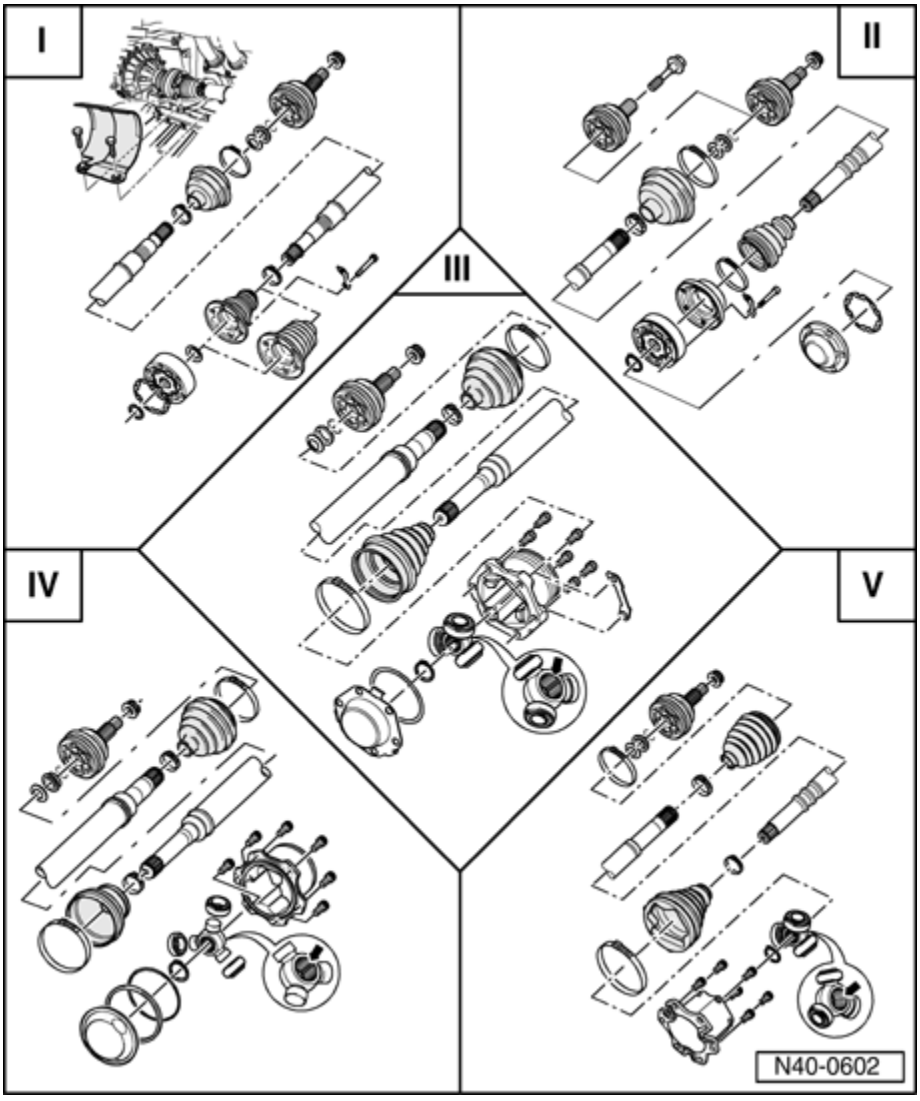
Front drive shafts, servicing

Drive shafts, overview



I - Servicing front axle shaft with constant velocity joint ⇒ 40-5, I - Front axle shaft with constant velocity joint, servicing

II - Servicing front axle shaft with constant velocity joint VL 3700 ⇒ 40-5, II - Front axle shaft with constant velocity joint VL 3700, servicing

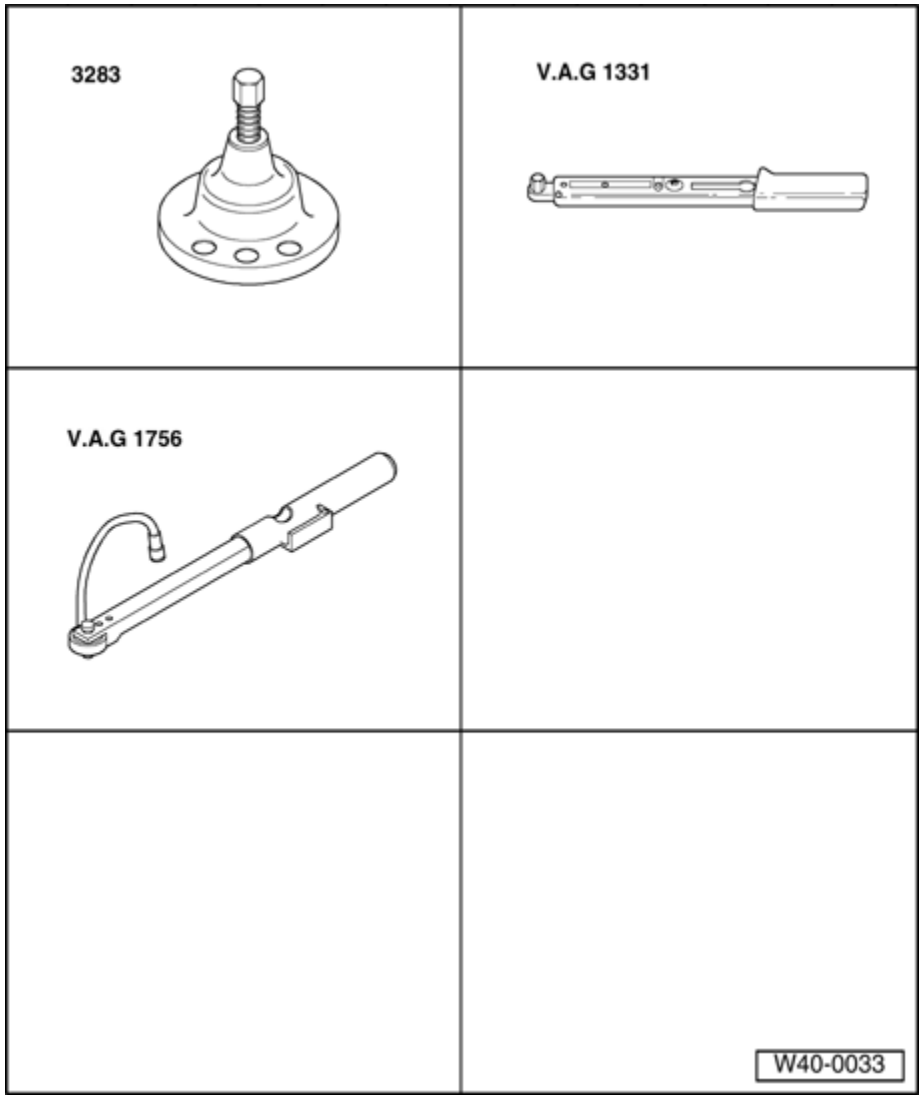
III - Servicing axle shaft with triple roller joint AAR 2000 ⇒ 40-5, III - Axle shaft with triple roller joint AAR 2000,

servicing

IV - Servicing axle shaft with triple roller joint AAR 2900 ⇒ 40-5, IV - Axle shaft with triple roller joint AAR 2900, servicing

V - Servicing axle shaft with triple roller joint AAR 3300i ⇒ 40-5, V - Axle shaft with triple roller joint AAR 3300i, servicing

Drive shafts, removing and installing



Special tools, testers and auxiliary items required

- Hub Puller 3283

- Torque Wrench 5-50 Nm V.A.G 1331

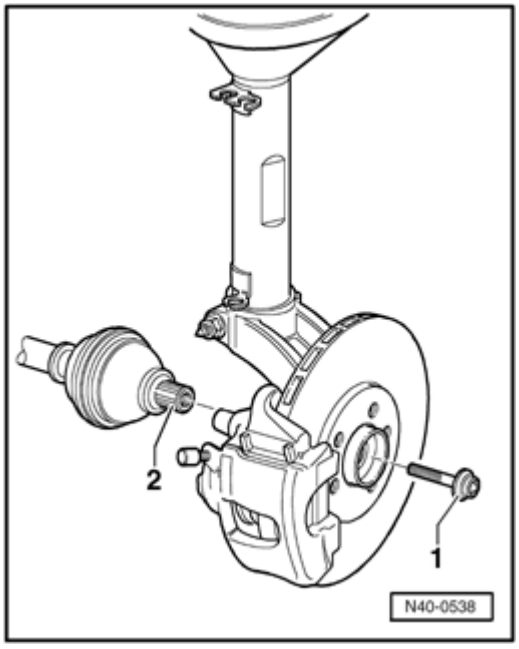
- Angle wrench V.A.G 1756

Removing

The wheel bearings must not be loaded when the 12-point nut/hex bolt is loose.

If the bearings are loaded by the vehicles own weight the wheel bearing will be damaged. The wheel bearings will be stressed and the life expectancy reduced.

If a vehicle that has a drive shaft removed is to be moved, an outer CV joint must be installed in place of the drive shaft and be tightened to 50 Nm. Otherwise, the wheel bearing will be damaged.



The wheel hub/axle shaft on model "Golf GTI 132 kW" and R32 is secured with a hex bolt **- 1 -** instead of a 12-point nut. The spline of the outer joint **- 2 -** is slightly shorter then previous splines and has an internal thread.

The revised assembly sequence and the revised torque specification are contained in the following work sequence.

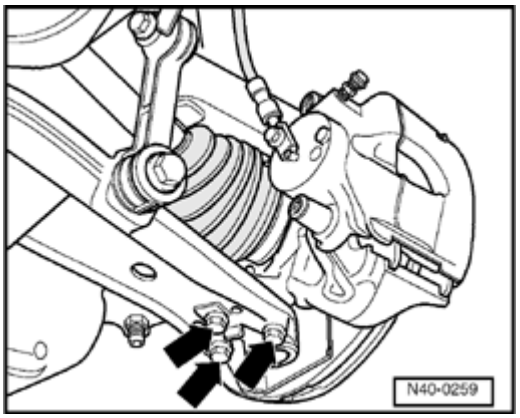
- Lift vehicle until the load on the front axle is relieved.

- Loosen 12-point nut.

- Disconnect axle shaft from transmission axle flange.

Vehicles with 12-point nut

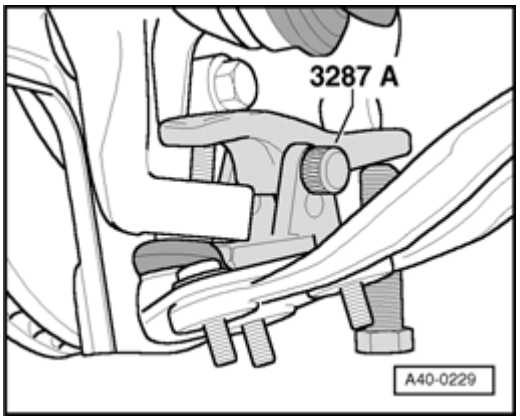
- Mark installation position of bolts from ball joint to control arm.



- Remove bolts **- Arrows -** .

Vehicles with hex. bolt

- Loosen nut from ball joint.

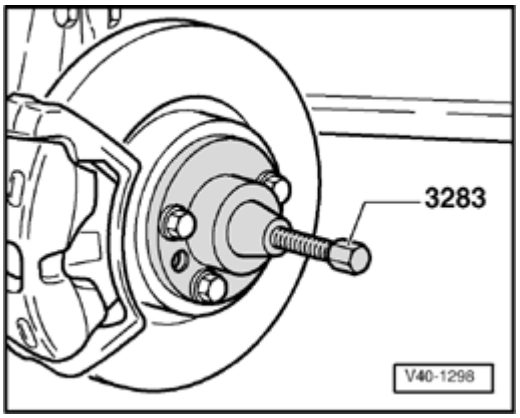


- Install ball joint puller as shown in illustration and press out ball joint.

Note:

- *To protect ball joint threads and for safety reasons leave nut on a few turns.*

Continued for all vehicles



- Press out drive shaft.

- Vehicles where the axle shaft is secured with a hex bolt, use Arbor VW 434 .

Note:

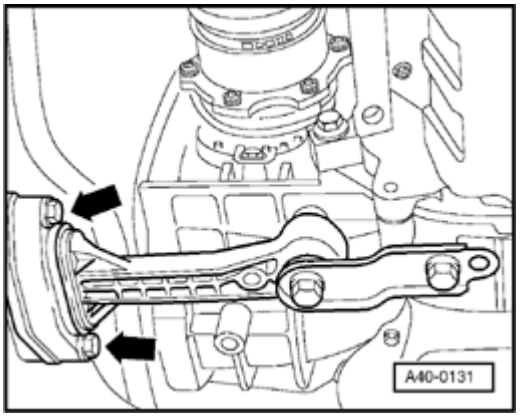
- *When pressing axle shaft out ensure sufficient clearance is available.*

- Remove drive shaft.

The axle shaft must not hang down!

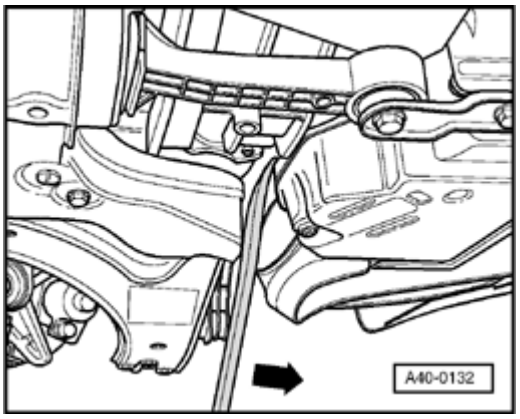
The inner joint will be damaged through overflexing.

The following sequence applies to automatic transmission vehicles only



- Remove bolts **- Arrows -** .

- Remove left side of noise insulation if necessary.



- Push engine/transmission assembly forward with a lever.

Now axle shaft can be removed.

(**- Arrow -** points forward)

Installing

For vehicles with 12-point nut or hex bolt

Remove any paint residue and/or corrosion on thread/splines of the outer joint.

Coat with oil before installing axle shaft;

- The splines of the outer joint,
- The thread of the outer joint
- Wheel hub splines,
- The contact surface and thread of the 12-point nut

With oil.

Vehicles with hex. bolt

Note:

- *Do not oil threads of hex bolt.*

Continued for all vehicles

- Install drive shaft.

- Insert outer joint as far as possible into the spline in the wheel hub.

- Connect ball joint to control arm using new bolts onto old marks.

Torque ball joint to control arm: 20 Nm +90 ° additional turn

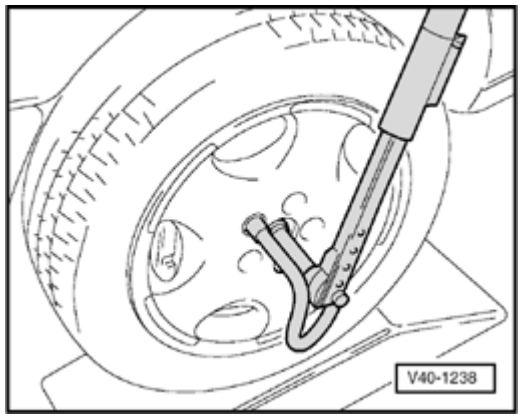
- Install inner joint of drive shaft and initially tighten bolts diagonally to 10 Nm.

Torque specifications:	
- Tighten multi-point socket head bolts diagonally to torque specification listed.	
Multi-point socket head bolt M 8 x 18	40 Nm
Multi-point socket head bolt M 8 x 28	40 Nm
Multi-point socket head bolt M 8 x 48	40 Nm
Previous multi-point socket head bolts	
Multi-point socket head bolt M 10 x 20	70 Nm
Multi-point socket head bolt M 10 x 48	70 Nm
New multi-point socket head bolts	
Multi-point socket head bolt M 10 x 23	70 Nm
Multi-point socket head bolt M 10 x 52	70 Nm

- Bolt pendulum support to subframe and tighten to 25 Nm

- Pull outer joint into the wheel hub until the outer joint is in position.

Vehicles with 12-point nut



- Tighten 12-point nut to 200 Nm and loosen 1/2 turn.

- Turn wheel hub 180 ° .

Tighten again with:

50 Nm + 60 ° additional turn

Vehicles with hex. bolt

- Tighten hex bolt to 250 Nm plus an additional 1/4 turn 90 ° and then loosen 1/2 turn.

- Turn wheel hub 180 ° .

Tighten again with:

Tighten 250 Nm + 90 ° additional turn

Note:

- *To tighten 12-point nut/hex bolt we recommend the angle measuring wrench V.A.G 1756 .*

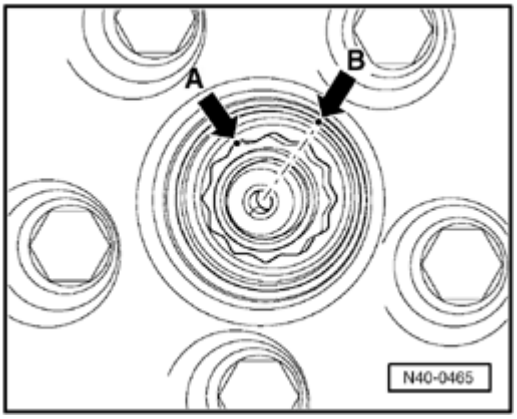
If an angle measuring wrench is not available, then tighten 12-point nut using following method.

Vehicles with 12-point nut

- Lower vehicle until the wheels touch ground.

- Tighten 12-point nut to 200 Nm and loosen 1/2 turn.

- Tighten 12-point nut to 50 Nm.

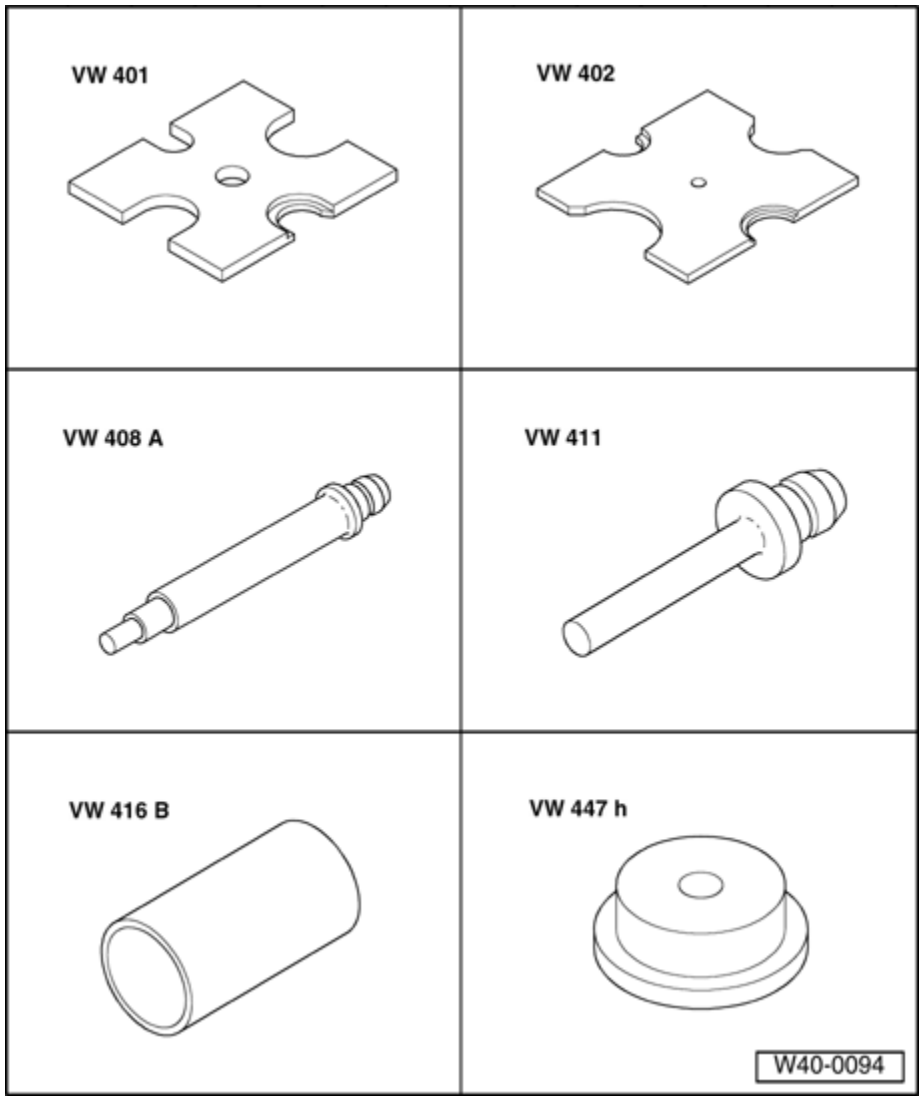


- Mark one of the 12-points on the nut with a line **- arrow A -** .

- Mark 2nd line **- arrow B -** on the edge of the wheel hub as shown in illustration.

- Turn 12-point nut until both points align.

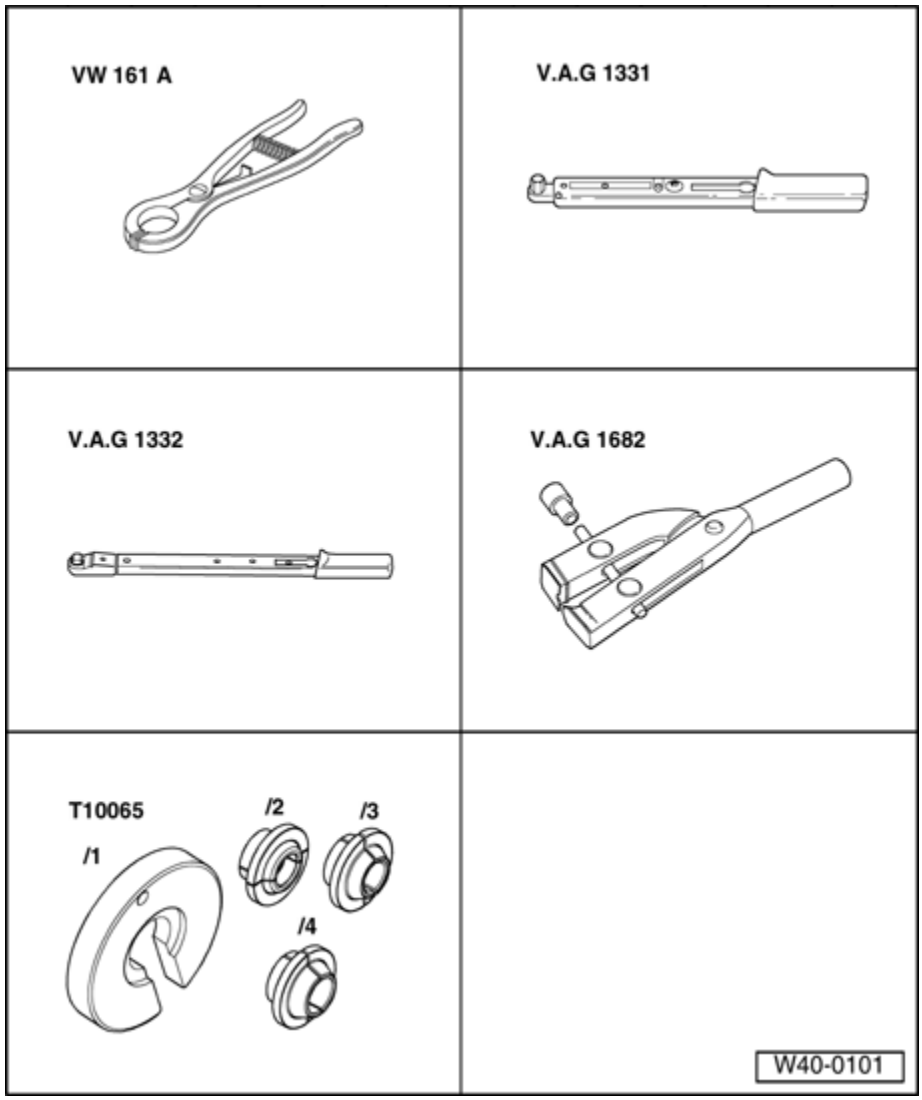
I - Front axle shaft with constant velocity joint, servicing



Special tools, testers and auxiliary items required

- Thrust Plate VW 401
- Thrust Plate VW 402
- Punch VW 408 A

- Punch VW 411
- Sleeve VW 416 B
- Thrust pad VW 447 H



Special tools, testers and auxiliary items required

- Circlip pliers VW 161 A
- Torque Wrench 5-50 Nm V.A.G

1331

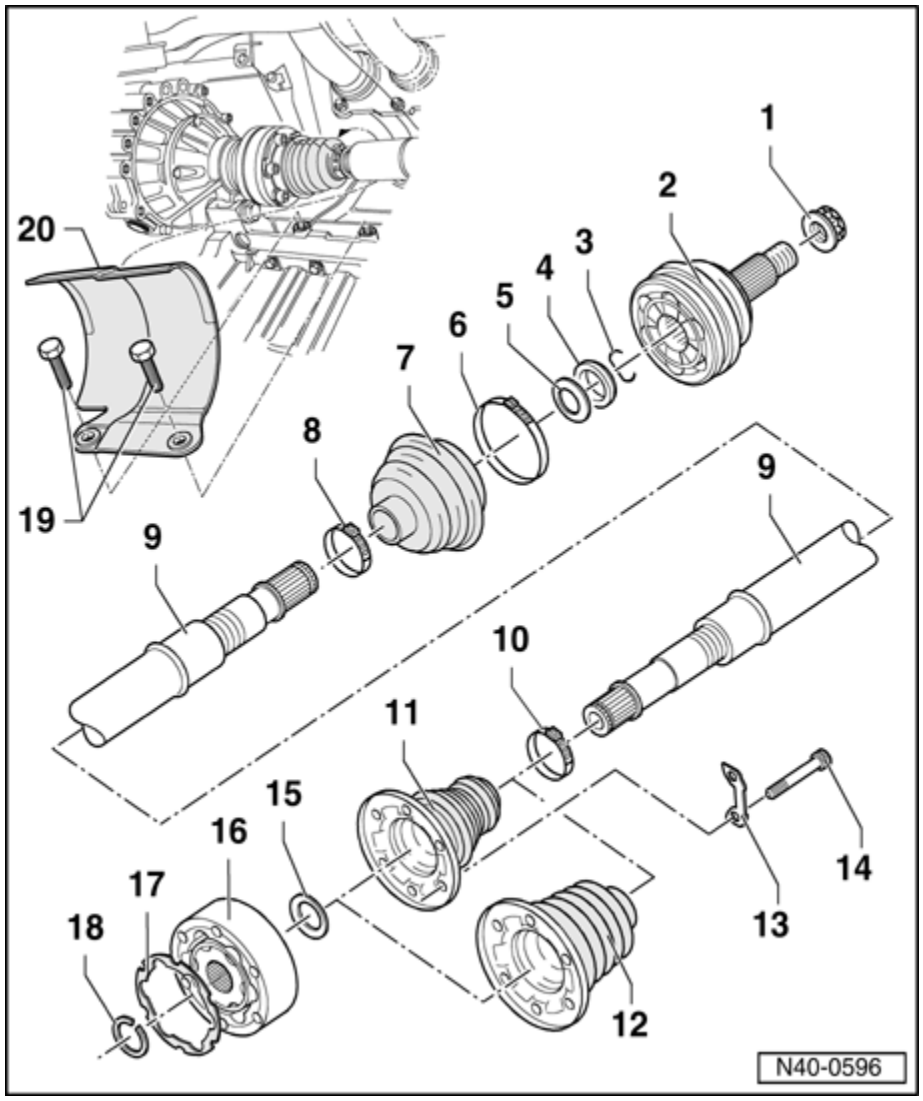
- Torque Wrench 40-200 Nm V.A.G 1332
- Cv Joint Boot Clamp Tool V.A.G 1682
- Assembly Tool T10065

Grease quantity and type

Filling the axle shaft with high temperature grease. ⇒ *See Parts Catalog*

	Grease	of total:	
Outer joint	Total quantity	Joint	Protective boot
mm	[g]	[g]	[g]
81	80	40	40
90	120	80	40
Inner joint			
mm			
94	90	40	50
100	120	50	70

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



- **Self-locking 12-point nut**
  - Fastening ⇒ 40-5, Installing
  - Any paint residue and/or corrosion on thread of the outer joint must be removed before the nut is installed.
  - Replace each time it is removed

- **Outer constant velocity joint**
  - Replace only as a unit
  - Removing ⇒ 40-5, Removing outer constant velocity joint

- Installing: Using a plastic hammer, drive onto the shaft as far as the stop
- Greasing ⇒ 40-5, Grease quantity and type
- Checking ⇒ 40-5, Outer constant velocity joint, checking

- **Circlip**
  - Replace
  - Insert in groove in shaft

- **Thrust washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint

- **Spring washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint

- **Clamp**
  - Replace
  - Tightening with Cv Joint Boot Clamp Tool V.A.G 1682 ⇒ 40-5, Tightening hose clamp on outer joint

- **Protective boot**
  - Check for tears and chafing
  - Material: Hytrel (Polyelastomer)

- **Clamp**
  - Replace
  - Tightening ⇒ 40-5, Tightening clamp for CV joint boot (inner, small dia.)
- **Driveshaft**
- **Clamp**
  - Replace
  - Tightening ⇒ 40-5, Tightening clamp for CV joint boot (inner, small dia.)
- **Protective boot for inner constant velocity joint**
  - Material: Hytrel (Polyelastomer)
  - No vent hole
  - Check for tears and chafing
  - Drive off constant velocity joint with a drift
  - Before installing on constant velocity joint, coat sealing surface with D 454 300 A2
- **Protective boot for inner constant velocity joint**
  - Material: Rubber
  - With vent hole
  - Check for tears and chafing
  - Drive off constant velocity joint with a drift
  - Installation position for left axle shaft ⇒ 40-5, Installing

joint protective boot on left axle shaft

- Installation position for right axle shaft ⇒ 40-5, Installing boot for constant velocity joint (right drive axle)
- Before installing on constant velocity joint, coat sealing surface with D 454 300 A2

- **Backing plate**
- **Multi-point socket head bolt**

  Torque specifications: ⇒ 40-5, Torque specifications:

- **Spring washer**
  - Installed location ⇒ 40-5, Installed location of spring washer on inner joint

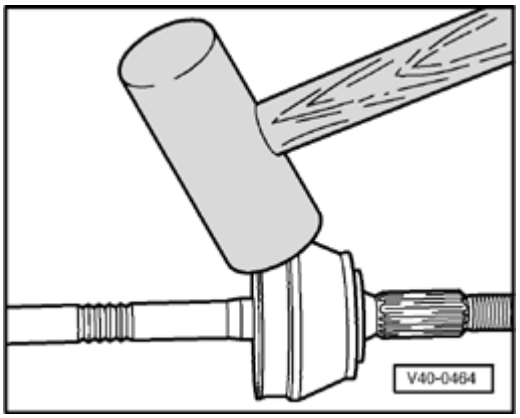
- **Inner constant velocity joint**
  - Replace only as a unit
  - Pressing off ⇒ 40-5, Pressing off inner constant velocity joint
  - Pressing on ⇒ 40-5, Pressing on inner constant velocity joint
  - Greasing ⇒ 40-5, Grease quantity and type
  - Checking ⇒ 40-5, Inner constant velocity joint, checking

- **Gasket**
  - Adhesive surface on constant velocity joint must be free of oil and grease!

- Replace
- Pull off protective foil and stick gasket onto joint.

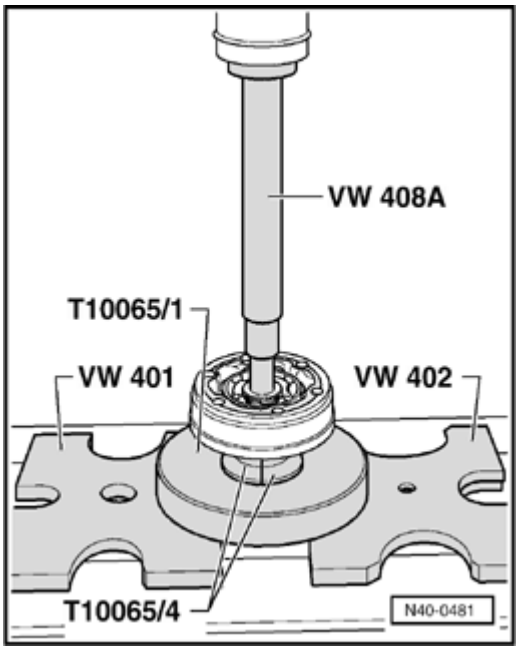
- **Circlip**
  - Remove and install with VW 161 a

- **Hex head bolt, 35 Nm**
- **Protective cap**



Removing outer constant velocity joint

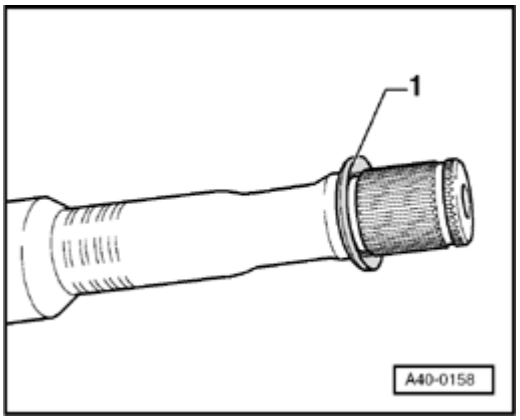
- Drive joint off axle shaft with a firm blow from a plastic hammer.



Pressing off inner constant velocity joint

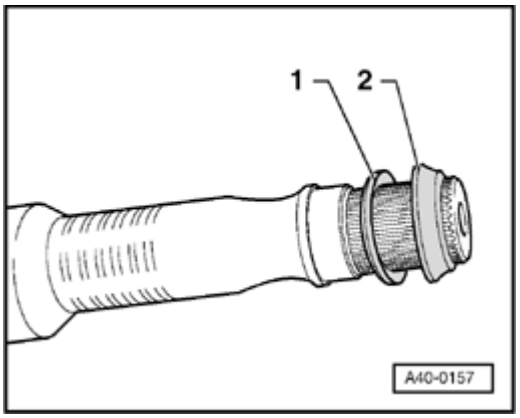
Note:

- *First drive boot off with drift*



Installed location of spring washer on inner joint

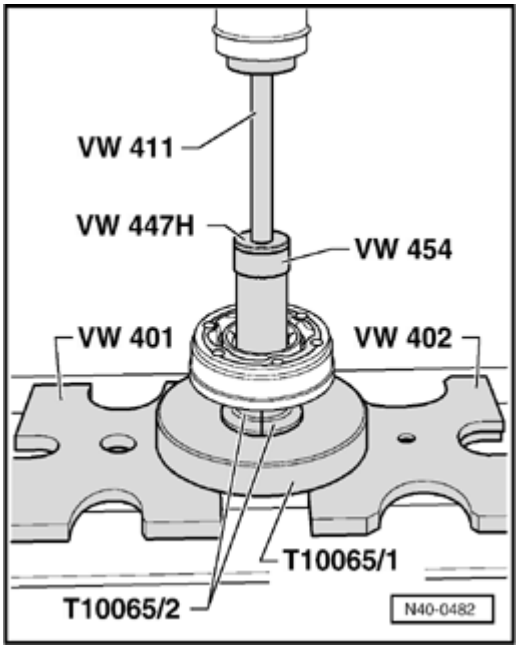
1 - Spring washer



Installed location of spring washer and thrust washer on outer joint

1 - Spring washer

2 - Thrust washer



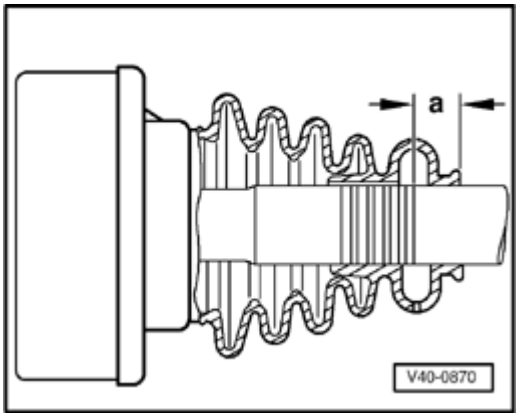
Pressing on inner constant velocity joint

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

Note:

- *Chamfer on inner diameter of ball hub (splines) must*

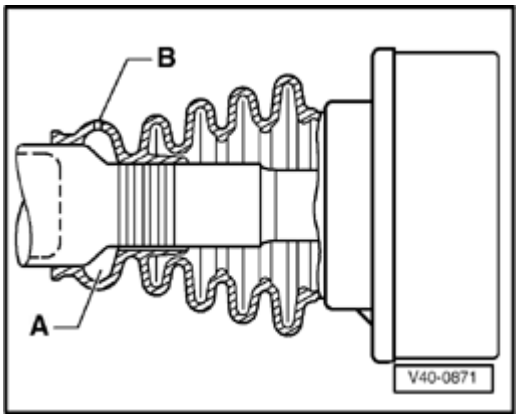
face the contact shoulder on the drive shaft.



Installing joint protective boot on left axle shaft

Dimension **- a -** = 17 mm

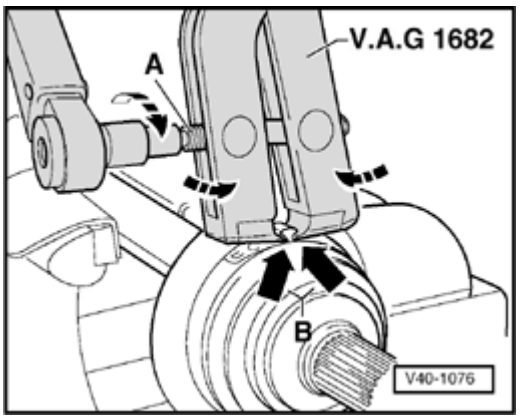
Before installing boot mark position, measure **- a -** (for example paint or adhesive tape). Under no circumstances should paint surface be damaged with a sharp tool.



Installing boot for constant velocity joint (right drive axle)

The vent chamber **- A -** must seat on tube.

B - Vent hole



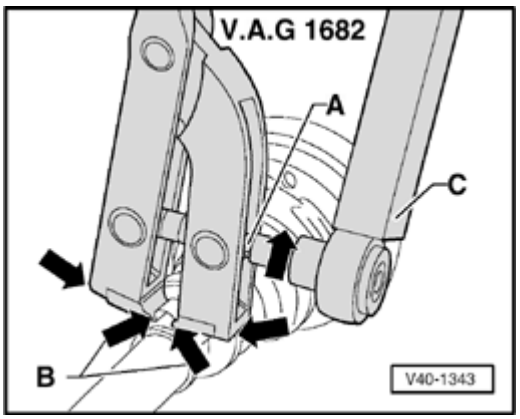
Tightening hose clamp on outer joint

- Install Cv Joint Boot Clamp Tool V.A.G 1682 as shown in illustration. Make sure that the jaws of the tension clamp seat in the corners **- arrows B -** of the hose clip.

- Tighten hose clamp by turning the spindle with a torque wrench (do not bend tensioning clamp).

Note:

- *Due to he 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 Cv Joint Boot Clamp Tool V.A.G 1682 .*
- *Torque specification: 25 Nm*
- *Use torque wrench **- C -** with a range of 5...50 Nm (e.g. V.A.G 1331).*
- *Make sure the spindle thread **- A -** is not tight. If necessary lubricate with grease MOS 2 .*
- *If the thread is tight e.g. dirty, the required tensioning force for the hose clamp will not be achieved in spite of correct torque specification settings.*

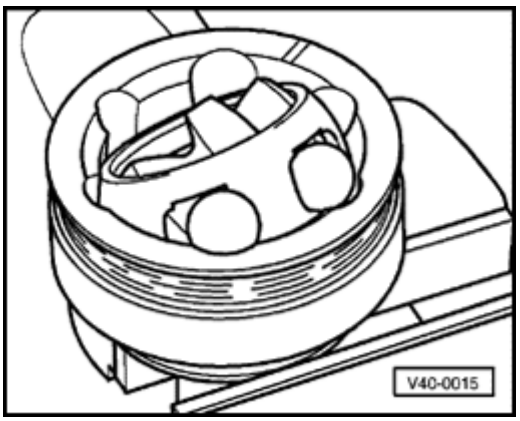


Tightening clamp for CV joint boot (inner, small dia.)

Outer constant velocity joint, checking

Joint must be disassembled to replace dirty grease or for checking the balls and ball tracks for wear and damage.

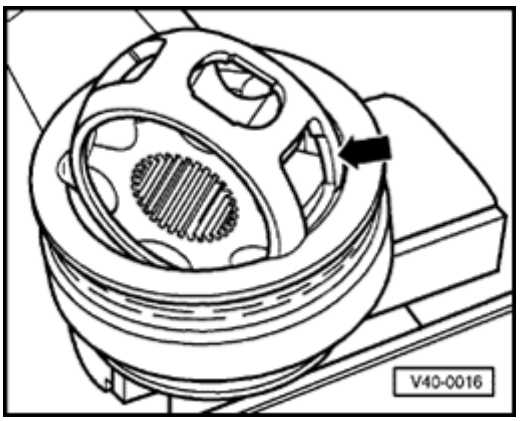
Removing



- Before disassembling mark ball hub position in relation to the ball cage and housing with an electric scriber or oil stone.

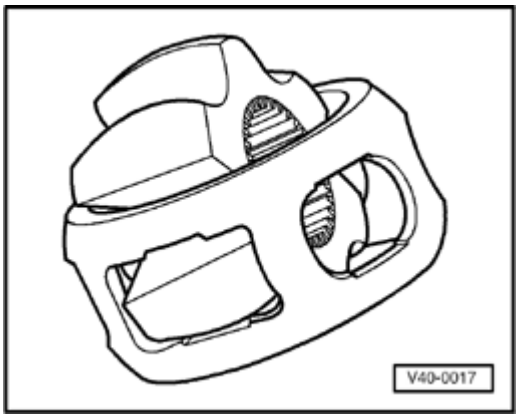
- Swivel ball hub and ball cage.

- Remove balls one after another.



- Turn cage until the two rectangular windows **- arrow -** are aligned with the joint housing.

- Lift out cage together with hub.



- Pivot segment of hub into rectangular cage opening.

- Tilt hub out of cage.

The 6 balls of each joint belong to one tolerance group. Check stub axle, hub, cage and balls for small indentations (pitting) and signs of seizure. Excessive backlash in joint will be noticed as a knock during load changes, in such cases the joint must be replaced. Polished areas and ball track marks are not a reason for changing joint.

Installing

- Press half of the total amount of grease 40 grams (1.4 oz.) into the joint body.

- Install cage with hub in the joint housing.

- Press in the balls one after another from opposite sides whereby the original position of the hub to cage and joint

housing must be restored.

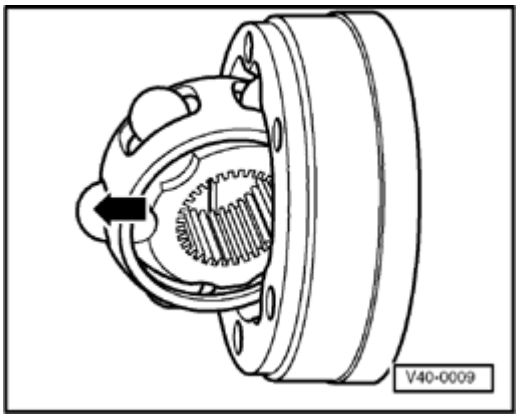
- Install new circlip in the hub.

- Distribute the remaining grease in constant velocity joint boot.

Inner constant velocity joint, checking

The joint must be disassembled to replace dirty grease or for checking the balls and ball tracks for wear and damage.

Removing



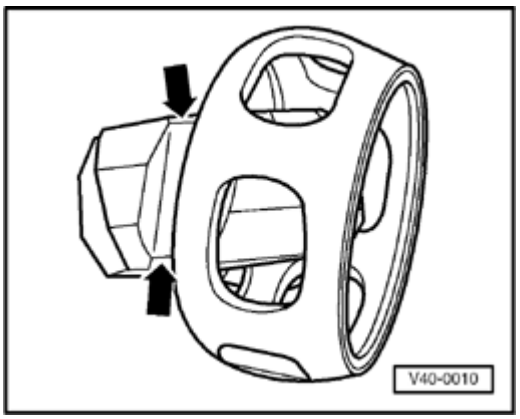
- Swivel ball hub and ball cage.

- Press out ball joint housing in direction of arrow.

- Press balls out of cage.

Note:

- *The ball hub and joint are paired. Must not be interchanged.*

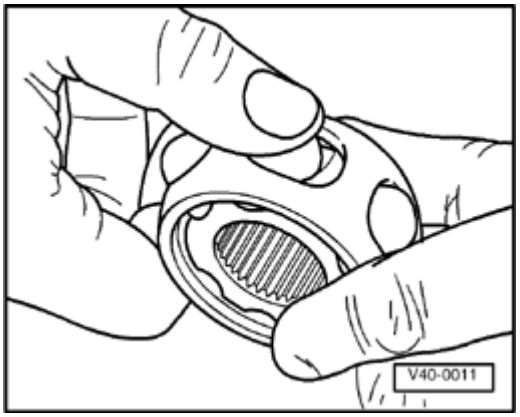


- Tilt ball hub out of ball cage over ball track **- arrow -** .

- Check joint housing, ball hub, ball cage and balls for indentations (pitting) and signs of seizure.

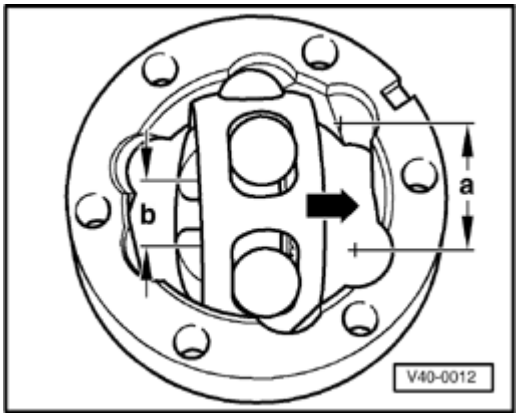
Excessive backlash in joint will be noticed as a knock during load changes. In such cases the joint must be replaced. Polished areas and ball track marks are not a reason for replacing joint.

Installing



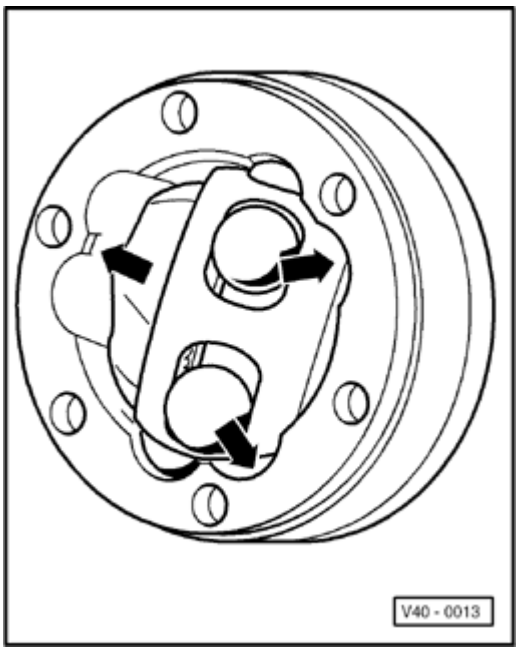
- Insert ball hub over both chamfers into the ball cage. The hub can be installed in any position. Press balls into the cage.

- Insert hub with cage and balls at right angle to the joint.

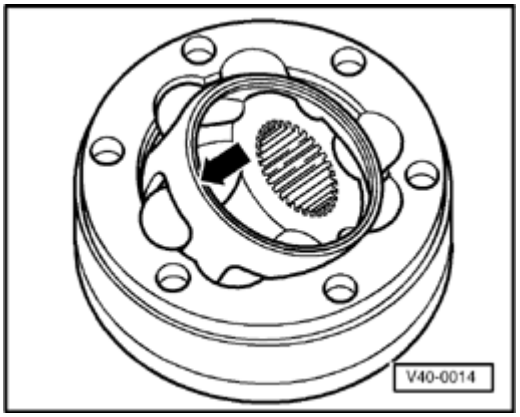


- When inserting make sure that the wide space **- a -** on joint housing is aligned with the narrow space **- b -** on the hub after swivelling in.

- Chamfer on inner diameter of ball hub (splines) must face larger diameter of joint housing.



- Install ball hub, whereby the hub must be swivelled out of the cage **- arrows -** far enough to allow the balls to fit into the ball tracks.

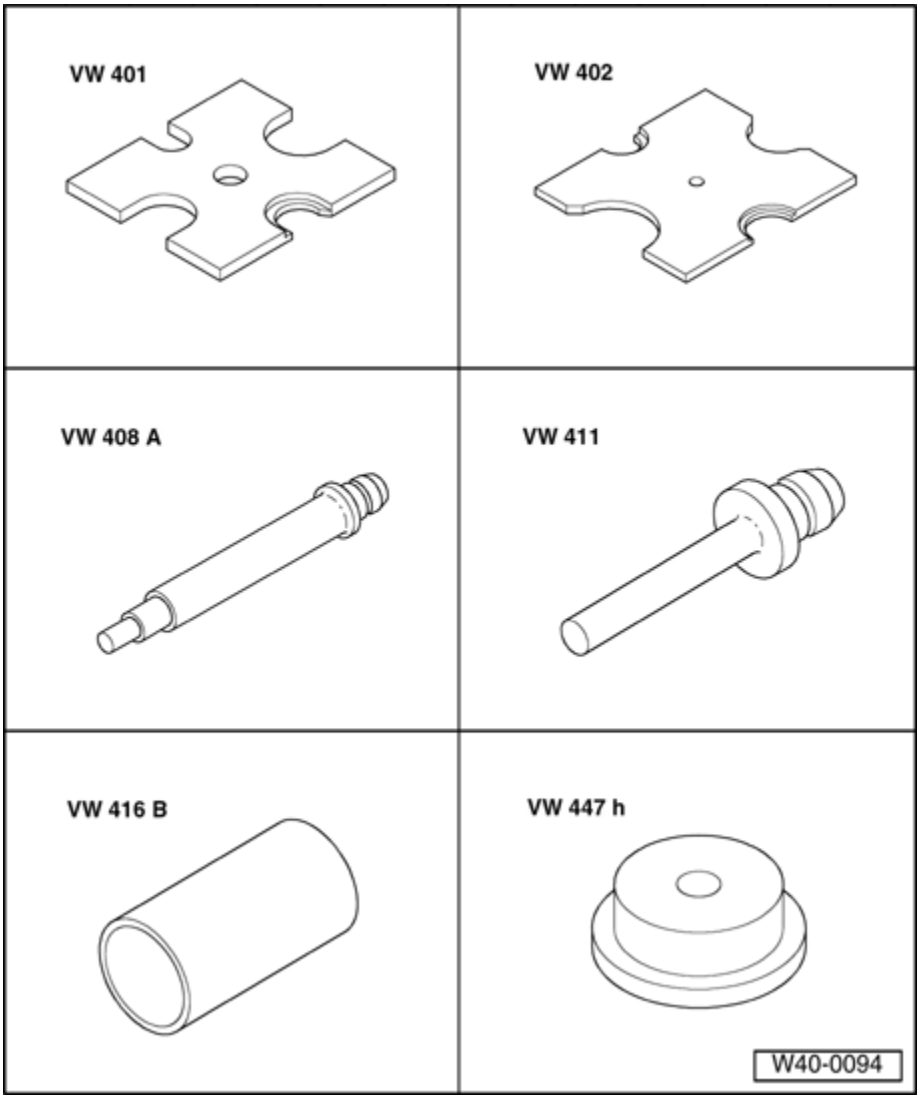


- Press cage firmly **- arrow -** until hub swings fully in position.

Check operation of constant velocity joint:

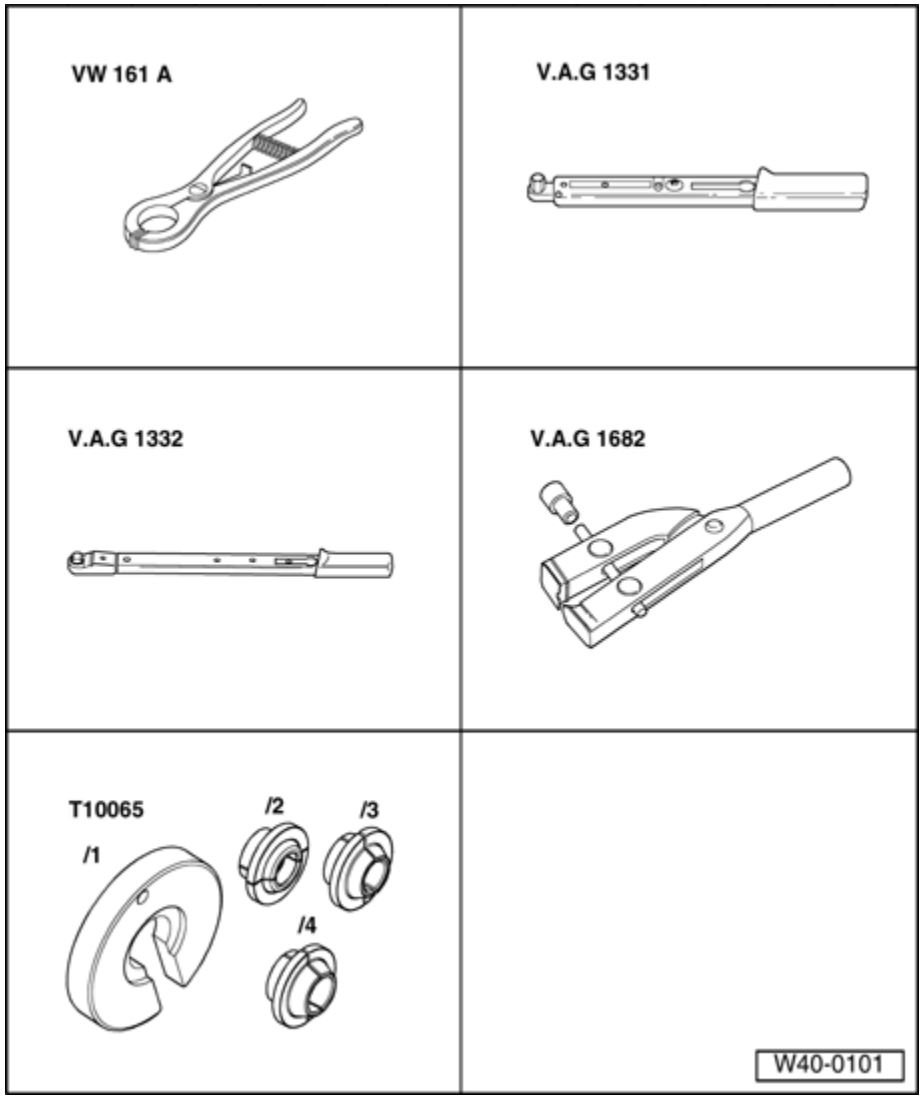
The constant velocity joint is correctly assembled when the ball hub can be moved by hand backward and forward over its entire axial movement range.

II - Front axle shaft with constant velocity joint VL 3700, servicing



Special tools, testers and auxiliary items required

- Thrust Plate VW 401
- Thrust Plate VW 402
- Punch VW 408 A
- Punch VW 411
- Sleeve VW 416 B
- Thrust pad VW 447 H



Special tools, testers and auxiliary items required

- Circlip pliers VW 161 A
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 40-200 Nm V.A.G 1332
- CV Joint Boot Clamp Tool V.A.G 1682

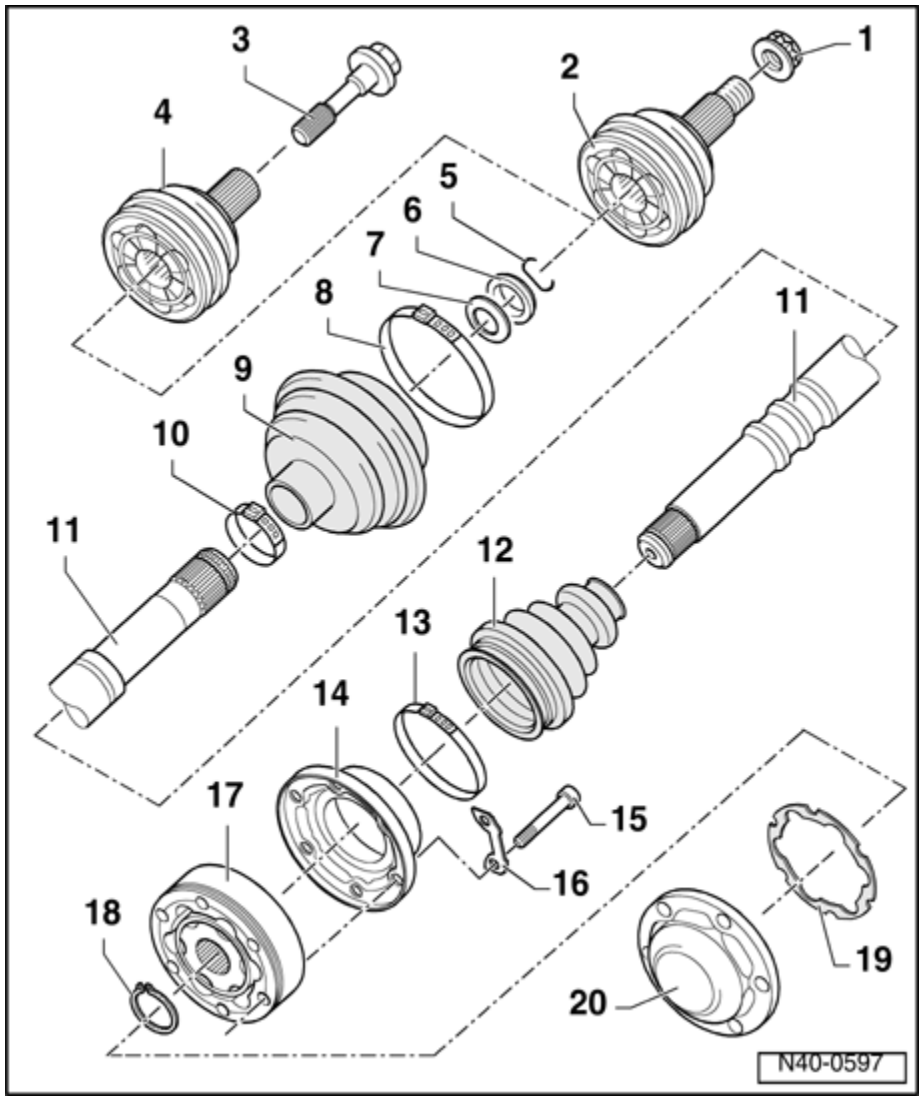
- Assembly Tool T10065

Grease quantity and type

Filling the axle shaft with high temperature grease. ⇒ *See Parts Catalog*

	Grease	of total:	
Outer joint	Total quantity	Joint	Protective boot
mm	[g]	[g]	[g]
98	120	80	40
Inner joint			
mm			
108	120	60	60

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



- **Self-locking 12-point nut**
  - Fastening ⇒ 40-5, Installing
  - Any paint residue and/or corrosion on thread of the outer joint must be removed before the nut is installed.
  - Replace each time it is removed

- **Outer constant velocity joint**
  - Replace only as a unit
  - Removing ⇒ 40-5, Removing outer constant velocity joint

- Installing: Using a plastic hammer, drive onto the shaft as far as the stop
- Checking ⇒ 40-5, Outer constant velocity joint, checking
- Greasing ⇒ 40-5, Grease quantity and type

- **Hex head bolt**
  - Fastening ⇒ 40-5, Installing
  - Any paint residue and/or corrosion on thread of the outer joint must be removed before the nut is installed.
  - Replace each time it is removed

- **Outer constant velocity joint**
  - For special models "Golf GTI 132 kW" and "R32"
  - Replace only as a unit
  - Removing ⇒ 40-5, Removing outer constant velocity joint
  - Installing: Using a plastic hammer, drive onto the shaft as far as the stop
  - Checking ⇒ 40-5, Outer constant velocity joint, checking
  - Greasing ⇒ 40-5, Grease quantity and type

- **Circlip**
  - Replace
  - Insert in groove in shaft

- **Thrust washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint
- **Spring washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint
- **Clamp**
  - Replace
  - Tightening with Cv Joint Boot Clamp Tool V.A.G 1682 ⇒ 40-5, Tightening hose clamp on outer joint
- **Protective boot**
  - Check for tears and chafing
  - Material: Hytrel (Polyelastomer)
- **Clamp**
  - Replace
  - Tightening ⇒ 40-5, Tightening clamp for CV joint boot (inner, small dia.)
- **Driveshaft**
- **Protective boot for inner constant velocity joint**
  - Material: Rubber
  - With vent hole

- Check for tears and chafing, replace if necessary

- **Clamp**
  - Replace

- **Cover**
  - Carefully drive off with a drift
  - Before installing on constant velocity joint, coat sealing surface with D 454 300 A2
  - Adhesive surface must be free of oil and grease

- **Multi-point socket head bolt**
  - Tighten diagonally to 10 Nm
  - Tighten to 70 Nm
  - Replace each time it is removed

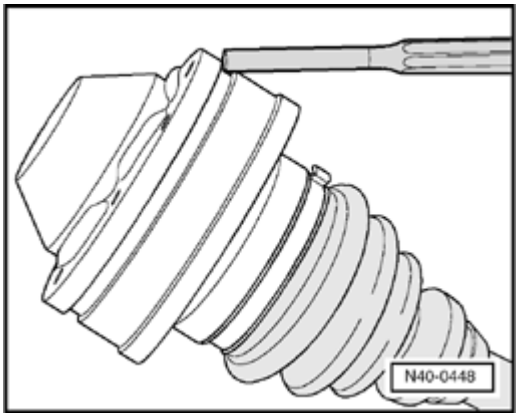
- **Backing plate**
- **Inner constant velocity joint**
  - Replace only as a unit
  - Pressing off ⇒ 40-5, Pressing off inner constant velocity joint
  - Pressing on ⇒ 40-5, Pressing on inner constant velocity joint
  - Checking ⇒ 40-5, Inner constant velocity joint, checking
  - Adhesive surface must be free of oil and grease

- Greasing ⇒ 40-5, Grease quantity and type

- **Circlip**
  - Replace

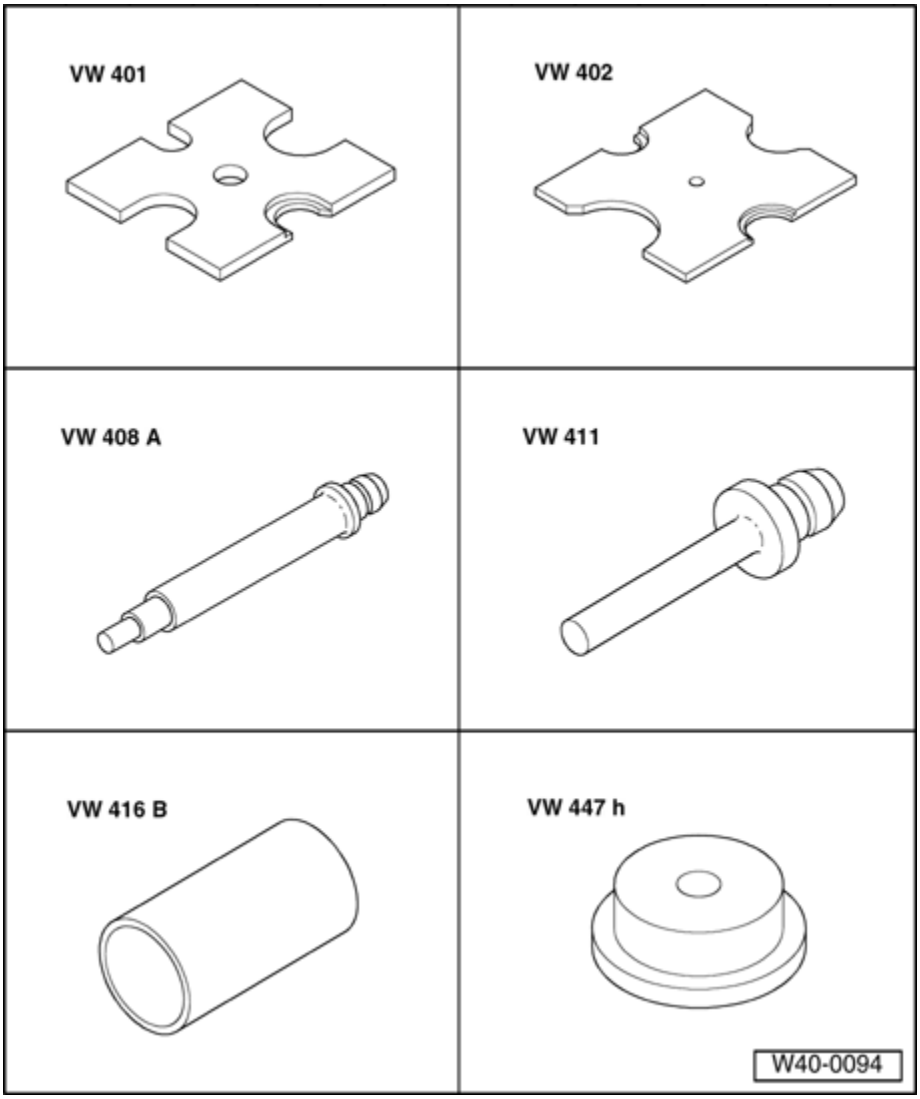
- **Gasket**
  - Replacing. Pull off protective foil and stick into joint.

- **Cover**
  - Carefully drive off with a drift ⇒ 40-5, Drive off cover for inner joint
  - Adhesive surface must be free of oil and grease
  - Before installing on constant velocity joint, coat sealing surface with D 454 300 A2



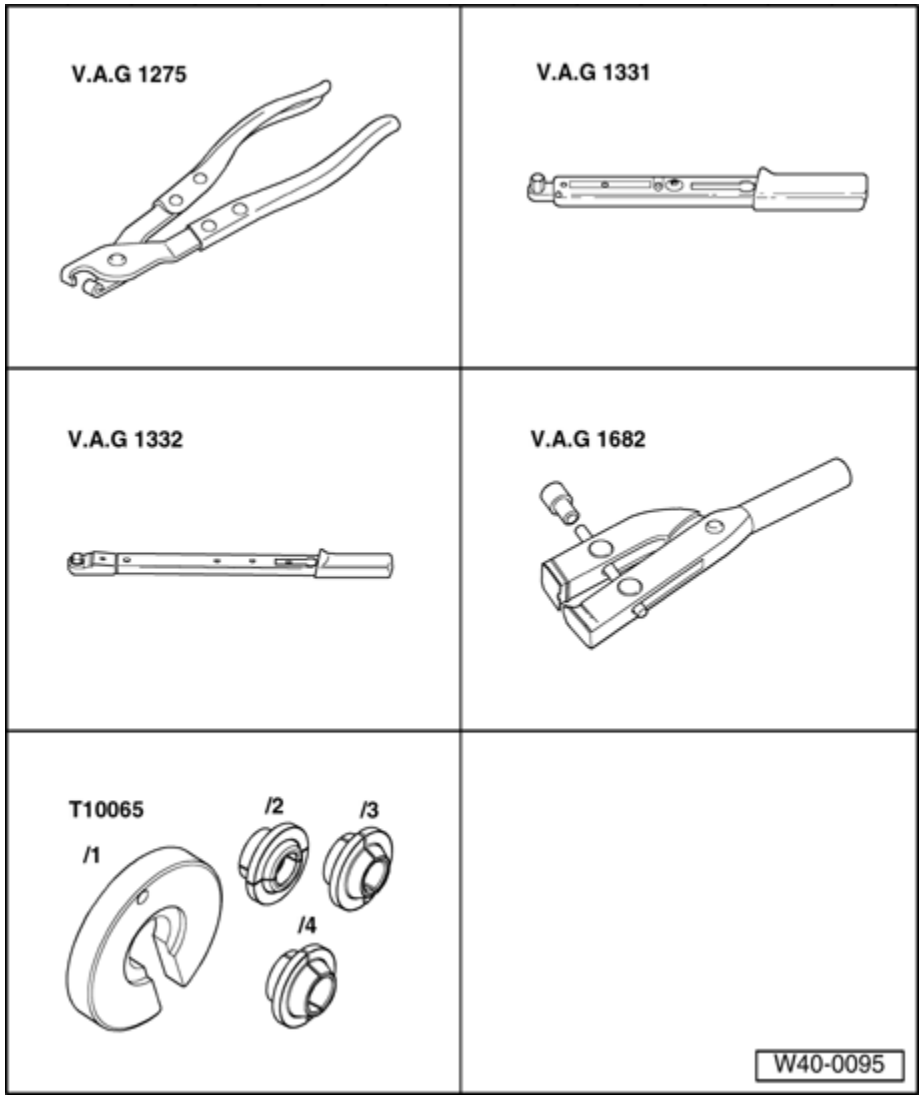
Drive off cover for inner joint

III - Axle shaft with triple roller joint AAR 2000, servicing



Special tools, testers and auxiliary items required

- Thrust Plate VW 401
- Thrust Plate VW 402
- Punch VW 408 A
- Punch VW 411
- Sleeve VW 416 B
- Thrust pad VW 447 H



Special tools, testers and auxiliary items required

- Hose Clamp Pliers V.A.G 1275
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 40-200 Nm V.A.G 1332
- Cv Joint Boot Clamp Tool V.A.G 1682

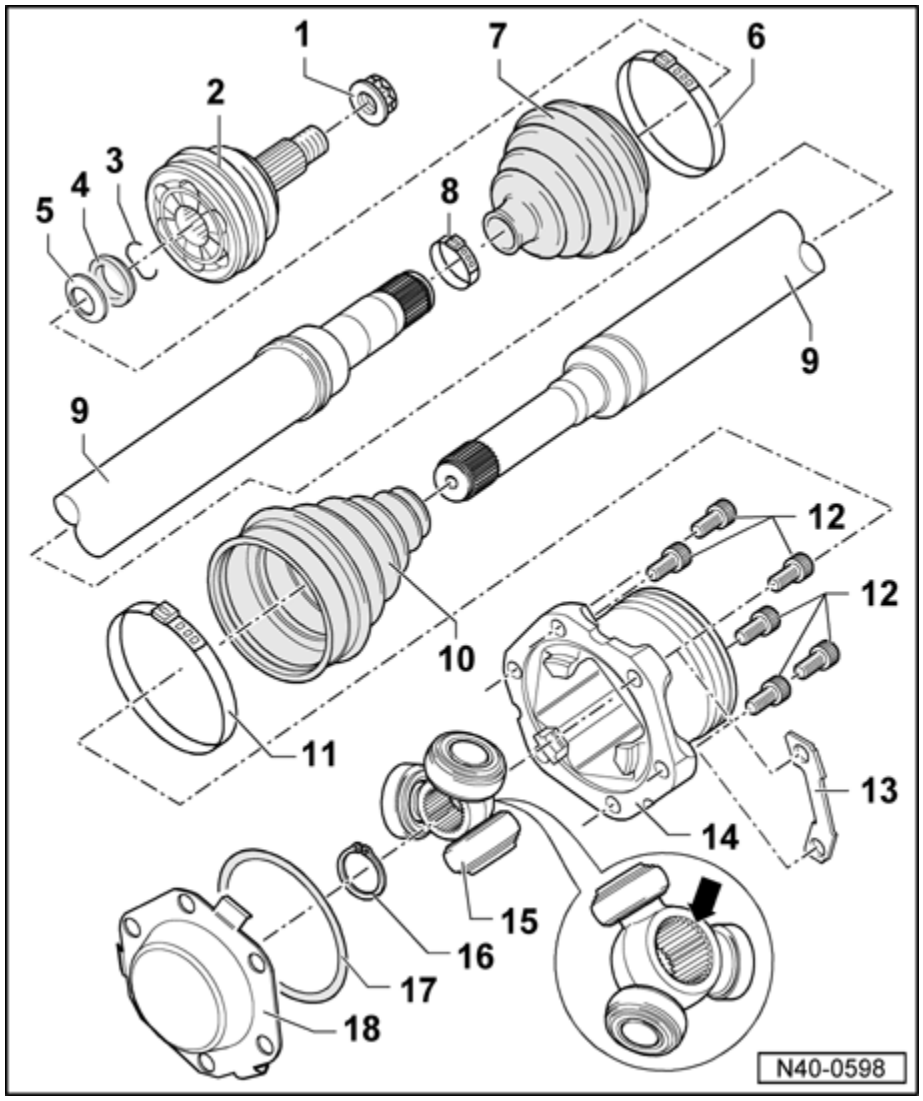
- Assembly Tool T10065

Grease quantity and type

Filling the axle shaft with high temperature grease. ⇒ *See Parts Catalog*

	Grease	of total:	
Outer joint	Total quantity	Joint	Protective boot
mm	[g]	[g]	[g]
90	100	50	50
Inner joint			
mm			
100	110	55	55
108	110	55	55

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



- **Self-locking 12-point nut**
  - Fastening ⇒ 40-5, Installing
  - Any paint residue and/or corrosion on thread of the outer joint must be removed before the nut is installed.

- **Outer constant velocity joint**
  - Replace only as a unit
  - Removing ⇒ 40-5, Removing outer constant velocity joint
  - Installing: Drive onto shaft with plastic hammer until

compressed circlip seats.

- Checking ⇒ 40-5, Outer constant velocity joint, checking
- Greasing ⇒ 40-5, Grease quantity and type

- **Circlip**
  - Insert in groove in shaft

- **Thrust washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint

- **Spring washer**
  - Outer diameter (concave side) contacts thrust washer

- **Clamp**
  - Replace each time it is removed
  - Tightening with Cv Joint Boot Clamp Tool V.A.G 1682 ⇒ 40-5, Tightening hose clamp on outer joint

- **Constant velocity joint boots**
  - Check for tears and chafing

- **Clamp**
  - Replace each time it is removed
  - Tightening ⇒ 40-5, Tightening clamp for CV joint boot (inner, small dia.)

- **Driveshaft**
- **Triple roller joint boot**
  - Check for tears and chafing
- **Clamp**

  For triple rotor star
  - Replace each time it is removed
  - Tightening ⇒ Topic 40-5
- **Multi-point socket head bolt**

  Torque specifications: ⇒ 40-5, Torque specifications:
- **Backing plate**

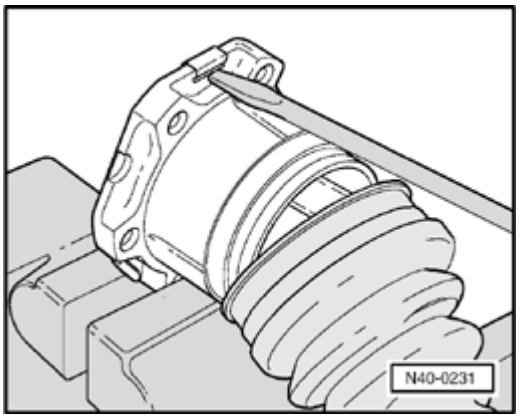
  Is only on joints with ∅ 108 mm
- **Joint piece**
- **Triple rotor star with rollers**

  The chamfer - arrow - points to drive shaft splines.
- **Circlip**
  - Always replace
- **O-ring**
  - Always replace
- **Cover**
  - Always replace

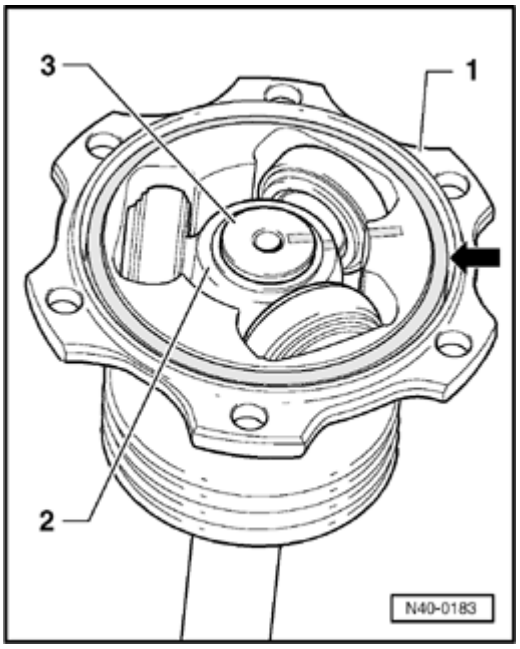
Triple roller joint, disassembling and assembling

Disassembling

- Open clamp on joint and slide back protective boot.



- Open out plate tabs with a flat screwdriver and pry off cover.



- Installation position of parts **- 1 . . . 3 -** mark by lines.

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.

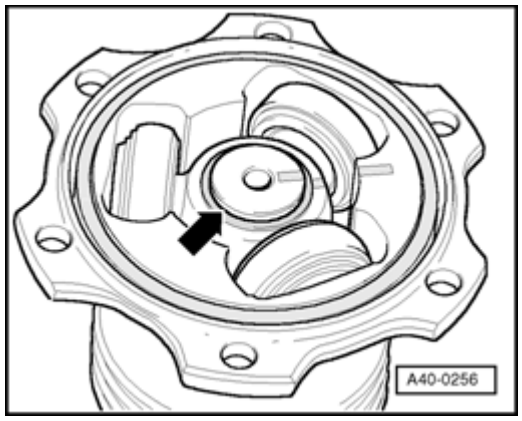
A waterproof felt tipped pen is suitable for marking.

1 - Joint piece

2 - Triple roller star

3 - Driveshaft

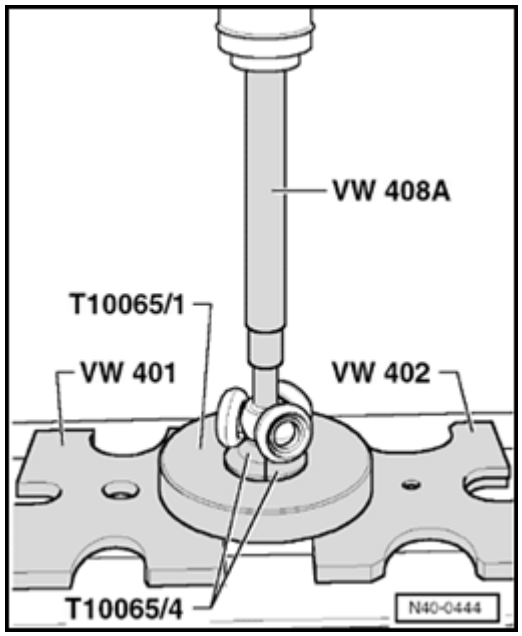
- Take O-ring arrow out of groove.



- Remove circlip **- arrow -** .

- Hold joint and take drive shaft out of vise.

- Insert drive shaft in press.



- Hold drive shaft, then press triple roller star off drive shaft.

- Take off Triple roller star with rollers and place on a clean surface.

- Pull joint off shaft.

- Pull protective boot off shaft.

- Clean shaft, joint and groove for oil seal.

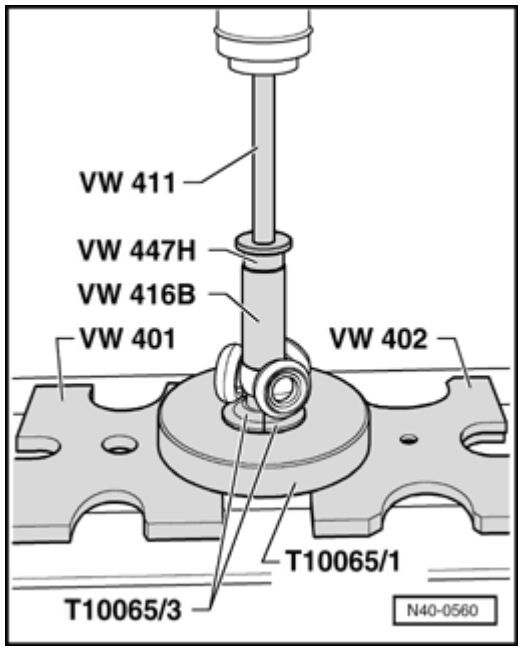
Assembling

- Slide joint protective boot onto shaft.

- Slide joint onto shaft.

Assembling triple roller star

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



- Install triple roller star onto shaft as per markings and press in to stop.

- Insert circlip, make sure seated correctly.

- Slide joint over rollers and hold.

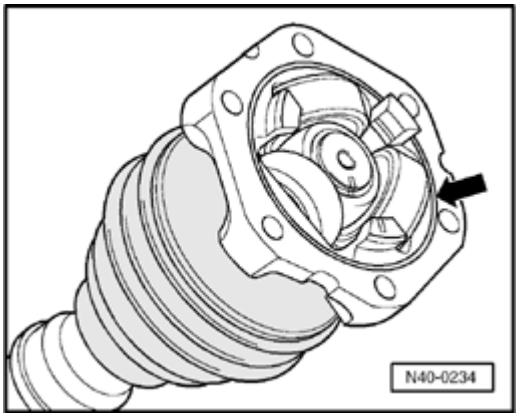
- Press the half of joint grease from repair set into triple roller joint.

- Press the other half of joint grease from repair set into the reverse side of the triple roller joint.

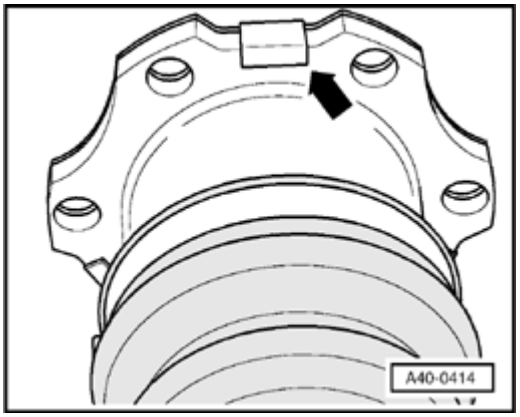
- Install joint protective boot.

The ridge in the joint protective boot must seat in the joint groove.

- Now remove axle shaft from vice and tighten joint in vise.

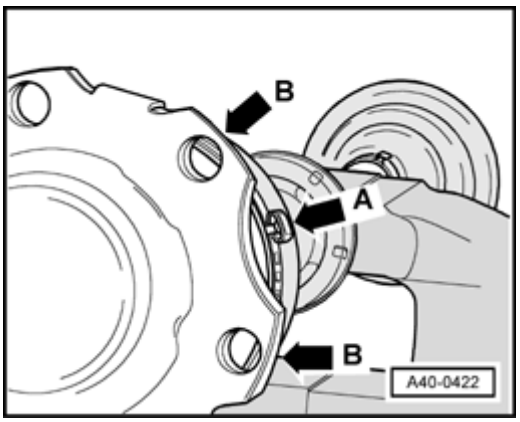


- Insert new seal **- arrow -** from repair kit into groove.



- Install new cover to joint. Position the plate tabs on the grooved surfaces from joint **- arrow -** .

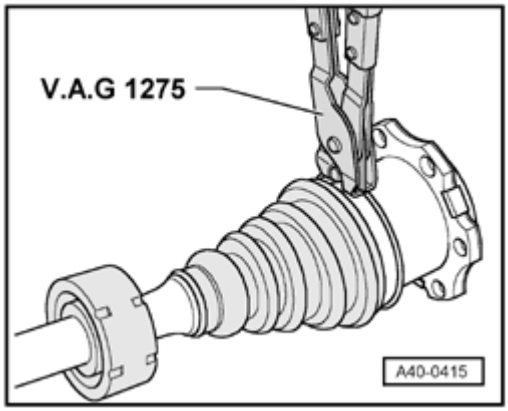
The holes of the cover and joint must align.



- Install clamp.

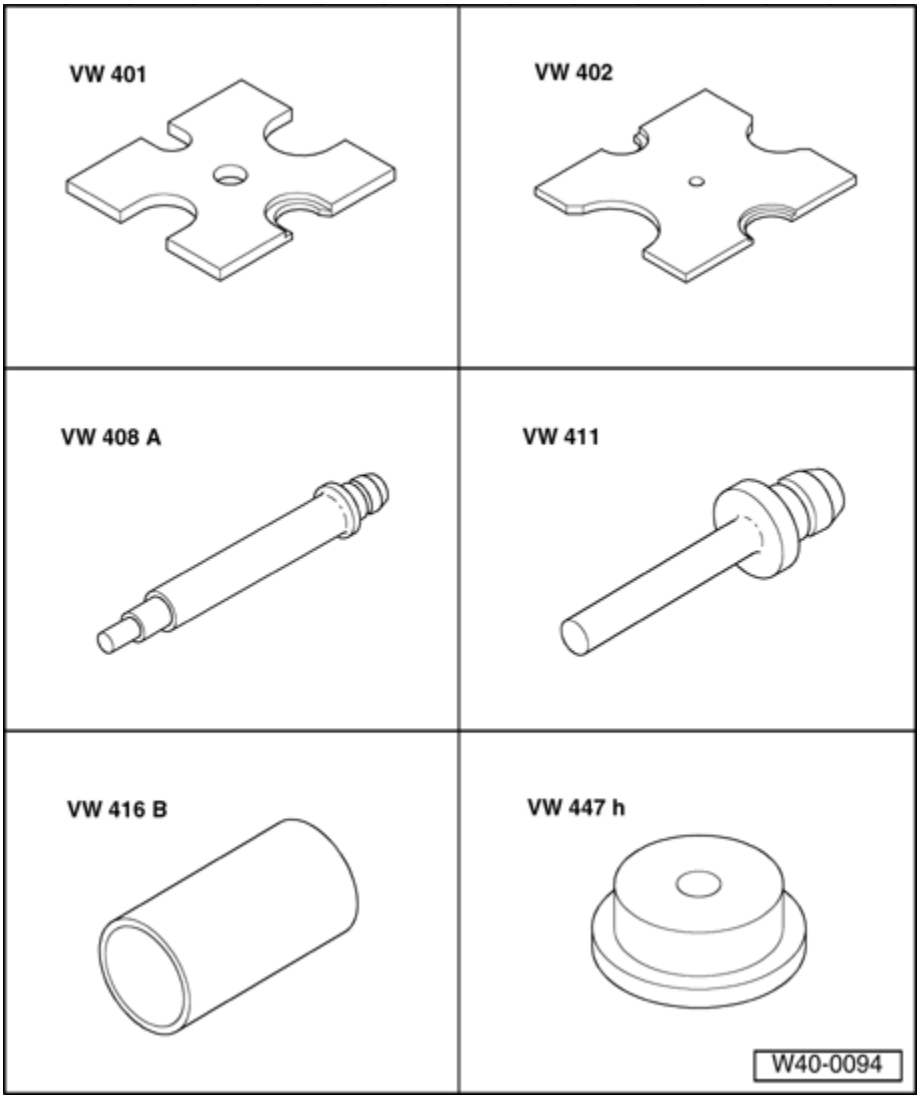
Note:

- *For a better alignment of the multi-point socket head bolts when mounting the axle shaft, it is necessary that the clamping ear of the clamp* ***- arrow A -*** *is placed between the fixing flanges from the joint* ***- arrow B -*** *.*



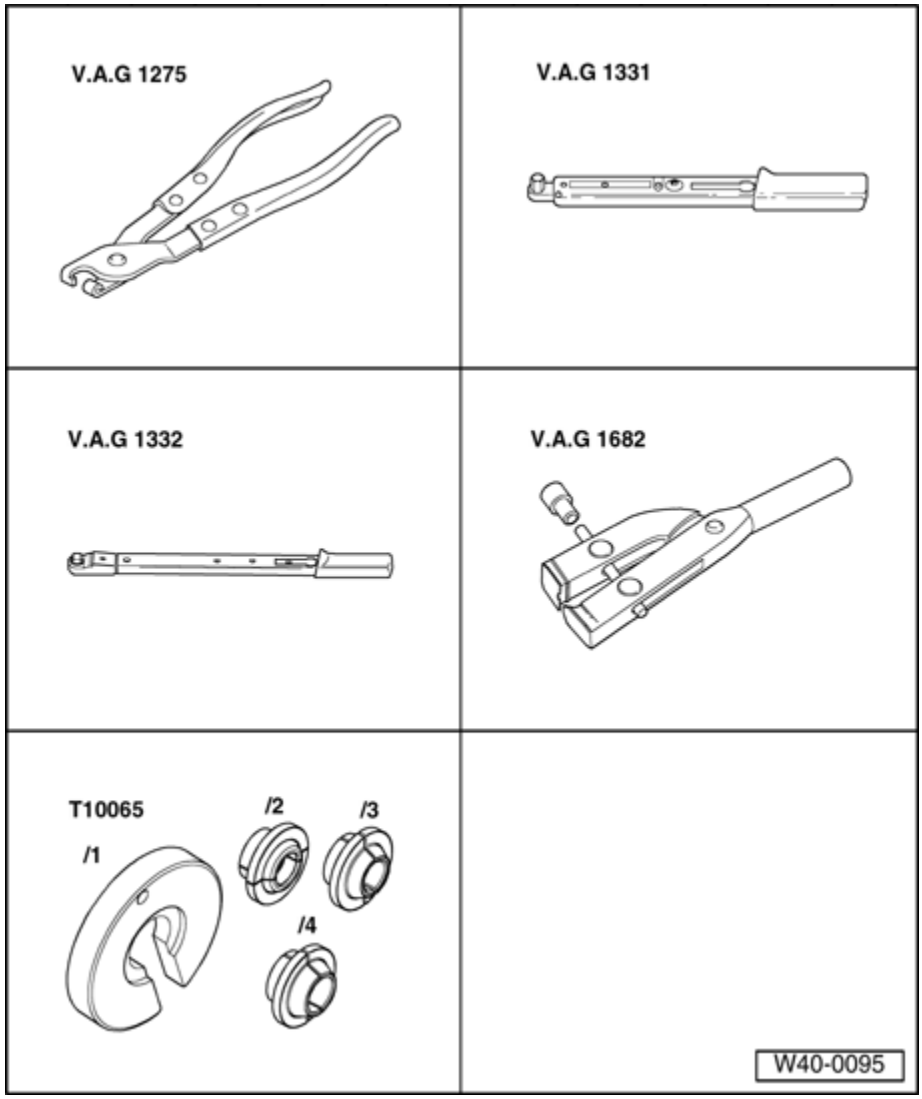
- Tighten clamp with Hose Clamp Pliers V.A.G 1275 .

IV - Axle shaft with triple roller joint AAR 2900, servicing



Special tools, testers and auxiliary items required

- Thrust Plate VW 401
- Thrust Plate VW 402
- Punch VW 408 A
- Punch VW 411
- Sleeve VW 416 B
- Thrust pad VW 447 H



Special tools, testers and auxiliary items required

- Hose Clamp Pliers V.A.G 1275
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 40-200 Nm V.A.G 1332
- Cv Joint Boot Clamp Tool V.A.G 1682

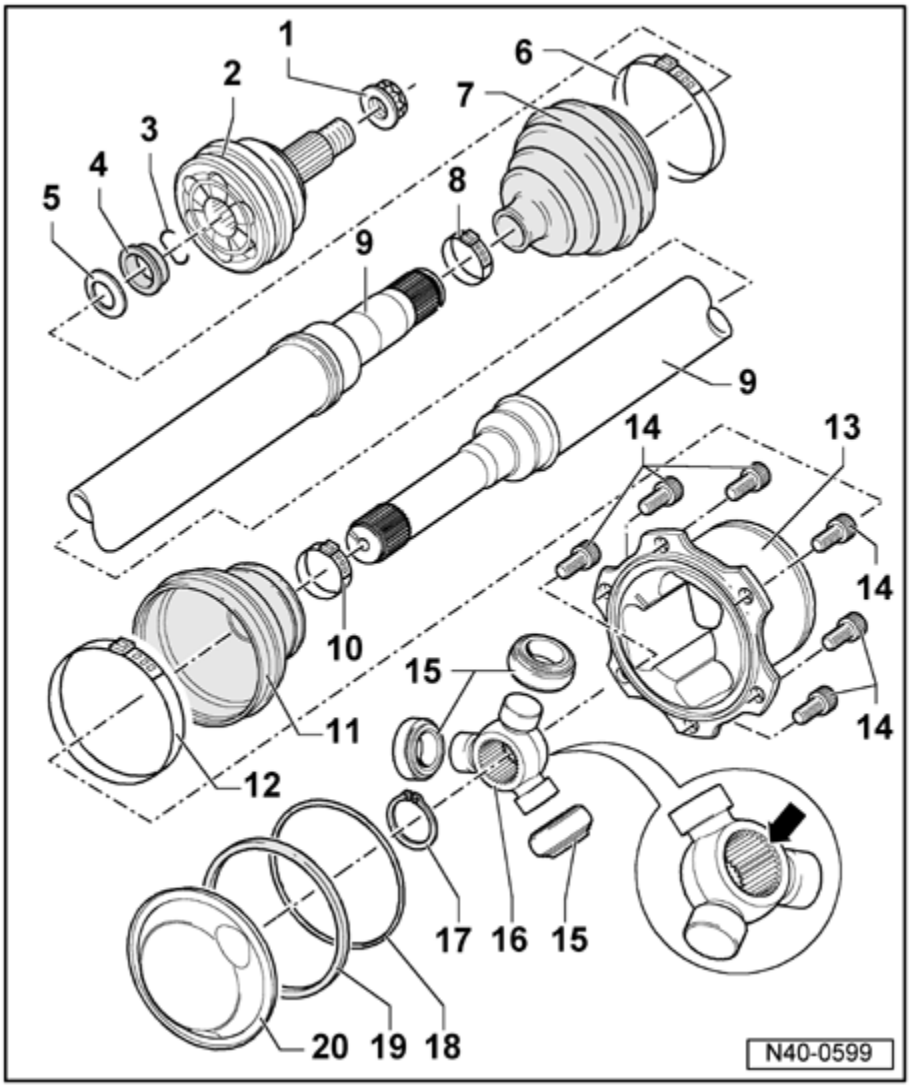
- Assembly Tool T10065

Grease quantity and type

Filling the axle shaft with high temperature grease. ⇒ *See Parts Catalog*

	Grease	of total:	
Outer joint	Total quantity	Joint	Protective boot
mm	[g]	[g]	[g]
90	100	50	50
Inner joint			
mm			
124	140	70	70

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



- **Self-locking 12-point nut**
  - Fastening ⇒ 40-5, Installing
  - Any paint residue and/or corrosion on thread of the outer joint must be removed before the nut is installed.
  - Replace each time it is removed

- **Outer constant velocity joint**
  - Replace only as a unit
  - Removing ⇒ 40-5, Removing outer constant velocity joint

- Installing: Drive onto shaft with plastic hammer until compressed circlip seats.
- Checking ⇒ 40-5, Outer constant velocity joint, checking
- Greasing ⇒ 40-5, Grease quantity and type

- **Circlip**
  - Replace each time it is removed
  - Insert in groove in shaft

- **Thrust washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint

- **Spring washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint

- **Clamp**
  - Replace each time it is removed
  - Tightening with Cv Joint Boot Clamp Tool V.A.G 1682 ⇒ 40-5, Tightening hose clamp on outer joint

- **Constant velocity joint boots**
  - Check for tears and chafing
  - Material: Hytrel

(Polyelastomer)

- **Clamp**
  - Replace each time it is removed
  - Tightening ⇒ 40-5, Tightening clamp for CV joint boot (inner, small dia.)
- **Driveshaft**
- **Clamp**
  - Replace each time it is removed
  - Tightening ⇒ Topic 40-5
- **Triple roller joint boot**
  - Check for tears and chafing
- **Clamp**
  - Replace each time it is removed
  - Tightening ⇒ Topic 40-5
- **Joint piece**
- **Multi-point socket head bolt**
  - M 8 x 18

Torque specifications: ⇒ 40-5, Torque specifications:

- **Rollers**
- **Triple roller star**

The chamfer - arrow - points to drive shaft splines.

- **Circlip**
  - Replace
  - Insert in groove in shaft
- **O-ring**

  Is no longer required for assembly.
- **Rectangular section seal**

  This oil seal is part of the repair kit. It is not installed during manufacturing.

  No longer supplied as a replacement part. In the future a new repair kit will be supplied.
- **Cover**

  Destroyed when disassembling.

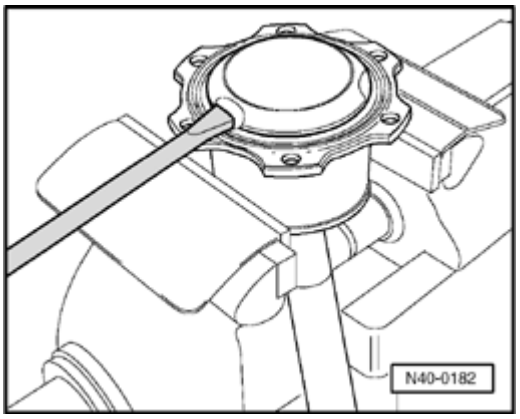
  No longer required when assembling and is therefore no longer supplied as a spare part.

  A new cover is included in the repair kit.

Triple-rotor joint AAR 2900, disassembling and assembling

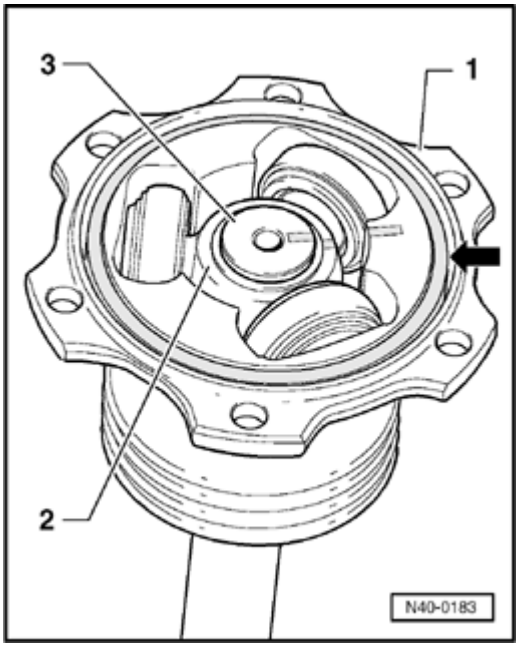
Disassembling

- Open clamp on joint and slide back protective boot.
- 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 pried off, we recommend that a screwdriver is driven in on the opposite side, then pry off cover.



- Mark installation position of part **- 13 -** .

It is only necessary to mark parts when the rollers are pulled off the triple roller star.

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 piece

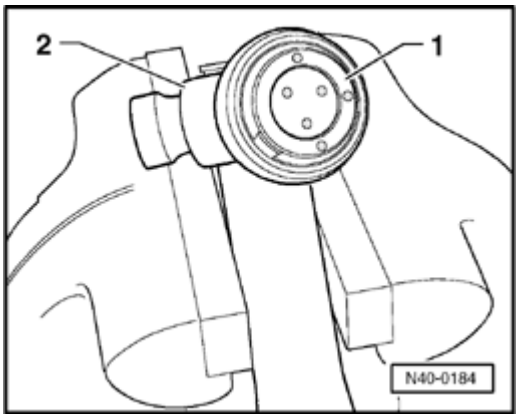
2 - Triple roller star

3 - Driveshaft

- Hold joint and take drive shaft out of vise.

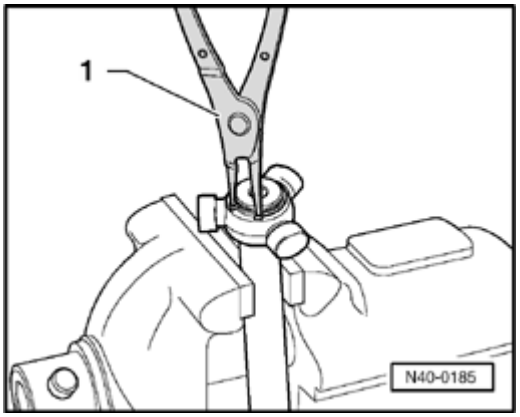
Make sure that the rollers do not slide off the triple roller star and fall on the ground!

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



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

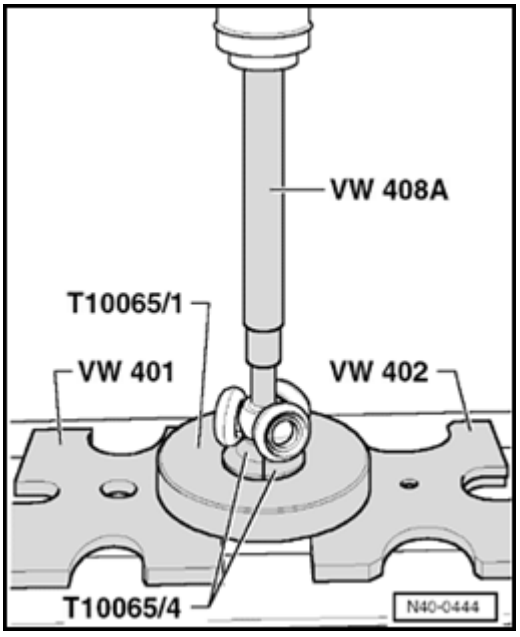
- Take off rollers **- 1 -** and place on a clean surface.



- Remove circlip.

1 - Pliers (commercially available)

- 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

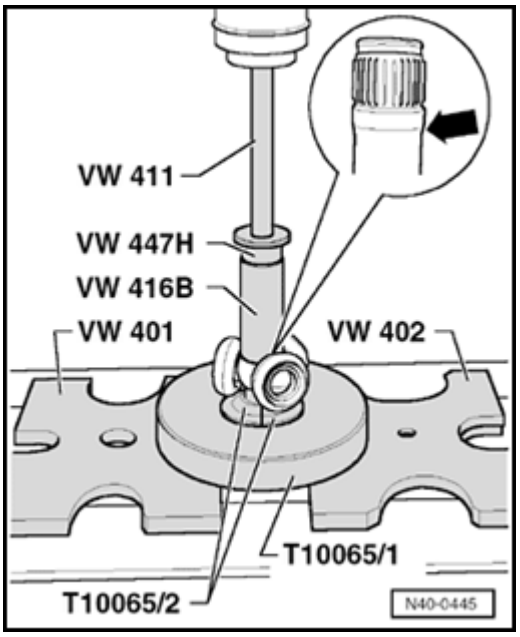
- Slide small clamp for joint protective boot onto shaft.

- Slide joint protective boot onto shaft.

- Slide joint onto shaft.

Assembling triple roller star

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



- Install triple roller star onto shaft and press onto stop.

- Make sure that the pressure does not exceed 3.0 t!

- If necessary coat drive shaft splines and triple-roller star with lubricating paste G 052 142 A2 .

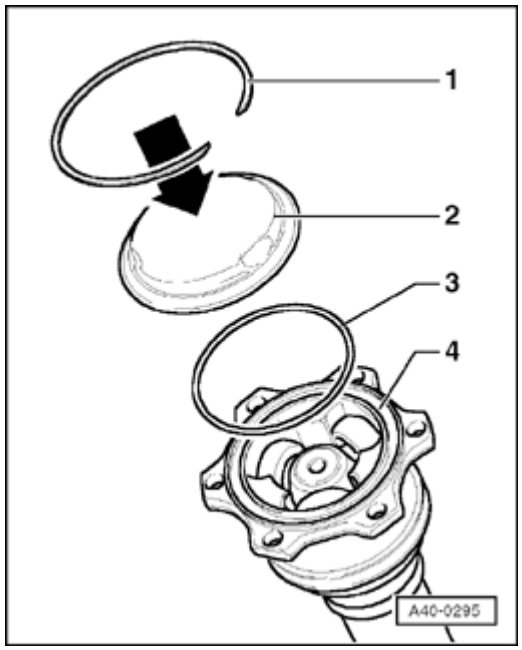
- Insert circlip, make sure seated correctly.

- Install rollers onto triple roller star 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.



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

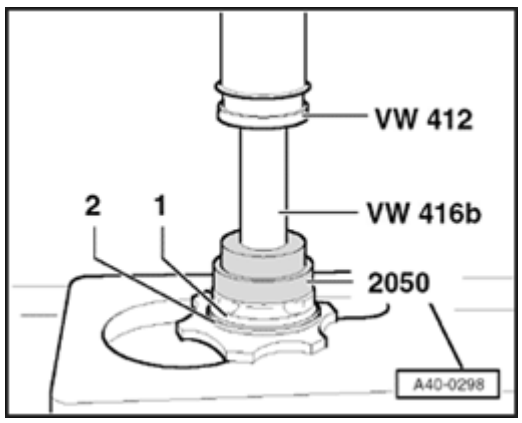
1 - Circlip

2 - Cover from repair kit

3 - O-ring

4 - Tripod joint

- Insert drive shaft in press.

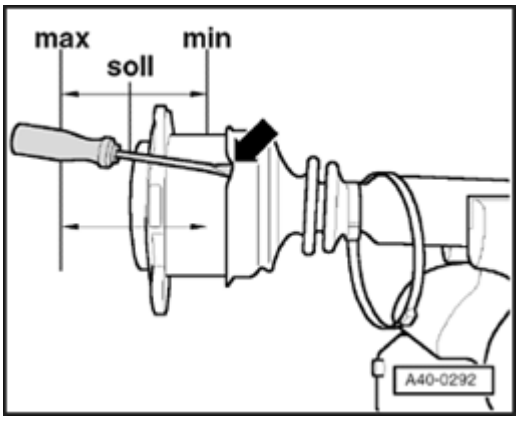


- Press cover **- 1 -** into triple roller joint until circlip can be installed.

- Insert circlip, make sure seated correctly.

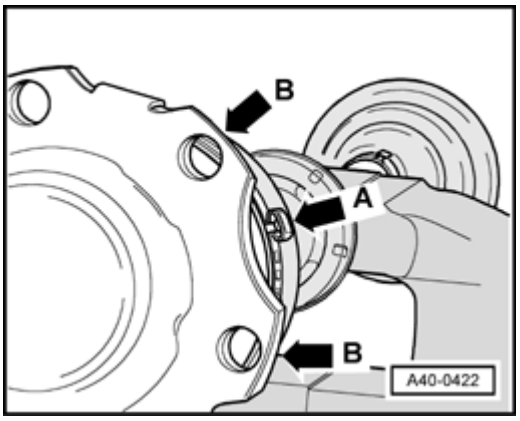
The circlip must be audibly engaged to locate!

- 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 -** .

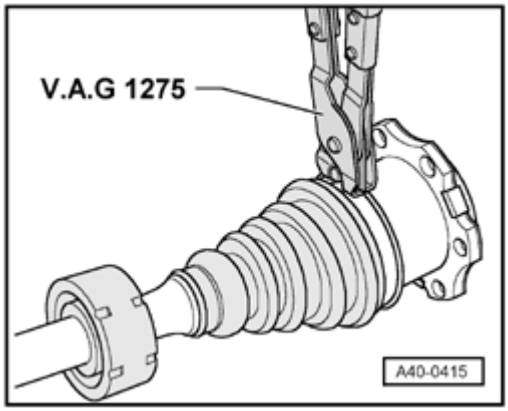


- Install clamp.

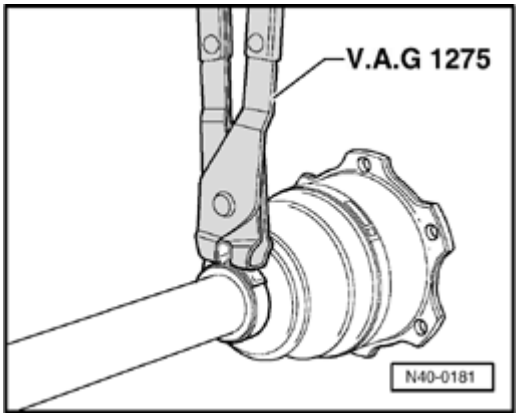
This allows a possible vacuum inside the boot to escape.

Note:

- *For a better alignment of the multi-point socket head bolts when mounting the axle shaft, it is necessary that the clamping ear of the clamp **- arrow A -** is placed between the fixing flanges from the joint **- arrow B -** .*

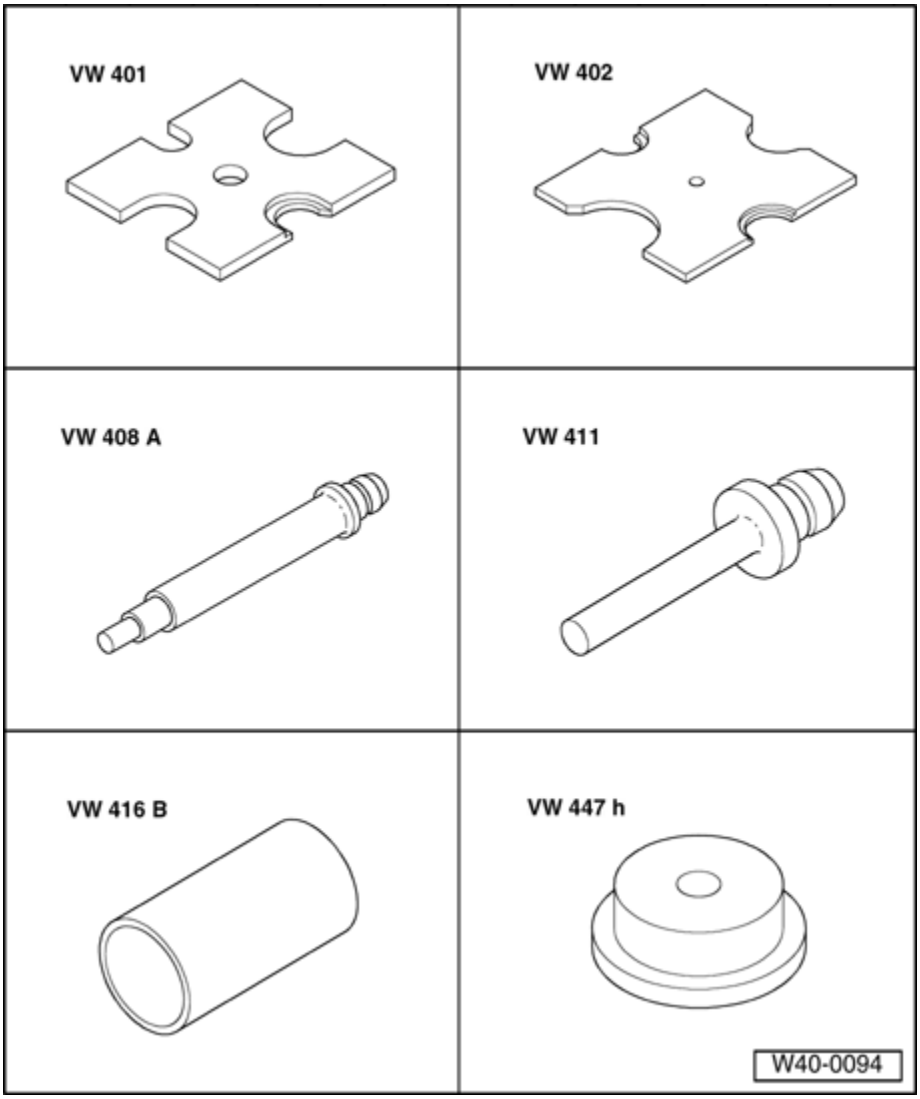


- Tighten clamp with Hose Clamp Pliers V.A.G 1275 .



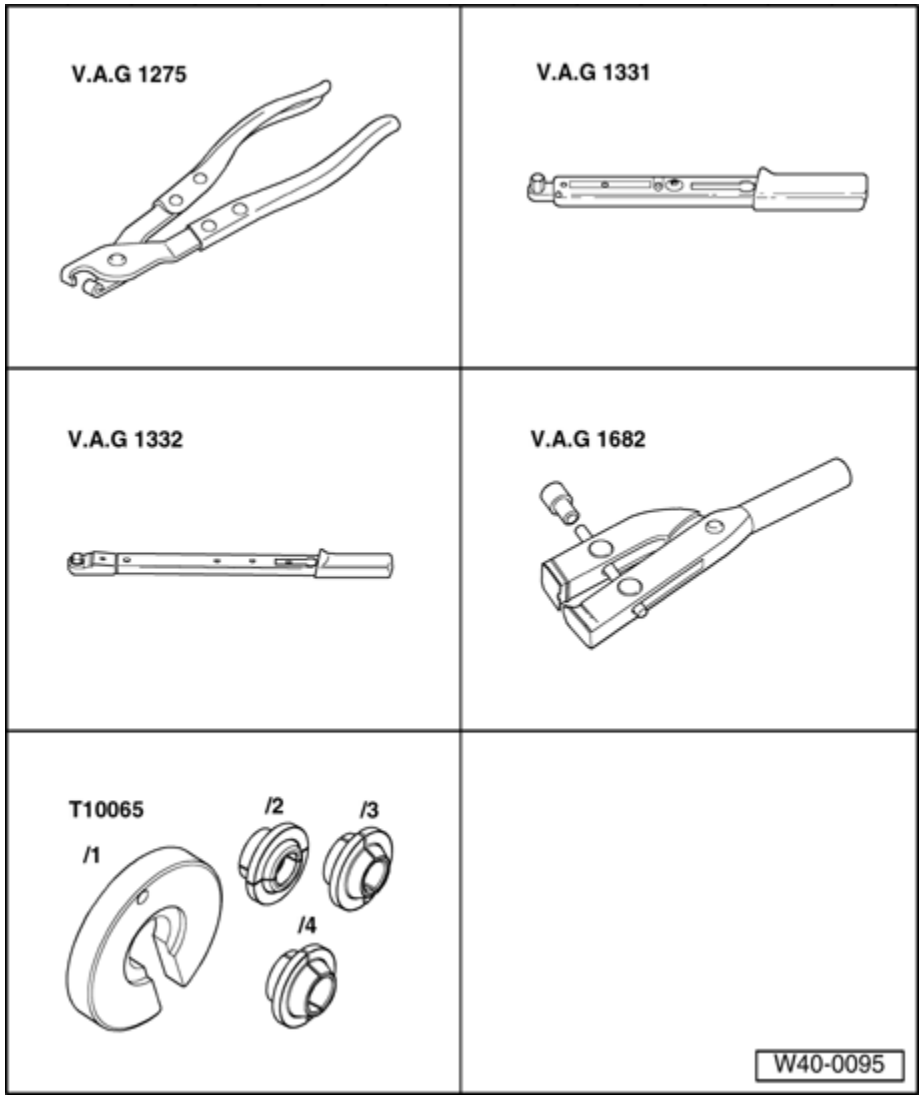
- Tighten clamp with Hose Clamp Pliers V.A.G 1275 .

V - Axle shaft with triple roller joint AAR 3300i, servicing



Special tools, testers and auxiliary items required

- Thrust Plate VW 401
- Thrust Plate VW 402
- Punch VW 408 A
- Punch VW 411
- Sleeve VW 416 B
- Thrust pad VW 447 H



Special tools, testers and auxiliary items required

- Hose Clamp Pliers V.A.G 1275
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 40-200 Nm V.A.G 1332
- Cv Joint Boot Clamp Tool V.A.G 1682

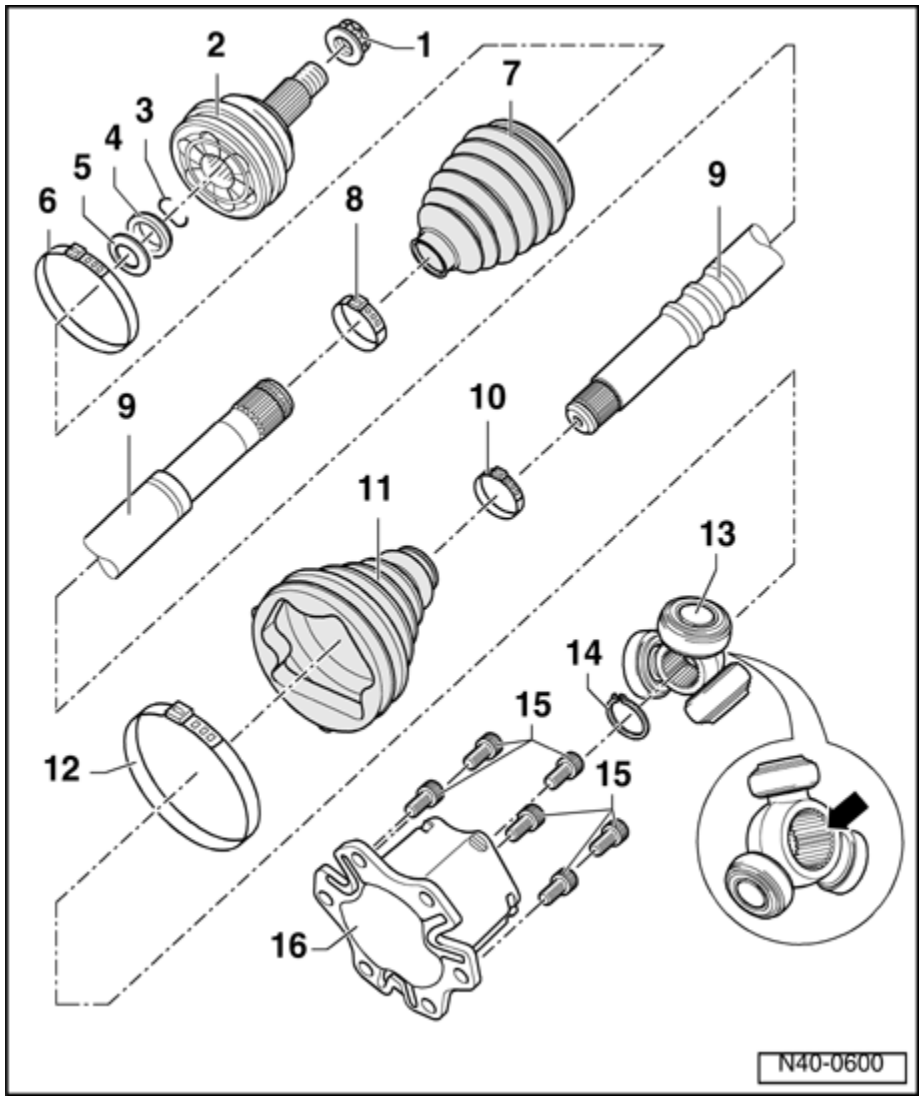
- Assembly Tool T10065

Grease quantity and type

Filling the axle shaft with high temperature grease. ⇒ *See Parts Catalog*

	Grease	of total:	
Outer joint	Total quantity	Joint	Protective boot
mm	[g]	[g]	[g]
98	120	80	40
Inner joint			
mm			
123	130	70	60

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



- **Self-locking 12-point nut**
  - Fastening ⇒ 40-5, Installing
  - Any paint residue and/or corrosion on thread of the outer joint must be removed before the nut is installed.
  - Replace each time it is removed

- **Outer constant velocity joint**
  - Replace only as a unit
  - Removing ⇒ 40-5, Removing outer constant velocity joint

- Installing: Drive onto shaft with plastic hammer until securing ring engages.
- Greasing ⇒ 40-5, Grease quantity and type
- Checking ⇒ 40-5, Outer constant velocity joint, checking

- **Circlip**
  - Replace each time it is removed
  - Insert in groove in shaft

- **Thrust washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint

- **Spring washer**
  - Installed location ⇒ 40-5, Installed location of spring washer and thrust washer on outer joint

- **Clamp**
  - Replace each time it is removed
  - Tightening with Cv Joint Boot Clamp Tool V.A.G 1682 ⇒ 40-5, Tightening hose clamp on outer joint

- **Constant velocity joint boots**
  - Check for tears and chafing
  - Material: Hytrel

(Polyelastomer)

- **Clamp**
  - Replace each time it is removed
  - Tightening ⇒ 40-5, Tightening clamp for CV joint boot (inner, small dia.)
- **Driveshaft**
- **Clamp**
  - Replace each time it is removed
  - Tightening ⇒ Topic 40-5
- **Triple roller joint boot**
  - Check for tears and chafing
- **Clamp**
  - Replace each time it is removed
  - Tightening ⇒ Topic 40-5
- **Triple rotor star with rollers**

  The chamfer - arrow - points to drive shaft splines.
- **Circlip**
  - Replace each time it is removed
  - Insert in groove in shaft
- **Multi-point socket head bolt**

  Torque specifications: ⇒ 40-5,

Torque specifications:

- **Joint piece**

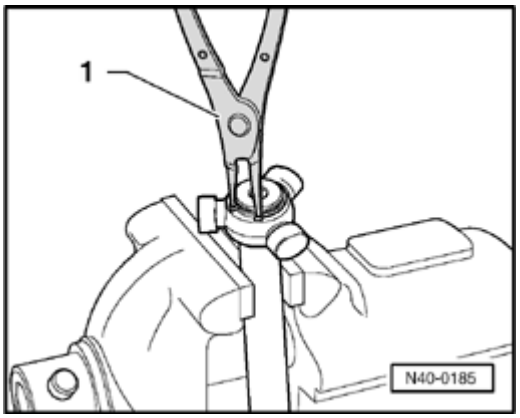
Triple-rotor joint AAR 3300i, disassembling and assembling

Disassembling

- Open clamp on joint and slide back protective boot.

- Open clamp on shaft and slide back joint protective boot.

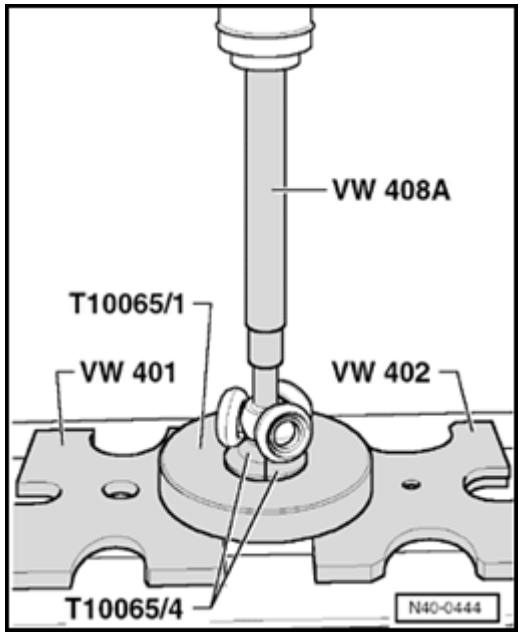
- Pull the joint off the axle shaft.



- Remove circlip.

1 - Pliers (commercially available) VW 161 A

- Place driveshaft into the press.



- Press off the triple roller star from the driveshaft.
- Pull protective boot off shaft.
- Clean shaft, joint and groove for oil seal.

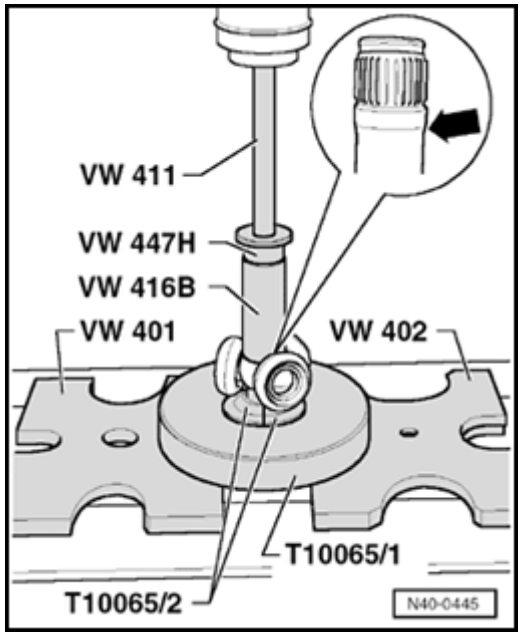
Assembling

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

Assembling triple roller star

Conical-type axle shaft

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



- Install triple roller star onto shaft and press onto stop.

- Make sure that the pressure does not exceed 3.0 t!

- If necessary coat drive shaft splines and triple-roller star with lubricating paste G 052 142 A2 .

- Insert circlip, make sure seated correctly.

- Press 70 grams of joint grease from repair set, into triple roller joint.

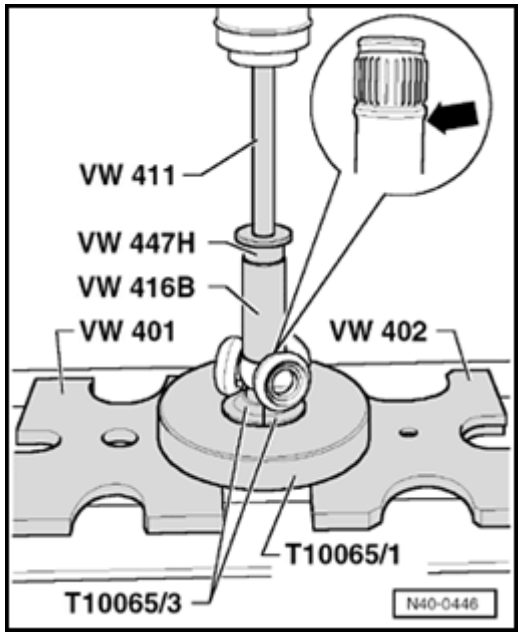
- Slide joint over rollers and hold.

- Press 60 grams of joint grease, from repair set, into the reverse side of the triple roller joint.

- Install joint protective boot.

Assembling triple roller star

Cylindrical-type axle shaft



- Install triple roller star onto shaft and press onto stop.

- Make sure that the pressure does not exceed 3.0 t!

- If necessary coat drive shaft splines and triple-roller star with lubricating paste G 052 142 A2 .

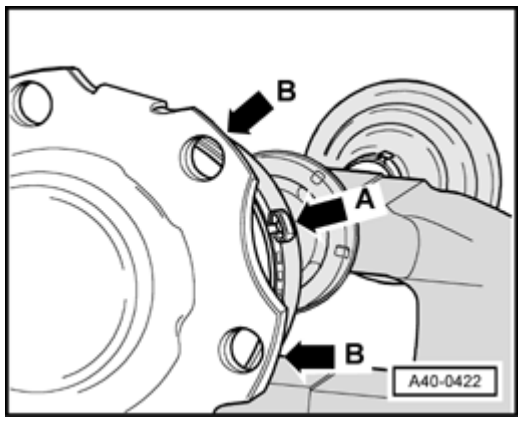
- Insert circlip, make sure seated correctly.

- Press 70 grams of joint grease from repair set, into triple roller joint.

- Slide joint over rollers and hold.

- Press 60 grams of joint grease, from repair set, into the reverse side of the triple roller joint.

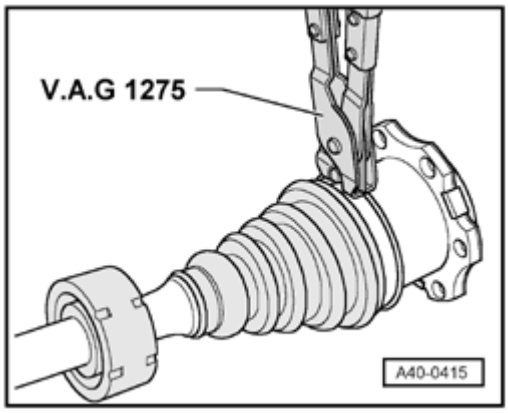
- Install joint protective boot.



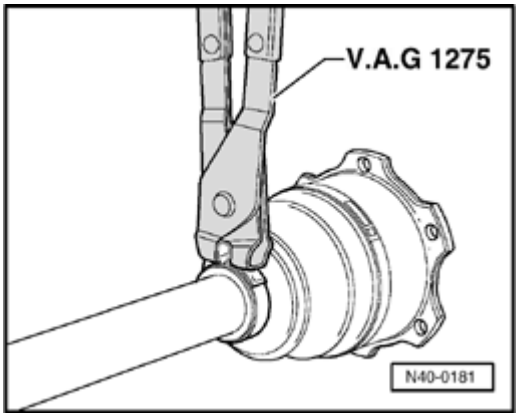
- Install clamp.

Note:

- *For a better alignment of the multi-point socket head bolts when mounting the axle shaft, it is necessary that the clamping ear of the clamp* ***- arrow A -*** *is placed between the fixing flanges from the joint* ***- arrow B -*** *.*



- Tighten clamp with Hose Clamp Pliers V.A.G 1275 .



- Tighten clamp with Hose Clamp Pliers V.A.G 1275 .