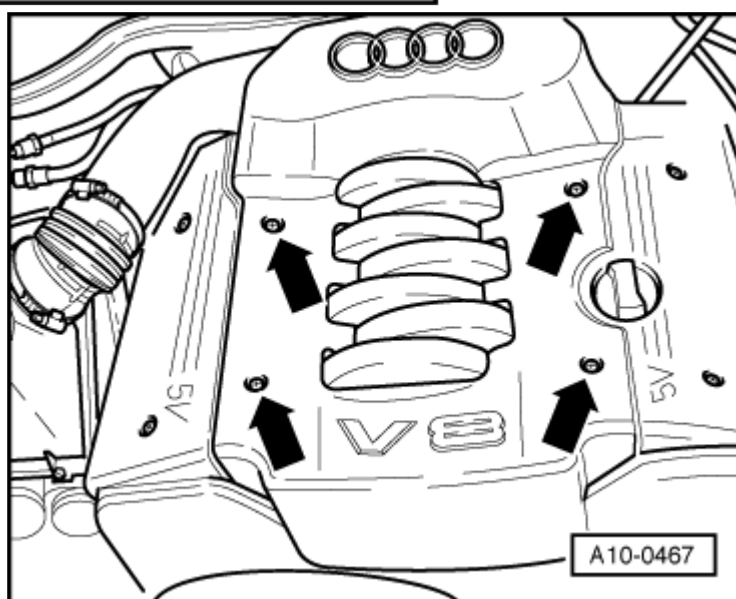


– First remove engine cover panel - arrows-.

– Remove toothed belt cover.

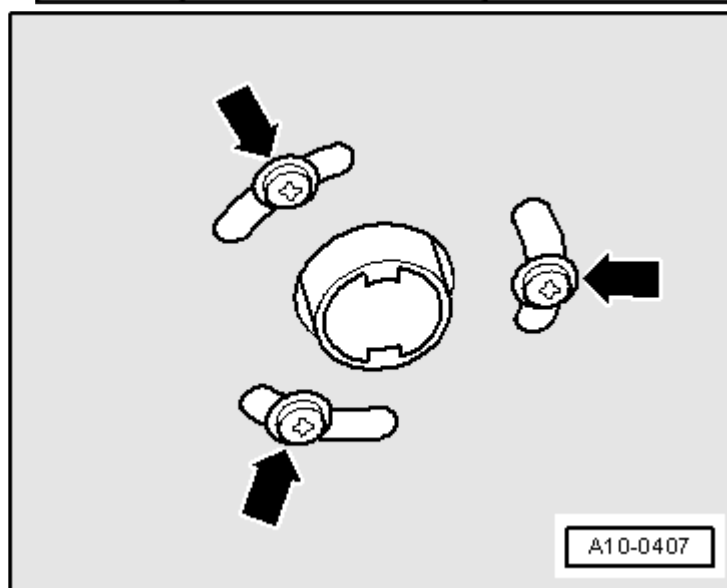
Vehicles with auxiliary heater / supplementary heater:

Remove bolts -arrows- securing exhaust pipe for auxiliary/supplementary heater to noise insulation.



All models:

– Detach noise insulation -arrows-.



- Remove poly V-belt → [Chapter](#).

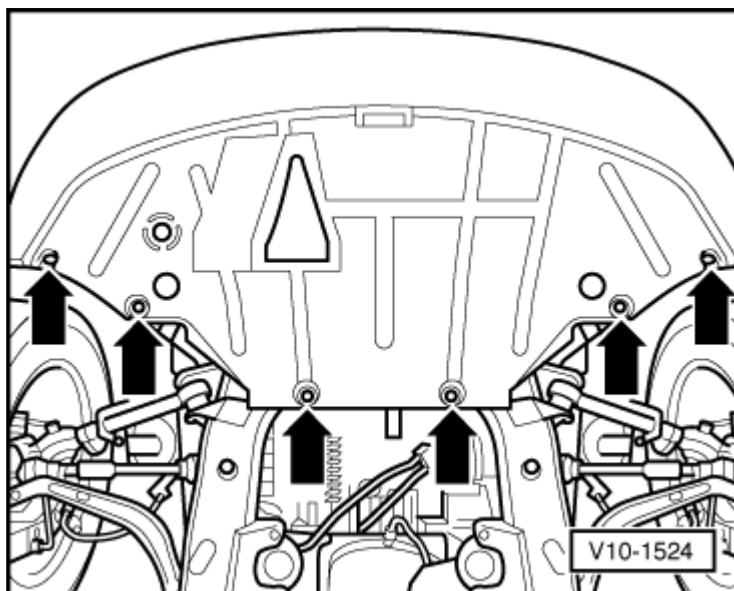


#### Caution

The engine must only be turned at the crankshaft, in the direction of normal engine rotation (clockwise).

Set crankshaft to markings for TDC

- of No. 5 cylinder by turning central bolt on crankshaft sprocket in normal direction of rotation.



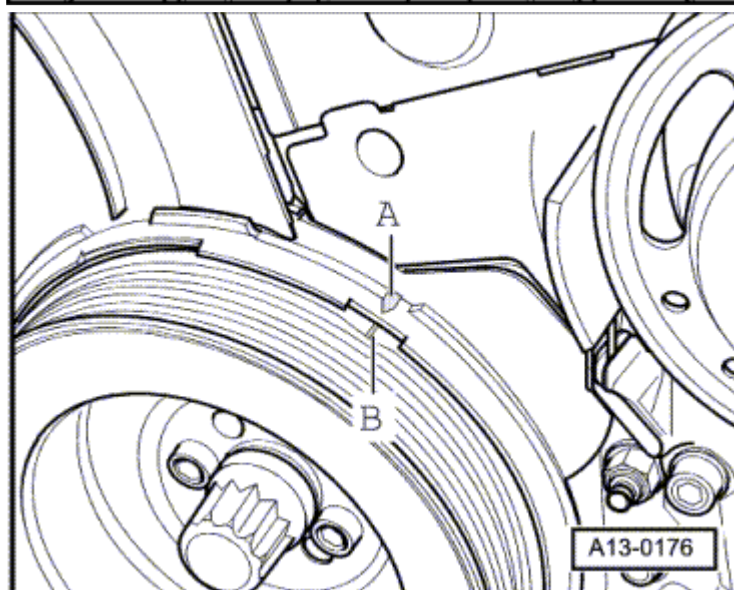
t Notch -B- is opposite mark -A-.



#### Note

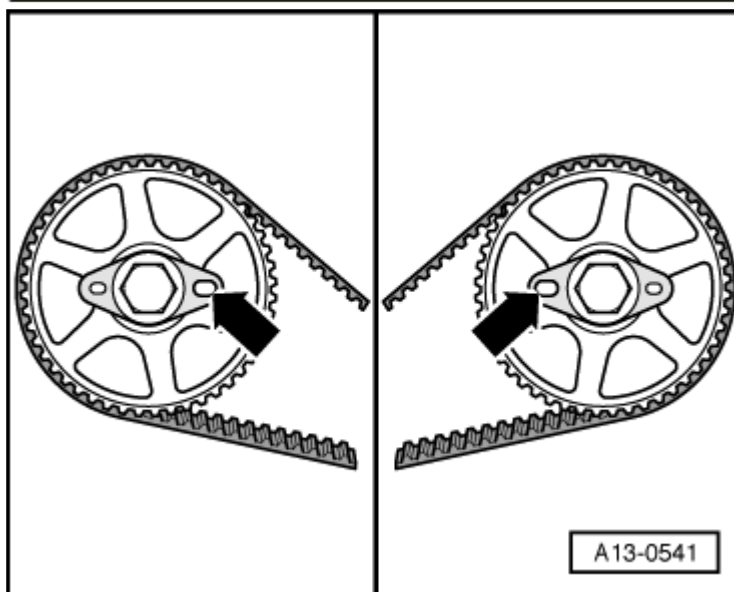
Turn over the engine at the central bolt on the crankshaft.

- Check position of camshafts:



The large holes -arrows- in the locating plates on the camshaft sprockets must be opposite one another on the inside.

- If this is not the case, turn crankshaft one revolution further.



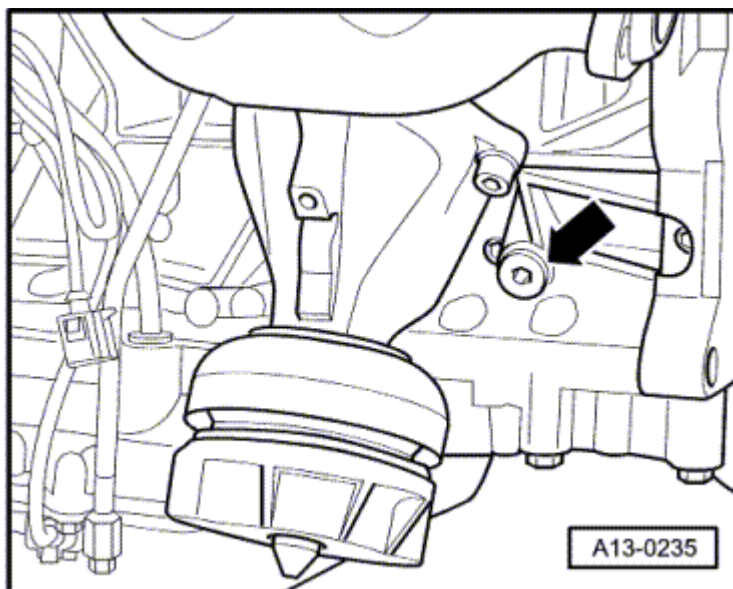
- Remove sealing plug -arrow- from cylinder block (left-side).

- The TDC drilling in the crankshaft should be behind the sealing plug hole (feel to check).

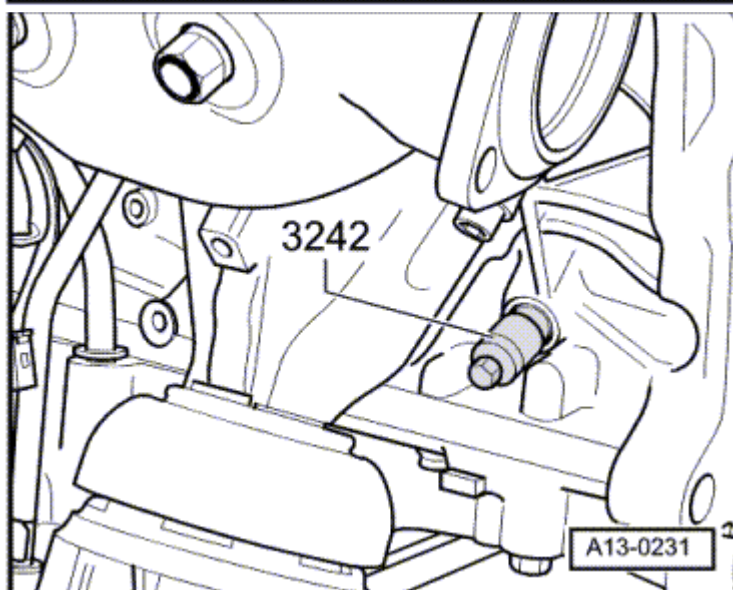


**WARNING**

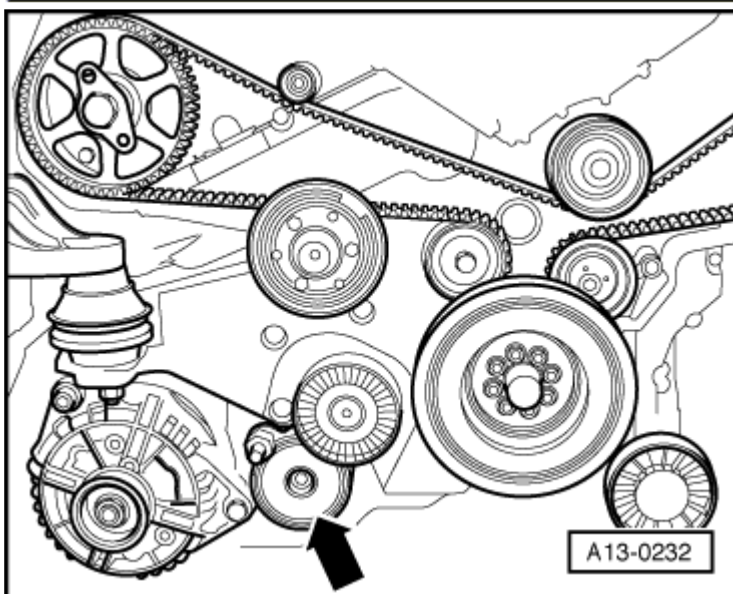
To avoid any risk of injury, do not rotate the crankshaft while feeling for the TDC drilling with your finger.



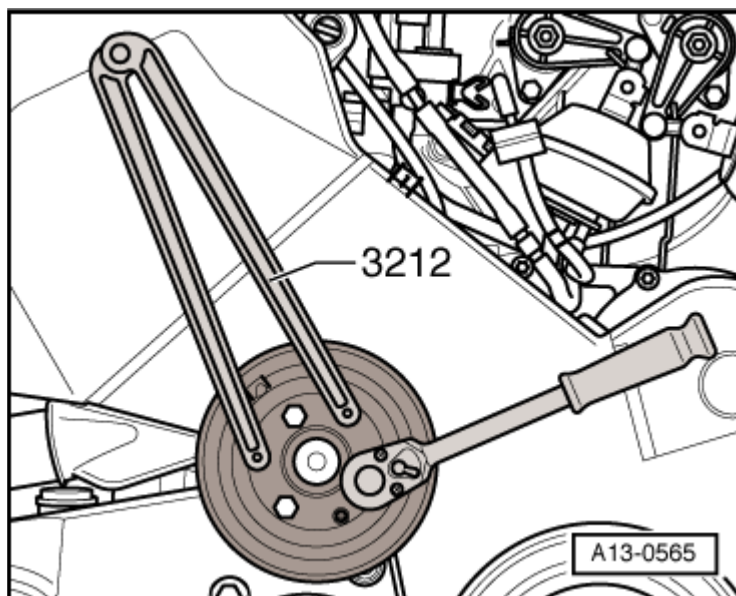
- Screw locking pin -3242- into threaded hole where plug has been removed.



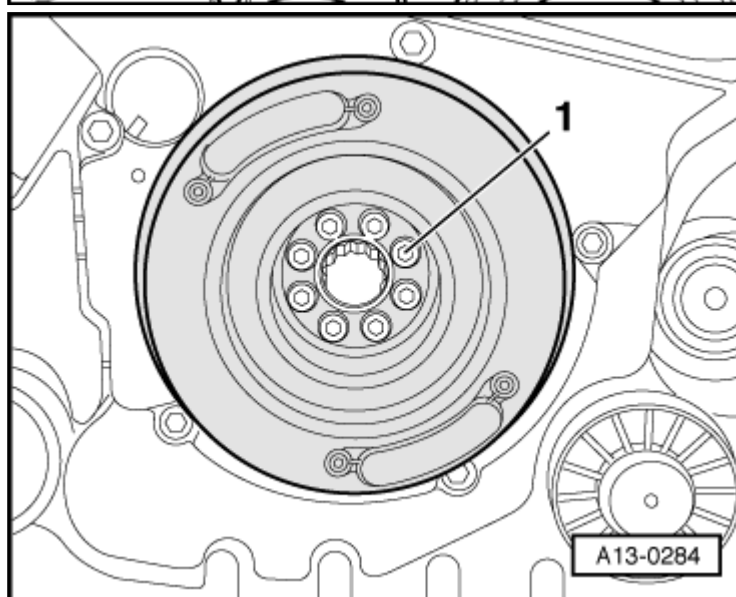
- Remove tensioner for poly V-belt -arrow-.



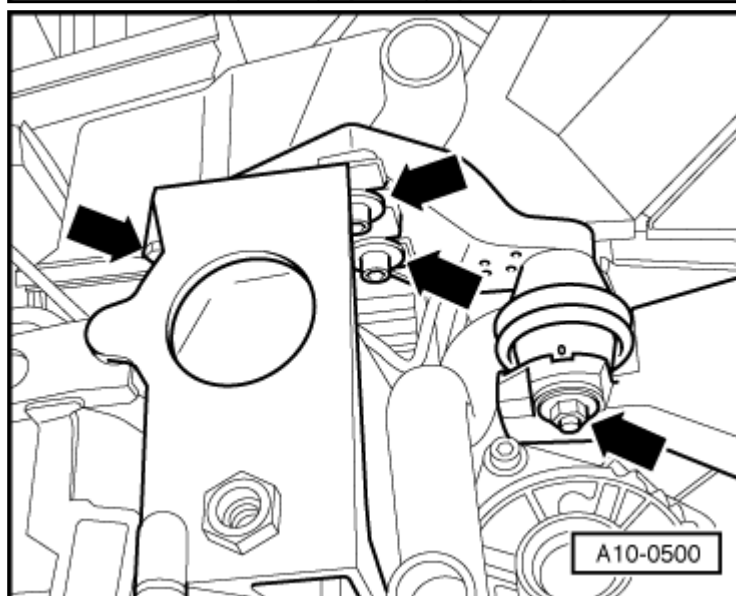
- Remove poly V-belt pulley for viscous fan using pin wrench -3212-.



- Slacken 8 securing bolts -1- and remove vibration damper from crankshaft.



- Remove torque reaction support - arrows-.





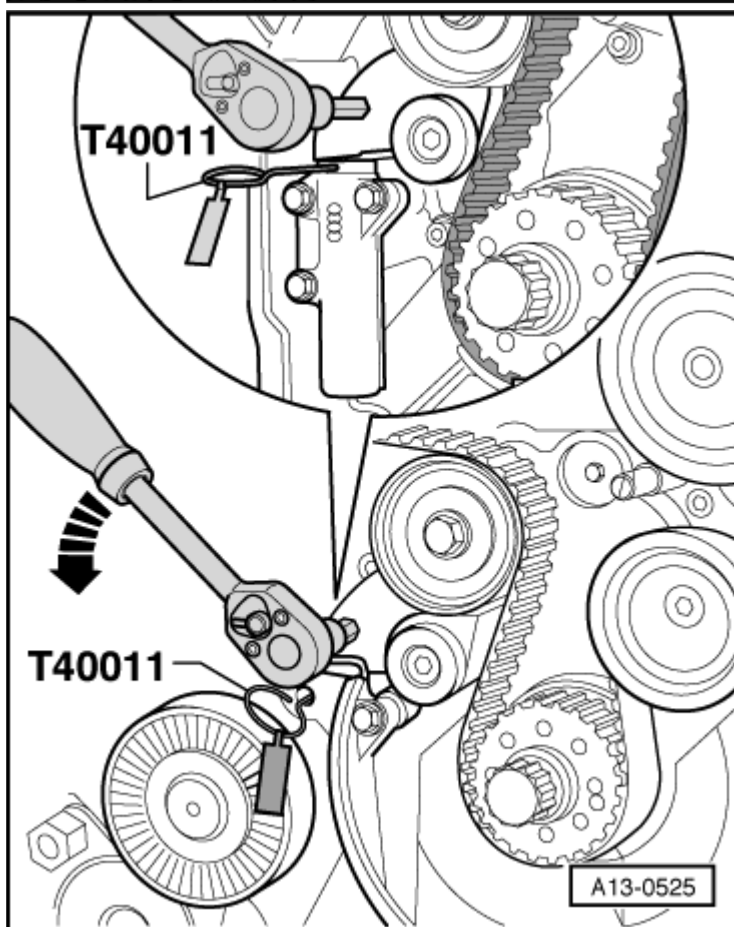
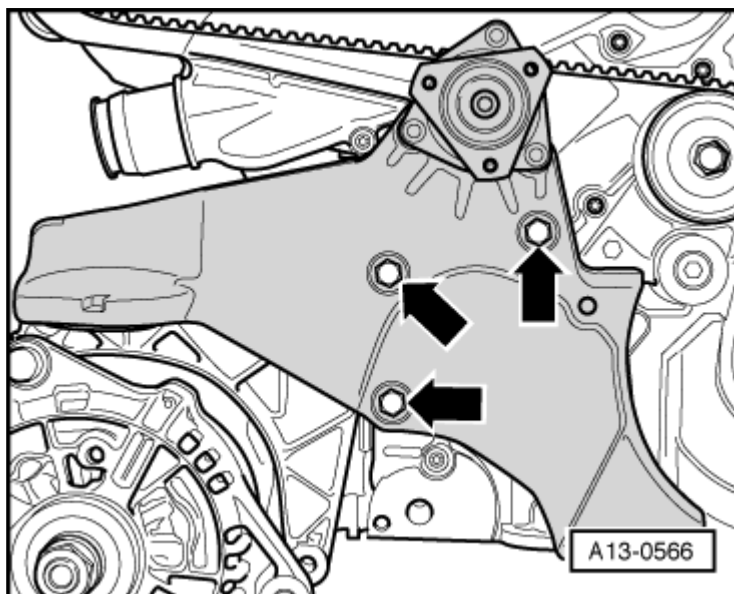
- Remove bracket for torque reaction support -arrows-.
- Remove centre section of toothed belt cover.



**Note**

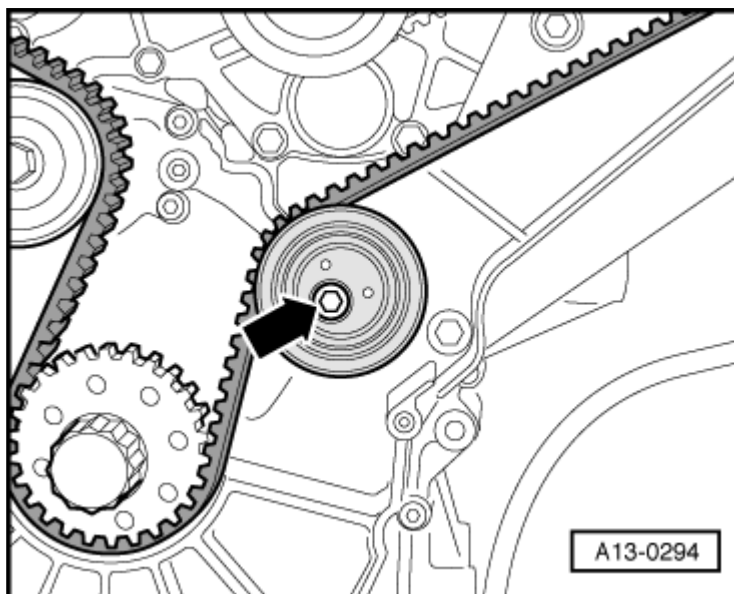
Mark the rotation direction of the toothed belt with chalk or felt-tip pen before removing. If the belt runs in the opposite direction when it is refitted, this can cause breakage.

The toothed belt tensioner is oil-damped and can therefore only be compressed slowly by applying constant pressure.



Turn toothed belt tensioning roller in direction of the -arrow- using an 8 mm hexagon key until tensioning lever compresses tensioner far enough to allow locking pin -T40011 - to be inserted into the holes in the piston and the housing.

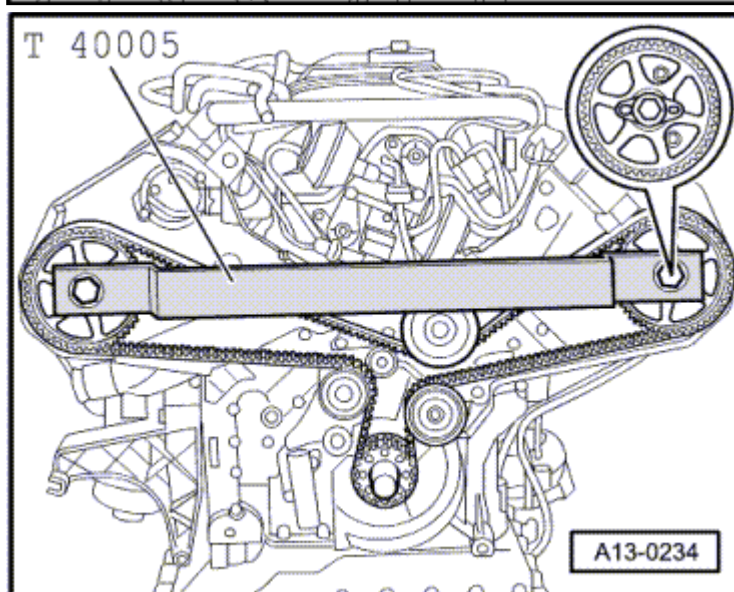
- Loosen bolt -arrow- for eccentric adjuster.
- Fit camshaft clamp -T40005- onto the locating plates of the two camshafts.



**Note**

Use camshaft clamp -T40005- to prevent camshafts from turning.

- Loosen the two camshaft bolts and unscrew approximately 5 turns.
- Take off camshaft clamp -T40005-.
- Pull off both camshaft sprockets using two-arm puller -T40001-.



- Remove toothed belt together with camshaft sprocket for cylinder bank 1-4.

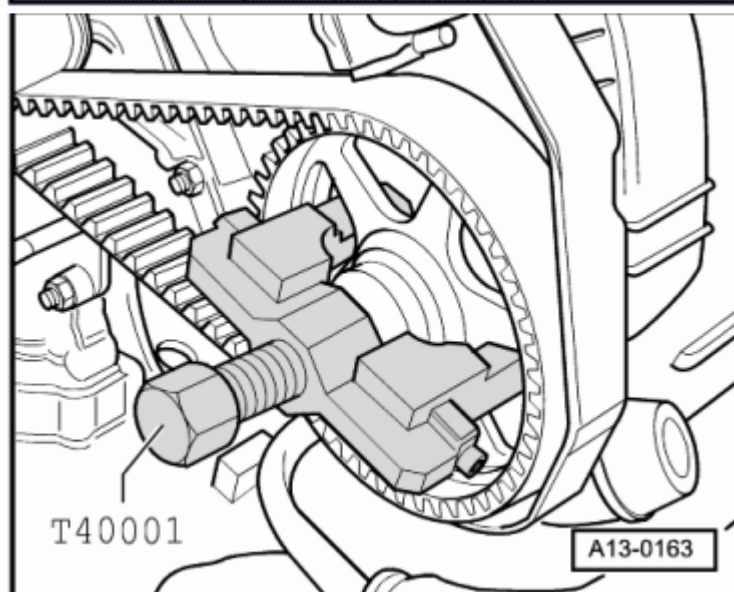


**Caution**

Check sprockets for damage after pulling off. Renew camshaft sprockets if there are visible indentations.

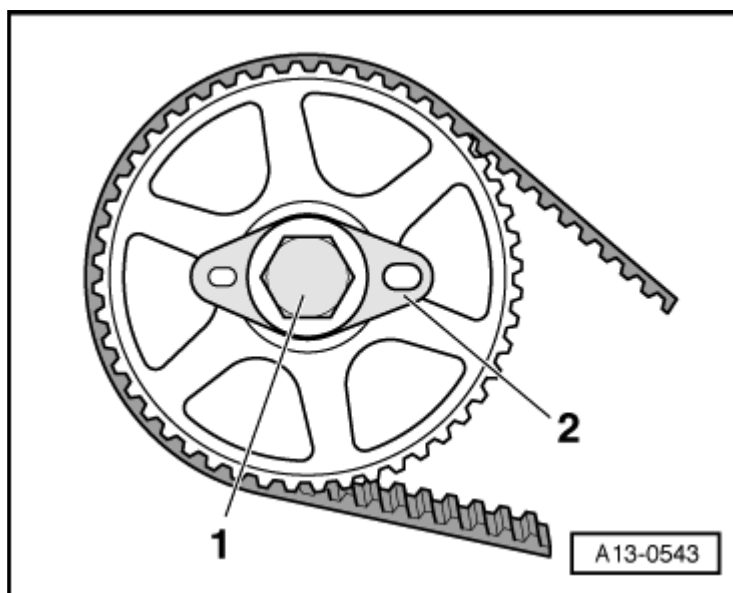
**Installing**

- 1 Tightening torques → [Chapter](#)

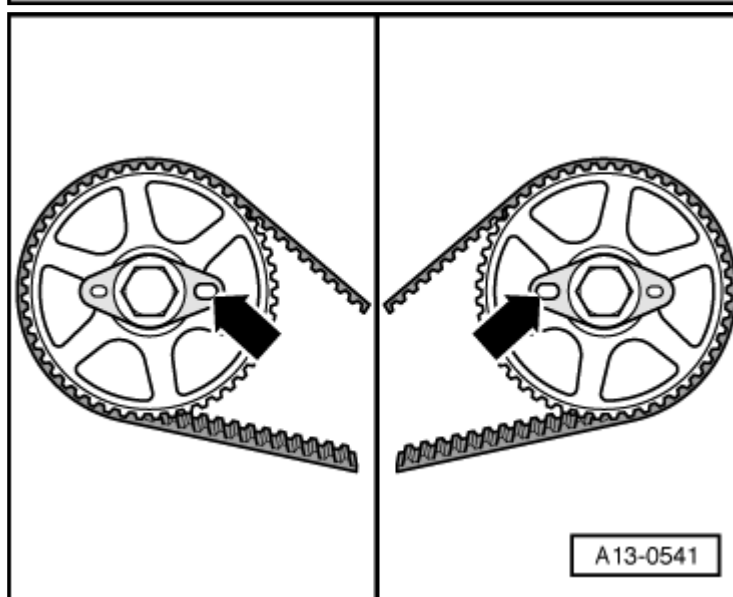


- Renew bolts -1- for camshaft sprockets and locating plates -2-.
- Oil threads and contact surface of camshaft sprocket bolt heads.
- Screw down the bolts such that the camshaft sprockets can still just be turned and do not tilt.
- Make sure the locating plates are seated correctly on the camshafts.

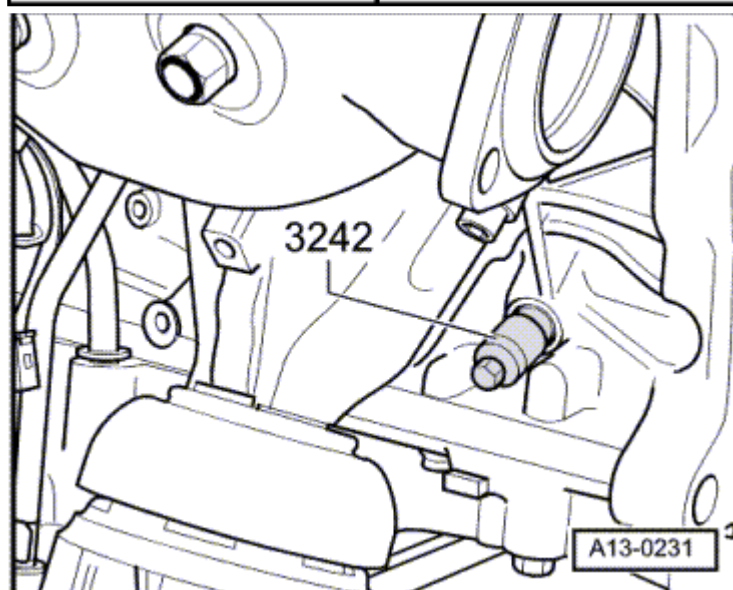
Before fitting the toothed belt, make sure the crankshaft and camshafts are set to cylinder 5 TDC:



The large holes -arrows- in the locating plates on the camshaft sprockets must be opposite one another on the inside.



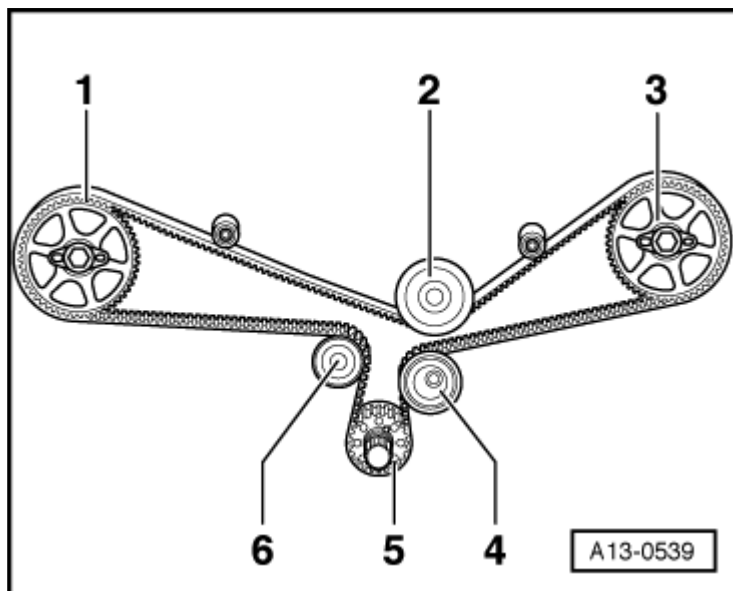
The locking pin -3242- must be screwed in.





Initially fit toothed belt as follows:

- crankshaft sprocket -5-, eccentric adjuster -4-, tensioning roller -6-, camshaft sprocket (left-side) -3- and coolant pump -2-.
- Fit toothed belt on camshaft sprocket (right-side) -1- last.

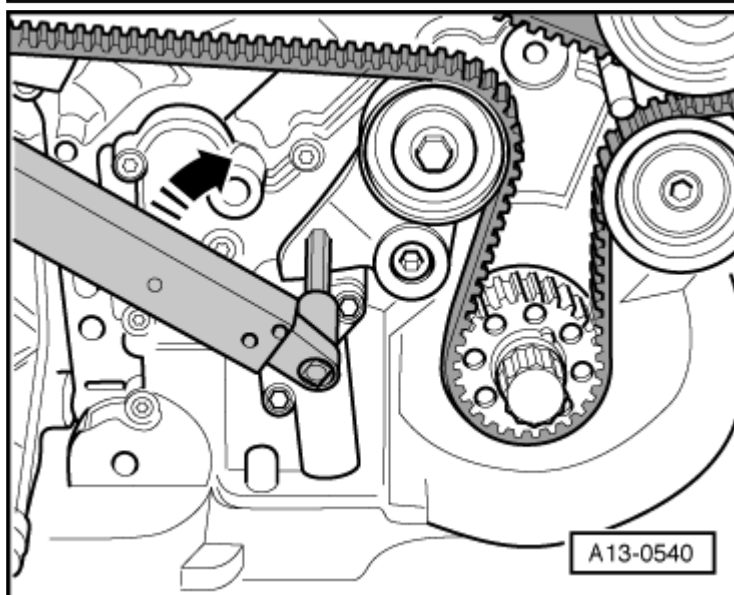


- Turn tensioning lever twice with a torque of 40 Nm in direction of - arrow- to pre-tension toothed belt.

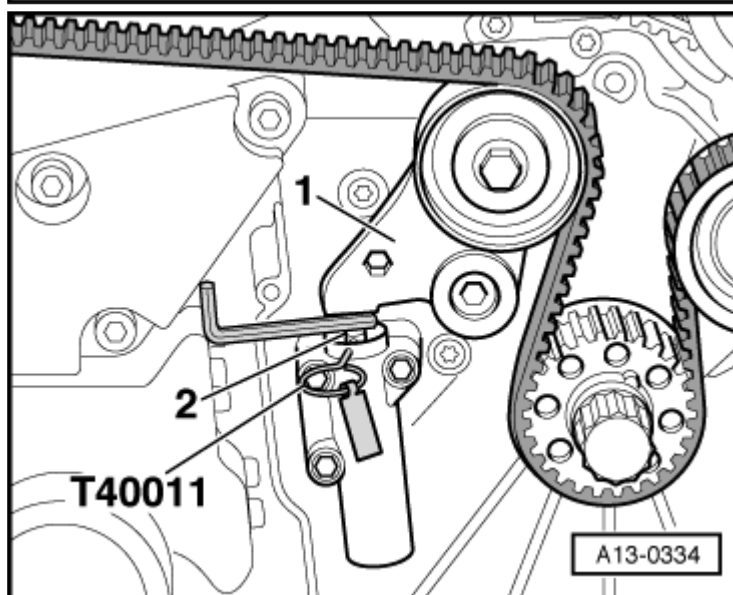


Note

The components are illustrated in this and the following diagram with the bracket for the torque reaction support removed.



- Insert a 5 mm Allen key flat between tensioning lever -1- and piston -2- of tensioner.



Tension toothed belt. To do so, turn eccentric adjuster with tensioner

- wrench -T40009- and torque wrench -V.A.G 1783- with ratchet insert 1/4" -VAS 6234- in direction of -arrow- and maintain tension.

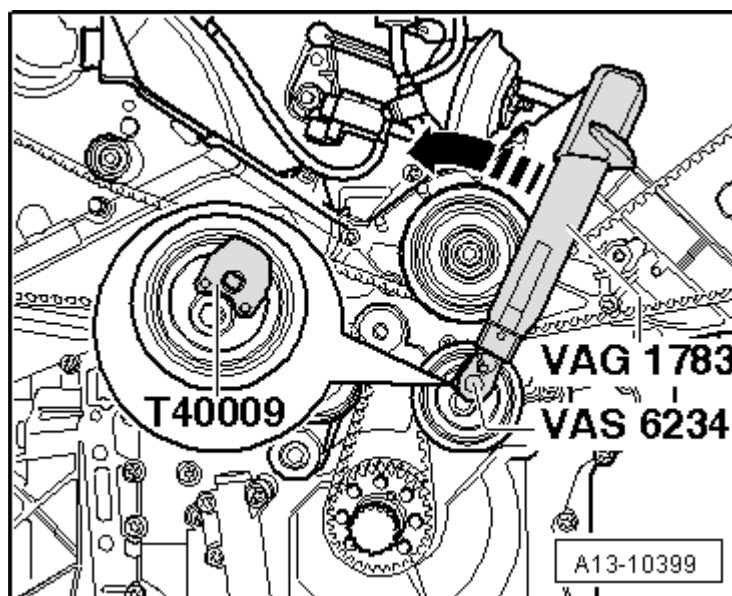
t Pre-tensioning torque 6 Nm

- Tighten eccentric adjuster.



Note

Make sure the setting does not change while tightening.



- Insert camshaft clamp -T40005- in locating plates of both camshafts.

t Push in the camshaft clamp as far as it will go.

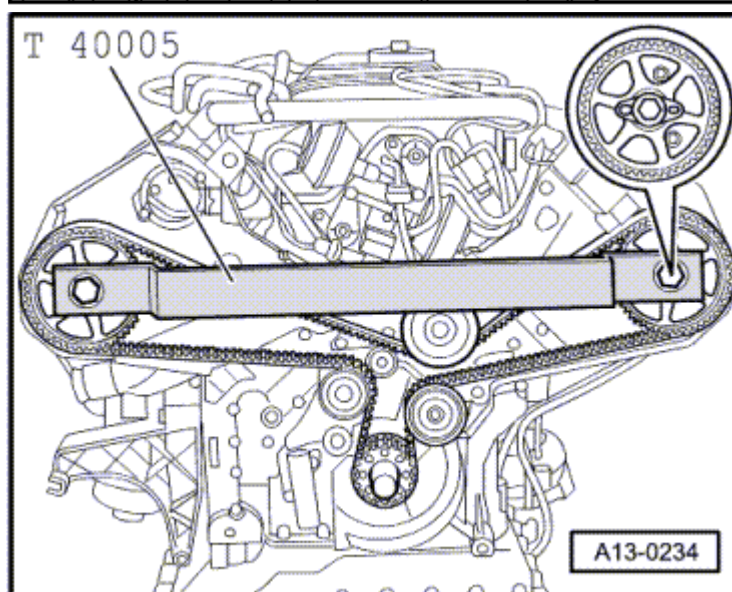
- Tighten bolts on camshaft sprockets.



Note

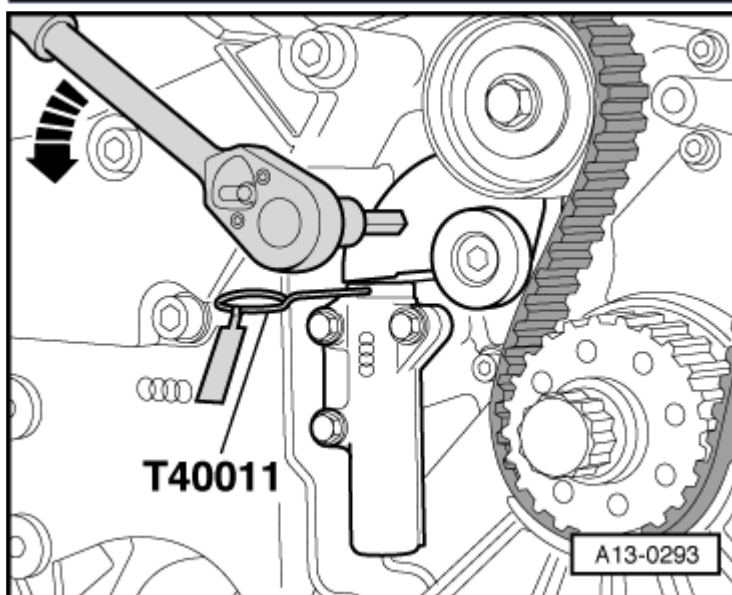
Use camshaft clamp -T40005- to prevent camshafts from turning.

- Remove camshaft clamp -T40005-.
- Remove the 5 mm Allen key

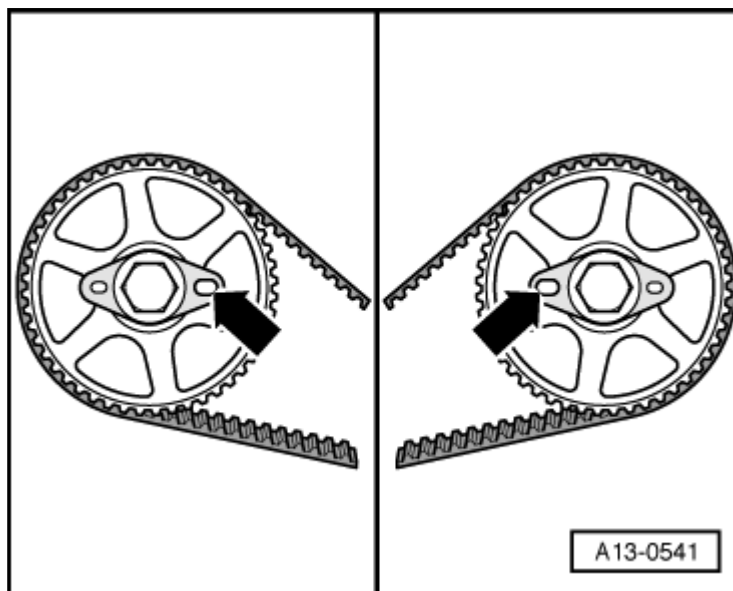


Use 8 mm hexagon key to turn

- tensioning lever in direction of -arrow- until locking pin -T40011- can be pulled out.
- Remove locking pin -3242-.
- Turn crankshaft two rotations in normal direction of rotation until it is set to TDC of No. 5 cylinder again.



t The large holes -arrows- in the locating plates on the camshaft sprockets must be opposite one another on the inside.



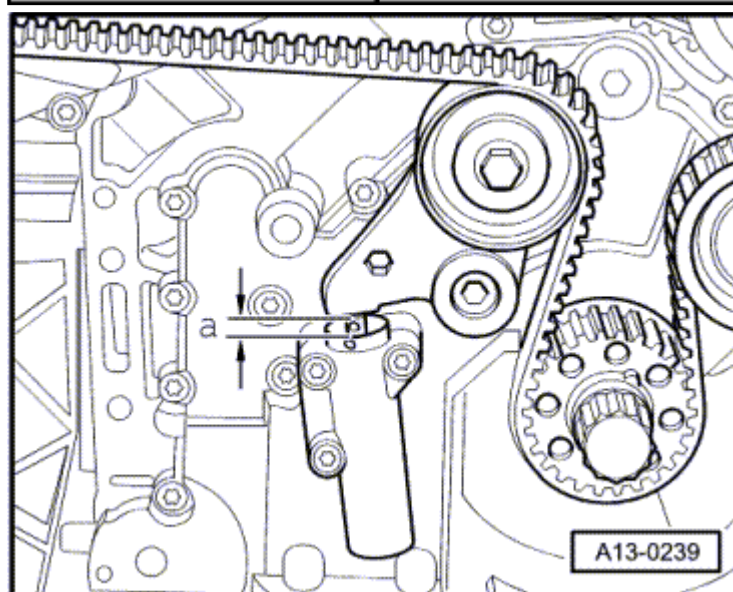
- Check dimension -a- between tensioning lever and housing of tensioner.

t Dimension -a- =  $5.0 \pm 1.0$  mm.

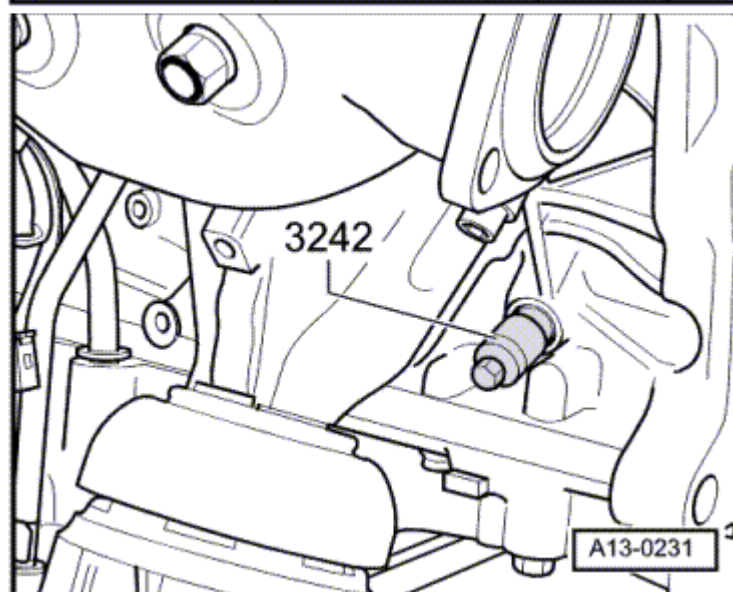


Note

If dimension -a- is not attained, repeat setting.



- To check the timing, screw locking pin -3242- back into hole in sump (top section).



- Check positions of camshafts with camshaft clamp -T40005-.



Note

If it is not possible to insert the camshaft clamp, repeat adjustment.

- Remove camshaft clamps -T40005- from both cylinder heads.
- Remove locking pin -3242-.
- Screw plug for TDC mark into sump (top section), using a new seal.

Perform further installation in reverse order, paying attention to the following:



Note

- t Renew gaskets, seals and O-rings.

Secure all hose connections with the correct type of hose clips (same as original equipment) → [Parts catalogue](#).

- Install poly V-belt → [Chapter](#).



Note

Drained-off coolant may only be used again if the original cylinder head and cylinder block are re-installed.

Contaminated or dirty coolant must not be used again.

