

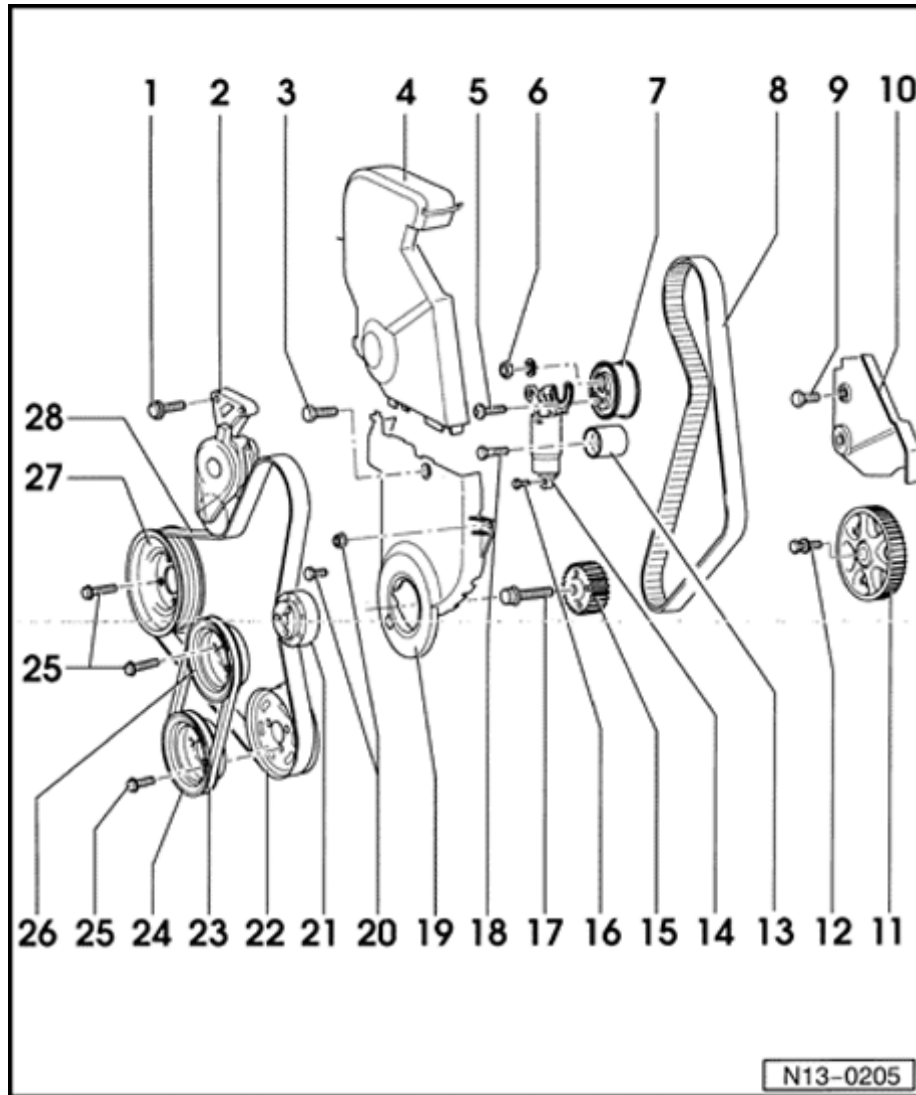
Engine, disassembling and assembling

Note:

Metal shavings or large quantities of small metal particles found in the engine oil during repairs can be caused, for example, by the partial seizure of crankshaft and conrod bearings. If such particles are found, apart from thoroughly cleaning the oil passages, it is necessary to replace the oil cooler.

I ⇒ [Page 13-2](#)

II ⇒ [Page 13-6](#)



Part I

1 - 25 Nm

2 - Tensioning device for ribbed belt

- ◆ Turn with open-end wrench to loosen ribbed belt ⇒ [Page 13-14](#)

3 - 20 Nm

4 - Toothed belt guard - upper part

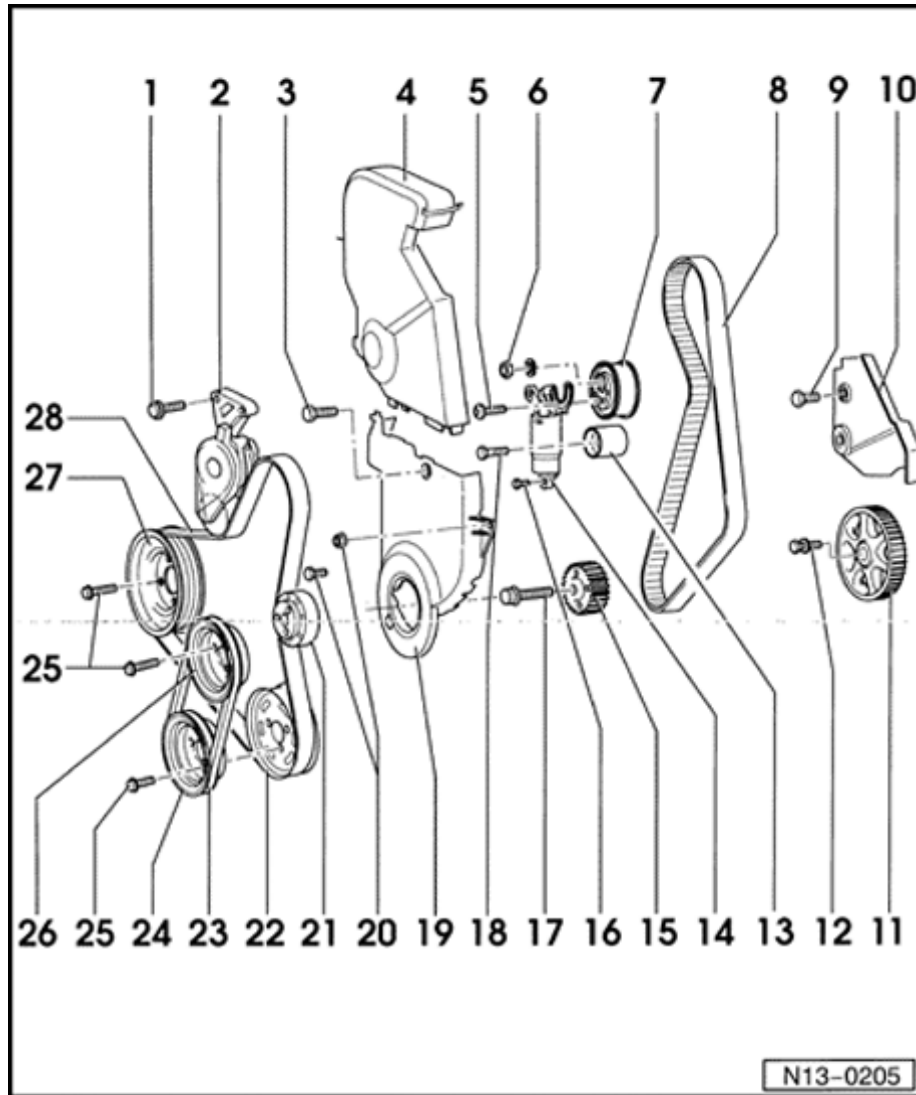
5 - 10 Nm

6 - 10 Nm

7 - Tensioning roller

8 - Toothed belt

- ◆ Mark direction of rotation before removing
- ◆ Check for wear
- ◆ Do not kink
- ◆ Removing, installing and tensioning ⇒ [Page 13-15](#)



9 - 20 Nm

10 - Rear toothed belt guard

11 - Intermediate shaft sprocket

12 - 80 Nm

13 - Idler wheel

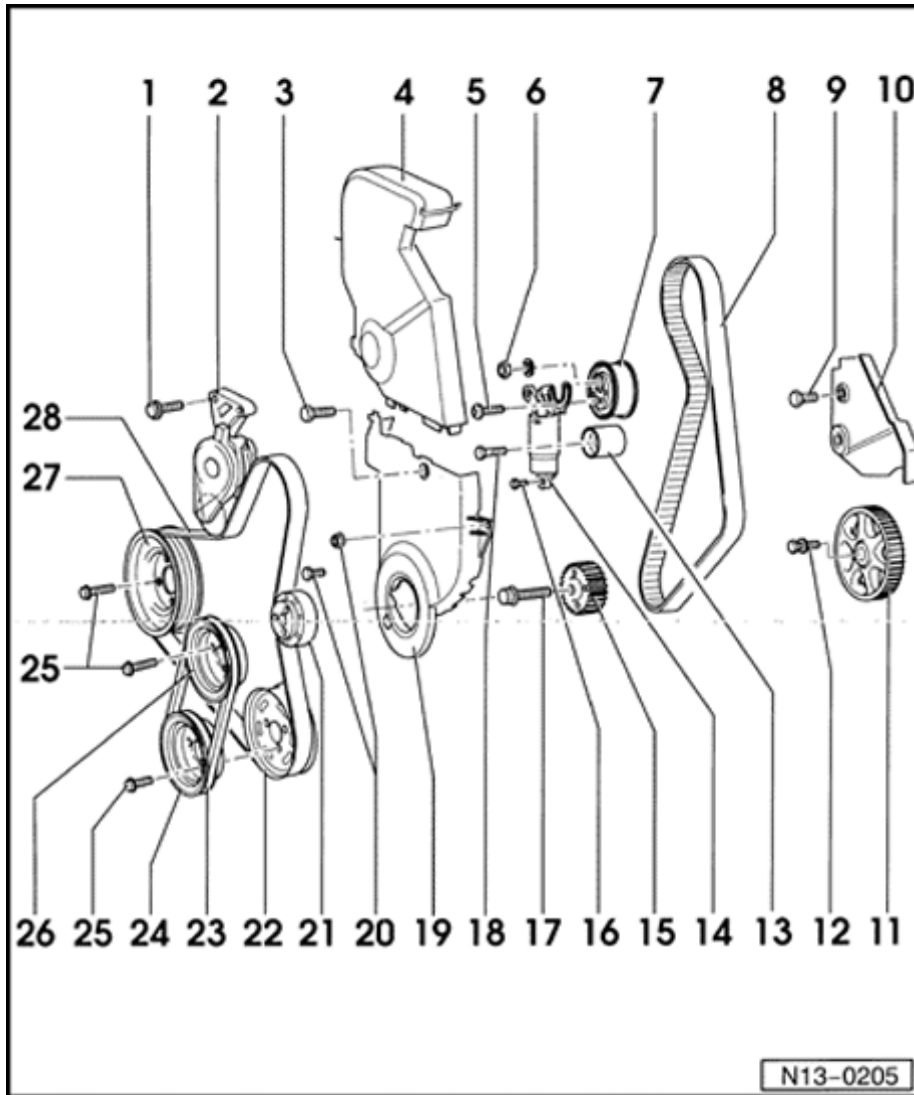
14 - Tensioner for toothed belt

15 - Crankshaft toothed belt sprocket

16 - 10 Nm

17 - 90 Nm + $\frac{1}{4}$ turn (90°) further

- ◆ Always replace
- ◆ Oil threads
- ◆ Counter-hold with 3099 to loosen and tighten
- ◆ The quarter turn further can be done in several stages.



18 - 25 Nm

19 - Toothed belt guard - lower part

20 - 10 Nm

21 - Pulley

◆ For viscous fan coupling

22 - Pulley

◆ For power assisted steering pump

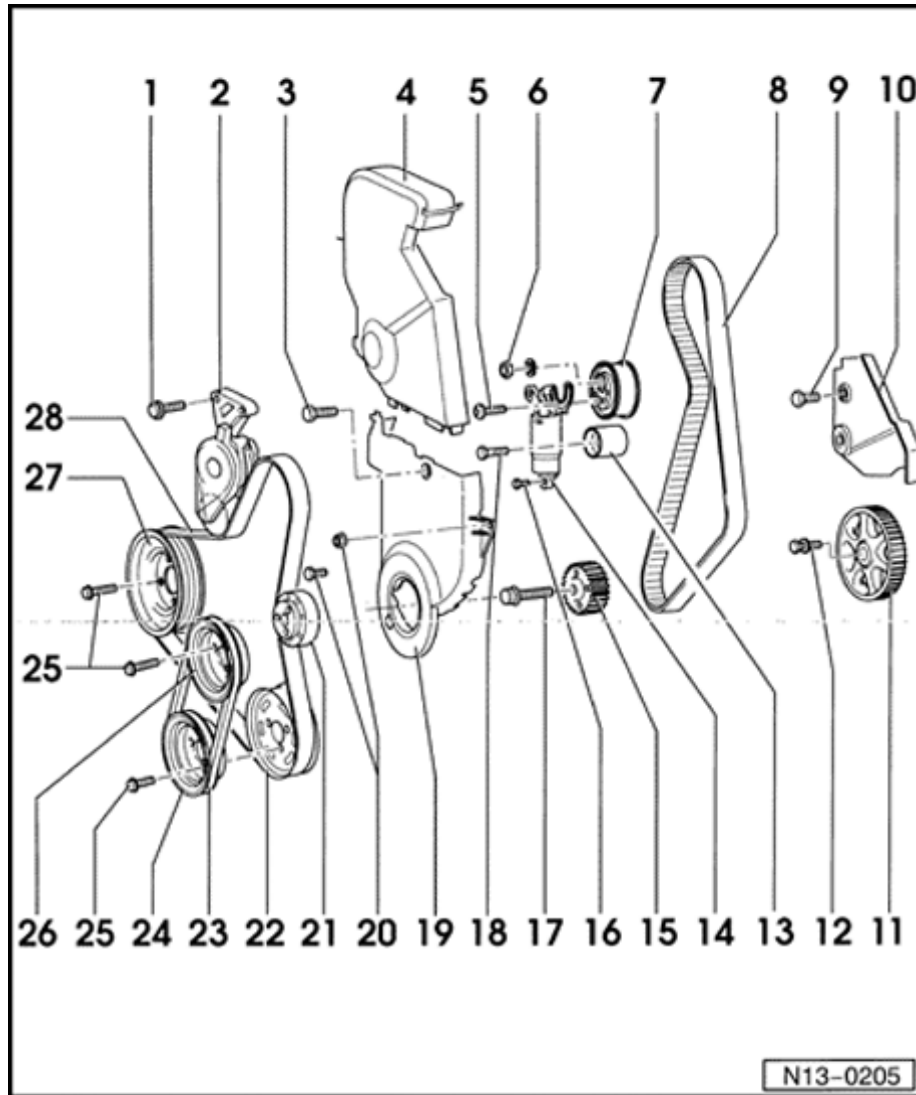
23 - V-belt

◆ Removing and installing ⇒ [Page 19-32](#)

24 - Pulley

◆ V-belt version

25 - 25 Nm



26 - Pulley

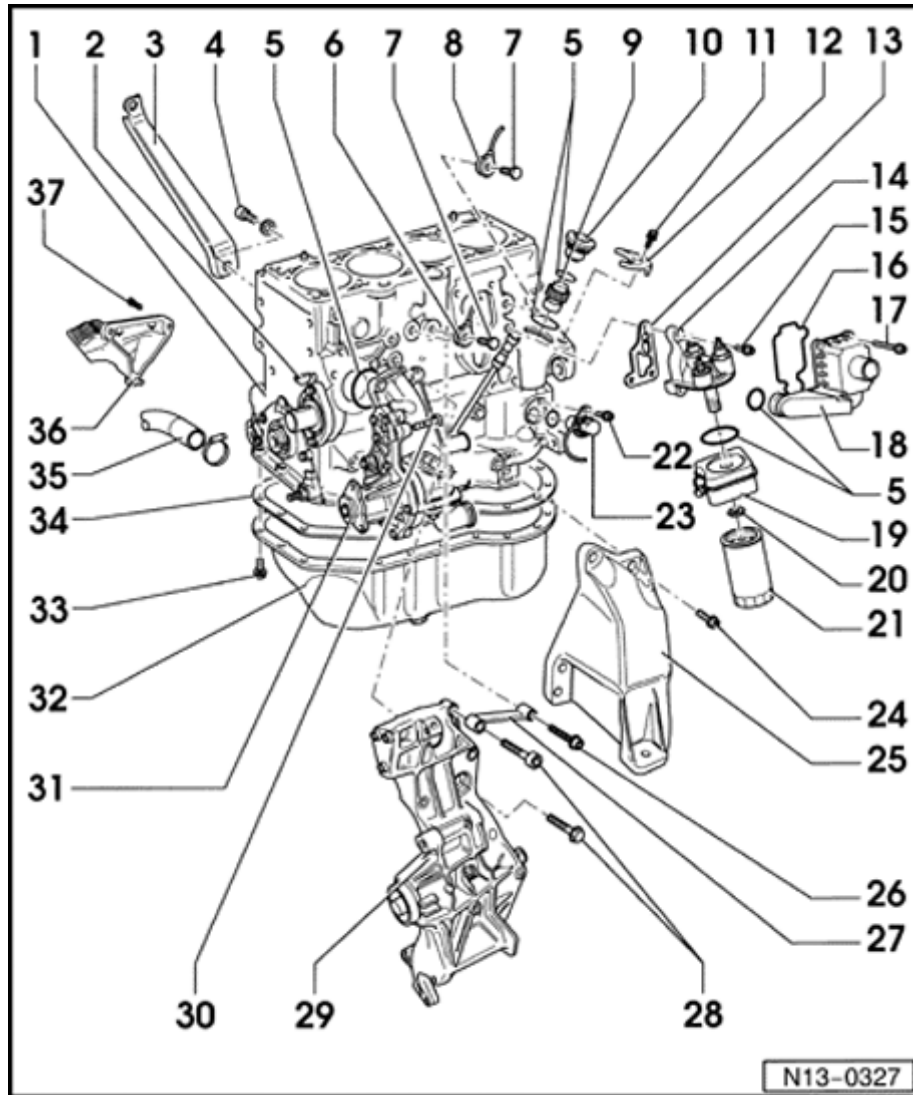
- ◆ For coolant pump
- ◆ V-belt version

27 - Belt pulley/vibration damper

- ◆ Can only be installed in one position. Holes are offset
- ◆ Note position when installing toothed belt ⇒ [Page 13-15](#), removing, installing and tensioning toothed belt

28 - Ribbed belt

- ◆ Mark direction of rotation before removing
- ◆ Removing and installing ⇒ [Page 13-14](#)



Part II

1 - Cylinder block

- ◆ Removing and installing sealing flange and flywheel/drive plate ⇒ [Page 13-21](#)
- ◆ Removing and installing crankshaft ⇒ [Page 13-31](#)
- ◆ Disassembling and assembling pistons and conrods ⇒ [Page 13-38](#)

2 - Woodruff key

- ◆ Check for tight fit

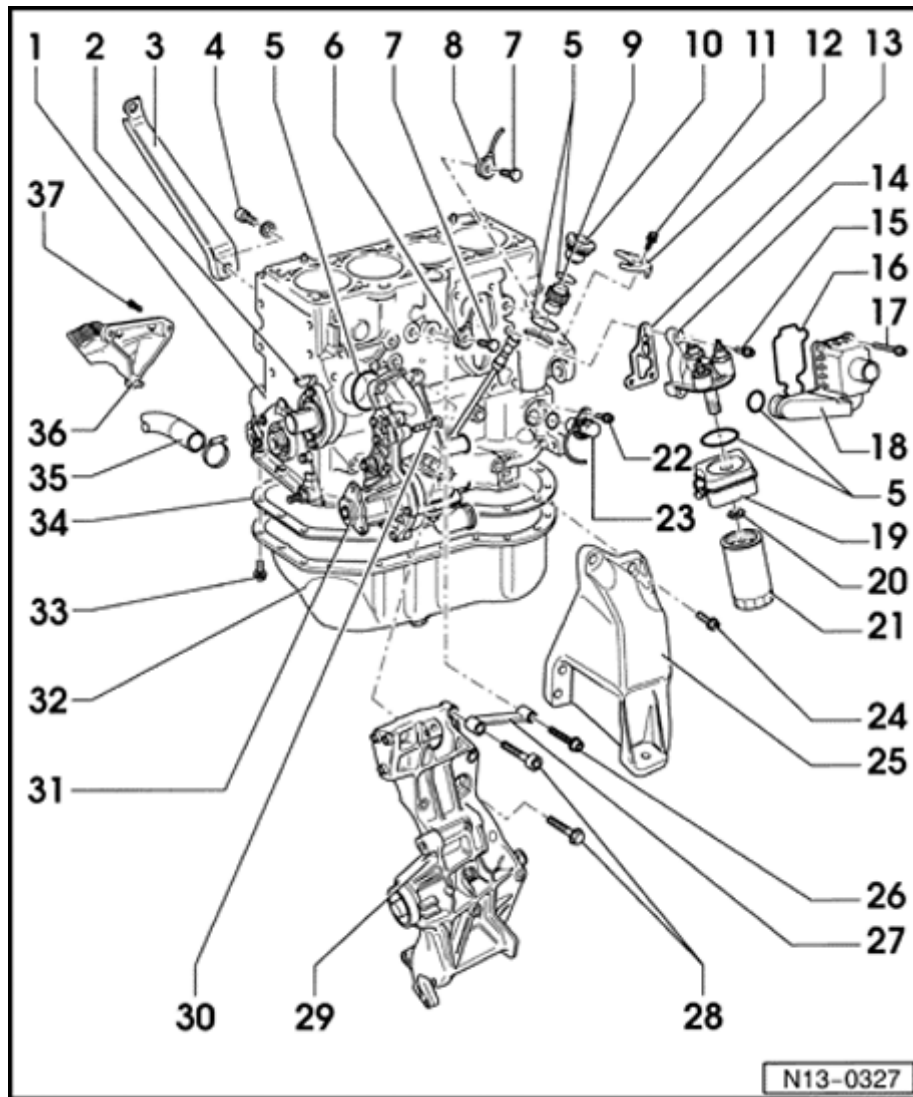
3 - Support

- ◆ Between turbocharger and cylinder block

4 - 30 Nm

5 - O-Ring

- ◆ Replace if damaged



6 - Knock sensor 1 -G61-

◆ Checking:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01*

7 - 20 Nm

◆ Tightening torque influences the function of the knock sensor

8 - Knock sensor 2 -G66-

◆ Checking:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01*

9 - Input gear

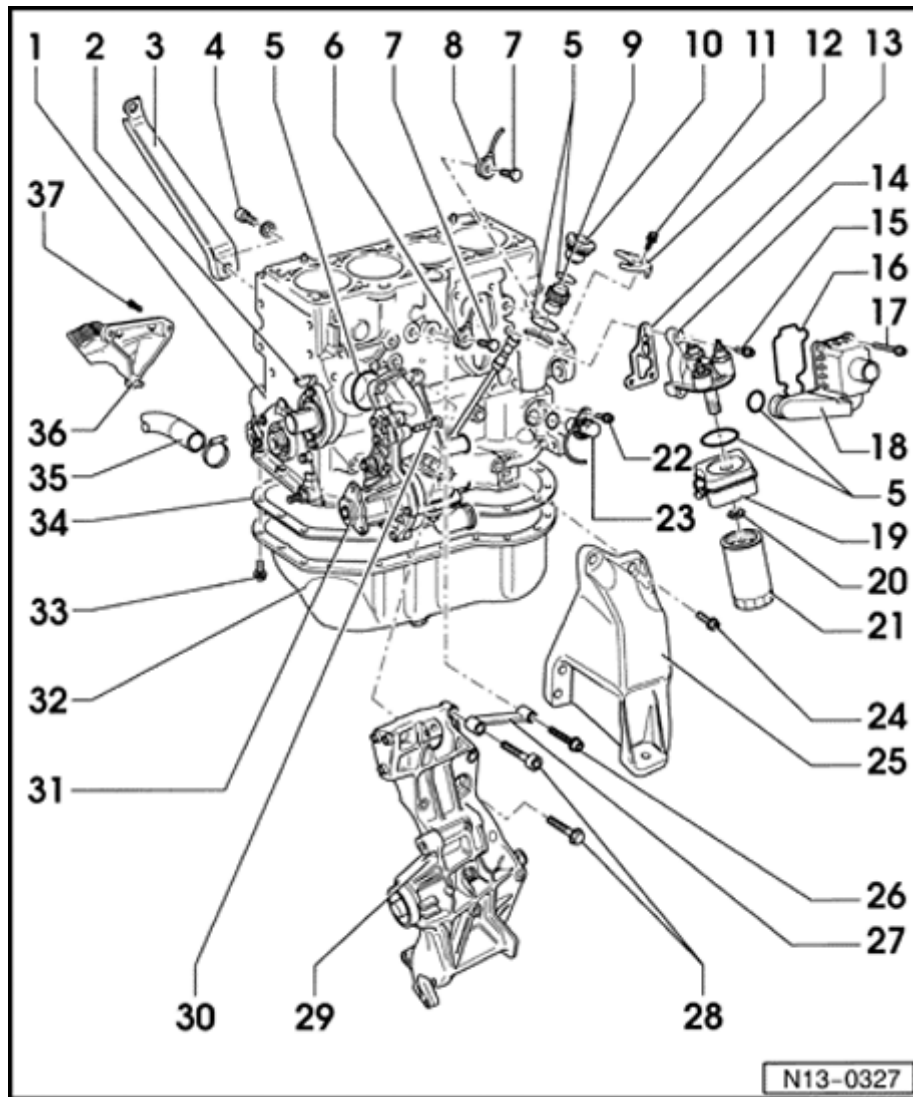
◆ For oil pump

10 - Cap

◆ With play compensation

11 - 25 Nm

12 - Clamp



13 - Gasket

- ◆ Always replace

14 - Oil filter bracket

15 - 25 Nm

16 - Sealing ring

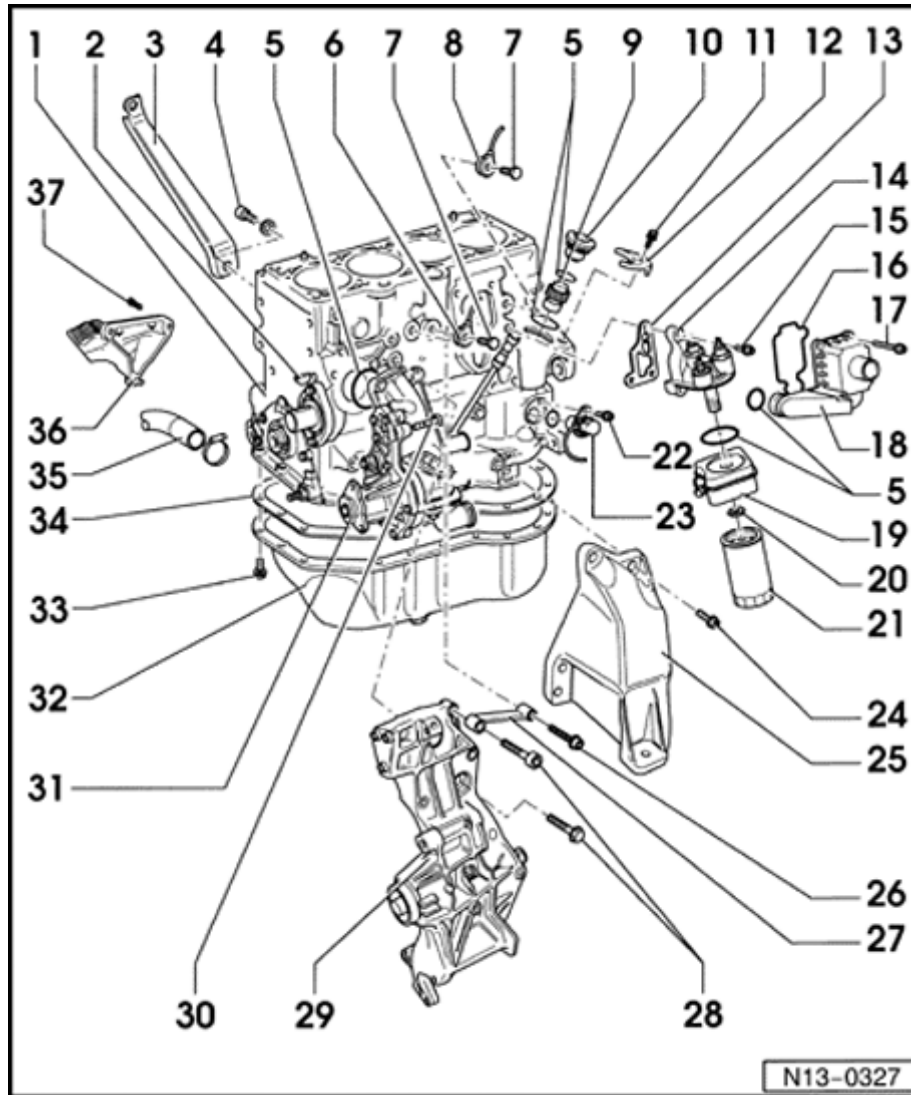
- ◆ Always replace

17 - 25 Nm

18 - Crankcase breather

19 - Oil cooler

- ◆ Coat contact area to flange, outside the seal, with AMV 188 100 02
- ◆ Ensure clearance to adjacent components
- ◆ See note ⇒ [Page 13-1](#)



20 - 25 Nm

21 - Oil filter

- ◆ Loosen with strap wrench
- ◆ Tighten by hand
- ◆ Note instructions on filter when installing

22 - 10 Nm

23 - Engine speed (RPM) sensor

- ◆ Checking:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01*

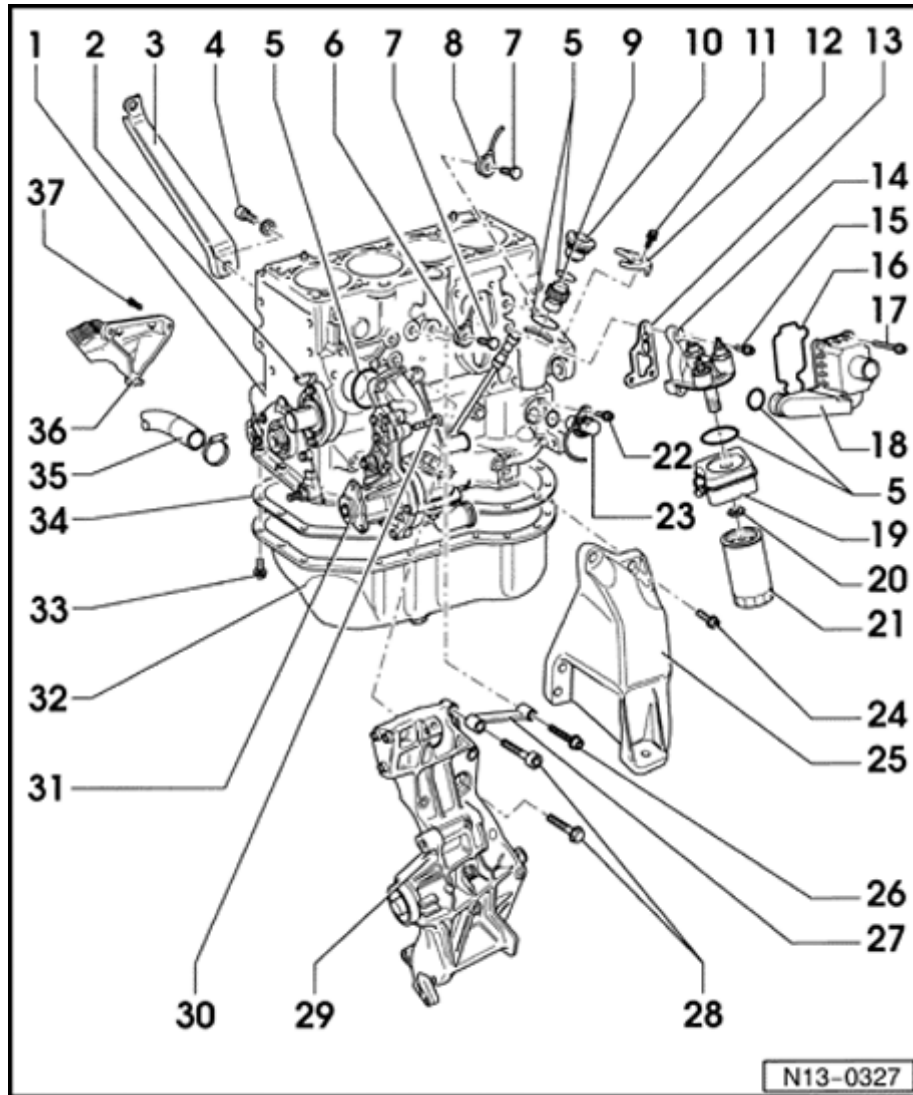
24 - 30 Nm

25 - Left engine bracket

26 - 25 Nm

27 - Support

- ◆ Between compact bracket and cylinder block



28 - 30 Nm

29 - Compact bracket

- ◆ For coolant pump, coolant thermostat, ribbed belt tensioning roller, Generator and power steering pump
- ◆ Removing and installing ⇒ [Page 19-11](#)
- ◆ Removing and installing bearing bushing for viscous fan ⇒ [Page 19-29](#)

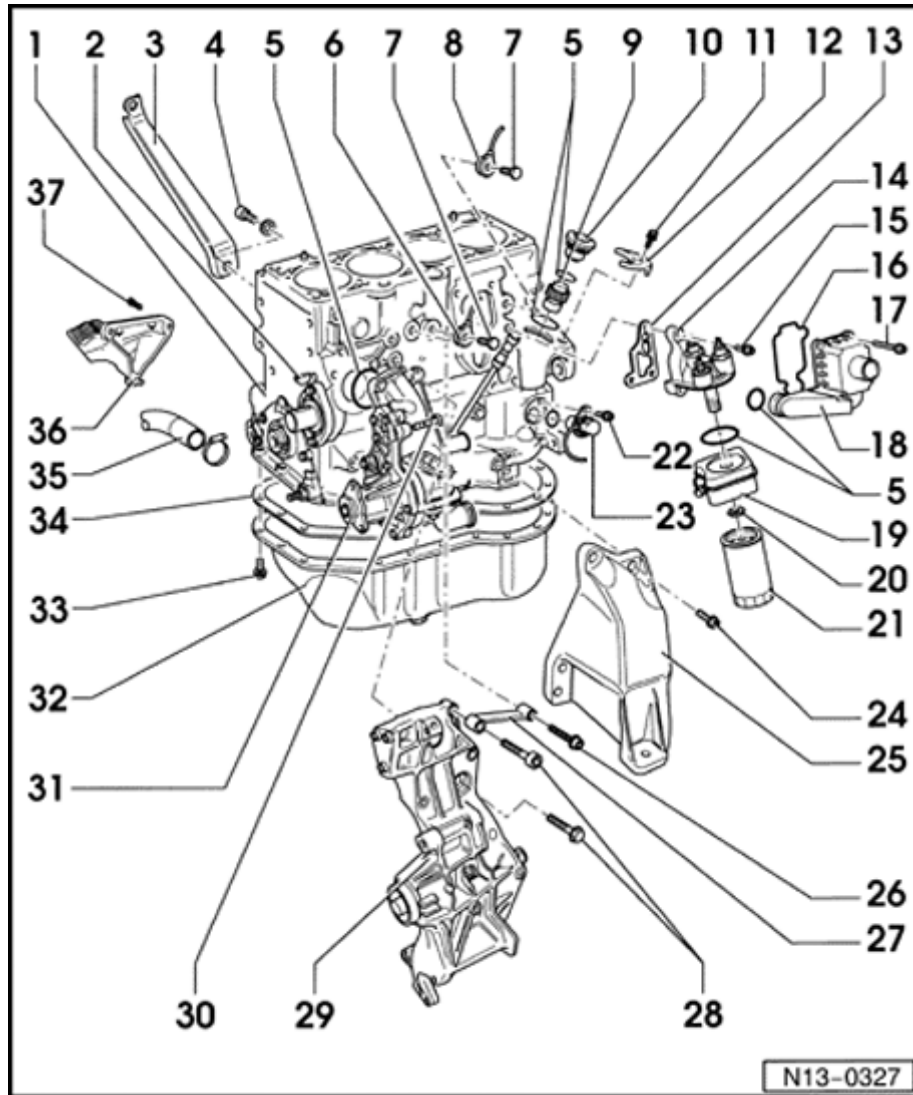
30 - Hammer head bolt

31 - Coolant pump

- ◆ Removing and installing ⇒ [Page 19-11](#)
- ◆ Dismantling and assembling ⇒ [Page 19-15](#)

32 - Oil pan

- ◆ Clean sealing surface before installing



33 - 20 Nm

- ◆ Remove and install both rear bolts transmission end with jointed wrench 3185

34 - Gasket

- ◆ Always replace
- ◆ Before installing gasket coat oil pan flange/cylinder block flange with D 454 300 A2

35 - Coolant hose

- ◆ Between turbocharger and cylinder block

36 - Right engine bracket

37 - 30 Nm



Ribbed belt for A/C compressor, removing and installing

Special tools and equipment

- ◆ Torque wrench VAG 1331 (5 to 50 Nm)

Note:

Before removing the ribbed belt mark the direction of rotation. When installing the belt ensure it is correctly seated in the pulley.

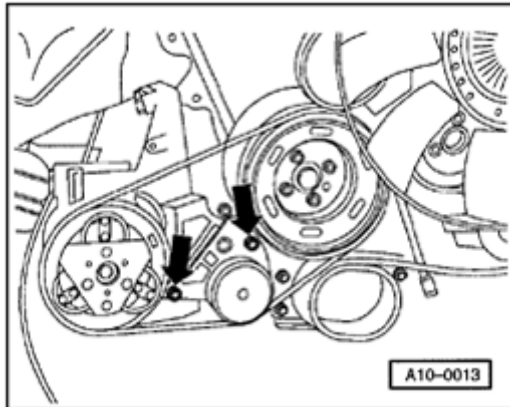
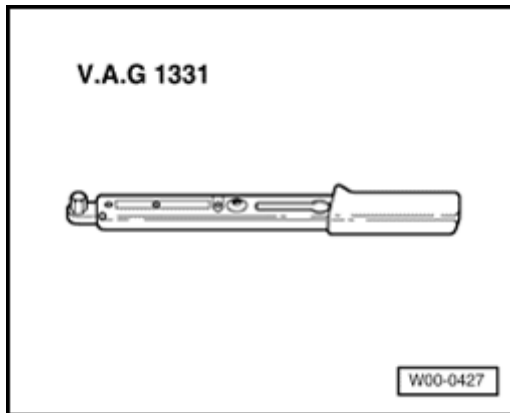
Removing

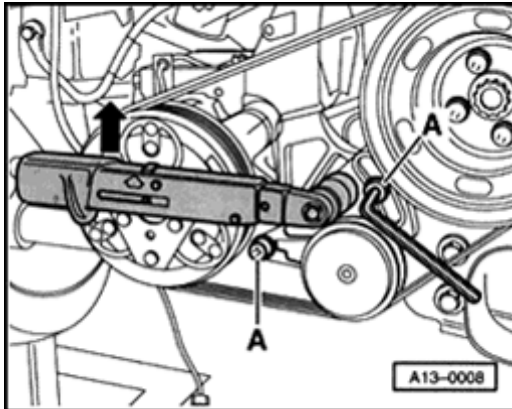
- Remove ribbed belt ⇒ [Page 13-14](#) .

- ◆ - Loosen A/C compressor ribbed belt tensioner securing bolts and take off ribbed belt.

Installing

- Install ribbed belt for A/C compressor.





- A**
- Use torque wrench and tension V-belt tensioner to 25 Nm.
 - Tighten bolts -A- to 20 Nm.
 - Install ribbed belt ⇒ [Page 13-14](#) .



Ribbed belt, removing and installing

Special tools and equipment

A

- ◆ Pin 3204

Removing

- Bring lock carrier into service position:

⇒ [Repair Manual, Body Exterior, Repair Group 50](#)

- Mark ribbed belt direction of rotation.

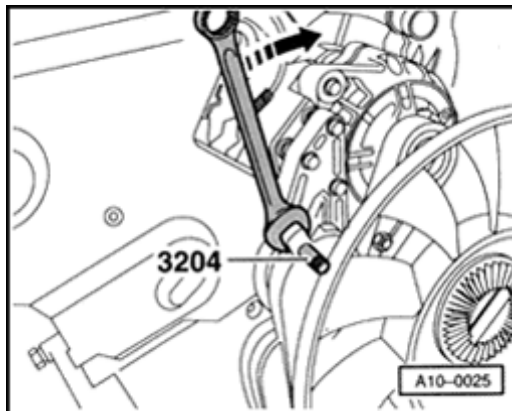
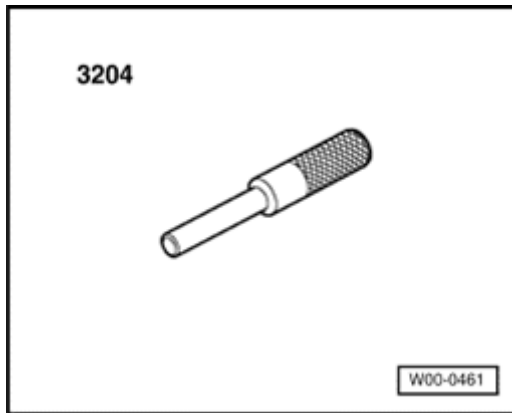
A

- To loosen ribbed belt turn tensioning element in direction of arrow.
- Lock tensioning device with pin 3204.
- Remove or install ribbed belt.

Note:

When installing the ribbed belt ensure that it sits correctly in the pulleys.

- Start engine and check belt running.





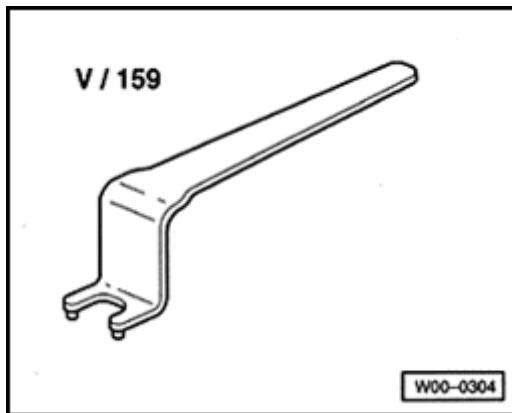
Toothed belt, removing and installing

(Adjusting valve timing)

Special tools and equipment

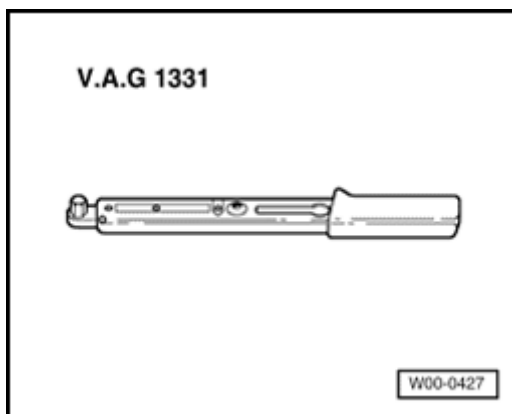
A

- ◆ Pin wrench Matra V159



A

- ◆ VAG 1331 Torque wrench (5 to 50 Nm)



Removing

Conditions

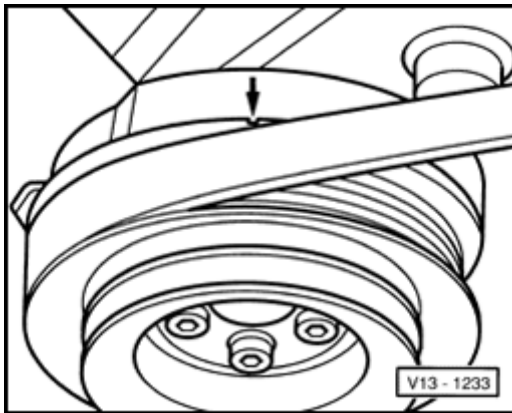
- ◆ Coolant temperature at least 30 ° C



- Bring lock carrier into service position:

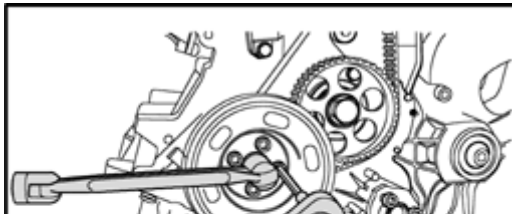
⇒ [Repair Manual, Body Exterior, Repair Group 50](#)

- Remove ribbed belt ⇒ [Page 13-14](#) .
- Remove tensioning element for ribbed belt.



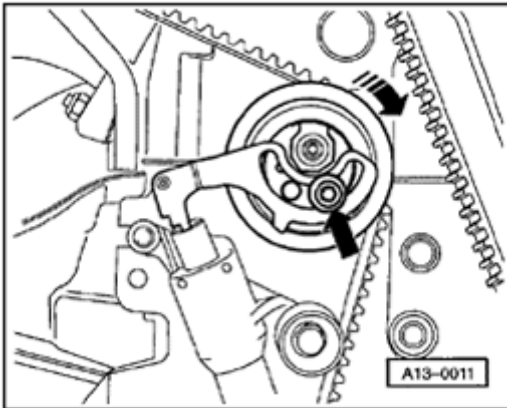
A

- Turn crankshaft to TDC No. 1 cylinder.
- Remove toothed belt guard - upper part.
- Mark toothed belt direction of rotation.



A

- Remove vibration damper/belt pulley.
- Remove lower toothed belt guard.



- A**
- Loosen toothed belt tensioner (arrow) and remove toothed belt.
 - Turn crankshaft back slightly.

Installing

Note:

When turning the camshaft the crankshaft must not be at TDC or there is a potential for damage to the valves/piston crown.

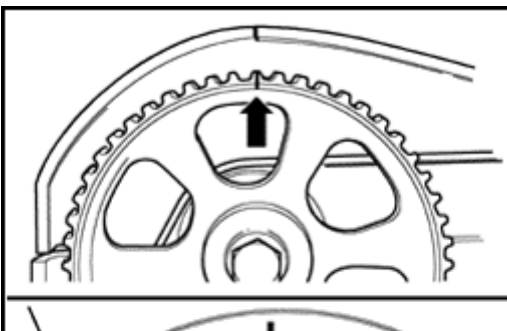
A - Toothed belt completely removed

If toothed belt has only been removed from camshaft ⇒ [Page 13-18](#)

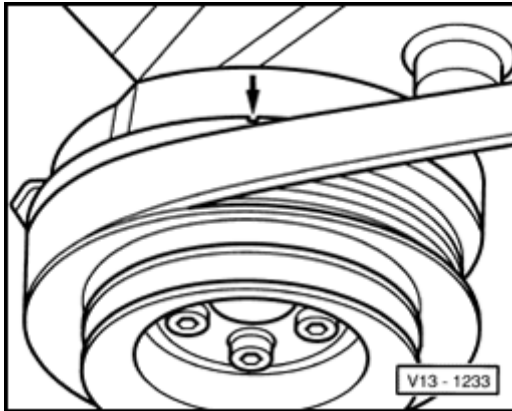
Conditions

- ◆ The pistons must not be positioned at TDC.

Work sequence



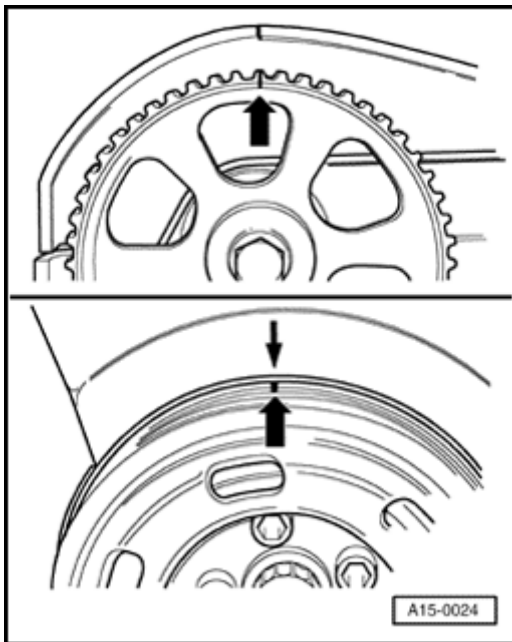
- A**
- Bring mark on camshaft in line with mark on cylinder head cover.
 - Place toothed belt on crankshaft sprocket (observe direction of rotation).
 - Secure vibration damper/belt pulley with one bolt (note installation).



A

- Turn crankshaft to TDC No. 1 cylinder.
- Place toothed belt on tensioning roller and camshaft sprocket and tension ⇒ [Page 13-19](#) .

B - Toothed belt only taken off camshaft sprocket

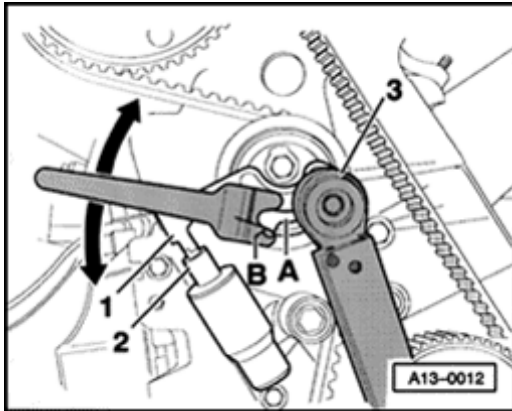


A

- Bring mark on camshaft in line with mark on cylinder head cover.
- Turn crankshaft to TDC No. 1 cylinder.
- Place toothed belt on the camshaft sprocket and tension ⇒ [Page 13-19](#) .

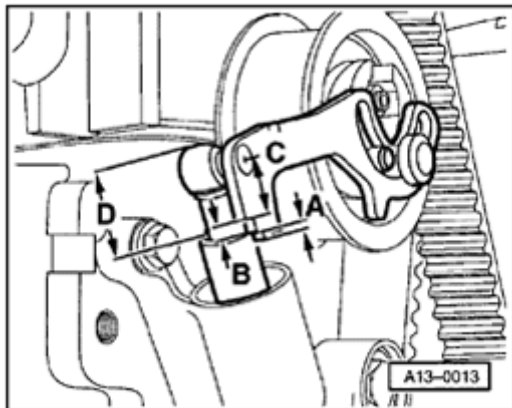


Tensioning toothed belt



A

- Tension toothed belt by turning tensioner -A- with pin wrench -B- (e.g. Matra V159) to right until piston -1- is fully extended and tensioner piston -2- lifts approx. 1 mm.
- Tighten securing screw -3- on tensioner. Tightening torque: 25 Nm
- Turn crankshaft two full turns and check whether camshaft and crankshaft marks align with their reference points.



A

- Check whether area -A- aligns with piston upper edge or dimension -D- is: 25 to 29 mm.

Note:

- ◆ Area -A-: Adjustment OK.
- ◆ Area -B-: Wear area
- ◆ Area -C-: Check belt drive and tensioner for wear or adjust toothed belt tension.
- Remove vibration damper/belt pulley.
- Install toothed belt guard lower part.



- Install vibration damper/belt pulley. Tightening torque: 25 Nm

- Install upper toothed belt guard.

- Install ribbed belt tensioner. Tightening torque: 25 Nm

- Install ribbed belt ⇒ [Page 13-14](#) .