

## Front suspension assembly

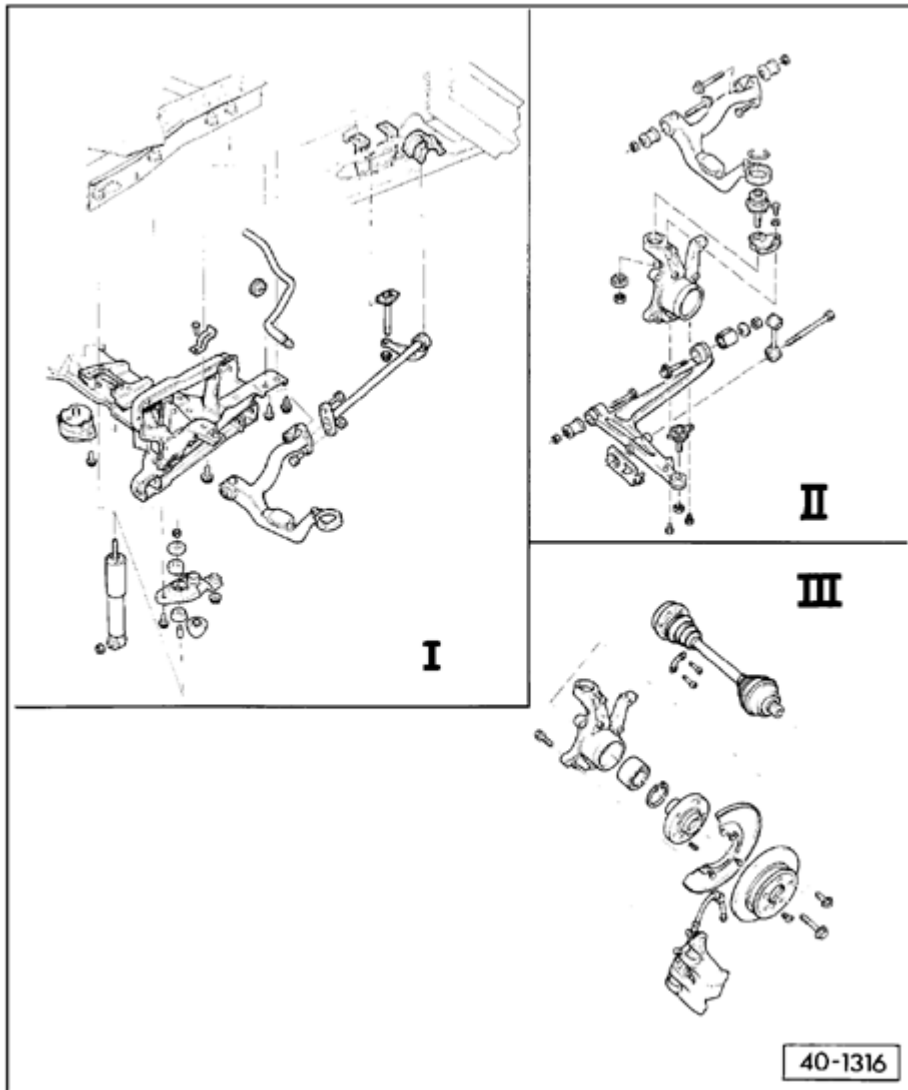
I - Removing and installing subframe, stabilizer bar, torsion bar and shock absorber ⇒ [Page 40-4](#)

II - Removing and installing upper and lower control arms ⇒ [Page 40-20](#)

III - Removing and installing wheel mountings and axle shafts ⇒ [Page 40-38](#)

### Note:

- ◆ *The upper control arm is pushed down by the force of the torsion bar. During the following operations always install the support 3250 or relieve pressure on the torsion bar:*
- ◆ *Removing and installing shock absorber*
- ◆ *Removing and installing wheel bearing/wheel bearing housing*
- ◆ *Removing and installing axle shaft*
- ◆ *Removing and installing lower ball joint/control arm*

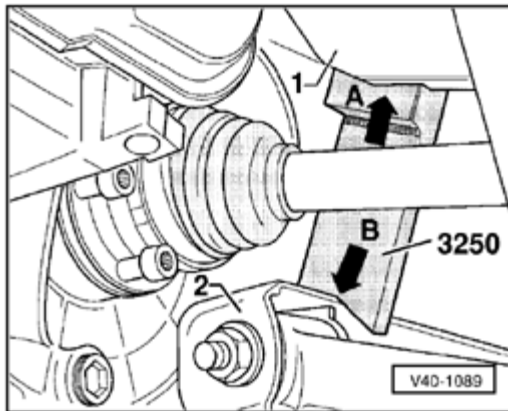


- ◆ *Removing and installing upper control arm*
- ◆ *Removing and installing eccentric bushing on upper control arm*
- ◆ *Removing and installing stabilizer bar*
- ◆ *Installing support 3250 ⇒ [Page 40-3](#)*

### Support 3250, installing to support upper control arm

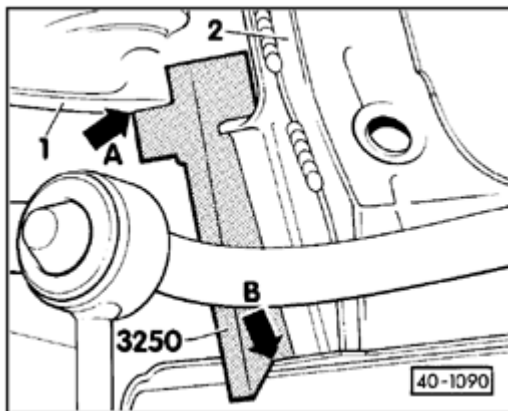
Install support 3250 before lifting the vehicle.

If the support 3250 cannot be installed, even after loading the vehicle, torsion bar tension must be relieved ⇒ [Page 40-12](#) . Removing and installing torsion bar/adjusting torsion bar.

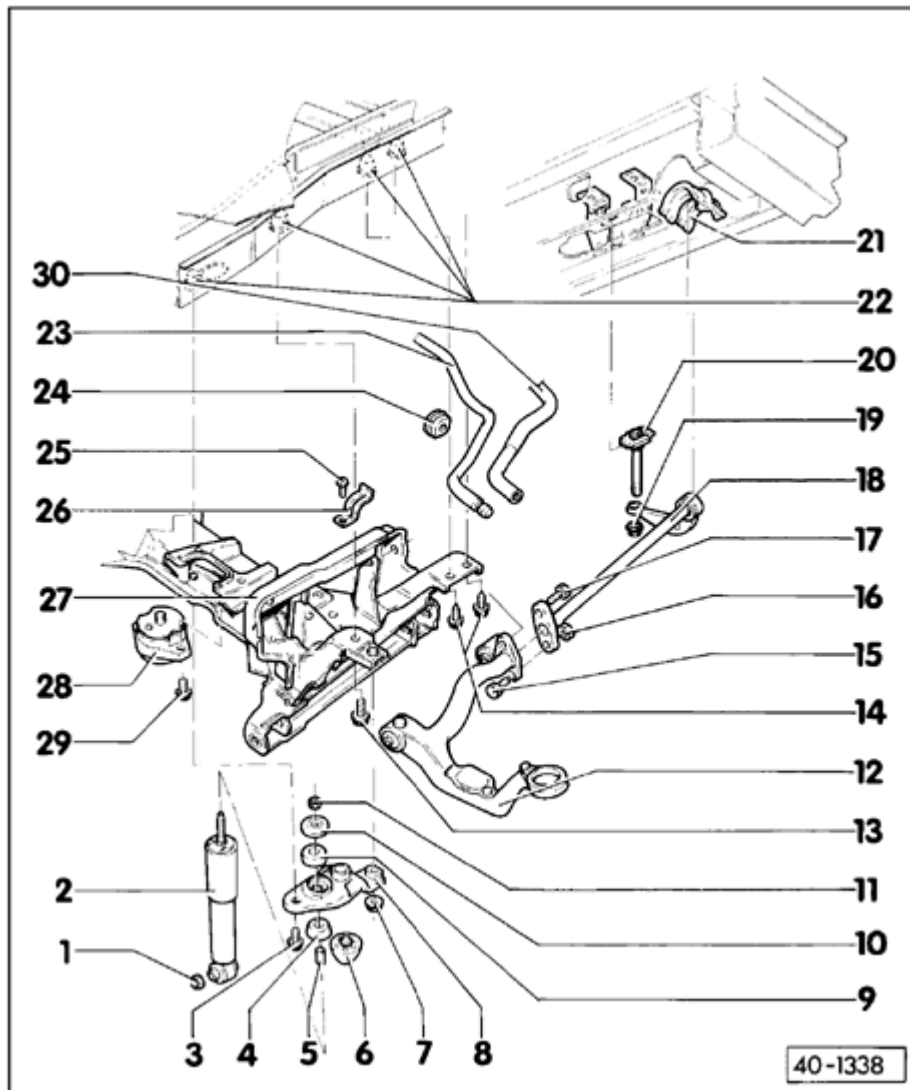


- ◀ - Install support 3250 so that surface (arrow A) is positioned under upper control arm -1- and V-shaped cut-out (arrow B) is resting on subframe -2-.

#### **Note:**



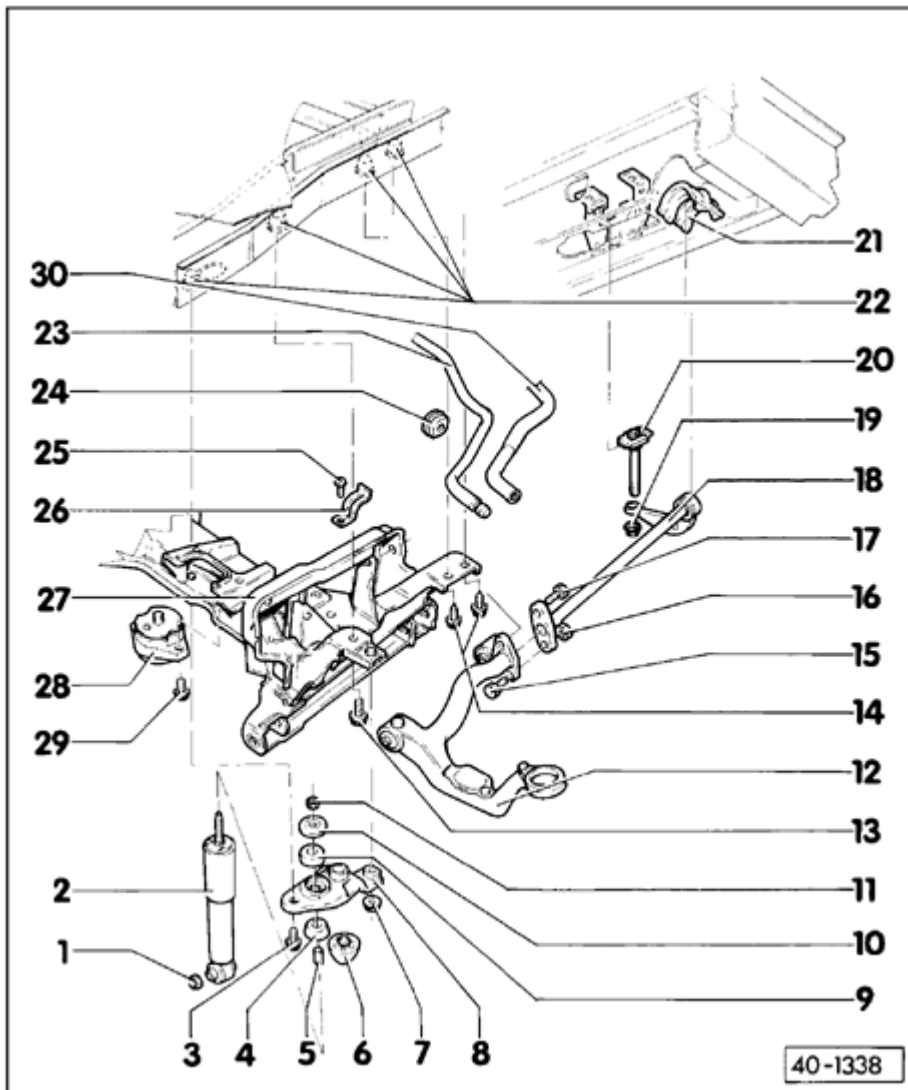
- ◀ *If the vehicle is fully loaded, raise it on a hoist just far enough to install the support.*



## Subframe assembly, stabilizer bar, torsion bar and control arm, removing and installing

### Note:

- ◆ *If the vehicle has to be moved after removing an axle shaft, first install an outer CV joint in place of the axle shaft or the wheel bearing will be damaged.*
- ◆ *Specifications for wheel alignment ⇒ [Page 44-7](#) .*
- ◆ *Do not weld or straighten load bearing or wheel locating components of the front suspension.*
- ◆ *Always replace self-locking nuts.*
- ◆ *Always replace corroded fasteners.*



**1 - Hex nut, 160 Nm (118 ft lb)**

**2 - Shock absorber**

◆ Removing and installing ⇒ [Page 40-11](#)

◆ Identification ⇒ [Page 40-11](#)

**3 - Bolt, 100 Nm (74 ft lb)**

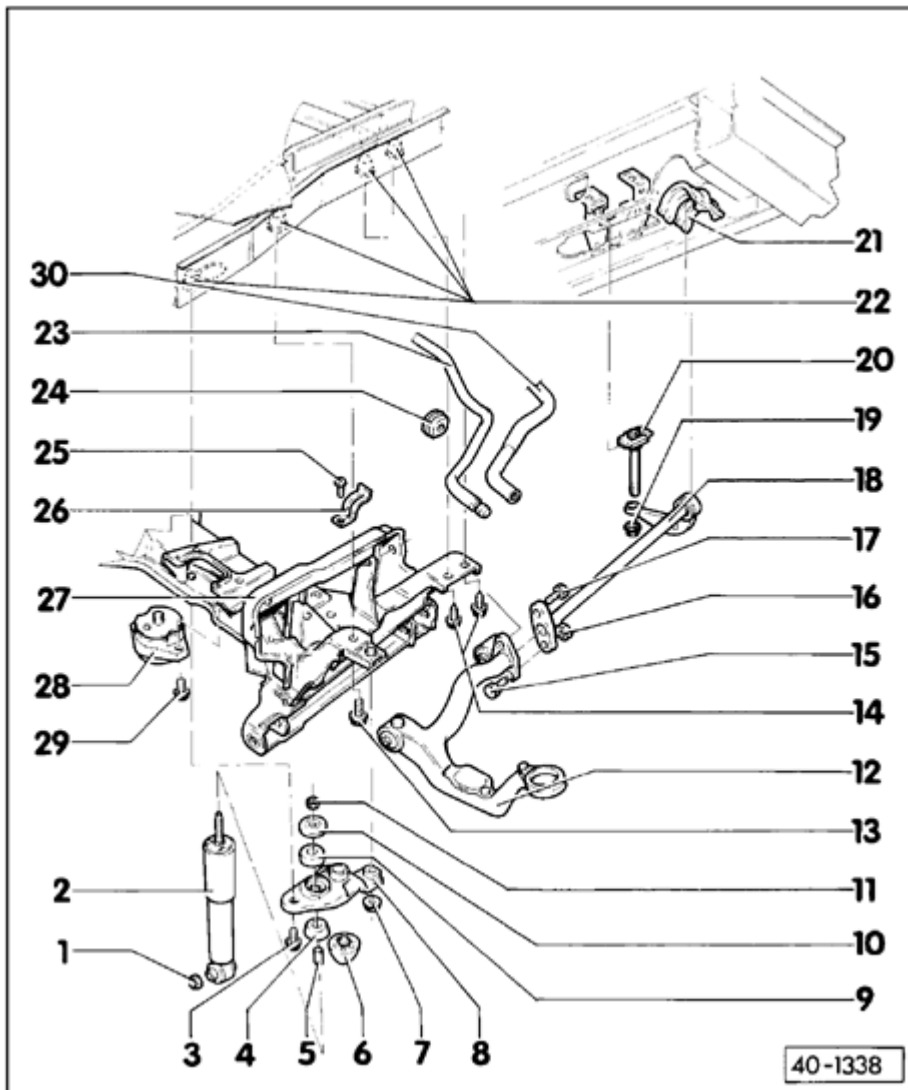
**4 - Lower bearing bushing**

**5 - Spacer tube**

**6 - Bump stop**

**7 - Hex nut, 100 Nm (74 ft lb)**

**8 - Shock absorber mounting**



**9 - Upper bearing bushing**

**10 - Washer**

◆ Collar faces downward

**11 - Hex nut, 25 Nm (18 ft lb)**

**12 - Upper control arm**

◆ Can only be removed when subframe assembly has been removed

**13 - Hex bolt, 160 Nm (118 ft lb)**

◆ M 14 x 1.5 x 40

**14 - Hex bolt, 100 Nm (74 ft lb)**

◆ M 12 x 1.5 x 32

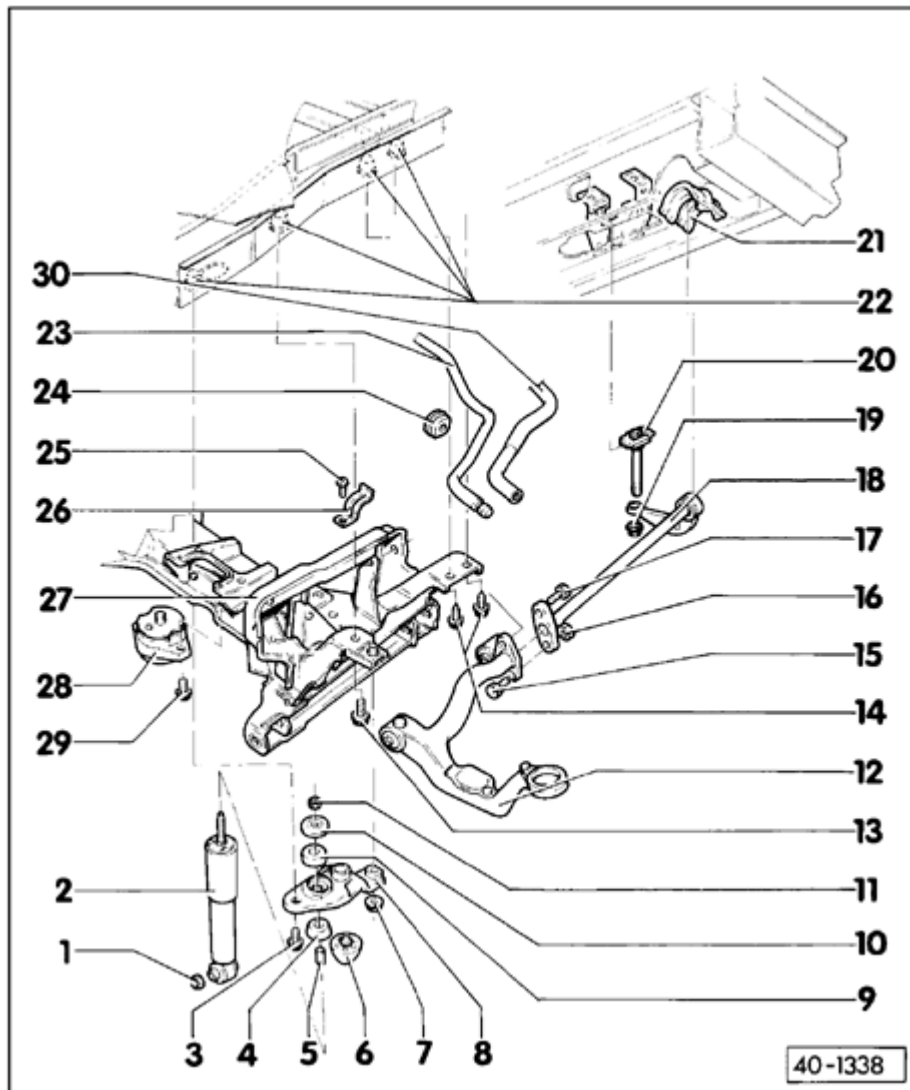
**15 - Hex bolt**

◆ M 14 x 1.5 x 42

**16 - Hex nut, 160 Nm (118 ft lb)**

**17 - Hex bolt, 160 Nm (118 ft lb)**

◆ M 14 x 1.5 x 30



### 18 - Torsion bar

- ◆ Right-hand marked with "R" on end face
- ◆ Left-hand marked with "L" on end face
- ◆ Right and Left must not be interchanged
- ◆ Supplied as a spare part, with tensioning lever
- ◆ Removing ⇒ [Page 40-12](#)
- ◆ Check for paint damage, repair paint damage if necessary
- ◆ Application and torsion bar markings ⇒ [Page 40-17](#)

### 19 - Nut for tensioning torsion bar

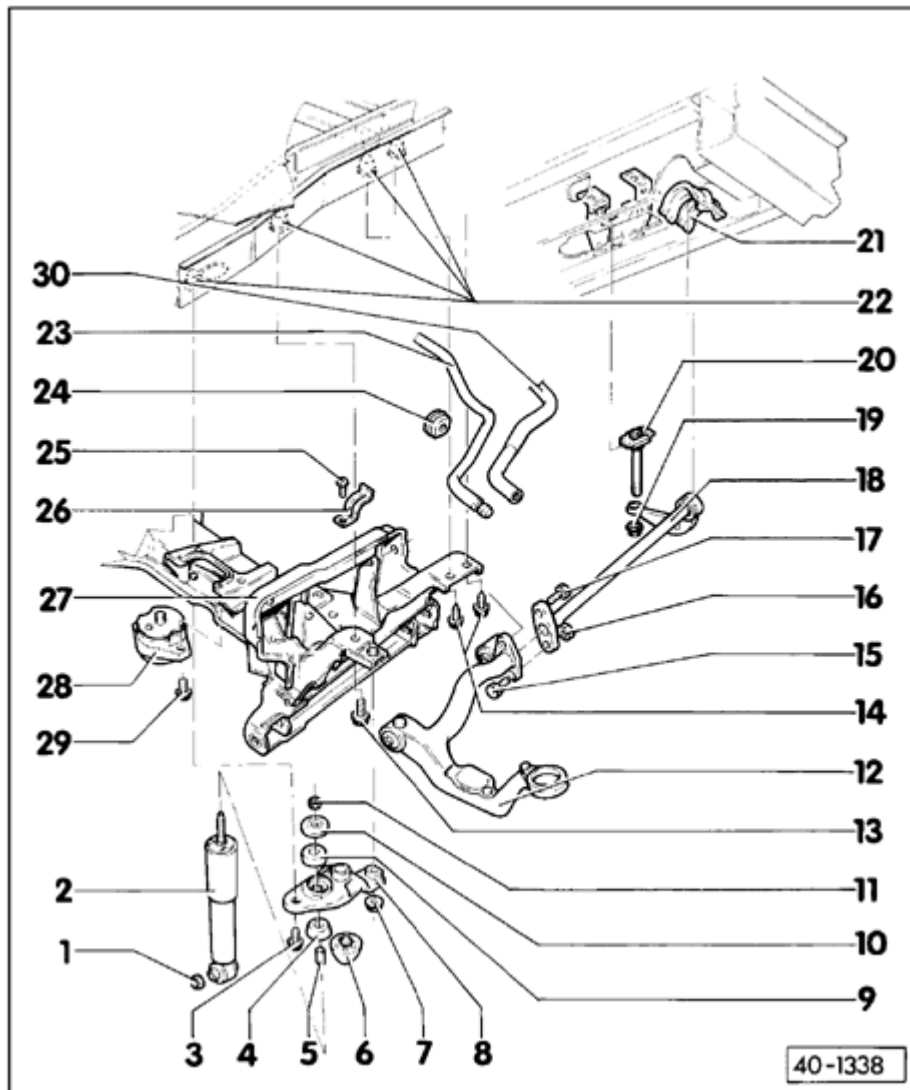
- ◆ Always replace
- ◆ Mark position before removing ⇒ [Page 40-12](#)

### 20 - Torsion bar adjustment bolt

### 21 - Rubber mounting

### 22 - Welded nut

- ◆ If damaged, repair ⇒ [Page 40-19](#)



### 23 - Stabilizer bar

- ◆ 23 mm diameter
- ◆ Removing and installing ⇒ [Page 40-13](#)

### 24 - Stabilizer bar mounting

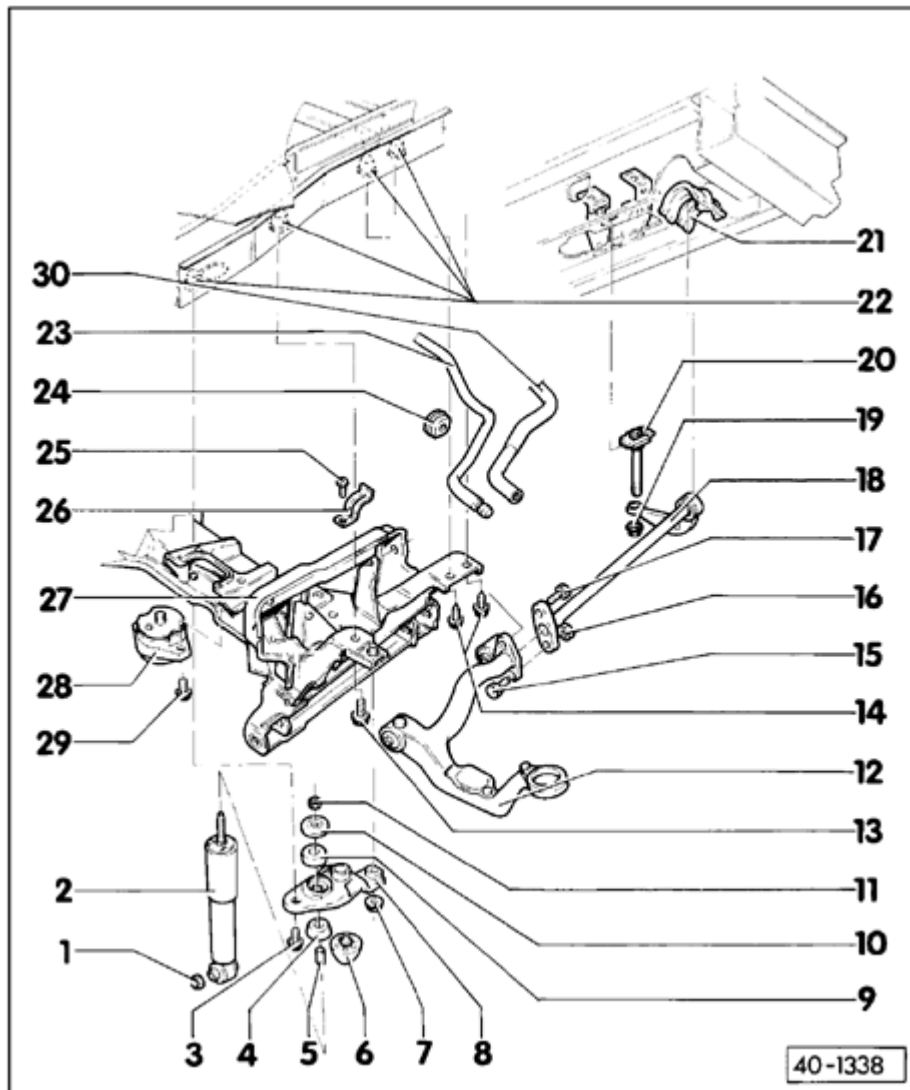
### 25 - Hex bolt, 55 Nm (41 ft lb)

### 26 - Clamp

### 27 - Subframe

- ◆ Removing complete ⇒ [Fig. 1](#)
- ◆ Up to VIN 70 M 083 341: 12 mm elongated hole for mounting the caster adjustment bolt
- ◆ From VIN 70 M 083 342: 14 mm elongated hole for mounting the caster adjustment bolt
- ◆ Only subframes with a 14 mm elongated hole are supplied as a spare part. Installing instead of subframe with 12 mm elongated hole ⇒ [Page 40-15](#)
- ◆ From VIN 70 PH 004 343: Parts on subframe modified ⇒ [Page 40-16](#)





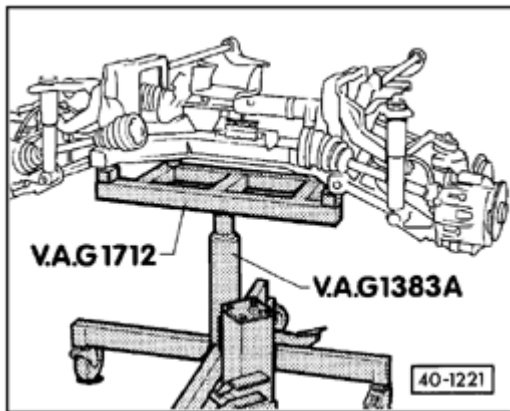
**28 - Bonded rubber mounting**

**29 - Hex bolt, 45 Nm (33 ft lb)**

**30 - Stabilizer bar**

◆ 27 mm diameter

◆ Removing and installing ⇒ [Page 40-13](#)



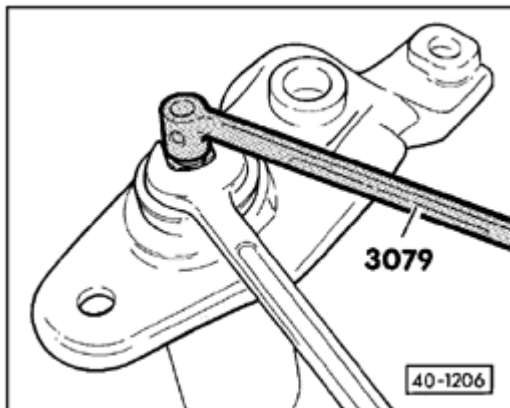
**Fig. 1 Subframe, removing complete**

- Relieve torsion bar tension ⇒ [Page 40-12](#) , removing and installing torsion bar/adjusting torsion bar.
- Remove universal joint bolt at steering gear and remove lines/hoses from steering gear if necessary.
- Disconnect brake lines.
- Disconnect axle shafts at final drive.
- Remove bolted connections at transmission bonded rubber mountings.
- Remove subframe bolts.

## Shock absorbers, removing and installing

### Removing

- Install support 3250 on left and right-hand sides  
⇒ [Page 40-3](#) .
- Remove lower bolt for shock absorber.
- Remove shock absorber mounting from body.
- ▲ - Remove shock absorber, as illustrated, from mounting.



### Installing

Install in reverse order.

### Shock absorber color coding:

- Black: standard
- Brown: ambulance
- Green: heavy-duty

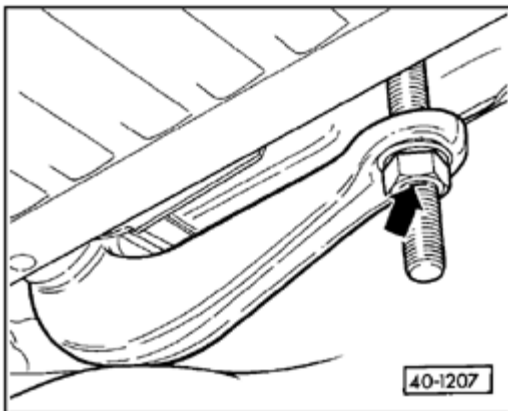
## Torsion bar, removing, installing and adjusting

### Removing

- Remove fuel tank

⇒ *Repair Manual, Engine Mechanical, Repair Group 20*

- Remove exhaust system heat shield and loosen exhaust system if necessary.



- Mark position of torsion bar setting on threads (arrow) or measure thread projection from nut to end of threaded rod and note.
- Relieve tension on torsion bar with special tool 3257.
- Unbolt torsion bar from control arm and remove.

### Note:

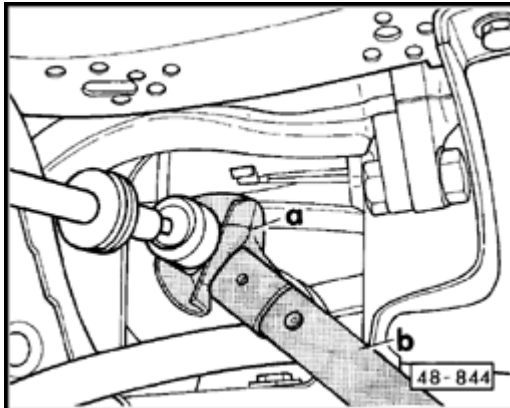
- ◆ *The length of the threaded rod projection on the right-hand side may differ from that on the left-hand side.*
- ◆ *Measuring ride height ⇒ [Page 44-5](#) .*
- ◆ *Ride height adjustment figures ⇒ [Page 44-7](#)*

### Installing

Install in reverse order.

## Stabilizer bar, removing and installing

- Install support 3250 to support upper control arm  
⇒ [Page 40-3](#) .
- Remove link from stabilizer bar (23 mm diameter stabilizer bar ⇒ [Page 40-31](#) ; 27 mm diameter heavy-duty stabilizer bar ⇒ [Page 40-32](#) ).
- Unbolt both shock absorbers from control arms and push completely upward.



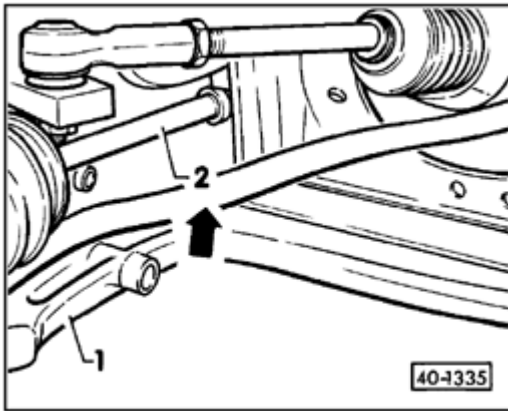
▲

- Disconnect tie rods from steering gear.
  - a - VAG 1332/5
  - b - torque wrench VAG 1332
- Unbolt steering gear from subframe.

### Note:

*On vehicles with a manual steering gear, remove the steering damper.*

- Remove universal joint bolt on steering pinion and separate steering gear from steering column.
- Remove clamps for stabilizer bar from subframe.



- Pull stabilizer bar (arrow) out to side between control arm -1- and axle shaft -2-. Push steering gear as far as possible to achieve necessary clearance.

### Installing

Install in reverse order.

Link to stabilizer bar tightening torque: 100 Nm (74 ft lb)

### Note:

- ◆ *After installing stabilizer bar links, ensure that the link boots are not twisted.*
- ◆ *When installing stabilizer bar, ensure that the surface is not damaged. If necessary, repair paint damage and protect against corrosion with underbody sealer.*

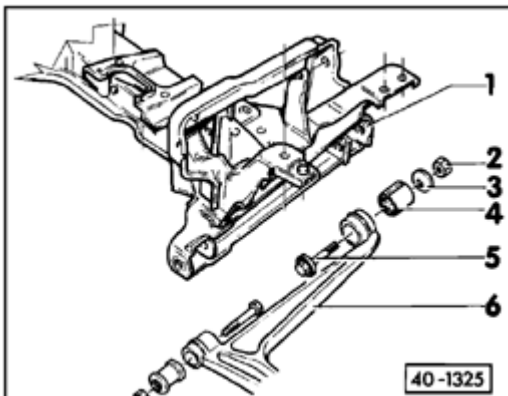
## Modified subframe

### 1. Subframe with 14 mm elongated hole to adjust caster.

#### Note:

*When installing a new subframe (with 14 mm elongated hole) and continued use of original control arms, the following parts are to be replaced:*

- ◆ *Rear bearing (aluminium bushing, 14 mm inner diameter). Pressing in and out ⇒ [Page 40-29](#) .*
- ◆ *Hex bolt M 14 x 1.5: Tightening torque: 160 Nm (118 ft lb)*
- ◆ *Hex nut M 14 x 1.5: Tightening torque: 160 Nm (118 ft lb)*
- ◆ *Eccentric disc, 14 mm diameter*



- 1 - Subframe
- 2 - Hex nut M14 x 1.5
- 3 - Eccentric disc (14 mm diameter) to adjust caster
- 4 - Lower control arm rear bushing
- 5 - Eccentric bolt M 14 x 1.5, to adjust caster

Need not be replaced after loosening.

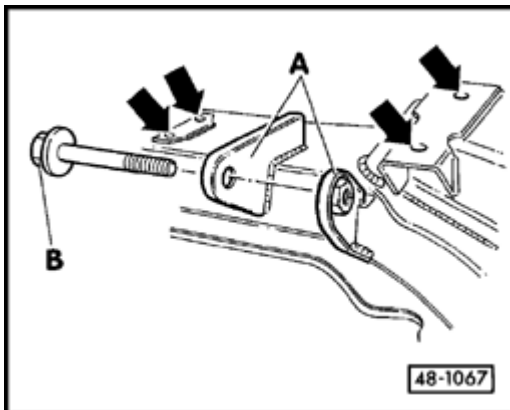
6 - Lower control arm



## 2. Subframe with modified mounting points for manual transmission and steering gear from chassis No. 70 PH 004 343

The following parts of the subframe have been modified:

- ◆ Thread (arrows) for securing steering gear - from M 8 to M 10.
- ◆ Transmission mounting brackets -A- and bolt - B-.



A - Modified transmission mounting brackets

B - Hex bolt, 200 Nm (148 ft lb)

### **Note:**

- ◆ *The new subframe cannot be installed in vehicles prior to VIN 70 PH 004 343.*
- ◆ *Subframe for vehicles up to VIN 70 PH 004 343 available as replacement part while stocks last.*
- ◆ *When stocks of this subframe have been depleted, a subframe with M 10 threads for securing the steering gear will be made available for vehicles up to chassis No. 70 PH 004 343. In this case, a new rubber bushing (10 mm diameter) in steering gear and M 10 bolts are to be used.*

## Torsion bar, identifying

Model	Equipment + (net load) <sup>1)</sup>	Torsion bar	Color <sup>2)</sup>	dia. in mm
Weekender	short wheelbase (1000 kg)	701 411 103 G/104 G	green	25.3
	long wheelbase (1000 kg)			
	short wheelbase (1200 kg)	701 411 103 H/104 H	brown	26.4
	long wheelbase (1200 kg)			
Bus, MultiVan, Weekender w/seats	short wheelbase (800 kg)	701 411 103 F/104 F	white	23.8
	short wheelbase 1000 kg	701 411 103 G/104 G	green	25.3
	long wheelbase 1000 kg			
	short wheel base 1200 kg	701 411 103 H/104 H	brown	26.4
	long wheelbase 1200 kg			

1) With standard suspension/shock absorbers

2) Color code: approx. 75 mm from flange

<b>Model</b>	<b>Equipment + (net load)<sup>1)</sup></b>	<b>Torsion bar</b>	<b>Color<sup>2)</sup></b>	<b>dia. in mm</b>
Flat bed, Double cab	short wheelbase 1000 kg	701 411 103 G/104 G	green	25.3
	long wheelbase 1000 kg			
	short wheelbase 1200 kg	701 411 103 H/104 H	brown	26.4
	long wheelbase 1200 kg			
Campers	short wheelbase 1000 kg	701 411 103 H/104 H	brown	26.4
	long wheelbase 1000 kg			
Campers	short wheelbase 1000 kg	701 411 103 G/104 G	green	25.3
	long wheelbase 1000 kg			

1) With standard suspension/shock absorbers

2) color code: 75 mm from flange

## Welded nut in long member, repairing

If the threads of a weld nut in the long member are damaged, they can be repaired with Heli-coil<sup>®</sup> thread inserts.

- Remove subframe ⇒ [Page 40-10](#) .

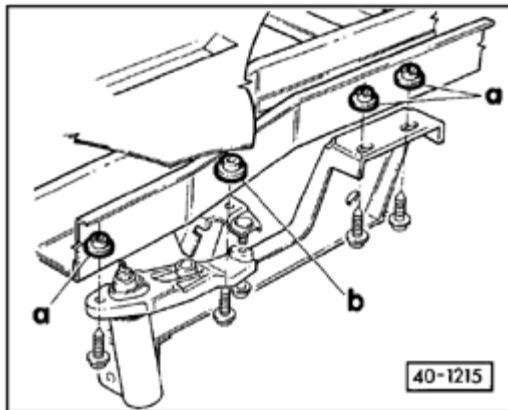
✦ - Drill through the damaged welded nut -a- with a 14.5 mm drill and -b- with a 16.5 mm drill.

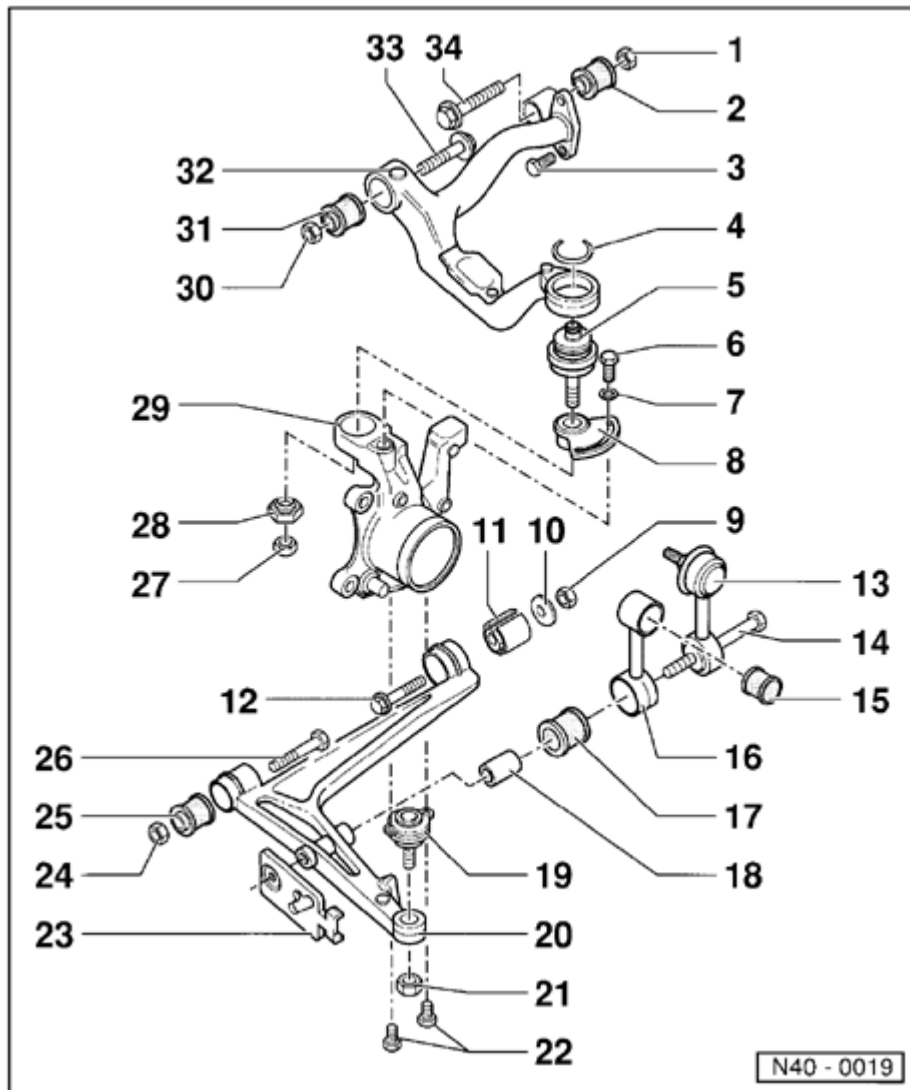
### **CAUTION!**

*Wear protective goggles.*

### **Note:**

- ◆ *Do not tilt drill when drilling.*
- ◆ *Only use inserts with a thread pitch of 1.5.*
- ◆ *Install Heli-coil<sup>®</sup> threaded inserts according to manufacturer's instructions.*





## Control arms, removing and installing

**1 - Hex nut, 100 Nm (74 ft lb)**

**2 - Upper control arm rear bushing**

◆ Pressing out ⇒ [Fig. 3](#)

◆ Pressing in ⇒ [Fig. 4](#)

**3 - Hex bolt**

◆ M 14 x 1.5 x 42

**4 - Circlip**

◆ Pry out with a screwdriver

◆ Always replace

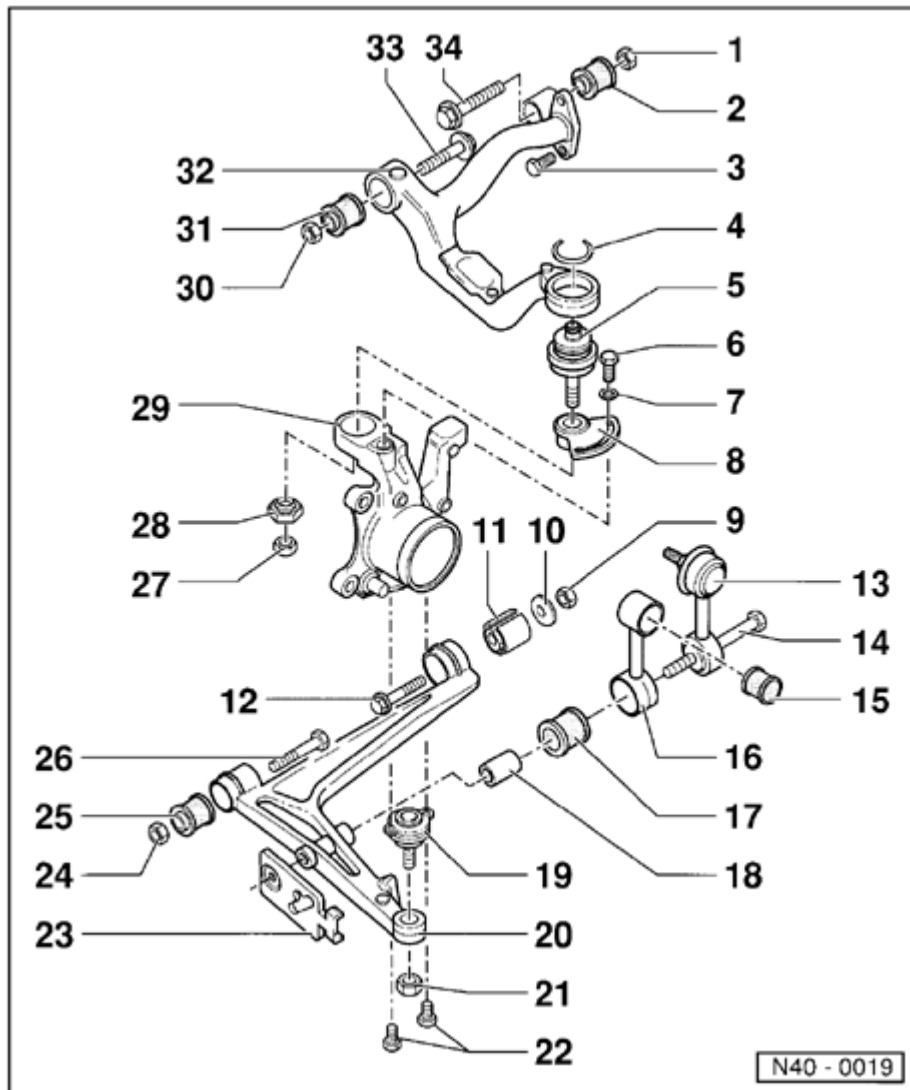
**5 - Ball joint, upper**

◆ Removing and installing ⇒ [Page 40-35](#)

**6 - Hex bolt, 60 Nm (44 ft lb)**

◆ M 12 x 1.5 x 22

**7 - Washer**



### 8 - Eccentric bushing

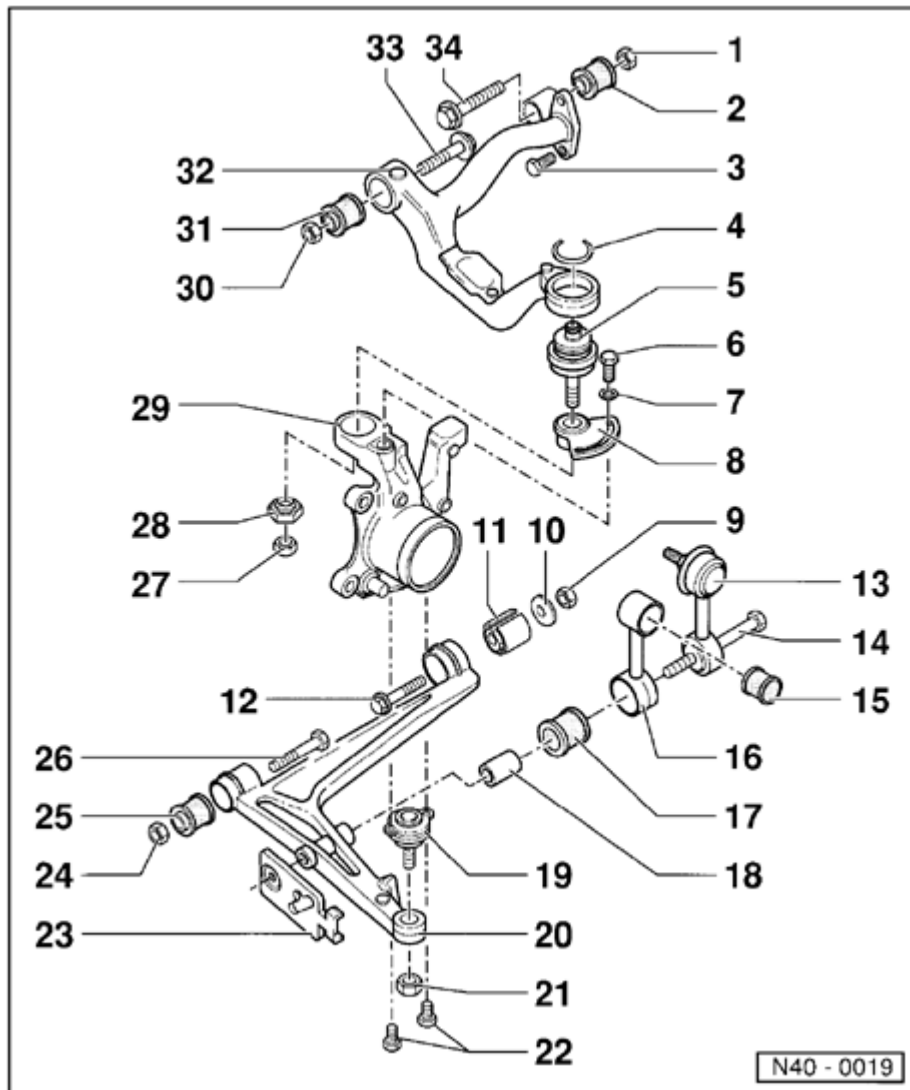
- ◆ Adjusting camber ⇒ [Page 44-15](#)
- ◆ Pressing off ⇒ [Page 40-36](#)
- ◆ Mark installation position before removing

### 9 - Hex nut

- ◆ Up to VIN 70 M 083 341, M 12 x 1.5
- ◆ Tightening torque: tighten to 75 Nm (55 ft lb) plus additional 90° turn
- ◆ From 70 M 083 342, M 14 x 1.5 Tightening torque: 160 Nm (118 ft lb)
- ◆ Tighten with vehicle standing on its wheels

### 10 - Eccentric washer

- ◆ To VIN 70 M 083 341, 12 mm dia.
- ◆ From VIN 70 M 083 342, 14 mm dia.



### 11 - Lower control arm rear bushing

- ◆ To VIN 70 M 083 341, aluminium bushing 12 mm diameter
- ◆ From VIN 70 M 083 342, aluminium bushing 14 mm diameter
- ◆ Pressing out ⇒ [Fig. 7](#)
- ◆ Installation position ⇒ [Fig. 8](#)
- ◆ Pretensioning ⇒ [Fig. 9](#)
- ◆ Pressing in ⇒ [Fig. 10](#)

### 12 - Eccentric bolt

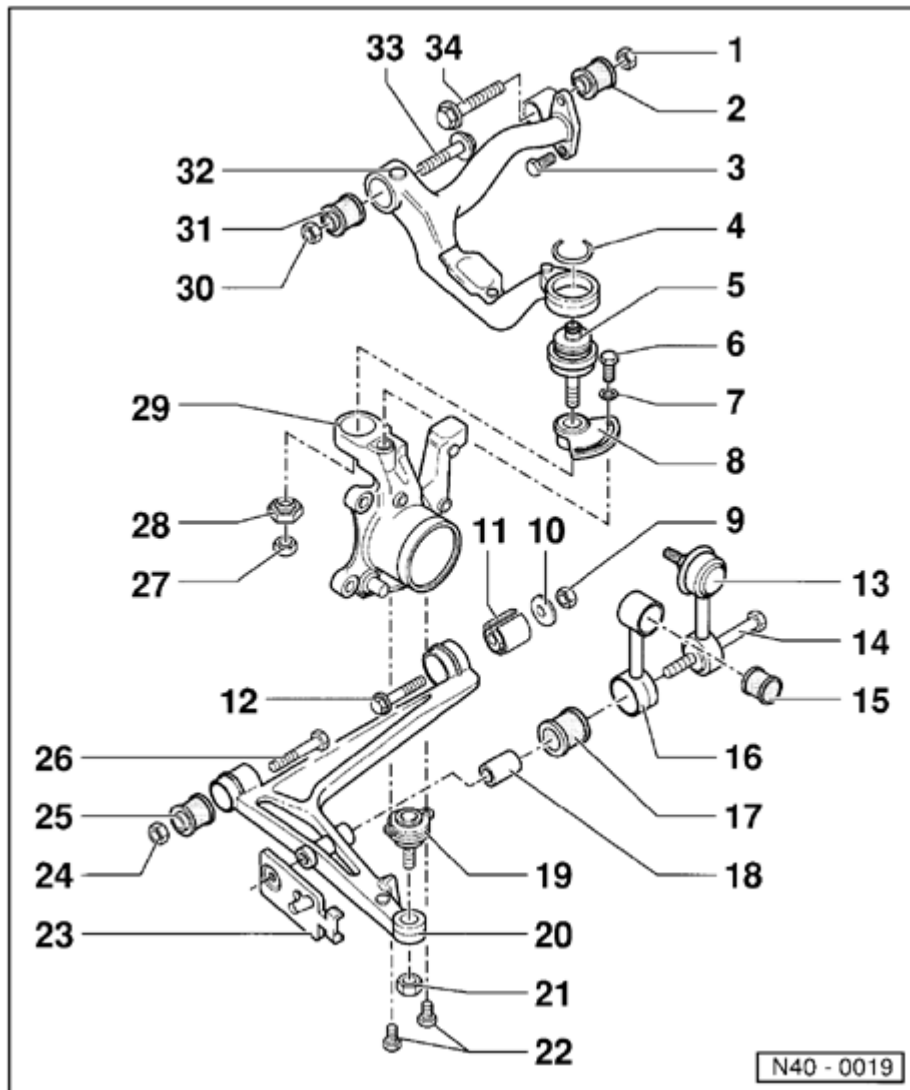
- ◆ To VIN 70 M 083 341, M 12 x 1.5 x 90
- ◆ Replace if nut has been loosened
- ◆ From VIN 70 M 083 342, M 14 x 1.5 x 90
- ◆ Need not be replaced
- ◆ Adjusting caster ⇒ [Page 44-18](#)

### 13 - Connecting link

- ◆ For 27 mm diameter stabilizer bar
- ◆ Bolting to and from stabilizer bar ⇒ [Fig. 13](#)

### 14 - Hex bolt

- ◆ M 14 x 1.5 x 175



### 15 - Rubber mounting

- ◆ Only on stabilizer link for 23 mm dia. stabilizer bar
- ◆ Removing and installing ⇒ [Fig. 14](#)

### 16 - Connecting link

- ◆ For 23 mm diameter stabilizer bar
- ◆ Pressing off stabilizer bar ⇒ [Fig. 12](#)

### 17 - Rubber mounting

- ◆ Removing and installing ⇒ [Fig. 15](#) and ⇒ [Fig. 16](#)

### 18 - Bushing

- ◆ Removing and installing ⇒ [Fig. 15](#) and ⇒ [Fig. 16](#)

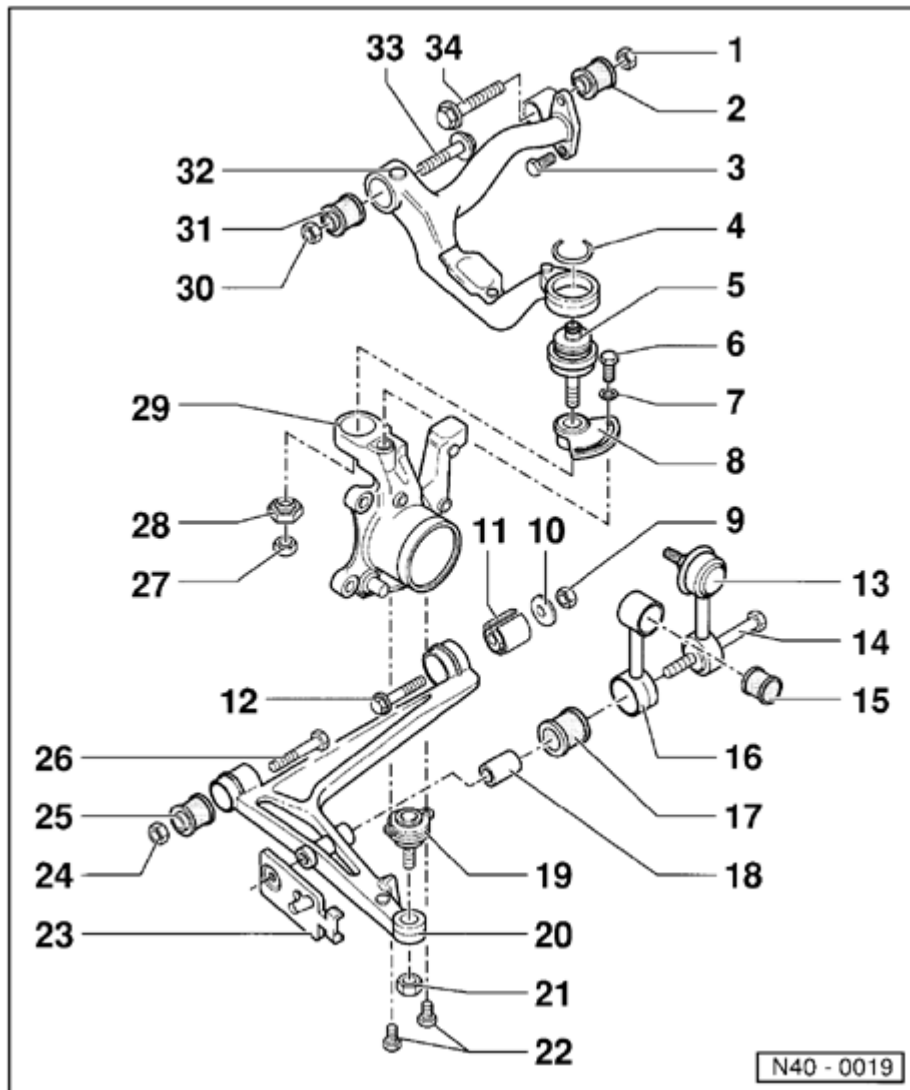
### 19 - Lower ball joint

- ◆ Removing and installing ⇒ [Page 40-34](#)

### 20 - Lower control arm

- ◆ When tightening hold bolts in installation position





**21 - Self-locking hex nut, 110 Nm (81 ft lb)**

**22 - Hex bolt**

◆ Always replace

◆ 55 Nm (41 ft lb) plus additional 90° turn

**23 - Air deflector plate**

◆ Only on vehicles with 14" wheels

**24 - Hex nut, 160 Nm (118 ft lb)**

**25 - Lower control arm front bushing**

◆ Pressing out ⇒ [Fig. 5](#)

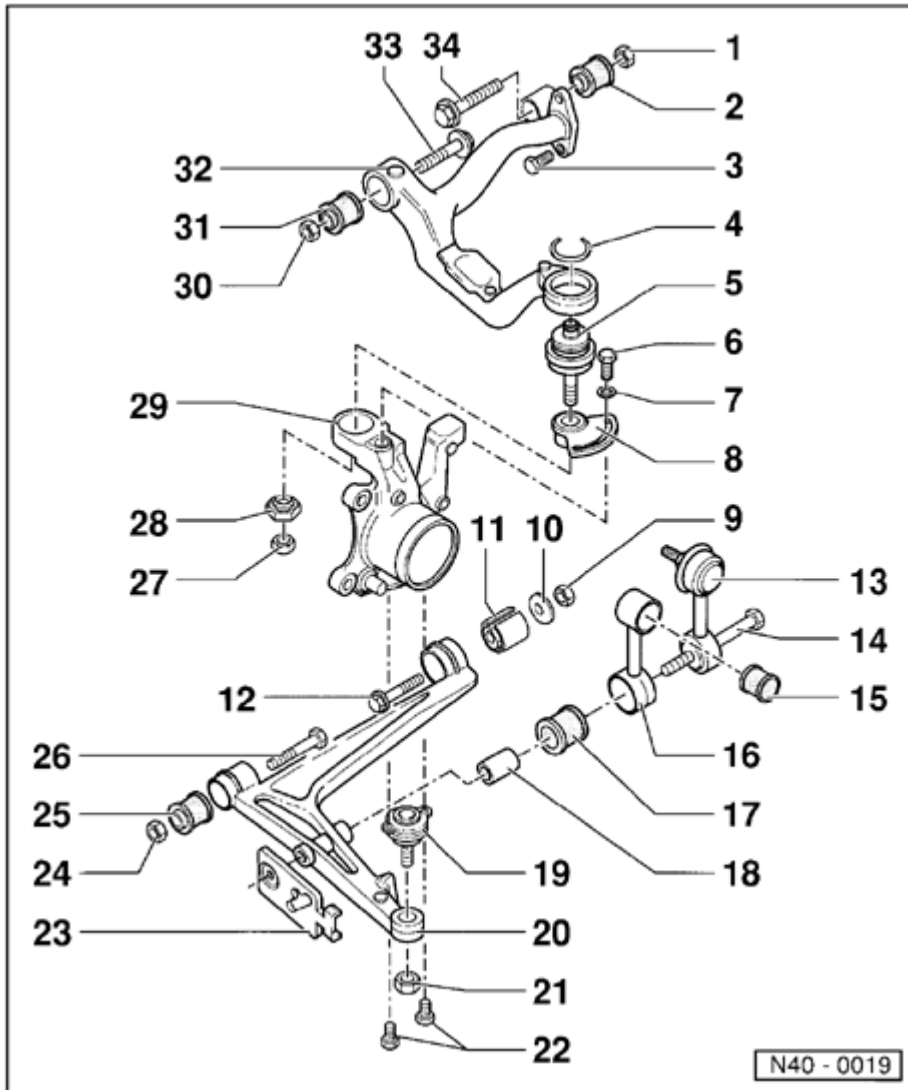
◆ Pressing in ⇒ [Fig. 6](#)

**26 - Hex bolt**

◆ M 14 x 1.5 x 82

**27 - Self-locking hex nut, 110 Nm (118 ft lb)**

**28 - Eccentric washer**



**29 - Wheel bearing housing**

◆ Removing and installing ⇒ [Page 40-34](#)

**30 - Hex nut, 100 Nm (74 ft lb)**

**31 - Upper control arm front bushing**

◆ Pressing out ⇒ [Fig. 1](#)

◆ Pressing in ⇒ [Fig. 2](#)

**32 - Upper control arm**

◆ Can only be removed when subframe has been removed

◆ When tightening hold bolts in installation position

**33 - Hex bolt**

◆ M 14 x 1.5 x 80

**34 - Hex bolt**

◆ M 14 x 1.5 x 80

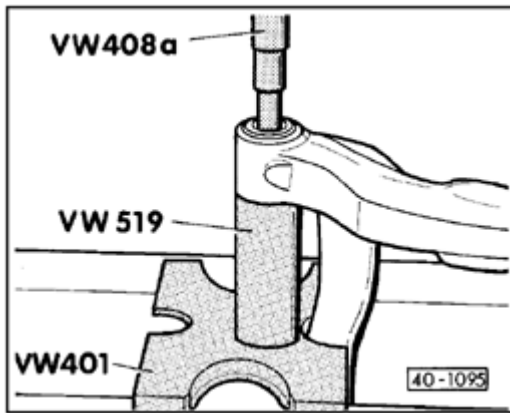


Fig. 1 Upper control front bushing, pressing out

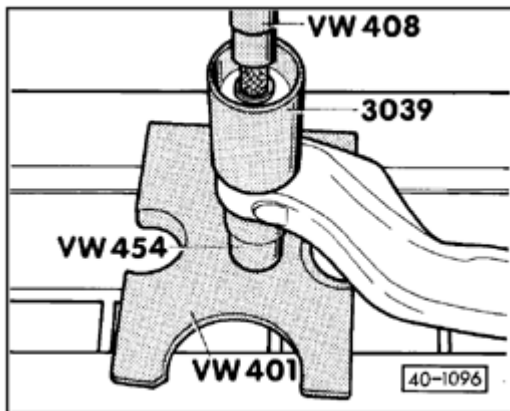


Fig. 2 Upper control arm front bushing, pressing in

- Press in until shoulders of bushing project evenly on both sides.

**Note:**

*Before pressing in, coat with lubricant, e.g. soft soap.*

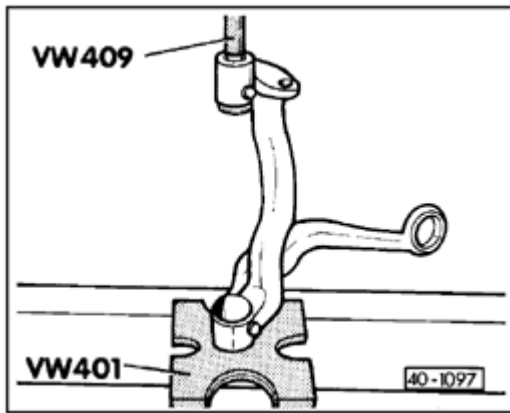


Fig. 3 Upper control arm rear bushing, pressing out

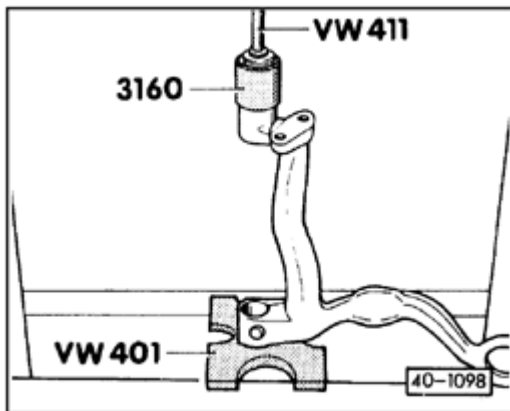
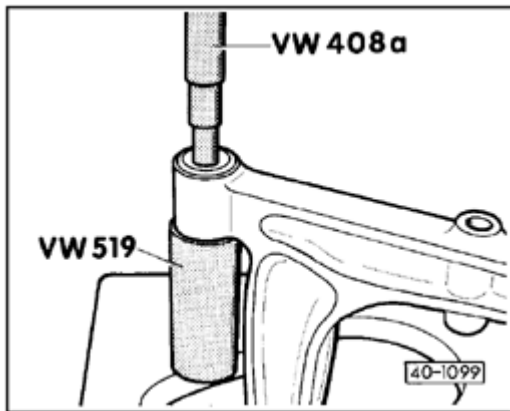


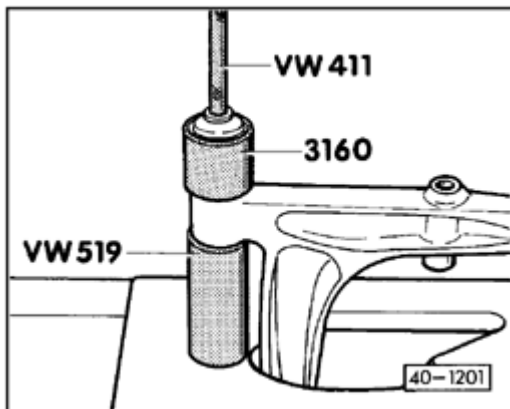
Fig. 4 Upper control arm rear bushing, pressing in  
- Press in until shoulders of bushing project evenly on both sides.

**Note:**

*Before pressing in, coat with lubricant, e.g. soft soap.*



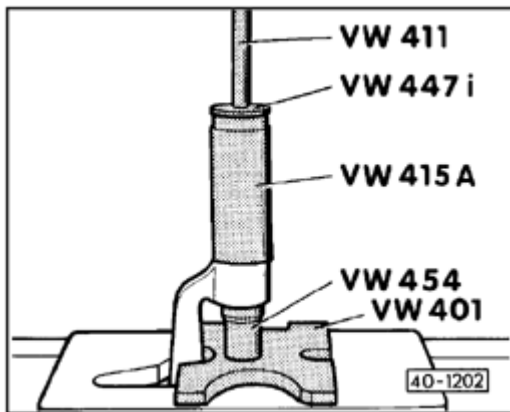
✦ Fig. 5 Lower control arm front bushing, pressing out



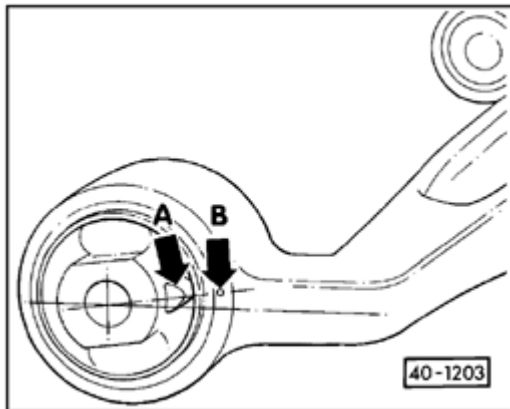
✦ Fig. 6 Lower control arm front bushing, pressing in  
- Press in until shoulders of bushing project evenly on both sides.

**Note:**

*Before pressing in, coat with lubricant, e.g. soft soap.*



- ✎ **Fig. 7 Lower control arm rear bonded rubber bushing, pressing out**  
 - First mark installation position, e.g. by punch mark  $\Rightarrow$  arrow B on  $\Rightarrow$  [Fig. 8](#) .

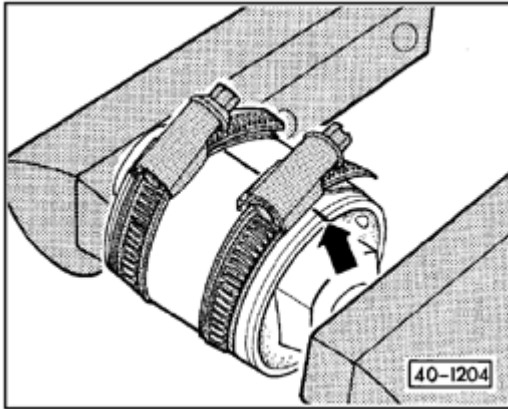


- ✎ **Fig. 8 Rear bonded rubber bushing, installation position**

The bonded rubber bushing is be pressed in so that the lug is offset upwards  $11^\circ$  to the left and right-hand control arm symmetrical axis.

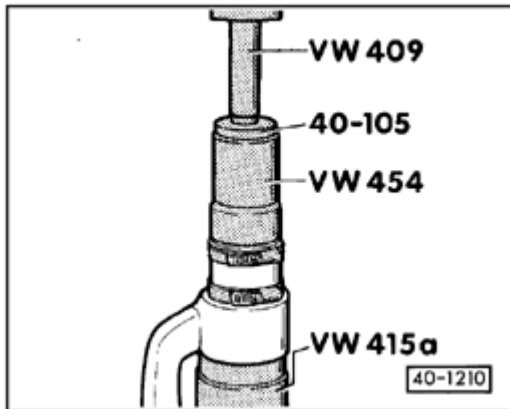
**Note:**

*Hold the control arm in installation position.*



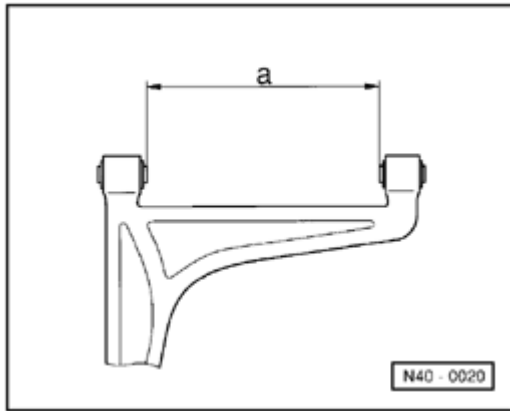
**Fig. 9 Lower control arm rear bonded rubber bushing, pretensioning**

- First, pretension bonded rubber bushing with hose clamps, as shown, so that two metal shells of bushing are touching (arrow).



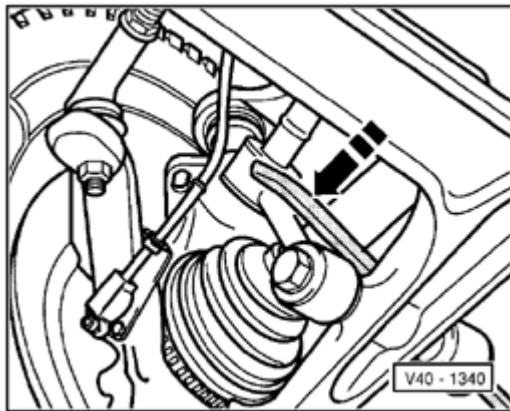
**Fig. 10 Rear bonded rubber bushing, pressing into lower control arm**

- Press pretensioned bonded rubber bushing (  $\Rightarrow$  Fig. 9 ) into installation position (  $\Rightarrow$  Fig. 8 ) far enough so that a clearance of  $371 \pm 1$  mm ( $14.60 \pm 0.039$  in.) exists between front rubber bushing inner tube and rear bonded rubber bushing inner tube  $\Rightarrow$  Fig. 11 .



✦ **Fig. 11 Lower control arm bonded rubber bushing, installation dimension**

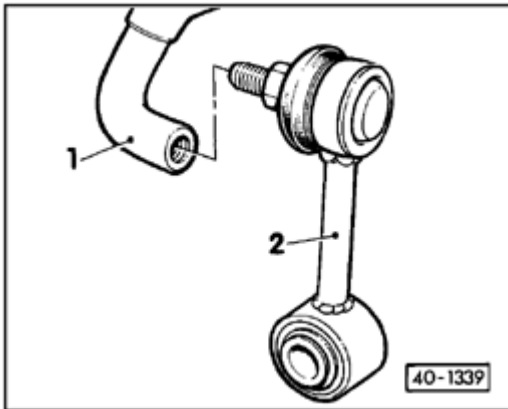
Dimension a =  $371 \pm 1$  mm ( $14.60 \pm 0.039$  in.)



✦ **Fig. 12 Link, pressing off stabilizer bar (23 mm dia.)**

- Coat inner diameter of link rubber bushing with lubricant, e.g. soft soap, and press link off stabilizer bar.





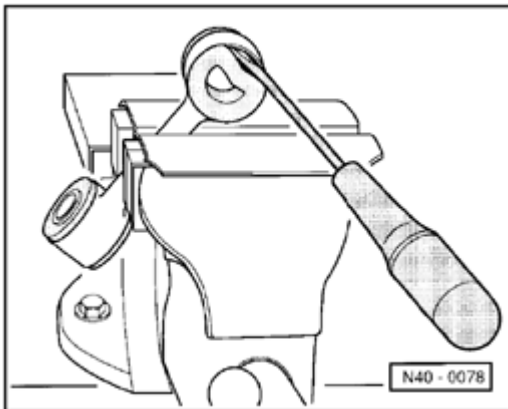
**Fig. 13 Stabilizer link, removing from stabilizer bar (27 mm dia.)**

- 1 - Heavy-duty stabilizer bar, 27 mm diameter
- 2 - Link

Link to stabilizer bar tightening torque: 100 Nm (74 ft lb)

**Note:**

*After installing link, ensure that link boots are not twisted.*

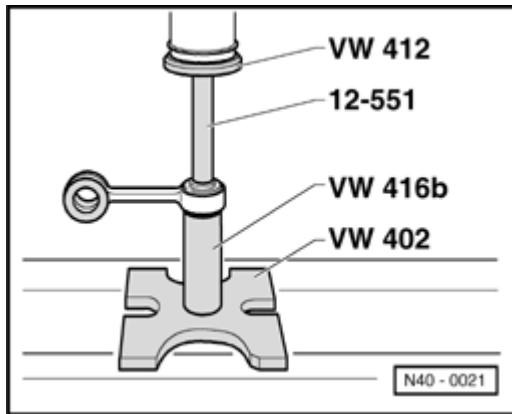


**Fig. 14 Stabilizer link rubber bushing, removing and installing from stabilizer bar**

- Pry out rubber bushing with a screwdriver as shown in illustration.
- Press new rubber bushing in.

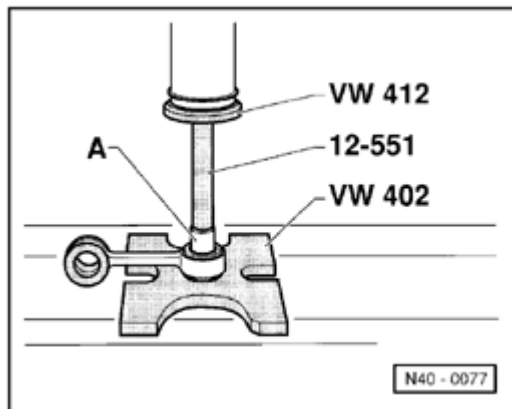
**Note:**

*Before pressing in, coat with lubricant, e.g. soft soap.*



✦ **Fig. 15 Stabilizer link rubber bushing, removing from control arm end**

- Press bushing out as shown in illustration.
- Pry rubber bushing out with a screwdriver.



✦ **Fig. 16 Stabilizer link rubber bushing, installing in control arm end**

- Press rubber bushing into link.
- Press bushing -A- in as shown.

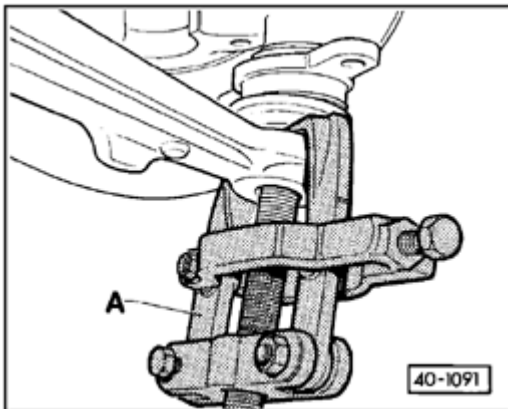
**Note:**

*Before pressing in, coat parts with lubricant, e.g. soft soap.*

## Lower ball joint, removing and installing

### Removing

- Install support 3250 to left and right-hand sides  
⇒ [Page 40-3](#) .
- Remove bolt for shock absorber and stabilizer bar link.
- Remove bolt and separate connection between lower control arm and wheel bearing housing ⇒ [Page 40-35](#) .



- Press ball joint out.

A - Puller, commercially available, e.g. Kukko 204-2

### **Note:**

*Only use a puller with a tensioning arm.*

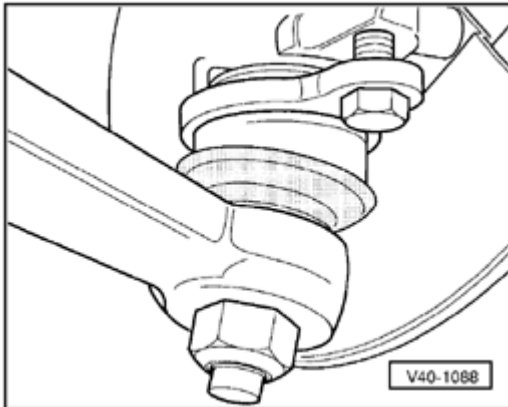
### Installing

Install in reverse order.

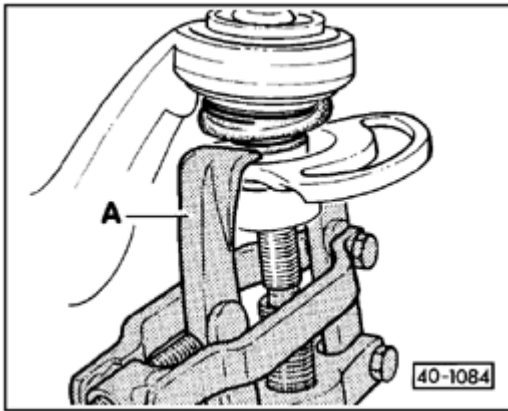
## Upper ball joint, removing and installing

### Removing

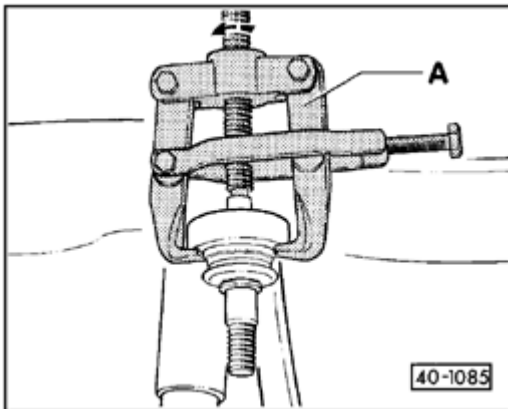
- Install support 3250 to left and right-hand sides  
⇒ [Page 40-3](#) .
- Loosen hex bolt for axle shaft/wheel hub with vehicle standing on its wheels.
- Remove brake caliper and hang up with wire.



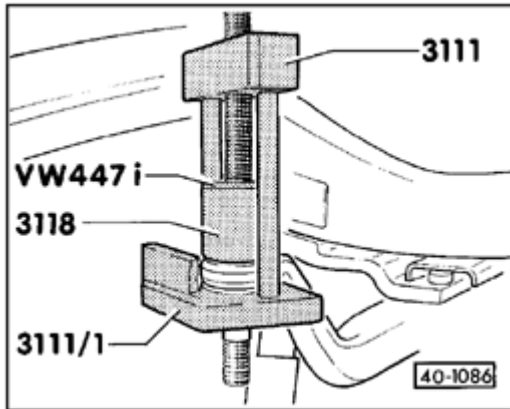
- Remove bolt and separate connection between wheel bearing housing and lower ball joint.
- Remove bolt for shock absorber and stabilizer bar link.
- Mark position of eccentric disc to wheel bearing housing (otherwise it will be necessary to set camber).
- Remove nut for upper ball joint.
- Remove securing bolt for eccentric disc from wheel bearing housing.
- Remove wheel bearing housing.



- ▶ - Pull off eccentric bushing as shown in illustration.
- A - Puller, commercially available, e.g. Kukko 204-2
- Pry out circlip with a screwdriver.

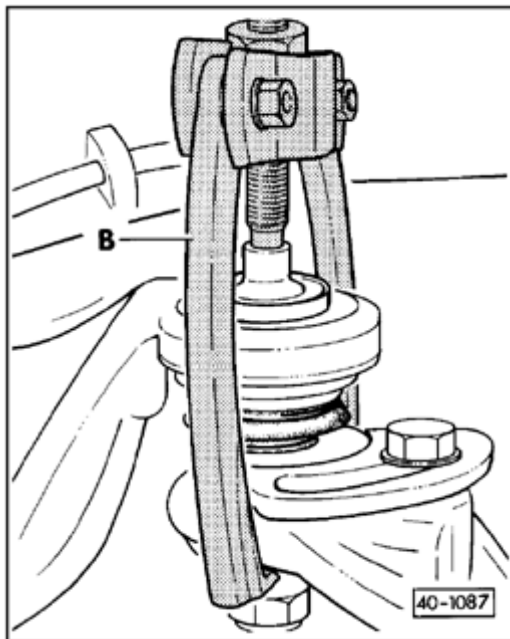


- ▶ - Install puller -A- (commercially available, e.g. Kukko 204-2 with tensioning arm) as shown in illustration and press joint out.



### Installing

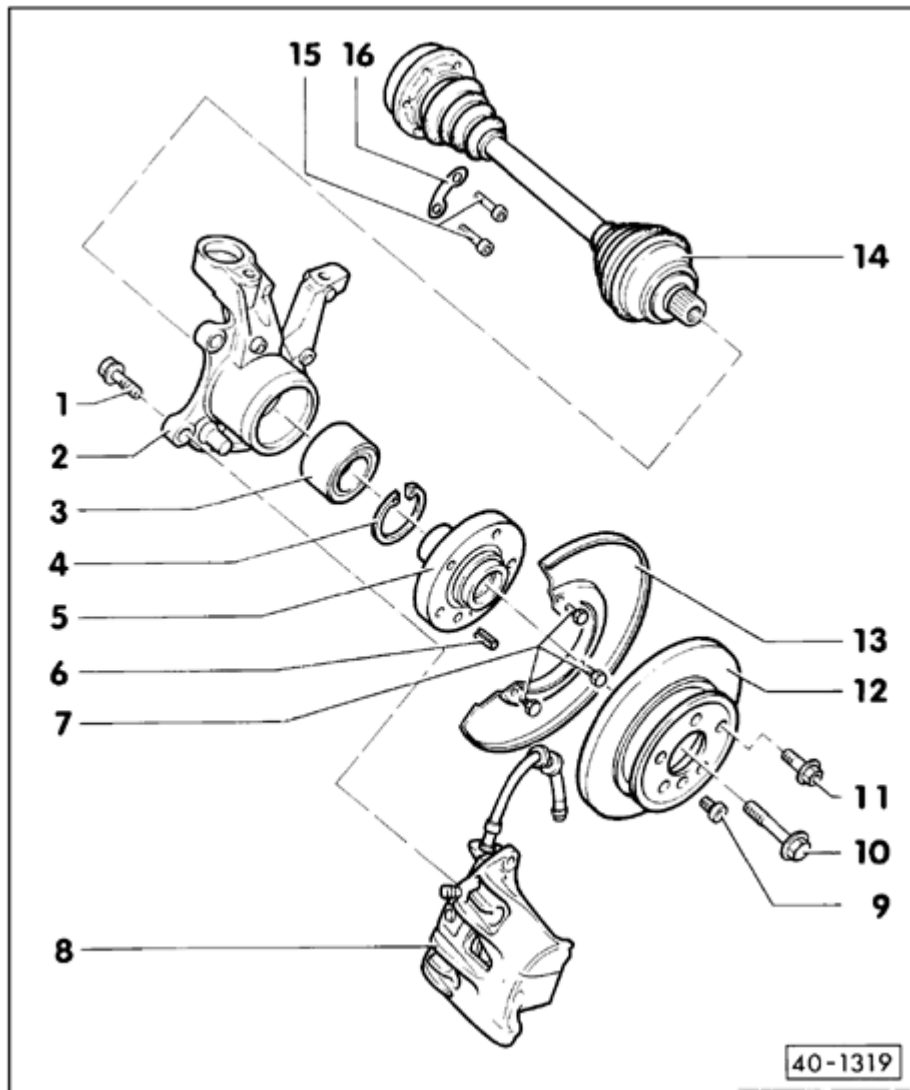
- ◀ - Install ball joint in control arm.
- Install special tools as shown in illustration.
- Pull ball joint in onto stop.
- Install new circlip.



- ◀ - Bolt upper ball joint to wheel bearing housing.

### Note:

*To prevent the ball joint pin end turning when tightening the nut, ensure that the tapered surface is free of grease. Position puller -B- (commercially available e.g. Kukko 44-2) as shown in illustration, and tension only sufficiently to prevent the joint pin from turning when tightening the nut.*

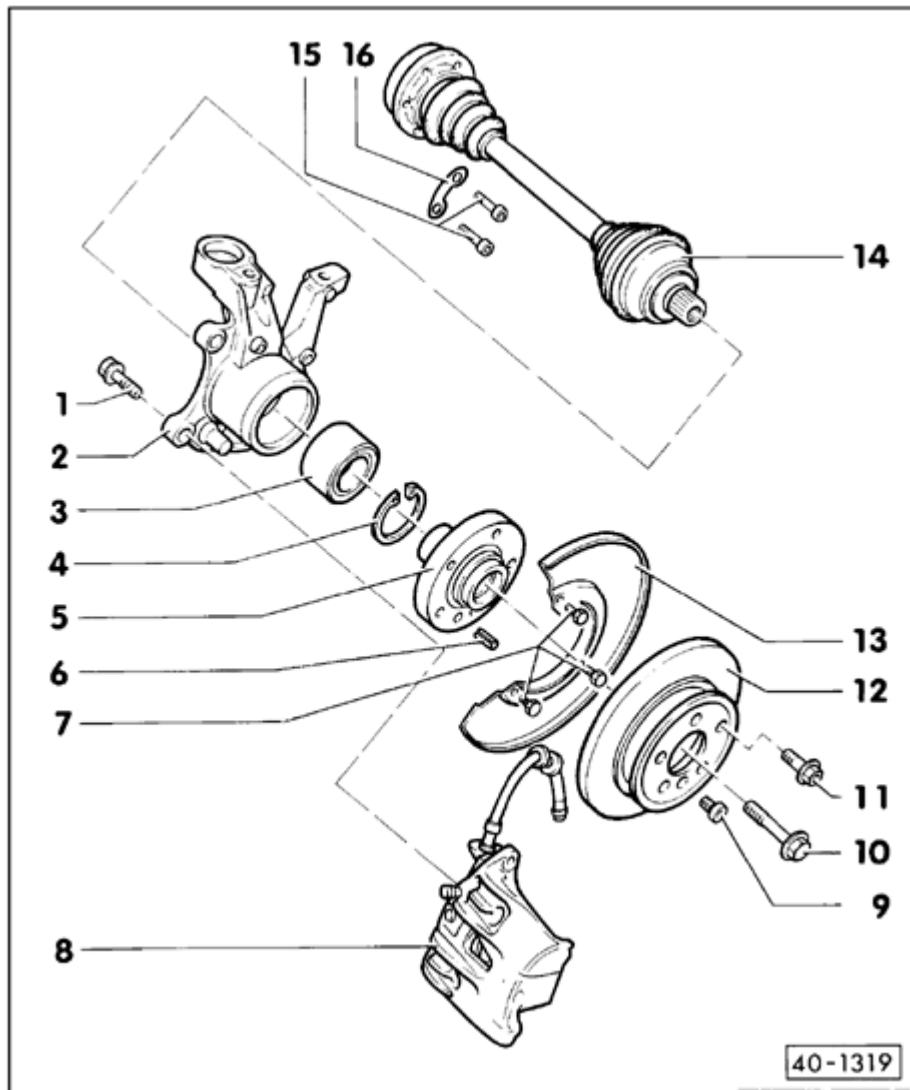


## Wheel bearing and axle shaft

### Note:

- ◆ If the vehicle has to be moved after removing an axle shaft, first install an outer CV joint in place of the axle shaft or the wheel bearing will be damaged.
- ◆ Do not weld or straighten load bearing suspension components or those components which locate the wheels.
- ◆ Always replace self-locking nuts.
- ◆ Always replace corroded nuts/bolts.

**1 - Hex bolt, 270 Nm (200 ft lb)**



## 2 - Wheel bearing housing

- ◆ Removing and installing ⇒ [Page 40-44](#)
- ◆ Identifying modification/differences ⇒ [Page 40-46](#)

## 3 - Wheel bearing

- ◆ Pressing out ⇒ [Fig. 2](#)
- ◆ Pressing in ⇒ [Fig. 4](#)

## 4 - Circlip

- ◆ Make sure correct seating

## 5 - Hub

- ◆ Pressing out ⇒ [Fig. 1](#)
- ◆ Pressing in ⇒ [Fig. 5](#)

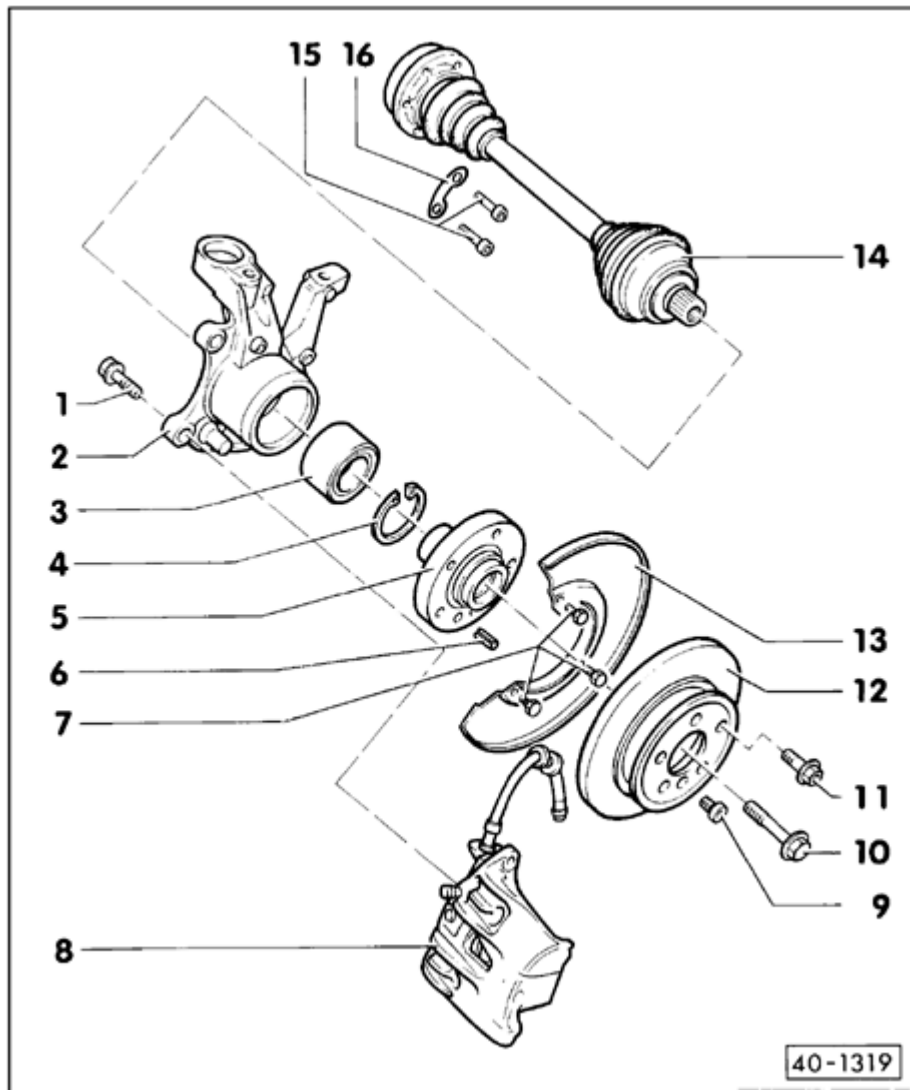
## 6 - Spring pin

## 7 - Hex bolt, 8 Nm (70 in. lb)

## 8 - Brake caliper

- ◆ Repair instructions ⇒ Repair Groups 46 and 47





**9 - Hex socket head bolt, 5 Nm (44 in. lb)**

- ◆ Replace each time after removing

**10 - Hex bolt, 200 Nm (148 ft lb)**

- ◆ Loosen and tighten only when vehicle is standing on its wheels (danger of accident)

**11 - Wheel bolt, 160 Nm (118 ft lb)**

**12 - Brake disc**

- ◆ Repairing, ⇒ [Page 46-4](#)

**13 - Splash shield**

**14 - Axle shaft**

- ◆ Removing and installing ⇒ [Page 40-50](#)

**15 - Socket-head multi-point bolt, 80 Nm (59 ft lb)**

**16 - Backing plate**

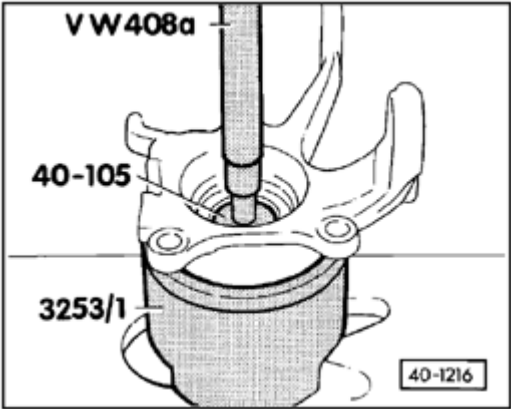


Fig. 1 Wheel hub, pressing out

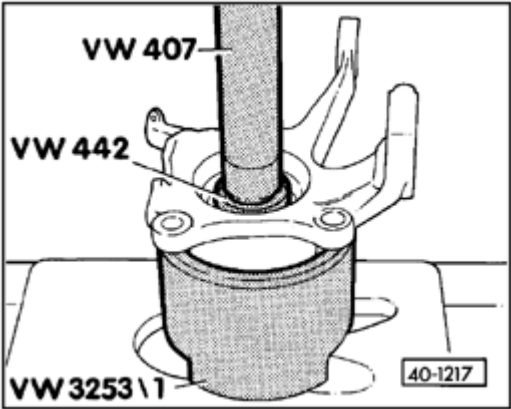
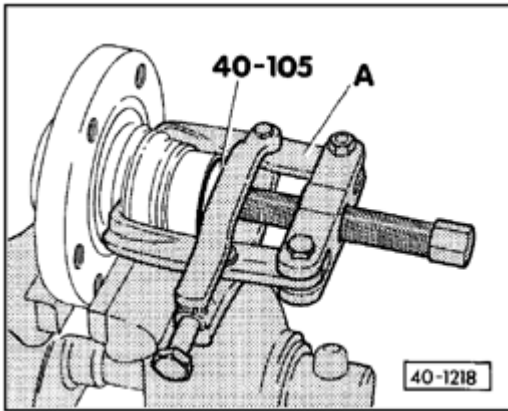
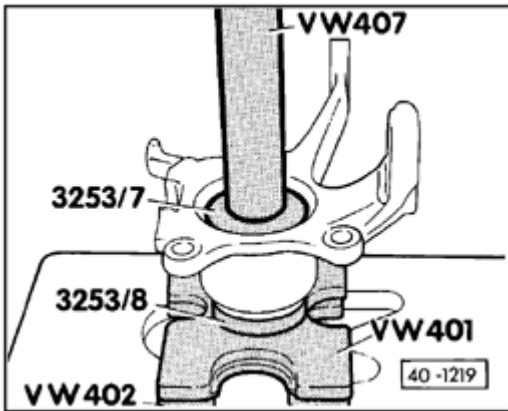


Fig. 2 Wheel bearing, pressing out of wheel bearing housing



⚡ Fig. 3 Wheel bearing inner race, pulling off of hub

Only use puller with clamp e.g. Kukko 204-2 (commercial type).



⚡ Fig. 4 Wheel bearing, pressing into wheel bearing housing

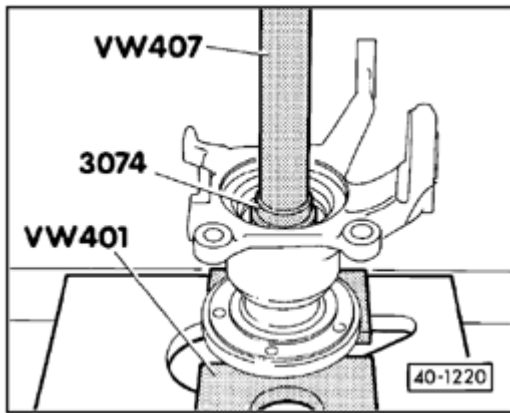


Fig. 5 Wheel hub, pressing into wheel bearing housing

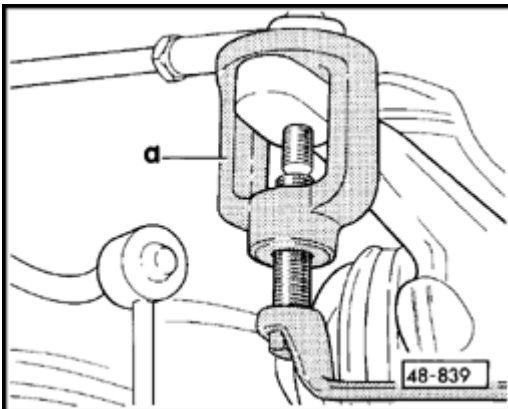
**Note:**

*Press in wheel hub up to stop - otherwise bearing play may result.*

## Wheel bearing housing, removing and installing

### Removing

- Install support 3250 to left and right-hand sides  
⇒ [Page 40-3](#) .
- Loosen hex bolt for axle shaft when vehicle is standing on its wheels.
- Remove wheel and raise vehicle.
- Remove bolt for stabilizer bar link/lower shock absorber.
- Remove brake caliper and tie to body with wire.
- Remove brake disc and cover plate.
- Press track rod off steering arm.
- a - Ball joint splitter (commercial type) e.g. Kukko No. 128/2
- Remove bolts for wheel bearing housing/lower ball joint ⇒ [Page 40-35](#) .



- Mark position of eccentric bushing to wheel bearing housing (e.g. with felt tipped pen), otherwise front axle must be realigned.
- Remove bolts for wheel bearing housing/upper ball joint.
- Remove wheel bearing housing.

### **Installing**

Install in reverse order.

## Modifications/changes to wheel bearing housing

### 1. Vehicles with and without power steering

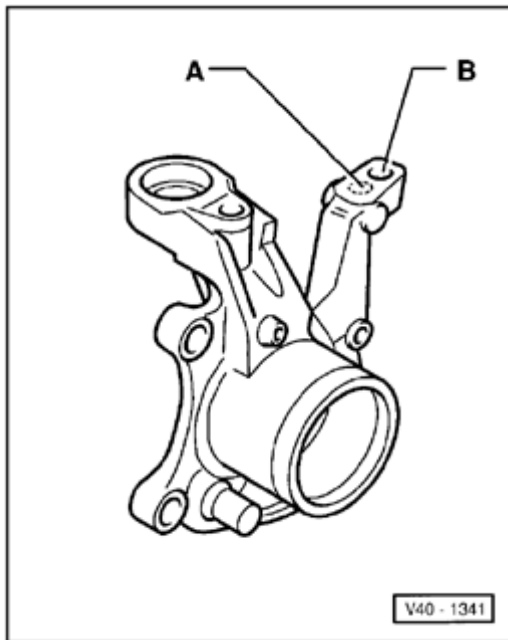
- On vehicles without power steering the hole for the tie rod on the wheel bearing housing steering arm is approx. 20 mm further outward than on vehicles with power steering.

A - Power steering tie rod mounting point

B - Non-power steering tie rod mounting point

#### **Note:**

*When servicing, make sure that the correct wheel bearing housing is used. Otherwise the specifications for vehicle alignment are outside the tolerances and the steering arm stop in the steering gear will not function.*



## **2. Modified wheel bearing housing from VIN 70 MH 096 449**

The tie rod mounting point hole on the wheel bearing housing is increased to 16 mm. Only wheel bearing housings with the enlarged tie rod mounting points are supplied as spare parts. The correct tie rod end must also be used. This modification affects vehicles with and without power steering, also vehicles with and without anti-locking brake system.

### **Note:**

*A mixed installation e.g. earlier left-hand wheel bearing housing with earlier tie rod end and right-hand new wheel bearing housing with new tie rod end is permitted.*



### 3. Wheel bearing housing with modified tapered hole for tie rods from VIN 70 SH 002 792

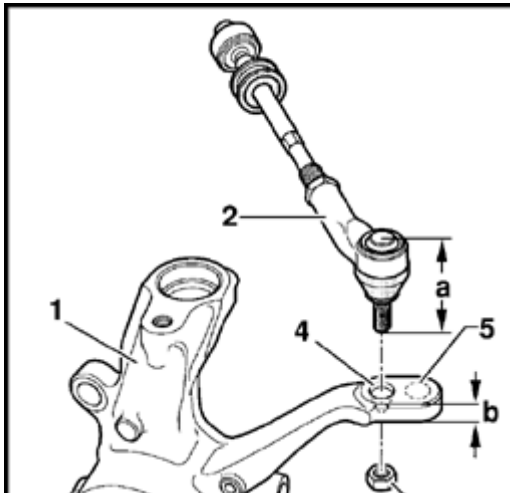
#### **CAUTION!**

*The earlier wheel bearing housing must not be installed with the new tie rod end or the new wheel bearing housing installed with the earlier tie rod end.*

Before a new wheel bearing housing or a new tie rod end is installed, check dimensions -a- and -b- with a vernier caliper.

#### **Note:**

*During repair, a mixed installation on vehicles prior to build date 09/94 (70 RH ...) e.g. left-hand earlier wheel bearing housing with earlier tie rod and right-hand new wheel bearing housing with new tie rod end is permitted.*



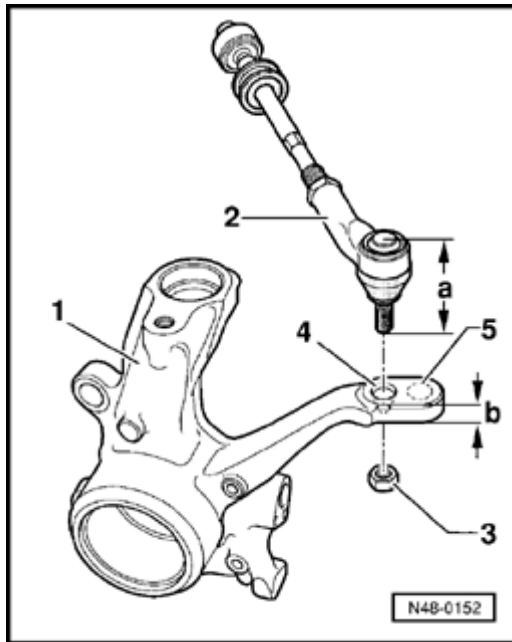
1 - Wheel bearing housing

Steering arm with modified tapered hole for tie rod end

2 - Tie rod end

previous: dimension -a- 74.5 mm

new: dimension -a- 78.5 mm, with modified taper



3 - Self-locking nut

previous: 40 Nm (30 ft lb)

new: 65 Nm (48 ft lb)

4 - Hole for tie rod end

for vehicles with power steering

previous: dimension -b- 18.0 mm

new: dimension -b- 22.5 mm

5 - Hole for tie rod end

for vehicles without power steering

previous: dimension -b- 18.0 mm

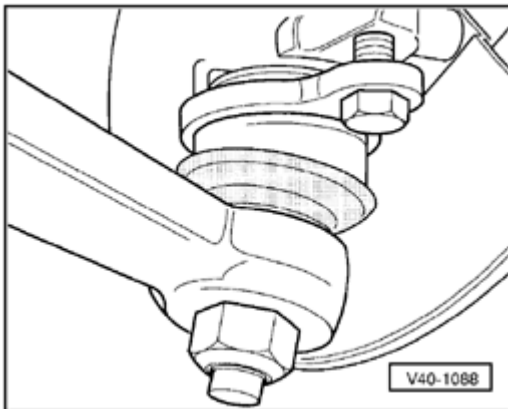
new: dimension -b- 22.5 mm

## Axle shaft, removing and installing

### Removing

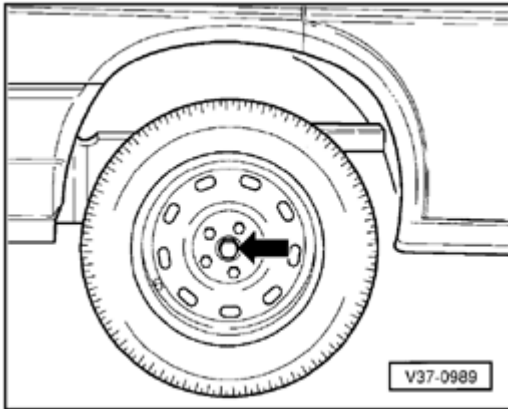
#### Vehicles with manual transmission:

- Install support 3250 to support left and right-hand upper control arm ⇒ [Page 40-3](#) .
- Loosen hex bolt for axle shaft/wheel hub when vehicle is standing on its wheels.
- Remove sound deadener pan.
- ✦ - Remove bolt for wheel bearing housing/lower ball joint.
- Remove bolt for shock absorber/stabilizer bar link.
- Separate axle shaft at transmission drive flange.
- Push shock absorber completely together.
- Remove axle shaft.

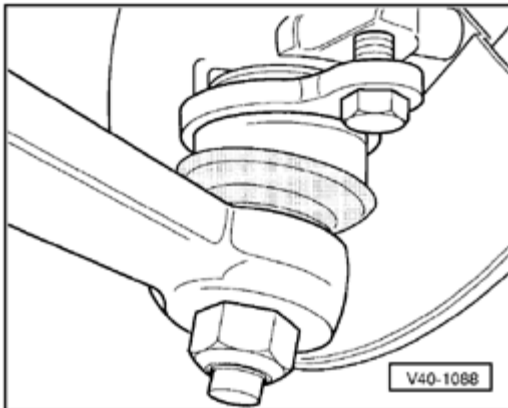


**Vehicles with automatic transmission:**

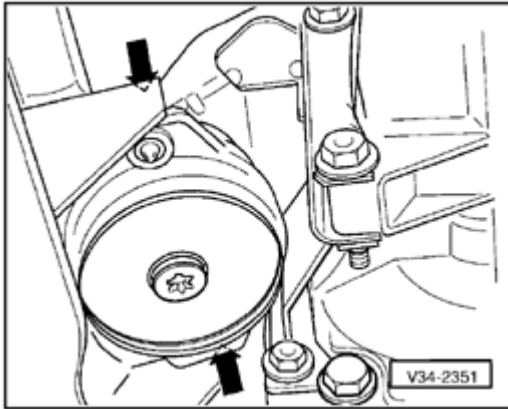
- Install support 3250 to support left and right-hand upper control arm ⇒ [Page 40-3](#) .



- Loosen hex bolt for axle shaft/wheel hub when vehicle is standing on its wheels.
- Remove noise insulation tray.
- Disconnect left-hand shock absorber from lower control arm and push completely together.



- Remove bolt and separate wheel bearing housing/lower ball joint.
- Separate connector from Multi-function Switch.
- Separate axle shaft at transmission drive flange.



- ✦ - Remove bolts from rear bonded rubber mounting at subframe (arrows).
- Remove axle shaft after pushing engine/transmission slightly forward.

### Installing

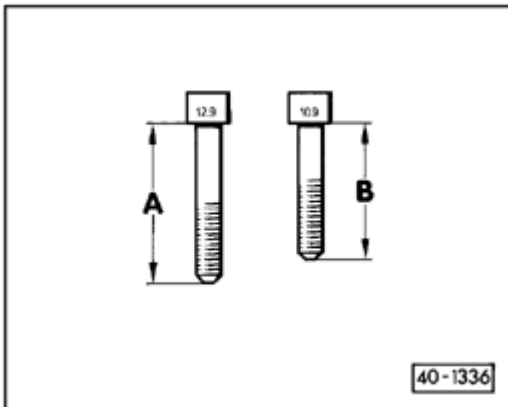
Install in reverse order.

### Note:

*EuroVans with automatic transmissions built between August 1991 and June 1992 were produced with different axle shaft bolts on the right and left sides:*

Right side bolt A

- M10 x 48
- hardness = 12.9



✦ Left side bolt B

- M10 x 45
- hardness = 10.9

### CAUTION!

*Always use bolts of hardness 12.9 during repairs when disconnecting the axle shaft.*

- Check installed bolt -A- for clearance at housing.
- shorten bolt -A- as necessary.

**Tightening torques:**

Axle shaft to flange <sup>1)</sup>	80 Nm (59 ft lb)
Wheel bearing housing to ball joint	55 Nm (41 ft lb) plus additional 90° turn
Wheel bolts to wheel hub	160 Nm (118 ft lb)
Shock absorber to control arm	160 Nm (118 ft lb)
Axle shaft to wheel hub	200 Nm (148 ft lb)
Bonded rubber mounting to subframe	45 Nm (33 ft lb)

<sup>1)</sup> Note ⇒ [Page 40-52](#)