

# Timing belt change Phaeton 4.2 V8

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## Without removing front or lowering radiator fans

By Jorgsphaeton

1. First remove the underbelly engine cover
2. Remove the air intake pipes at the front
3. Remove the airfilter boxes (only the top half) and
4. Remove the sparkplugs
5. Fill all the holes with towelpaper so nothing can fall in there (sparkplugs + airtakes)



6. Remove the bar in front of the ribbed belt



7. Remove the ribbed belt:

**Ribbed Belt, Removing and Installing**

Alignment of ribbed belt, checking ⇒ [Ribbed Belt, Checking Alignment](#)

**Removing**

- Remove noise insulation ⇒ Body Exterior - Repair Group 50 .
- Mark direction of rotation of ribbed belt.
- ↖ - Turn wrench clockwise - **arrow** - until tensioning element can be locked in place with a 5 mm drill.
- Remove ribbed belt.

**Installing**

**Note:**

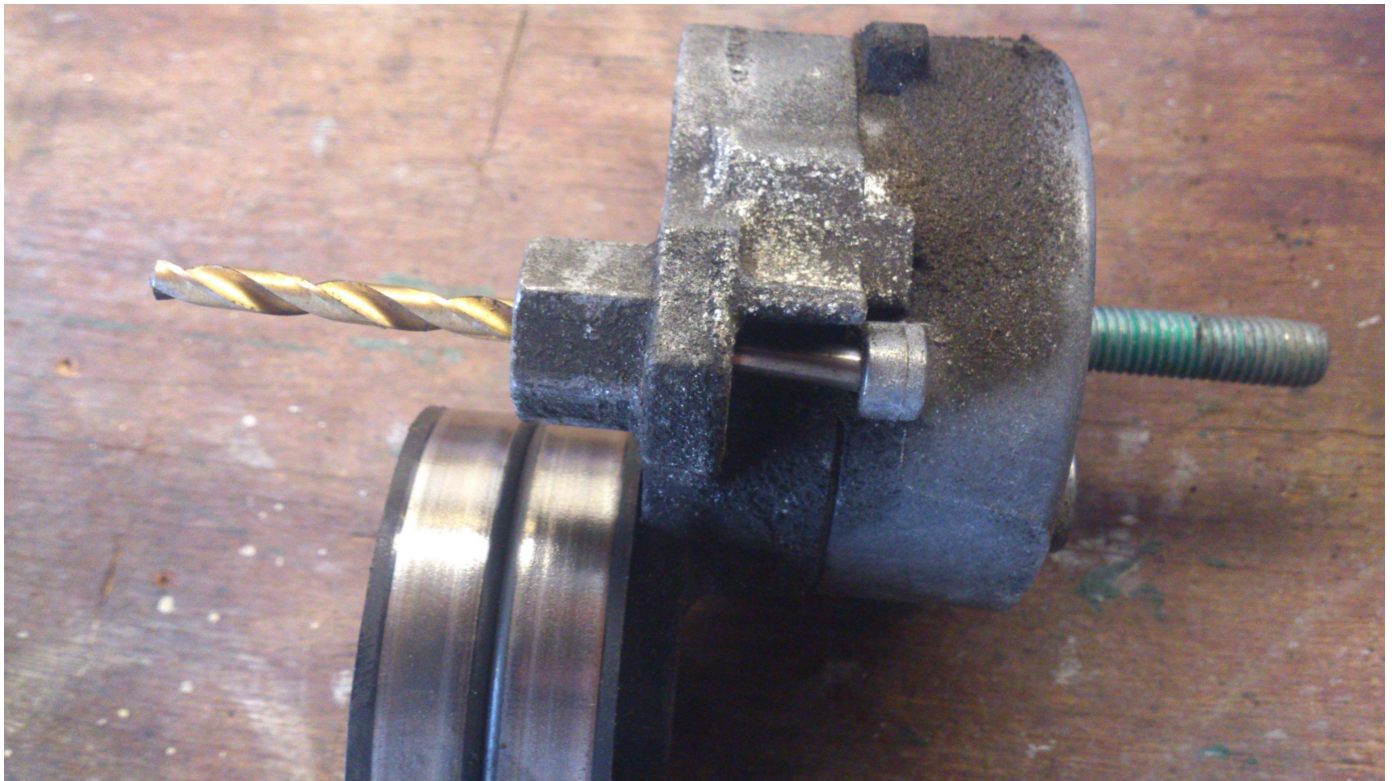
- \* Ensure, before installing ribbed belt, that all ancillaries (generator, air conditioner compressor, power steering pump) are secured tightly.
- \* Check that idler roller turns easily.

The diagram on the left shows a belt tensioner with a label 'N13-10074' and an arrow indicating the direction of rotation.

8. Find the markings on the biggest pulley and align them with the marking on the timingbelt cover

9. Remove ribbed belt tensioner





10. And follow the repair manual:



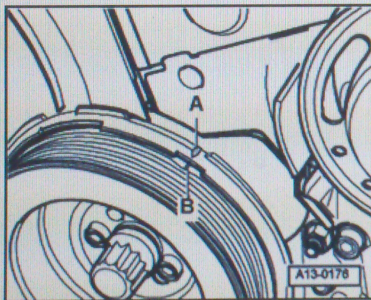


- Remove noise insulation pan: ⇒ Body Exterior - Repair Group 50

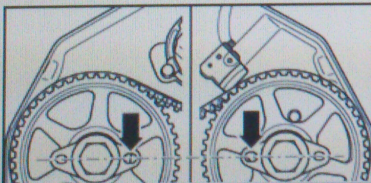
- Bring lock carrier into service position: ⇒ Body Exterior - Repair Group 50

- Remove ribbed belt ⇒ [Ribbed Belt, Removing and Installing](#) .

- Remove left and right toothed belt cover.



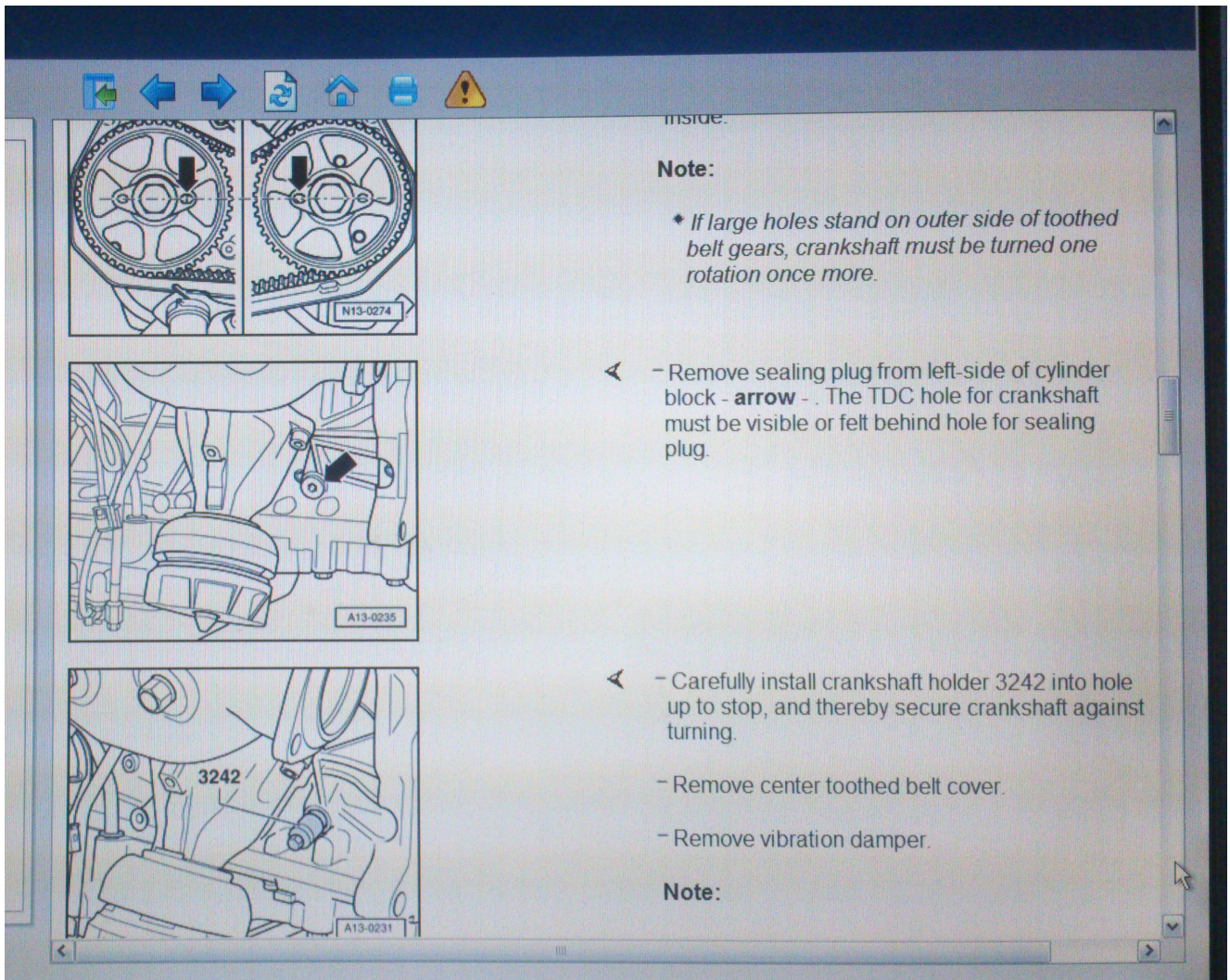
✦ - Set crankshaft to top dead center (TDC). The marking on the toothed belt cover - **A** - must be aligned with notch on belt pulley - **B** - .



✦ - Check position of camshaft gears. The large holes on securing plates - **arrows** - must align on inside.

**Note:**





11. On the left side of the car looking at your engine next to the engine mounting part you will see the plug for locking the crankshaft. Unplug it and replace it with the locking tool





12. Tool for locking crankshaft in place:



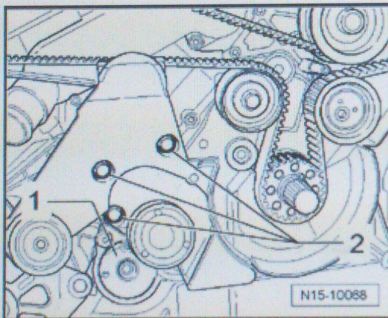
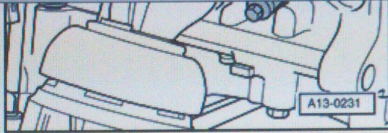
13. Be sure that the locking tool is correctly in place

14. After that remove the big pulley for the ribbed belt









- Remove vibration damper.

**Note:**

♦ *The vibration damper is fastened to the crankshaft with 8 bolts.*

➤ - Remove the ribbed belt tensioning element - 1 - .

- Remove bolts - 2 - for toothed belt tensioning element cover.

- Remove cover.

- Mark direction of rotation of toothed belt.

**Note:**

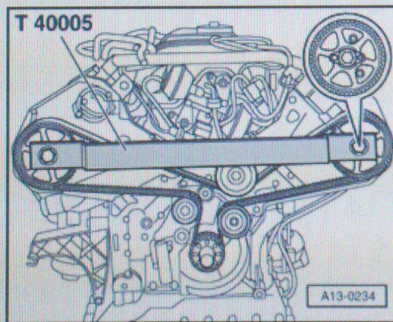
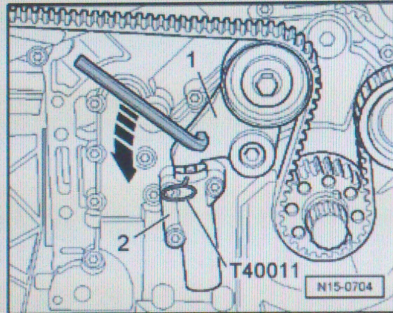
♦ *The toothed belt tensioner is oil-dampened. Therefore it can only be compressed slowly.*

♦ *Use locking pin T40011 to secure tensioning element.*

- If necessary, align lifter using needle nose pliers or thin wire before tensioning.

- Turn tensioning lever of toothed belt tensioning roller - 1 - in direction of - **arrow** - using an Allen wrench.





- Turn tensioning lever of toothed belt tensioning roller - **1** - in direction of - **arrow** - using an Allen wrench.

✦ - When tensioning lever - **2** - pushes toothed belt tensioning element together so that the holes in housing and piston align, secure tensioning element using locking pin T40011 .

✦ - Place camshaft adjustment T40005 into securing plates of camshafts and loosen bolts approx. 5 turns.

- Remove camshaft locator T40005 again.

✦ - Remove camshaft gears from cone using puller T40001 with claws T40001/2 .



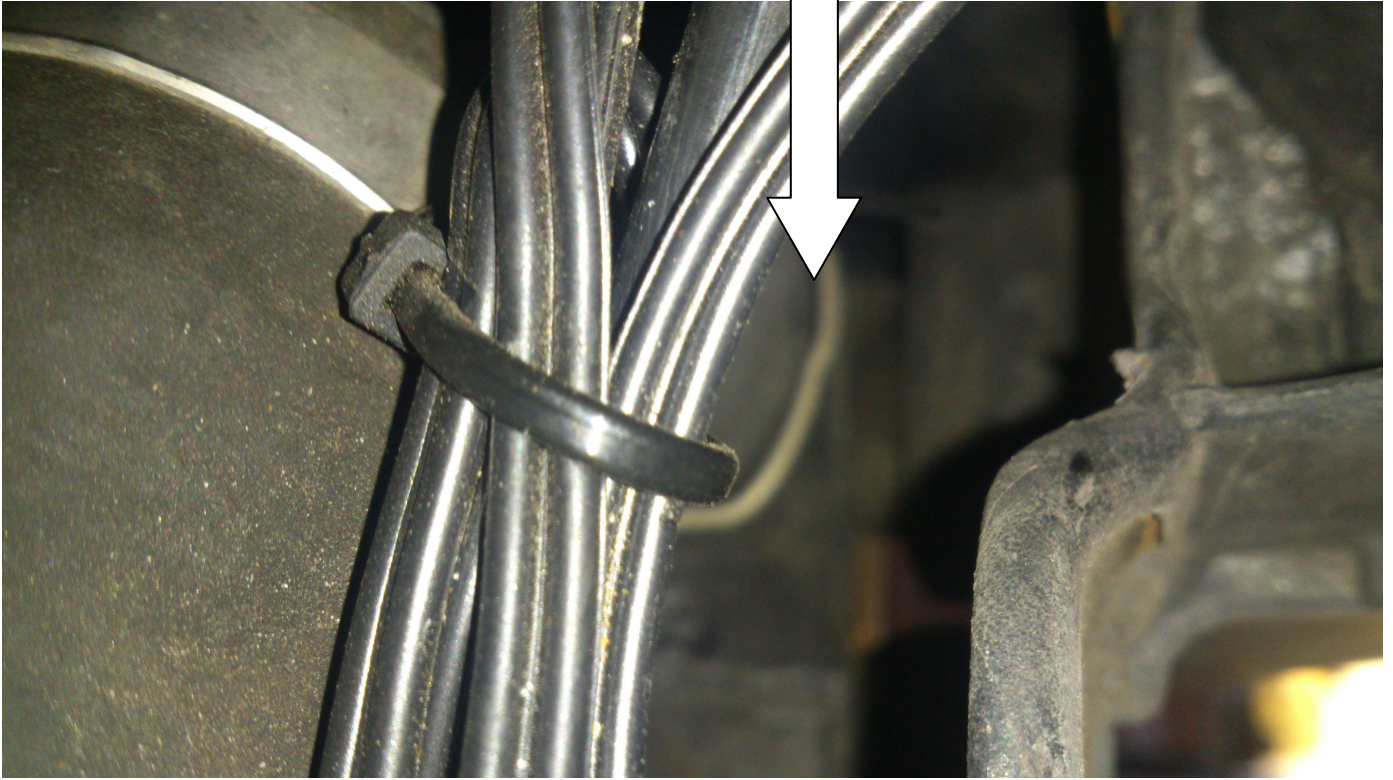






15. To empty the cooling system I disconnected the bottom hose from the radiator on the left or rightside. This is also the water pipe that is often very rusty and needs replacement at some time.
16. Because of the big tool to remove the camshaft gears you have to remove the left side top radiator hose and lay it out of the way. It is a 5cm diameter hose with a special clamb on top of it. You can pull that clamb up to remove the hose. You will need some force to remove that hose. I even needed a small pipe or screw driver and a hamer to remove it. Use the small hole in the front of the radiator to put your pipe in and push the hose backwards. Be carefull with you hamer. When the hose is off, you can push it down so you can remove the camshaft gear.

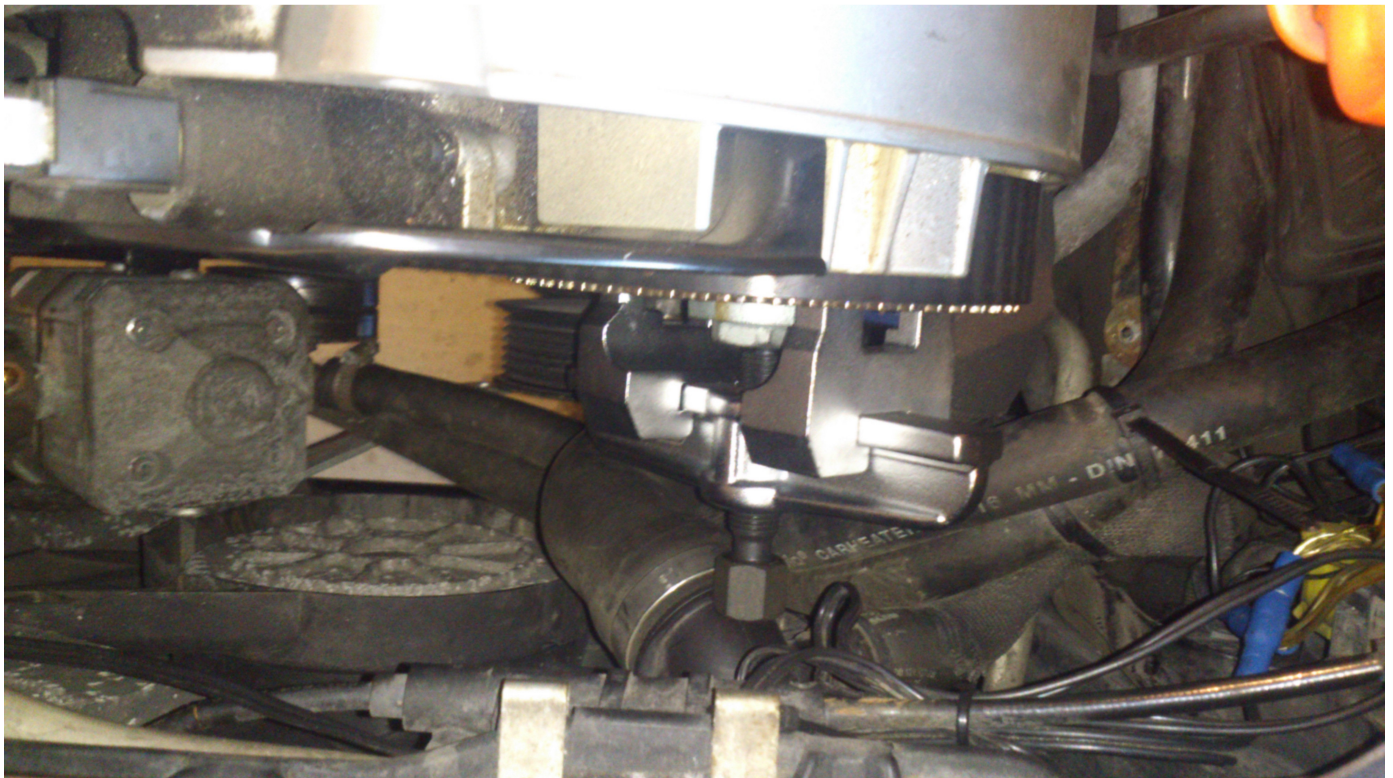




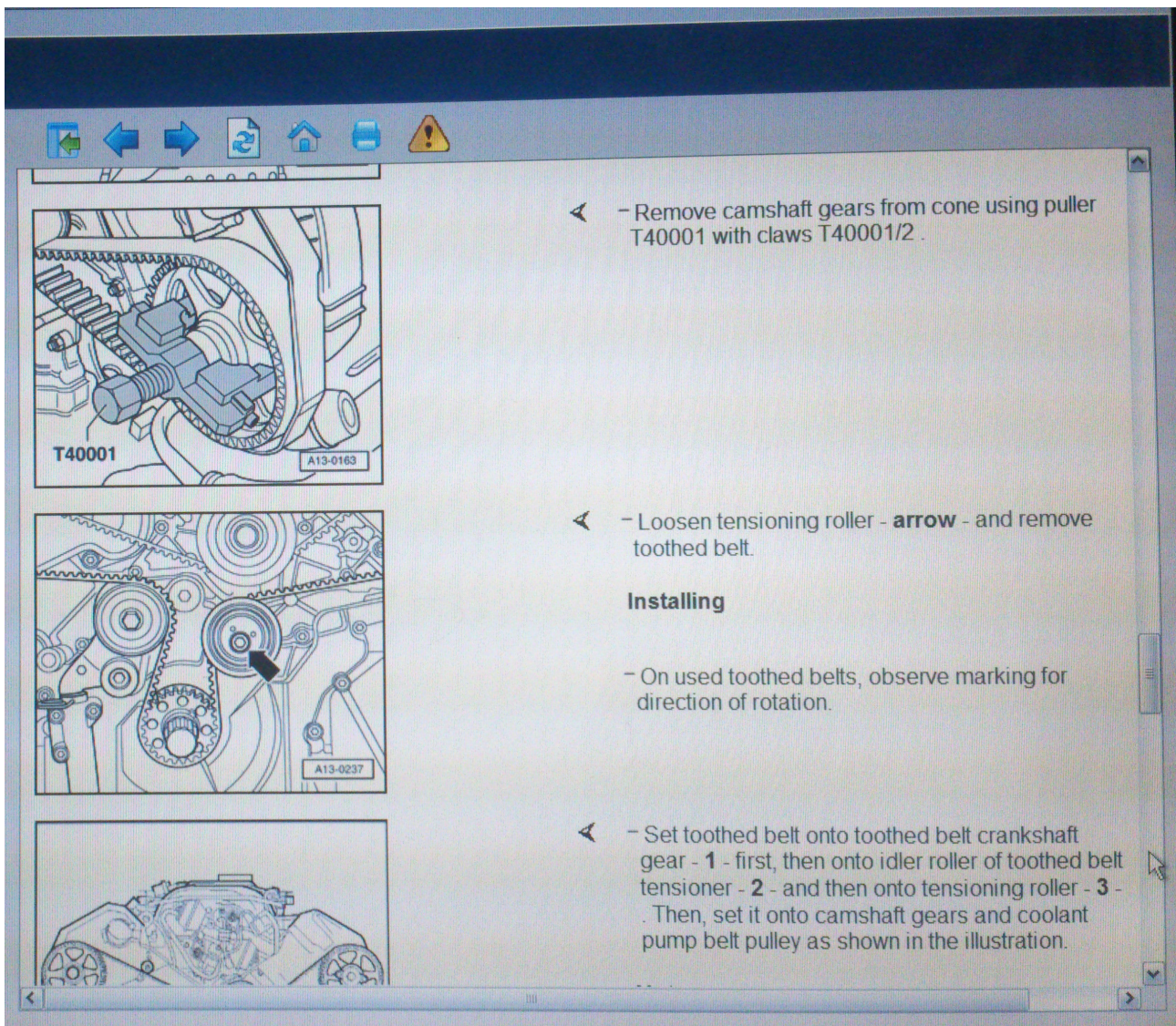




17. Small space to put a screwdriver in to push the radiator hose from it's mounting part.







#### 18. Before installing:

Lubricate the bolts for the waterpump and the thermostat with WD40 or another rust remover, wait half an hour and try to unbolt the waterpump and the thermostat.

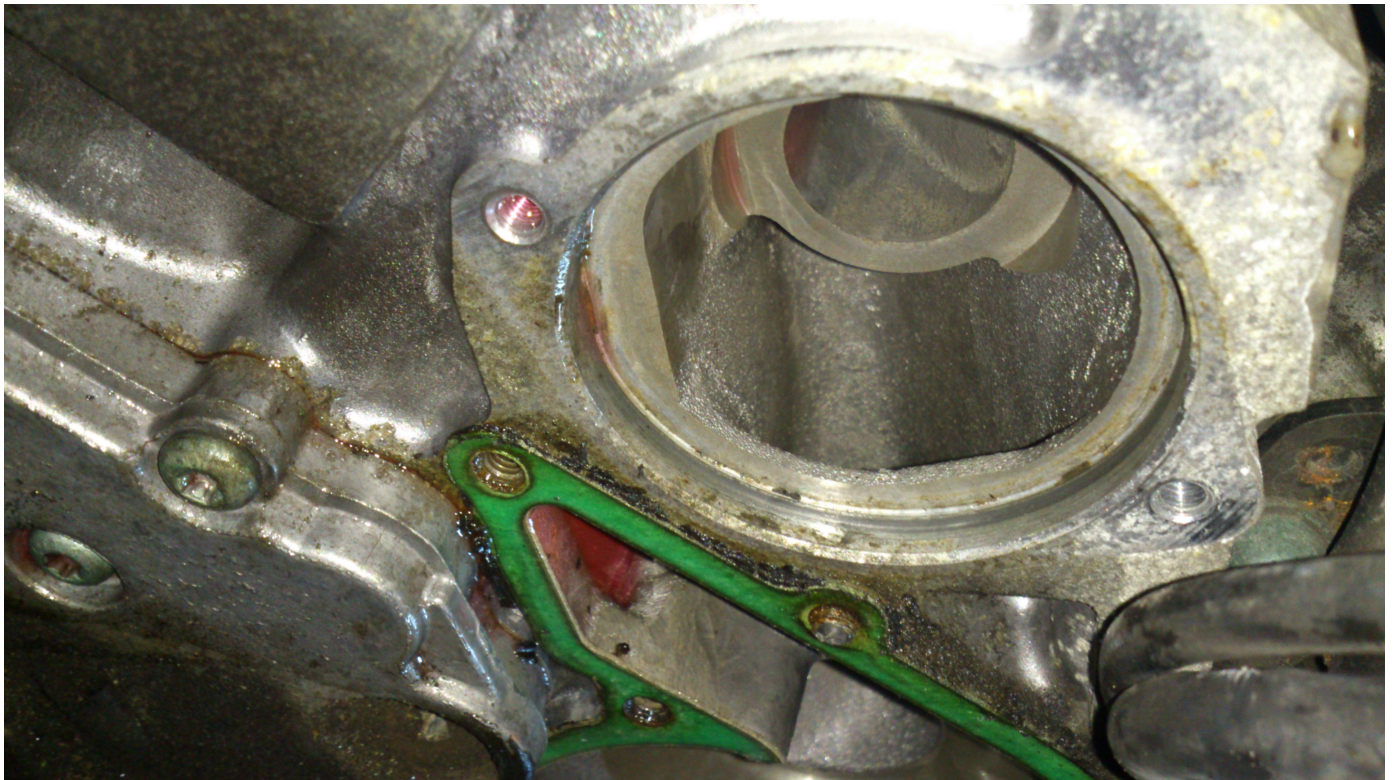
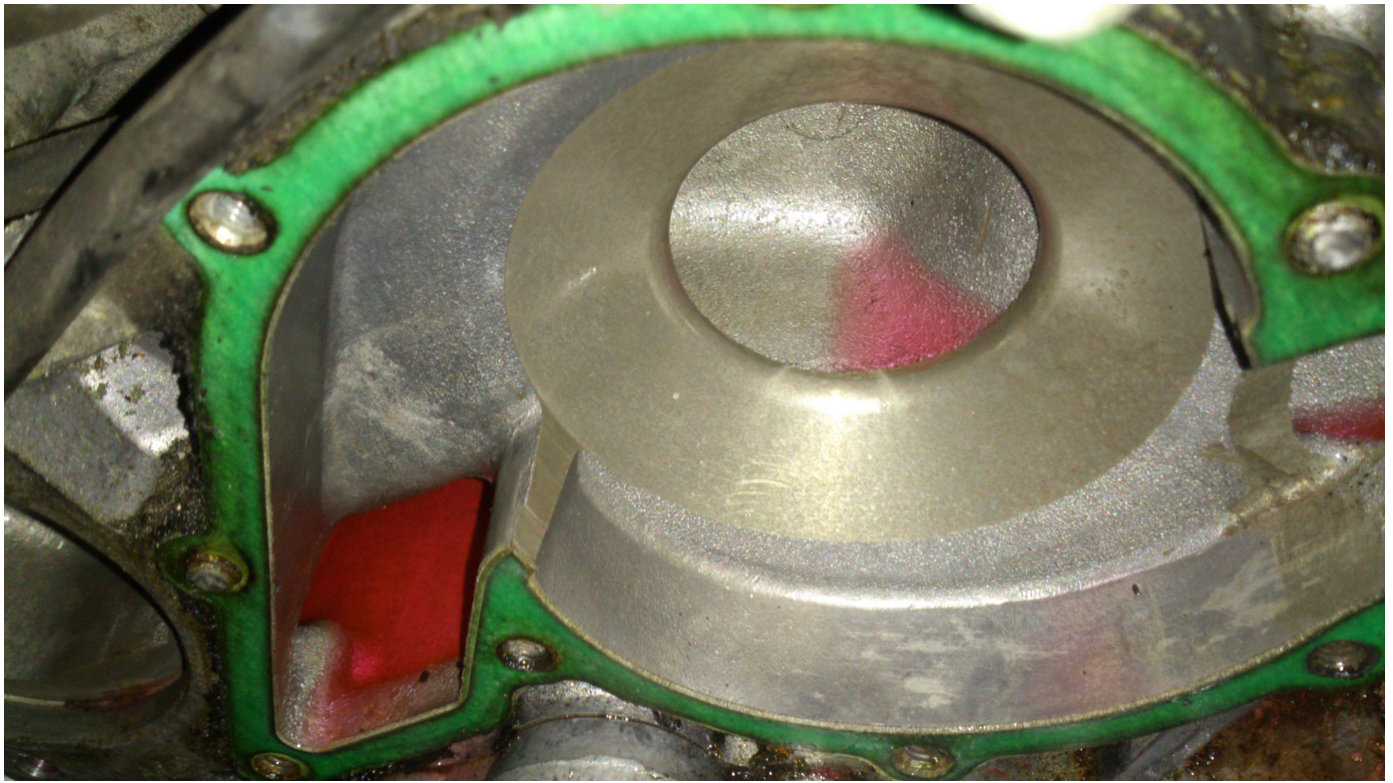
19. Clean the waterpump house en thermostat house.

20. You can leave the gasket of the waterpump en renew the thermostat gasket. The waterpump gasket is glued on the engine and is difficult to remove. I placed a new gasket on top of the old one and used a thin layer of grease to lubricate the gasket and to make it sticky. Also lubricate the thermostat gasket so it would fit easily. Also note that the hole in the thermostat needs to be at the top of the thermostat when mounting. If you break a bolt and it is not possible to remove it, leave it there. Or if you like to remove the front of your car... I broke two bolts on the waterpump and took my chances. It is still leak free. Hoping that I don't need to remove the front.

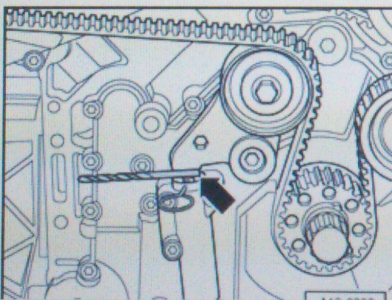
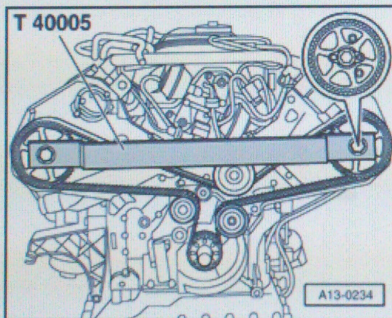
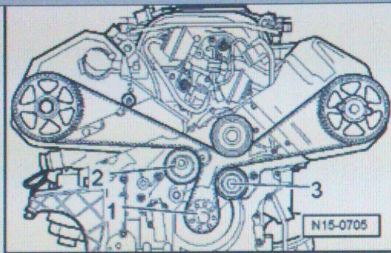
21. When thermostat, waterpump and some new bearings are installed you can reinstall the timing belt.

Follow: repair manual again









tensioner - **2** - and then onto tensioning roller - **3** - . Then, set it onto camshaft gears and coolant pump belt pulley as shown in the illustration.

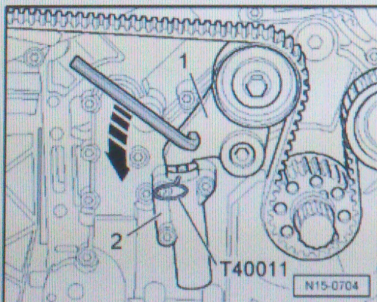
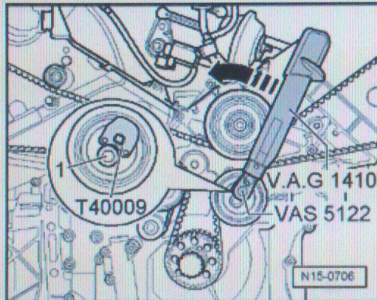
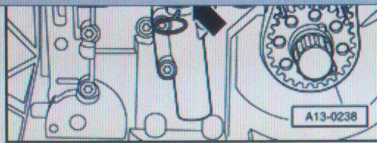
**Note:**

♦ *Camshaft gears must just be able to be twisted on cone for camshafts.*

✦ - Set camshaft adjustment T40005 onto camshaft gears again.

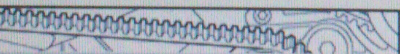
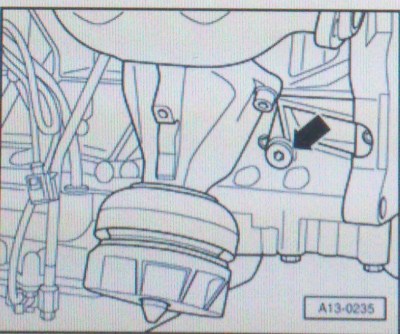
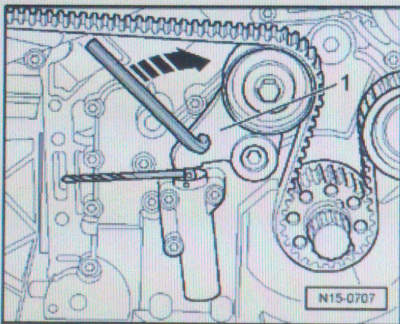
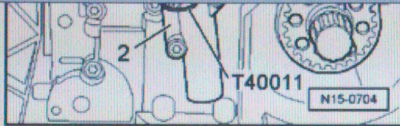
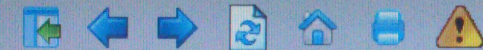
✦ - Set a 5 mm drill between tensioning lever and piston of hydraulic element - **arrow** - .





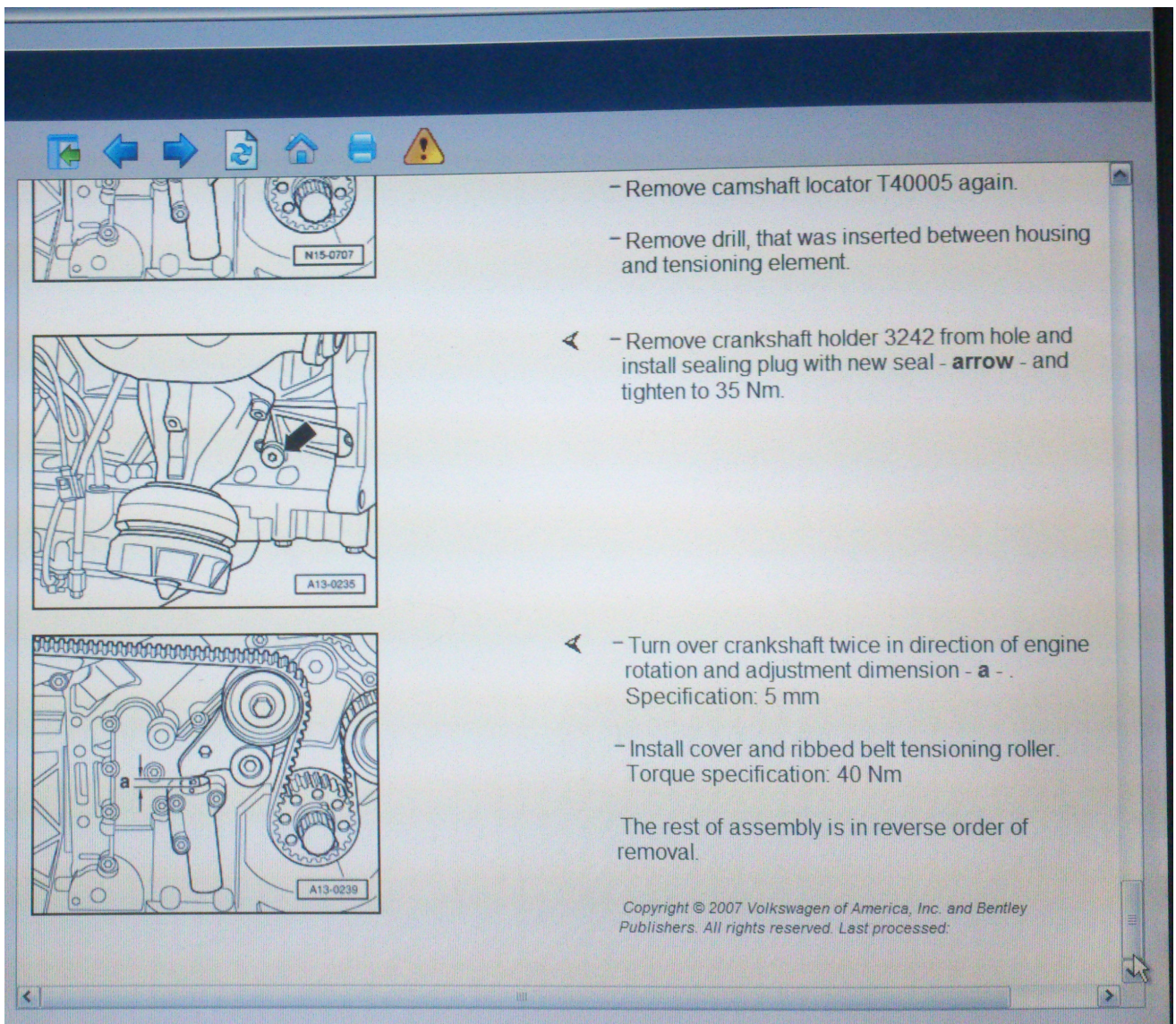
- ▲ - Pretension still loosened tensioning roller using torque wrench V.A.G 1410 and connected reversible ratchet VAS 5122 with tensioning roller wrench T40009 counter-clockwise - **arrow** - to 4 Nm.
- In this position, tighten the bolt - **1** - to 45 Nm.
- Remove 5 mm drill again.
- Turn tensioning lever of toothed belt tensioning roller - **1** - in direction of - **arrow** - using an Allen wrench.
- ▲ - When tensioning lever - **2** - has compressed piston in toothed belt tensioning element, pull out locking pin T40011 .





- ◀ - Turn toothed belt tensioning roller - **1** - in direction of - **arrow** - using an Allen wrench. Place a 7 mm drill between the housing and tensioning lever.
- Tighten camshaft gears to 55 Nm.
- Remove camshaft locator T40005 again.
- Remove drill, that was inserted between housing and tensioning element.
- ◀ - Remove crankshaft holder 3242 from hole and install sealing plug with new seal - **arrow** - and tighten to 35 Nm.
- ◀ - Turn over crankshaft twice in direction of engine rotation and adjustment dimension - **2** -





The screenshot shows a technical manual page with three diagrams on the left and a list of instructions on the right. The diagrams are labeled N15-0707, A13-0235, and A13-0239. The instructions are as follows:

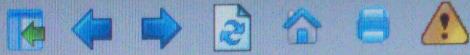
- Remove camshaft locator T40005 again.
- Remove drill, that was inserted between housing and tensioning element.
- ◀ - Remove crankshaft holder 3242 from hole and install sealing plug with new seal - **arrow** - and tighten to 35 Nm.
- ◀ - Turn over crankshaft twice in direction of engine rotation and adjustment dimension - **a** - . Specification: 5 mm
- Install cover and ribbed belt tensioning roller. Torque specification: 40 Nm

The rest of assembly is in reverse order of removal.

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22. Don't forget to reinstall the radiator hose, but some grease on the end of the hose to let it slide on its mounting. Be sure that it is fully connected en push the clamb back on its place. Check if it is fixed correctly.
23. Reinstall ribbelt belt tensioner
24. Reinstall ribbelt belt again



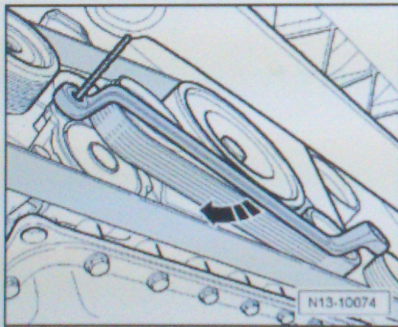


## Ribbed Belt, Removing and Installing

Alignment of ribbed belt, checking ⇒ [Ribbed Belt, Checking Alignment](#)

### Removing

- Remove noise insulation ⇒ Body Exterior - Repair Group 50 .
- Mark direction of rotation of ribbed belt.



- ✦ Turn wrench clockwise - **arrow** - until tensioning element can be locked in place with a 5 mm drill.
- Remove ribbed belt.

### Installing

#### Note:

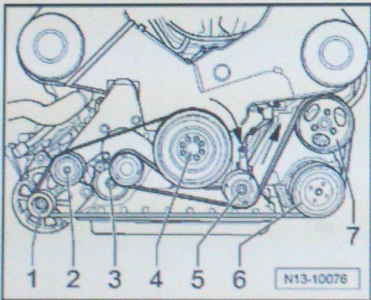
- ✦ Ensure, before installing ribbed belt, that all ancillaries (generator, air conditioner compressor, power steering pump) are secured tightly.
- ✦ Check that idler roller turns easily.



Navigation icons: back, forward, search, home, print, warning.

♦ *Check that idler roller turns easily.*

♦ *When installing the ribbed belt, be aware of the direction of rotation and ensure that the belt is seated correctly in the belt pulleys.*



◀ - Route ribbed belt as shown.

- ♦ 1 = Generator belt pulley
- ♦ 2 = Idler roller (Torque specification 40 Nm)
- ♦ 3 = Tensioning element with tensioning roller (Torque specification 40 Nm)
- ♦ 4 = Belt pulley/vibration damper
- ♦ 5 = Idler roller (Torque specification 25 Nm)
- ♦ 6 = Air conditioning compressor belt pulley
- ♦ 7 = Power steering pump belt pulley

After completing repairs:

- Always start engine and check belt running.

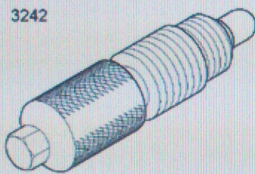
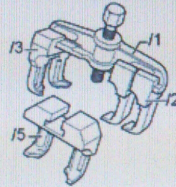
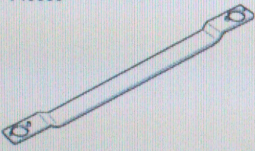
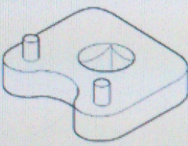
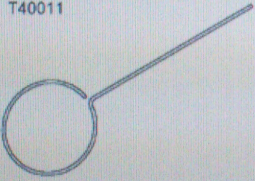
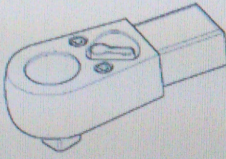
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25. Do not forget to reconnect the water hose.
26. Reinstall sparkplugs, air intake parts and underbelly engine cover.
27. Refill cooling system with G12+
28. Run your engine hot to check the cooling system.
29. After a few trips check the water level.
30. Good luck



## Special tools:

Navigation icons: back, forward, search, home, print, warning.

3242 	T40001 
T40005 	T40009 
T40011 	VAS 5122 

W15-0220

**Special tools, testers and auxiliary items required**

- ♦ Crankshaft holder 3242
- ♦ Puller T40001
- ♦ Camshaft locating tool T40005
- ♦ Tensioning roller wrench T40009
- ♦ Securing pin T40011
- ♦ Reversible ratchet VAS 5122
- ♦ Torque wrench V.A.G 1410
- ♦ Torque wrench V.A.G 1331