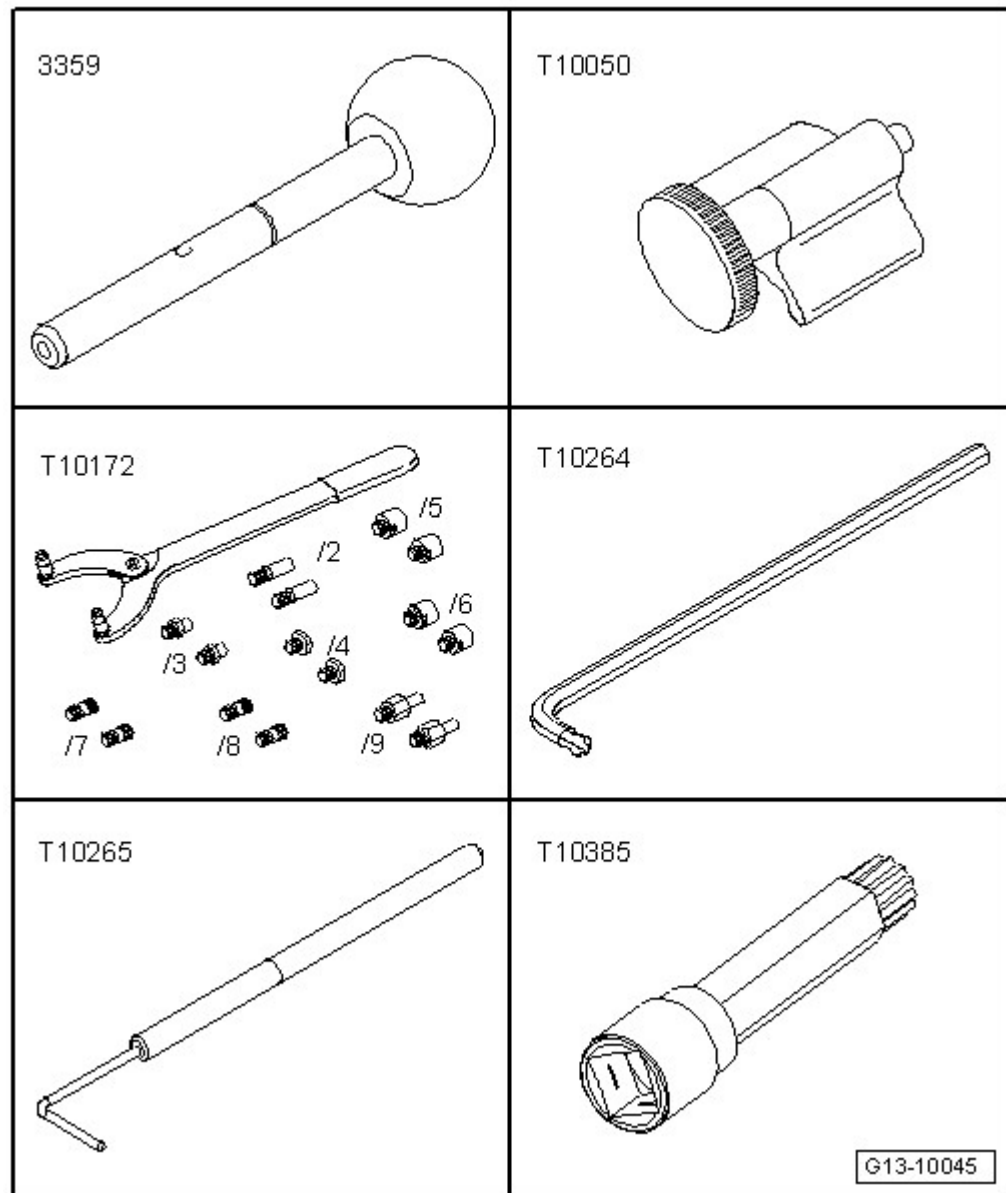


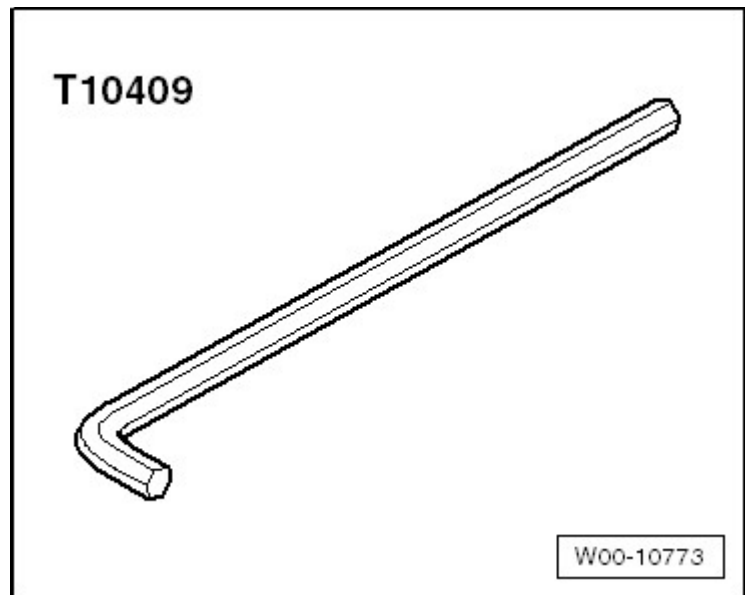
Removing and installing toothed belt



Special tools and workshop equipment required

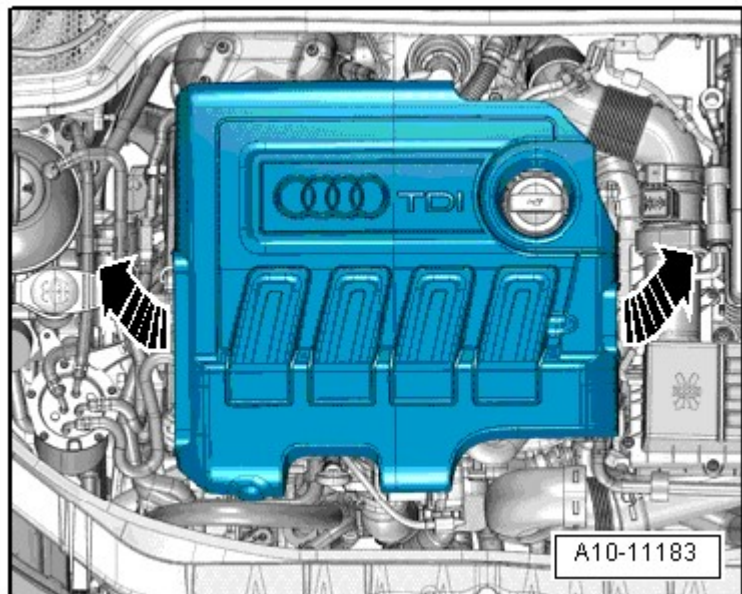
- ♦ 2x diesel injection pump locking pin -3359-
- ♦ Crankshaft stop -T10050-
- ♦ Counterhold tool -T10172-
- ♦ Angle driver -T10264- for vehicles with tensioning roller version -A- → Fig.
- ♦ Locking tool -T10265-
- ♦ Bit XZN 10 -T10385-

- ♦ Angle driver 8 mm -T10409- for vehicles with tensioning roller version -B- → Fig.

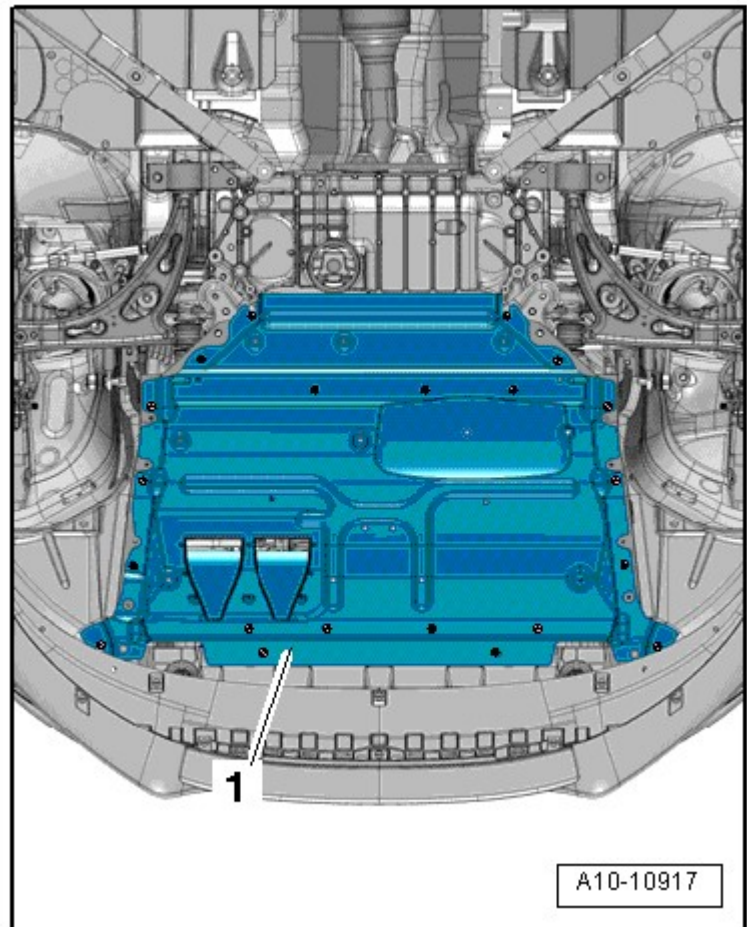


Removing

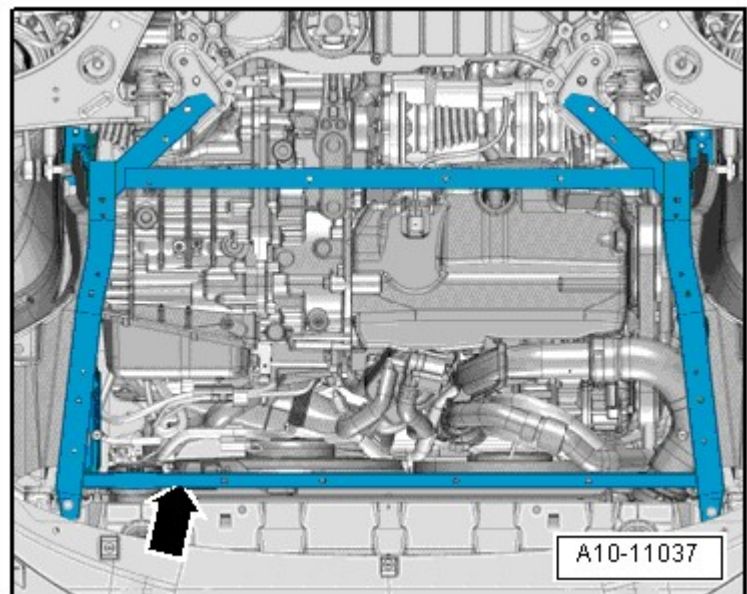
- Remove engine cover panel -arrows-.



- Remove front right wheel.
- Remove noise insulation -1- →Rep. gr.50.



- A3 Cabriolet: Remove noise insulation frame -arrow- →Rep. gr.50.

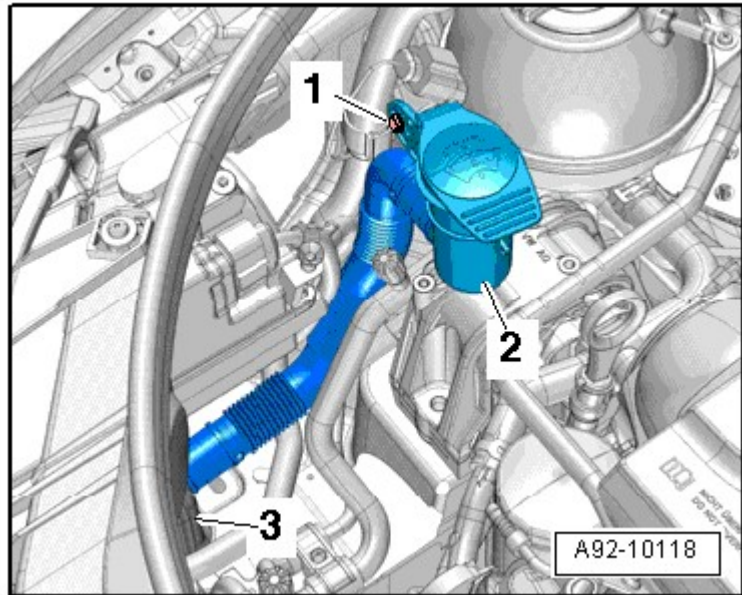


- Remove bolt -1-.
- Push filler pipe with filler neck -2- for washer fluid reservoir to side.

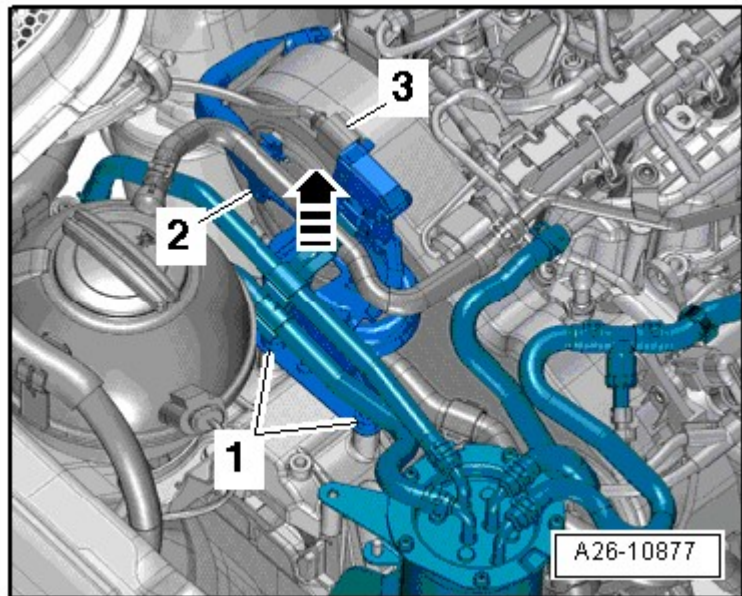


Note

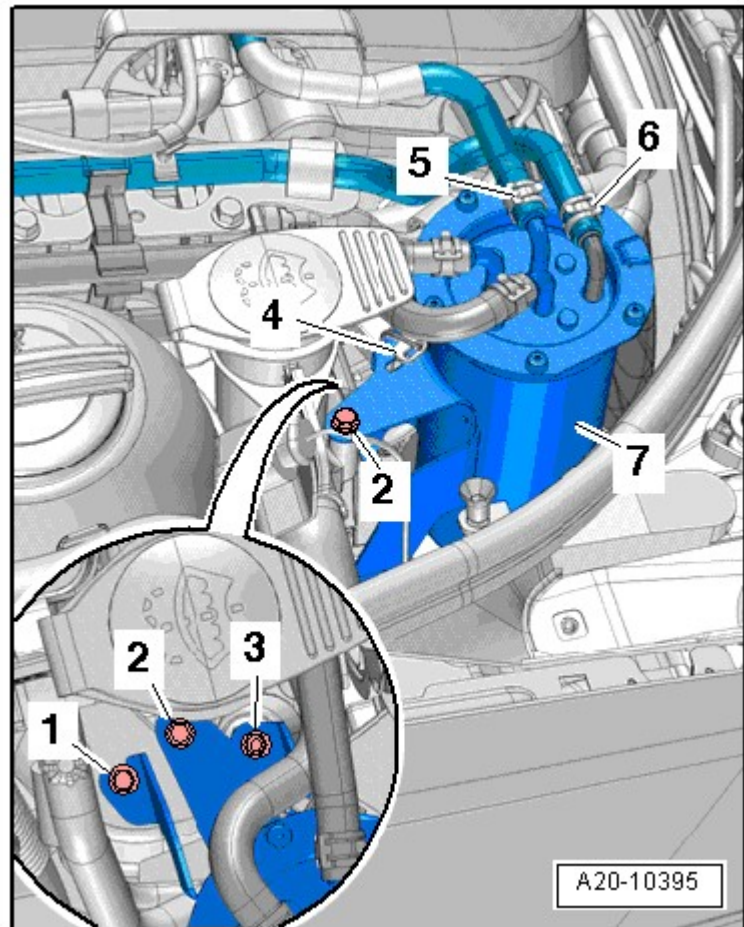
- ♦ Disregard -item 3-.
- ♦ For illustration purposes, the installation position is shown with the fuel filter removed.



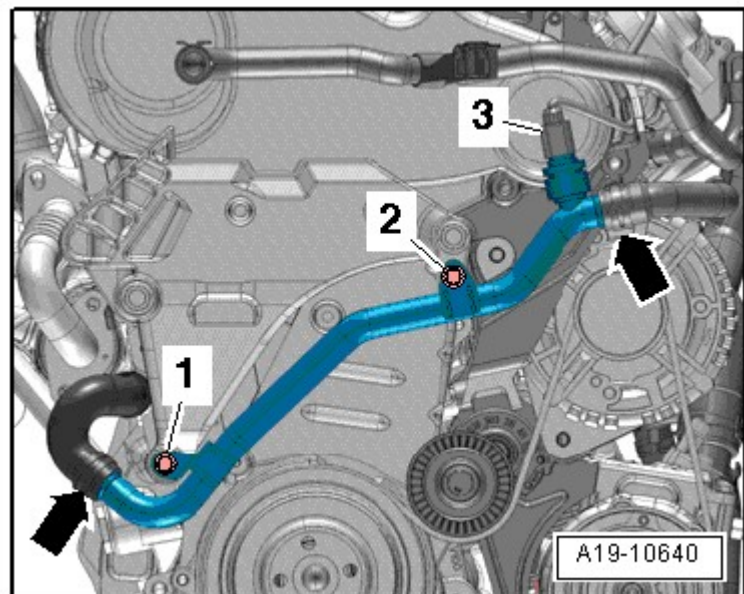
- Move clear air hoses at bracket -2-.
- Pull off bracket for fuel hoses upwards - arrow- and press clear to one side.
- Unplug electrical connector -3-.
- Remove bolts -1- and move pressure differential sender -G505- with bracket clear to one side.



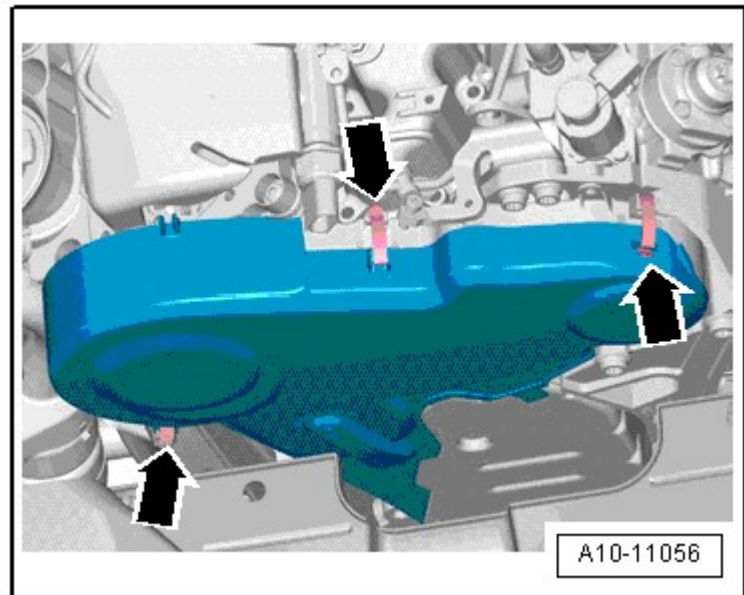
- Loosen bolt -1-.
- Remove bolt -2- and nut -3-.
- Detach hose retainer -4- from fuel filter, move fuel filter -7- clear to one side with fuel hoses -5- and -6- connected.



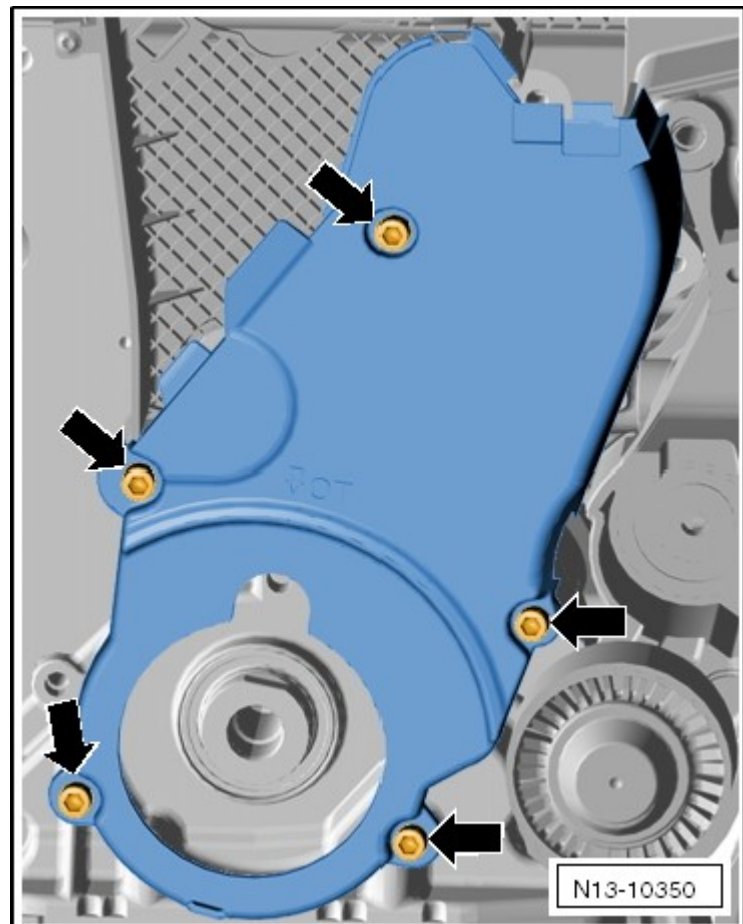
- Unplug electrical connector -3- at radiator outlet coolant temperature sender -G83-.
- Remove nut -1- and bolt -2-.
- Move coolant pipe (right-side) -arrows- to side (coolant hoses remain connected).



- Release retaining clips -arrows- and detach toothed belt cover (top).
- Remove vibration damper → [Chapter](#).



- Remove bolts -arrows-.
- Detach toothed belt cover (bottom and centre).



Caution

Irreparable damage can be caused if the toothed belt slips.

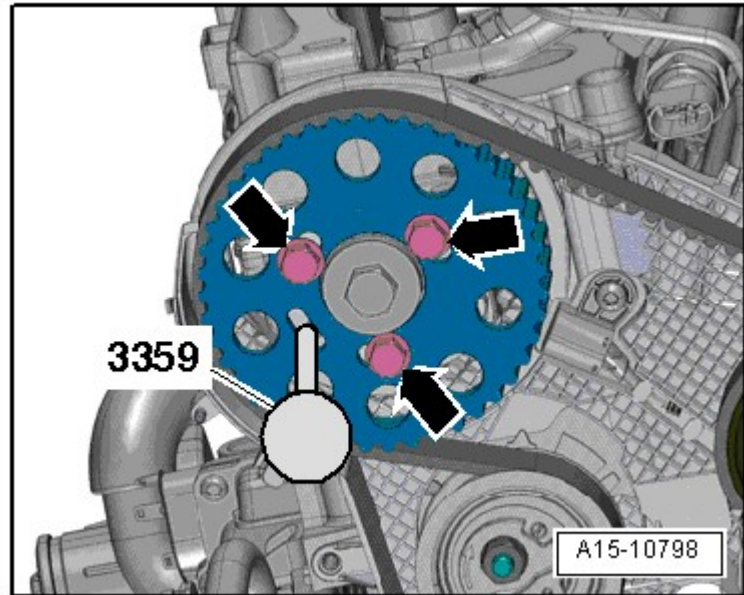
Turn crankshaft only in direction of engine rotation.

- Rotate crankshaft by turning bolt on crankshaft sprocket until camshaft sprocket is positioned at “TDC”.
- Lock camshaft hub with diesel injection pump locking pin -3359-.



Note

Disregard -arrows-.

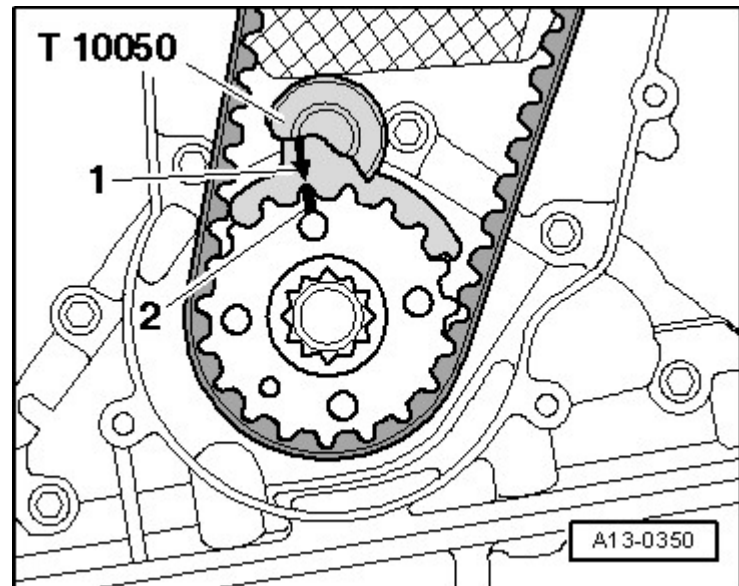


- Lock crankshaft sprocket in position with crankshaft stop -T10050-.
- The markings on the sprocket -2- and the crankshaft stop -1- must align -arrow-. The pin of the crankshaft stop must engage in the aperture in the sealing flange.

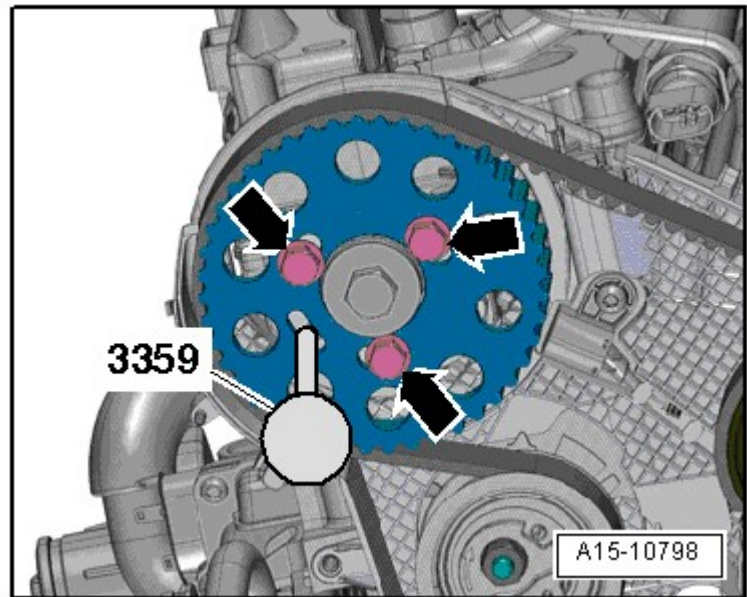


Note

The crankshaft stop can only be pushed onto the sprocket from the front face of the teeth.



- Slacken bolts -arrows- for camshaft sprocket approx. 90°.



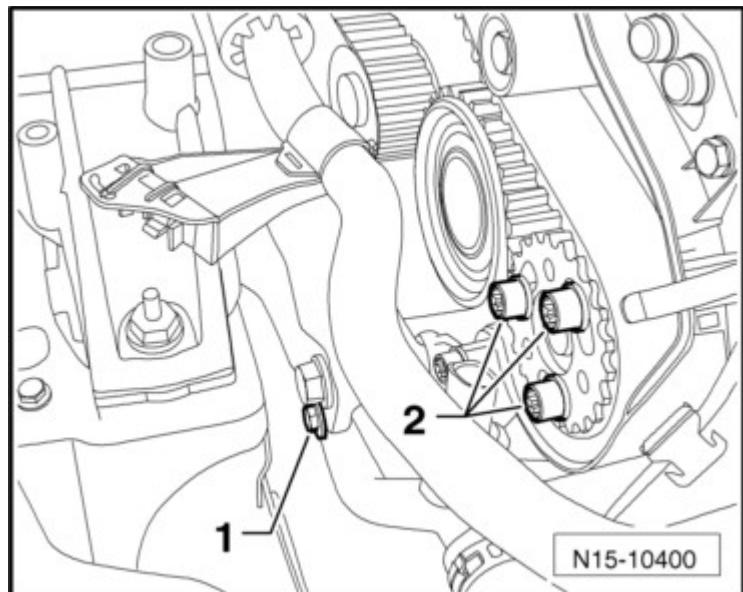
- Using bit XZN 10 -T10385-, loosen bolts -2- for high-pressure pump sprocket approx. 90°.



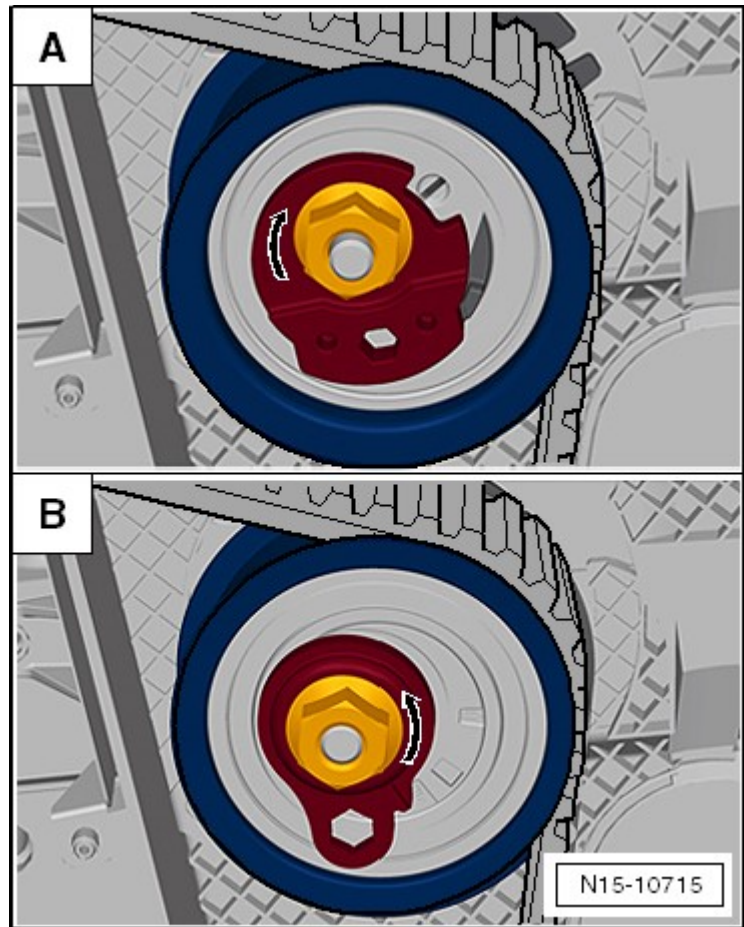
Note

- ♦ Disregard -item 1-.
- ♦ The engine support must be removed if you need to renew the tensioning roller
→ *Chapter*.

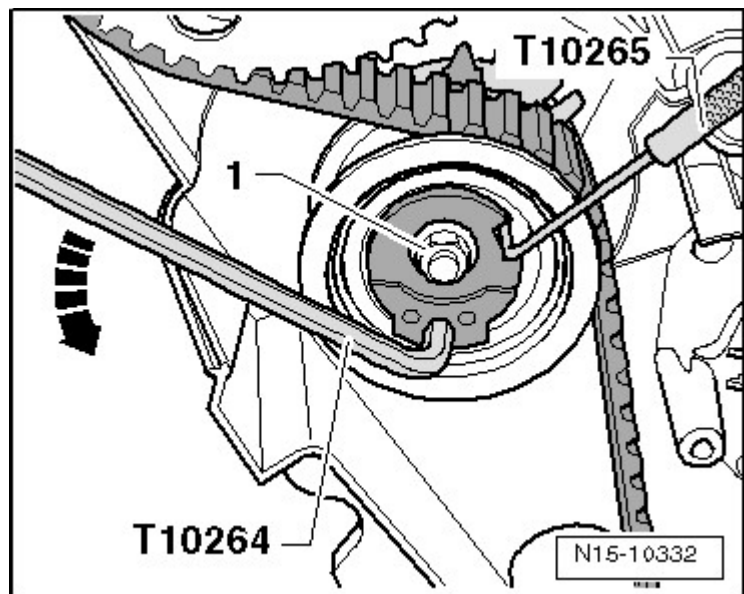
Note different directions of rotation when tensioning



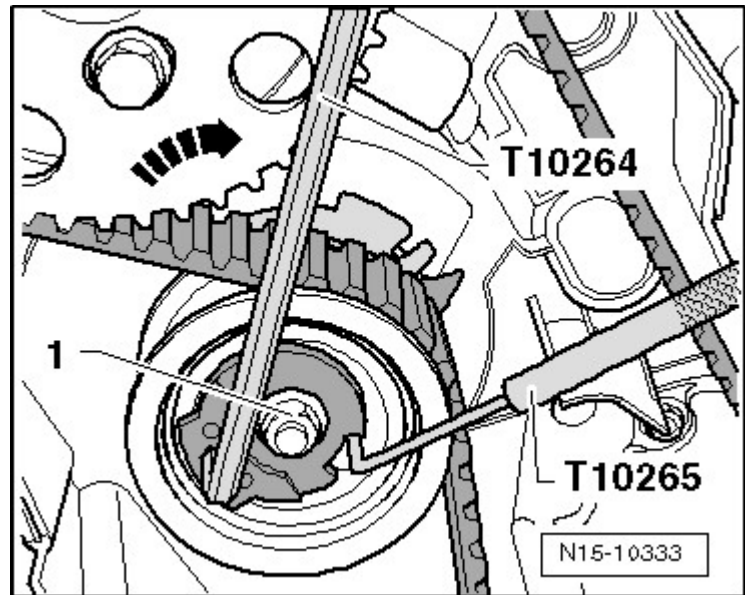
Vehicles with tensioning roller version “A”:



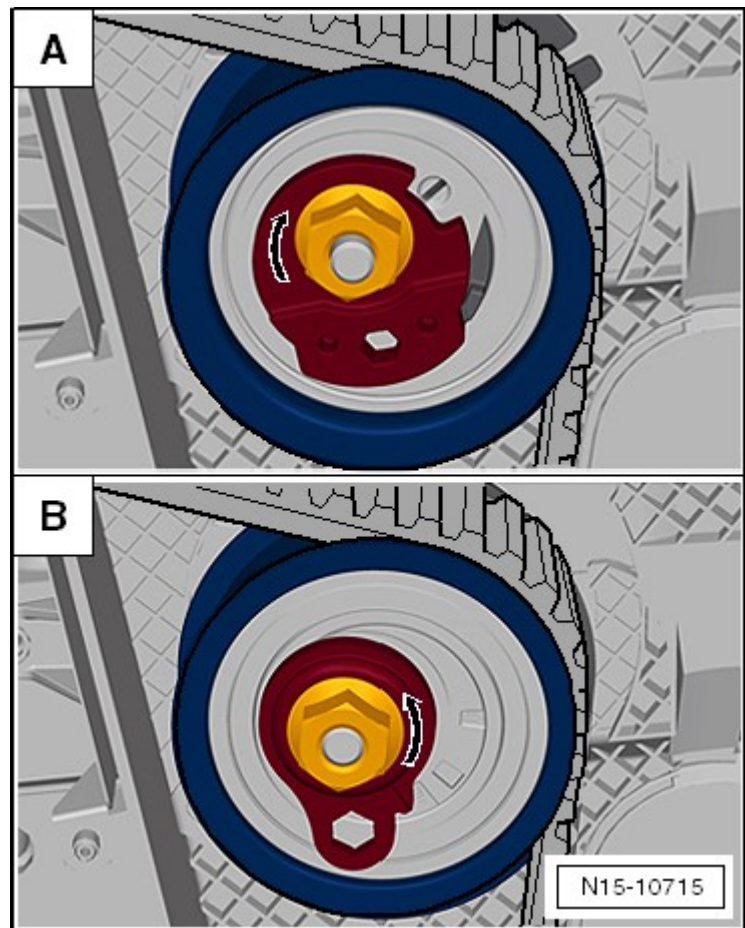
- Slacken nut -1- for tensioning roller.
- Turn eccentric adjuster of tensioning roller with special wrench, long reach -T10264- anti-clockwise -arrow- until tensioning roller can be secured with locking tool -T10265-.



- Then use special wrench, long reach - T10264- to turn eccentric adjuster of tensioning roller clockwise -arrow- as far as stop and tighten nut -1- by hand.



Vehicles with tensioning roller version "B":



- Slacken nut -1- for tensioning roller.
- Turn eccentric adjuster of tensioning roller with angle driver 8 mm -T10409- clockwise -arrow- until tensioning roller is slackened.

- Tighten nut for tensioning roller hand-tight again.

All vehicles (continued):



Caution

If a used belt runs in the opposite direction when it is refitted, this can cause breakage.

Before removing, mark direction of rotation of toothed belt with chalk or felt-tip pen for re-installation.

- Take off toothed belt first from idler roller and then from remaining sprockets.

Installing (adjusting valve timing)

- Tightening torques → [Chapter „Toothed belt - exploded view“](#)



Note

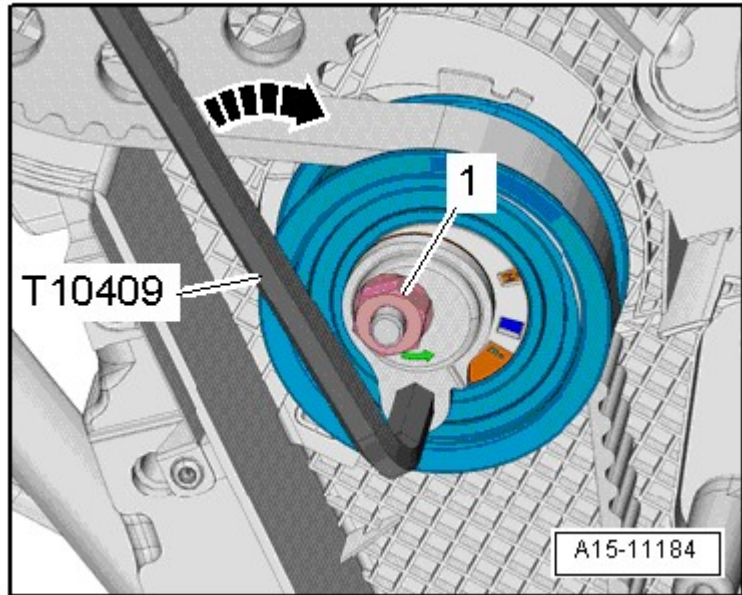
Perform adjustments on toothed belt only when engine is cold.



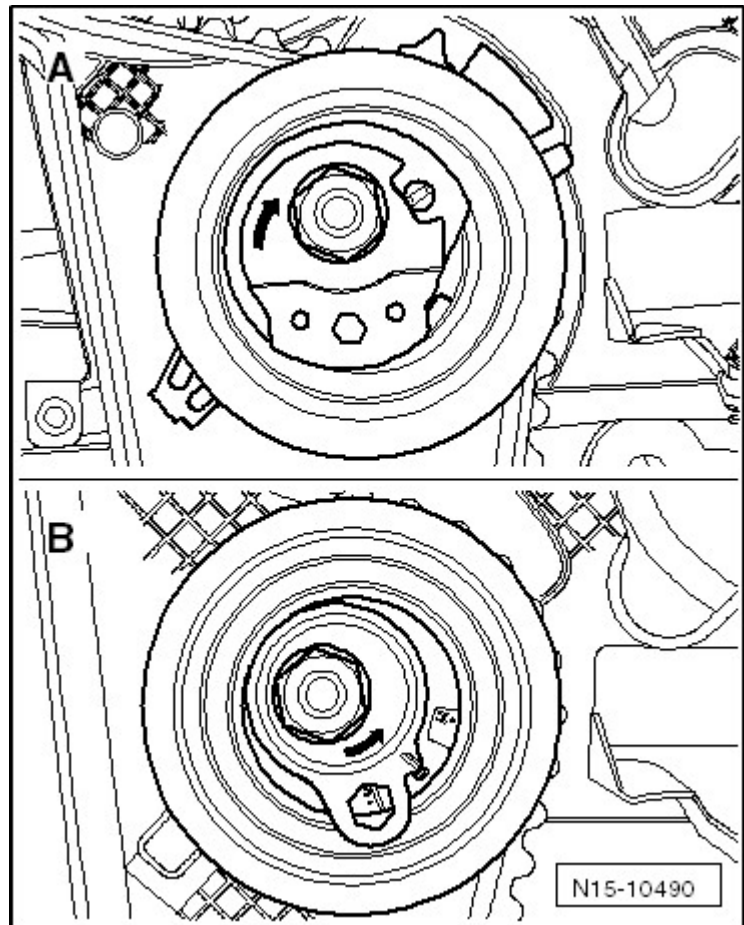
Caution

Risk of damage to valves and piston crowns.

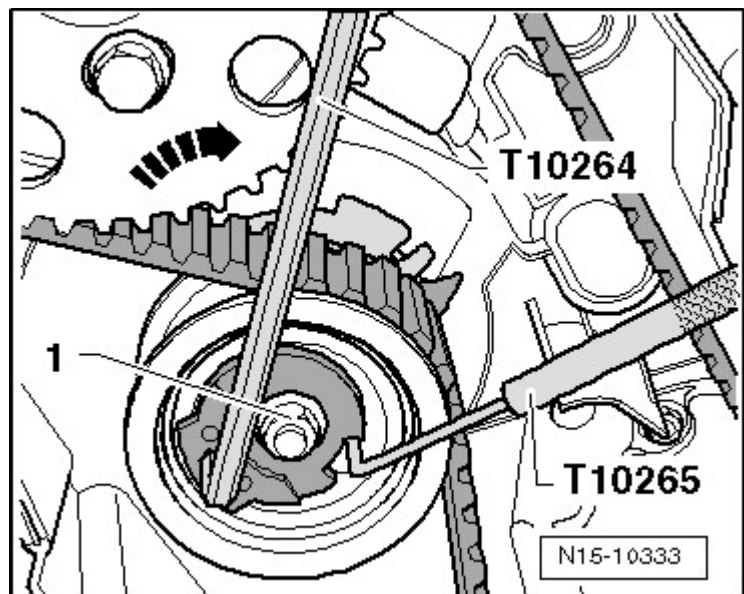
The crankshaft must not be at “TDC” at any cylinder when the camshaft is turned.



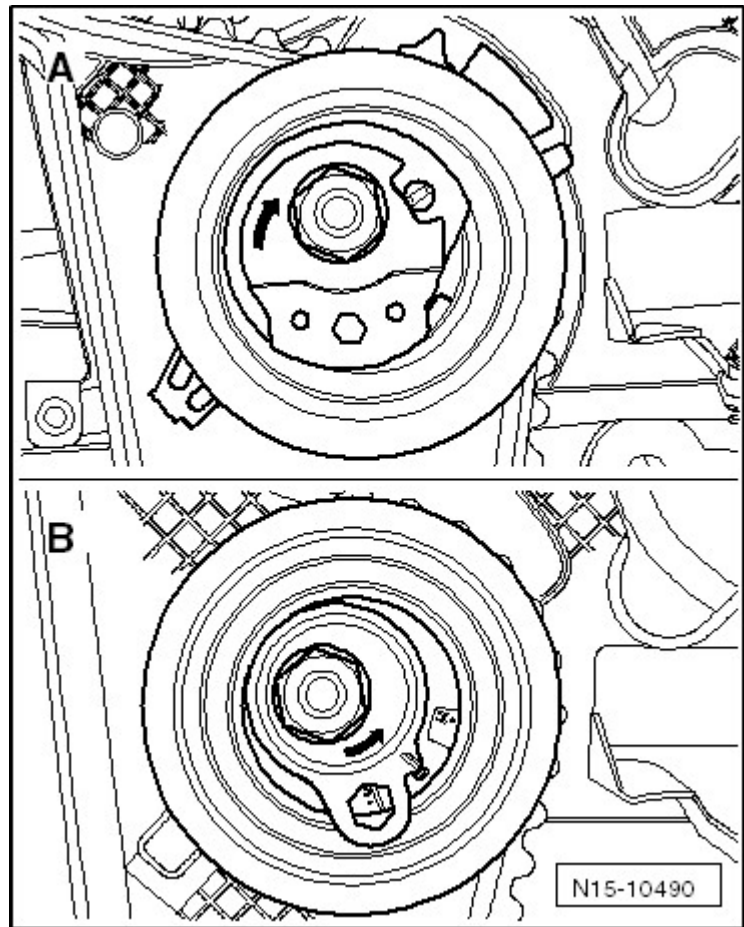
Vehicles with tensioning roller version -A-:



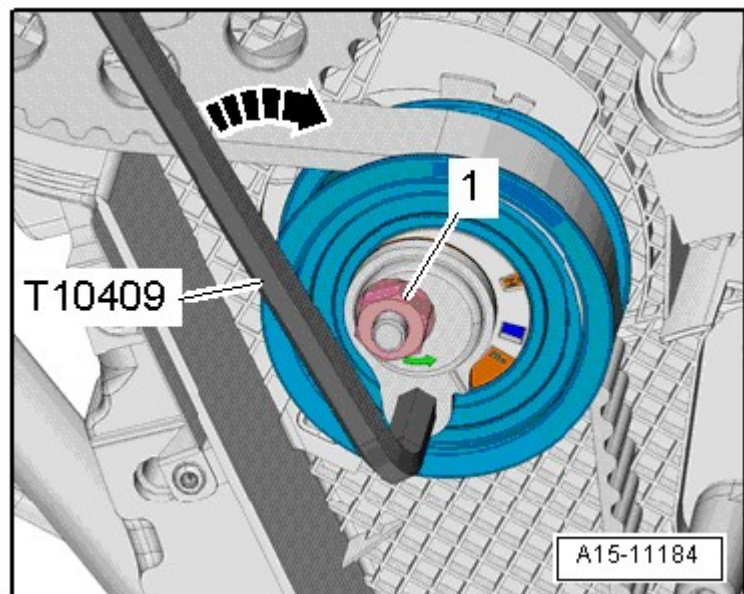
- Tensioning roller is locked with locking tool -T10265- and secured at right stop with nut.



Vehicles with tensioning roller version -B-:



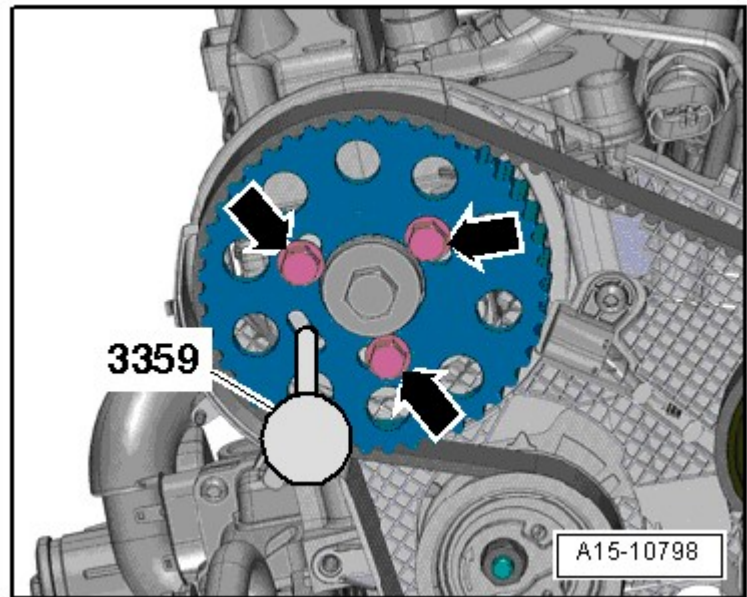
- Tensioning roller slackened and nut -1- tightened to approx 3 Nm.



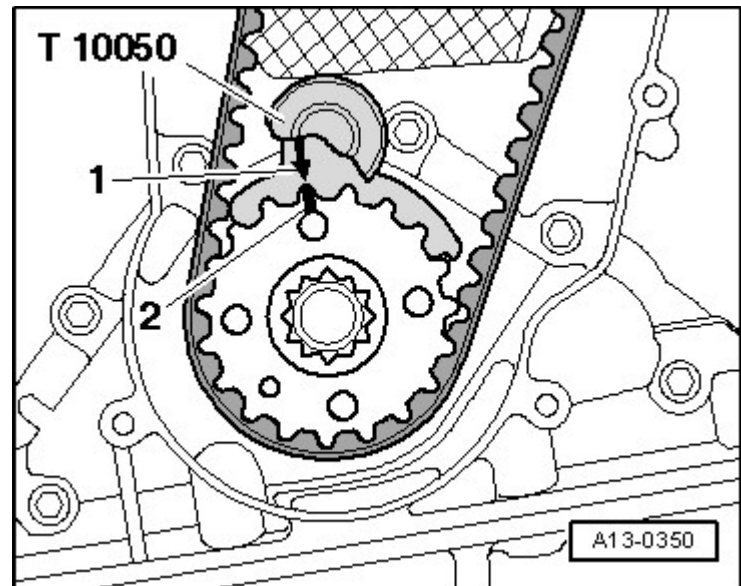
All vehicles (continued):

- Camshaft hub locked with diesel injection pump locking pin -3359-.
- Bolts -arrows- are fitted but not tightened.

- It should just be possible to turn the sprocket on the camshaft without axial movement.



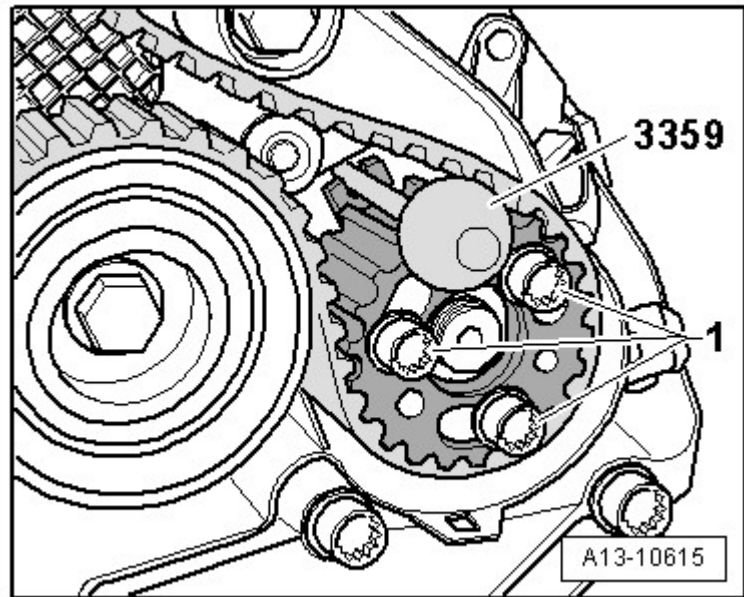
- Crankshaft is locked in position with crankshaft stop -T10050-.



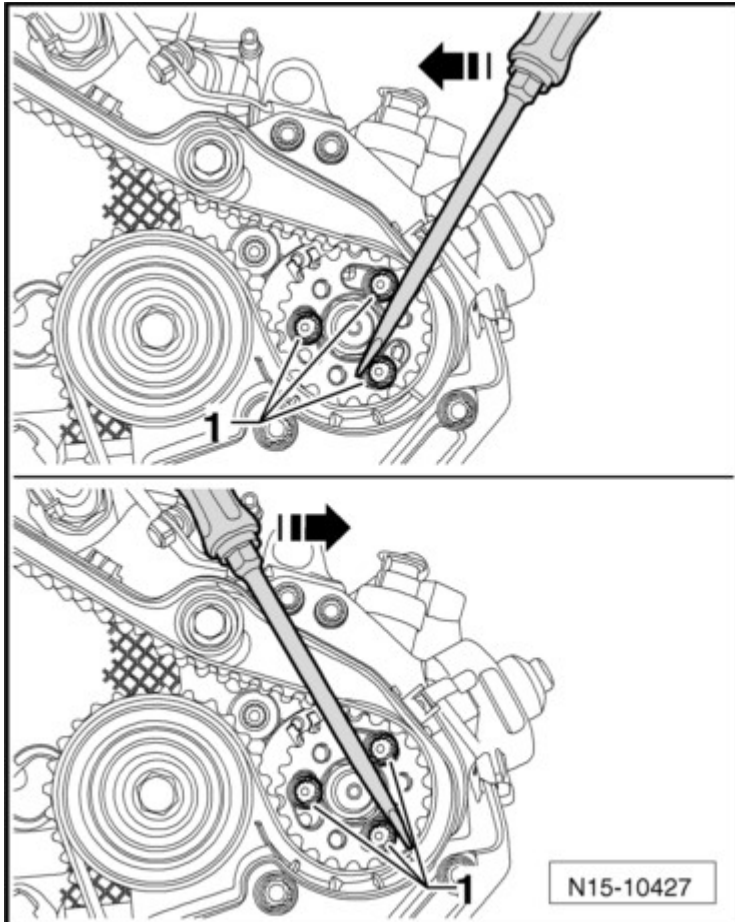
- Hub of high-pressure pump locked with diesel injection pump locking pin -3359-.
- Bolts -1- are fitted but not tightened.
- The high-pressure pump sprocket should still just turn, but there must be no axial movement.



Note



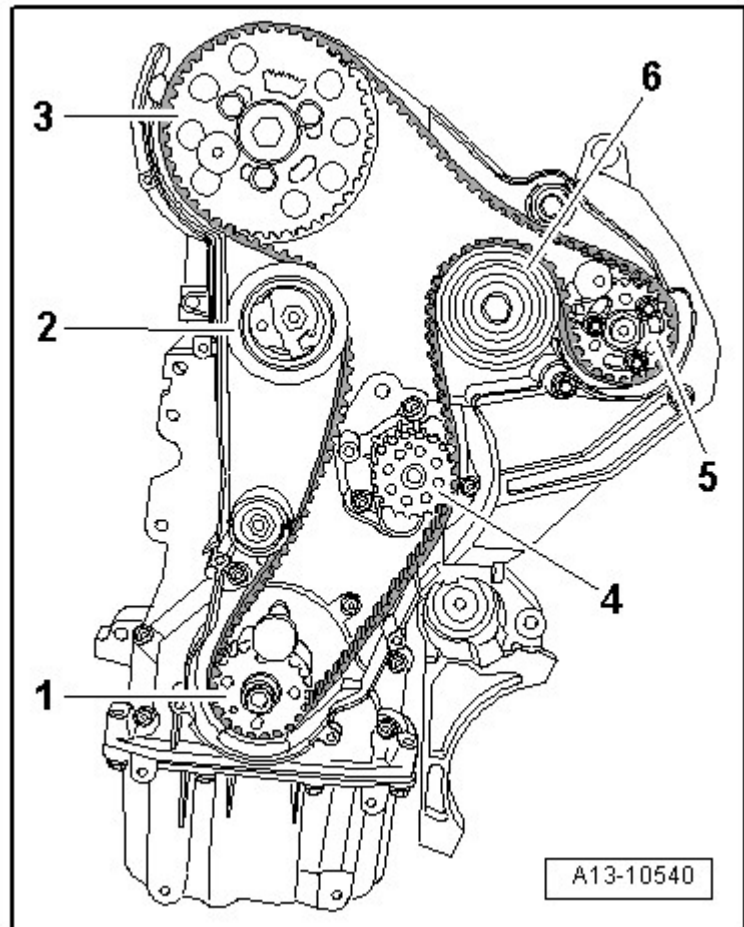
If necessary, apply a screwdriver to bolt heads - 1- and turn the high-pressure pump hub until it can be locked with the locking pin.



- Turn the camshaft sprocket and high-pressure pump sprocket in their elongated holes clockwise as far as the stop.
-

Install toothed belt in the specified sequence:

- 1 - Crankshaft sprocket
- 2 - Tensioning roller
- 3 - Camshaft sprocket
- 4 - Coolant pump sprocket
- 5 - High-pressure pump sprocket
- 6 - Idler roller



- Loosen nut -1- for tensioning roller and detach locking tool -T10265-.

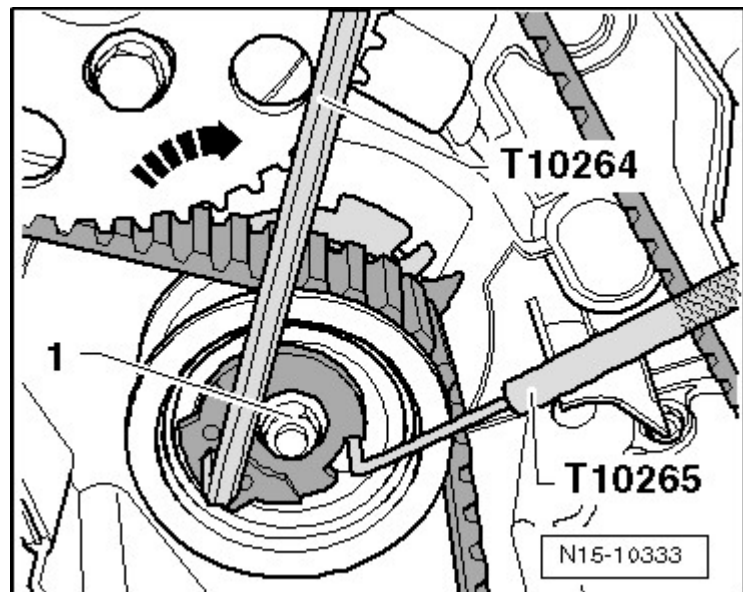


Note

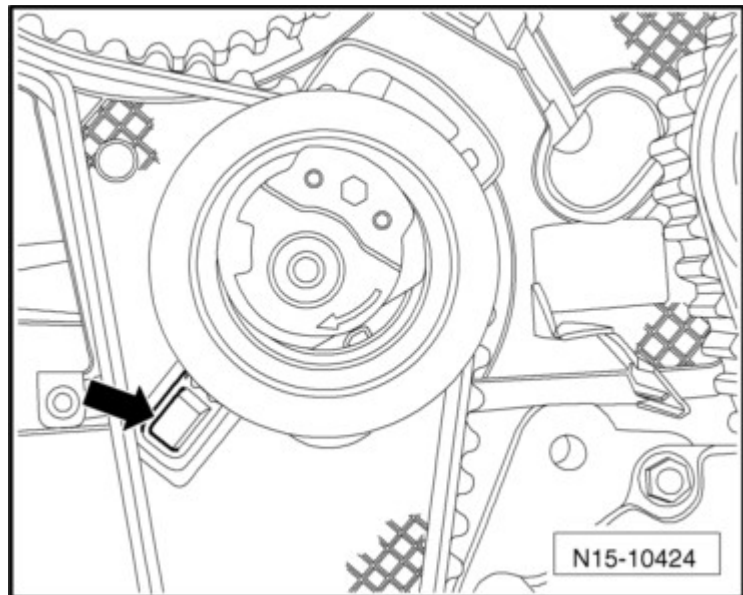
Disregard -arrow-.



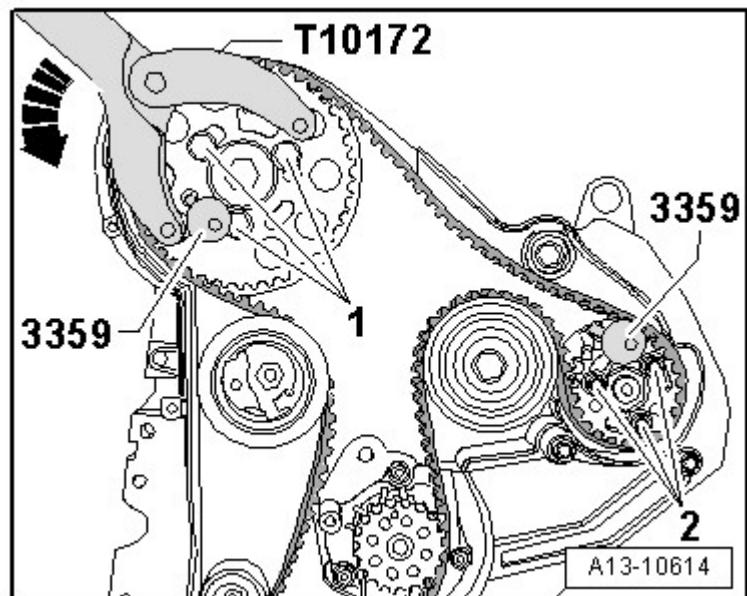
Note



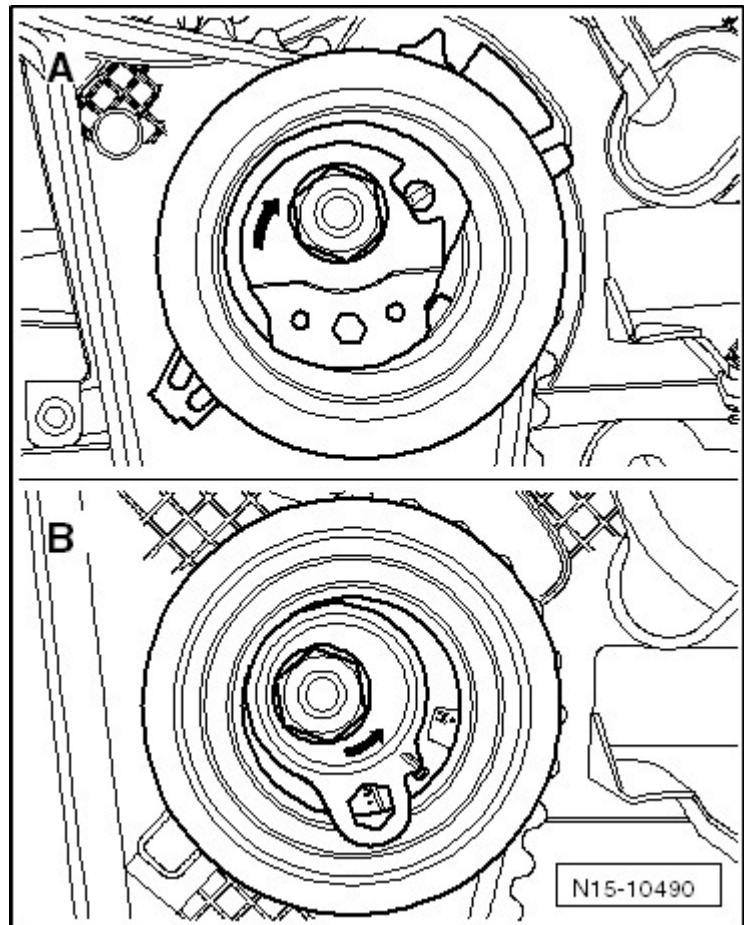
Ensure that tensioning roller is seated properly in toothed belt cover (rear) -arrow-.



- Position counterhold tool -T10172- on camshaft sprocket as shown in illustration.
- Apply force to counterhold tool in anti-clockwise direction -arrow- and maintain tension.
- Pre-tighten bolts -1- for camshaft sprocket and bolts -2- for high-pressure pump sprocket in this position.
- Initial tightening torque: 20 Nm



Vehicles with tensioning roller version -A-:



- Loosen nut -1- for tensioning roller and detach locking tool -T10265-.

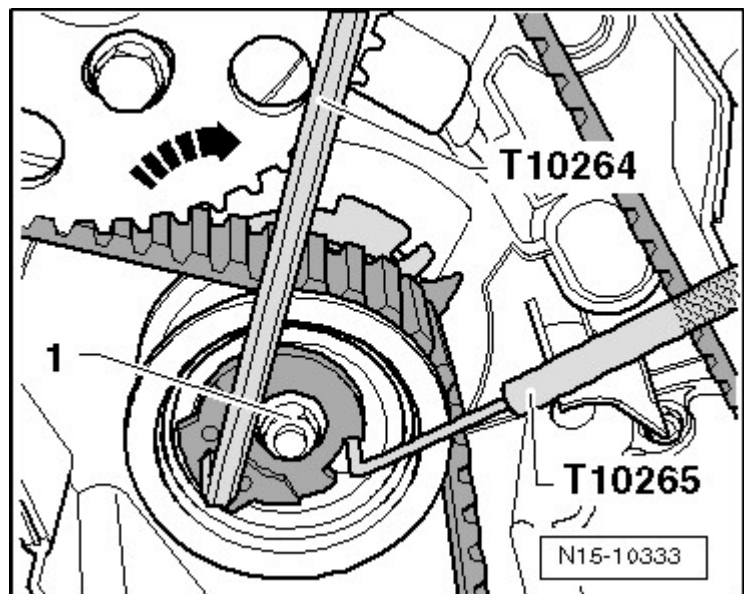


Note

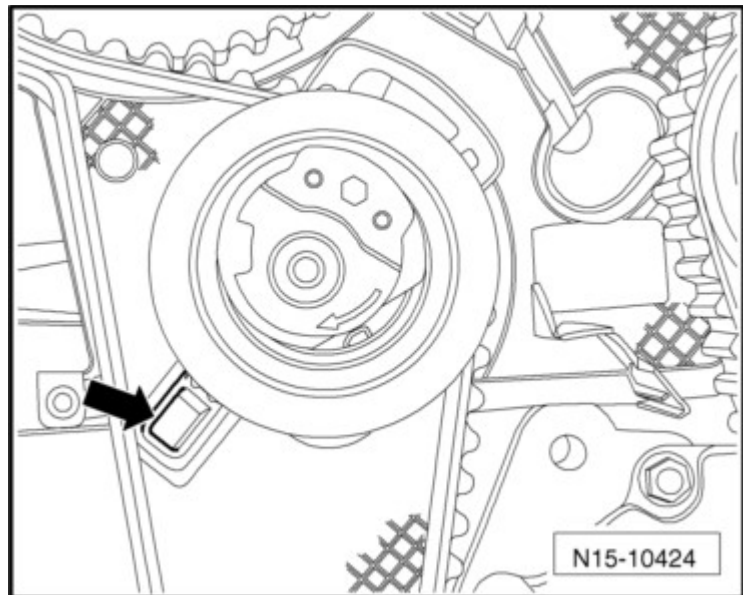
Disregard -arrow-.



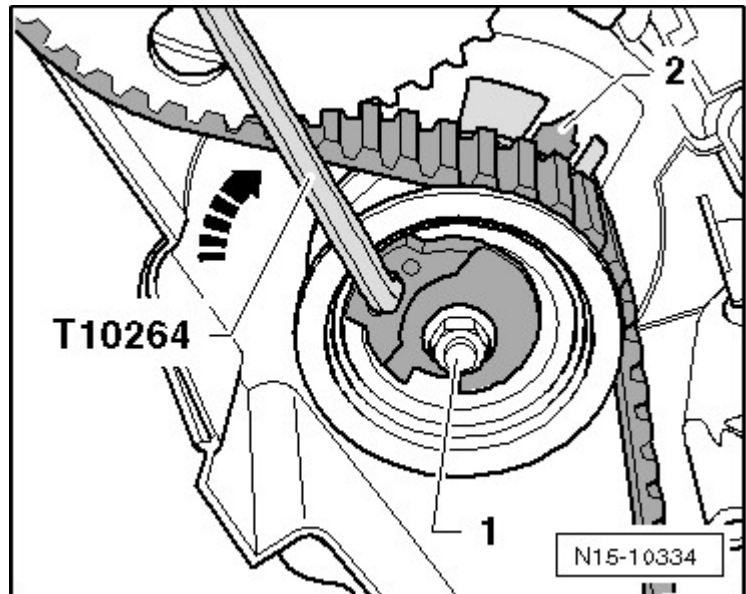
Note



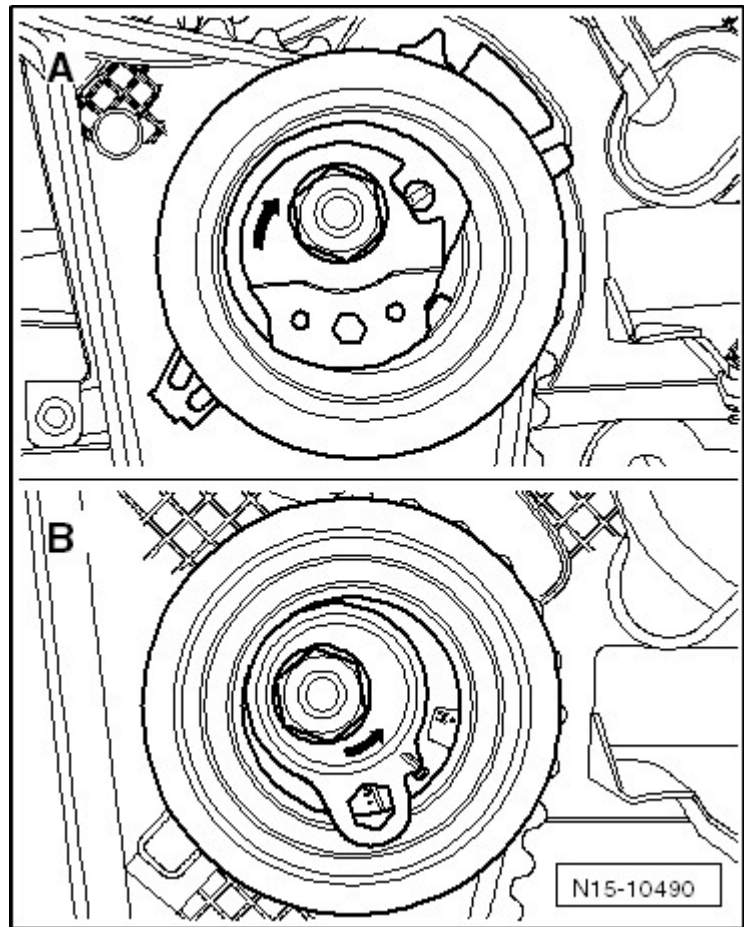
Ensure that tensioning roller is seated properly in toothed belt cover (rear) -arrow-.



- Carefully turn eccentric adjuster of tensioning roller clockwise -arrow- using special wrench, long reach -T10264- until pointer -2- aligns with the centre of the slot on the base plate.
- Nut -1- must not turn.
- Hold tensioning roller in this position and tighten nut.
- Remove locking pins -3359- and crankshaft stop -T10050-.



Vehicles with tensioning roller version -B-:



- Carefully turn eccentric adjuster of tensioning roller anticlockwise -arrow- using angle driver 8 mm -T10409- until pointer -2- aligns approximately above the centre of the slot on the base plate.
- Nut -1- must not turn.
- Hold tensioning roller in this position and tighten nut.
- Remove locking pins -3359- and crankshaft stop -T10050-.

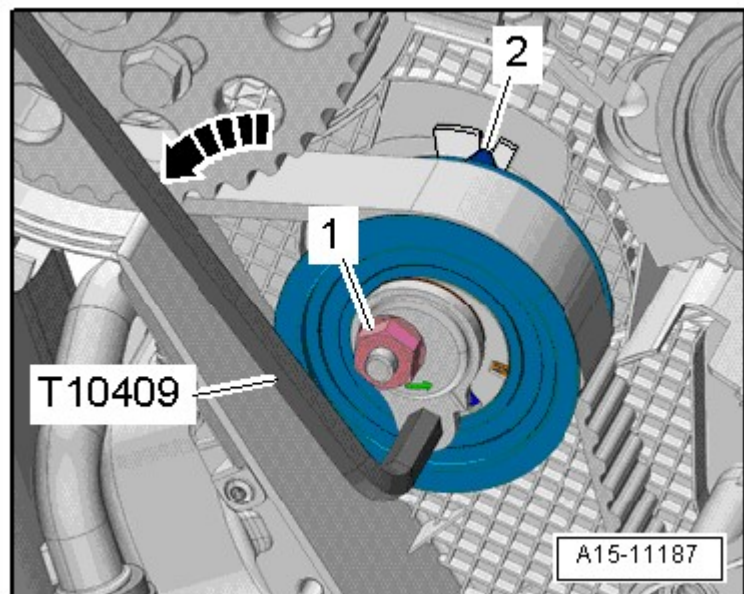
Checking valve timing:



Caution

Irreparable damage can be caused if the toothed belt slips.

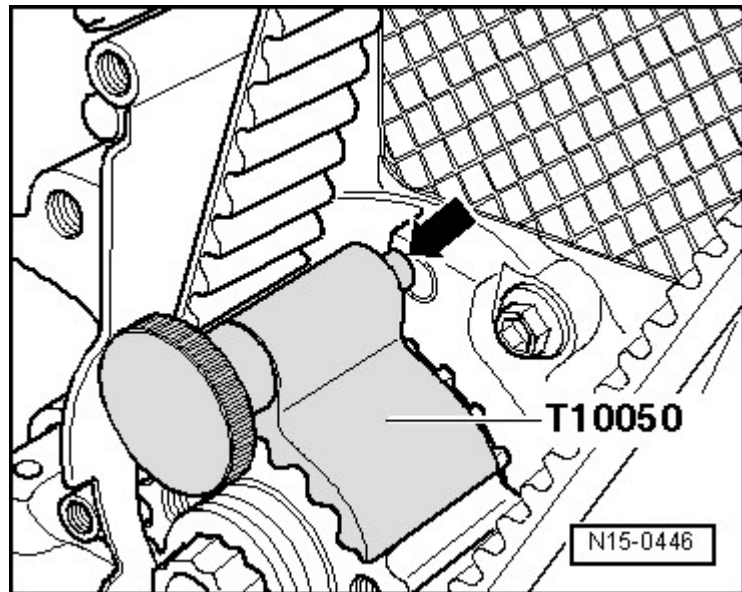
Turn crankshaft only in direction of engine rotation.



- Turn crankshaft two rotations in direction of engine rotation by turning bolt for

crankshaft sprocket until crankshaft is just before "TDC".

- Fit crankshaft stop -T10050- to crankshaft sprocket again.
- Turn crankshaft in direction of engine rotation until pin -arrow- on crankshaft stop engages in sealing flange as crankshaft rotates.

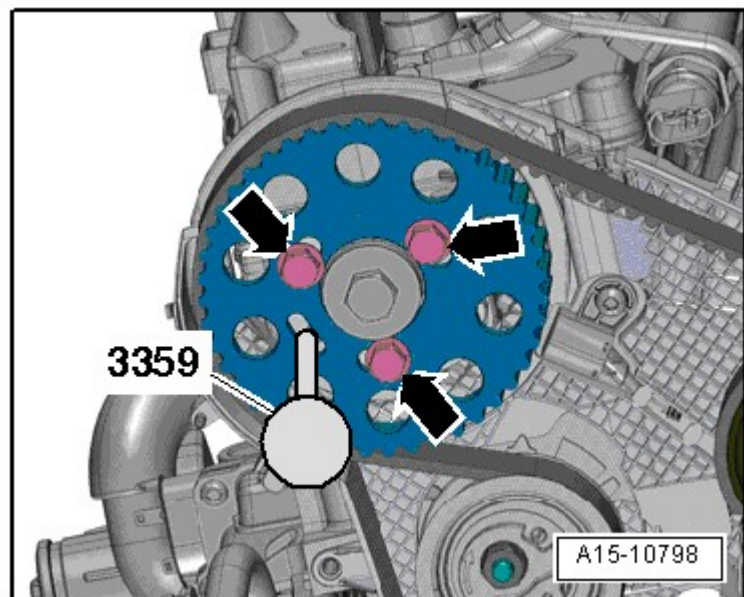


- It should now be possible to lock camshaft hub with diesel injection pump locking pin -3359-.

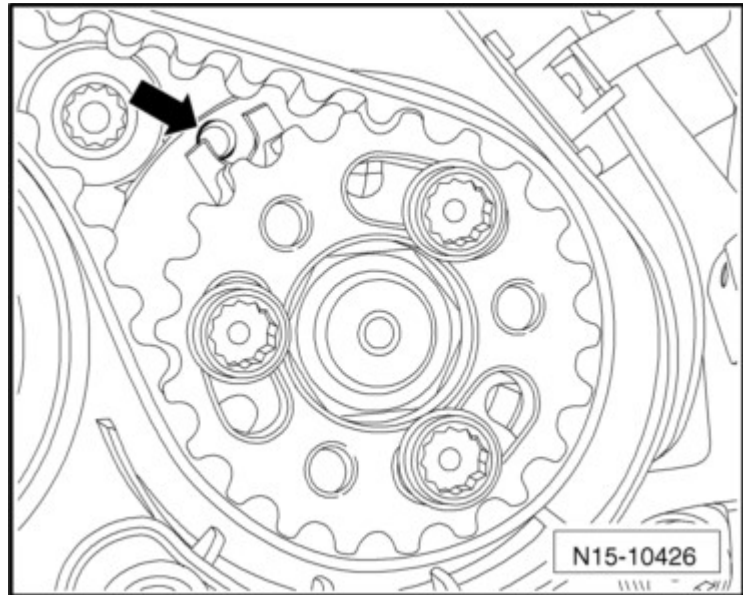


Note

Disregard -arrows-.



- It is very difficult to reproduce the locking position of the high-pressure pump hub. However, a slight deviation -arrow- does not influence engine operation.

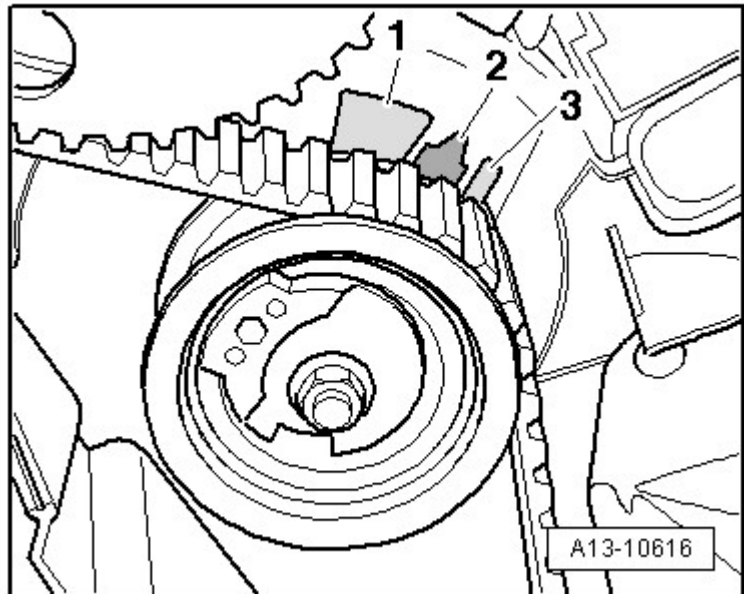


- Pointer -2- on tensioner roller must be centred between tabs -1- and -3- on base plate.



Note

- ◆ *This applies to both versions of tensioner roller.*
- ◆ *The maximum permissible sideways deviation from the specified position is 5 mm.*
- ◆ Re-adjust valve timing if requirements are not met → **Anchor**.
- ◆ If requirements are met, continue with procedure after adjusting valve timing correctly as described below → **Anchor**.



Re-adjusting valve timing:

- If camshaft hub cannot be locked, withdraw crankshaft stop -T10050- until pin is clear of bore.
- Turn crankshaft in opposite direction of engine rotation slightly past “TDC”.
- Now turn crankshaft slowly in direction of engine rotation until it is possible to lock camshaft hub.
- Loosen bolts for camshaft sprocket after locking hub.

A - If pin -arrow- of crankshaft stop -T10050- is on left side of bore:

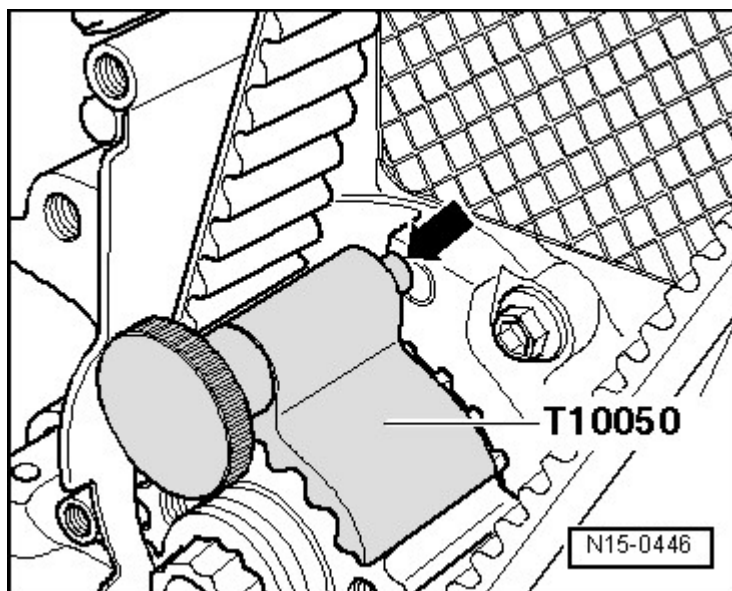
–

Turn crankshaft in direction of engine rotation until pin of crankshaft stop engages in sealing flange as crankshaft rotates.

- Tighten camshaft sprocket bolts to 20 Nm initially.

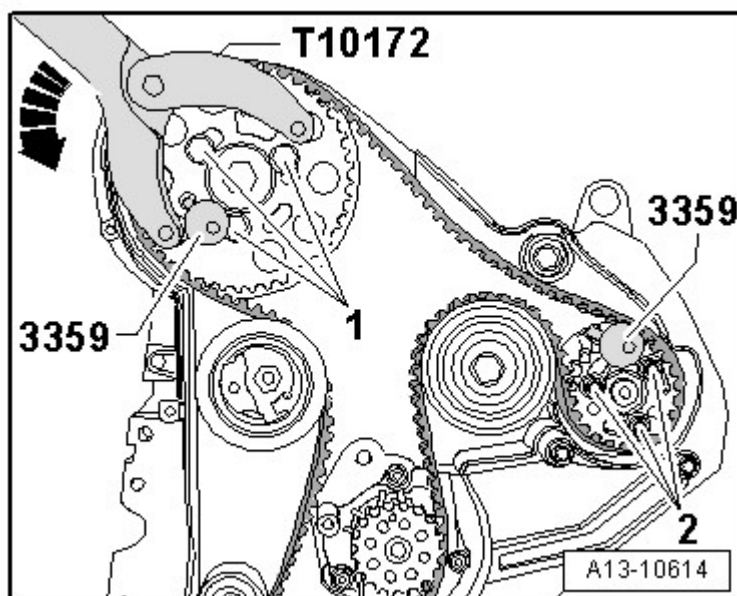
B - If pin -arrow- of crankshaft stop -T10050- is on right side of bore:

- Turn crankshaft slightly in opposite direction to engine rotation.
- Turn crankshaft in direction of engine rotation again until pin of crankshaft stop engages in sealing flange as crankshaft rotates.
- Tighten camshaft sprocket bolts to 20 Nm initially.



Procedure after adjusting valve timing correctly:

- Remove diesel injection pump locking pin - 3359- and crankshaft stop -T10050-.
- Turn crankshaft two rotations in direction of engine rotation by turning bolt for crankshaft sprocket until crankshaft is just before "TDC".
- Check valve timing once again → **Anchor**.
- If camshaft hub can now be locked, tighten camshaft sprocket bolts -1- to final torque → **Item**.
- Tighten bolts -2- for high-pressure pump sprocket to final torque → **Rep. gr.23**.
- Check valve timing once again → **Anchor**.



Assembling

Installation is carried out in the reverse order; note the following:

- Tightening torques → **Chapter „Toothed belt - exploded view“ → Fig. „Toothed belt cover (bottom and centre) - tightening torque“**



Note

- ♦ *Renew seals and/or gaskets.*
- ♦ *Secure all hose connections with the correct type of hose clips (same as original equipment) → **Electronic parts catalogue**.*

- Install vibration damper → Chapter.
- Install coolant pipe (right-side)
→ Chapter.
- Install fuel filter →Rep. gr.20.
- Install pressure differential sender -G505-
→Rep. gr.23.
- Install filler pipe with filler neck for washer
fluid reservoir →Electrical system; Rep.
gr.92.
- Install noise insulation frame (if fitted) and
noise insulation →Rep. gr.50.
- Fit front wheel →Wheels and tyres; Rep.
gr.44.