

**Audi > C5 > 1998-2005**

**Engine Mechanical**

**13 - Engine, disassembling and assembling**

**Toothed belt, removing and installing**

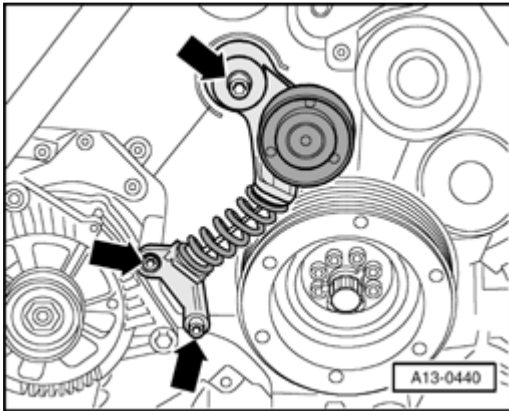
**Special tools, testers and auxiliary items required**

- ◆ Spanner wrench 3212
- ◆ Pin wrench 3387
- ◆ Pin T40011
- ◆ Locking pin T40026

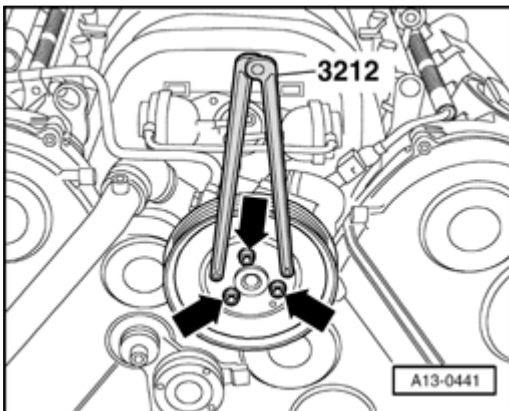
- ◆ Socket T40028
- ◆ Camshaft adjuster gauge T40030

## Removing

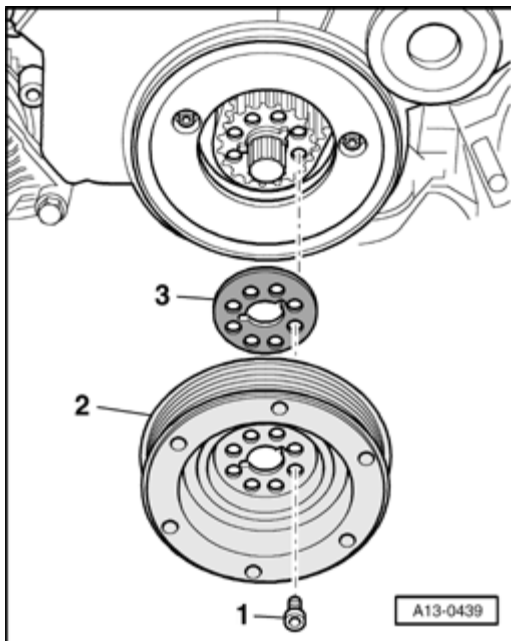
- ◆ Lock carrier in service position ⇒ [Lock carrier, moving into service position](#) .
- ◆ Ribbed belt removed ⇒ [Ribbed belt, removing and installing](#) .



- Unscrew bolts (arrows) and remove ribbed belt tensioner.



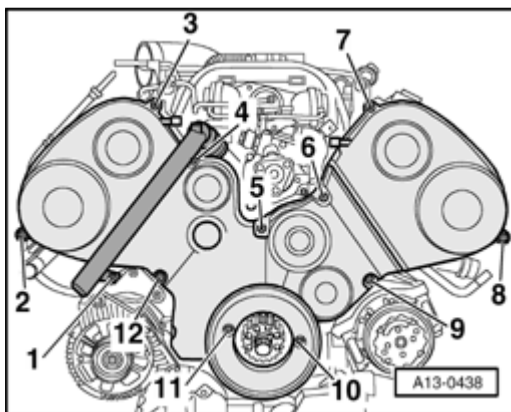
- Remove ribbed belt gear of power steering pump (arrows) using spanner wrench 3212 as retainer.



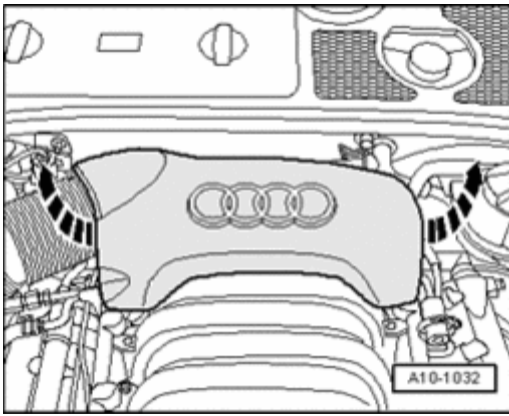
- Remove 8 bolts - **1** - .
- Remove harmonic balancer - **2** - and thrust washer - **3** - .

**Note:**

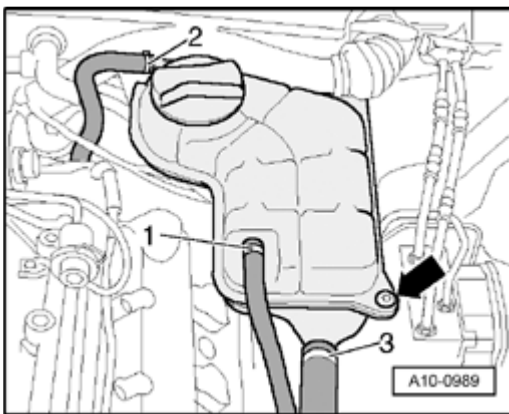
- \* *Thrust washer - **3** - is only installed on toothed belt gear with part number 06C 105 063. No thrust washer must be installed for toothed belt gear with part number 06C 105 063 B.*



- Unscrew bolts -1 to 12- and remove toothed belt guards.



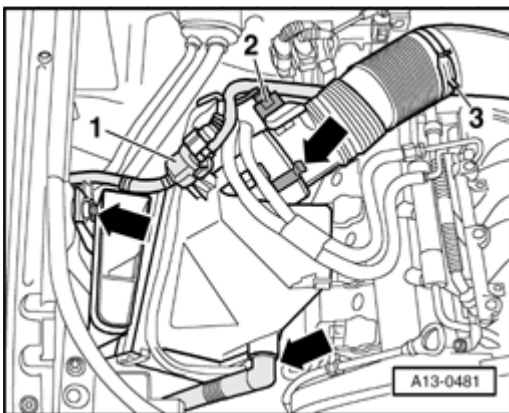
- Remove rear engine cover (arrows).



- Remove coolant reservoir (arrows).

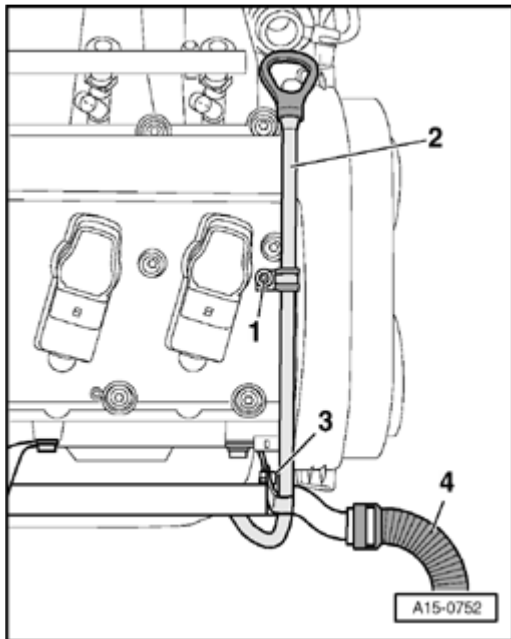
- Disconnect electrical wiring to Engine Coolant Level (ECL) warning switch F66 at bottom of expansion tank.

- Tie coolant expansion tank with connected coolant hoses -1 to 3- to side.

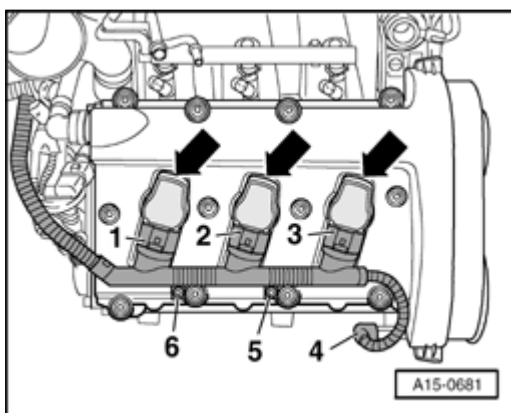


- Disconnect Evaporative Emission (EVAP) canister purge regulator valve N80 - 1 - at air filter housing.

- Disconnect electrical harness connector - **2** - at Mass Air Flow (MAF) sensor.
- Remove air guide hose - **3** - together with Mass Air Flow (MAF) sensor.
- Remove air filter housing (arrows).

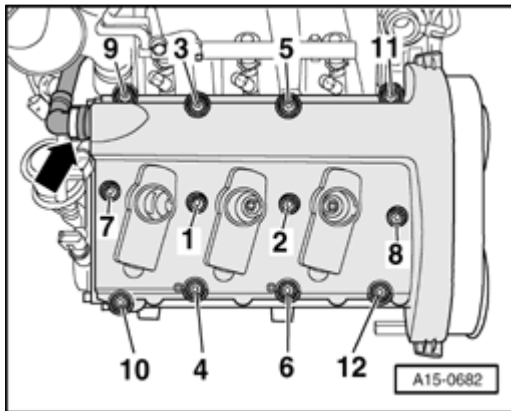


- Remove bolts - **1** - and - **3** - .
- Disconnect hose - **4** - from line of secondary air injection.
- Pull out guide tube for oil dipstick - **2** - from oil pan (upper part) toward top and swing it forward for removal.

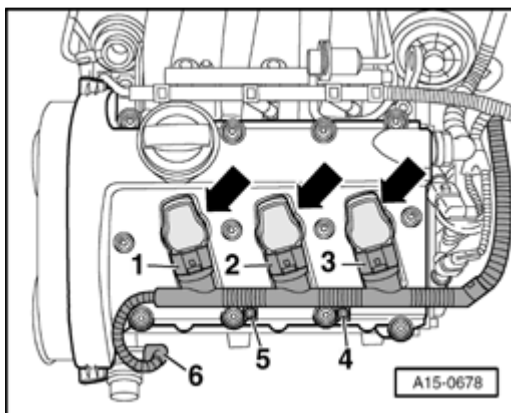


- Remove bolts - **5** - and - **6** - at right cylinder head cover.
- Disconnect electrical harness connectors - **1** - to - **4** - .

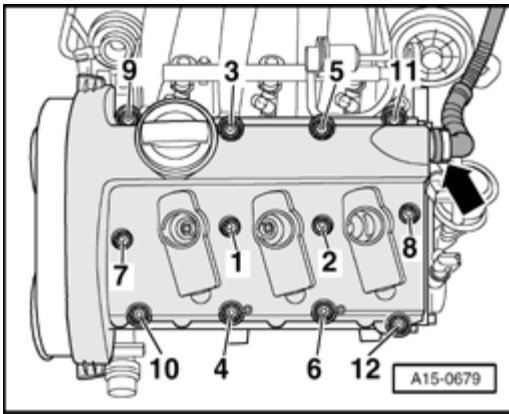
- Remove ignition coils (arrows).



- Remove hose of crankshaft housing ventilation (arrow).
- Unscrew bolts for right cylinder head cover in sequence 12 to 1.
- Remove cylinder head cover.



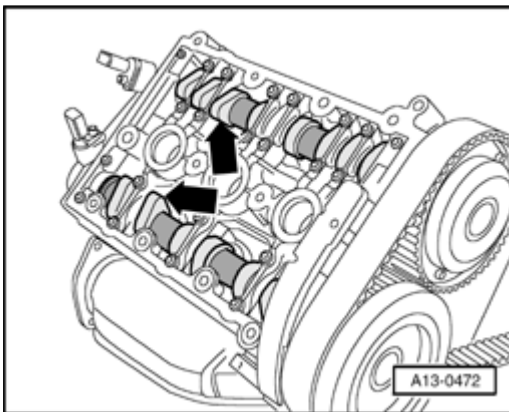
- Unscrew bolts - 4 - and - 5 - at left cylinder head cover.
- Disconnect electrical harness connectors - 1 - to - 3 - and - 6 - .
- Remove ignition coils (arrows).



- Remove hose of crankshaft housing ventilation (arrow).
- Unscrew bolts for left cylinder head cover in sequence 12 to 1.
- Remove cylinder head cover.

### CAUTION!

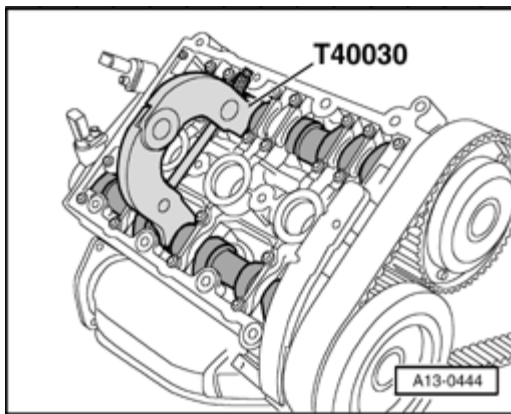
**Turning of the engine must only occur in direction of engine rotation (clockwise) at the crankshaft.**



- Turn engine until cams (arrows) at intake and exhaust camshaft of cylinder 3 (right cylinder bank) point upward uniformly.

### Note:

- ✦ Turn engine at crankshaft central bolt.

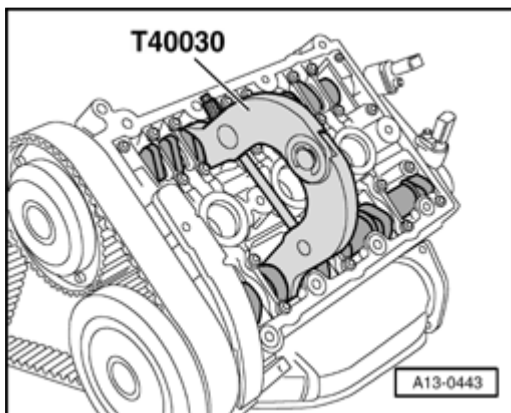


- Insert camshaft adjuster gauge T40030 at camshafts of right cylinder head.

**Note:**

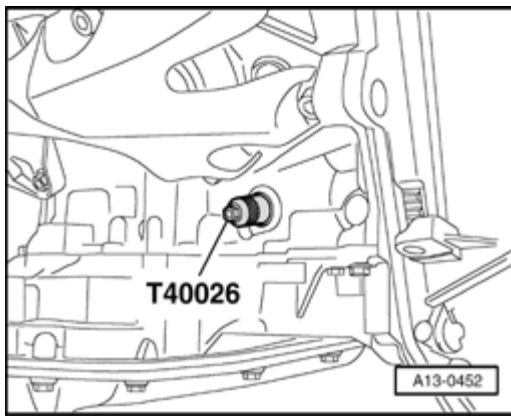
- ◆ *Slightly turn crankshaft back and forth so that the claw of camshaft adjuster gauge T40030 can properly grab the camshafts.*

- Spread camshaft adjuster gauge T40030 with threaded shaft (tightening torque 10 Nm) until it is seated without axial play.



- Insert camshaft adjuster gauge T40030 at left cylinder head in same manner.
- If installed, disconnect electrical harness connector at after-run coolant pump.
- Unscrew sealing plug of TDC mark at cylinder block.





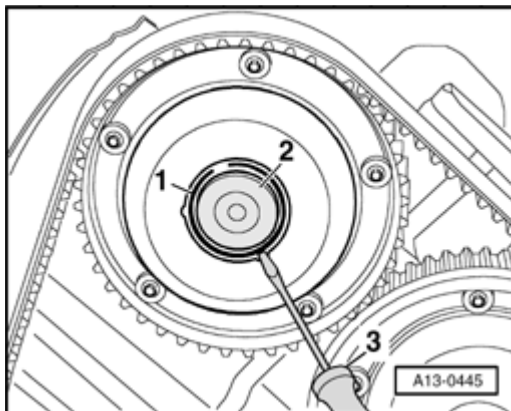
- Thread locking pin T40026 into hole of removed sealing plug and tighten.

**Note:**

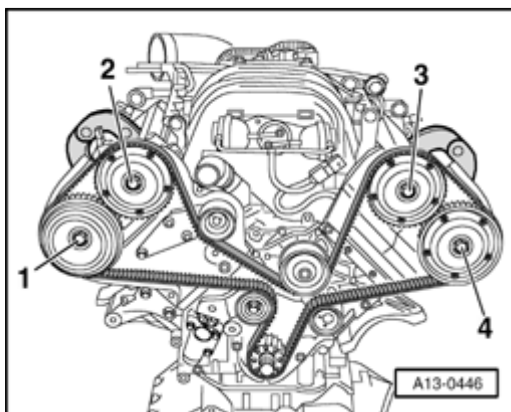
- *Slightly turn crankshaft back and forth to do so.*

**Note:**

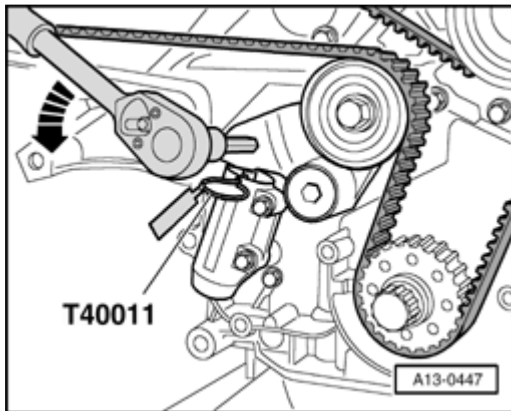
- *Catch escaping oil using a rag.*



- Pry off securing rings - 1 - for caps - 2 - at all camshaft gears.



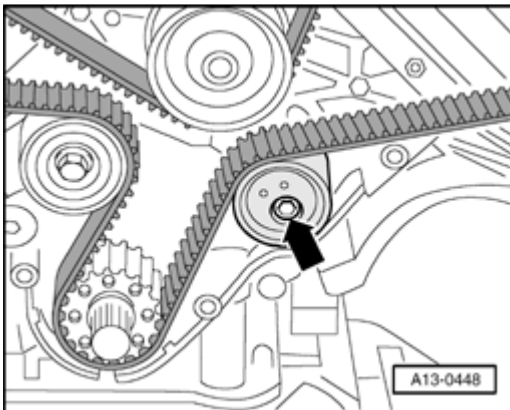
- Loosen but do not remove bolts - 1 - to - 4 - for camshaft gears.



- Using an 8 mm hex socket wrench, turn toothed belt tensioner in direction of arrow until tensioning lever pushes tensioner together far enough so that pin T40011 can be inserted into hole of pistons and housing.

**Note:**

- ✦ *The toothed belt tensioner is oil-dampened. Compress it by slowly applying constant pressure.*
- ✦ *Mark rotational direction of toothed belt. Reversing the direction in which it runs can ruin it.*



- Loosen bolt (arrow) of eccentric pulley.

- Remove toothed belt.

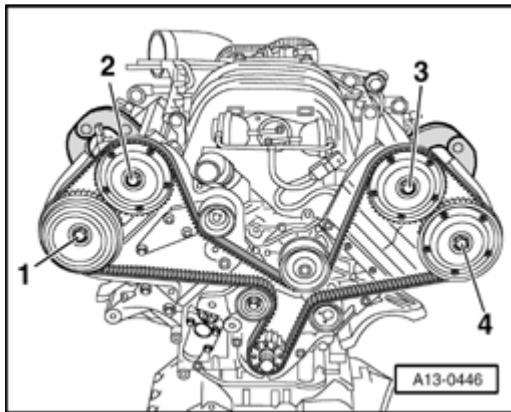
**Installing (adjusting valve timing)**

- ✦ Camshafts aligned using camshaft adjuster gauge T40030
- ✦ Crankshaft aligned using locking pin T40026

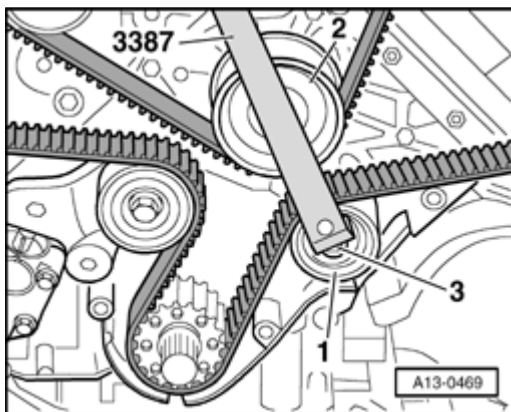
- ◆ Camshaft gears loosened.

**Note:**

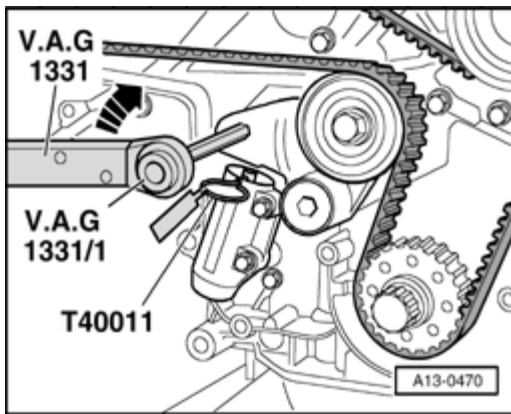
- ◆ *Replace gaskets, O-rings and self-locking bolts.*
- ◆ *When turning camshaft, crankshaft must not be at TDC for any cylinder. Valves and/or pistons may be damaged.*



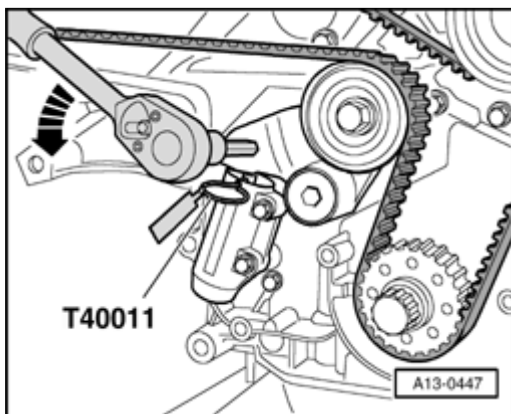
- Bolt in camshaft gears 1 to 4 far enough so they can still just be turned without canting.
- Install toothed belt as depicted in illustration.
- ◆ For exact valve timing adjustment, toothed belt must make exact contact with front edge of all toothed belt gears.



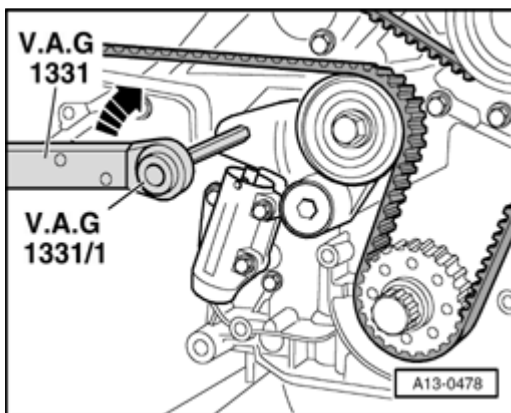
- Using pin wrench 3387 , turn eccentric pulley - **1** - in clockwise direction until handle of pin wrench is exactly above center axle of coolant pump gear - **2** - .
- Hold pin wrench in this position and tighten bolt - **3** - to 45 Nm.



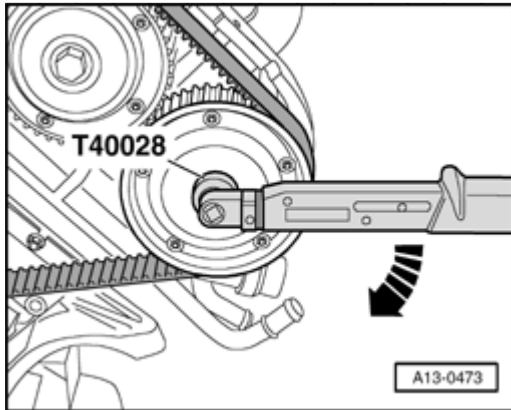
- Place torque wrench horizontally on socket-head of tensioning lever.
- Turn with 45 Nm in direction of arrow to pre-tension toothed belt.



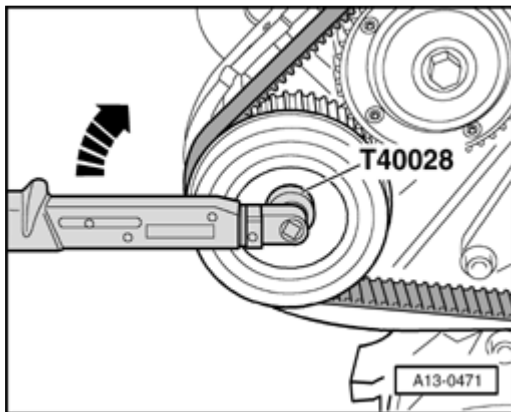
- Using an 8 mm socket head wrench, turn toothed belt tensioning roller in direction of arrow until pin T40011 can be pulled out.



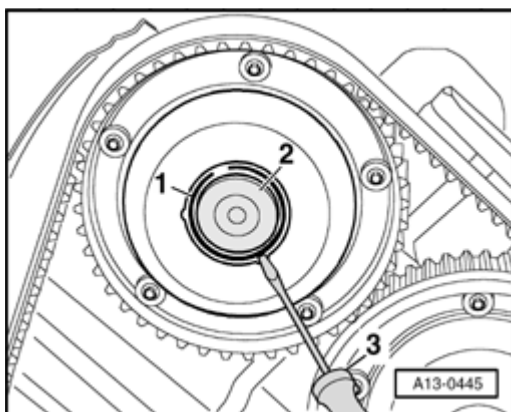
- Place torque wrench horizontally on socket-head of tensioning lever.
- Turn with 25 Nm in direction of arrow to tension toothed belt.



- Insert socket T40028 at camshaft adjuster of exhaust camshaft on left cylinder bank.
- Turn rotor of camshaft adjuster clockwise to 10 Nm up to stop (arrow).



- Turn rotor of camshaft adjuster at right cylinder bank clockwise to 10 Nm up to stop (arrow).
- Tighten bolts for all four camshaft gears to 100 Nm.



- Insert caps - 2 - with new O-rings - 1 - at camshaft gears and secure them with the

securing ring.

- Remove camshaft adjuster gauge T40030 .
- Remove T10026 alignment bolt and thread sealing plug of TDC marking with new O-ring into cylinder block.

Installation is reverse of removal, noting the following:

- Install cylinder head covers or .
- Install toothed belt guards ⇒ [Toothed belt cover, removing and installing](#) .
- Install harmonic balancer ⇒ [Harmonic balancer, removing and installing](#) .
- Install ribbed belt .

### Tightening torques

Component		Nm
Eccentric pulley to front sealing flange		45
Camshaft gear to camshaft		100
Sealing plug in cylinder block		25
Ribbed belt tensioner to cylinder block.	M8	23
	M10	40
Belt pulley to power steering pump		23

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