

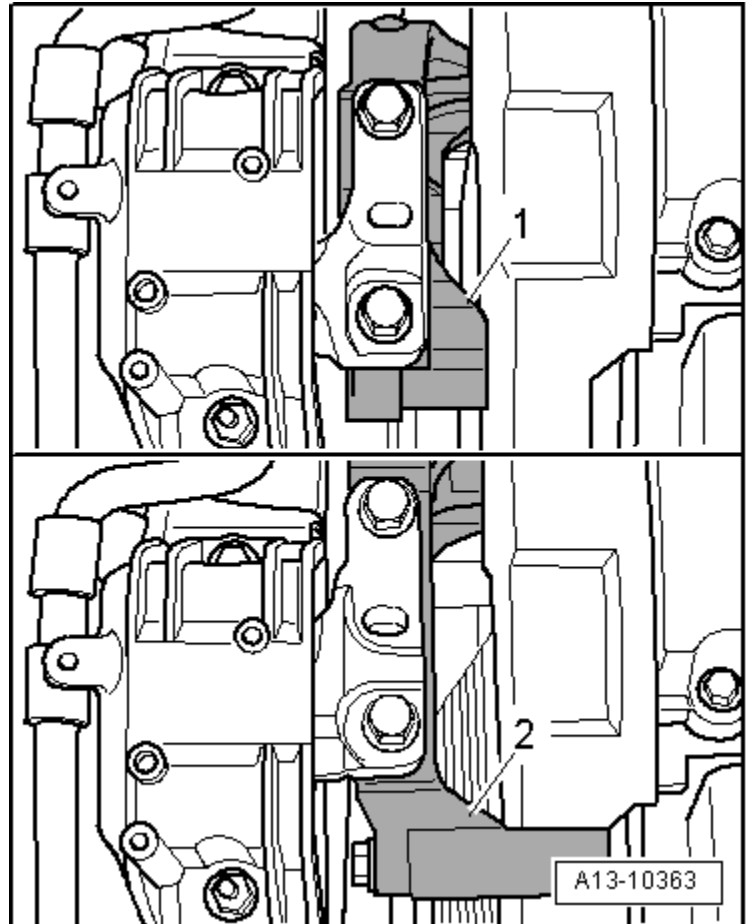
Notched belt: removing and fitting - vehicles equipped with small engine support foot

- ◆ Removing → [Anchor](#)
- ◆ Fitting (adjusting the valve timing) → [Anchor](#)
- ◆ Tightening torques → [Anchor](#)

Note

For the dismantling of the Poly-V belt in vehicles with small engine support foot -1- you must dismantle the engine support foot.

Consult the equivalence table for tools and equipment according to applicability between Seat / VW / Audi / Skoda → [Chapter](#).



SAT 8010



60...300 Nm

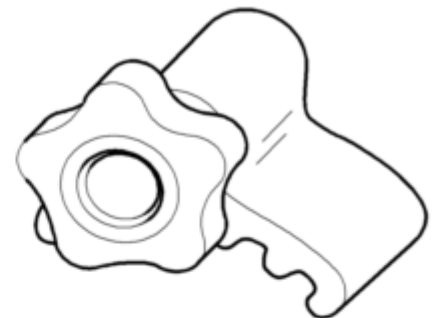


20...100 Nm



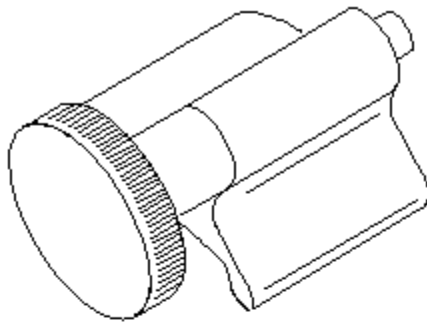
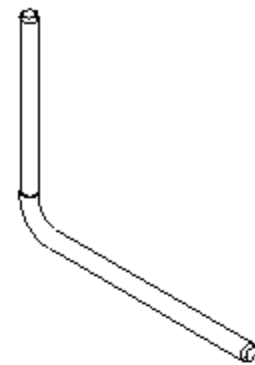
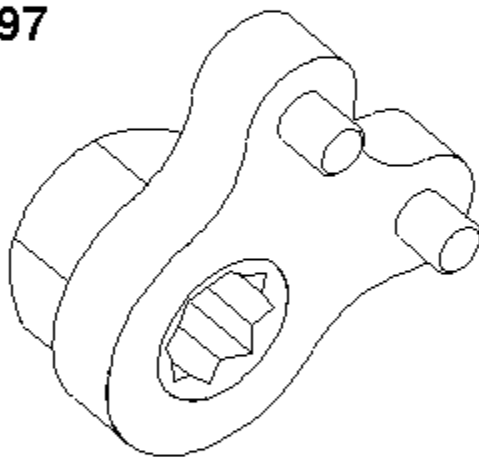
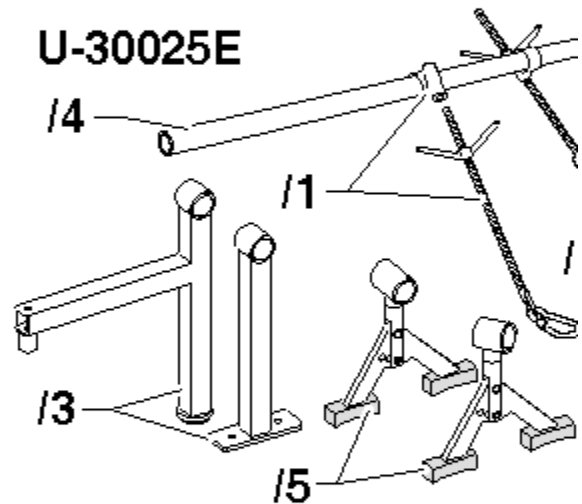
2...25 Nm

T10100



Special tools and workshop equipment required

- ◆ Torque wrench -SAT 8010-, see equivalent → [Anchor](#)
- ◆ Retention tool -T10100-, see equivalent → [Anchor](#)
- ◆ Retention tool -T10115-, see equivalent → [Anchor](#)
- ◆ Retention tool -T20018B-, see equivalent → [Anchor](#)
- ◆ Retention tool -T20102-, see equivalent → [Anchor](#)
- ◆ Counterhold -T20174-, see equivalent → [Anchor](#)

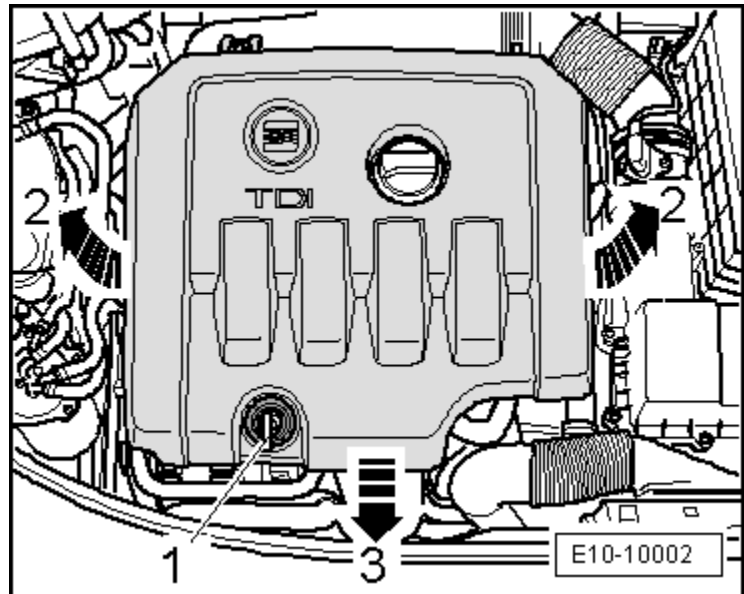
T10050**T20167****T20197****U-30025E**

- ◆ Retention tool -T10050-, see equivalent → [Anchor](#)
- ◆ Retention tool -T20167-, see equivalent → [Anchor](#)
- ◆ Turning tool -T20197-, see equivalent → [Anchor](#)
- ◆ Socket -U-30025E-, see equivalent → [Anchor](#)

Removing

Engine cover, version 1:

- Take out the oil dipstick -1- from its guide tube.
- Lift the engine cover on one side -arrows 2- and remove it forwards -arrow 3-.
- Replace the oil dipstick in the guide tube.



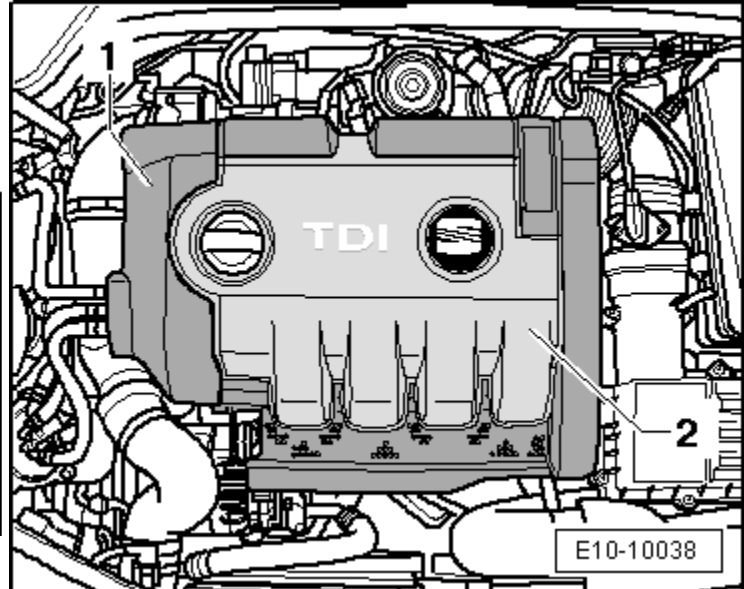
Engine cover, version 2:

- Detach the outer -1- and inner -2- engine covers, by pulling them evenly upwards.

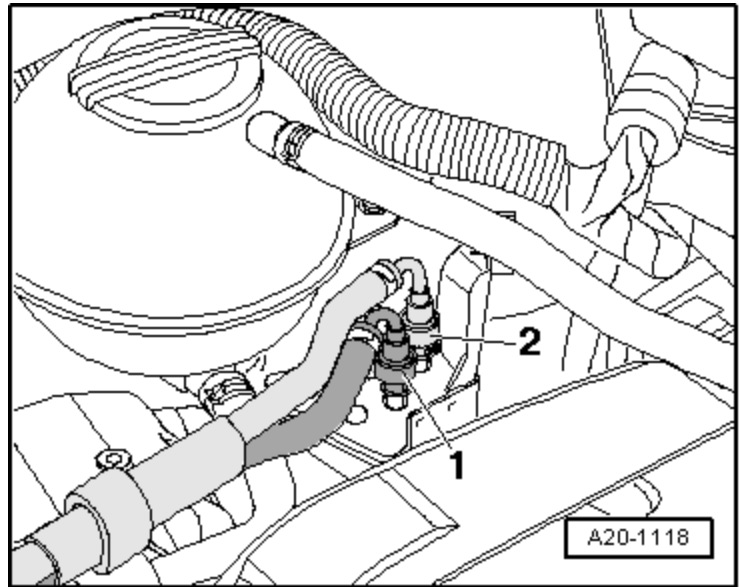
Continued for all vehicles:

WARNING

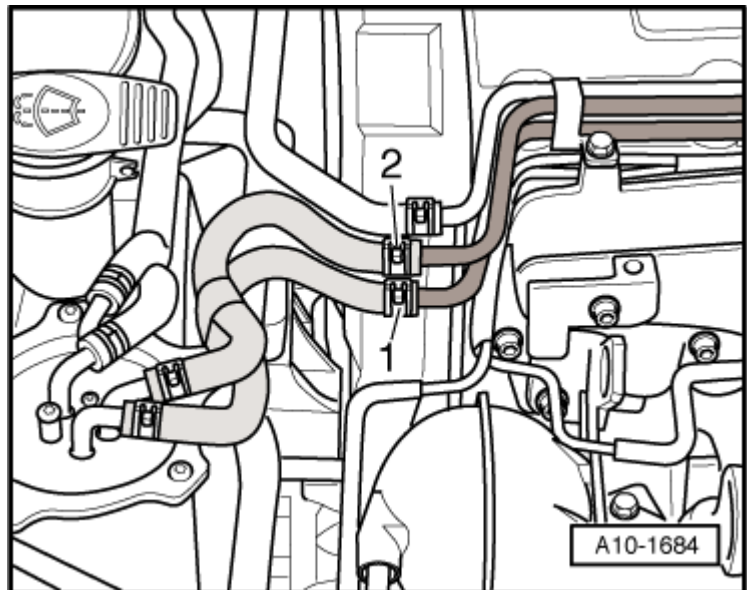
- ◆ *For those vehicles fitted with an injector pump, the temperature of the fuel and the fuel lines may reach up to 100 °C in extreme cases. Before opening the line connections, allow the fuel to cool otherwise there is a risk of severe burns.*
- ◆ **Wear protective gloves.**
- ◆ **Wear protective glasses.**



- Disconnect the fuel supply tube -2- and return tube -1-. To do this press release tabs.

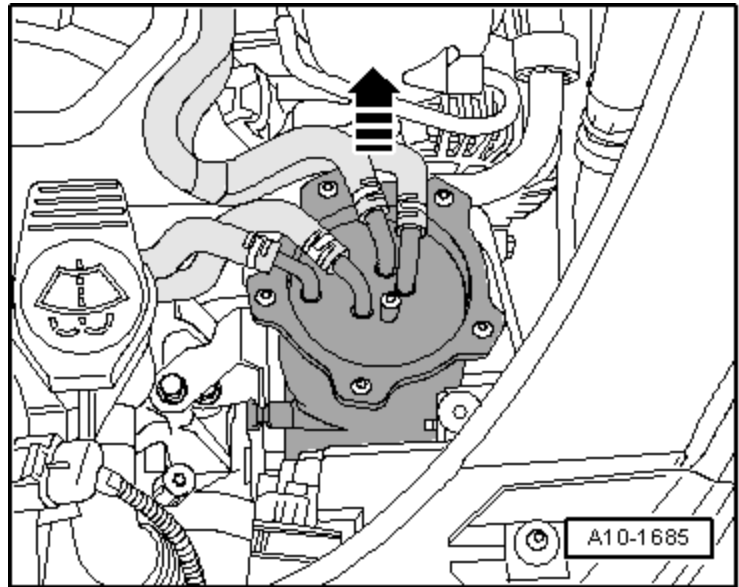


- Disconnect the fuel supply tube -2- and return tube -1- from the fuel pipes.

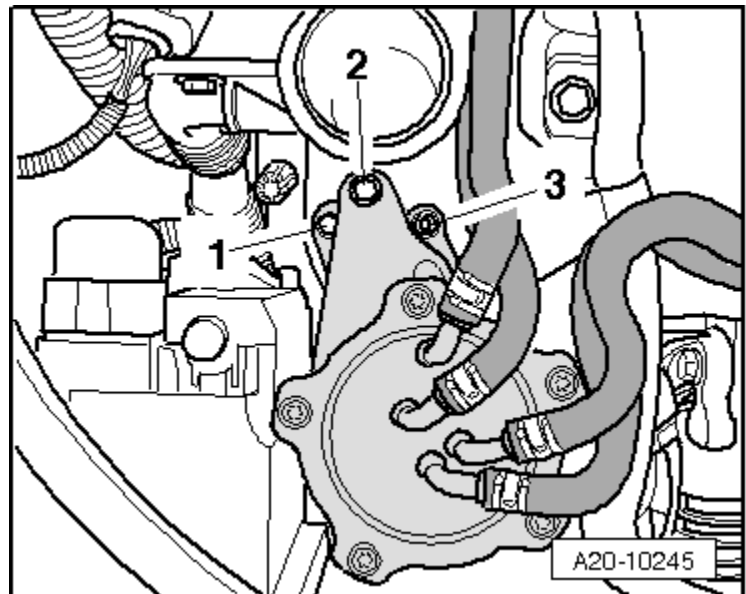


Fuel filter, version 1:

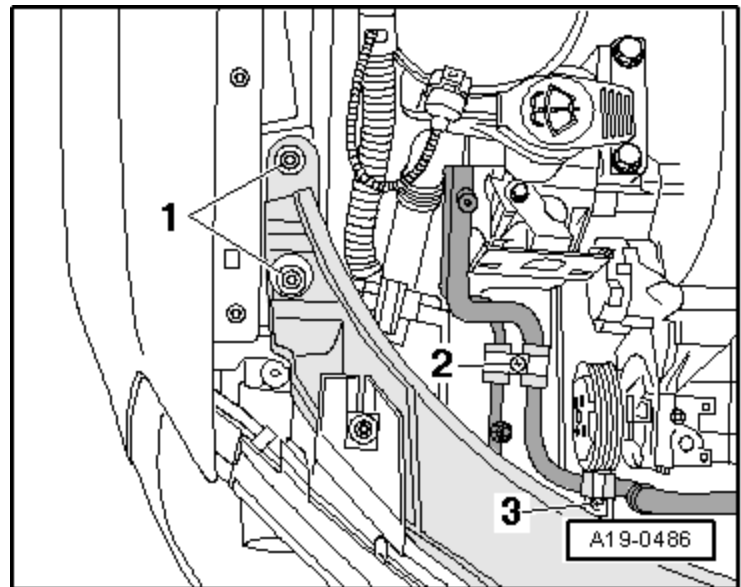
- Extract the fuel filter to above the support - arrow- with the hoses connected.

**Fuel filter, version 2:**

- Loosen the bolt by one turn -1-.
- Unscrew bolt -2- and nut -3-.
- Remove the fuel filter with the flexible hoses attached.

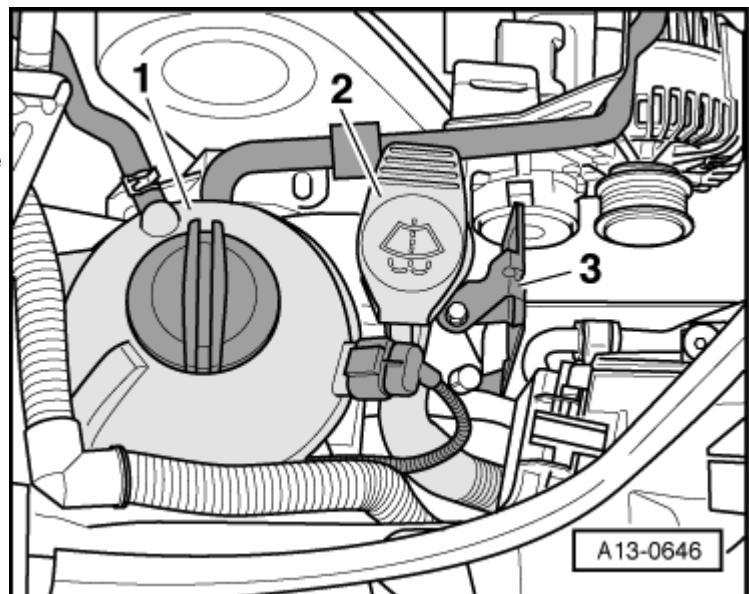
Continued for all vehicles:

- Unscrew the bolts -2- and -3- on the bracket for the refrigerant tubes.



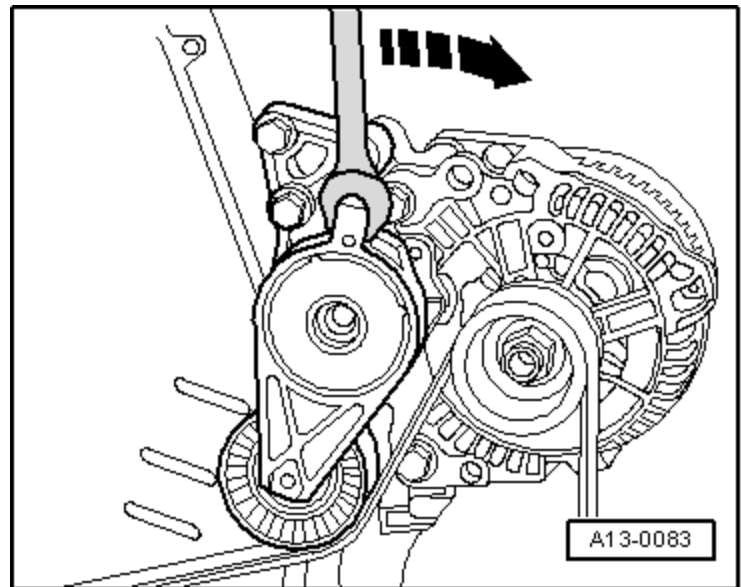
- Unbolt the support -3- for the fuel filter.
- Unscrew filler neck bolt -2- for washer fluid container.
- Unscrew coolant tank -1- and place to one side with lines connected.

Note

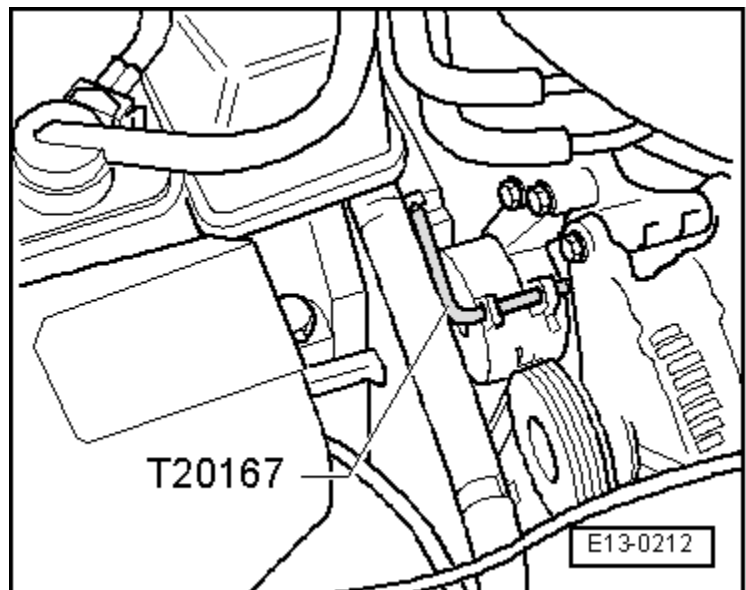


Before removing the ribbed belt, mark its running direction with chalk or with a felt tipped pen. If the belt runs in the wrong direction when it is refitted, this can cause breakage.

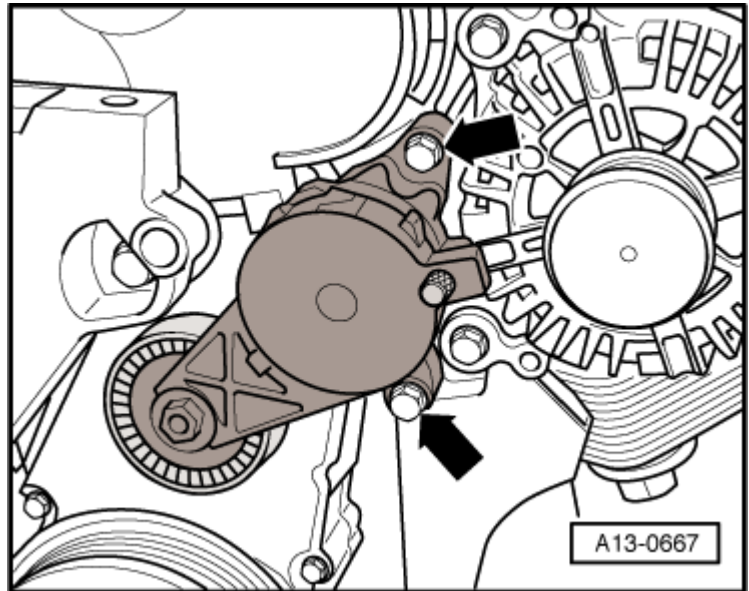
- Slacken Poly-V belt, turn tensioning element in -direction of arrow-.



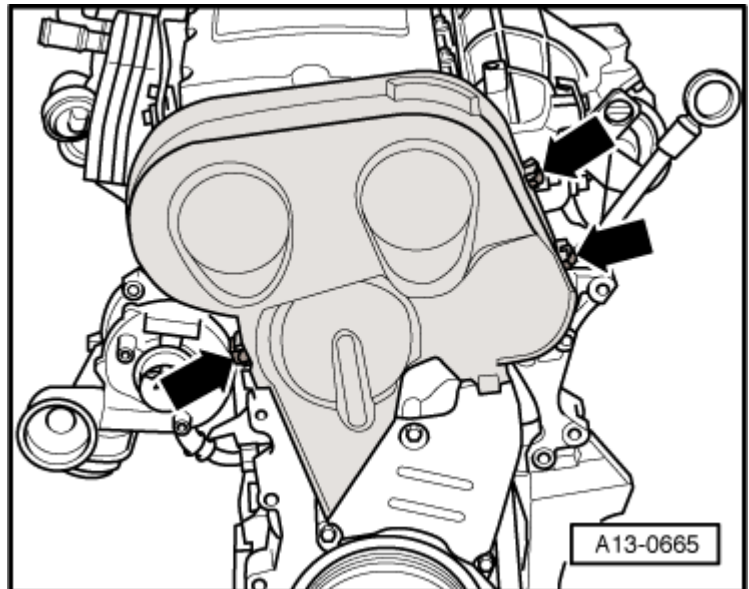
- Lock tensioner with Retention tool -T20167-.
- Remove poly V-belt .



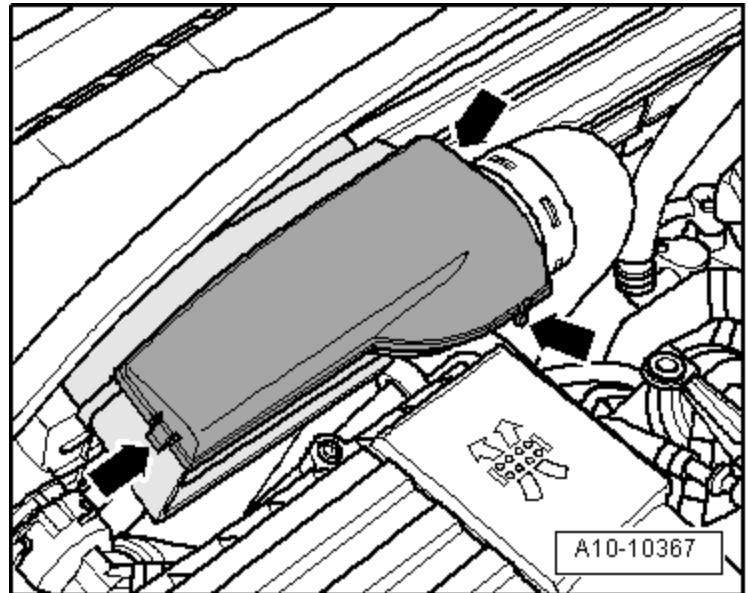
- Remove tensioning device for ribbed belt - arrows-.



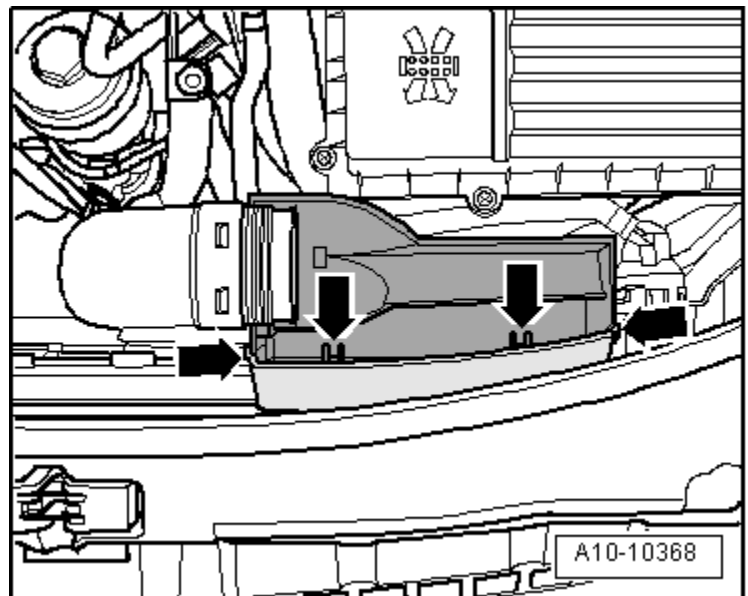
- Remove the upper protection for the timing belt, to do this, release the attachment clips - arrow-.



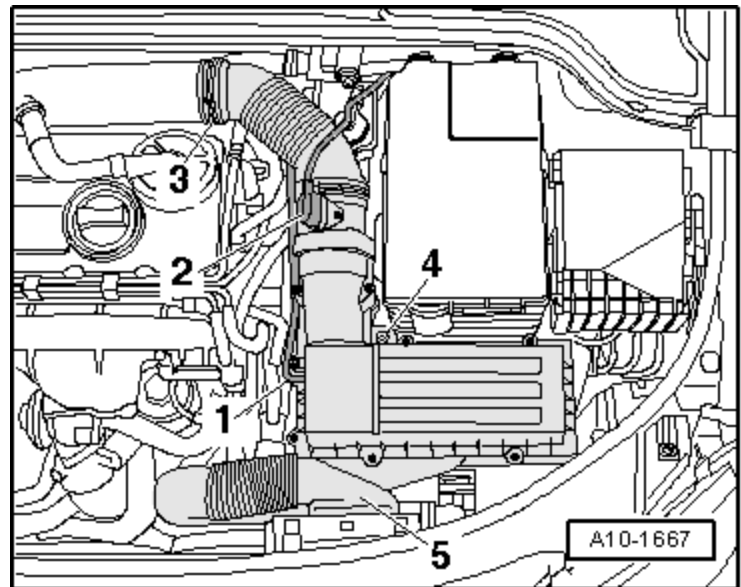
- Remove the air conduit cover by releasing the side tabs -arrows-.



- Unclip the air conduit in the lower part by releasing the tabs -arrows-.
- Remove the lower section of the air duct together with the air hose.



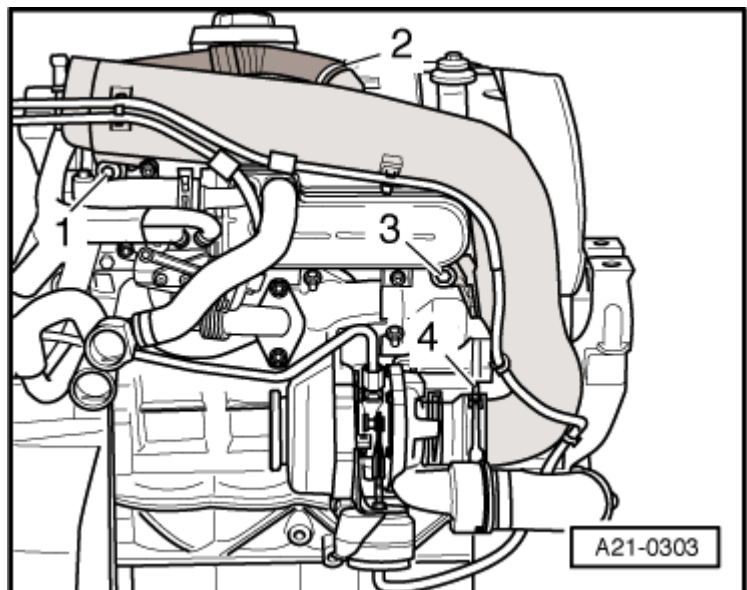
- Remove the electrical connector -2- from the air mass meter -G70-.
- Disconnect the breather hose -1- and the air conduit hoses -3- and -5-.
- Unscrew the bolt -4- and remove the air filter housing.



- Unscrew bolts -1- and -3-.
- Release the vacuum conduits on the rear tube of the air conduit.
- Disconnect the hose -2- from the crankshaft sump breather on the air duct.
- Remove the spring type clip using the support tool -T20174- and disconnect the air duct from the connection on the turbocharger.

i Note

Shown in illustration with engine removed from behind.

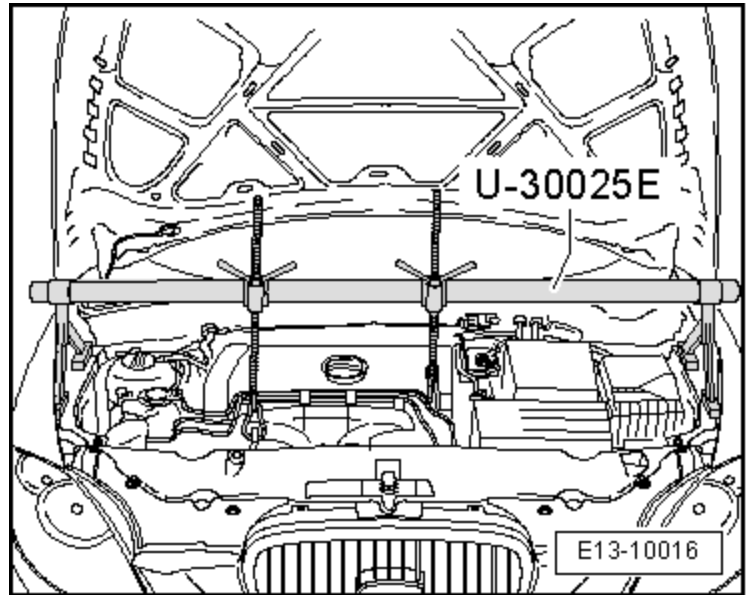


- Fit the bracket -U-30025E- on the edge of the wing panels.

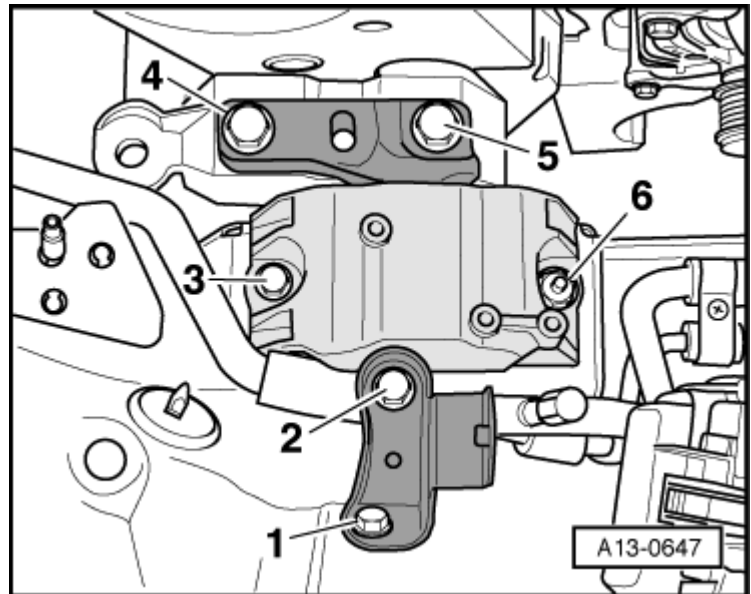
i Note

To secure the engine assembly with the support -U-30025E- this must be centred as much as possible with the symmetrical axis of the engine assembly.

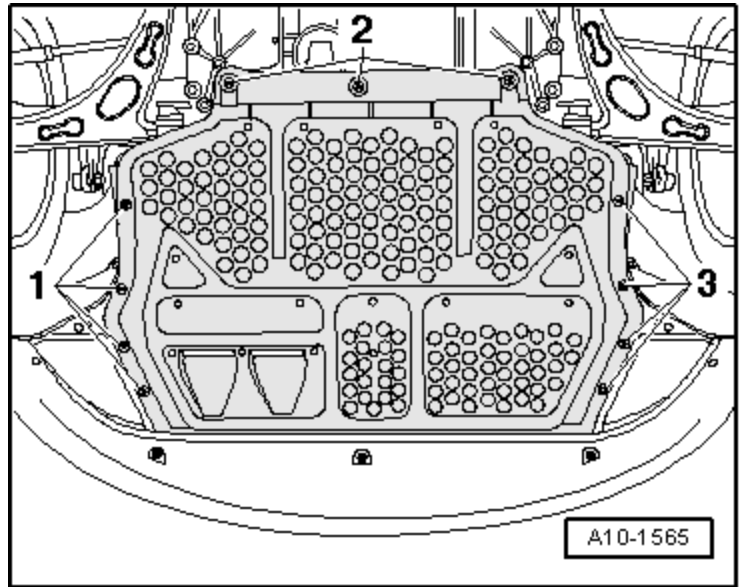
- Engage the trigger snaps of the spindles on the lifting eyes.
- Pretension engine with both spindles equally, do not lift.



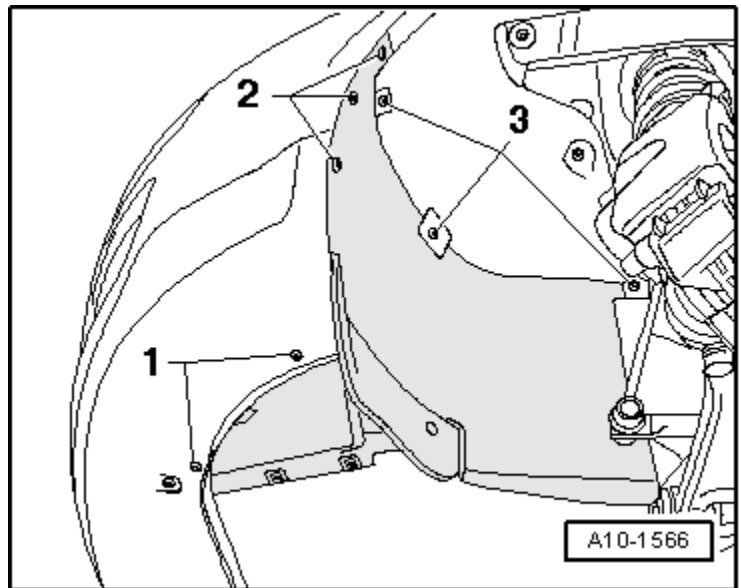
- Unscrew bolts -1- and -2- and take the connecting piece off.
- Unscrew bolts -3 ... 6- and take the engine console out.



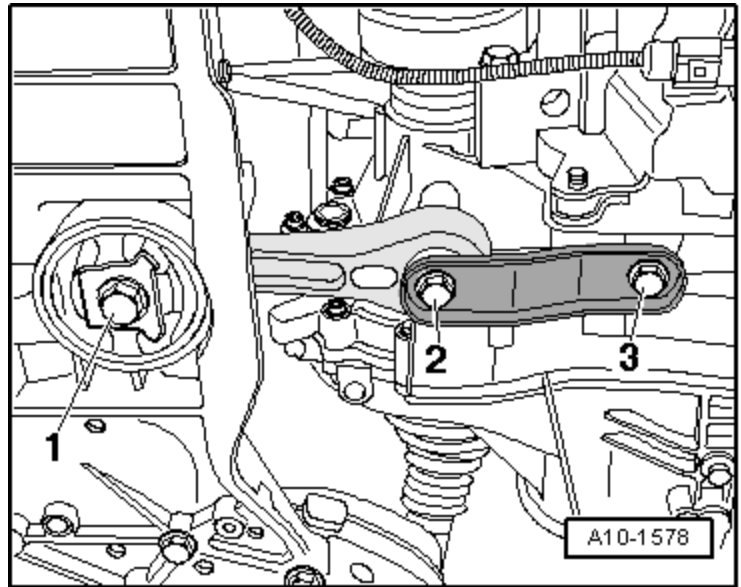
- Remove centre noise insulation -fastening points 1 ... 3-.



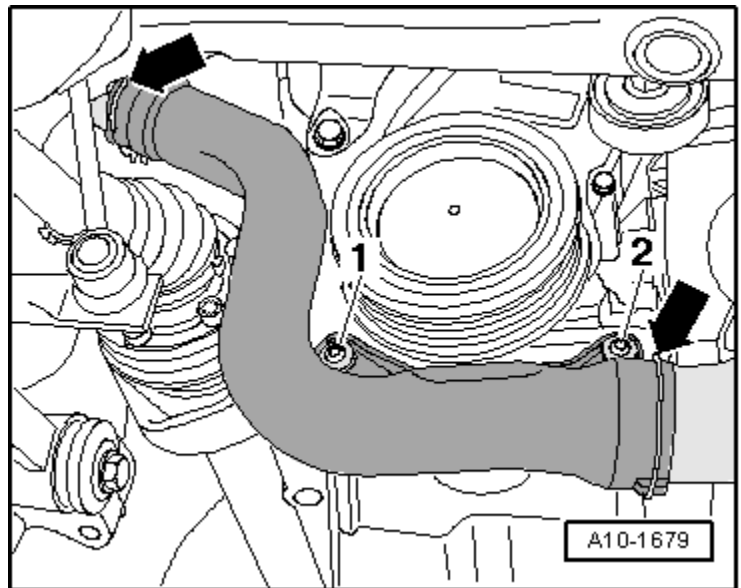
- Remove right hand side noise insulation - fastening points 1 ... 3-



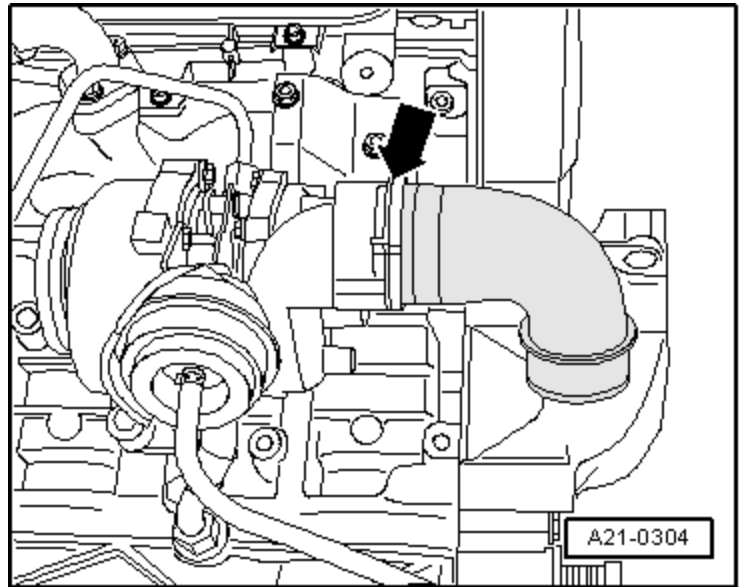
- Unscrew bolts -1 ... 3- and take pendulum support out.



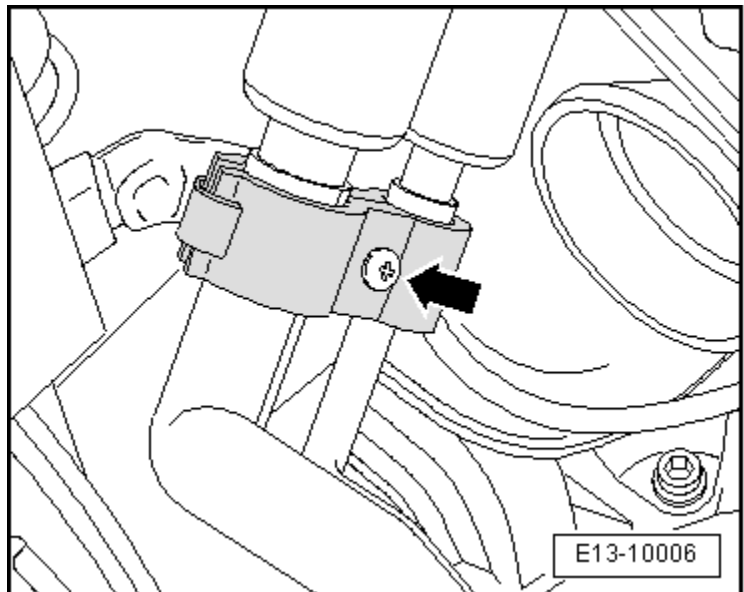
- Unscrew bolts -1- and -2-.



- Remove the right hand side air conduit hose; to do this, lift the retainers slightly -arrows-.



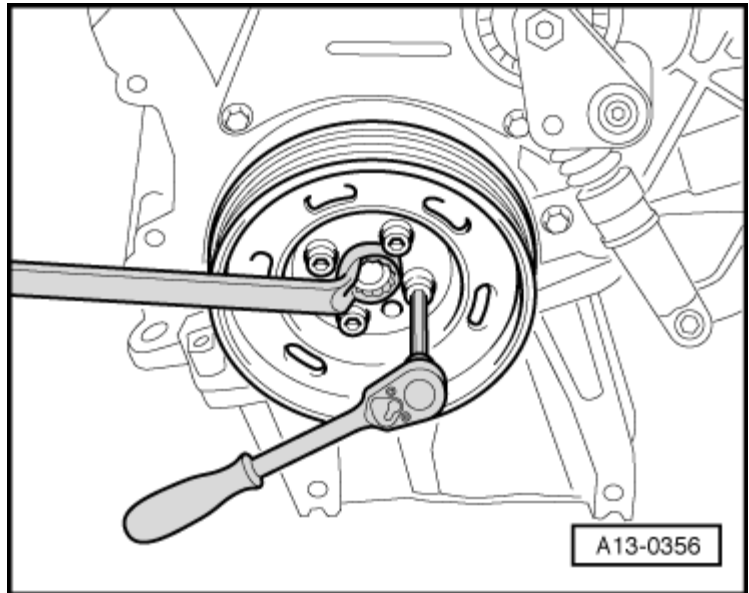
- Remove the air conduit hose from the turbocharger; to do this, lift the retainers slightly -arrows-.
- Unscrew the bolt -arrow- from the lower bracket for the refrigerant tubes.



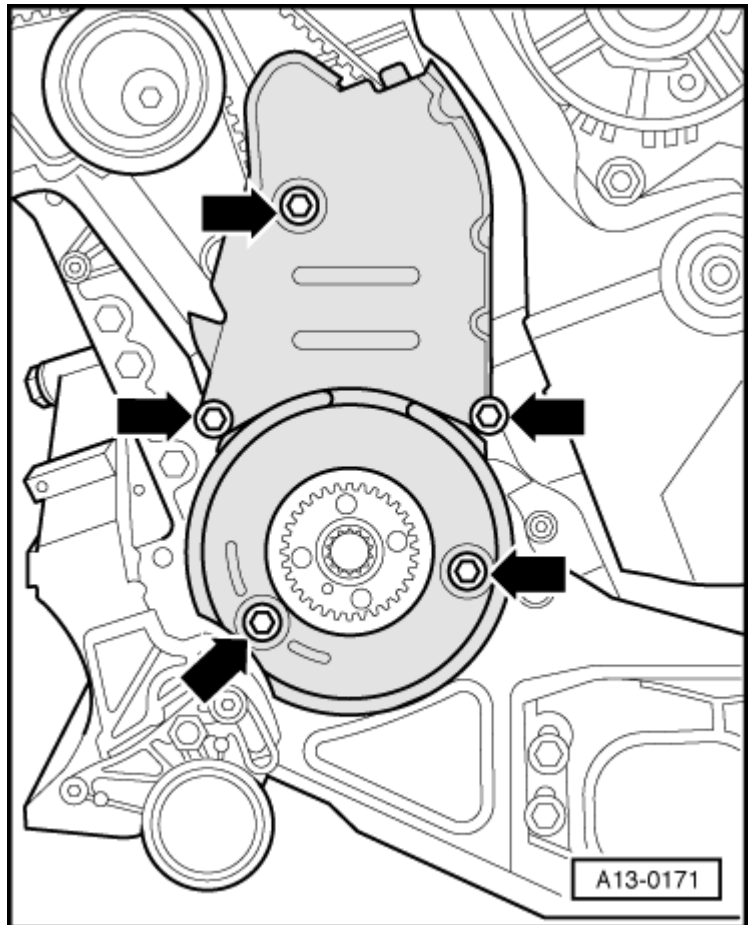
- Remove the vibration damper hood.
- Unscrew the vibration damper.

 **Note**

To loosen and to tighten the vibration damper, hold it on the centre bolt using a ring spanner.



- Unscrew the lower and centre timing belt guard -arrows-.

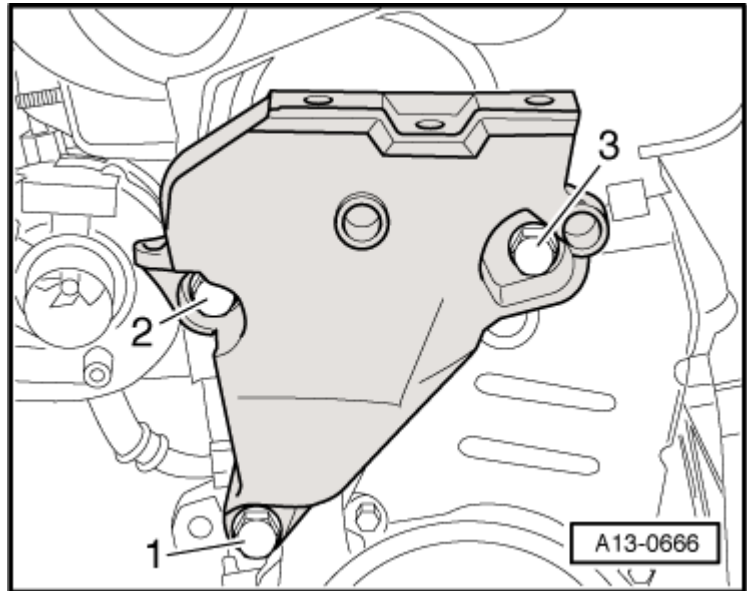


- Remove bolts -1 ... 3- from the engine mount.

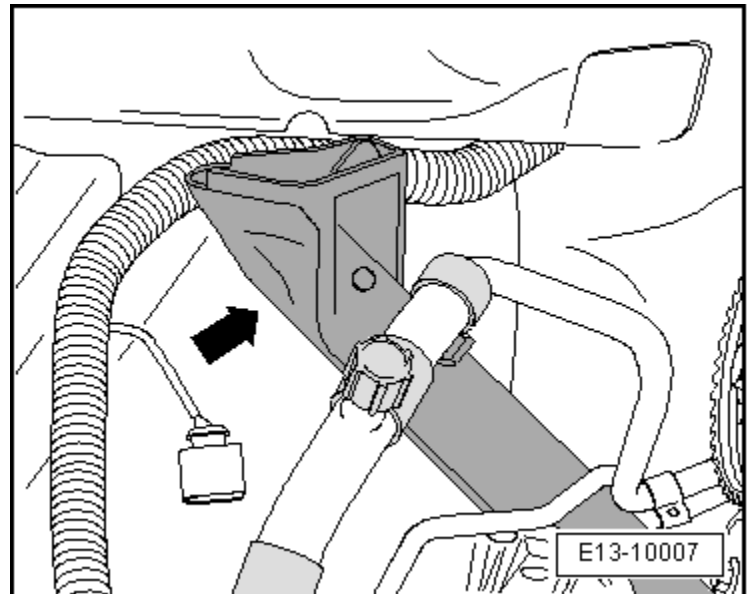
i Note

To release the engine mount supports, raise or lower the engine using the spindles of the support -U-30025E-.

- Lift the engine and gearbox assembly using the spindles.



- Extract upwards, the fuel lines cover -arrow- from its allotment; to do this, disconnect the cover top and remove the tube fixations.
- Carefully lift the refrigerant tubes to avoid damage by twisting.



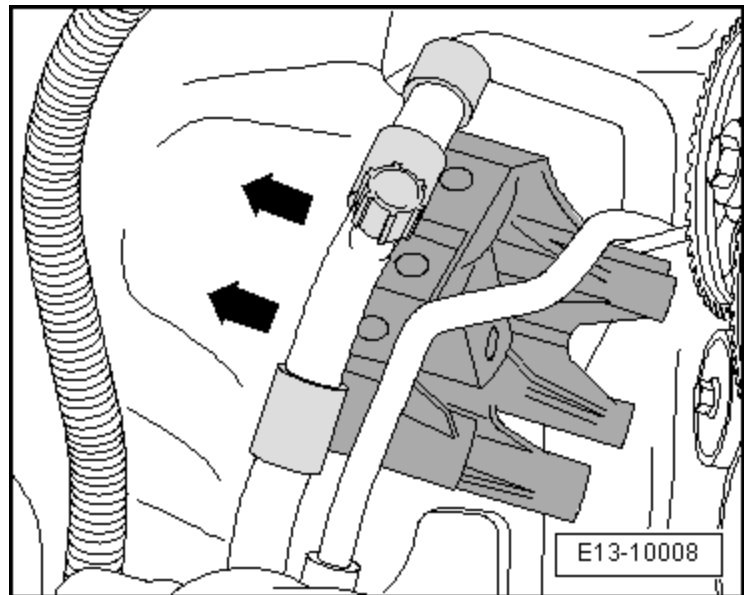
- Extract the engine mount by the lower part of the refrigerant tubes -arrows- as shown in the illustration.

⚠ WARNING

The rotation of the engine must only take place on the crankshaft in the normal rotation direction of the same (clockwise).

- Rotate the crankshaft to the TDC of cylinder 1.

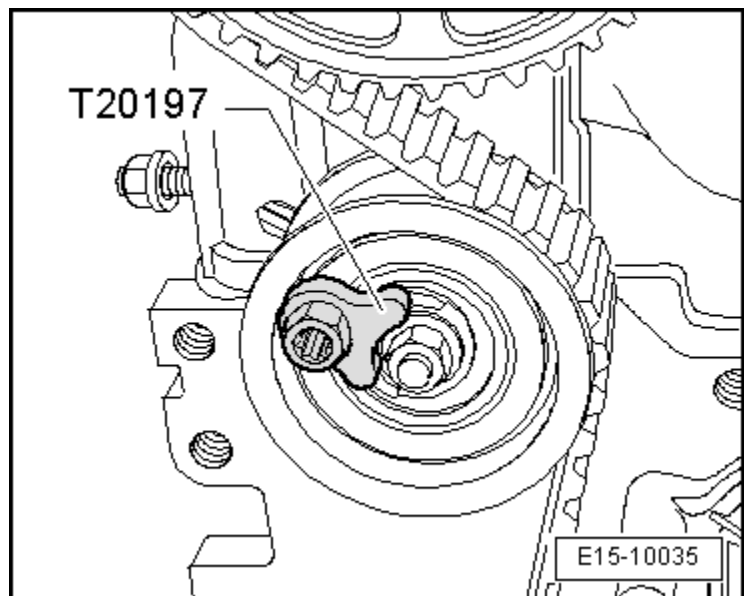
📘 Note



For engines before the 2004 model, the tension roller for the timing belt does not have an interior hexagon for the allen key. In these cases use the tool -T20197- to loosen and tighten the timing belt.

i Note

Progressive installation of the oval wheels for the crankshaft timing belt. When fitting this type of wheel, the crankshaft should be locked using the counter hold -T10100- to determine TDC.

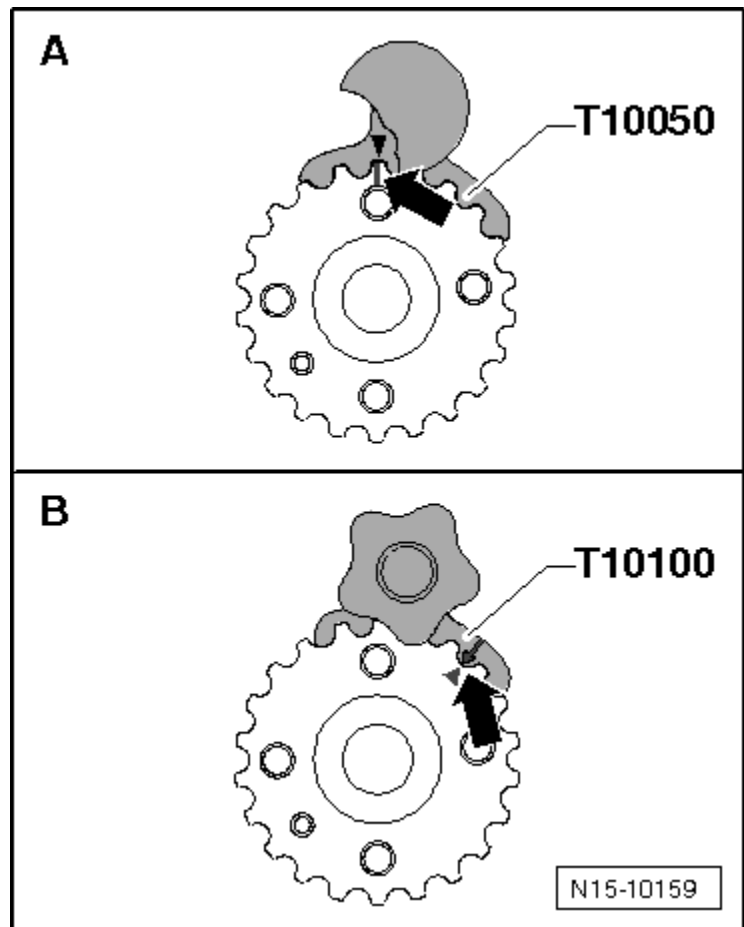


Distinctive characteristics of the crankshaft timing belt wheel

A = Normal wheel for timing belt, lock using the counterhold -T10050-, mark the TDC in the 12 o'clock position

B = Oval wheel for timing belt, lock using the counterhold -T10100-, mark the TDC in the 1 o'clock position

i Note

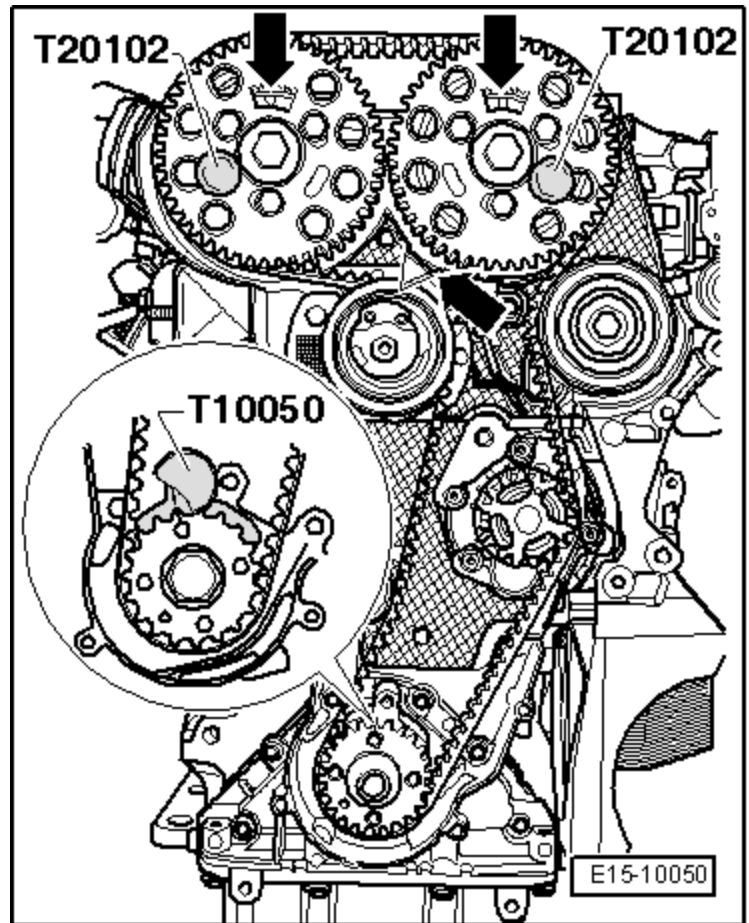


Rotate the crankshaft until the mark on the timing belt wheel of the crankshaft and the gear segment of the camshaft wheel face upwards. The mark on the rear timing belt protection should coincide with the mark on the generator wheel of the camshaft - arrows-.

- Lock the timing belt crankshaft pulley using retention tool -T10050- or retention tool -T10100-. To do so, insert the retention tool in the teeth of the pulley at the front of the timing belt pulley.

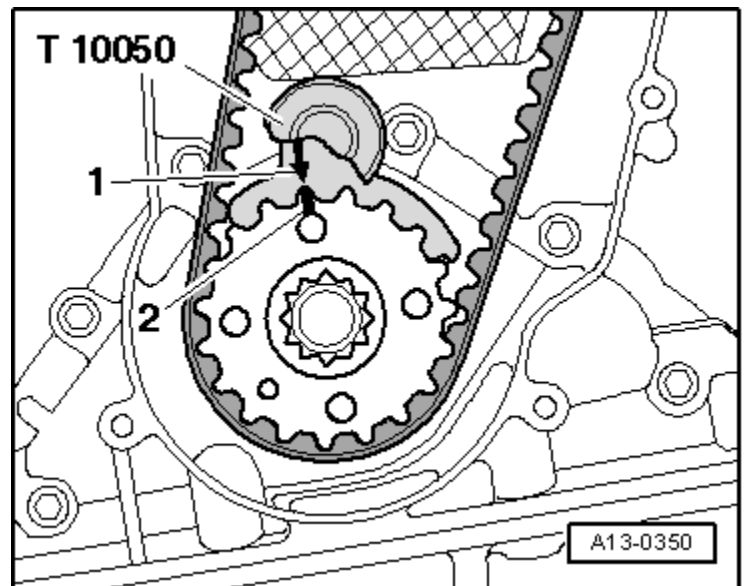
i Note

The marks on the timing belt wheel -2- and the crankshaft positioning device -T10050- or positioning device -T10100--1-should face each other. For this, the stub of the retention tool -T10050- or retention tool -T10100-should match the opening in the sealing flange.



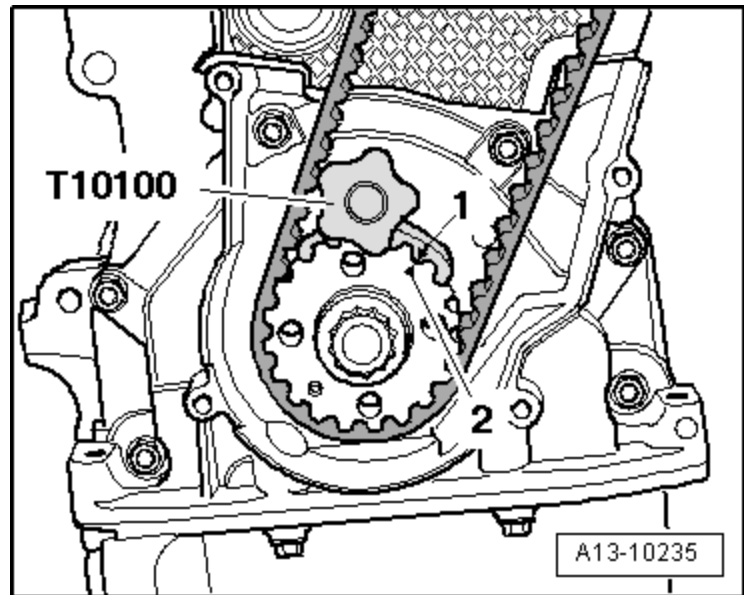
Vehicles with round wheel for the crankshaft timing belt

- Immobilise the crankshaft timing belt wheel using the retention tool -T10050-.

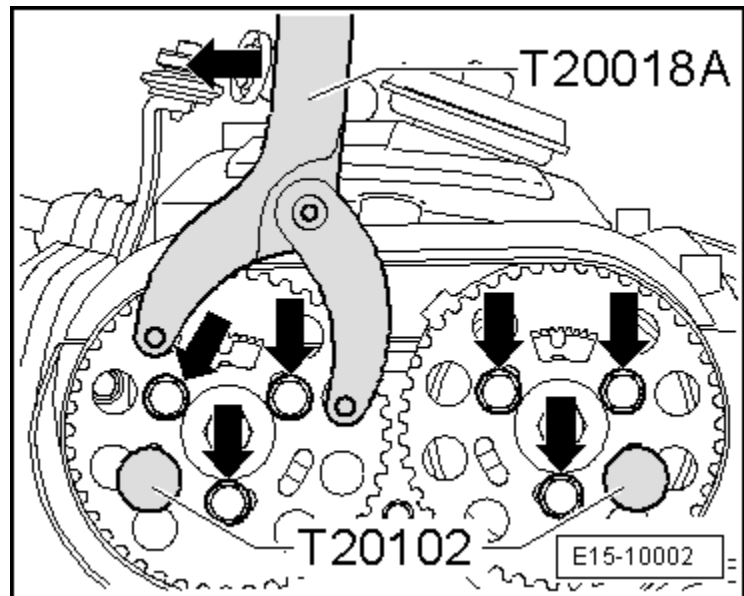


Vehicles with an oval wheel for the crankshaft timing belt

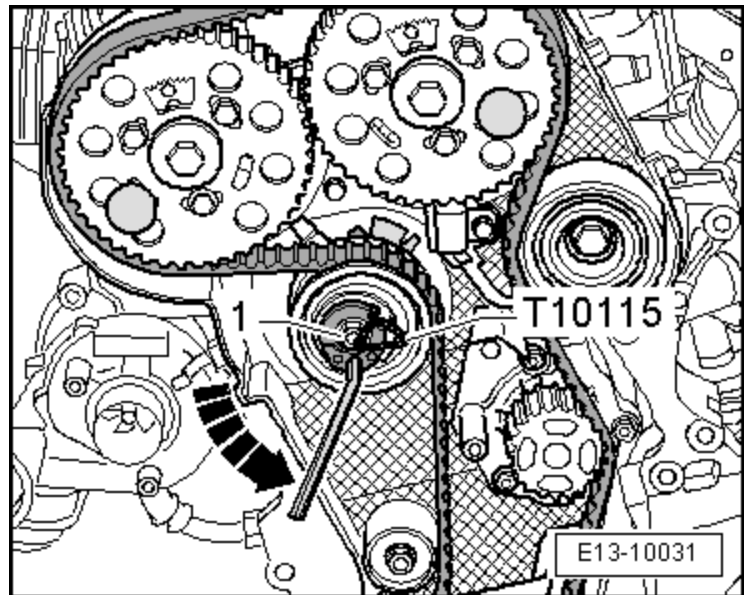
- Immobilise the crankshaft timing belt wheel using the counterhold -T10100-.
- Mark the timing belt direction of rotation with chalk or felt pen.



- Loosen the attachment bolts -arrows- from the camshaft sprocket with the counterhold - T20018B- until the camshaft sprocket can turn loosely in the extended holes.
- Immobilise the hubs using the retention tools - T20102-.



- Loosen the securing nut -1- of the tensioning roller.
- Turn the off-centre adjustment with an allen key -in direction of the arrow- until the tension roller can be secured with the counterhold - T10115-.



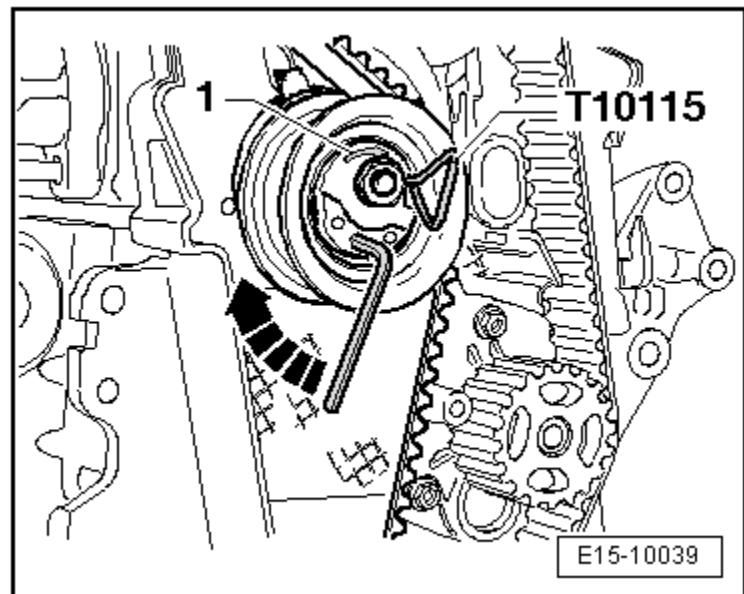
- Next turn the Allen key -in the direction of the arrow- as far as possible and hand tighten the fastening nut.
- Remove the timing belt, first from the coolant pump and then from the rest of the timing belt wheels.

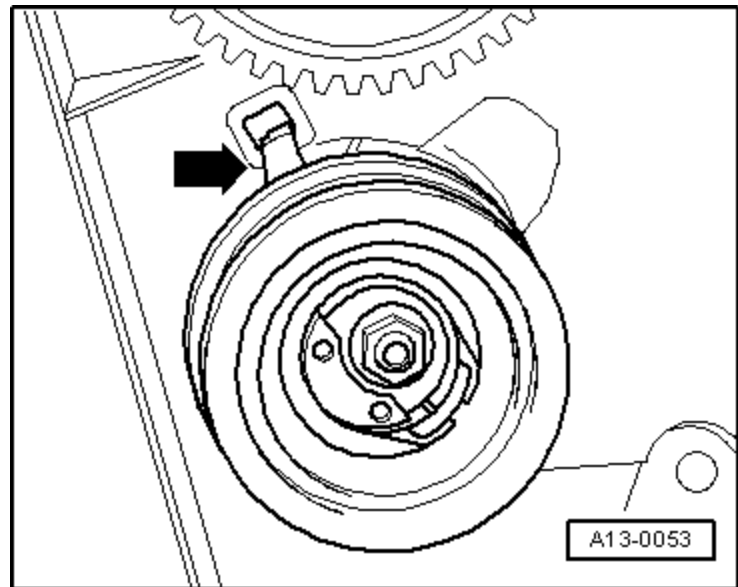
Fitting (adjusting the valve timing)

Note

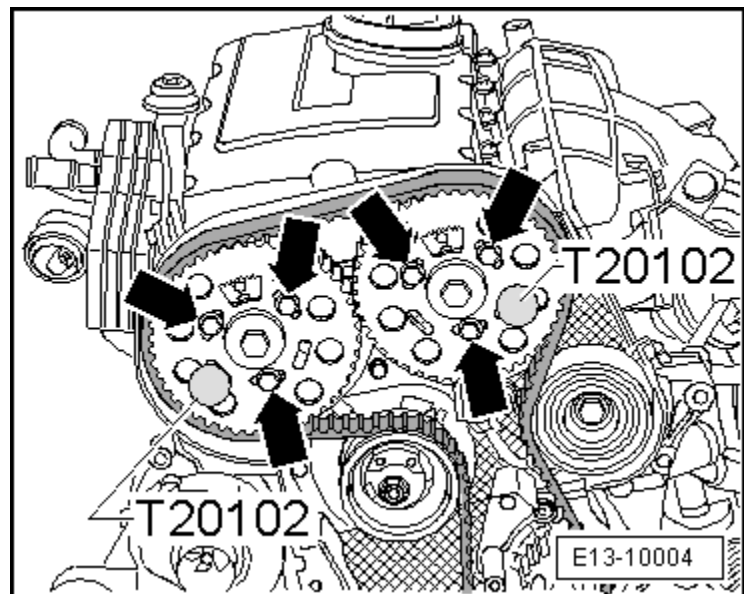
Adjustment work on the timing belt should only be done with the engine cold, given that the position of the tension element will vary depending on the temperature.

- Hubs immobilised using the retention tools -T20102-.
 - The crankshaft is locked using the counterhold -T10050- or the counterhold -T10100-.
 - Tension roller immobilised with the retention tool -T10115- fitted in the right full position.
- Ensure the correct seating of the tension roller in the rear notched belt protection -arrow-.





- Lightly screw in the bolts -arrows-.
- Rotate the camshaft wheels in the oversized holes in a clockwise direction to the limit.
- Fit the timing belt on the crankshaft, the tension roller, the camshaft wheels, the idle wheel and, lastly, onto the timing belt wheel of the coolant pump.
- Adjust the tension of the timing belt in the following manner:



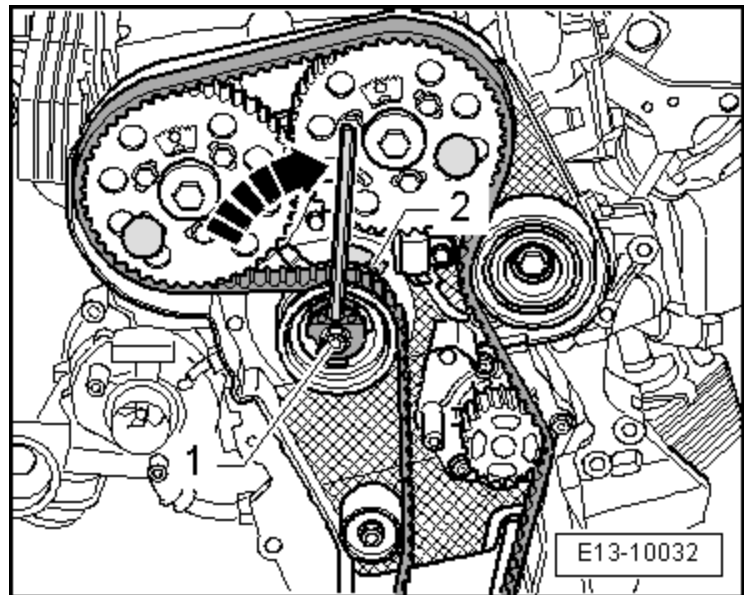
- Loosen the securing nut -1- of the tensioning roller.
- Rotate the tension roller cam with an Allen wrench until it is possible to remove without force the retention tool -T10115-.
- Rotate the off-centre of the tension roller using an Allen key -clockwise -until the indicator -2- is centred in front of the bed plate space.

i Note

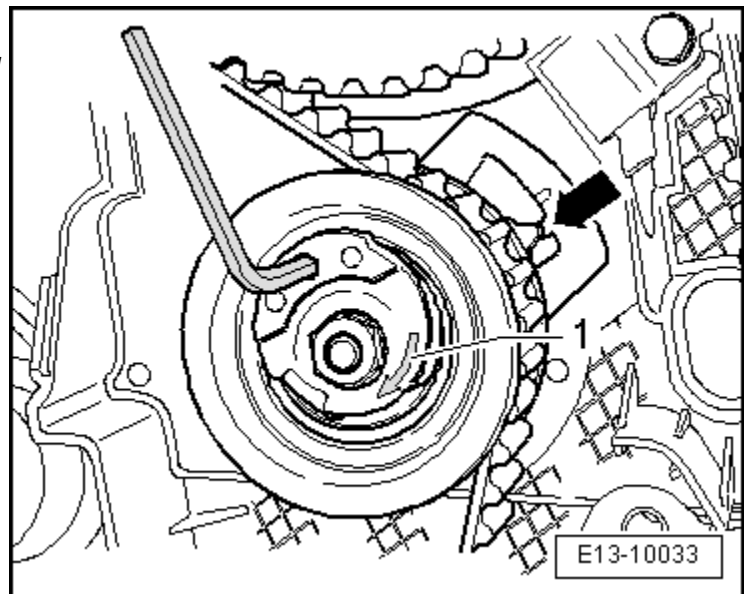
- ◆ *Ensure that the attachment nut does not also rotate.*
- ◆ *Use the correct tightening torque to avoid damages to the engine when tightening the tensioner.*

- Hold the tension roller in this position and tighten the tension roller to 20 Nm + 45° (1/8 turn)

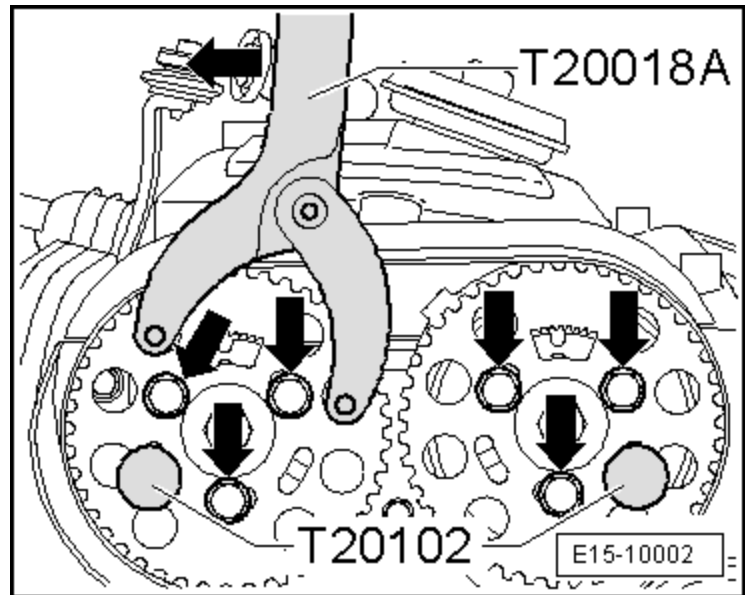
 **Note**



When tightening the nut, the indicator -arrow- rotates a maximum of 5 mm to the right from the bed plate space. This position cannot be corrected because the timing belt will gradually sit into position after a period of use.



- Fit the retention tool -T20018B- as shown in the illustration, and maintain the camshaft wheels under tension pressing in the -direction of the arrow-.
- Tighten the bolts -arrows- of the camshaft wheels to 25 Nm.
- Remove the counterhold -T20102- and the counterhold -T10050- or the counterhold -T10100- .



Check the valve timing:

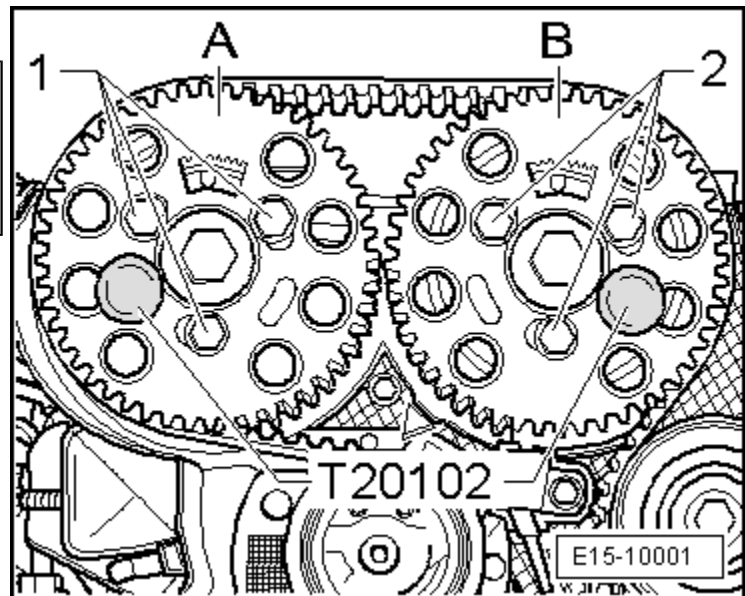
WARNING

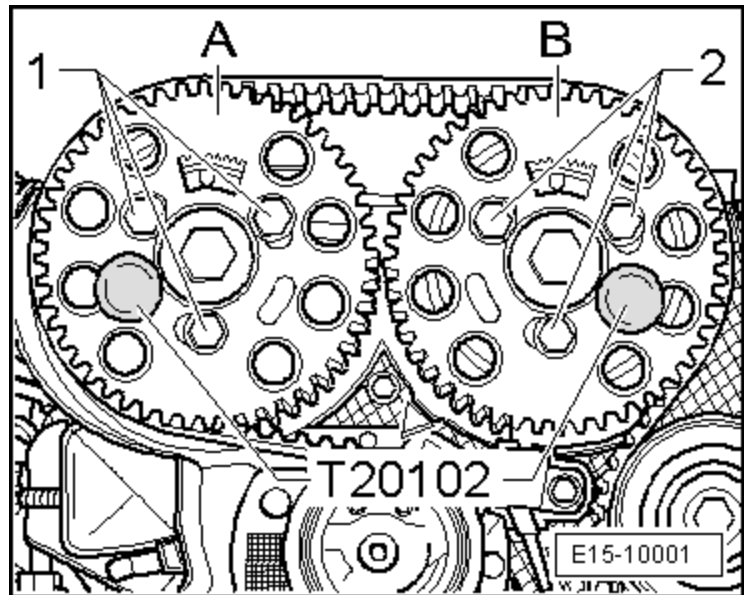
The rotation of the engine must only take place on the crankshaft in the normal rotation direction of the same (clockwise).

- Rotate the crankshaft 2 times in the normal engine direction of rotation until this is returned to just before cylinder 1 TDC.
- When turning the hub -A- in the engine direction of rotation, lock it using the retention tool -T20102-.
- Check:
 - ◆ the hub may be immobilised -B- with the retention tool -T20102-;
 - ◆ The crankshaft can be locked using the counterhold -T10050- or the counterhold -T10100-.
 - ◆ the tension roller indicator is centred or at the most 5 mm to the right from the bed plate space.

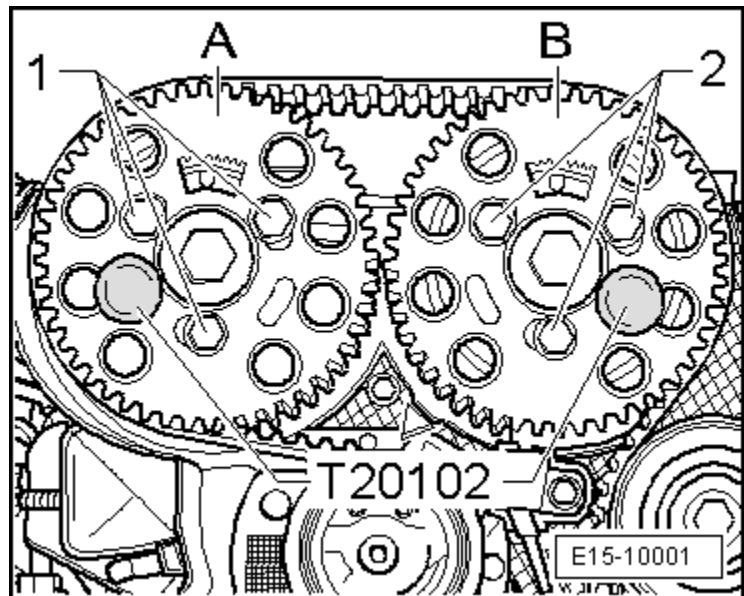
If the hub cannot be locked -B-:

- Release the camshaft sprocket bolts -1--A-.
- The hub -B- must be locked using the retention tool -T20102-

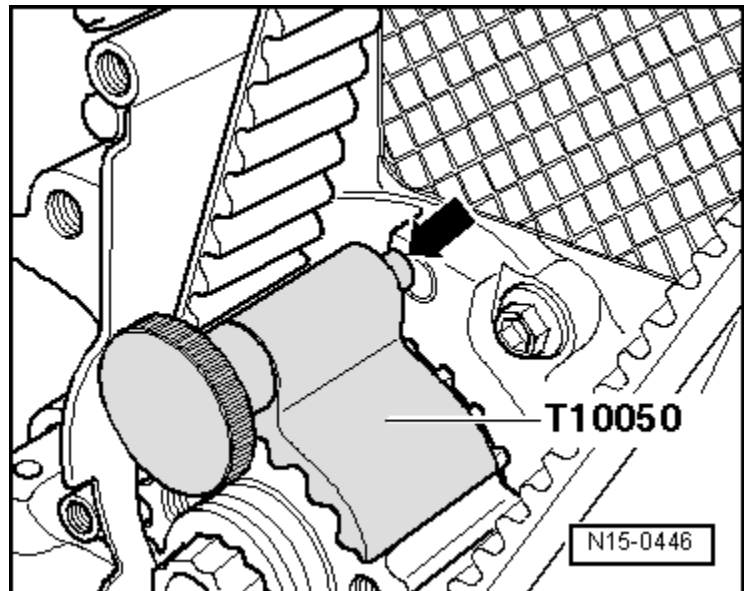




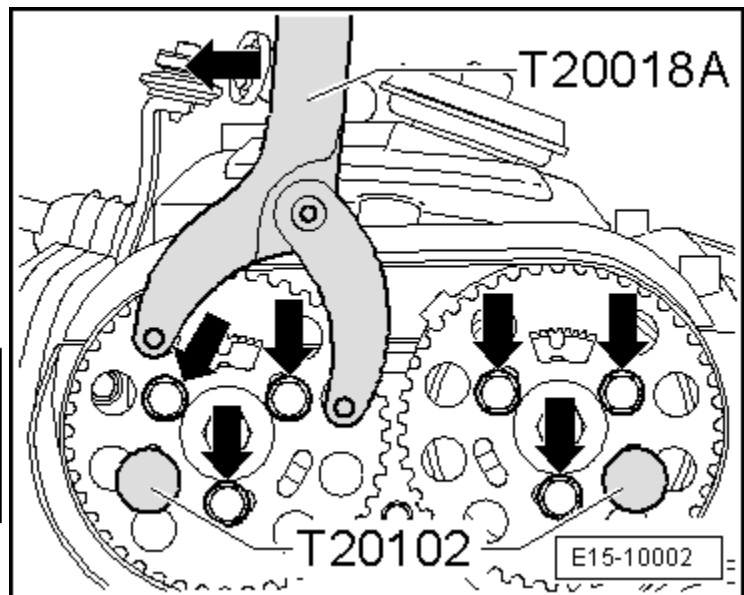
- Turn the crankshaft until the hub of the camshaft sprocket can be blocked -B- using the retention tool -T20102-.
- Release the camshaft sprocket bolts -2--B-.



- Turn crankshaft in the opposite direction to engine rotation until the crankshaft counterhold -T10050- stub or counterhold -T10100- is just opposite the sealing flange hole -arrow- and insert it.
- Turn the crankshaft in the direction of the engine rotation until the crankshaft counterhold stub fits into the sealing flange with a turning movement.



- Fit the retention tool -T20018B- as shown in the illustration, and maintain the camshaft wheels under tension pressing in the -direction of the arrow-.
- Tighten the fuel inlet camshaft wheel attachment bolts -arrows- to 25 Nm.
- Remove the counterhold -T20102- and the counterhold -T10050- or the counterhold -T10100- .



⚠ WARNING

The rotation of the engine must only take place on the crankshaft in the normal rotation direction of the same (clockwise).

- Rotate the crankshaft 2 times in the normal engine direction of rotation until this is returned to cylinder 1 TDC.
- Check the valve timing once more → [Anchor](#).

Assembly:

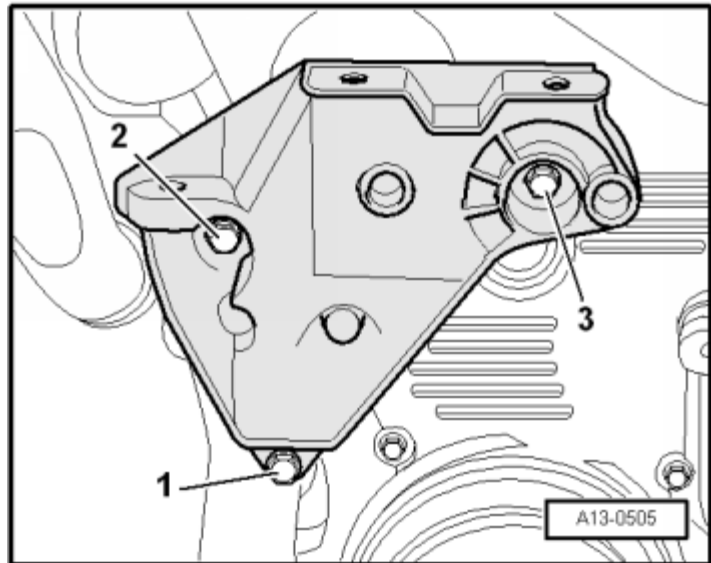
Installation is carried out in the reverse order, noting the following:

- Fit the lower and centre timing belt protection.

i Note

- ◆ *Before mounting the support unit, all the engine support bolts should be tightened to the specified torque.*
- ◆ *Secure all hose connections with the correct hose clips (same as original equipment) → [Parts catalogue](#).*

- Fit the engine mount on the cylinder block and screw in the attachment bolts -1 ... 3- first by hand.
- Then tighten bolts -1 ... 3- to 40 Nm + 1/2 turn (180 °)
- Fit the vibration damper → Chapter.
- Adjust engine mountings → Chapter.
- Install Poly-V belt → Chapter.
- Connect the air duct from the connection on the turbocharger and fit the spring type clip using the support tool -T20174-.
- Mount the charge pressure air system tubes, taking note of the mounting instructions → Chapter.



Tightening torques

| Component | Nm |
|---|---------------------------------|
| Timing belt tensioning roller to cylinder head | 20 + 45° → Note |
| Camshaft wheel to hub | 25 |
| Bottom section of timing belt guard to cylinder block | 10 → Note |
| Centre section of timing belt guard to cylinder block | 10 → Note |
| Vibration damper to the crankshaft wheel | 10 + 90° → Note → Note |
| Engine support to cylinder block | 40 Nm + 1/2 turn further (180°) |
| Engine console to body | 50 |
| Engine mount to engine console | 40 + 90° → Note → Note |
| Connection to engine console/body | 20 + 90° → Note → Note |
| Pendulum support to subframe | 100 + 90° → Note → Note |
| Front air tube to the engine block | 22 |

- 1) 45° is a quarter turn
- 2) Fit with locking fluid; locking fluid → [Parts catalogue](#)

- 3) Replace bolts
- 4) 90° is equivalent to a quarter turn