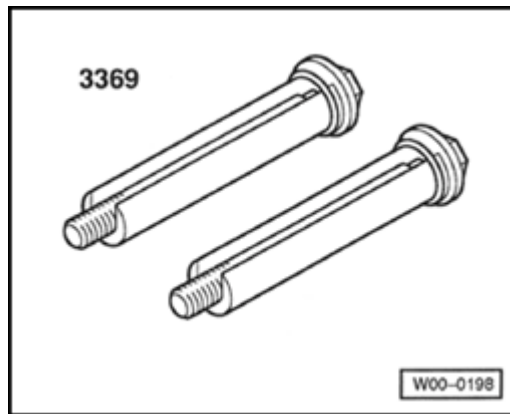


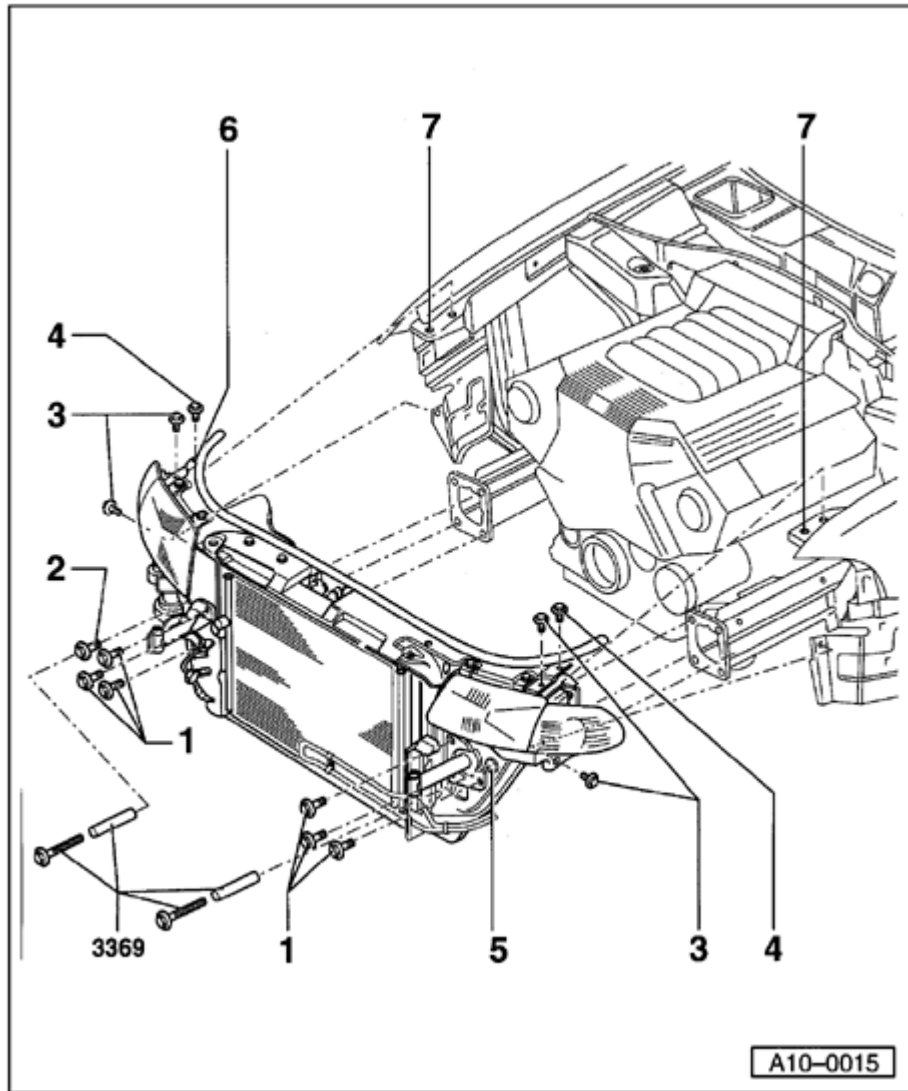
Engine, disassembling and assembling

Lock carrier, moving into service position

Special tools and equipment



- ◆ Special tool 3369



1 - 45 Nm

2 - 45 Nm

3 - 10 Nm

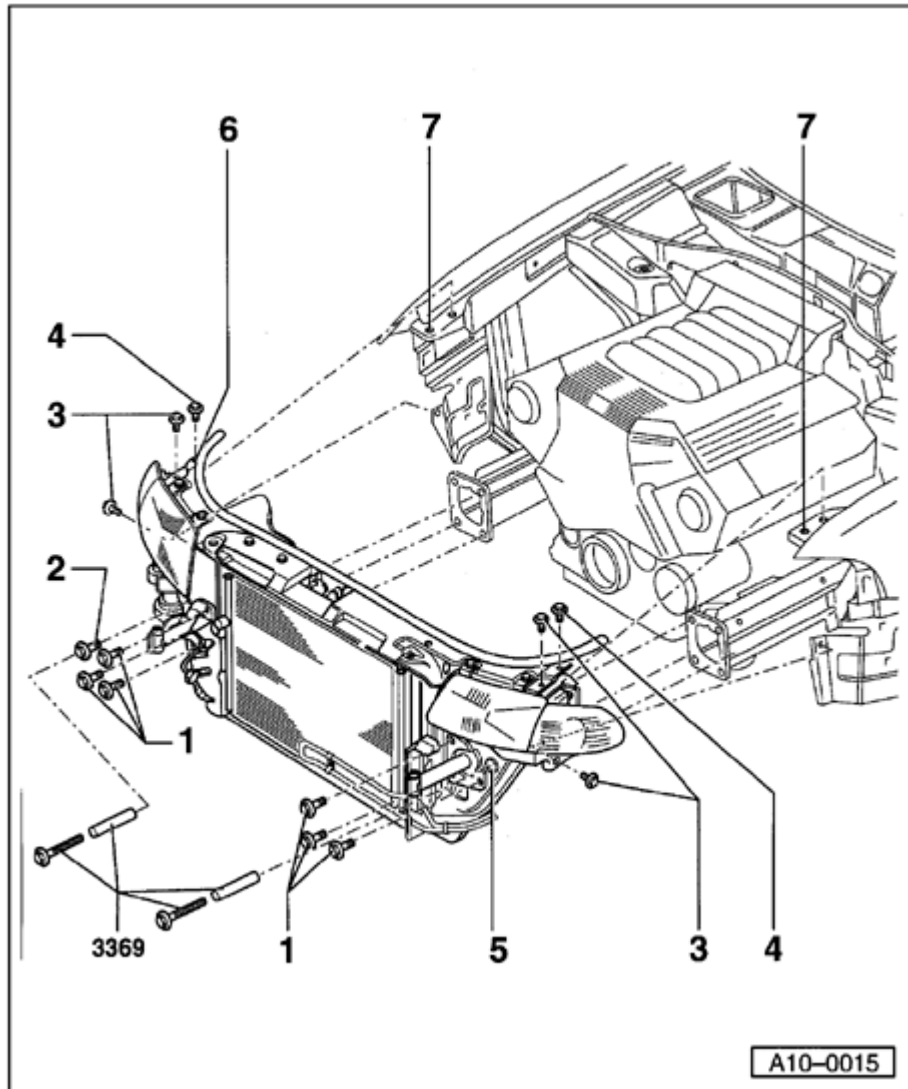
4 - 10 Nm

5 - Bore

◆ For special tool 3369

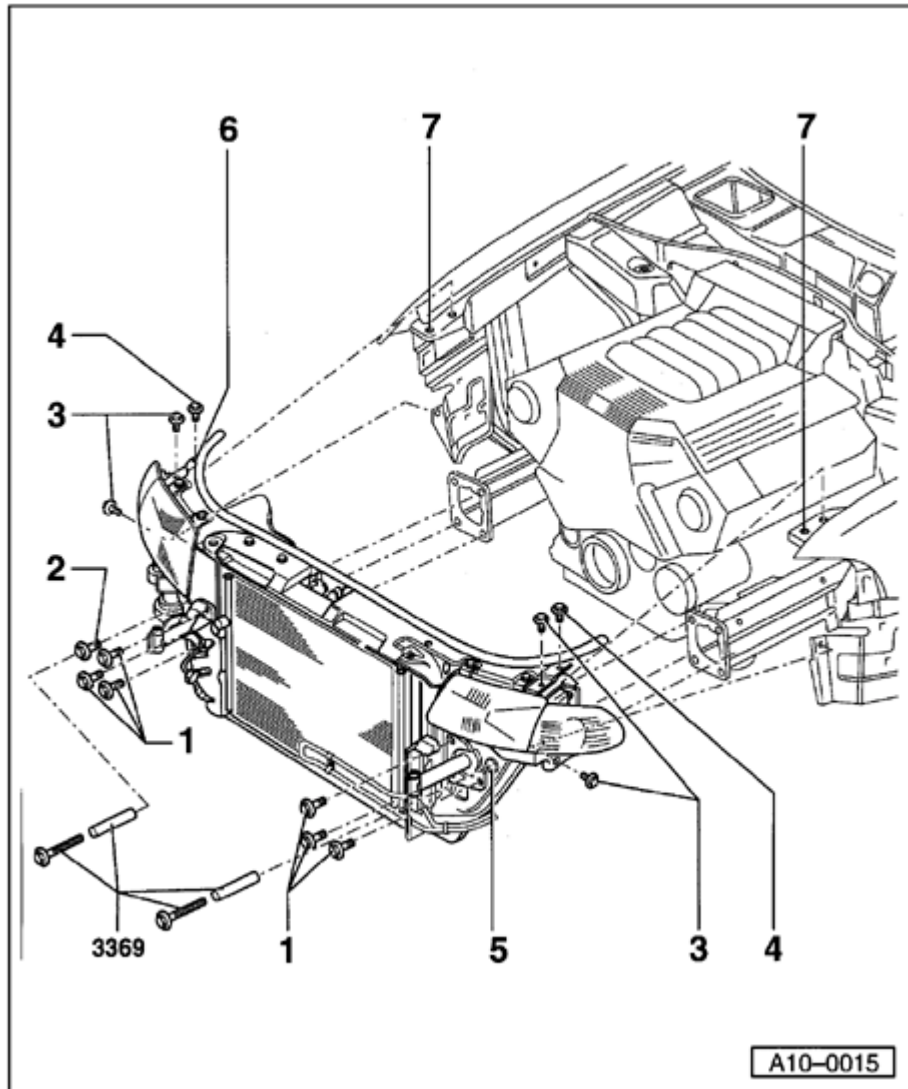
6 - Hole in lock carrier

7 - Bore in fender panel

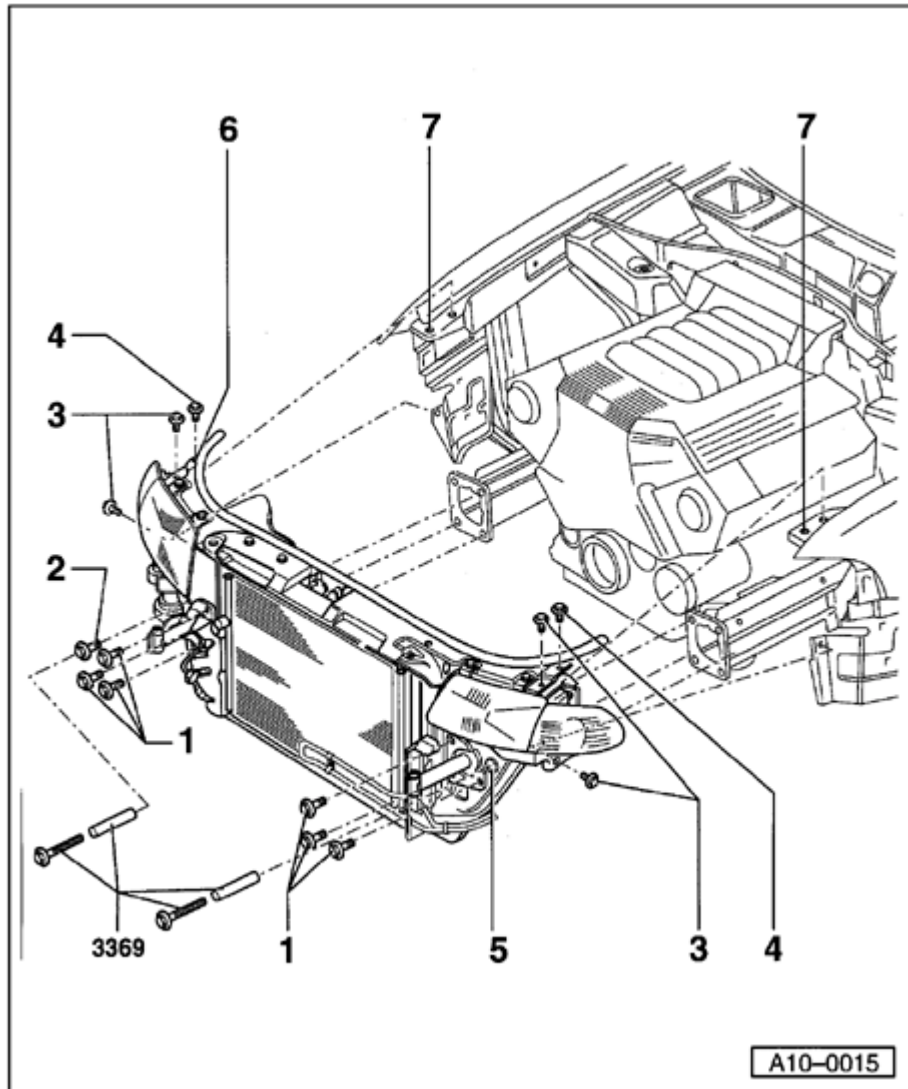


Removing

- Remove sound insulation ⇒ Fig. ⇒ [1](#) , ⇒ [Page 13-6](#)
- Remove front bumper:
⇒ [Repair Manual, Body Exterior, Repair Group 63](#)
- Remove lower air duct hose to charge air cooler
⇒ Fig. ⇒ [2](#) , ⇒ [Page 13-6](#)
- Remove air duct between lock carrier and air filter ⇒ Fig. ⇒ [3](#) , ⇒ [Page 13-7](#)
- Remove retaining clips (if installed) for wiring harness on left at radiator shroud.



- Remove bolt -2- and screw in special tool 3369.
- Screw in special tool 3369 into bore -5-.
- Remove bolts -1- and -3-.
- Remove bolts -4- and pull lock carrier out as far as it will go.
- Secure lock carrier with suitable M6 bolts in hole -6- (lock carrier) and hole -7- (fender panel).



Installing

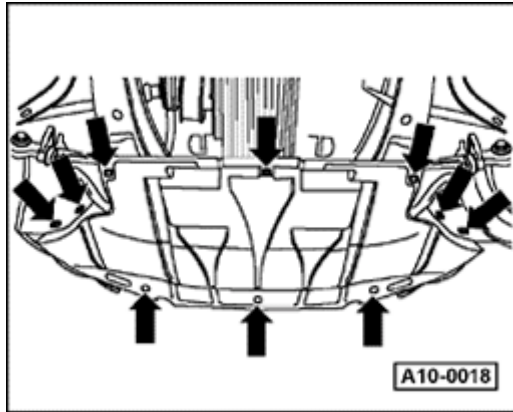
Installation is carried out in the reverse order of removal; note the following:

- When lock carrier has been installed, check that wiring next to radiator is correctly routed.
- Adjust limit stop for torque reaction support ⇒ Fig. ⇒ [4](#) , ⇒ [Page 13-7](#) .
- Install front bumper.

⇒ [Repair Manual, Body Exterior, Repair Group 63](#)

- Adjust headlights.

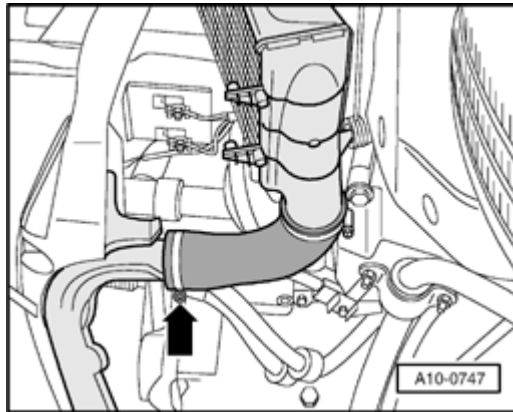
⇒ [Repair Manual, Electrical Equipment, Repair Group 94](#)



A

Fig. 1 Remove front sound insulation

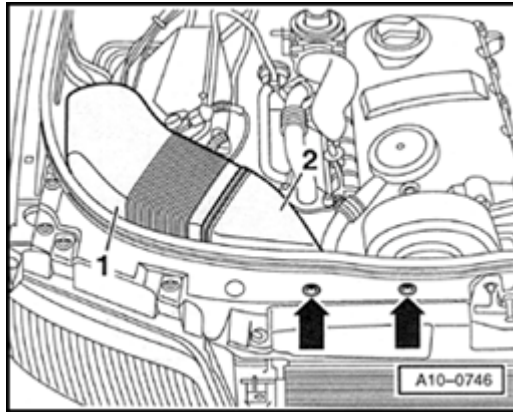
- Remove sound insulation -arrows-.



A

Fig. 2 Remove air duct hose

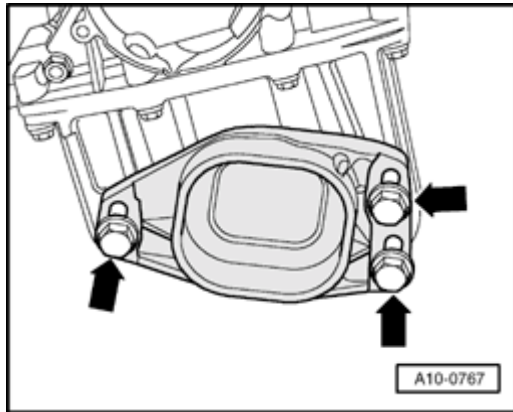
- Remove air duct hose to bottom left charge air cooler from lock carrier - arrow-.



A

Fig. 3 Remove air duct between lock carrier and air filter

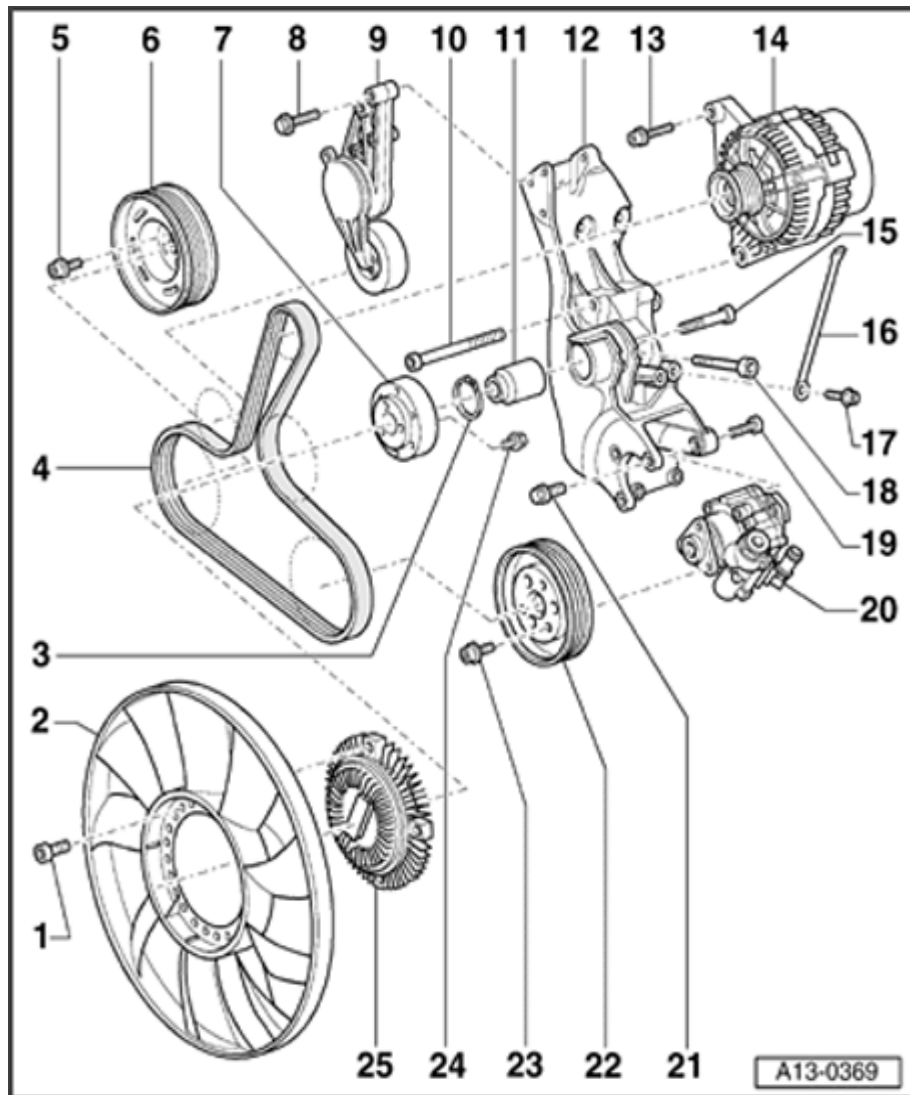
- Remove bolts -arrows-.
- Remove air ducts -1- and -2-.



A

Fig. 4 Adjust stop for torque reaction support

- Attach limit stop for torque reaction support to rest on rubber buffer for torque reaction support under its own weight, and tighten bolts -arrows- to 28 Nm.



Ribbed belt drive for power steering pump, Generator and viscous fan

Note:

Mark the direction of rotation with chalk or felt pen before removing the ribbed belt. If the belt rotates in the wrong direction when it is reinstalled, belt breakage may result. Ensure that the belt is properly seated on the pulleys when installing.

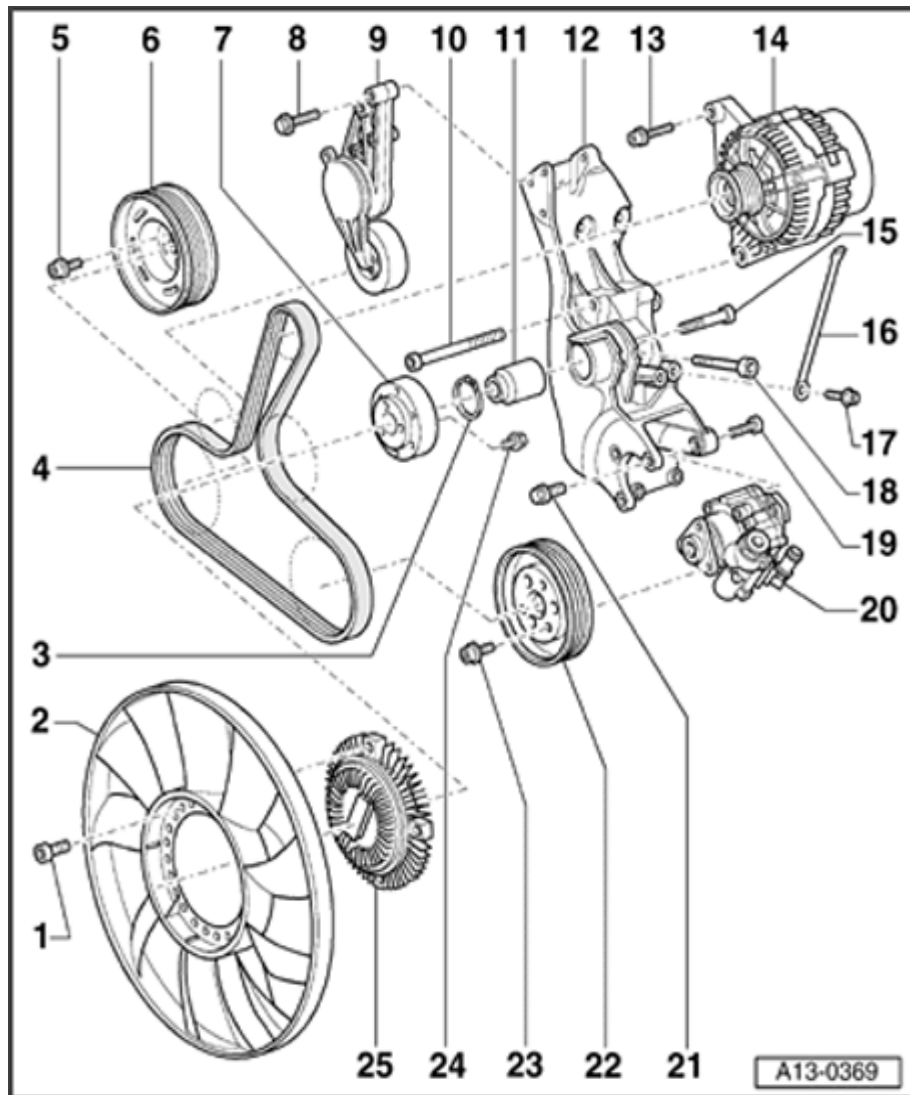
1 - 10 Nm.

2 - Fan wheel

- ◆ For viscous fan
- ◆ Removing and installing ⇒ [Page 13-21](#) .

3 - Circlip

- ◆ For viscous fan bearing
- ◆ Removing and installing ⇒ [Page 13-23](#) .



4 - Ribbed V-belt

- ◆ Removing and installing ⇒ [Page 13-18](#) .
- ◆ Check for wear
- ◆ Routing of ribbed belt ⇒ Fig. ⇒ [2](#) , ⇒ [Page 13-17](#)

5 - Bolt (special type)

- ◆ Always replace
- ◆ Use only genuine bolts

⇒ *Parts List*

- ◆ Torque: 10 Nm + 90° (1/4 turn)

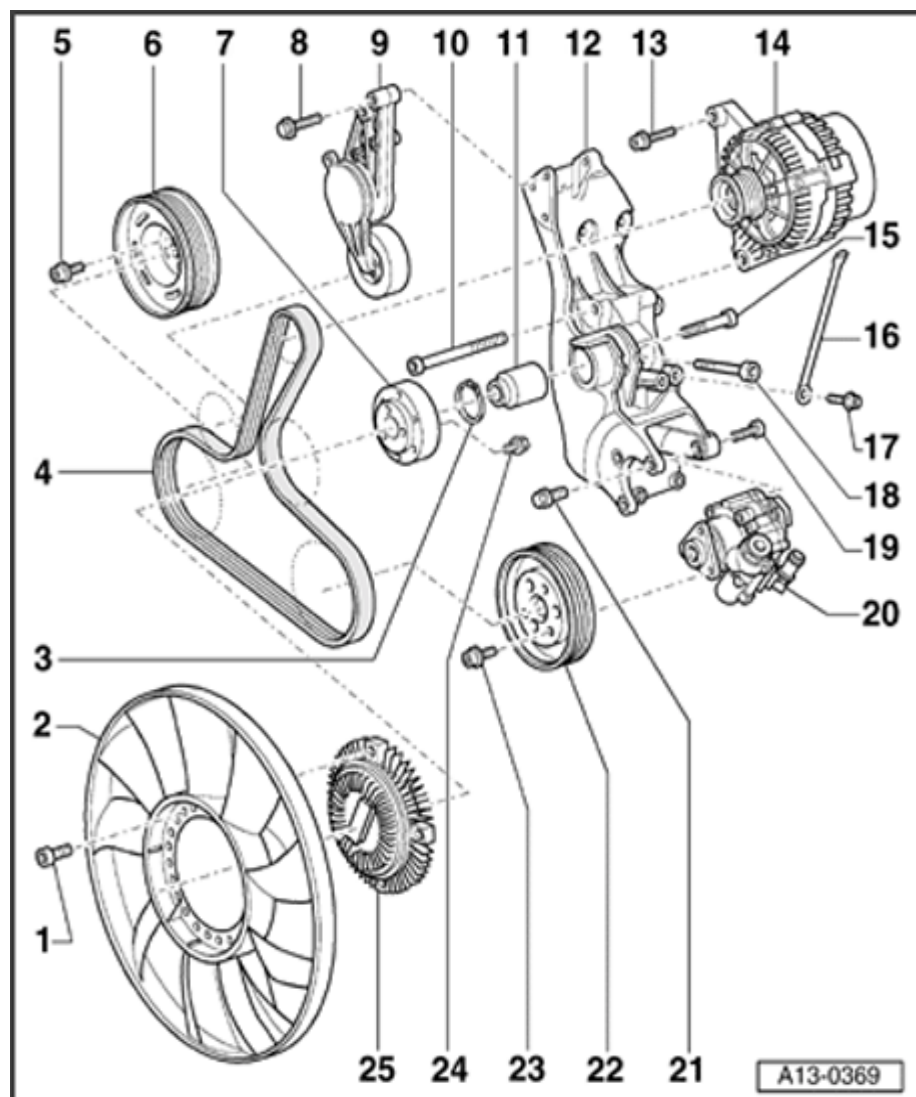
6 - Vibration damper

- ◆ With pulley for ribbed belt
- ◆ Can only be installed in one position ⇒ Fig. ⇒ [1](#) , ⇒ [Page 13-17](#)

7 - Pulley

- ◆ For viscous fan
- ◆ Removing and installing ⇒ [Page 13-21](#) .

13-10



8 - 23 Nm

9 - Tensioner for ribbed belt

- ◆ Turn with open end spanner to loosen ribbed belt ⇒ [Page 13-18](#) .
- ◆ Hold in position by inserting a suitable pin or Allen key in holes.

10 - 46 Nm

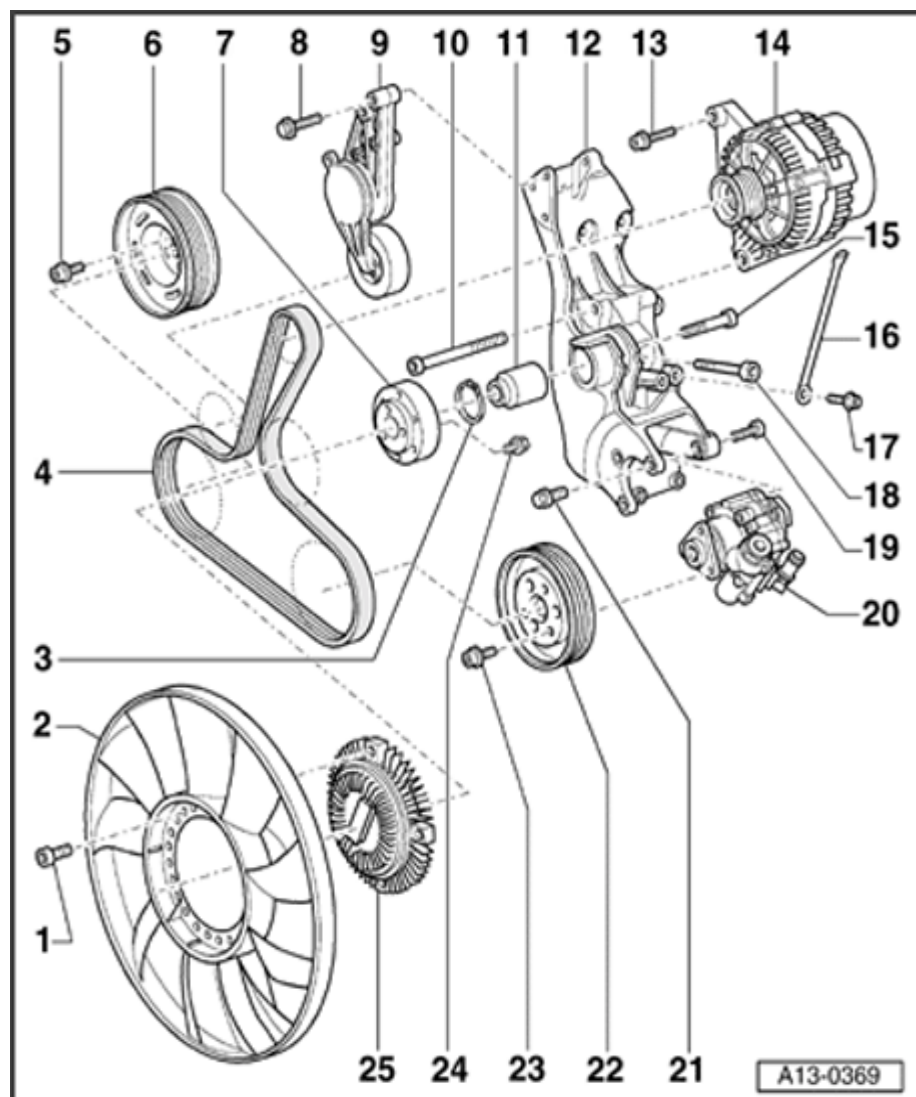
11 - Mounting

- ◆ For viscous fan
- ◆ Removing and installing ⇒ [Page 13-23](#) .

12 - Bracket

- ◆ For Generator, power steering pump and viscous fan
- ◆ Removing and installing ⇒ [Page 13-28](#) .

13 - 23 Nm



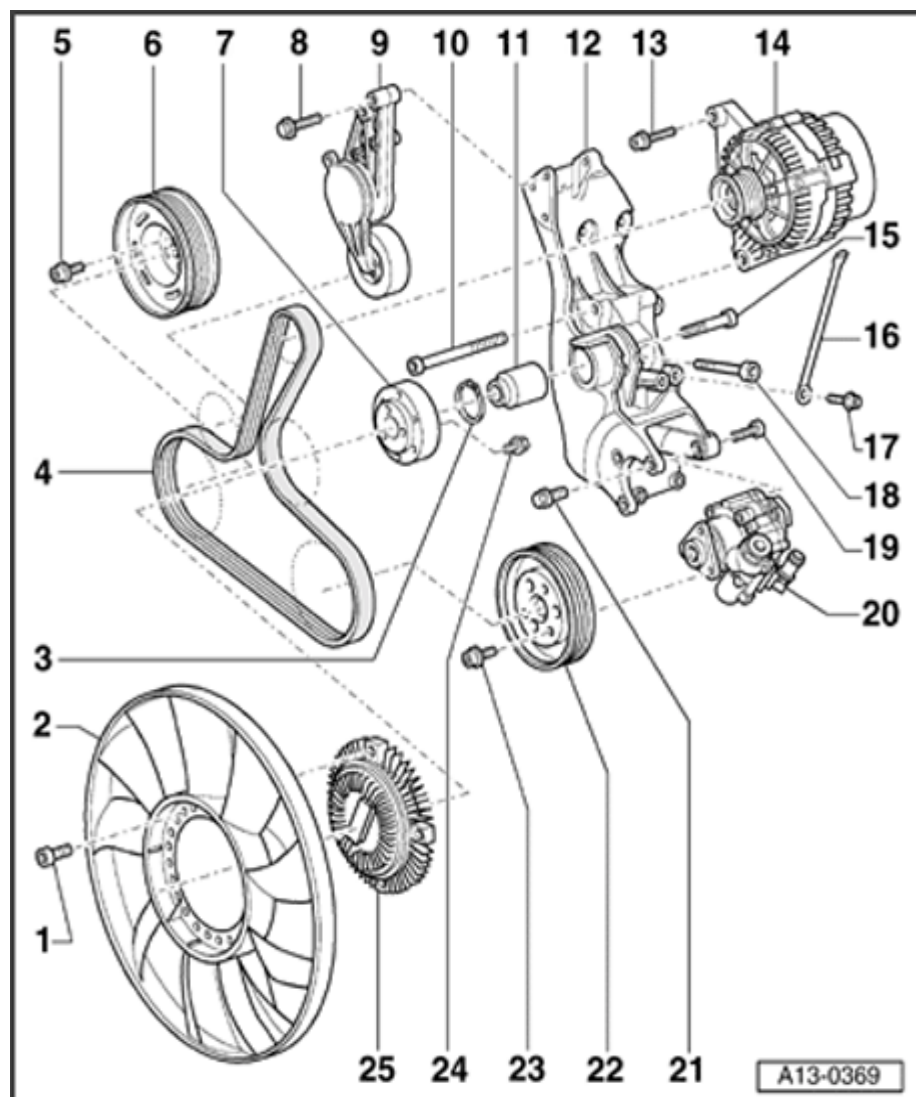
14 - Generator

◆ Removing:

- Disconnect battery Ground strap
- Remove air duct hose to charge air cooler.
- Loosen ribbed belt and take belt off Generator ⇒ [Page 13-18](#) .
- Remove viscous fan and put into radiator cowl.
- Remove electrical wiring from Generator.
- Loosen connections for Generator from top and bottom and remove Generator.

◆ Installing:

- To facilitate attachment of Generator slightly drive back thread bushing for securing bolt at bracket.



15 - 45 Nm

16 - Support

◆ For intake manifold

17 - 20 Nm

18 - 52 Nm

◆ Apply D 000 600 when installing

◆ Bolts have different lengths. For positions and tightening sequence ⇒ [Page 13-33](#)

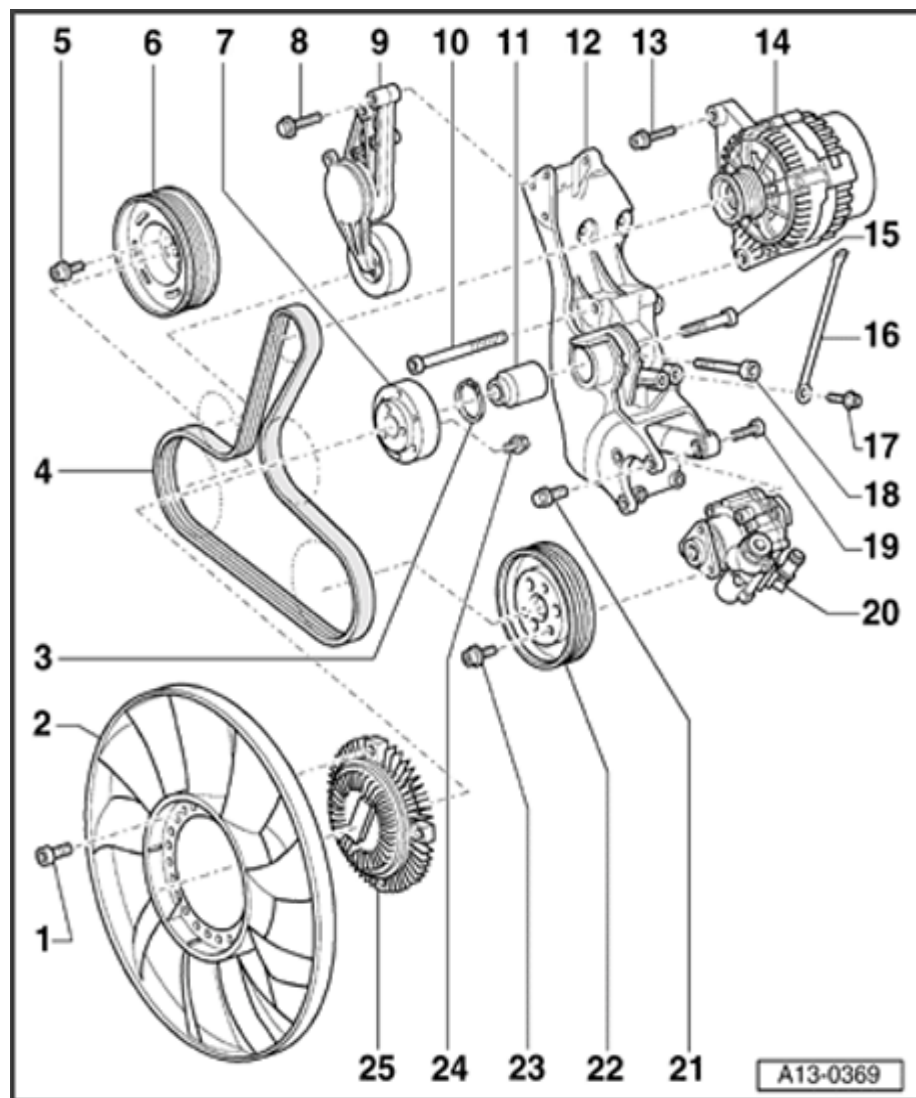
19 - 23 Nm

20 - Power steering pump

◆ Removing and installing:

⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 48](#)

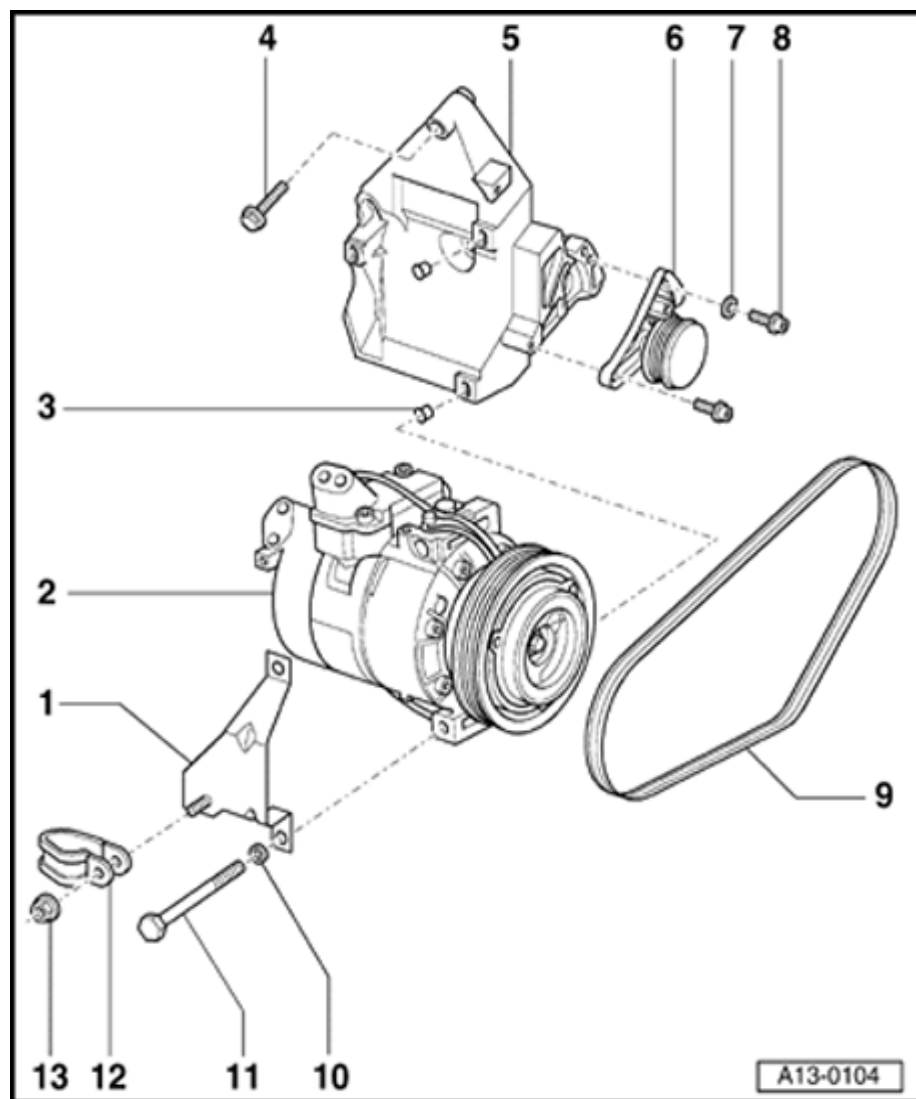
21 - 23 Nm

**22 - Pulley**

- ◆ For power steering pump
- ◆ Installation position: Open side faces to front of vehicle

23 - 23 Nm**24 - Ribbed bolt - 28 Nm****25 - Viscous coupling**

- ◆ Removing and installing ⇒ [Page 13-21](#)



Ribbed belt drive for air conditioner - assembly overview

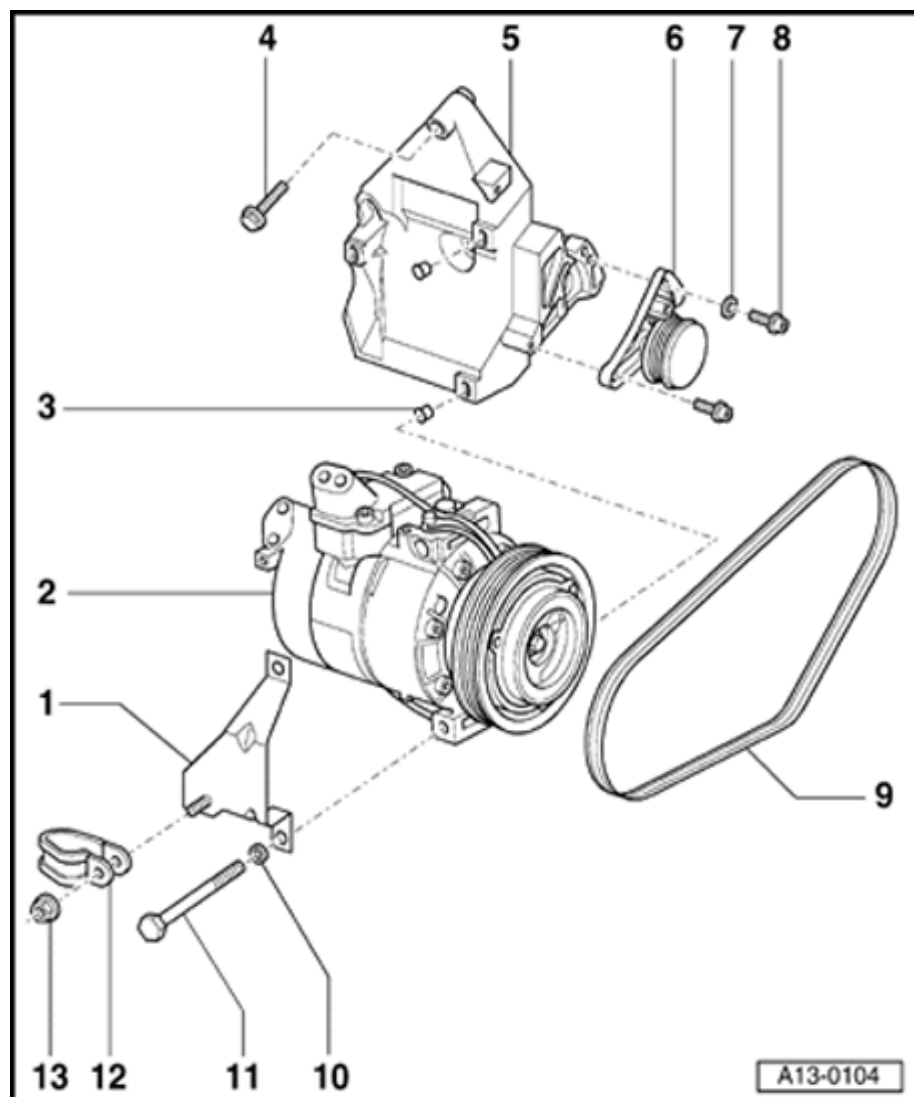
CAUTION!

The air conditioner refrigerant circuit must not be opened.

Note:

Mark the direction of rotation with chalk or felt pen before removing the ribbed belt. If the belt rotates in the wrong direction when it is reinstalled, belt breakage may result. Ensure that the belt is properly seated on the pulleys when installing.

1 - Bracket



2 - Air conditioner compressor

- ◆ Do not loosen or disconnect refrigerant hoses or lines.
- ◆ After removing compressor from mountings, secure to chassis side member with wire or similar. Do not leave compressor suspended on refrigerant hoses.

3 - Dowel sleeve

- ◆ Check sleeve is correctly seated in bracket

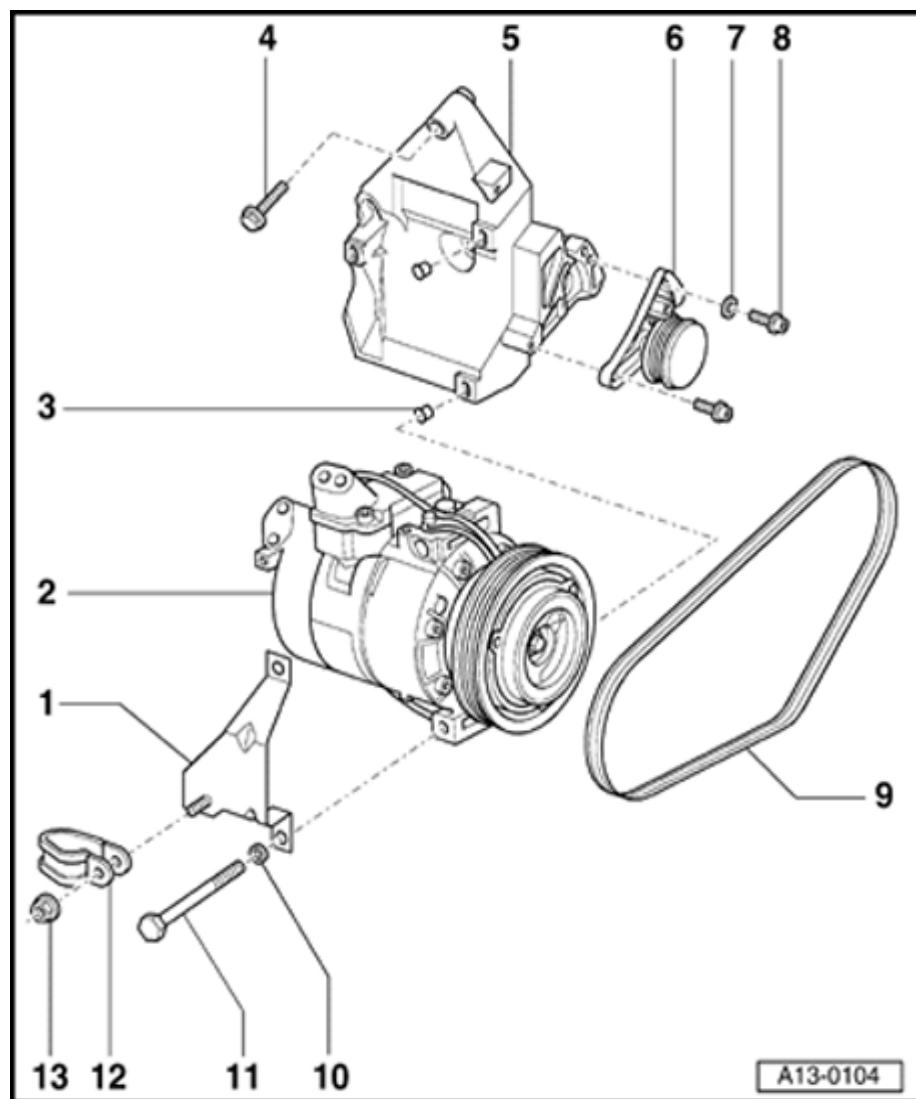
4 - 33 Nm

5 - Bracket

- ◆ For A/C compressor

6 - Tensioner

- ◆ For ribbed belt
- ◆ Removing and installing ribbed belt ⇒ [Page 13-18](#)



7 - Washer

8 - 23 Nm

9 - Ribbed V-belt

◆ Removing and installing ⇒ [Page 13-18](#) .

◆ Check for wear

◆ Do not kink

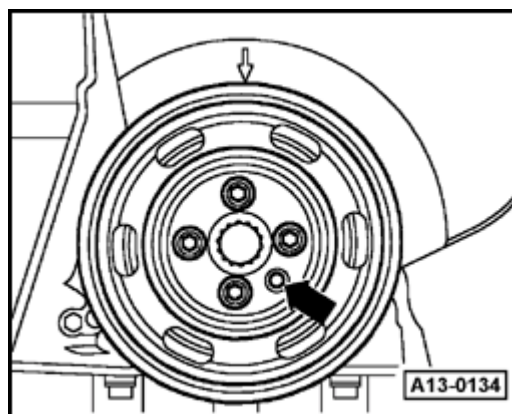
◆ Routing of ribbed belt ⇒ Fig. ⇒ [2](#) , ⇒ [Page 13-17](#)

10 - Washer

11 - 25 Nm

12 - Retaining clip

13 - 20 Nm



A

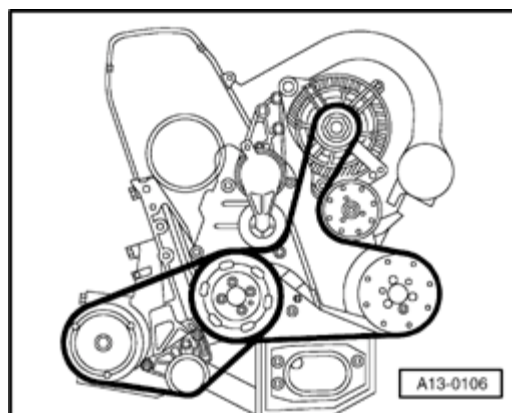
Fig. 1 Installing vibration damper

- Lock carrier must be in service position ⇒ [Page 13-1](#) .
- Ribbed belt must be removed ⇒ [Page 13-18](#) .
- Always replace bolts. Only use original type bolts to install the vibration damper.

⇒ *Parts List*

The vibration damper can only be installed in one position. The hole - arrow- in the vibration damper must fit over the projection on the toothed belt sprocket.

- Tighten bolts of vibration damper to 10 Nm + 90° ($\frac{1}{4}$ turn).



A

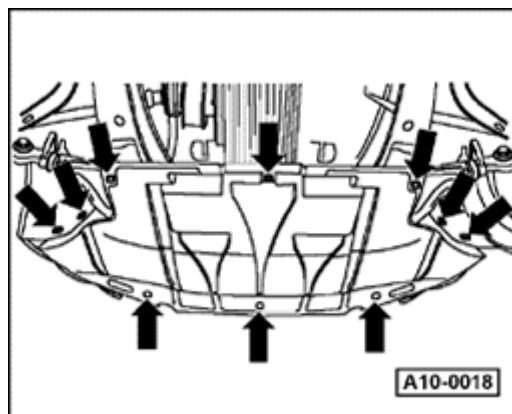
Fig. 2 Ribbed belt routing

Ribbed belt, removing and installing

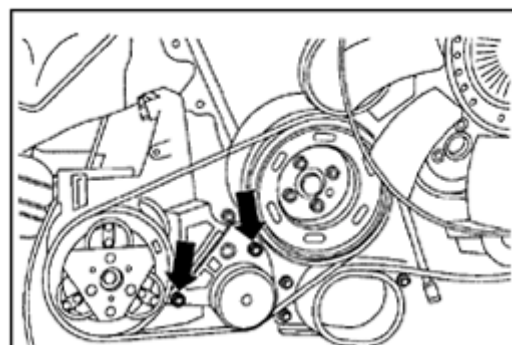
Note:

Mark the direction of rotation with chalk or felt pen before removing the ribbed belt. If the belt rotates in the wrong direction when it is refitted, belt breakage may result. Ensure that the belt is properly seated on the pulleys when installing.

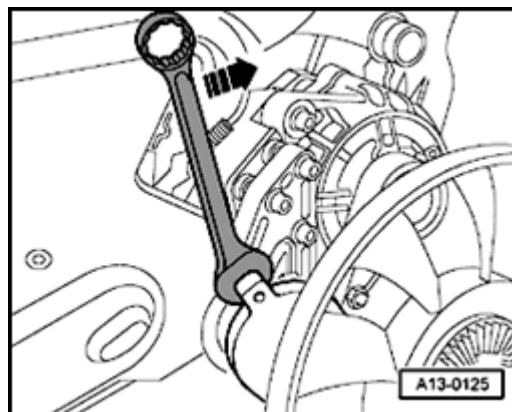
Removing



- A - Remove sound insulation -arrows-.

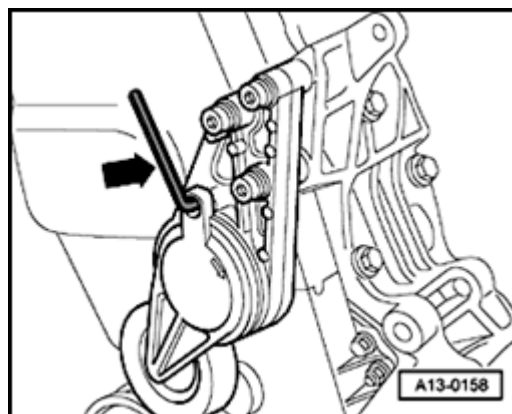


- A - Loosen bolts securing ribbed belt tensioning roller for A/C compressor - arrows-.



- A**
- Turn tensioner in direction of arrow to loosen ribbed belt.
 - Remove ribbed belt from Generator and release tensioner.

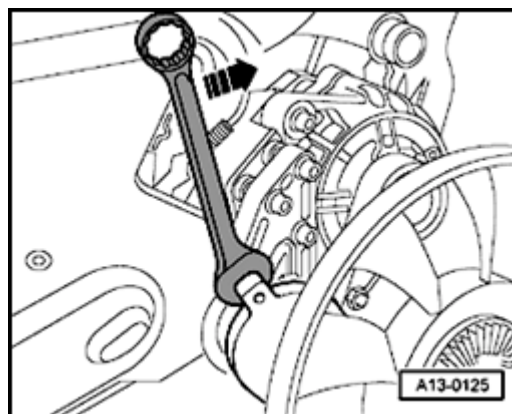
Note:



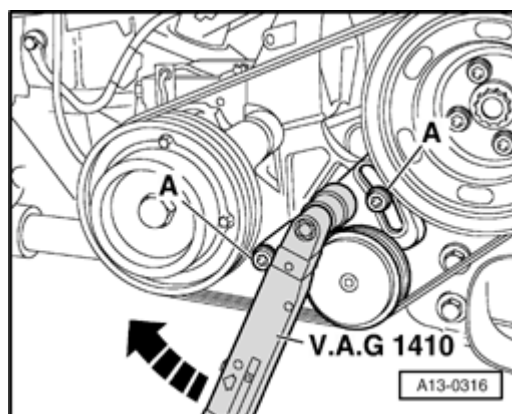
- A**
- When the lock carrier is in the service position, the ribbed belt tensioner can be secured to prevent it from turning by inserting a suitable pin or Allen key -arrow- into the holes.*

Installing

- Attach ribbed belt to pulleys from crankshaft and vane pump and, if necessary, pull up with auxiliary tool.



- A**
 - Swivel tensioner for ribbed belt in direction of arrow.
 - Install ribbed belt over Generator pulley last. Release tensioner.
 - Check that ribbed belt is properly seated.
 - Fit ribbed belt for A/C compressor.
 - ◆ Ribbed belt routing ⇒ Fig. ⇒ [2](#) , ⇒ [Page 13-17](#)

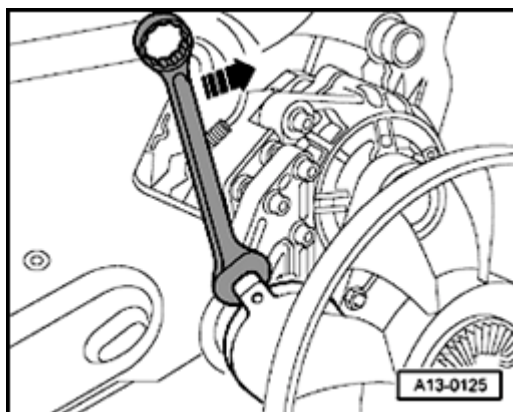


- A**
 - Attach torque wrench at "7 o'clock position" as illustrated to hex on tensioner and pretension to 30 Nm.
 - While tensioning, tighten bolts -A- to 23 Nm.
 - Start engine and check belt running.

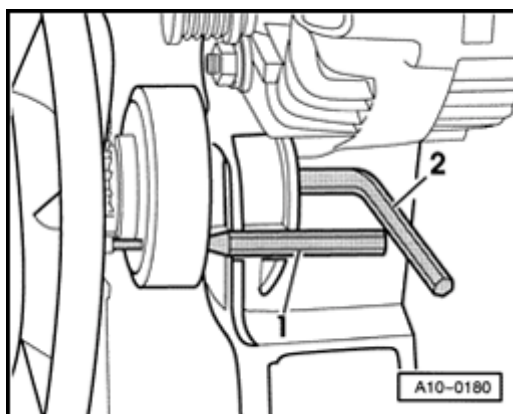
Viscous fan, removing and installing

Removing

- Lock carrier must be in service position ⇒ [Page 13-1](#) .



- A - To loosen ribbed belt, turn tensioner in direction of arrow.
- Remove ribbed belt from Generator pulley.



- A - Secure pulley for viscous fan with pin punch -1- and remove using Allen key -2-.
- Remove viscous fan.

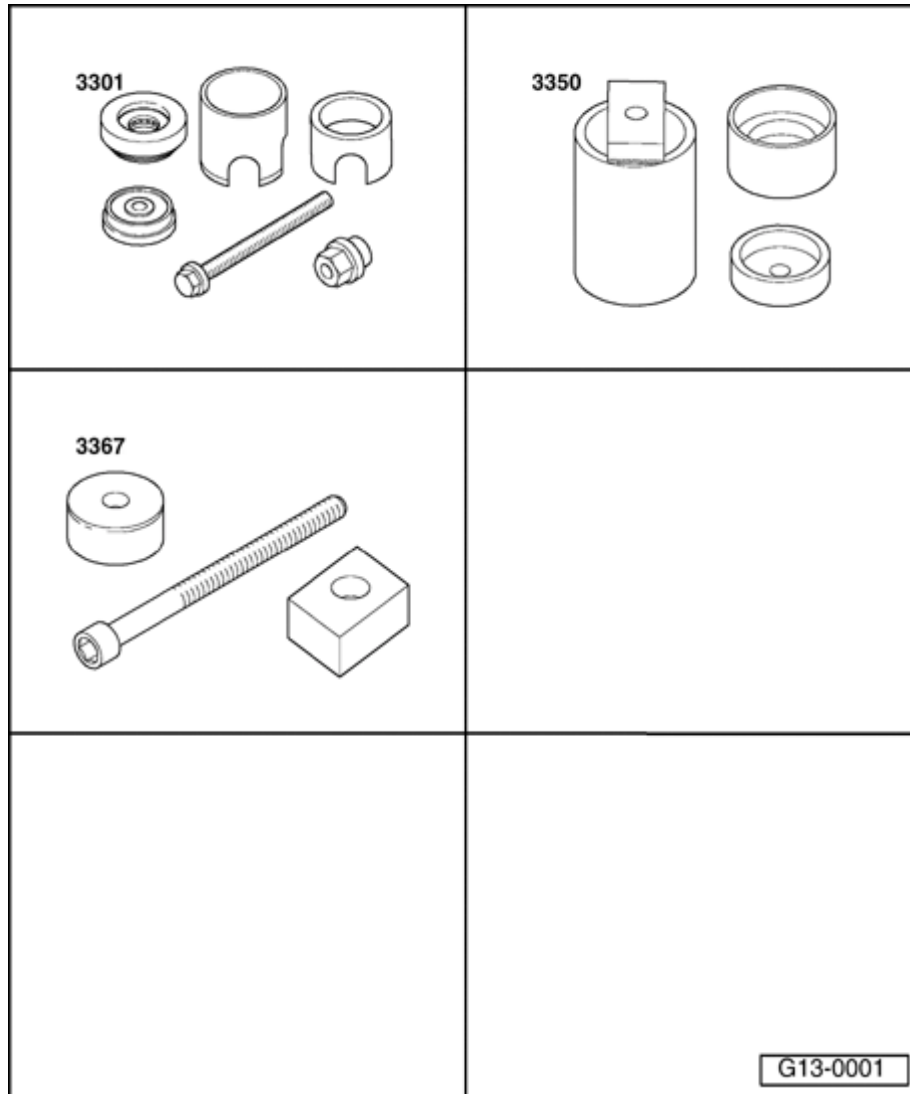
Installing

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

- Install ribbed belt ⇒ [Page 13-20](#) .
- Install lock carrier ⇒ [Page 13-1](#) .

Tightening torque

Component	Nm
Viscous fan to bearing	45



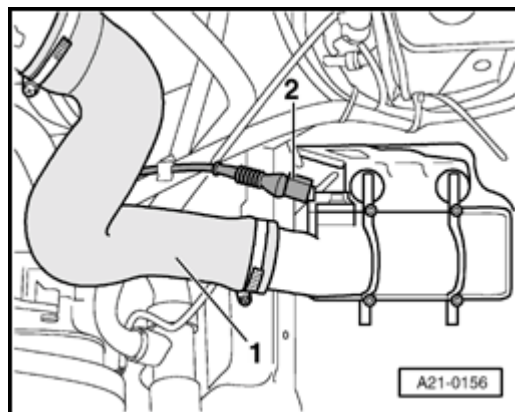
Bearing for viscous fan, removing and installing

Special tools and equipment

- ◆ Special tool 3301
- ◆ Special tool 3350
- ◆ Special tool 3367

Removing

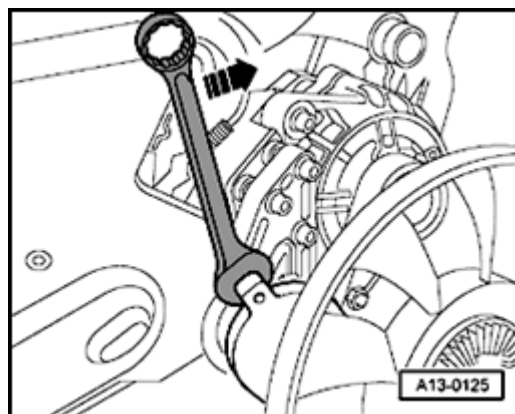
- Lock carrier must be in service position ⇒ [Page 13-1](#) .

**A**

- Remove air duct hose -1-.

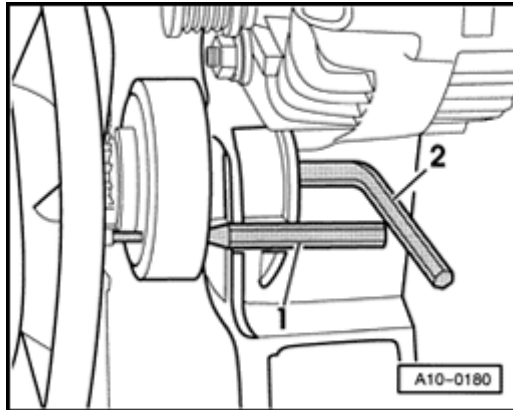
Note:

Connector -2- remains plugged in.

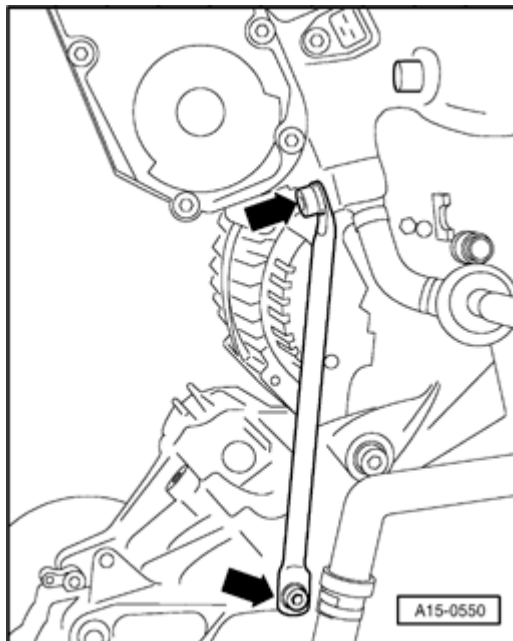
**A**

- Turn tensioner in direction of arrow to loosen ribbed belt.
- Remove ribbed belt from Generator pulley.

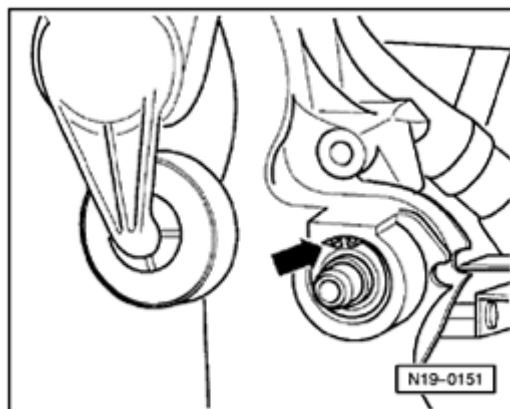
13-25



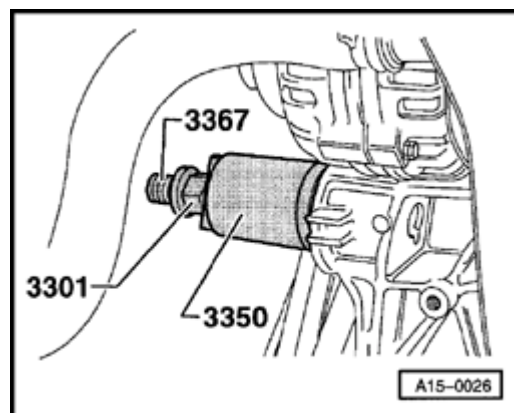
- A**
- Secure pulley for viscous fan with pin punch -1- and remove using Allen key -2-.
 - Remove viscous fan from mounting.



- A**
- Remove intake pipe support -arrows-.



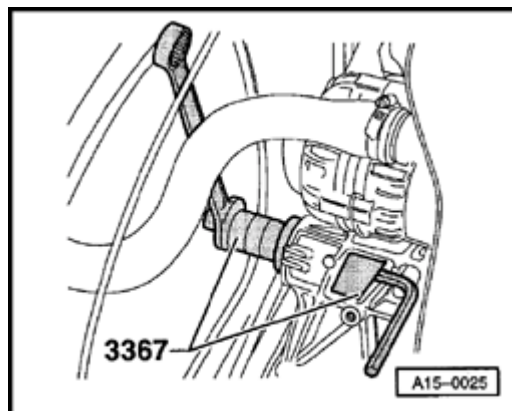
- A** - Remove circlip -arrow- from bearing bushing using angled circlip pliers.



- A** - Remove bearing from housing with nut from assembly mounting 3301, bolt 3367/3 and pipe 3350.

Installing

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

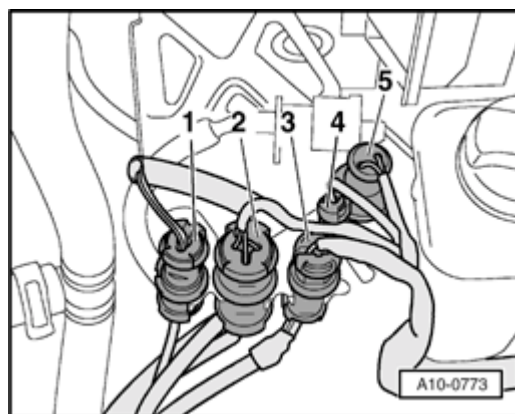


- ▲ - Press in bearing with tool 3367 and nut from assembly mounting 3301.
- Install circlip in housing for viscous fan using angled circlip pliers.
- Install viscous fan ⇒ [Page 13-21](#) .

Bracket for Generator, power steering pump and viscous fan, removing and installing

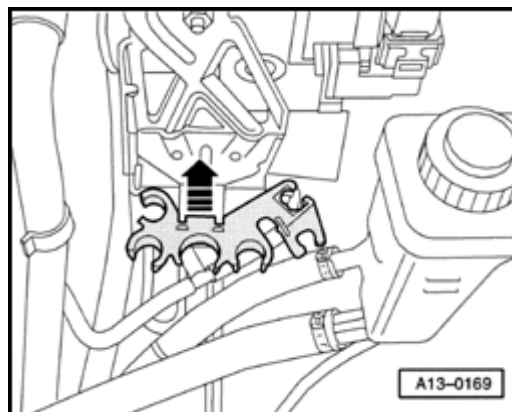
Removing

- Observe or obtain radio anti-theft code on vehicles with coded radio.
- Disconnect Ground strap at battery with ignition switched off.
- Remove cover from power steering fluid reservoir.
- Mark connectors -1 to 5- and remove from bracket.

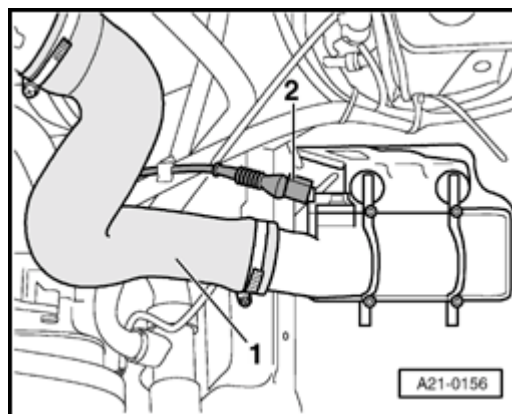


A

13-29



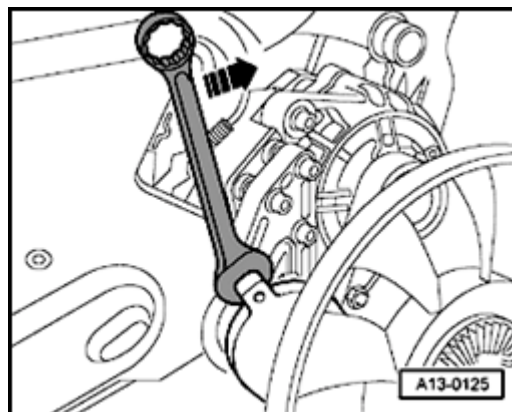
- A** - Unclip connector bracket at ABS unit console and lift up to remove.



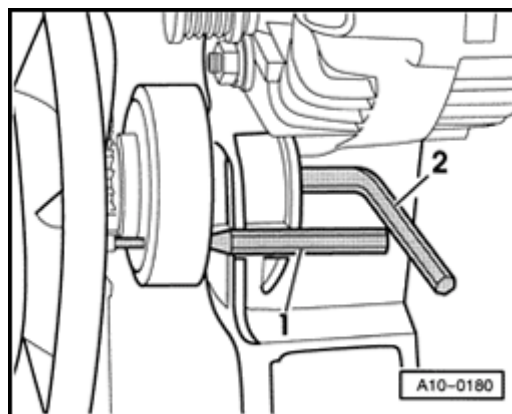
- A** - Remove air duct hose -1-.

Note:

Connector -2- remains plugged in.

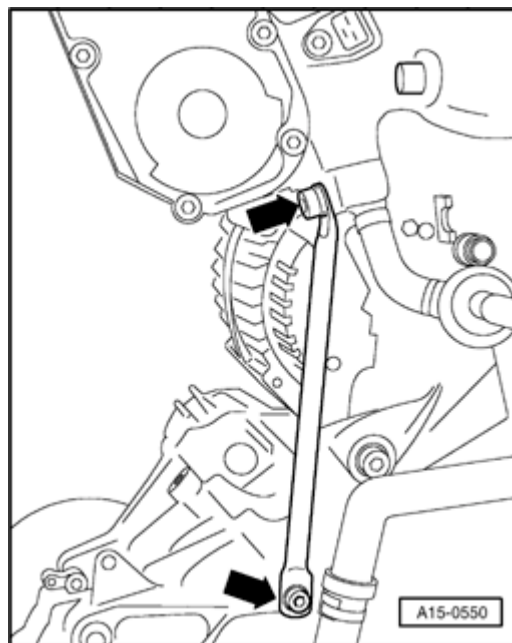


- A**
- To loosen ribbed belt, turn tensioner in direction of arrow.
 - Remove ribbed belt from Generator pulley.

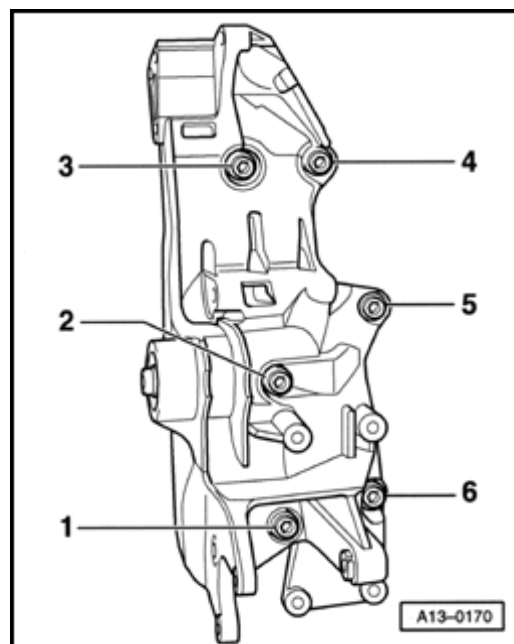


- A**
- Secure pulley for viscous fan with pin punch -1- and remove using Allen key -2-.
 - Remove viscous fan from mounting and put in front of radiator cowl.
 - Remove wiring from rear of Generator.
 - Loosen connections for Generator from top and bottom and remove Generator.

- Remove tensioner for ribbed belt from bracket.
- Remove pulley from power steering pump.
- Unbolt power steering pump, move clear to one side and tie in place. Do not open hydraulic connections.
- A** - Remove intake pipe support -arrows-



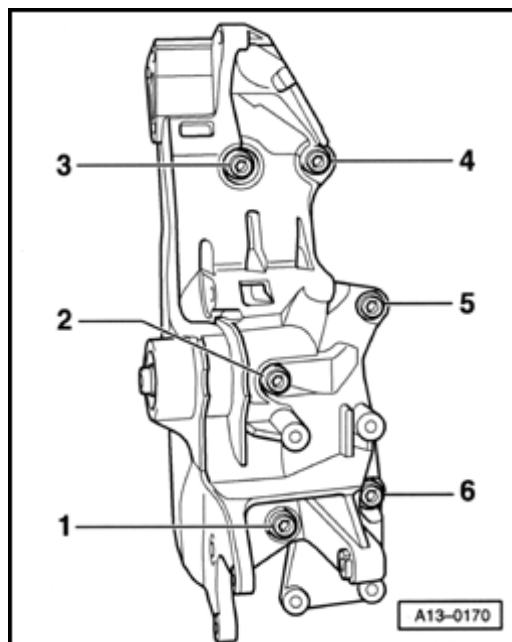
13-32



- A
- Unbolt bracket for Generator, steering pump and viscous fan -bolts 1 to 6-

Installing

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



A

- Install bolts -1 to 6- with locking fluid "D 000 600" and tighten bolts diagonally.
 - 1, 2 - Bolt M10 x 85
 - 3 to 6 - Bolt M10 x 45
- To help install Generator knock back bushing on bottom securing bolt slightly.
- Remove viscous fan ⇒ [Page 13-21](#) .
- Install ribbed belt ⇒ [Page 13-20](#) .
- After connecting battery, enter anti-theft code for radio.
⇒ *Radio operating instructions*
- Close windows fully using window switches.

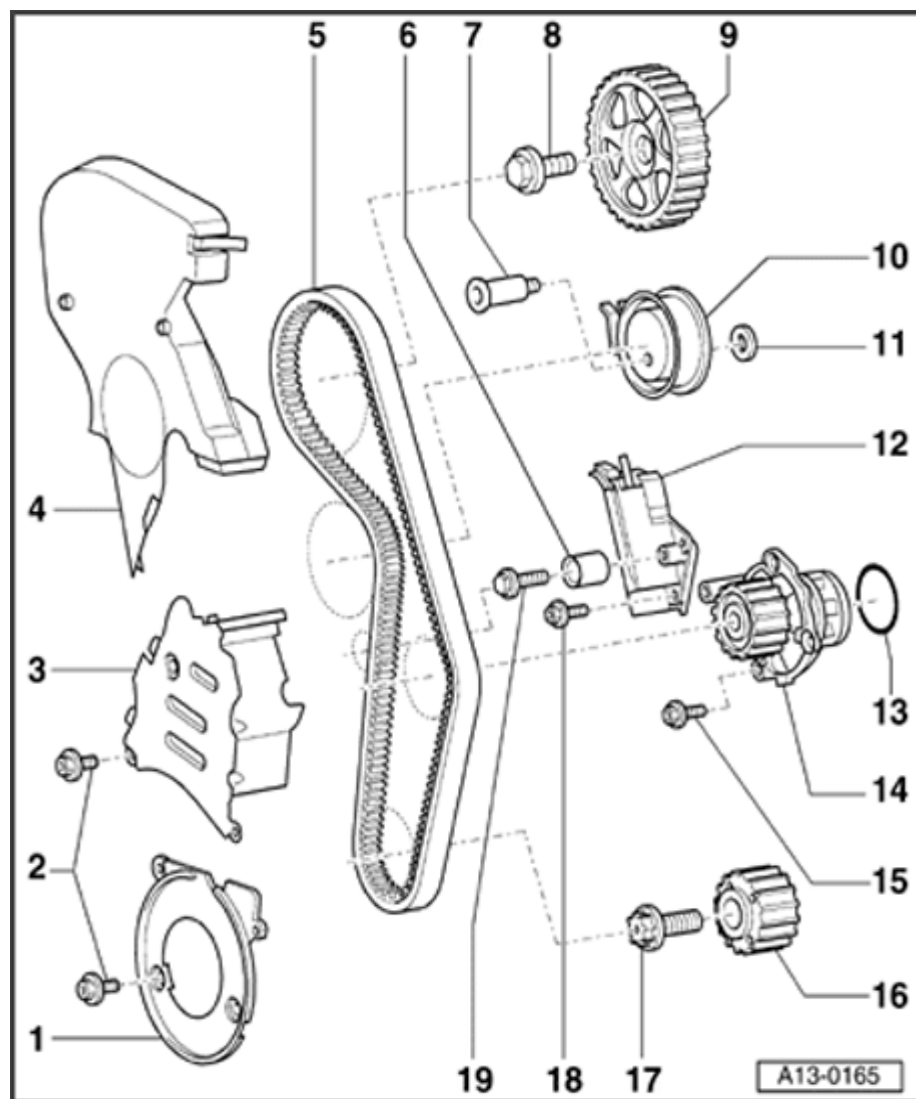
- Actuate all window switches again for at least one second in the "close" direction to activate the automatic open/close function.
- Set clock to correct time.

Tightening torques

Component		Nm
Bracket for Generator, power steering pump and viscous fan to cylinder block		52 1)
Support for intake manifold		
	to intake manifold	20
	to bracket	20
Power steering pump to bracket		23
Pulley to coolant pump		23
Generator at bracket		
	M8	23
	M10	46
Ribbed belt tensioner to bracket		23

Viscous fan to bearing	45
------------------------	----

- 1) Install with locking fluid D 000 600 A2



Toothed belt drive

Note:

Mark the direction of rotation with chalk or felt pen before removing the toothed belt. If the belt rotates in the wrong direction when it is reinstalled, belt breakage may result.

1 - Toothed belt guard - lower

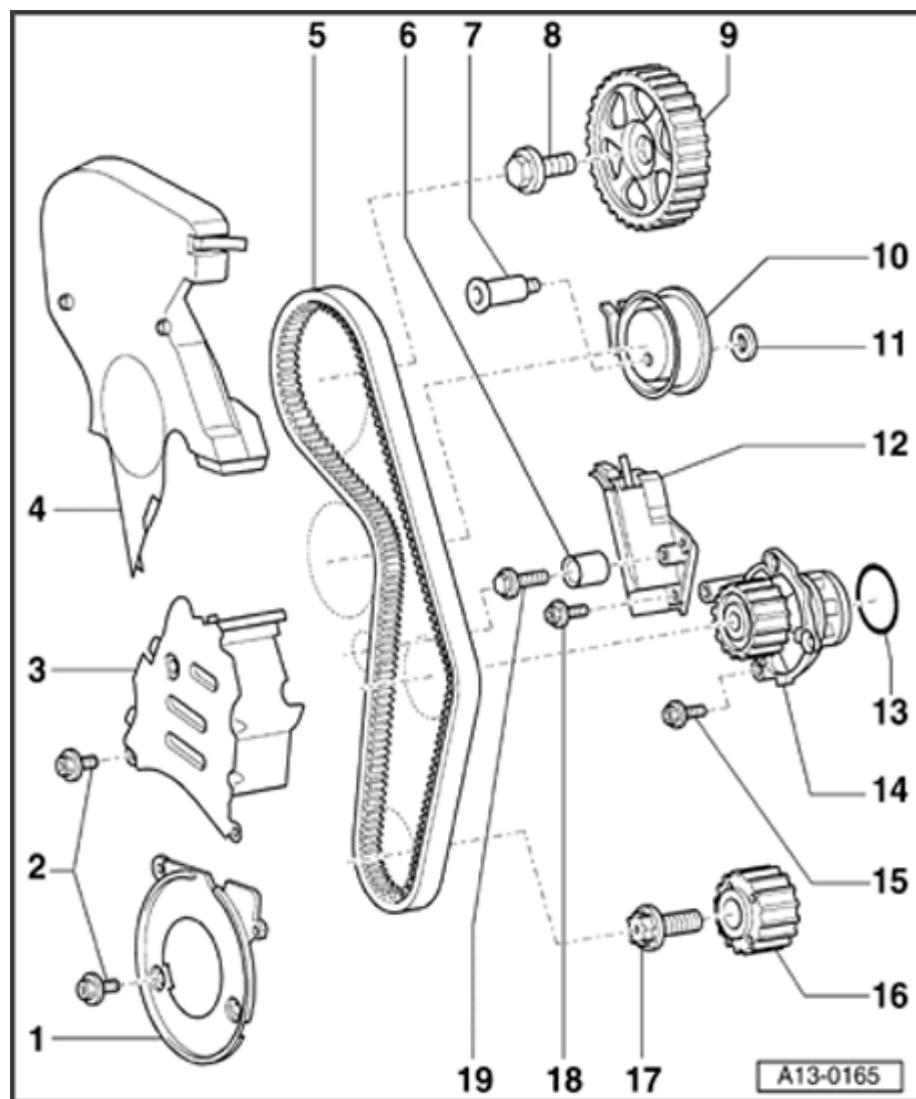
- ◆ To remove, unbolt vibration damper

2 - 10 Nm

- ◆ Apply D 000 600 when installing

3 - Toothed belt guard - center

- ◆ Unbolt tensioner before removing center section of toothed belt guard



4 - Toothed belt guard - top

- ◆ When installing, engage carefully in center toothed belt guard

5 - Toothed belt

- ◆ Mark direction of rotation with chalk or felt pen before removing.
- ◆ Check for wear
- ◆ Removing ⇒ [Page 13-40](#)
- ◆ Install (adjust valve timing) ⇒ [Page 13-44](#)

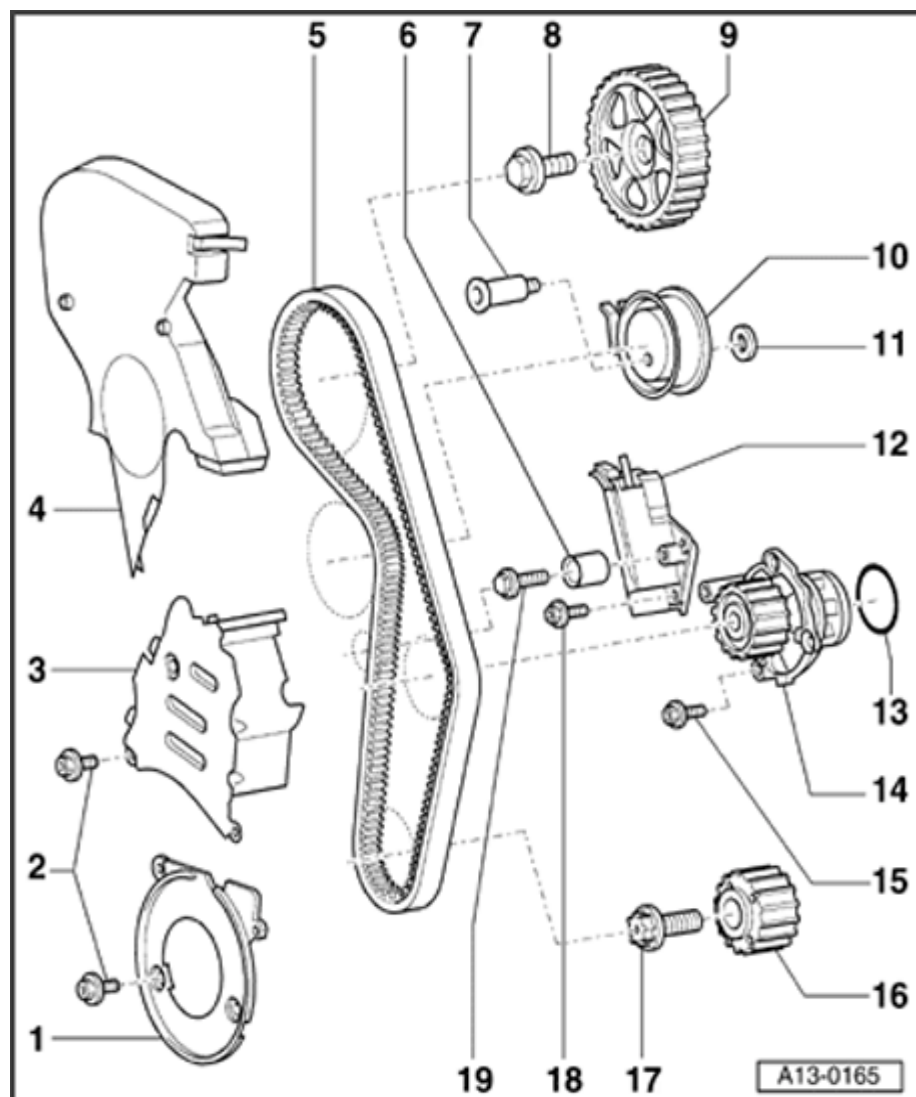
6 - Idler roller

7 - 27 Nm

8 - 65 Nm

- ◆ Counter hold with 3036 to loosen and tighten

13-37



9 - Camshaft sprocket

- ◆ For exhaust camshaft
- ◆ Take off toothed belt before removing and installing ⇒ [Page 13-40](#)
- ◆ Installation position ⇒ Fig. ⇒ [1](#) , ⇒ [Page 13-39](#)

10 - Tensioner

11 - Washer

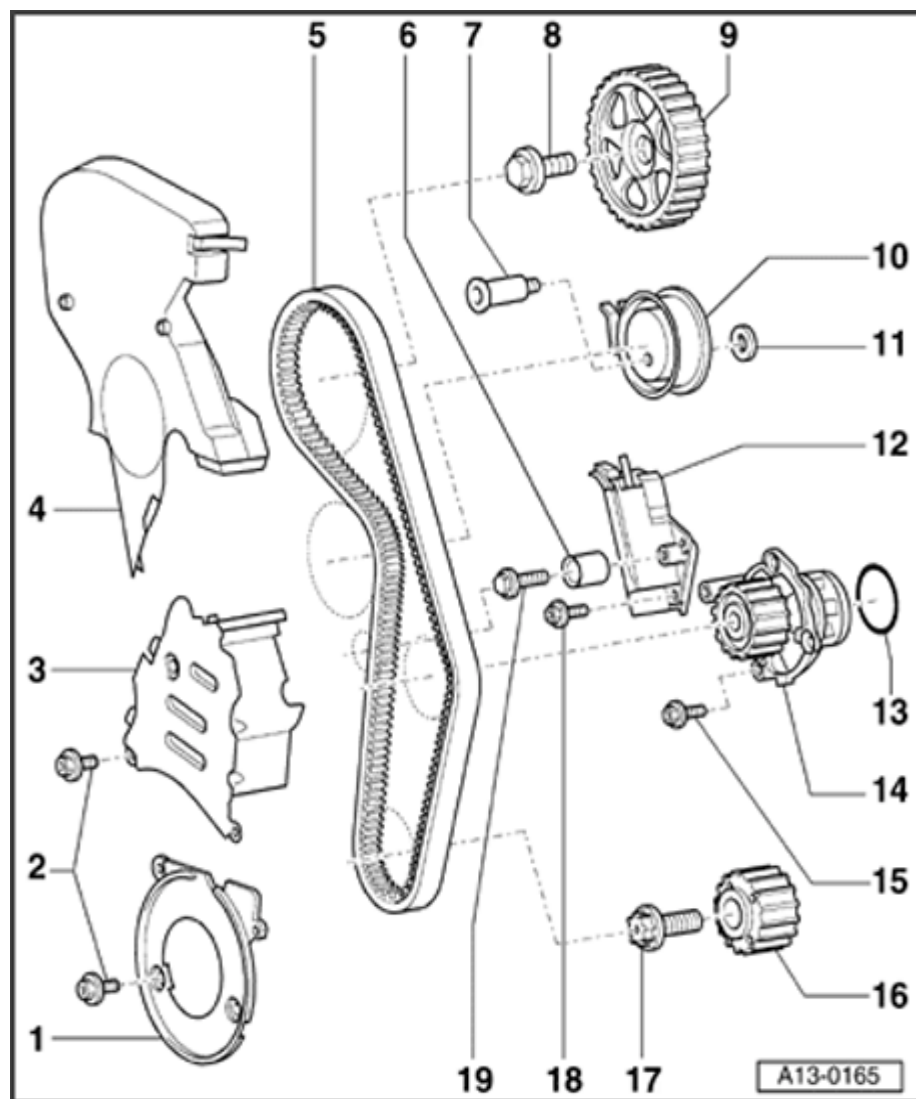
12 - Tensioner for toothed belt

13 - O-ring

- ◆ Always replace
- ◆ Lightly coat with coolant G 012 A8 D before installing

14 - Coolant pump

- ◆ Removing and installing ⇒ [Page 19-12](#)



15 - 15 Nm

16 - Crankshaft sprocket

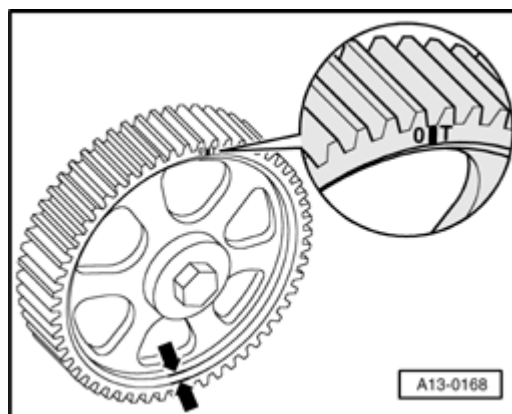
- ◆ Contact surface between sprocket and crankshaft must be free of oil.
- ◆ Can only be installed in one position.

17 - 90 Nm + 1/4 turn (90°) further

- ◆ Always replace
- ◆ Do not use oil
- ◆ Counter hold with 3415 to loosen and tighten
- ◆ Fasten counterhold 3415 ⇒ Fig. ⇒ [2](#), ⇒ [Page 13-39](#)

18 - 15 Nm

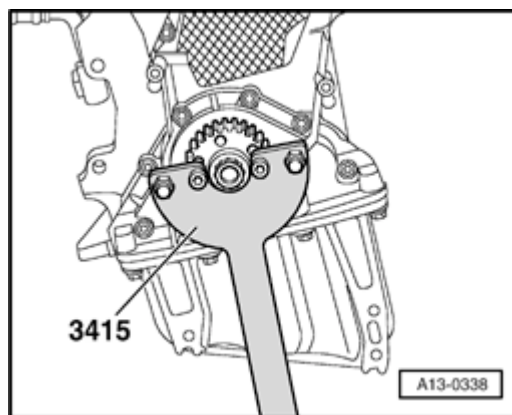
19 - 25 Nm



A

Fig. 1 Location of camshaft sprocket

- ◆ The narrow web of the camshaft sprocket faces outward -arrows- and the marking for TDC of cylinder 1 is visible from front.



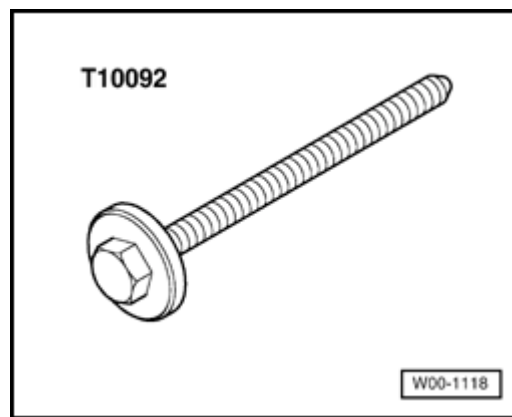
A

Fig. 2 Removing and installing toothed belt crankshaft

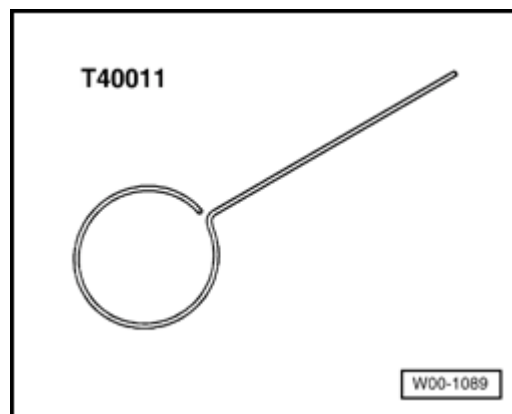
- Use counter-hold tool 3415 to loosen and tighten the central bolt.

Toothed belt, removing and installing

Special tools and equipment



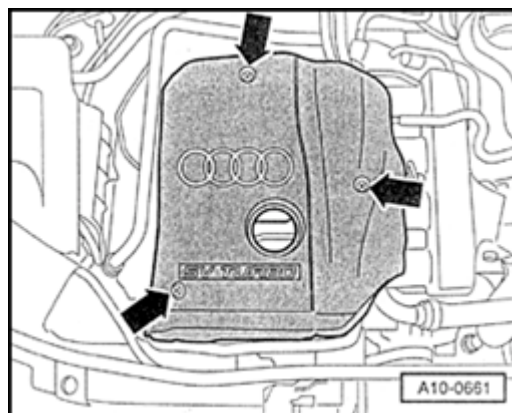
- ◆ Socket head fastener T10092



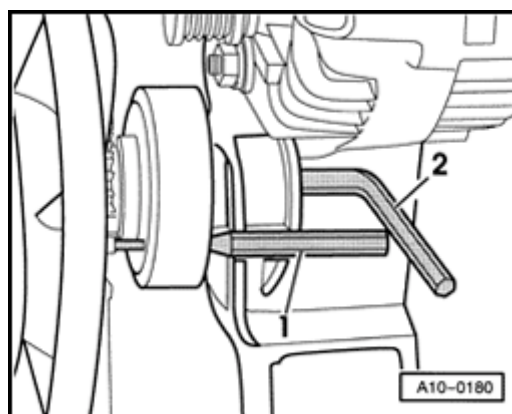
- ◆ Pin T40011

Removing

- Engine in vehicle.
- Lock carrier must be in service position ⇒ [Page 13-1](#) .

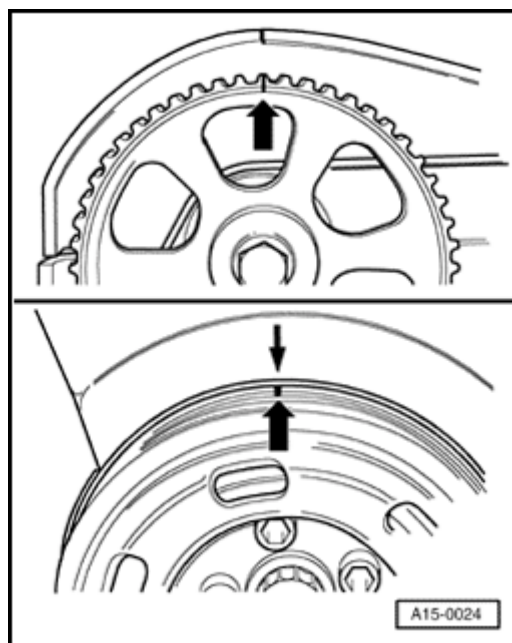


- A**
- Remove engine cover -arrows-.
 - Remove ribbed belt and tensioner for ribbed belt ⇒ [Page 13-18](#) .

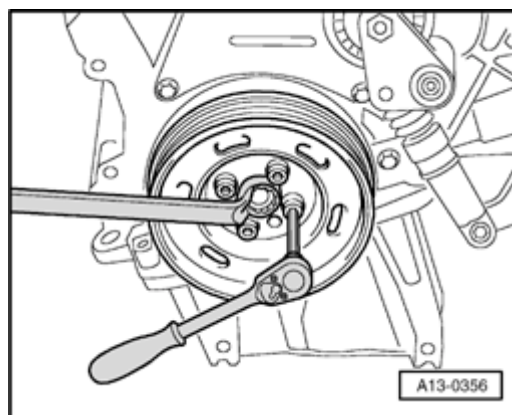


- A**
- Secure pulley for viscous fan with pin punch -1- and remove using Allen key -2-.
 - Remove viscous fan from mounting.
 - Remove upper toothed belt guard.

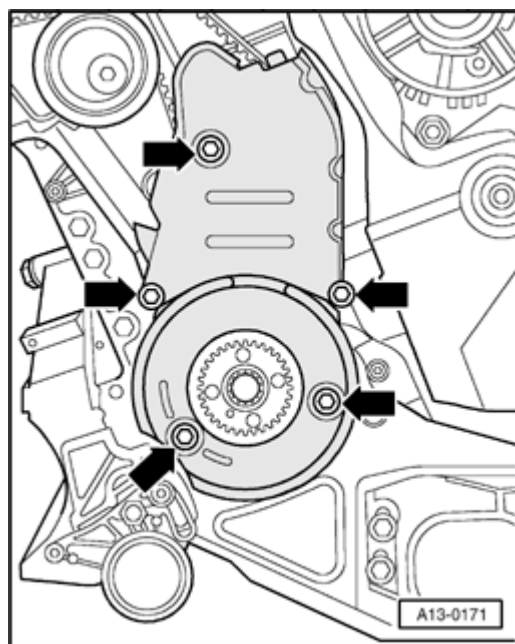
- Mark direction of rotation of belt with chalk or felt pen.



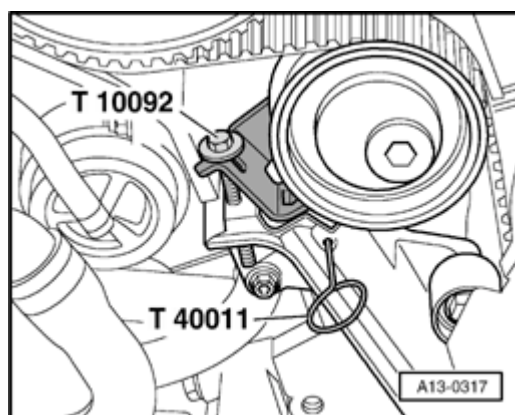
- A - Set crankshaft to markings for TDC of No. 1 cylinder by turning central bolt on crankshaft sprocket in direction of rotation -arrows-.



- A - Unbolt vibration damper.



- A**
- Unbolt lower and center section of toothed belt guard -arrows-.

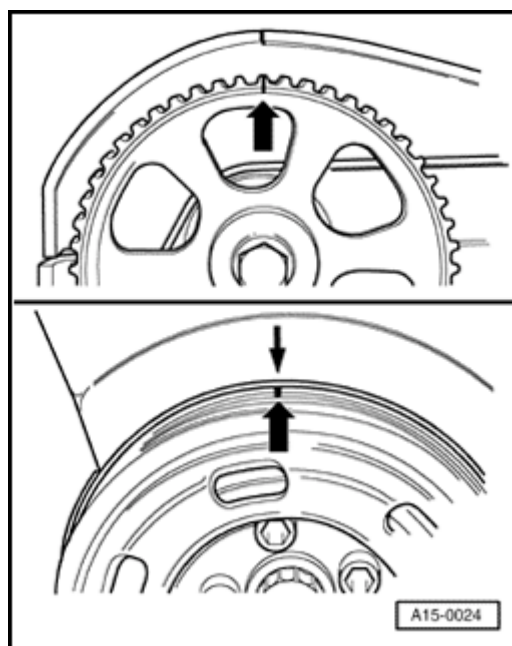


- A**
- Attach socket head fastener T10092 into the tensioner for toothed belt.
 - Only tension pressure piston of tensioner until pressure piston is secured with pin T40011.
 - Take off toothed belt.

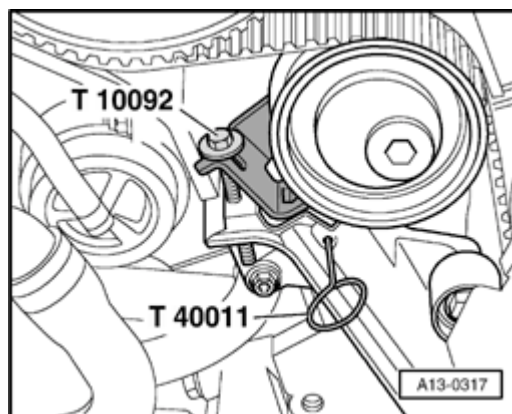
Installing (adjusting valve timing)

Note:

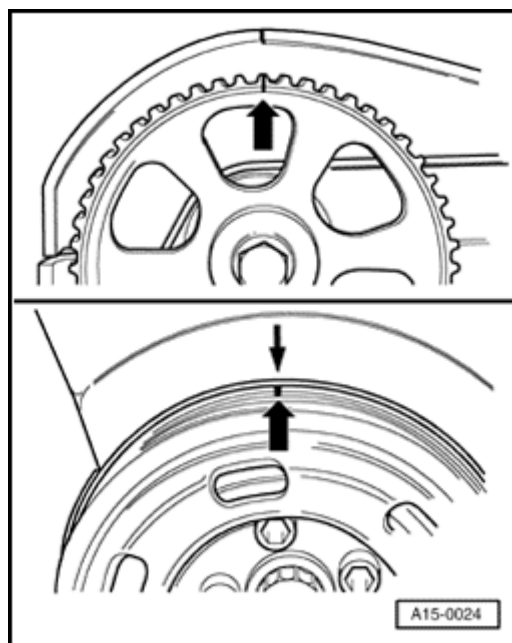
- ◆ *The position of the toothed belt must be set as described below, even after repairs in which the belt is only taken off the camshaft sprocket.*
- ◆ *When turning the camshaft, the crankshaft must not be at TDC at any cylinder. There is a danger of damage to valves/piston crown.*

**A**

- Align marking on camshaft sprocket with marking at cylinder head cover.
- Place toothed belt on crankshaft sprocket (observe direction of rotation).
- Install toothed belt guard - lower part.
- Secure vibration damper/belt pulley with one bolt (note installation arrangement).
- Set crankshaft to TDC for cylinder No. 1.
- Install toothed belt onto coolant pump, then tensioning roller, and finally camshaft sprocket.



- A**
- Unscrew socket head fastener T10092.
 - Pull out pin T40011 from tensioner.
 - ◆ The pressure piston of the tensioner for the toothed belt loosens.



- A**
- Turn crankshaft two full turns in direction of rotation (by turning central bolt on crankshaft sprocket) and check that camshaft and crankshaft marks align with their reference points.
 - Install vibration damper/belt pulley.
 - Install toothed belt guard (center and top sections).
 - Install viscous fan ⇒ [Page 13-21](#) .
 - Install ribbed belt and tensioner for ribbed belt ⇒ [Page 13-20](#) .

Tightening torques

Component	Nm
Lower section of toothed belt guard to cylinder block	10 ¹⁾
Center section of toothed belt guard to cylinder block	10 ¹⁾
Vibration damper/belt pulley to crankshaft	10 + 90 ° 2)3)
Ribbed belt tensioner to bracket	23

1) Install with locking fluid D 000 600 A2

2) Replace bolts

3) 90 ° corresponds to a quarter turn