



Drive shaft, servicing

Removing and installing drive shafts

Removing

- Unbolt hex bolt for drive shaft. (Loosen only when vehicle is standing on wheels -danger of accident-).

- Remove wheel.

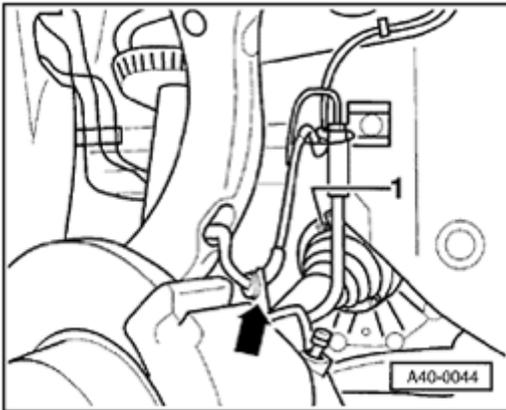
A

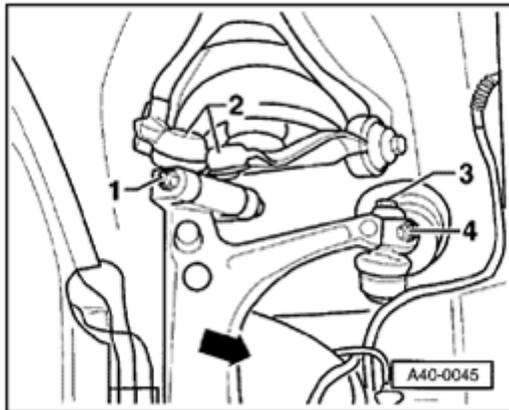
- Unbolt drive shaft at flange shaft.

1 - hex key head bolt or multi-point key head bolt

- Disconnect ABS vehicle speed sensor wiring out of retainer on brake caliper - arrow-.

- Disconnect ABS vehicle speed sensor out of wheel bearing housing slightly.





A

- Remove nut -1-, take out hex bolt and pull both links -2- out upward.

The slits in the wheel bearing housing must not be widened using a chisel or similar tool!

If the hex bolt cannot be removed from the wheel bearing housing, then the hex bolt and the links -2- must be pressed out of the wheel bearing housing ⇒ [Page 40-29](#) .

Note:

- ◆ *Do not loosen bolts -3- and -4- otherwise the front axle alignment is changed!*
- Swing wheel bearing housing in direction of arrow away to side.
- Remove drive shaft.

Installing

- Insert drive shaft onto transmission shaft and into wheel bearing housing.
- Insert upper links into wheel bearing housing, insert new bolt and tighten new nut -2- ⇒ [Page 40-14](#) , item 9 .



- When tightening press upper links downward as far as possible!
- Bolt drive shaft to transmission.
- Tighten multi-point socket head bolts to prescribed tightening torque using diagonal sequence.
- Install inner joint to drive shaft and initially tighten bolts diagonally to 10 Nm.

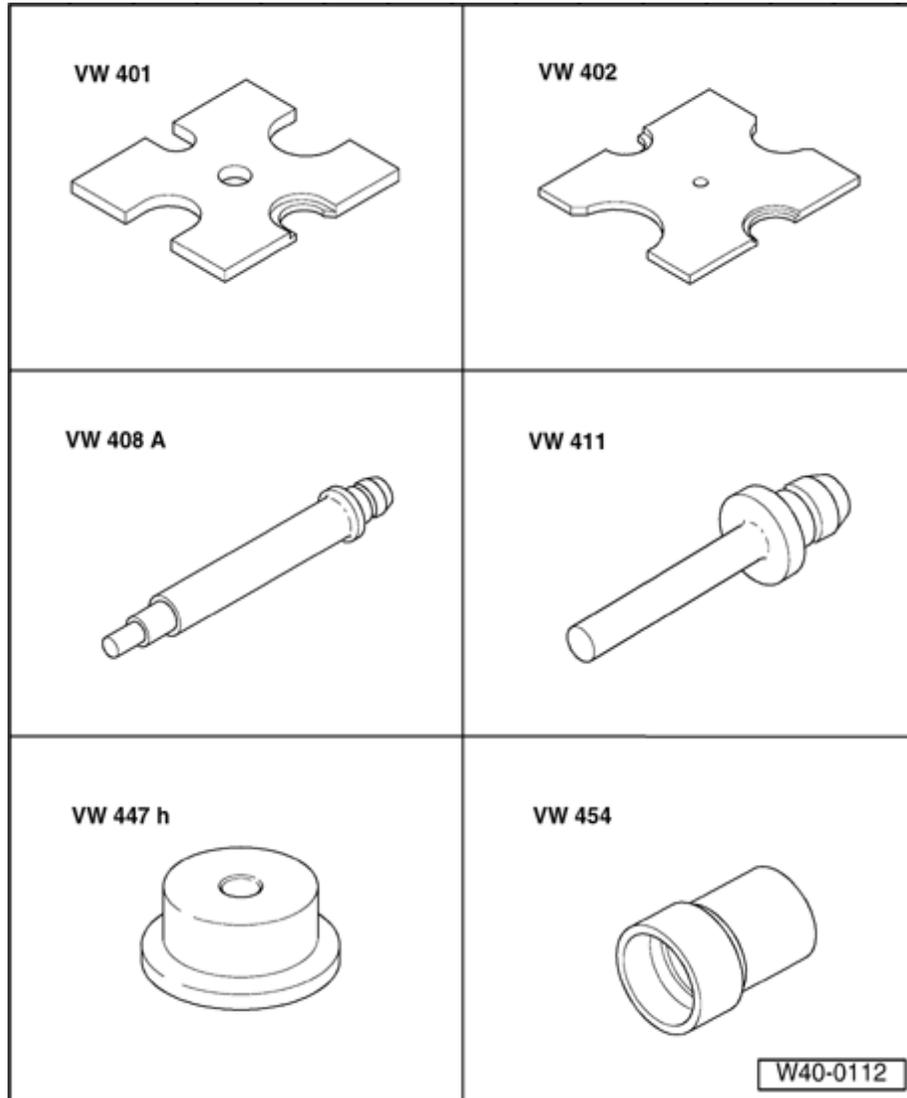
Multi-point socket head bolt M 8 x 48 ⇒
[Page 40-123](#) , item 15

Multi-point socket head bolt M 10 x 20 ⇒
[Page 40-123](#) , item 15

Multi-point socket head bolt M 10 x 48 ⇒
[Page 40-132](#) , item 13

- Push ABS vehicle speed sensor into wheel bearing housing onto stop and insert cable in retainer on brake caliper.

- Install wheel and tighten ⇒ [Page 44-1](#) .
- Tighten drive shaft hex bolt only with vehicle standing on its wheels -danger of accident- ⇒ [Page 40-123](#) , item 14 .

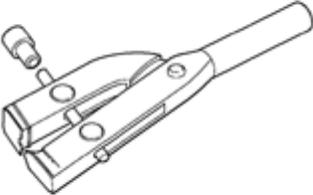
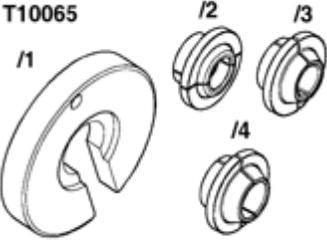


Drive shaft with constant velocity joint, servicing

Special tools, workshop equipment, test and measuring appliances and aux. items required

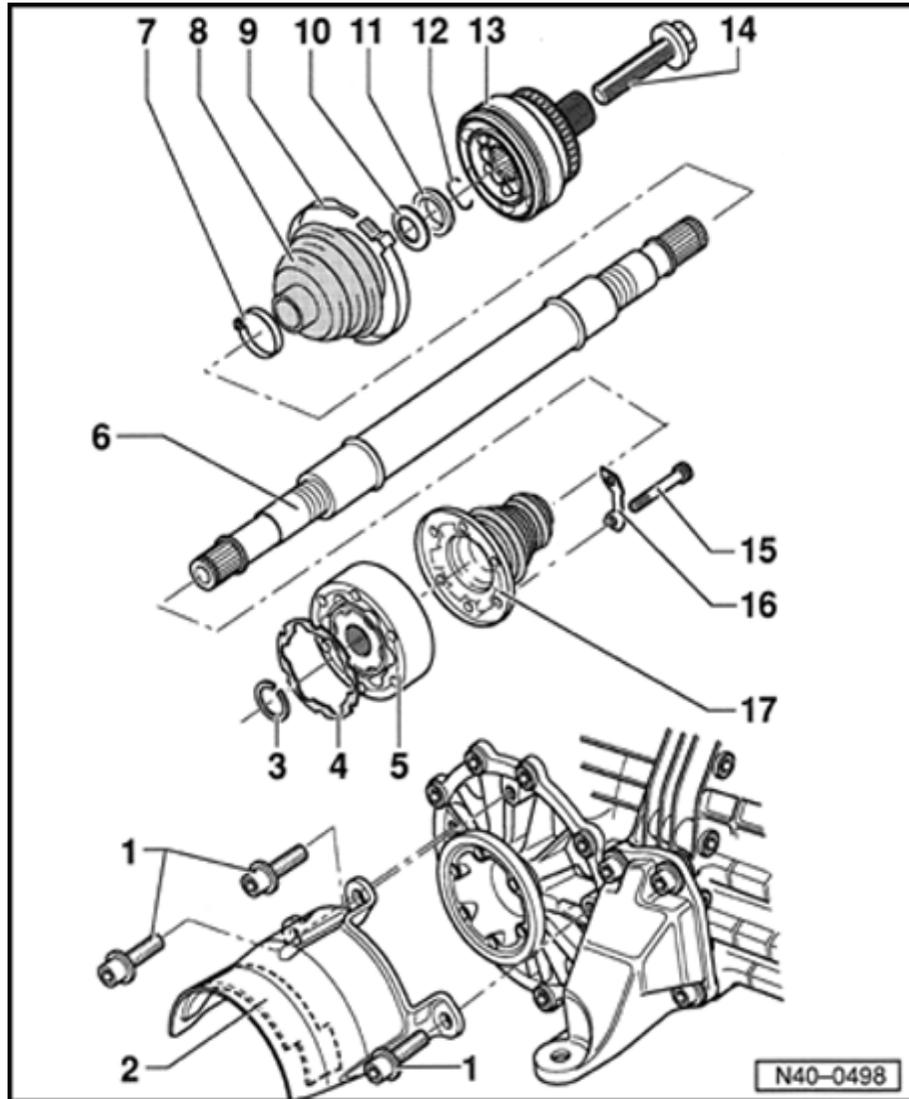
- ◆ VW 401 Thrust plate
- ◆ VW 402 Thrust plate
- ◆ VW 408 A Press tool
- ◆ VW 411 Press tool
- ◆ VW 447 H Press plate
- ◆ VW 454 Press piece



<p>VW 161 A</p> 	<p>V.A.G 1331</p> 
<p>V.A.G 1332</p> 	<p>V.A.G 1682</p> 
<p>T10065</p> 	<p>W40-0101</p>

Special tools, workshop equipment, test and measuring appliances and aux. items required

- ◆ VW 161 A Circlip pliers
- ◆ VAG 1331 Torque wrench
- ◆ VAG 1332 Torque wrench
- ◆ VAG 1682 Tension clamp
- ◆ T10065 Assembly device

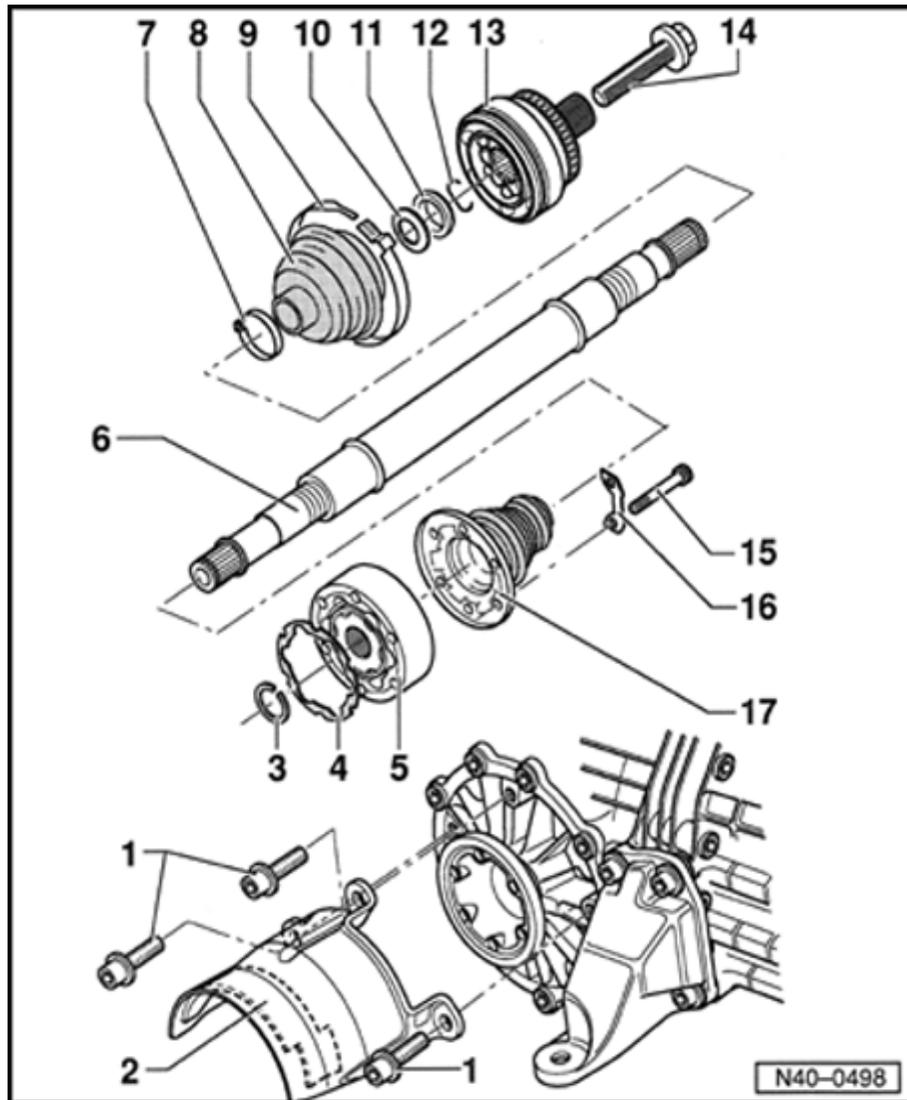


Grease quantity and type

Constant velocity joints are packed with grease G 000 603:

Outer joint diametermm	Grease Total quantity [g]	of total:	
		in joint [g]	in protective boot [g]
88	90	40	50
98	120	80	40
Inner joint			
Outer joint diametermm			
100	90	40	50
108	120	35	85

Regrease joint, if necessary, when replacing the protective boot.



1 - Hex key head bolt, 25 Nm

2 - Heat shield

3 - Circlip

- ◆ Always replace
- ◆ Remove and install with VW 161 a

4 - Gasket

- ◆ Replacing. Pull off protective foil and stick onto joint.

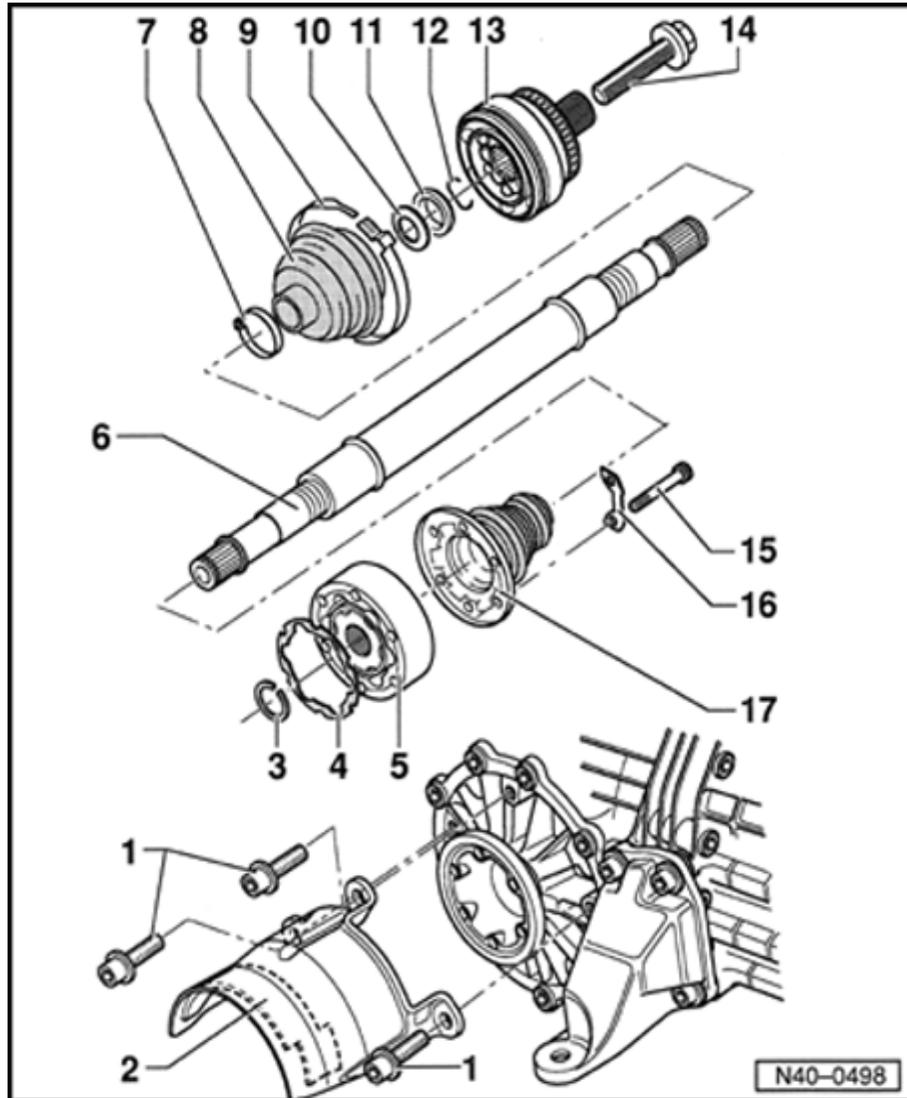
5 - Inner constant velocity joint

- ◆ Outer diameter 100 or 108 mm depending on engine/transmission combination
- ◆ Only replace complete
- ◆ Pressing off ⇒ Fig. ⇒ [3](#)
- ◆ Pressing on ⇒ Fig. ⇒ [4](#)

6 - Drive shaft (tube shaft)

7 - Hose clip

- ◆ Always replace



8 - Protective boot

- ◆ Check for tears and chafing

9 - Hose clip

- ◆ Always replace
- ◆ Tensioning ⇒ Fig. ⇒ [1](#) and Fig. ⇒ [5](#)

10 - Dished washer

- ◆ Outer diameter (concave side) contacts thrust washer

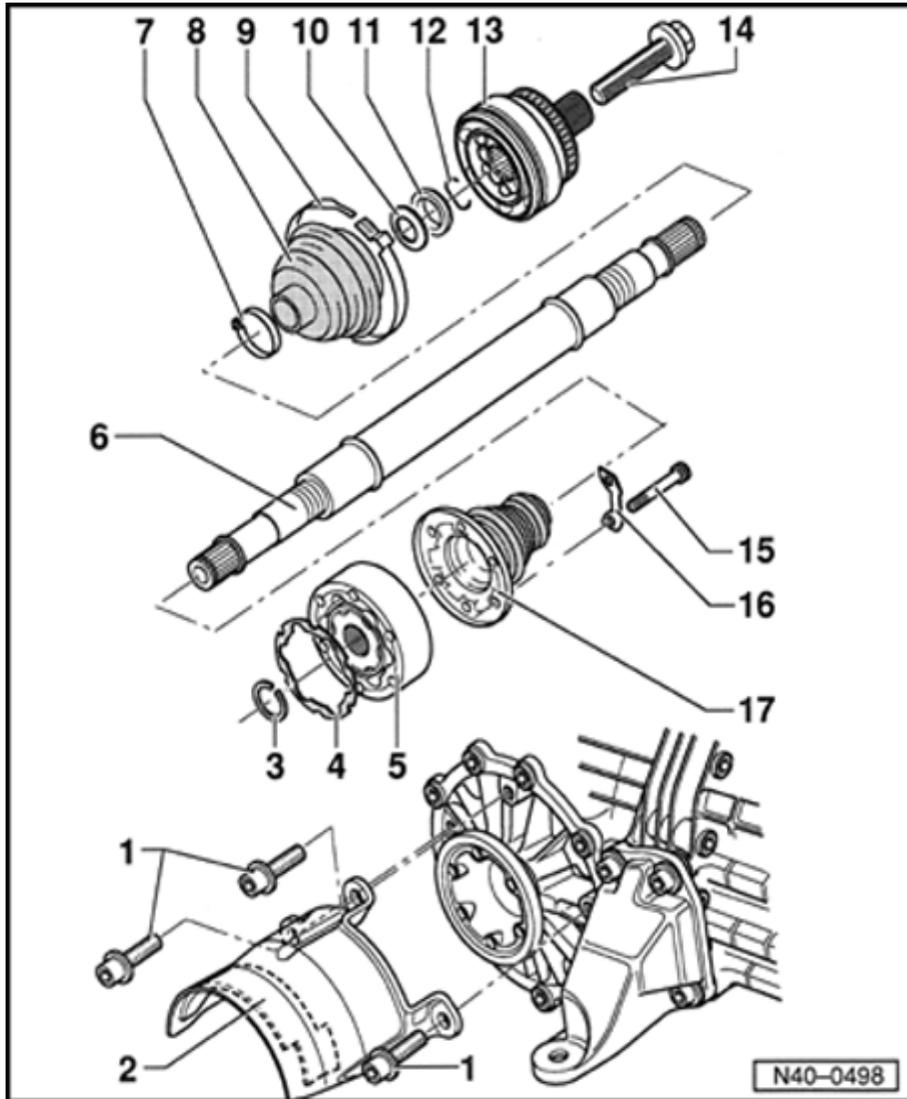
11 - Thrust washer

12 - Circlip

- ◆ Always replace
- ◆ Insert in shaft groove

13 - Outer constant velocity joint

- ◆ Only Replace complete
- ◆ Removing ⇒ Fig. ⇒ [2](#)
- ◆ Installing: drive onto shaft on to stop with plastic hammer



14 - Hex bolt

- ◆ Changed to hex key head bolt
 - ◆ Replace each time after removing
- Vehicle must be standing on ground when tightening
- Tightening torque:

Bolt M14:

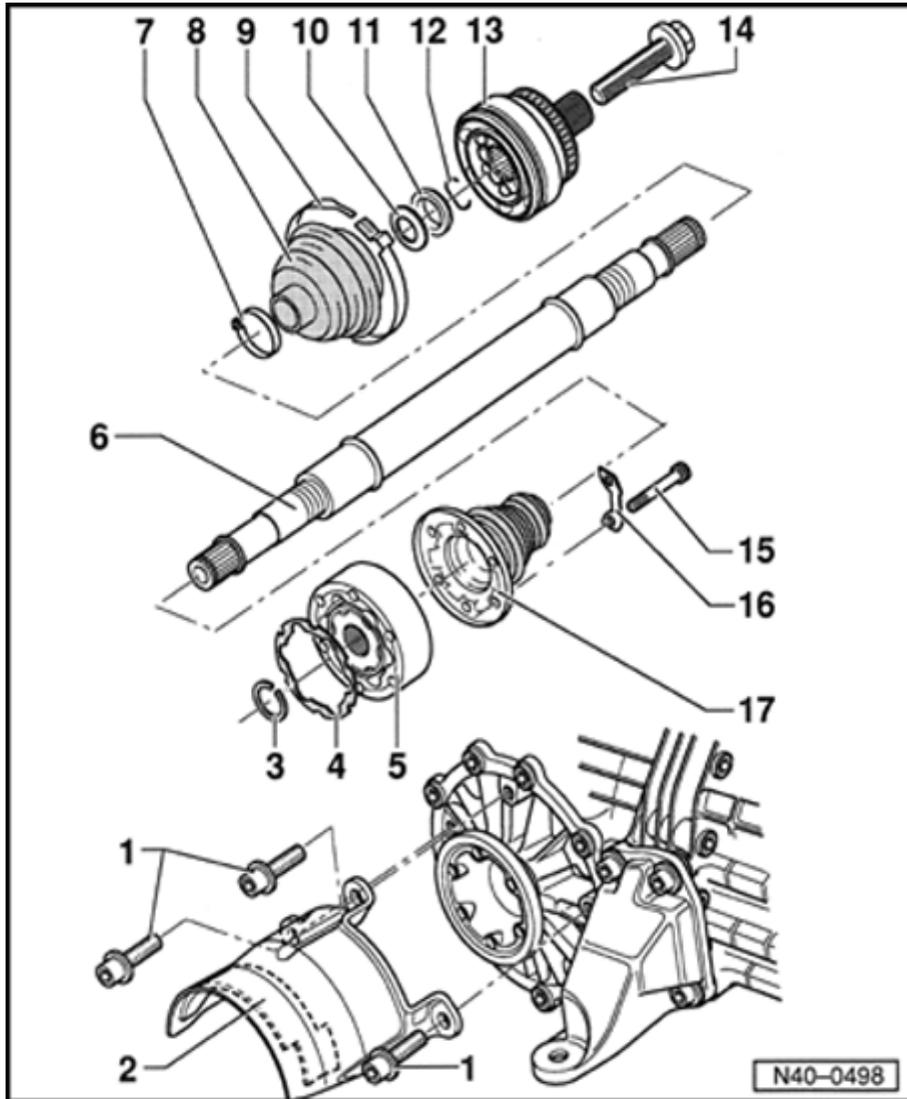
- ◆ 115 Nm and turn 180° further

Bolt M16:

- ◆ 190 Nm and turn 180° further

15 - Multi-point socket head bolt

- ◆ Tighten using diagonal sequence to 10 Nm
- ◆ M 8 x 48; 40 Nm
- ◆ M 10 x 48; 77 Nm



16 - Plate

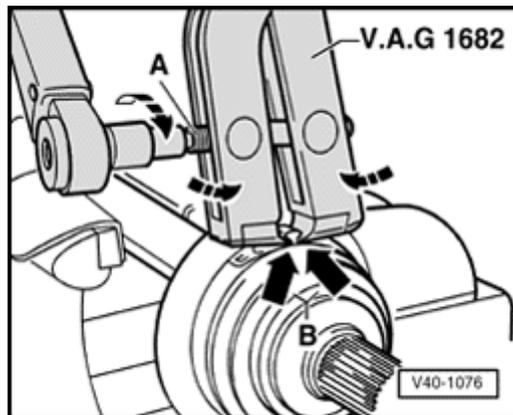
17 - Protective boot for inner constant velocity joint

- ◆ Check for tears and chafing
- ◆ Drive off with drift
- ◆ Before installing on constant velocity joint, coat sealing surface with D-3



Joint protective boots made from rubber are tightened with pliers VAG 1275.

The instructions in Fig. 1 are only for hose clamps made from stainless steel!



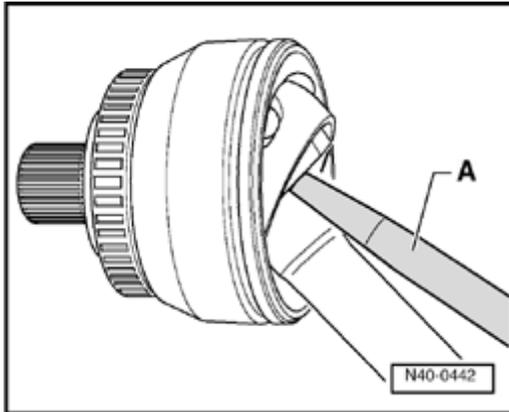
A

Fig. 1 Tightening hose clamp on outer joint

- Install tensioning clamp VAG 1682 as shown in illustration. Thereby ensure that the jaws of the tension clamp seat in the corners (arrow B) of the hose clip.
- Tighten hose clamp by turning the spindle with a torque wrench (do not bend tensioning clamp).

Notes:

- ◆ *The hard material of the joint boot (compared to rubber) makes it necessary to use a stainless steel hose clamp, it is only possible to tighten the hose clamp with tensioning clamp VAG 1682.*
- ◆ *Tightening torque: 20 Nm.*
- ◆ *Use torque wrench with 5...50 Nm range (e.g. VAG 1331).*
- ◆ *Make sure the the spindle thread is not tight. If necessary lubricate with MOS 2 grease*
- ◆ *If the thread is tight e.g. dirty, the required tensioning force for the hose clamp will not be achieved in spite of correct tightening torque settings.*



A

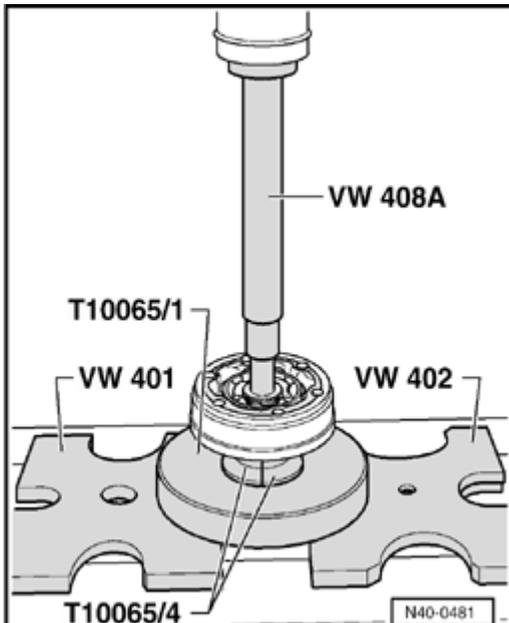
Fig. 2 Pressing off outer constant velocity joint

- Clamp drive shaft in vice using vice clamps.
- Remove hose clip and slide back boot.
- Drive constant velocity joint off drive shaft using drift -A-.

Drive must be applied exactly on star of constant velocity joint.

Driving joint on

- Drive onto shaft with plastic hammer until securing ring engages.

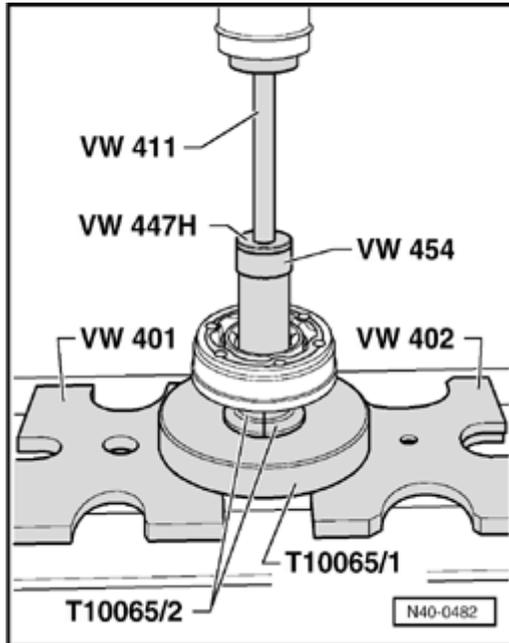


A

Fig. 3 Pressing off inner constant velocity joint

Notes:

- ◆ First drive boot off with drift



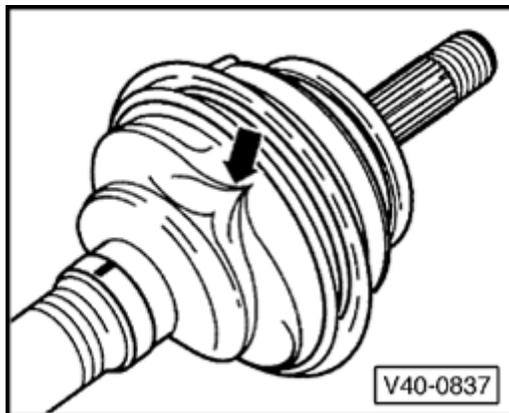
A

Fig. 4 Pressing on inner constant velocity joint

- Press on joint up to stop.
- Insert circlip.

Note:

Chamfer on inner diameter of ball hub (splines) must face the contact shoulder on the drive shaft.

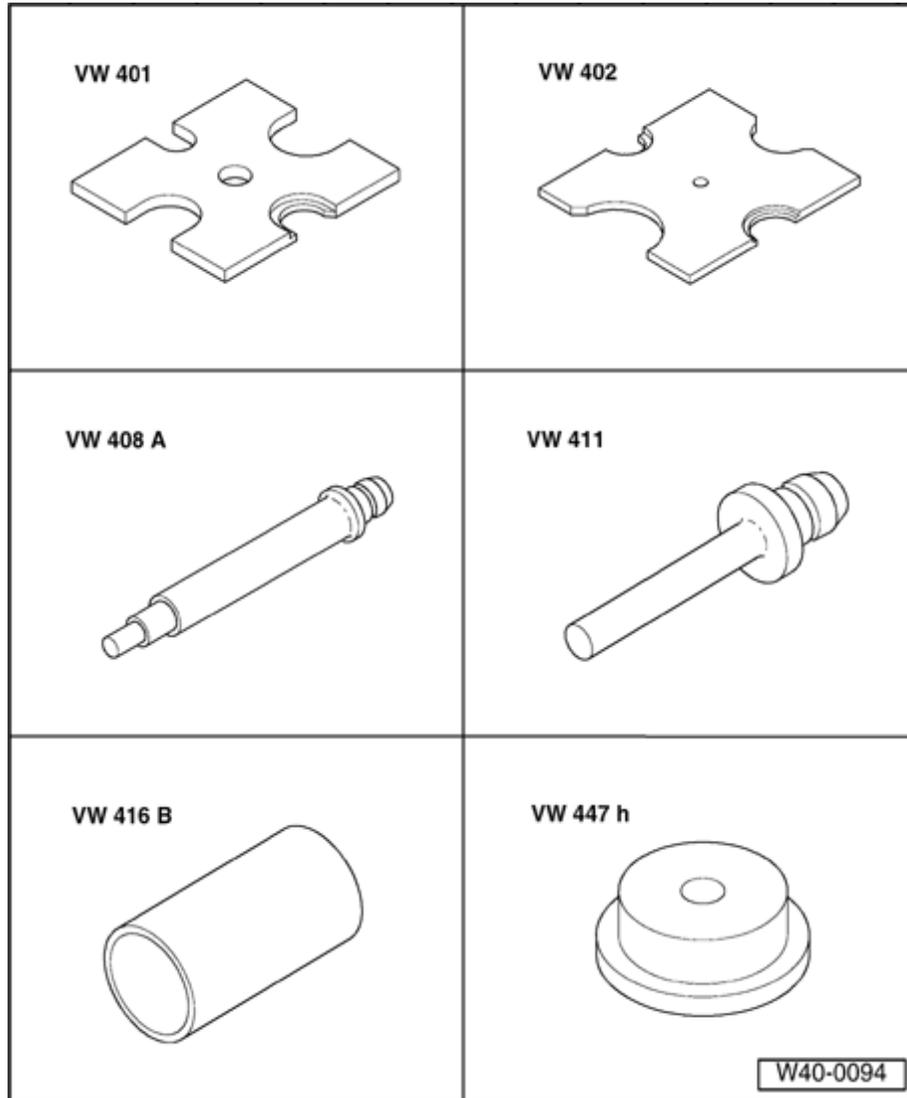


A

Fig. 5 Ventilating joint boot

Only for joint protective boot of rubber

Often the boot is pushed in when installing on the joint body. This creates a vacuum inside the boot which draws a fold in (arrow) while driving. Therefore after installing, lift the boot at small diameter end to equalize pressure.

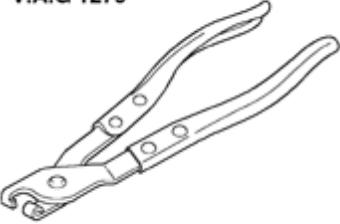
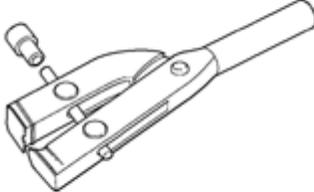
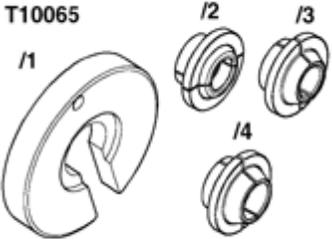


Drive shaft with triple roller joint, repairing

Special tools, workshop equipment, test and measuring appliances and aux. items required

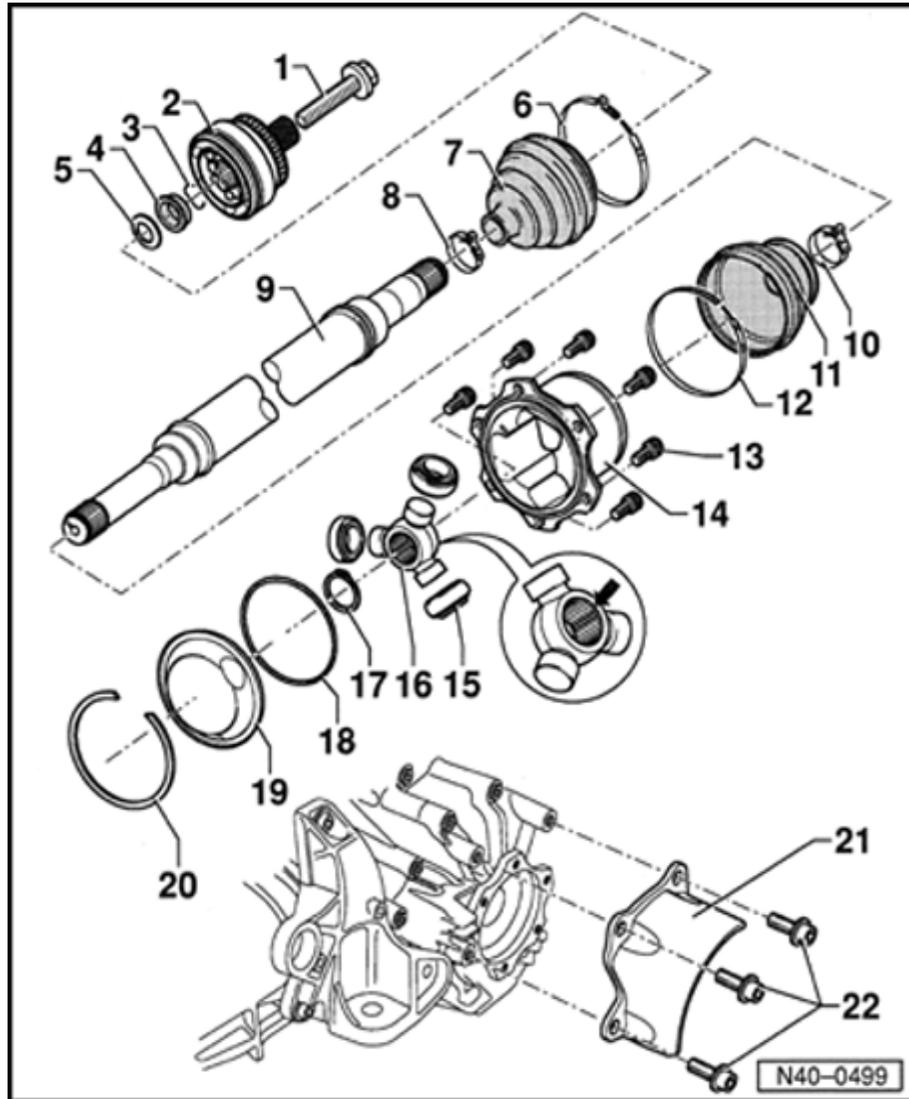
- ◆ VW 401 Thrust plate
- ◆ VW 402 Thrust plate
- ◆ VW 408 A Press tool
- ◆ VW 411 Press tool
- ◆ VW 416 B Tube
- ◆ VW 447 H Press plate



<p>V.A.G 1275</p> 	<p>V.A.G 1331</p> 
<p>V.A.G 1332</p> 	<p>V.A.G 1682</p> 
<p>T10065</p> 	<p>W40-0095</p>

Special tools, workshop equipment, test and measuring appliances and aux. items required

- ◆ VAG 1275 Pliers
- ◆ VAG 1331 Torque wrench
- ◆ VAG 1332 Torque wrench
- ◆ VAG 1682 Tension clamp
- ◆ T10065 Assembly device



1 - Hex bolt

- ◆ ⇒ [Page 40-123](#) , item 14

2 - Outer constant velocity joint

- ◆ Only Replace complete
- ◆ Removing ⇒ Page ⇒ [2](#)
- ◆ Installing: drive onto shaft with plastic hammer until compressed circlip seats
- ◆ Greasing ⇒ [Page 40-120](#)

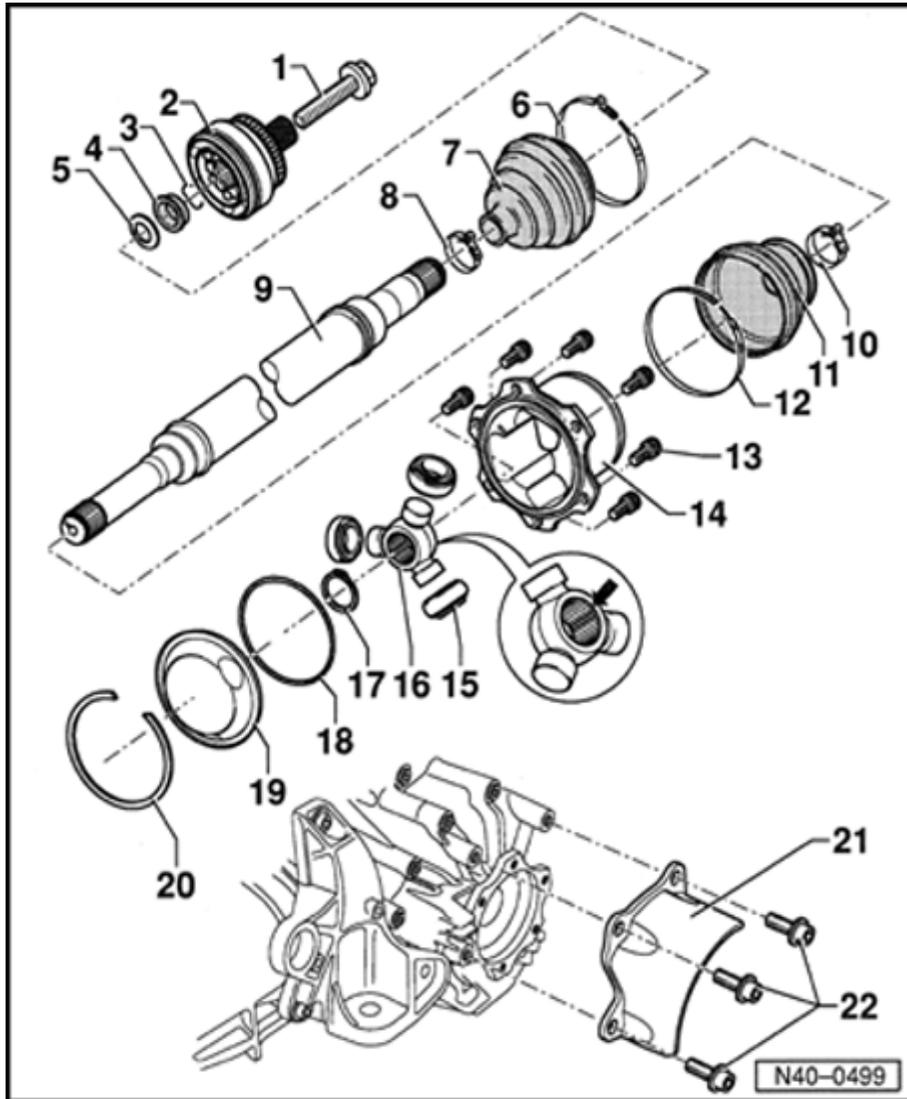
3 - Circlip

- ◆ Always replace
- ◆ Insert in shaft groove

4 - Thrust washer

5 - Dished washer

- ◆ Outer diameter (concave side) contacts thrust washer



6 - Hose clip

- ◆ Always replace
- ◆ Tightening ⇒ [Page 40-125](#)

7 - Constant velocity joint boots

- ◆ Check for tears and chafing
- ◆ Balance pressure, by briefly ventilating boot before tensioning the small clamp ⇒ [Page 40-127](#)

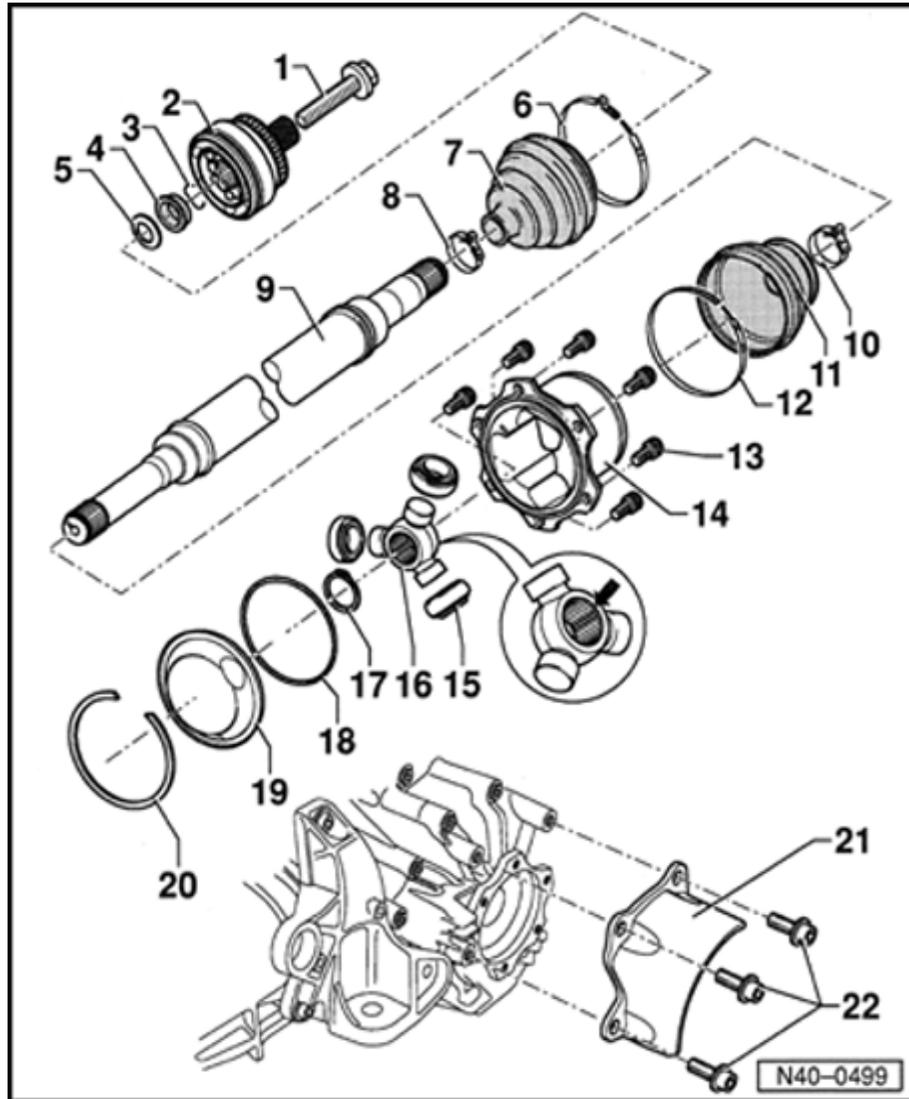
8 - Hose clip

- ◆ Always replace

9 - Drive shaft

10 - Hose clip

- ◆ Always replace



11 - Triple roller joint boot

12 - Hose clip

- ◆ Always replace

13 - Multi-point socket head bolt

- ◆ Tighten using diagonal sequence to 10 Nm
- ◆ M 10 x 20; 77 Nm

14 - Joint piece

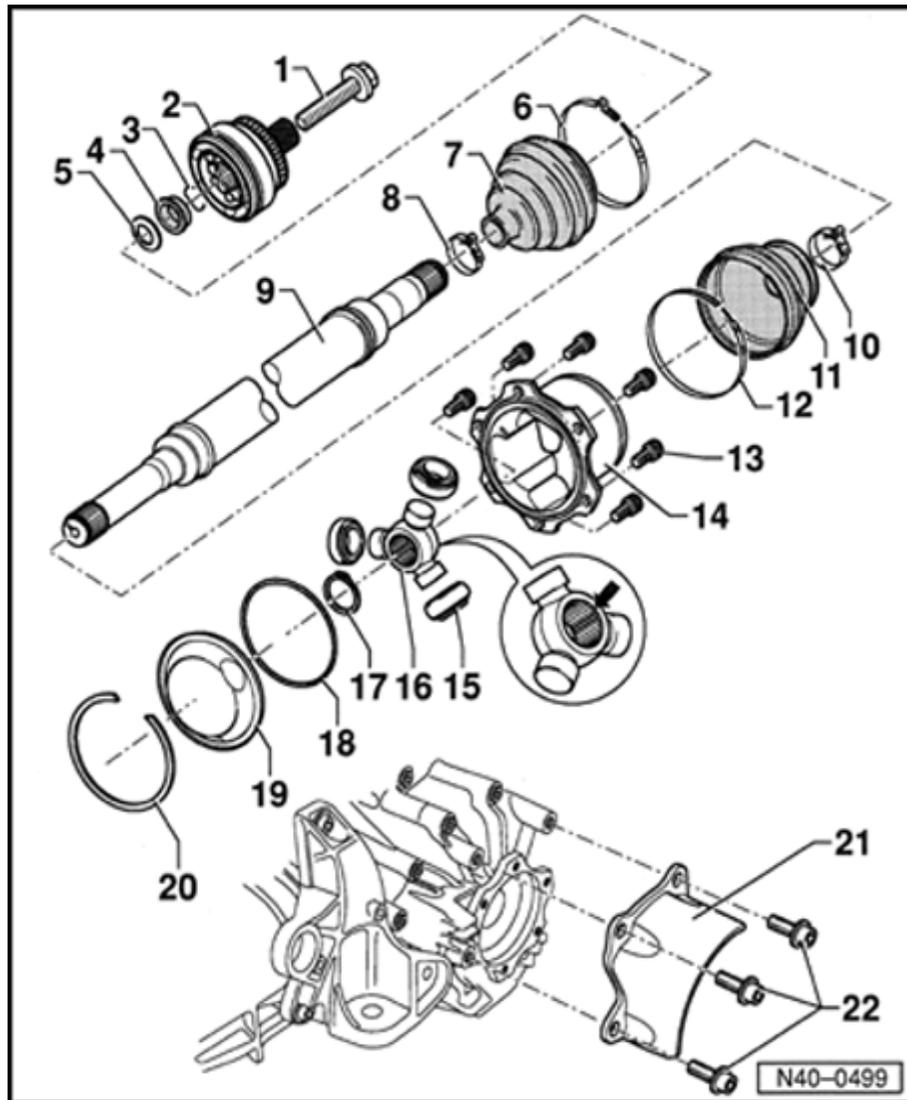
15 - Rollers

16 - Tripodic star

- ◆ The chamfer -arrow- points to drive shaft splines.

17 - Circlip

18 - Seal



19 - Cover

- ◆ Destroyed when dismantling.
- ◆ No longer required when assembling and is therefore no longer supplied as a spare part.
- ◆ A new cover is included in the repair kit.

20 - Circlip

- ◆ This circlip is not installed during production. It is only available as a replacement part.
- ◆ The circlip is included in the repair kit.

21 - Heat shield

22 - Allen head bolt

- ◆ M 8 x 22; 25 Nm
- ◆ M 8 x 28; 25 Nm
- ◆ M 10 x 70; 40 Nm



Triple roller joint, disassembling and assembling

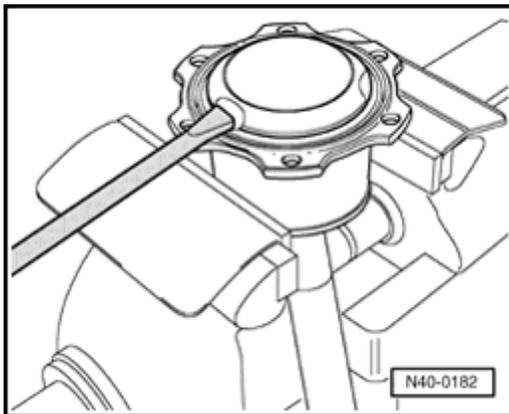
Vehicles with manual transmission

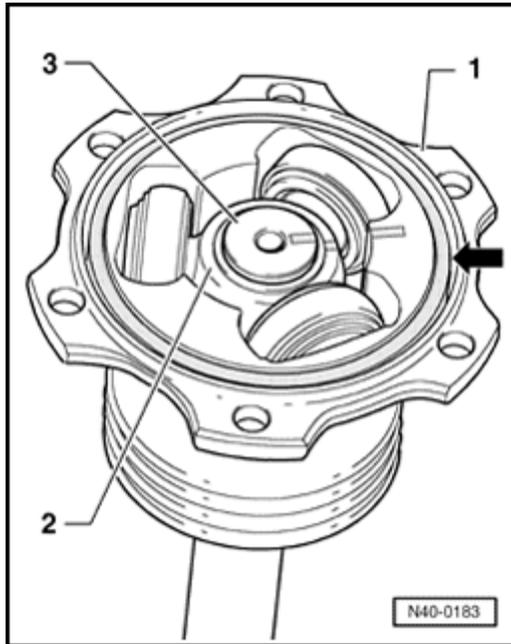
Servicing the triple roller joint is only possible on drive shafts installed in vehicles with manual transmissions.

Disassembling

- Open clamp on shaft and slide back joint protective boot.
- Drive screwdriver or similar into cover and pry off cover.

If the cover cannot be pryed off, we recommend that a screwdriver is driven in on the opposite side, then pry off cover.



**A**

- Mark installation position of parts 1 . . . 3.

If the parts are not marked when assembling, the components are not brought back to their previous installation position then it is possible that it will be noisy when driving.

A waterproof felt tipped pen is suitable for marking.

- Take rubber ring -arrow- out of groove.

1 - Joint

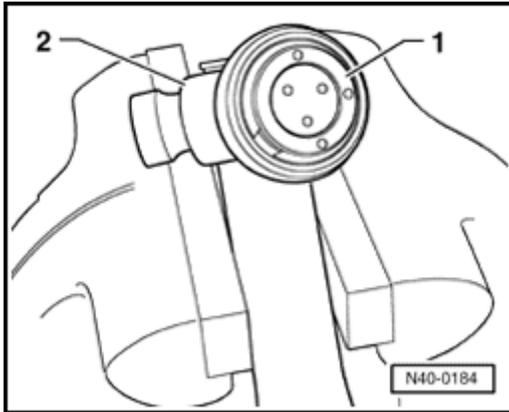
2 - Triple roller star

3 - Drive shaft

- Hold joint and take drive shaft out of vice.

Make sure that the rollers do not slide off the triple roller star and fall on the ground!

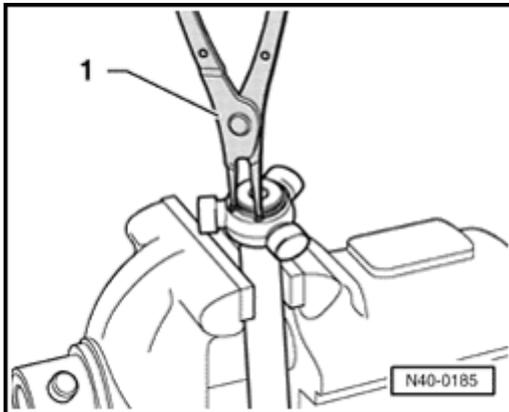
- Hold drive shaft and joint horizontal and using the other hand slowly slide joint back.



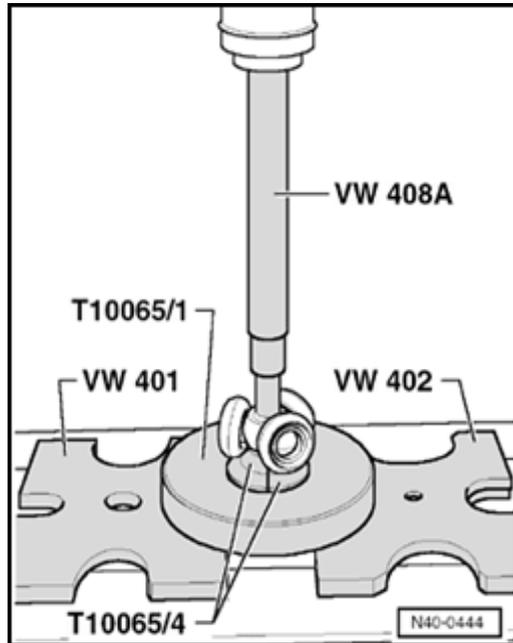
- A**
- Mark installation position of rollers -1- to triple roller star -2- using a felt tipped pen.

It is only necessary to mark parts when the rollers are pulled off the spider.

- Take off rollers -1- and place on a clean surface.



- A**
- Remove circlip.
- 1 - Pliers (commercial type)



A

- Insert drive shaft in press.
- Hold drive shaft, then press triple roller star off drive shaft.
- Pull joint with joint protective boot off shaft.
- Clean shaft, joint and groove for oil seal.



Assembling

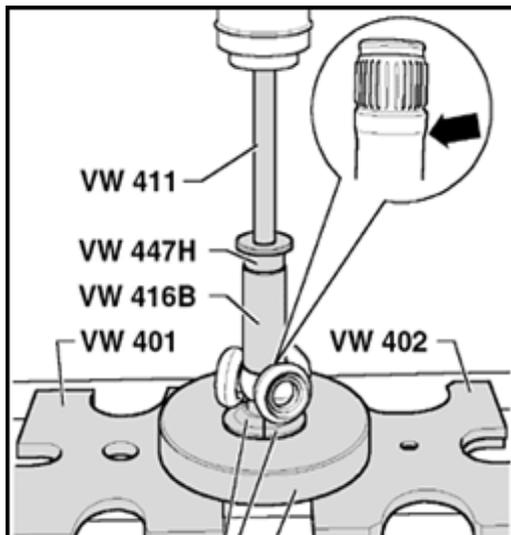
- Slide small clamp for joint protective boot onto shaft.
- Slide joint protective boot onto shaft.
- Slide joint onto shaft.

Assembling spider

The chamfer on spider faces toward shaft, this is used as an assembly aid.

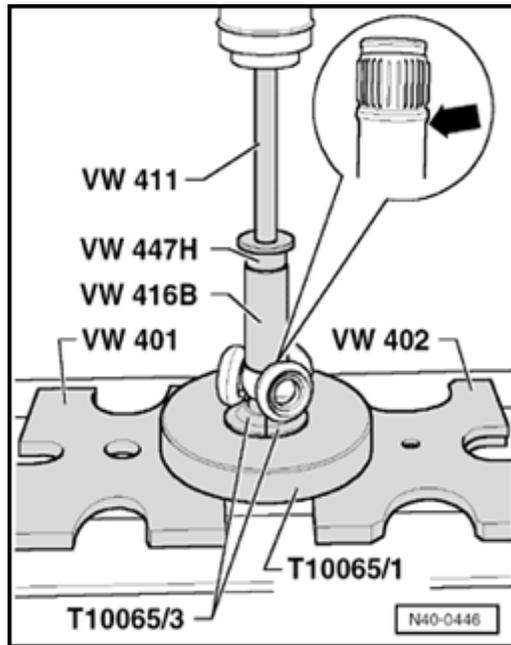
A

- Install spider onto shaft and press onto stop.
The diagram shows a conical shaft in the area of the support -arrow-.





- Press tripod star on drive shaft with cylindrical shaft



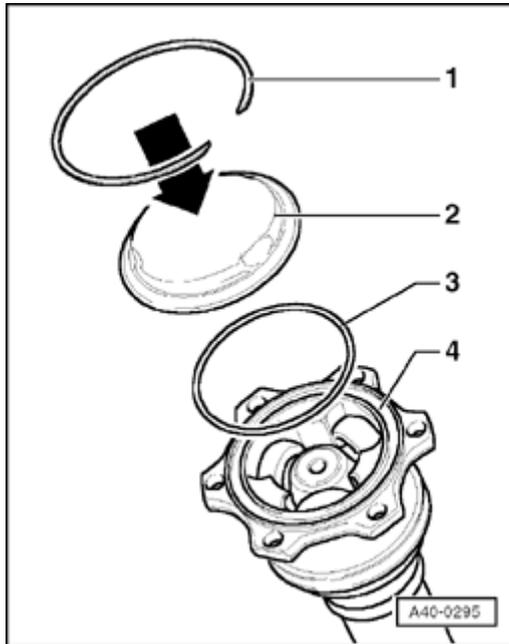
- A** This step applies only to drive shafts which remain cylindrical at the end -arrow-.

CAUTION!

- ♦ **Make sure that the pressure does not exceed 3.0 t!**
- ♦ **If necessary coat drive shaft splines and tripod star with lubricating paste G 052 142 A2.**
- Insert circlip, make sure seated correctly.
- Install rollers onto spider as per markings.
- Slide joint over rollers and hold.



- Press 70 grams of joint grease, from repair set, into triple roller joint.
- Press 70 grams of joint grease, from repair set, into the reverse side of the triple roller joint and protective boot.



A

- Place seal -3- from repair kit in groove -4- of triple roller joint.

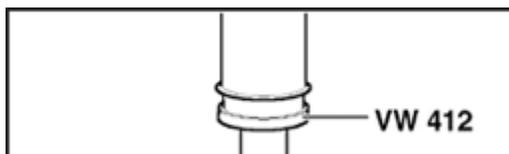
1 - Circlip

2 - Cover from repair kit

3 - Seal

4 - Triple roller joint

- Insert drive shaft in press.



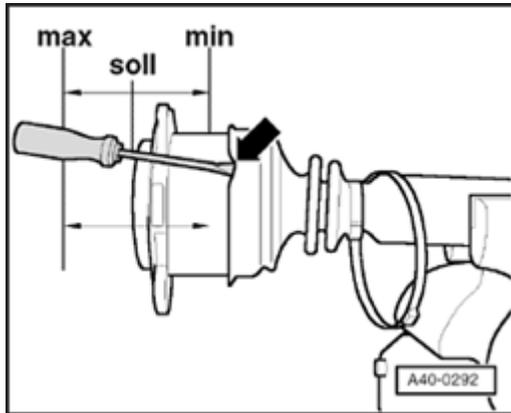
A

- Press cover -1- into triple roller joint until circlip can be installed.

- Insert circlip, make sure seated correctly.

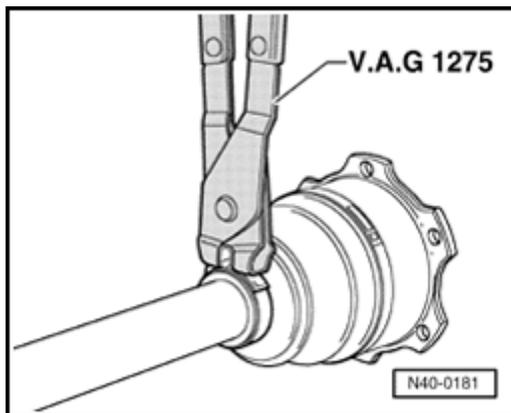
Note:

The circlip must be audibly engaged to locate!



A

- Install joint protective boot.
- Position the triple roller joint approximately in the middle of the sliding part. See distance between min. and max.
- Hold triple roller joint in this position and lift the boot slightly -arrow-. This allows a possible vacuum inside the boot to escape.



A

- Tighten small hose clamp with pliers VAG 1275.