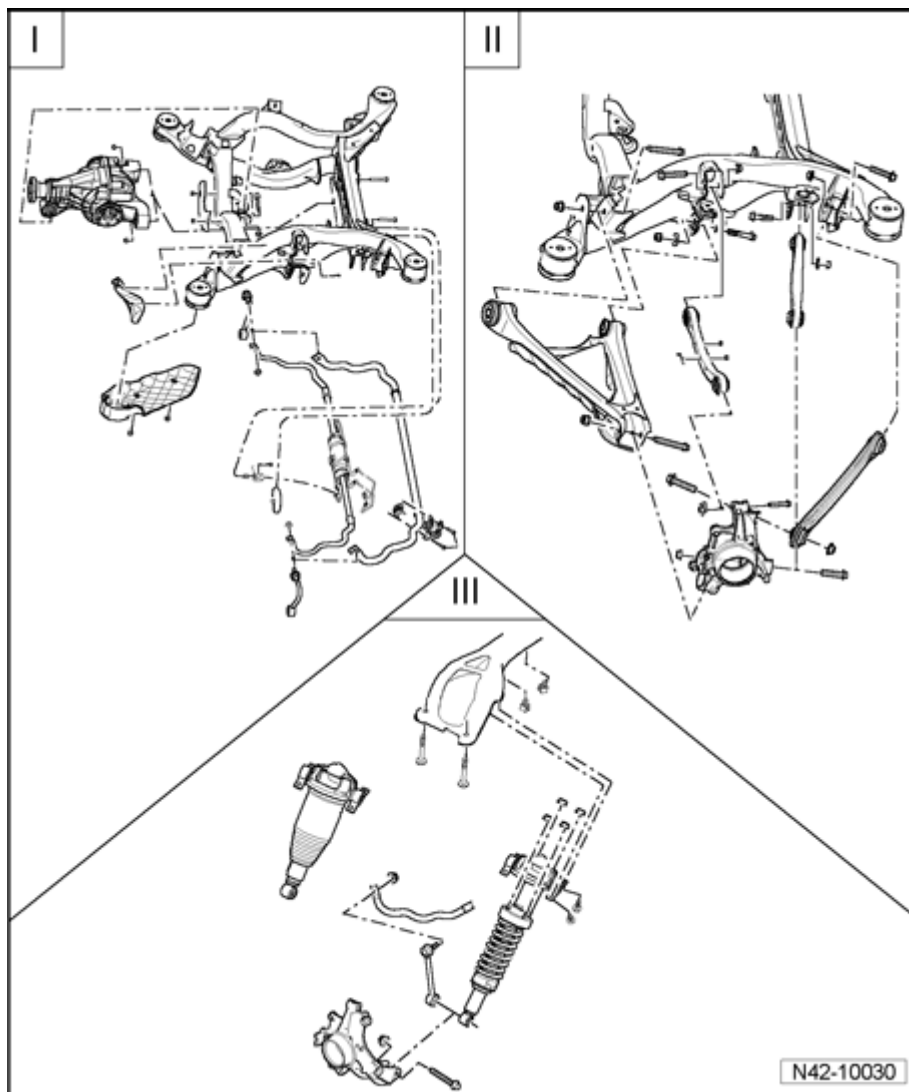


Rear suspension, servicing

Note :

- When a component with a bonded rubber bushing is replaced or nuts/bolts/screws of such a component are loosened the respective wheel bearing housing must be brought into the unladen (empty) position before fasteners are tightened ⇒ [40-3, Bringing wheel bearing to curb weight position](#) .
- Always replace self-locking nuts.
- Always replaced corroded nuts/bolts.

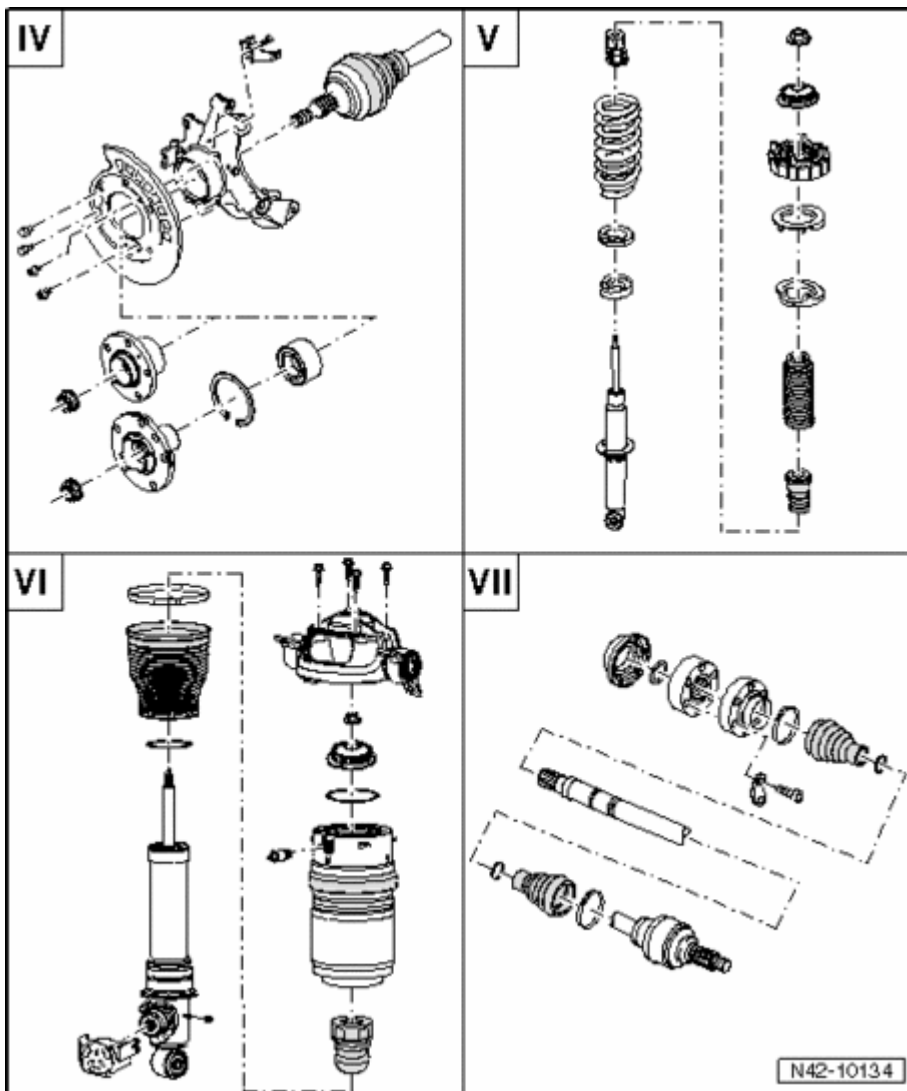


I - Assembly overview: Subframe, stabilizer bar, stone impact protection

⇒ [42-3, I - Subframe, stabilizer bar, stone impact protection, assembly overview](#)

II - Assembly overview: Lower control arm, tie rod ⇒ [42-7, II - Control arm, tie rod, assembly overview](#)

III - Assembly overview: Rear suspension ⇒ [42-8, III - Rear suspension, assembly overview](#)



IV - Assembly overview: Wheel bearing ⇒ [42-9, IV - Wheel bearing, assembly overview](#)

V - Assembly overview: Suspension strut ⇒ [42-10, V - Suspension strut, assembly overview](#)

VI - Rear air spring shock absorber ⇒ [42-11, VI - Rear air spring shock](#)

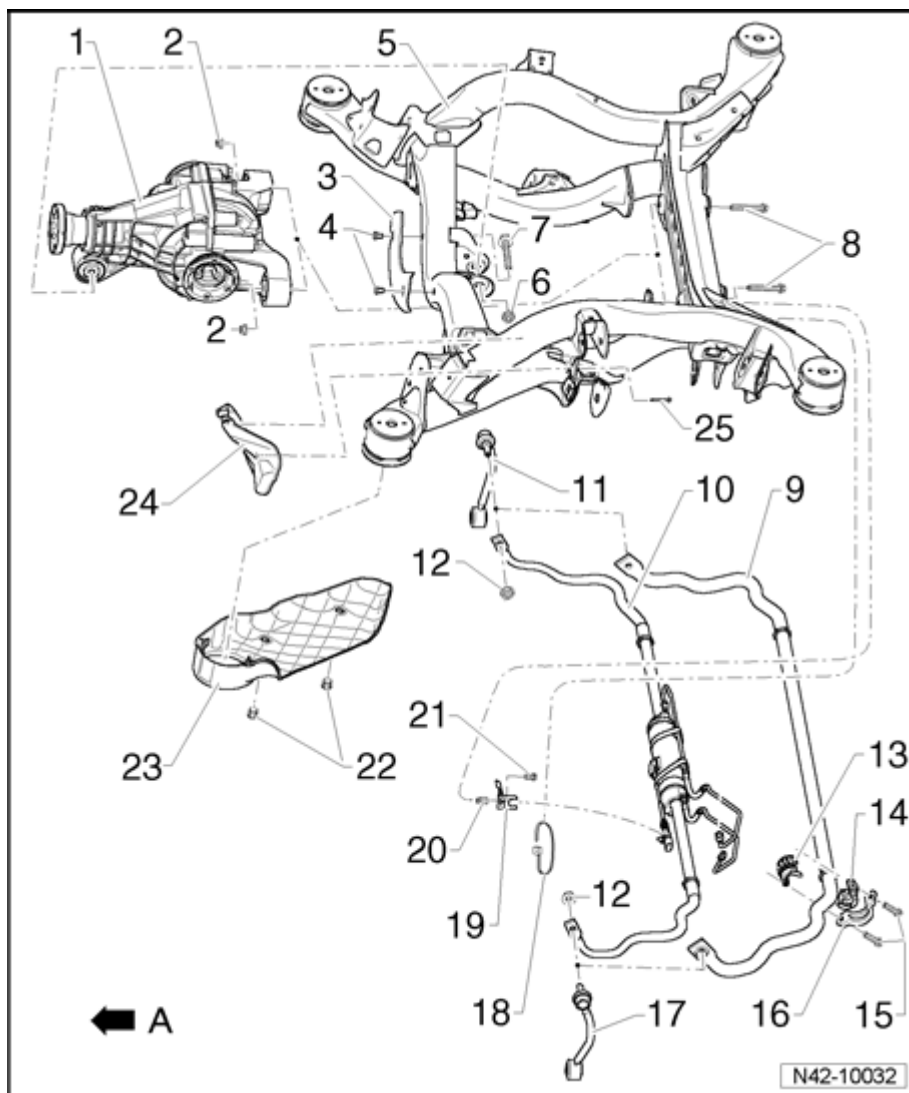
[absorber](#)

VII - Assembly overview: Drive axle ⇒
[42-12, VII - Rear drive axle, assembly overview](#)

I - Subframe, stabilizer bar, stone impact protection, assembly overview

Note :

- If components using bonded rubber bushings are replaced, or nuts/bolts on these components are loosened, the wheel bearing must be moved to the curb weight position before they are tightened ⇒ [40-3, Bringing wheel bearing to curb weight position](#) .



- Arrow A - driving direction

■ Final drive

- Removing and installing

⇒ [Repair Manual, Final Drive, Repair Group 39 , Rear final drive, removing and installing](#)

- **Self-locking nut**

- M12 x 1.5
- 100 Nm plus an additional ¹ /₂ turn (180 °)
- Always replace

- **Stone protection plate**

- **Expanding rivet**

- **Subframe**

- Locating ⇒ [40-5, Subframe, locating](#)
- Removal and installation ⇒ [42-3, Subframe, removing and installing](#)
- Servicing ⇒ [40-5, Subframe, servicing](#)

- **Self-locking nut**

- M12 x 1.5
- 90 Nm and turn additional 90 °
- Always replace

- **Hex bolt**

- M12 x 1.5 x 90
- Always replace

- **Hex bolt**

- M12 x 1.5 x 90
- Always replace

- **Stabilizer bar**
- **Decouplable stabilizer bar**
 - Removing and installing ⇒ [42-5, Decouplable stabilizer bar, removing and installing](#)
 - Assembly overview ⇒ [42-5, Decouplable stabilizer bar, assembly overview](#)
 - Bleeding ⇒ [42-5, Decouplable stabilizer bar, bleeding](#)
- **Connecting Link**
 - Right
- **Nut, self-locking**
 - M12 x 1.5
 - 100 Nm
 - Always replace
- **Stabilizer bar mount**
 - When installing, the larger outer diameter must face vehicle center
- **Stabilizer bar mount**
 - When installing, the larger outer diameter must face vehicle center
- **Hex bolt**
 - M10 x 25
 - 40 Nm
- **Clamp**
- **Connecting Link**

- Left
- Cable tie
- Bracket
- Nut
- Hex bolt
- Expanding rivet
- Stone protection plate
 - M14 x 1.5 x 135
 - 120 Nm plus an additional 180 ° ($\frac{1}{2}$ turn)
- Stone protection plate
- Phillips-head screw
 - M4 x 25

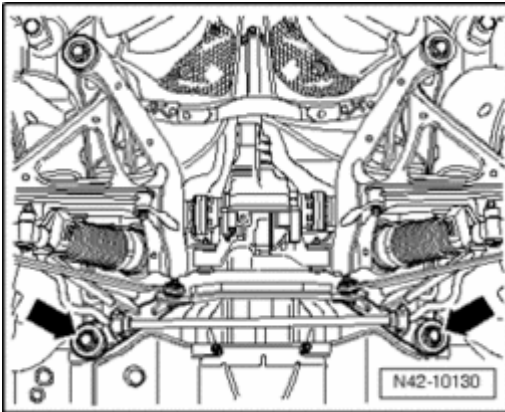
Subframe, locating

Special tools, testers and auxiliary items required

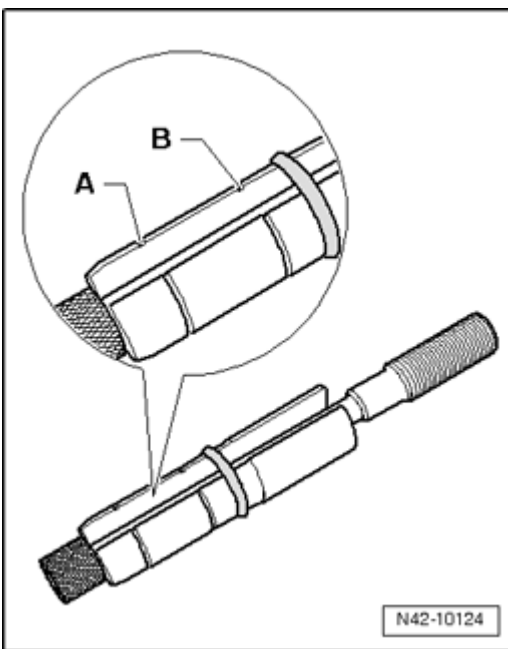
- Locating fixture T10300
- Torque wrench V.A.G 1332
- Torque wrench V.A.G 1331

Certain repairs on vehicles require removal of the subframe or complete rear axle. The original position of the subframe to the body can be maintained with assistance of locating fixtures T10300 . Always install locating fixtures just before lowering subframe or the complete rear axle. Perform a test drive after the repair. If steering wheel is crooked, perform a vehicle alignment ⇒ [44-4, Wheel alignment](#) .

- Place engine/transmission jack V.A.G 1383 A or scissor lift table VAS 6131 with appropriate mountings under subframe.



- Remove bolts - **arrows** - .



- Screw in locating fixtures T10300 at both of these points "by hand" up to mark - **B** - .

- Tighten locating fixtures to 30 Nm, thereby counter-holding the wrench surfaces of the sleeve with a open-end wrench; otherwise it will twist.

The position of subframe is now fixed.

Removal of locating fixtures T10300 is performed in reverse sequence.

Torque specifications	
Subframe to body ¹⁾	100 Nm + ¹ / ₂ (+180 °)

¹⁾ Replace each time it is removed

Subframe, removing and installing

V.A.G 1332 	V.A.G 1869/2 
VAS 6131 	
	W42-0082

Special tools, testers and auxiliary items required

- Torque wrench V.A.G 1332
- Brake pedal depressor V.A.G 1869/2
- Scissors-type assembly platform VAS 6131
- Support (2) VAS 6131/6-5
- Support (2) VAS 6131/6-7
- Socket T10212

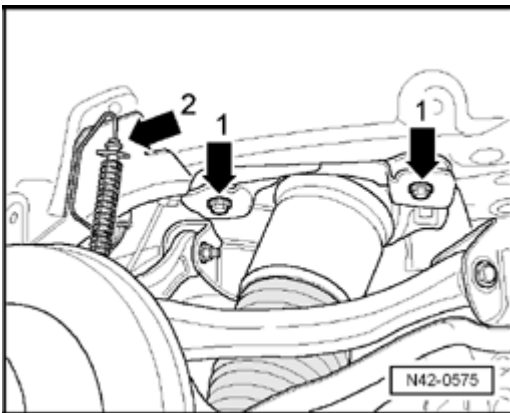
Removing

Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

- Switch hydraulic system for the decouplable stabilizer bars pressureless, with ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051* .
- Remove wheels.
- Remove rear section of exhaust system

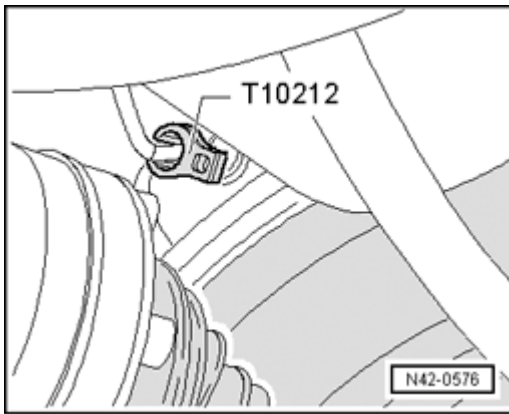
⇒ *Repair Manual, Engine Mechanical, Repair Group 26, Exhaust system components, removing and installing*



- Separate brake line - **arrow 2** - .
- Remove brake cable from rear axle

⇒ [*Repair Manual, Brake System, Repair Group 46, Rear brake cable, removing and installing; Unhook brake cable from retainer*](#)

- Disconnect all electrical connectors from the body to the axle.



- Remove left and right air supply line.
- Remove drive shaft from rear final drive and tie up

⇒ [Repair Manual, Final Drive, Repair Group 39, Drive shaft, removing and installing; Rear drive shaft, removing and installing](#)

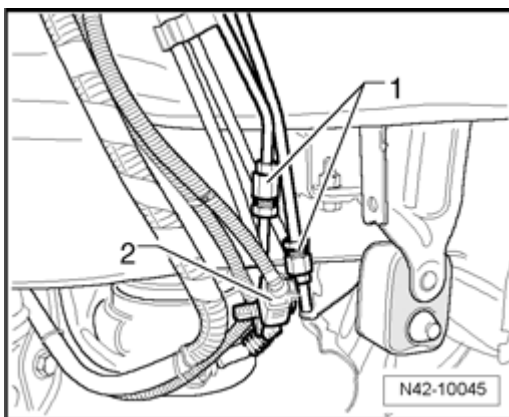
.

Vehicles with decouplable stabilizer bars

- Remove left rear wheelhousing liner

⇒ [Repair Manual, Body Exterior, Repair Group 66, wheelhousing liners; Rear wheelhousing liner, assembly overview](#)

.

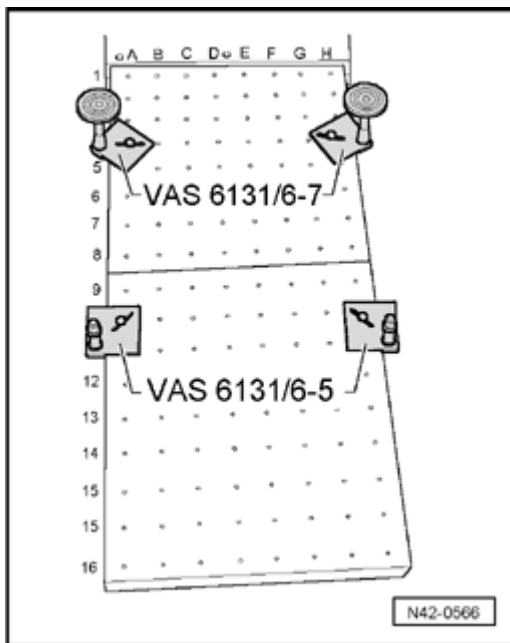


- Separate both hydraulic lines - **1** - , as well as electrical connection - **2** - .

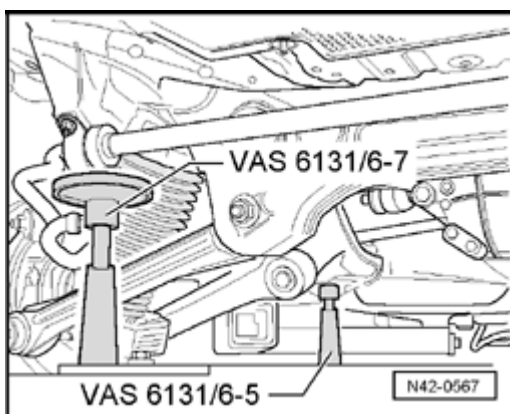
The lines must not be switched when installing!

- Check if a color marking is on front line. If there is none, apply a new one.
- When removing hydraulic lines, counterhold with an open-end wrench.

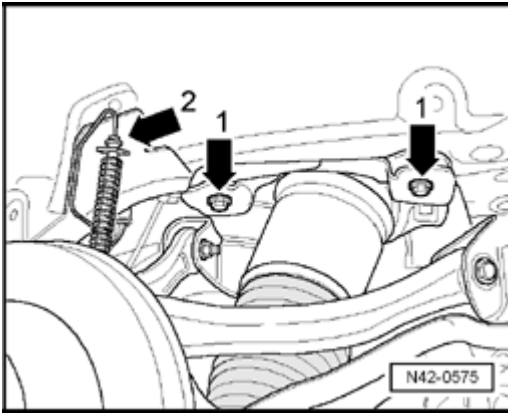
Continued for all vehicles



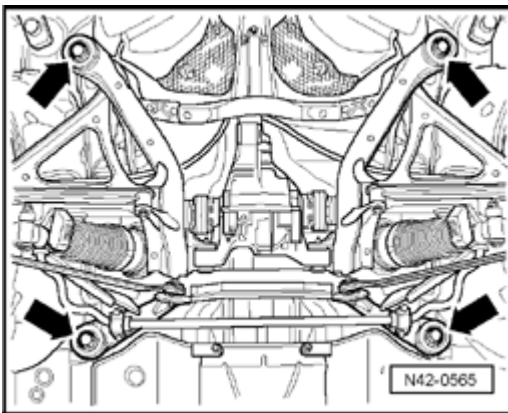
- Bolt both supports VAS 6131/6-7 and VAS 6131/6-5 to assembly platform VAS 6131 .



- Support subframe using assembly platform.
- Mark position of cross member to body with a felt tip pen.



- Remove cross member on left and right-hand sides - **arrow 1** - .



- Remove bolts - **Arrows** - from subframe.
- Lower assembly platform slightly and pull breather line from nipple on final drive.
- Lower subframe slowly.

Installing

Installation is reverse of removal, note the following:

- Tighten down subframe with the original bolts. They have to be replaced with new bolts following wheel alignment.
- Tighten original bolts to specified torque without additional tightening.
- A wheel alignment check must be made following installation ⇒ [44-4, Wheel alignment](#) .
- Adjust parking brake

⇒ [Repair Manual, Brake System, Repair Group 46, Servicing rear brakes; Adjusting parking brake](#)

.

Vehicles with decouplable stabilizer bars

- Bleed decouplable stabilizer bar ⇒ [42-5, Decouplable stabilizer bar, bleeding](#) .

Continued for all vehicles

- Bleed brake system

⇒ [Repair Manual, Brake System, Repair Group 47, Brake system, bleeding](#)

.

- Install and tighten wheels ⇒ [44-2, Tightening torque for wheel bolts](#) .

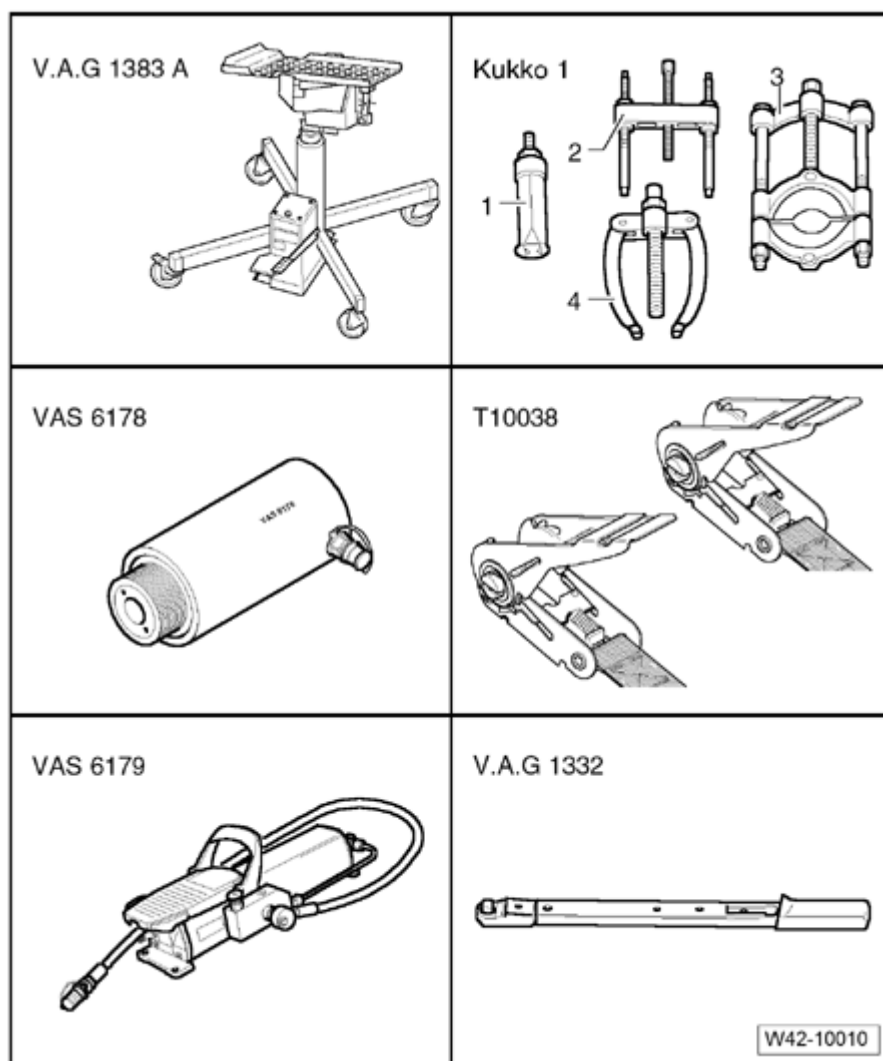
Tightening torques	
Subframe to body ■ Use new bolts.	120 Nm plus an additional $1/2$ turn (180°)
Cross member to body ■ Use new bolts.	90 Nm plus an additional $1/4$ turn (90°)
Connection of hydraulic lines ¹⁾	15 Nm

¹⁾ When tightening, counterhold on hex of union nut

Subframe, servicing

- Before replacing the faulty mount, check the others as well.

If tears or other damages are visible, they must be replaced.



Special tools, testers and auxiliary items required

- Counter-support KUKKO 22-2 - 4
-
- Internal extractor KUKKO 21/4 - 1
-
- Separating device KUKKO 15-2 - 3
-
- Tightening strap T10038
- Torque wrench V.A.G 1332
- Engine/transmission jack V.A.G 1383 A

- Hydraulic press VAS 6178
- Foot pump VAS 6179

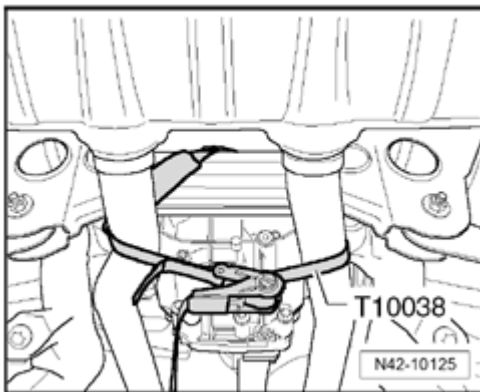
Special tools, testers and auxiliary items required

- Assembly tool T10301 , without illustration

Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

- Switch hydraulic system for decouplable stabilizer bars pressureless, with *⇒ Vehicle Diagnosis, Testing and Information System VAS 5051* .
- Remove wheels.



- Tie exhaust system to subframe with tensioning strap T10038 , as shown in the illustration.
- Loosen rear section of exhaust system

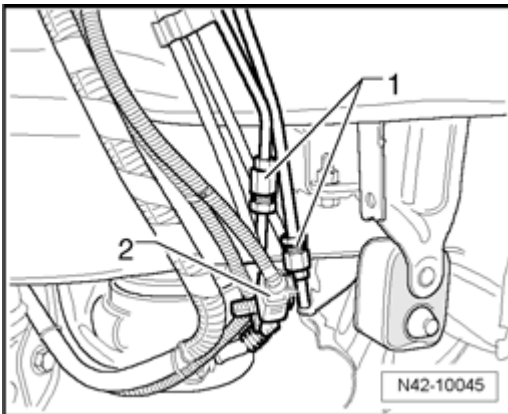
⇒ Repair Manual, Engine Mechanical, Repair Group 26, Exhaust system components, removing and installing

- Disconnect all electrical leads from body to the axle.

Vehicles with decouplable stabilizer bars

- Remove left rear wheelhousing liner

⇒ [Repair Manual, Body Exterior, Repair Group 66, Wheelhousing liners; Rear wheelhousing liner, assembly overview](#)

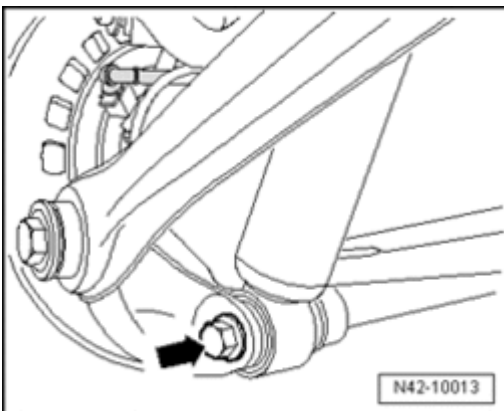


- Separate both hydraulic lines - **1** - , as well as electrical connection - **2** - .

The lines must not be switched when installing!

- Check if a color marking is on front line. If there is none, apply a new one.
- When removing hydraulic lines, counterhold with an open-end wrench.

Continued for all vehicles



- Remove suspension strut from wheel bearing housing - **arrow** - .
- Place engine/transmission jack V.A.G 1383 A under

subframe.

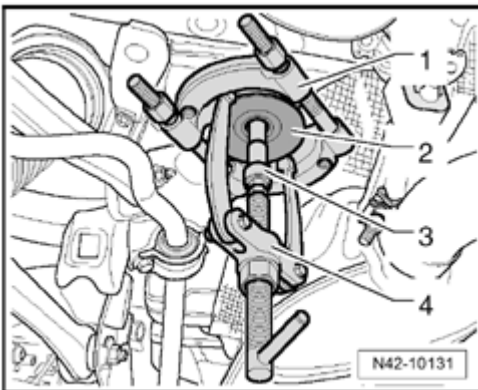
- Remove two remaining bolts for subframe.

The subframe will be lowered (2 mechanics required), thereby pay attention to the following:

- Only lower as much as necessary
- Be aware of electrical wiring and brake hoses
- Lower subframe uniformly from the body

- Lower subframe.

To press out the bonded rubber bushings, the cover must first be pulled out of the inner core of the mount.



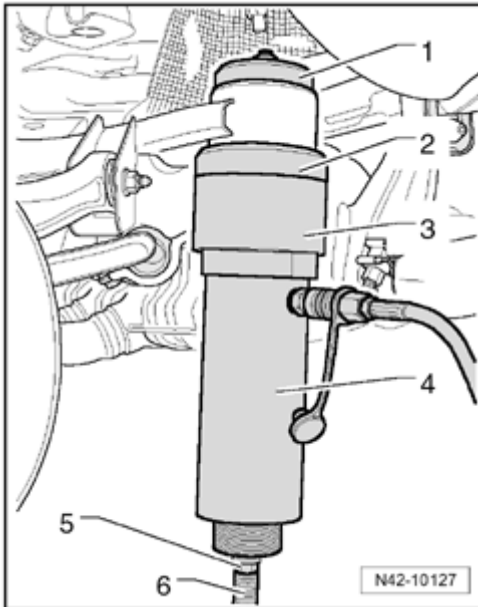
- Install tools as shown in illustration.
 - Separating device 15-2 KUKKO
 - Cover
 - Internal extractor 21/4 KUKKO
 - Counter-support 22-2 KUKKO

Warning!

Because the cover loosens itself "abruptly" , there is a risk of injury when the tool and the cover fall down.

- Pull out cover with described tools.

Pulling out bonded rubber bushing



- Install tools as shown in illustration.

- Press piece T10301/5
- Support ring T10301/4
- Tube T10301/3
- Hydraulic press VAS 6178
- Nut T10301/2
- Spindle T10301/1

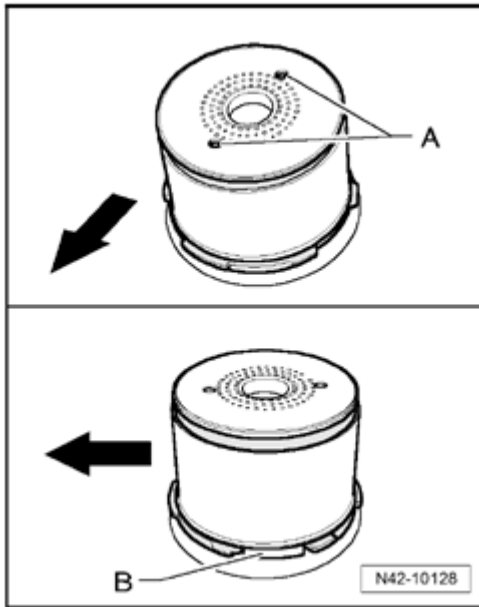
The chamfer on the outer diameter of the support ring T10301/4 must face toward the subframe.

- Press out bonded rubber bushing.

Caution!

Hold hydraulic cylinder VAS 6178 during the pressing-out procedure.

Installed location

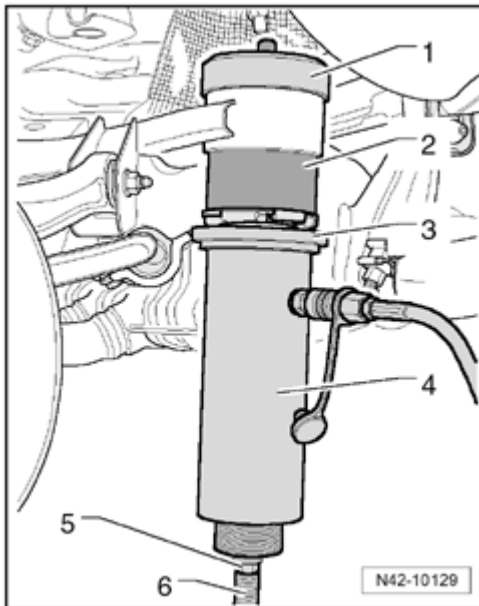


The - **arrows** - point in driving direction.

Holes - **A** - longitudinal to driving direction

Seams - **B** - transverse to driving direction

Pressing in bonded rubber bushing



- Install tools as shown in illustration.

- Press piece T10301/7
- Bonded rubber mounting
- Thrust pad T10301/6
- Hydraulic press VAS 6178
- Nut T10301/2
- Spindle T10301/1

- Press in bonded rubber bushing until the shoulder is positioned "without gap" against socket of subframe.
- Install subframe to body and remove locating fixtures T10300 (2 mechanics required).

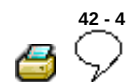
Further installation is in reverse sequence of removal.

Torque specifications	
Subframe to body 1)	100 Nm + quarter turn (+90 °)
Exhaust system to body	⇒ <i>Repair Manual, Engine Mechanical, Repair Group 26, Exhaust system components, removing and installing</i>

Vehicles with decouplable stabilizer bar

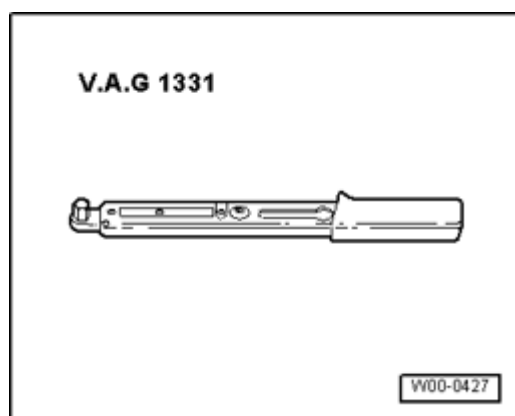
- Bleed hydraulic system for decouplable stabilizer bar ⇒ [42-5, Decouplable stabilizer bar, bleeding](#) .

Perform a test drive after the repair. If the steering wheel is crooked, perform a vehicle alignment ⇒ [44-4, Wheel alignment](#) .

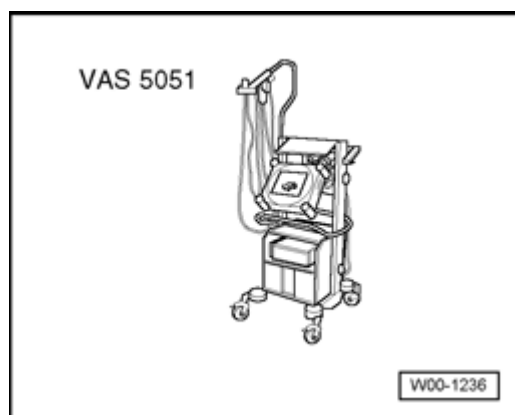


Left and right rear level control system sensors G76/G77 , removing and installing

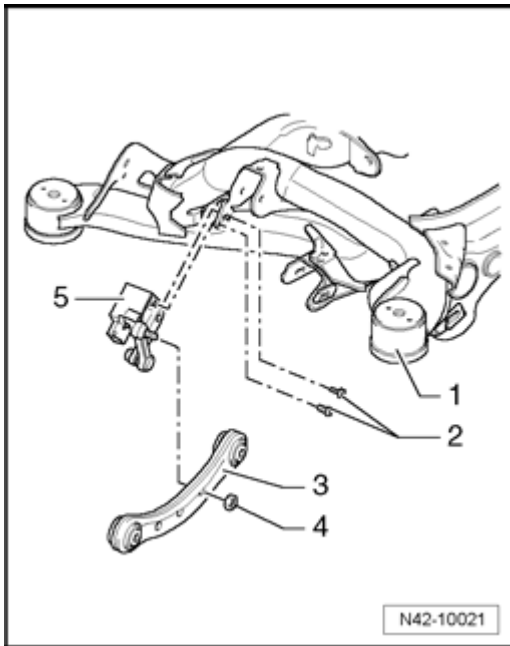
Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1331



- Vehicle diagnostics, measurement and information system VAS 5051



Assembly overview

- Subframe
- Internal hex bolt, 5 Nm
- Control arm, upper front
- Self-locking nut 8 Nm
- Left/Right rear level control system sensor G76/G77

Removing

Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

- Raise vehicle.
- Disconnect electrical connection at rear level control system sensor G76/G77 .
- Remove bolts - **2** - and nut - **4** - and remove rear level control system sensor G76/G77 .

Installing

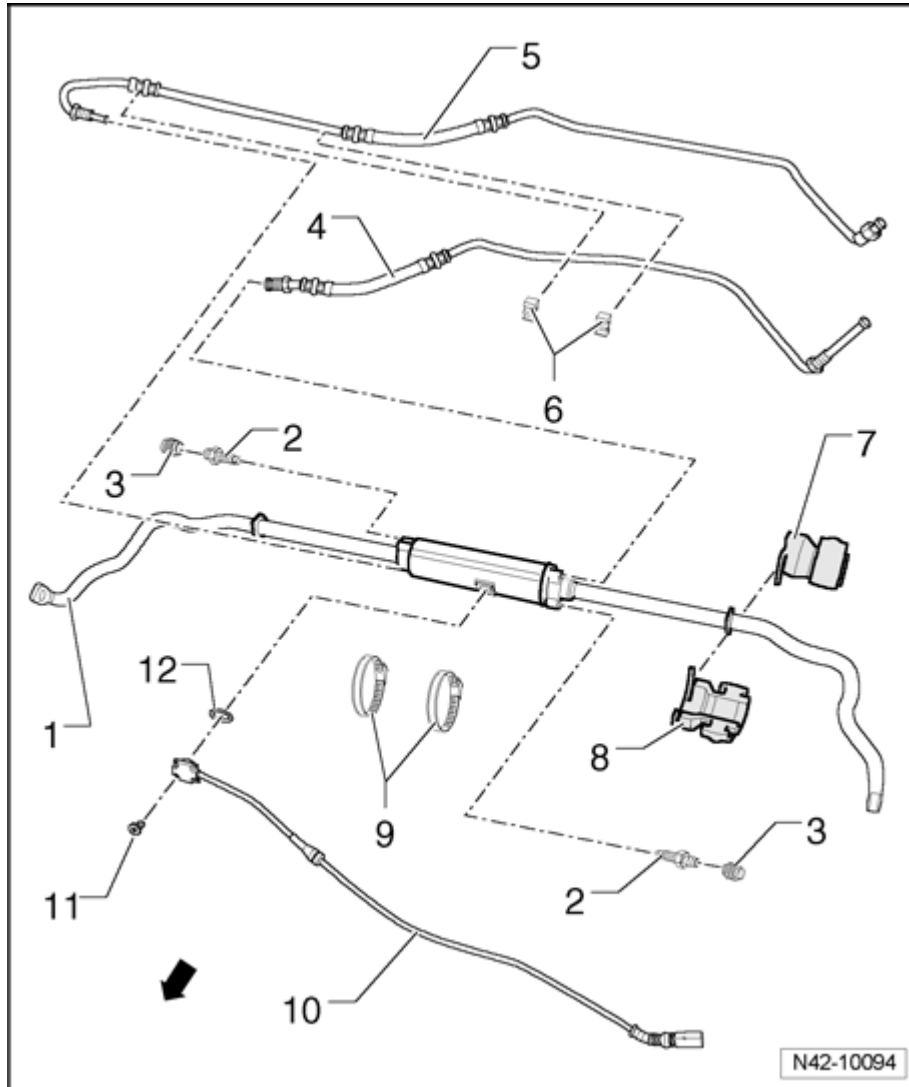
- Install Left/Right rear level control system sensor G76/G77 to subframe using bolts - **2** - .
- Attach ball joint pin to front upper control arm using new nut - **4** - .

The joint between the lever of Left/Right rear level control system sensor G76/G77 and connecting link must thereby

point downward.

- Tighten all bolts to specified torque.
- Lower vehicle onto its wheels.
- Perform basic setting for Left/Right rear level control system sensor G76/G77 with the vehicle diagnosis, testing and information system VAS 5051 .

Decouplable stabilizer bar, assembly overview



■ Decouplable stabilizer bar, rear

- Removing and installing ⇒ [42-5, Decouplable stabilizer bar, removing and installing](#)
- Bleeding ⇒ [42-5, Decouplable stabilizer bar, bleeding](#)

■ Bleeder screw

- 5 Nm

■ Dust cap

- **Hydraulic line**

- Tighten to stabilizer bar, 40 Nm
- When pressure is increased in this line, the claw coupling in the stabilizer bar opens
- When loosening the connection, counterhold on the hex of the union nut with an open-end wrench

- **Hydraulic line**

- Tighten to stabilizer bar, 20 Nm
- When pressure is increased in this line, the claw coupling in the stabilizer bar closes
- When loosening connection, counterhold the union hex nut with an open-end wrench

- **Bracket**

- Secure with clamp to stabilizer bar

- **Stabilizer bar mount**

Installed location:

- **Mark stabilizer bar before removing**
- **The larger diameter must face toward outside**

- **Stabilizer bar mount**

Installed location:

- **Mark stabilizer bar before removing**
- **The larger diameter must face toward outside**

- **Clamp**

- Installed location: ⇒ [42-5, Installed position of securing the hydraulic lines clamp to the decouplable stabilizer bar](#)

- **Rear axle stabilizer decoupling sensor G485**

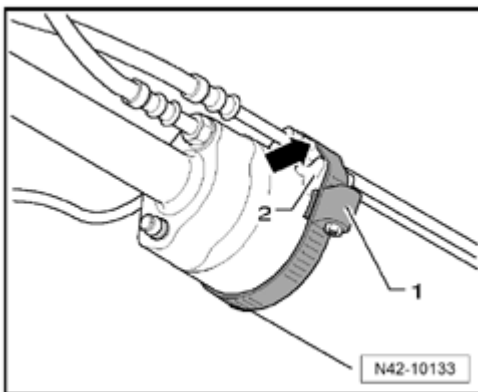
- Can be tested in "guided fault finding" with the Vehicle diagnosis, testing and information system VAS 5051

- **Hex socket head bolt**

- 3 Nm

- **Seal ring**

- Always replace



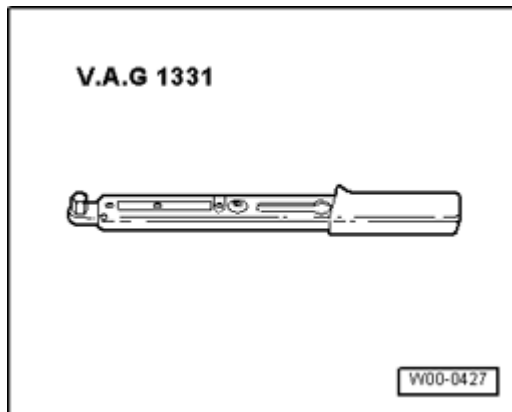
Installed position of securing the hydraulic lines clamp to the decouplable stabilizer bar

- The closure of clamp - **1** - must be located below bracket - **2** - . It must be positioned so that fastening of the clamp can be done from below.
- The clamp must be positioned directly against

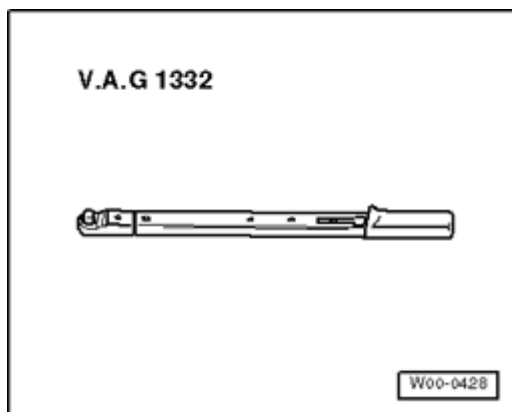
bracket - 2 - - arrow - .

Decouplable stabilizer bar, removing and installing

Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1331



- Torque wrench V.A.G 1332

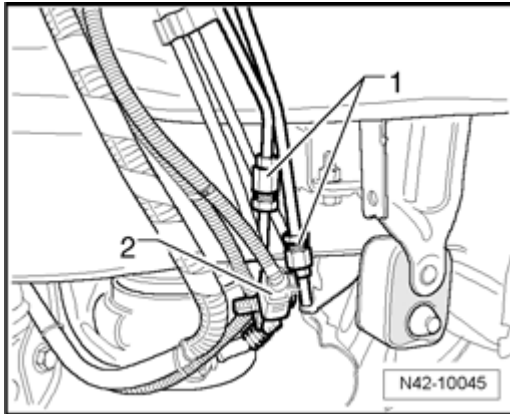
Decouplable stabilizer bar, removing

Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

- Switch hydraulic system pressureless, with $\Rightarrow$ *Vehicle Diagnosis, Testing and Information System VAS 5051* .
- Remove left rear wheelhousing liner

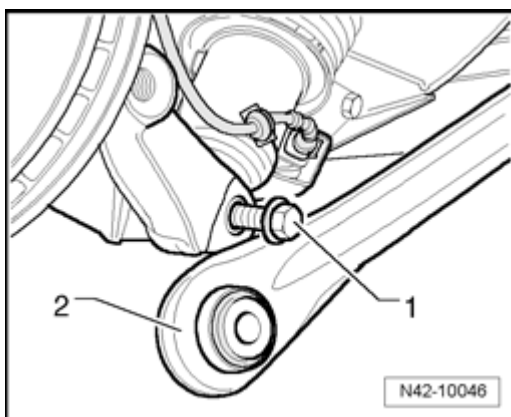
⇒ [Repair Manual, Body Exterior, Repair Group 66, wheelhousing liners; Rear wheelhousing liner, assembly overview](#)



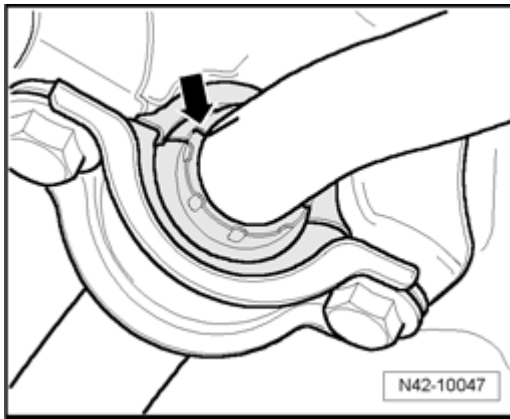
- Separate both hydraulic lines - **1** - , as well as electrical connection - **2** - .

The lines must not be switched when installing!

- Check if a color marking is on front line. If there is none, apply a new one.
- When removing hydraulic lines, counterhold with an open-end wrench.
- Remove connecting links.
- Remove tie rods from both wheel bearing housings.



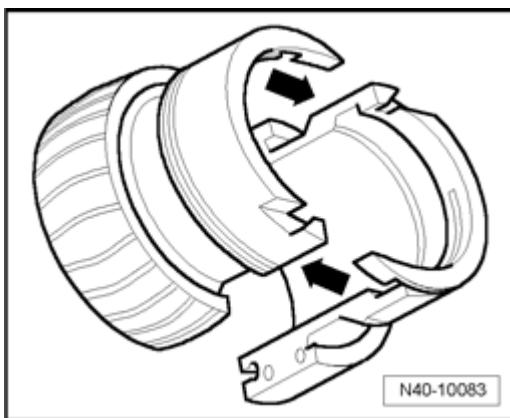
- Back out bolt - **1** - to lock tie rod - **2** - .



- Mark installation position of stabilizer bar mounting on stabilizer bar - **arrow** - .
- Remove clamp and stabilizer bar.

Decouplable stabilizer bar, installing

Further installation is in reverse sequence to removal.



- Install halves of stabilizer bar mount - **arrow** - to stabilizer bar. Note:
 - The markings on stabilizer bar that were applied during removal
 - The larger outer diameter of stabilizer bar mount halves face toward vehicle center

After installation, the hydraulic system must be bled using
 ⇒ *Vehicle Diagnosis, Testing and Information System VAS*
 5051 ⇒ [42-5, Decouplable stabilizer bar, bleeding](#) .

Tightening torques	
Coupling rod to stabilizer bar	100 Nm
Stabilizer bar to subframe	50 Nm

Connecting link to wheel bearing housing	100 Nm
Tie rod to wheel bearing housing ¹⁾	150 Nm + quarter turn (90 °)
Connection of hydraulic lines ²⁾	15 Nm

1) Use new nuts and bolts

2) When tightening, counterhold on union hex nut

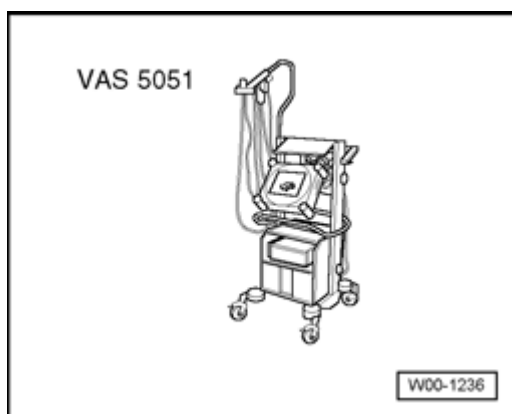
- Remove left rear wheelhousing liner

⇒ [Repair Manual, Body Exterior, Repair Group 66, wheelhousing liners; Rear wheelhousing liner, assembly overview](#)

.

Oil level for decouplable stabilizer bar hydraulic system, checking and filling

Special tools, testers and auxiliary items required

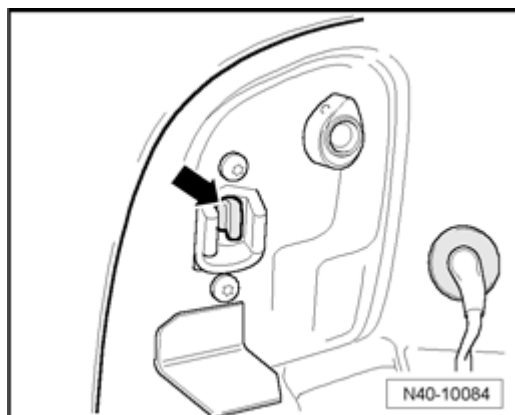


- Vehicle diagnostics, measurement and information system VAS 5051
- Plastic spray bottle (commercially available)

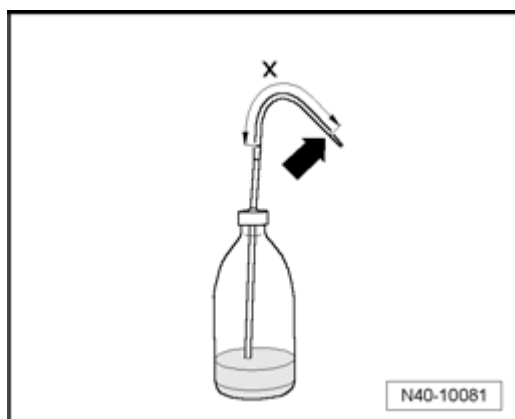
- Switch hydraulic system pressureless, with ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051* .

- Remove left taillight

⇒ [Repair Manual, Electrical Equipment, Repair Group 94, Taillight; Taillight in side panel, assembly overview](#)



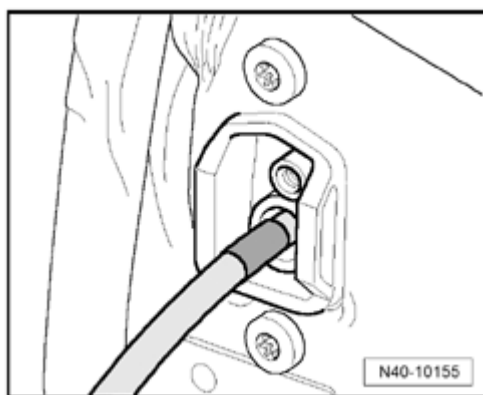
- Remove plug - **arrow** - from filling hole.



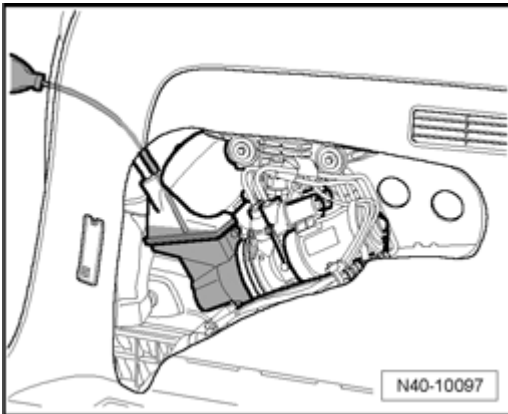
- Cut tip - **arrow** - off of plastic spray bottle.

Mark dimension - **X** - , with adhesive tape.

X = 135 mm



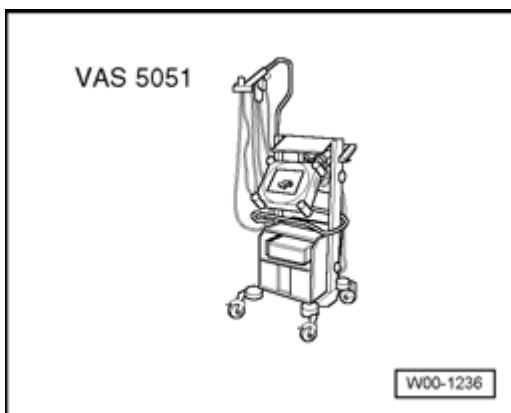
- Guide hose of plastic spray bottle into filling hole, up to applied mark.



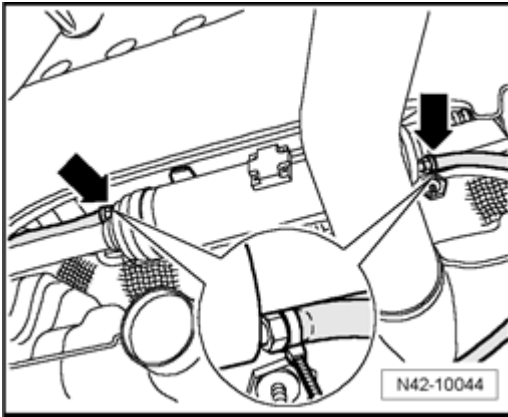
- Add enough central hydraulic oil and power steering oil G 002 000 until, through intake with the plastic spray bottle, oil climbs in the hose.
- Extract enough oil out of the reservoir with the plastic spray bottle until air climbs in hose. Then observe the applied marking on the hose.

Decouplable stabilizer bar, bleeding

Special tools, testers and auxiliary items required



- Vehicle diagnostics, measurement and information system VAS 5051
 - Clear plastic hose, inside diameter 6 mm, approx. 1 meter long
- Switch hydraulic system pressureless, with ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051* .
 - Check oil level in engine pump assembly ⇒ [42-5, Oil level for decouplable stabilizer bar hydraulic system, checking and filling](#) .



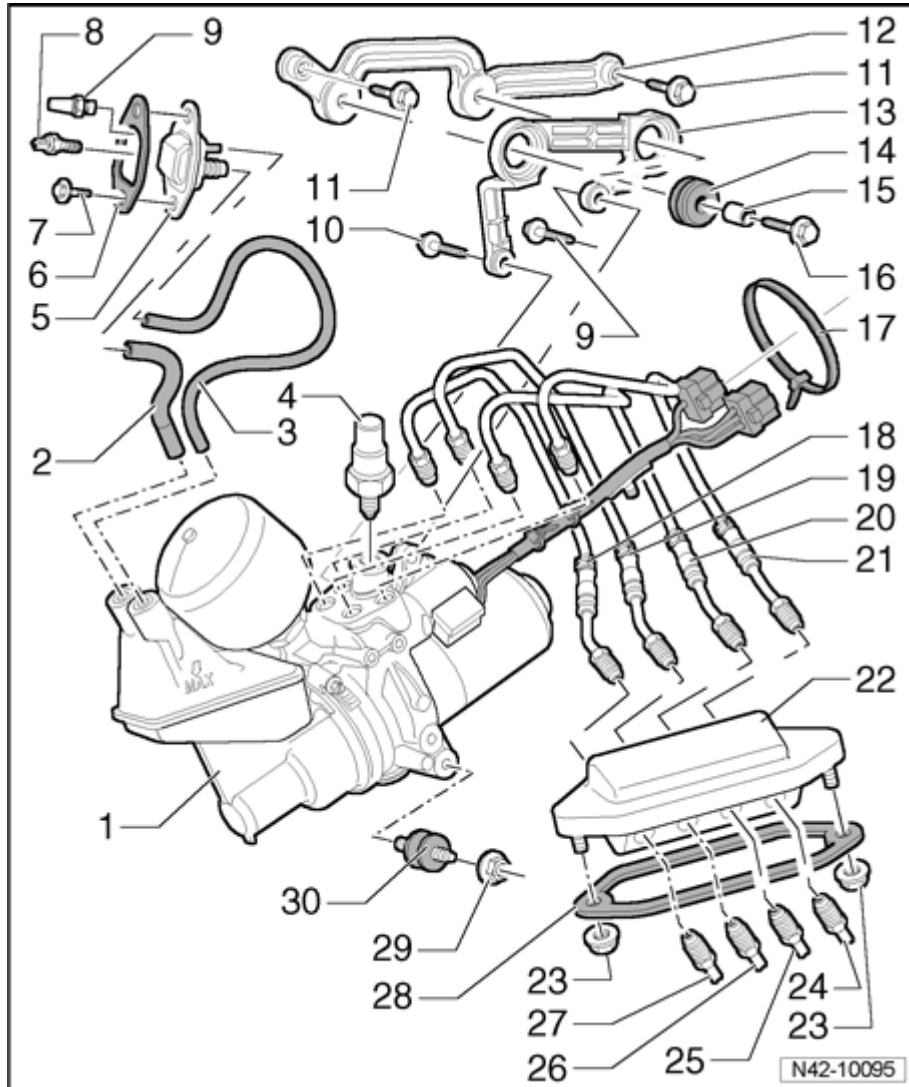
- Attach hose to bleeder screw - **arrows** - .
- Secure hose on bleeder screw with a cable tie or hose clamp.

Note:

- *Due to the high pressure, the hose would slide off of the bleeder screw if not secured during the bleeding process.*

- Loosen bleeder screw approx. 1 turn.
- Follow directions in ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051* .
- Tighten bleeder screw and remove hose.
- Check oil level in engine pump assembly once more ⇒ [42-5, Oil level for decouplable stabilizer bar hydraulic system, checking and filling](#) .

Engine pump assembly for decouplable stabilizer bars, assembly overview



■ Engine pump assembly

With:

- Stabilizer decoupling pump V326
- Front axle stabilizer coupling switching valve N399
- Rear axle stabilizer coupling switching valve N400
- This component can be tested in "guided fault"

finding" with Vehicle
diagnosis, testing and
information system VAS
5051

Location:

Behind left sidewall trim

- **Hose**
- **Hose**
 - For bleeding reservoir
- **Stabilizer decoupling hydraulic unit pressure sensor G486**
 - 20 Nm
 - Can be tested in "guided fault finding" with Vehicle diagnosis, testing and information system VAS 5051
- **Cover**
 - With oil filler hole
- **Gasket**
- **Torx bolt**
 - 8 Nm
- **Plug**
- **Dust filter**
 - 2 Nm
- **Hex bolt**
 - M6 x 20
 - 10 Nm
- **Hex bolt**

- M6 x 20
- 8 Nm
- **Bracket**
 - Between body and ⇒ [Item - 13 -](#)
- **Bracket**
 - Between engine pump assembly and ⇒ [Item - 12 -](#)
- **Rubber bushing**
- **Bushing**
- **Hex bolt**
 - M6 x 30
 - 10 Nm
- **Cable tie**
- **Hydraulic line**
 - 15 Nm

Caution!

Strictly adhere to the tightening torque, otherwise the valve housing can distort. Thereby, the valve piston in the valve housing would no longer move freely.

- When pressure is increased in this line, the claw coupling in stabilizer bar at rear axle opens
- **Hydraulic line**
 - 15 Nm

Caution!

Strictly adhere to the tightening torque, otherwise the valve housing

can distort. Thereby, the valve piston in the valve housing would no longer move freely.

- When pressure is increased in this line, the claw coupling in stabilizer bar at the rear axle closes

- **Hydraulic line**

- 15 Nm

Caution!

Strictly adhere to the tightening torque, otherwise the valve housing can distort. Thereby, the valve piston in the valve housing would no longer move freely.

- When pressure is increased in this line, the claw coupling in stabilizer bar at the front axle opens

- **Hydraulic line**

- 15 Nm

Caution!

Strictly adhere to the tightening torque, otherwise the valve housing can deform. Thereby, the valve piston in the valve housing would no longer move freely.

- When pressure is increased in this line, the claw coupling in stabilizer bar at front axle closes

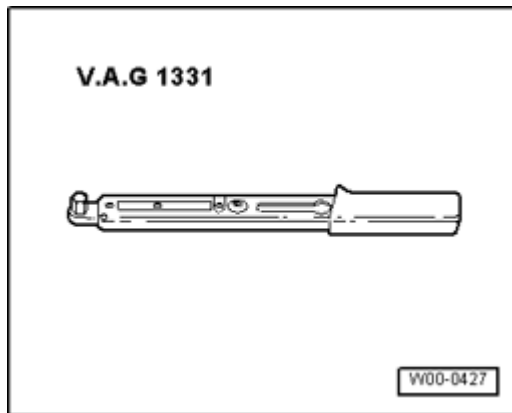
- **Adapter**

- **Nut**

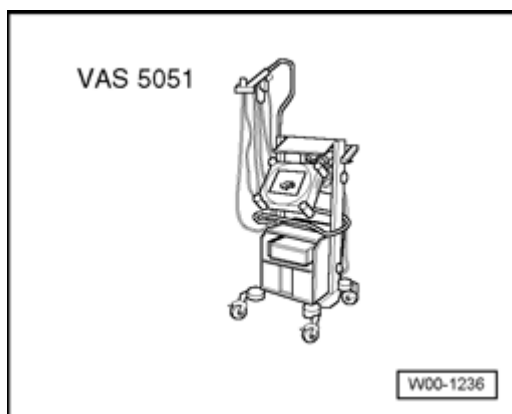
- 9 Nm

- **Hydraulic line**

- 15 Nm
- When pressure is increased in this line, the claw coupling in stabilizer bar at front axle closes
- **Hydraulic line**
 - 15 Nm
 - When pressure is increased in this line, the claw coupling in stabilizer bar at front axle opens
- **Hydraulic line**
 - 15 Nm
 - When pressure is increased in this line, the claw coupling in stabilizer bar at rear axle closes
- **Hydraulic line**
 - 15 Nm
 - When pressure is increased in this line, the claw coupling in stabilizer bar at rear axle opens
- **Gasket**
- **Nut**
 - 10 Nm
- **Rubber bushing**
 - With locking compound D 185 400 A2 on threads, fasten into engine pump assembly hand-tight

Special tools, testers and auxiliary items required

- Torque wrench V.A.G 1331

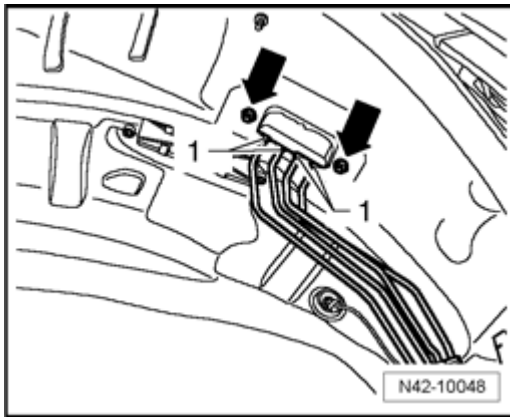


- Vehicle diagnostics, measurement and information system VAS 5051

Engine pump assembly, removing

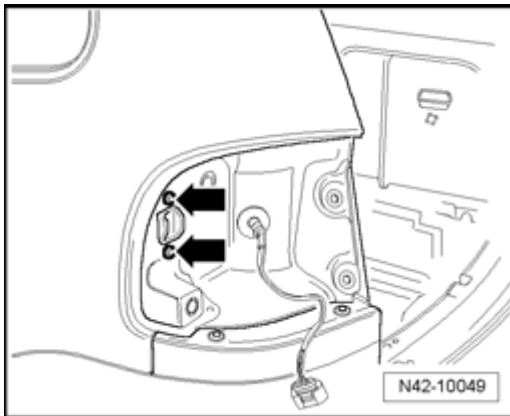
- Switch hydraulic system pressureless with vehicle diagnosis, testing and information system VAS 5051 .
- Remove left rear wheelhousing liner

⇒ [Repair Manual, Body Exterior, Repair Group 66, wheelhousing liners; Rear wheelhousing liner, assembly overview](#)



- Remove hydraulic lines - **1** - and nuts - **arrows** - .
- Remove left taillight

⇒ [Repair Manual, Electrical Equipment, Repair Group 94, Taillight; Taillight in side panel, assembly overview](#)



- Remove adapter from structure by removing bolts - **arrows** - .
- Remove C-pillar trim from left side

⇒ [Repair Manual, Body Interior, Repair Group 70, Pillar trim; C-pillar, removing and installing](#)

- Remove roof close-out strip

⇒ [Repair Manual, Body Interior, Repair Group 70, Roof](#)

[trim; Roof close-out strip, removing and installing](#)

- .
- Remove D-pillar trim

⇒ [Repair Manual, Body Interior, Repair Group 70, Pillar trim; D-pillar trim, removing and installing](#)

- .
- Remove cover for rear lock carrier

⇒ [Repair Manual, Body Interior, Repair Group 70, Luggage compartment and cargo area trim; Rear lock carrier cover, removing and installing](#)

- .
- Remove cargo floor

⇒ [Repair Manual, Body Interior, Repair Group 70, Luggage compartment and cargo area trim; Cargo floor, removing and installing](#)

- .
- Remove left rear backrest

⇒ [Repair Manual, Body Interior, Repair Group 72, Rear seats; Left backrest, removing and installing](#)

- .
- Remove left sidewall trim

⇒ [Repair Manual, Body Interior, Repair Group 70, Luggage compartment and cargo area trim; Sidewall trim, removing and installing](#)

.

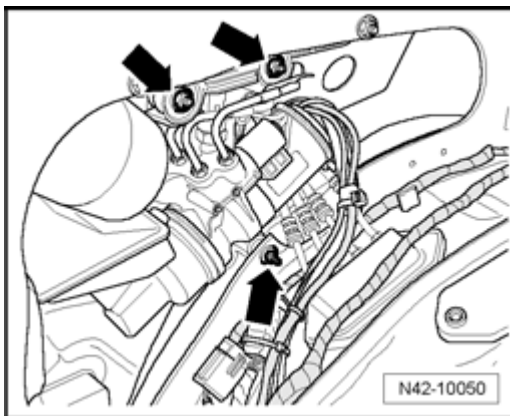
Vehicles with auxiliary heater and air conditioner units

- Remove heater and air-conditioner unit

⇒ *Repair Manual, Heating Air Conditioning, Repair Group 87, Servicing A/C refrigerant system; Auxiliary heater and air conditioner unit, removing and installing*

Continued for all vehicles

- Separate electrical connections between electrical system and engine pump assembly.



- Remove bolts - **arrows** - and remove engine pump assembly from vehicle.

Engine pump assembly, installing

Installation is performed in reverse sequence.

After installation the hydraulic system must be bled with vehicle diagnosis, testing and information system VAS 5051 .

- Bleed hydraulic system ⇒ [42-5, Decouplable stabilizer bar, bleeding](#) .

Tightening torques	
Engine pump assembly to structure	9 Nm
Cover for oil filler hole to structure	8 Nm
Hydraulic line to adapter	15 Nm
Adapter to structure	9 Nm

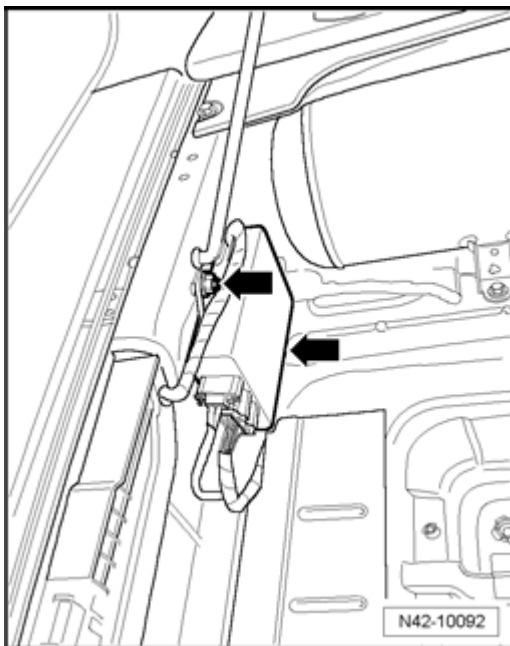
Stabilizer decoupling control module J742 , removing and installing

Location:

The control module is under spare wheel cover, attached to lock carrier.

Removing

- Open spare wheel cover.
- Separate electrical connection between control module and structure.



- Remove nuts - **arrow** - and remove control module.

Installing

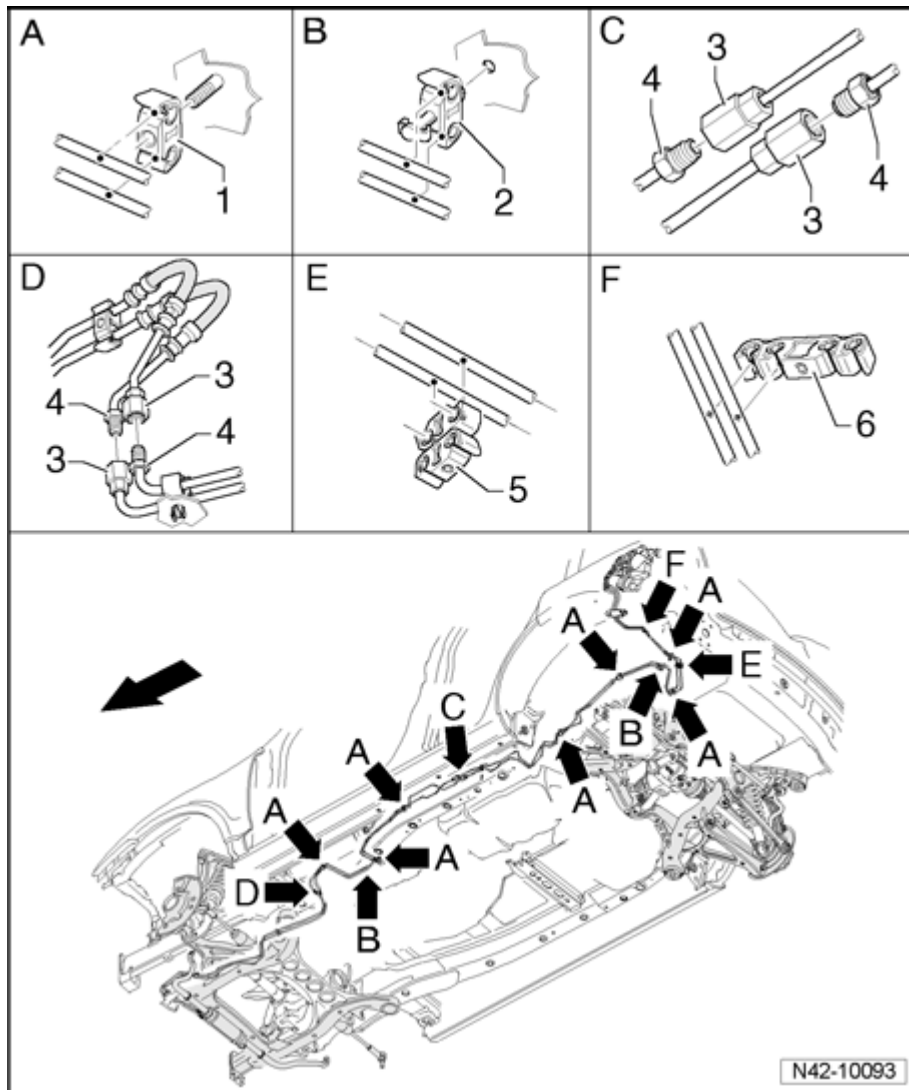
Further installation is in reverse sequence to removal.

If control module is being replaced, the coding must be adapted with vehicle diagnosis, testing and information system VAS 5051 .

- Code control module ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051* .

Routing of lines for decouplable stabilizer bars

The - **arrow** - points in driving direction.



- **Clip**

- For welded stud

- **Clip**

- With expanding rivet

- **Hydraulic threaded connection**

- Counter-hold when tightening ⇒ [Item - 4 -](#)

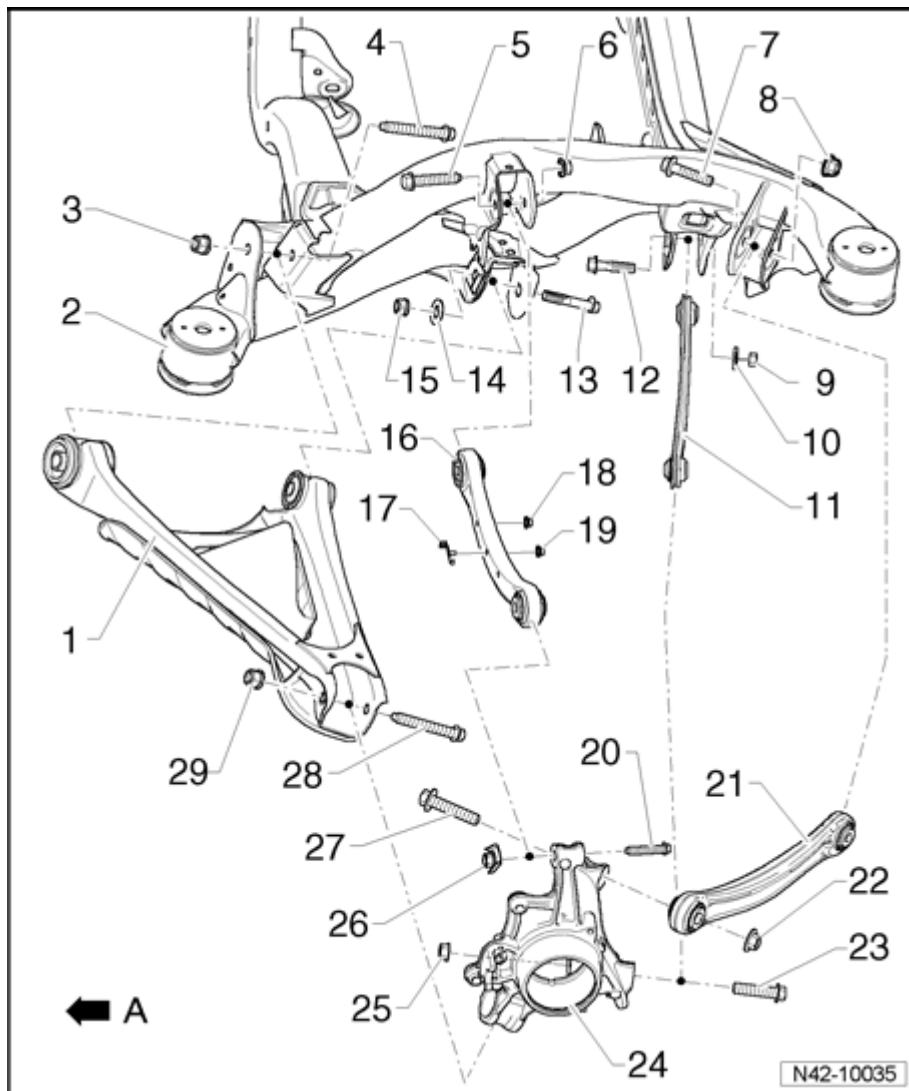
- **Hydraulic threaded connection**

- 15 Nm
 - Counter-hold when tightening ⇒ [Item - 3 -](#)

- **Clip**
 - For 4 hydraulic lines

- **Clip**
 - For 4 hydraulic lines

II - Control arm, tie rod, assembly overview



- arrow A - driving direction

- Lower control arm
- Subframe
 - Removing and installing ⇒ [42-3, Subframe, removing and installing](#)
- Self-locking nut
 - M14 x 1.5
 - 150 Nm plus an additional ¹ /₄ turn (90 °)

- Always replace
- **Hex bolt**
 - M14 x 1.5 x 110
 - Always replace
- **Hex bolt**
 - M12 x 1.5 x 70
 - Always replace
- **Self-locking nut**
 - M12 x 1.5
 - 90 Nm plus an additional ¹ /₄ turn (90 °)
 - Always replace
- **Hex bolt**
 - M12 x 1.5 x 70
 - Always replace
- **Self-locking nut**
 - M12 x 1.5
 - 90 Nm plus an additional ¹ /₄ turn (90 °)
 - Self-locking nut
- **Self-locking nut**
 - M14 x 1.5
 - 180 Nm
 - Self-locking nut
- **Eccentric washer**

- **Tie rod**
- **Eccentric bolt**
 - M14 x 1.5 x 82
- **Eccentric bolt**
 - M14 x 1.5 x 105
- **Eccentric washer**
- **Self-locking nut**
 - M14 x 1.5
 - 180 Nm
 - Always replace
- **Upper front control arm**
- **Bracket**
- **Self-locking nut**
 - M6
 - 8 Nm
 - Always replace
- **Self-locking nut**
 - M6
 - 8 Nm
 - Always replace
- **Hex bolt**
 - M14 x 1.5 x 110
 - Always replace
- **Upper rear control arm**
- **Self-locking nut**
 - M16 x 1.5

- 150 Nm plus an additional $\frac{1}{4}$ turn (90°)
- Always replace

- **Hex bolt**
 - M16 x 1.5 x 125
 - Always replace

- **Wheel bearing housing**
- **Self-locking nut**
 - M16 x 1.5
 - 150 Nm plus an additional $\frac{1}{4}$ turn (90°)
 - Always replace

- **Self-locking nut**
 - M14 x 1.5
 - 150 Nm plus an additional $\frac{1}{4}$ turn (90°)
 - With lock washer
 - Always replace

- **Hex bolt**
 - M16 x 1.5 x 110
 - Always replace

- **Hex bolt**
 - M14 x 1.5 x 110
 - Always replace

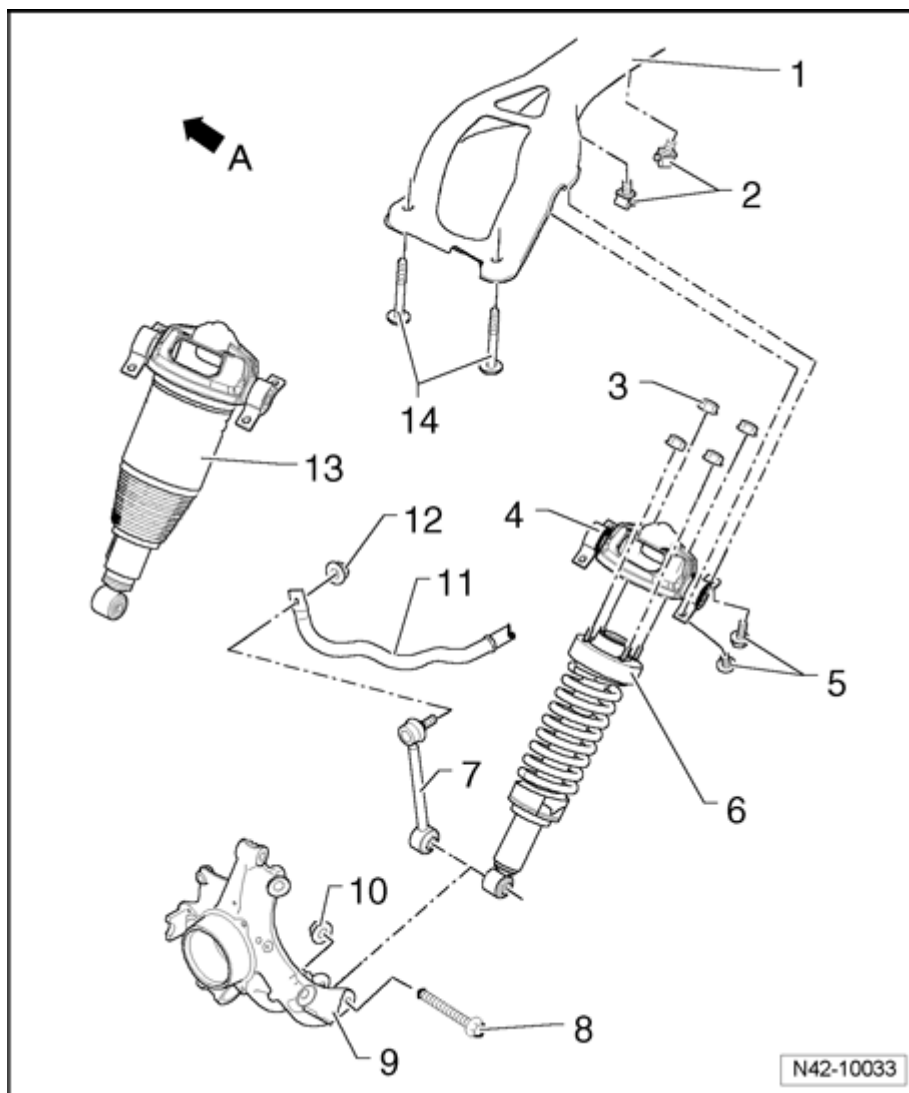
- **Self-locking nut**
 - M14 x 1.5

- 150 Nm plus an additional $\frac{1}{4}$ turn (90°)
- Always replace

III - Rear suspension, assembly overview

Note :

- *If components using bonded rubber bushings are replaced, or nuts/bolts on these components are loosened, the wheel bearing must be moved to the curb weight position before they are tightened ⇒ [40-3, Bringing wheel bearing to curb weight position](#) .*



- arrow A - driving direction

- **Cross member**
- **Clip**
- **Self-locking nut**
 - 30 Nm

- Always replace
- **Mounting bracket**
- **Hex bolt**
 - M10 x 25
 - 60 Nm
- **Suspension strut**
 - Can only be removed with mounting bracket
 - Assembly overview ⇒ [42-10, V - Suspension strut, assembly overview](#)
 - Removing and installing ⇒ [42-8, Suspension strut removing and installing](#)
- **Connecting Link**
- **Hex bolt**
 - M12 x 1.5 x 125
 - 90 Nm plus an additional ¹ /₄ turn (90 °)
 - Always replace
- **Wheel bearing housing**
 - Different versions for 17", 18" and 19" wheels
 - Application ⇒ *Electronic Parts Catalog "ETKA"*
 - Servicing ⇒ [42-9, Wheel bearing housing, servicing](#)
- **Self-locking nut**
 - M12 x 1.5
 - 100 Nm

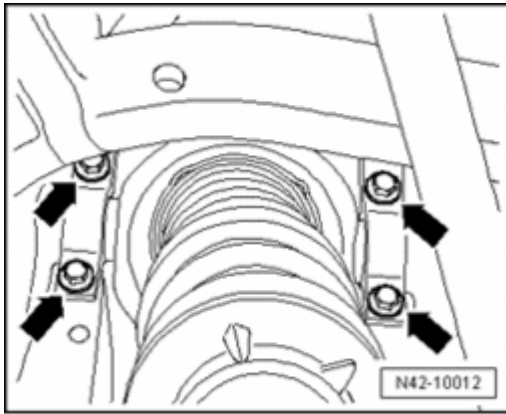
- Always replace
- **Stabilizer bar**
- **Self-locking nut**
 - M12 x 1.5
 - Always replace
- **Air spring damper**
 - Can only be removed with mounting bracket
 - Mounting bracket must not be separated from air spring damper
 - Removing and installing ⇒ [42-8, Air spring damper removing and installing](#)
- **Hex bolt**
 - M12 x 1.5 x 80
 - 90 Nm plus an additional ¹ /₄ turn (90 °)
 - Always replace

Suspension strut removing and installing

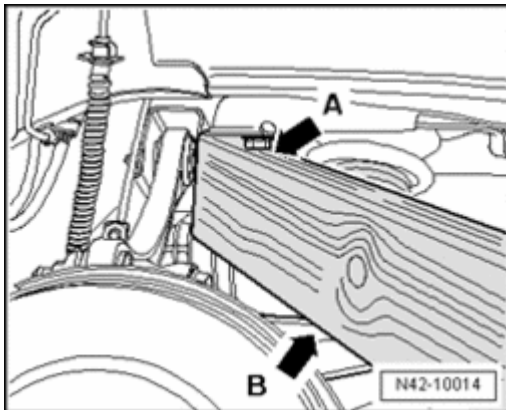
Removing

Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

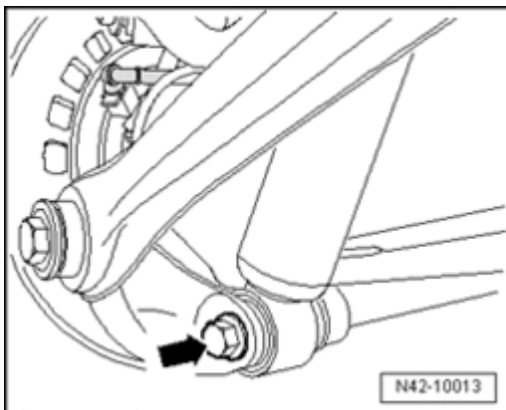


- Remove strut bolts - **Arrow** - .



- Insert a block of wood between underbody - **Arrow A** -
and upper rear control arm - **Arrow B** - .

It is needed to press down the wheel bearing housing.



- Undo nut for bolt - **Arrow** -

- Using the block of wood, press wheel bearing housing
down sufficiently to remove bolt - **Arrow** - .

- Remove strut.

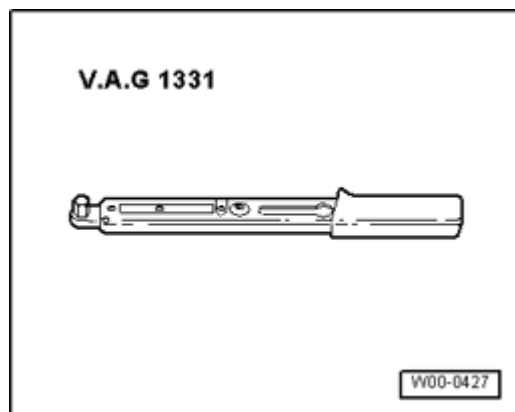
Installing

Installation is in reverse sequence to removal.

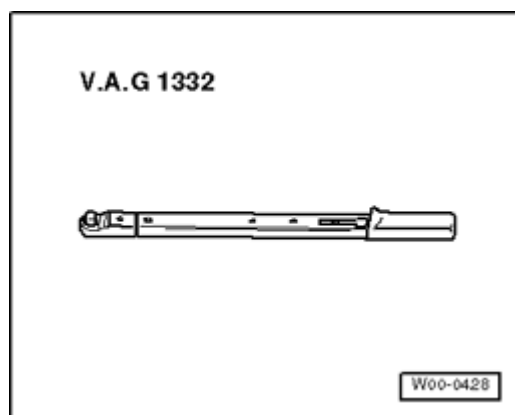
Tightening torques	
Strut to body	60 Nm
Strut to wheel bearing housing ■ Use new bolt and nut.	90 Nm plus an additional $\frac{1}{4}$ turn (90°)

Air spring damper removing and installing

Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1331



- Torque wrench V.A.G 1332

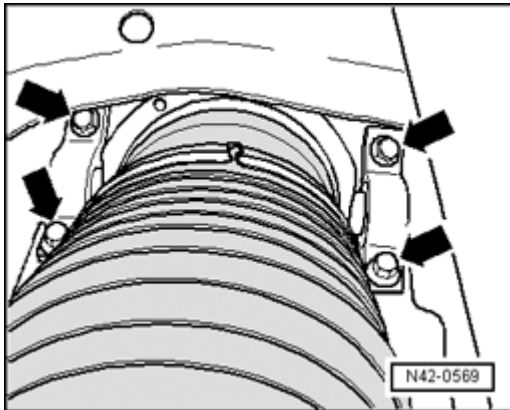
Removing

Warning!

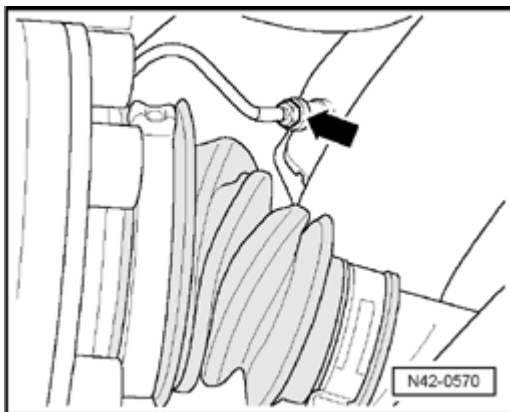
On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

During disassembly and assembly, make sure that no

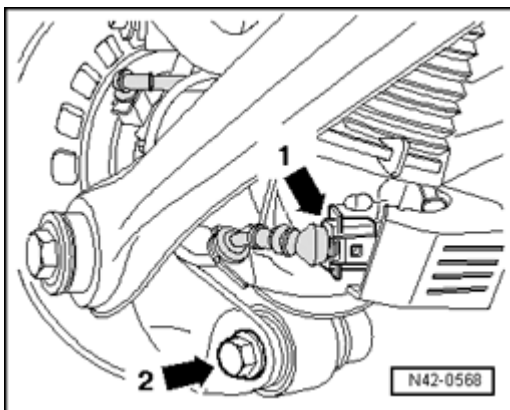
pressure points (indentations) are formed on the protective boot for the air spring shock absorber.



- Unbolt air spring damper - **Arrows** - .



- Remove air line - **Arrow** - from air spring damper, and plug both connectors.



- Disconnect connector - **arrow 1** - from damper adjustment valve.

- Remove air spring damper from wheel bearing housing - **arrow 2** - .

The wheel bearing housing must be pulled down slightly so that the damper can be removed.

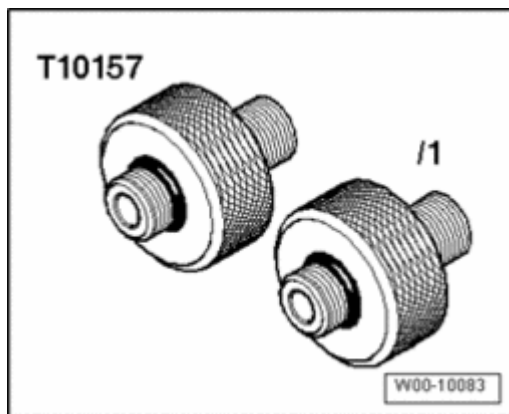
Installing

Installation is in reverse sequence to removal.

Tightening torques	
Air spring damper to body	60 Nm
Air spring damper to wheeling bearing housing	90 Nm plus an additional $\frac{1}{4}$ turn (90 °)

Air spring damper, filling

Special tools, testers and auxiliary items required

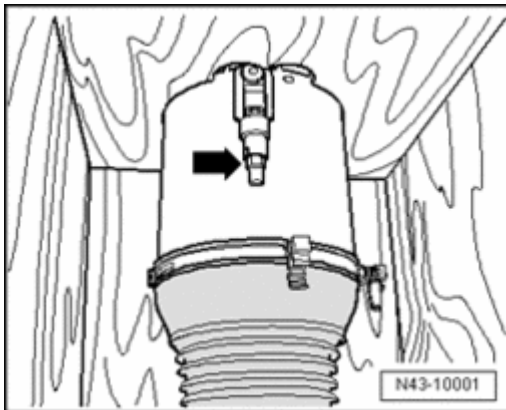


- Adapter T10157/1
- Air suspension strut charger VAS 6231 , without illustration
- Steel gas bottle filled with argon or corgon, without illustration

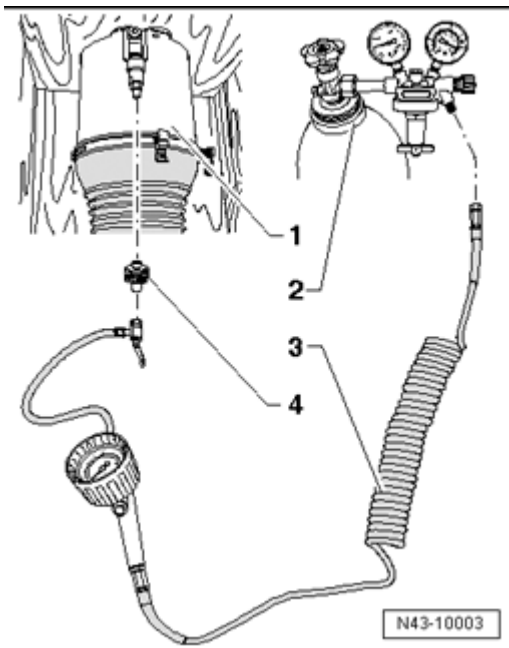
Note:

- *Replacement air spring dampers are delivered with a minimum pressure. By sitting in storage for extended periods this pressure can diminish (just like a tire). Before the air spring damper is removed from its packaging, this minimum pressure must be controlled by "refilling" . If the air spring damper is removed from its packaging without this control/refilling, folds can occur in the under-filled air spring boot. These folds can cause damage and may lead to premature failure of the air spring.*

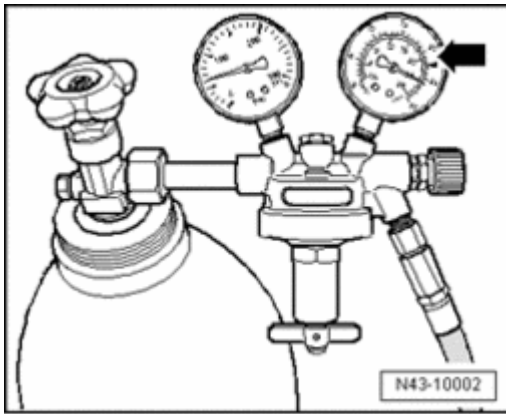
- Remove cover from packaging.



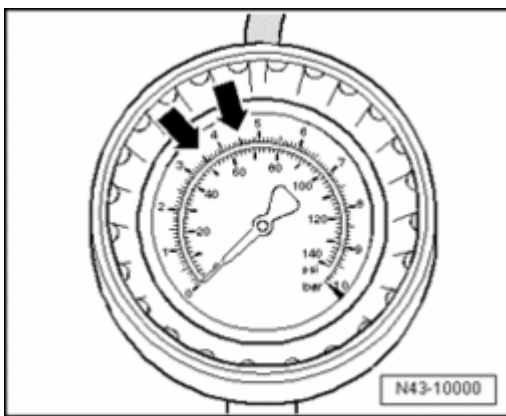
- Remove union bolt - **arrow** - from residual pressure retaining valve; the illustration shows front air spring damper.
- Close steel gas bottle valve.
- Become familiar with the relevant rules for prevention of accidents for pressurized containers and technical gases.



- Connect air suspension strut charger VAS 6231 and adapter T10157/1 as shown in illustration.
 - Air spring damper in packaging
 - Steel gas bottle for argon, corgon with gauges
 - Air suspension strut charger VAS 6231
 - Adapter T10157/1



- Set flow rate limiter gauge to 2.0 L/min - **arrow** - .
- Fill gas into air spring damper using multiple short bursts.



The display only shows a correct pressure if the "oscillatory pressure" of the residual pressure retaining valve is overcome. The "oscillatory pressure" is at approx. 3.5 bar. The air spring damper is sufficiently filled with gas when the pressure has reached 3.5 - 4.5 bar.

- Make sure that the pressure does not exceed 4.5 bar.
- Disconnect air suspension strut charger VAS 6231 from adapter T10157 , thereby gas escapes from a pressure above 3.5 bar.

The minimum pressure is now set, and the air spring damper can now be removed from the packaging.

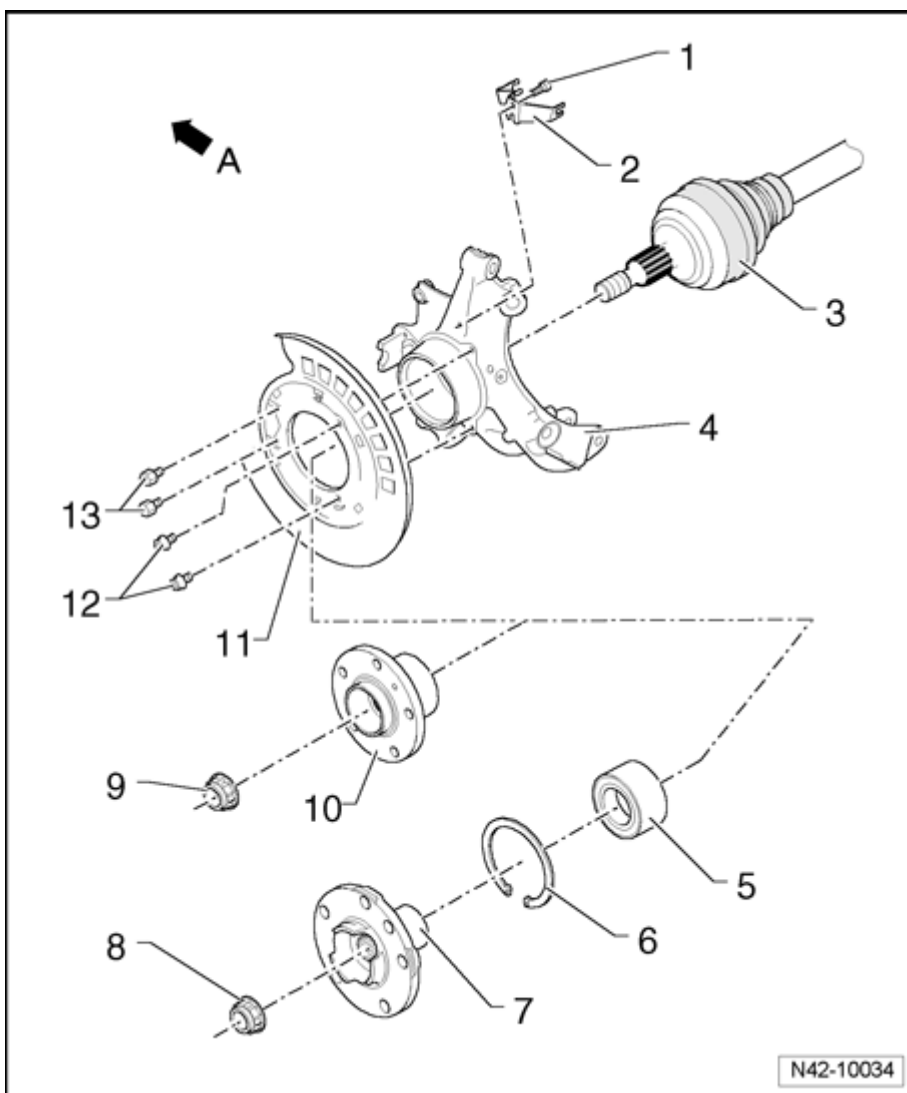
- Air spring damper, installation ⇒ [42-8, Air spring damper removing and installing](#) .
- In conclusion, perform a test drive first in the loaded level control setting and afterwards in the normal level control setting.

By moving ride height settings, the majority of the gas is exchanged with filtered air from the air supply motor.

IV - Wheel bearing, assembly overview

Note :

- When a component with a bonded rubber bushing is replaced or nuts/bolts/screws of such a component are loosened the respective wheel bearing housing must be brought into the unladen (empty) position before fasteners are tightened ⇒ [40-3, Bringing wheel bearing to curb weight position](#) .



- arrow A - driving direction

■ Hex recess bolt

- M6 x 16
- 8 Nm

- **Bracket**

- **Drive axle**

- Removing and installing ⇒ [42-12, VII - Rear drive axle, assembly overview](#)
- Coat spline with assembly paste G 052 109 A2 before installing
- On vehicle with bonded drive axle, clean spline, remove grease and apply locking compound D 154 000 A1 to the spline ⇒ [Topic 42-12](#) .

- **Wheel bearing housing**

- Different versions for 17", 18" and 19" wheels
- Application ⇒ *Electronic Parts Catalog "ETKA"*

- **Wheel bearing**

- For 17, 18 and 19 wheels
- Removing and installing ⇒ [42-9, 17", 18" and 19" wheel, pressing wheel bearing in and out](#)

- **Circlip**

- Ensure correct seating

- **Wheel hub**

- For 17, 18 and 19 wheels
- Removing and installing ⇒ [42-9, 17", 18" and 19" wheel, pressing wheel bearing in and out](#)

- **Self-locking nut**

- M24 x 1.5

- 500 Nm
- For 17, 18 and 19 wheels
- Always replace
- Coat contact surface with assembly paste G 052 109 A2 before installing

- **Self-locking nut (Not available)**
- **Wheel hub with wheel bearing (Not available)**
- **Splash plate**
- **Hex recess bolt**
 - M8 x 16
 - 20 Nm

- **Hex bolt**
 - M6 x 12
 - 8 Nm

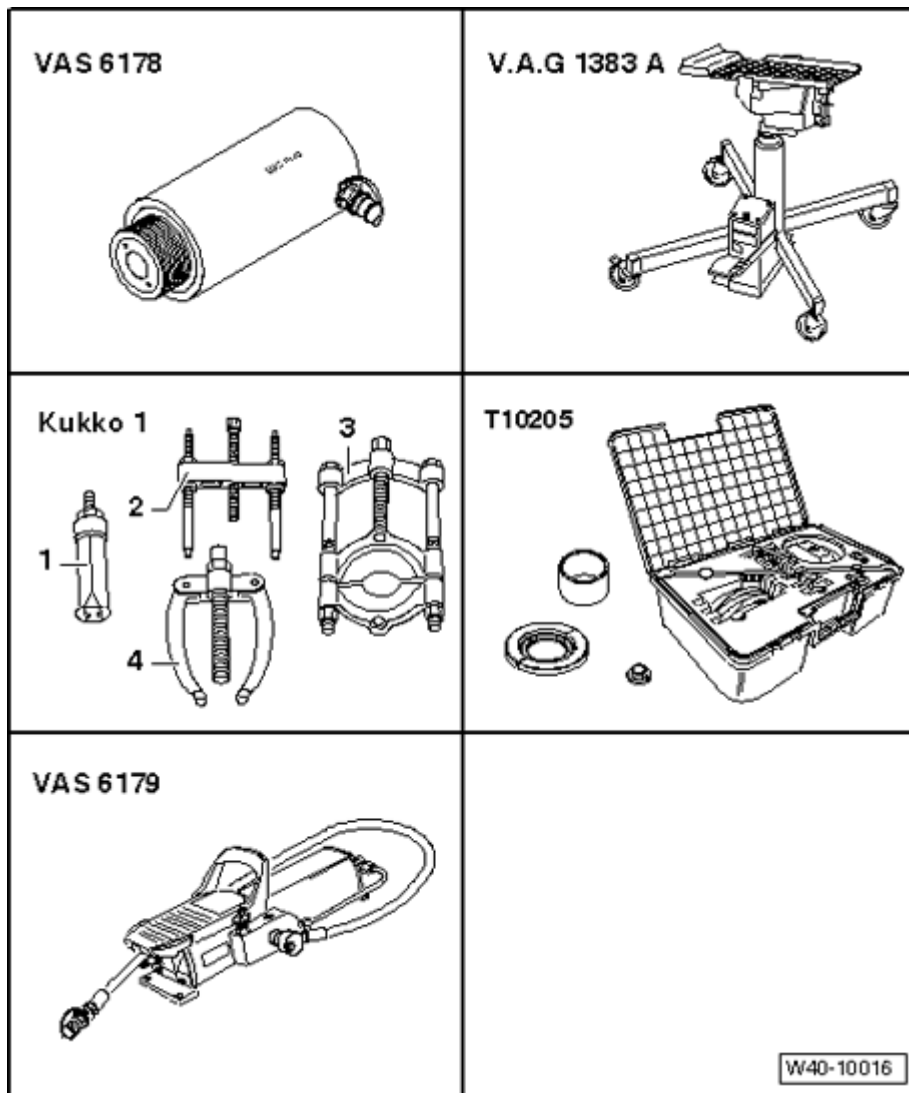
17", 18" and 19" wheel, pressing wheel bearing in and out

Note:

- *Make sure tools and components (wheel bearing/wheel hub) are seated correctly over the complete work sequence.*

Caution!

Position engine/transmission jack V.A.G 1383 A under wheel bearing housing (danger of accident from components which may fall).



Special tools, testers and auxiliary items required

-
- Engine/transmission jack V.A.G 1383 A with universal transmission mount V.A.G 1359/2
- Hydraulic press VAS 6178
- Assembly tool T10205
- Separating tool 3 - Kukko 15/3
- Hollow piston cylinder VAS 6179

Special tools, testers and auxiliary items required

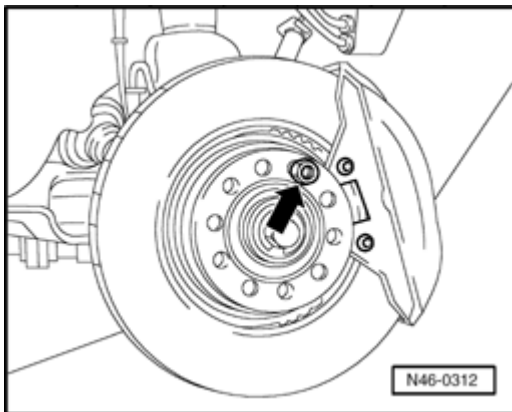
- Pliers for circlips, 180 mm internal circlip VAS 5498 , not shown
- Manometer with connecting line VAS 6179/1 , not shown

Removing

Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

- First remove drive axle ⇒ [42-12, Rear drive axle, removing and installing](#) .



- Secure brake rotor with a wheel bolt - **Arrow** - .
- Remove brake caliper and tie to body with wire

⇒ [Repair Manual, Brake System, Repair Group 46, Servicing Rear Brakes](#)

- .
- Remove brake rotor.
- Unclip wire for wheel speed sensor from retainer.
- Remove ABS wheel speed sensor .
- Unhook parking brake cable from wheel bearing housing

⇒ [Repair Manual, Brake System, Repair Group 46, Brake cable; Rear brake cable, removing and installing; Unhook brake cable from retainer](#)

.

- Remove parking brake shoes

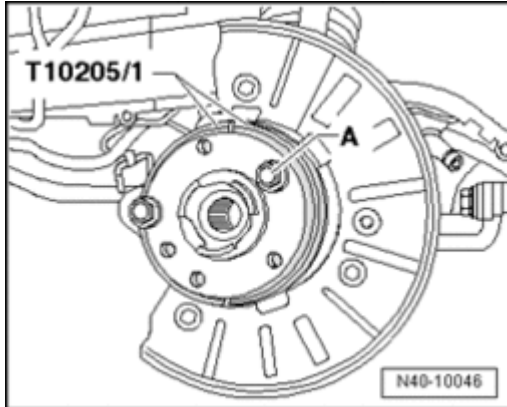
⇒ [Repair Manual, Brake System, Repair Group 46, Rear brakes, servicing; Brake shoes, removing and installing](#)

.

Pulling out wheel hub

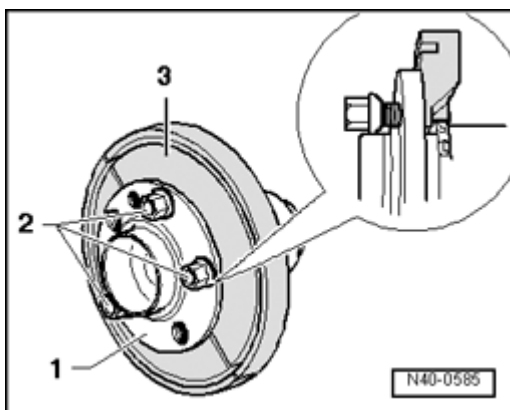
Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

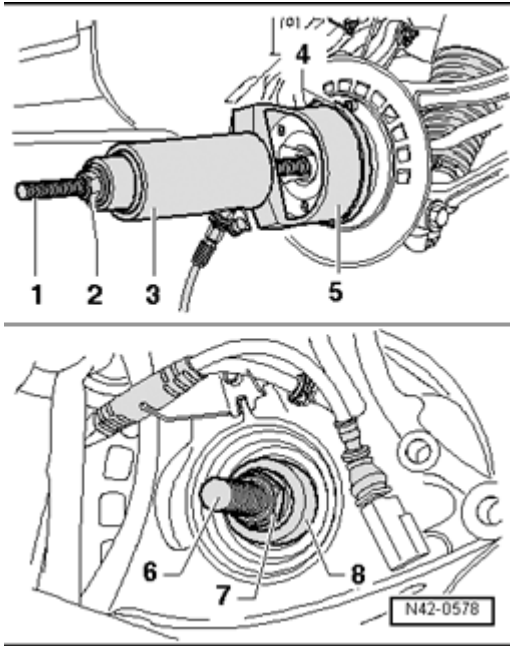


- Bolt grips T10205/1 to wheel hub using wheel bolts - A -

.



The wheel bolts - **2** - must not protrude on back side of grips T10205/1 .



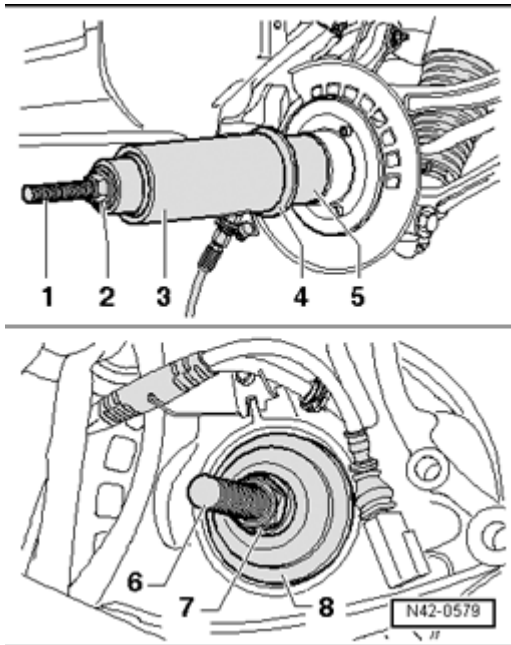
- Assemble tools as shown in illustration.

- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2
- Hydraulic press VAS 6178
- Grips T10205/1
- Bell T10205/2
- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2
- Press piece T10205/3

- Hold appliance firmly and pull wheel hub out.

Pulling out wheel bearing

- Remove circlip.



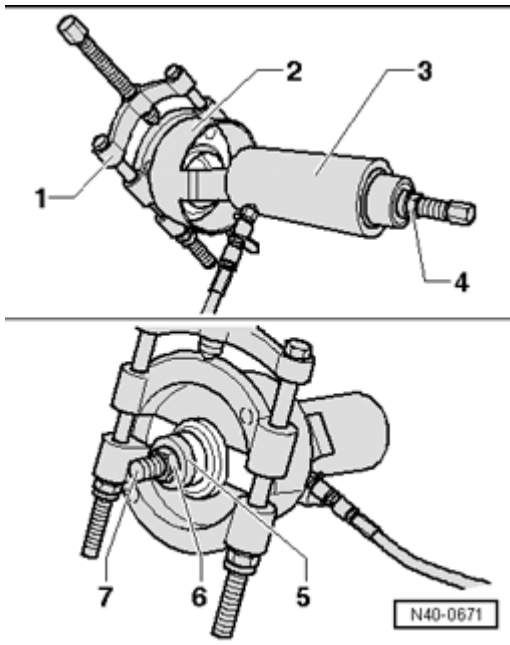
- Install tools as shown in the illustration.

Note:

- *The shoulder of the press plate T10205/6 must point toward final drive.*
- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2
- Hydraulic press VAS 6178
- Support T10205/4
- Mounting tube T10205/5
- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2
- Thrust pad T10205/6

- Hold appliance firmly and pull wheel bearing out.

Pulling inner race off wheel hub



- Install separating tool behind bearing inner race.

Note:

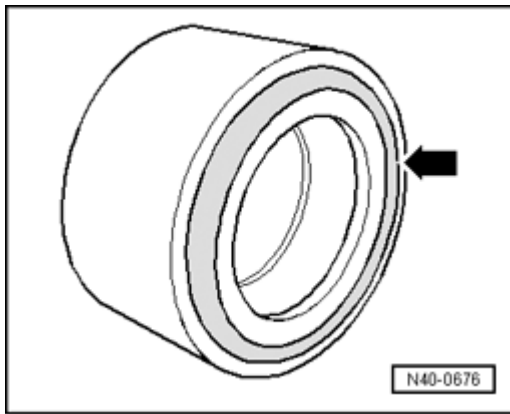
- *Chamfers on the jaws face toward the inner race.*
- Separating tool 3 - Kukko 15/3
- Bell T10205/2
- Hydraulic press VAS 6178
- Threaded nut M20 T10205/8-2
- Press piece T10205/3
- Threaded nut M20 T10205/8-2
- Threaded rod M20 T10205/8-1

Caution!

Hold tool when pulling off so that the bearing inner race faces downward (danger of accident when inner race is released at end of pulling sequence).

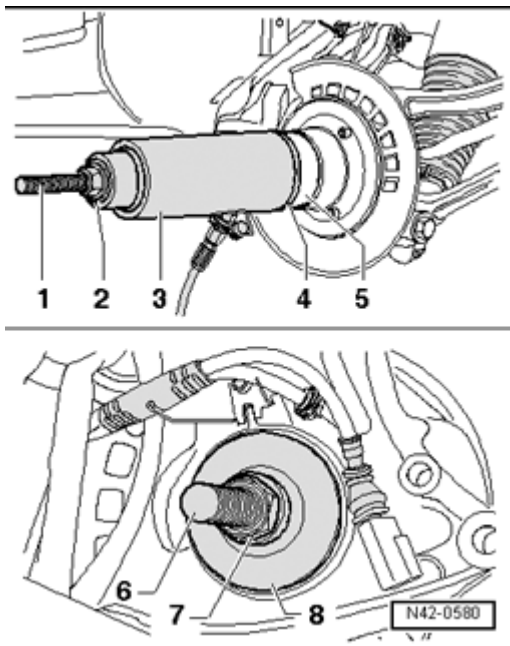
- Pull wheel hub from inner race.

Pressing in wheel bearing



- Make sure that the rubberized ABS sensor ring - **Arrow** - faces toward final drive.

If no rubberized ring is visible, check with a paper clip, which of the two sides is magnetic. When installed, this must face toward the final drive.



- Assemble tools as shown in illustration

Note:

- *The shoulder on press plate T10205/9 must face toward wheel bearing housing.*
- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2
- Hydraulic press VAS 6178
- Press piece T10205/7
- Wheel bearing
- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2

- Press piece T10205/9

- Attach manometer with connecting line VAS 6179/1 between hydraulic press VAS 6178 and hydraulic line of hydraulic press VAS 6178 .

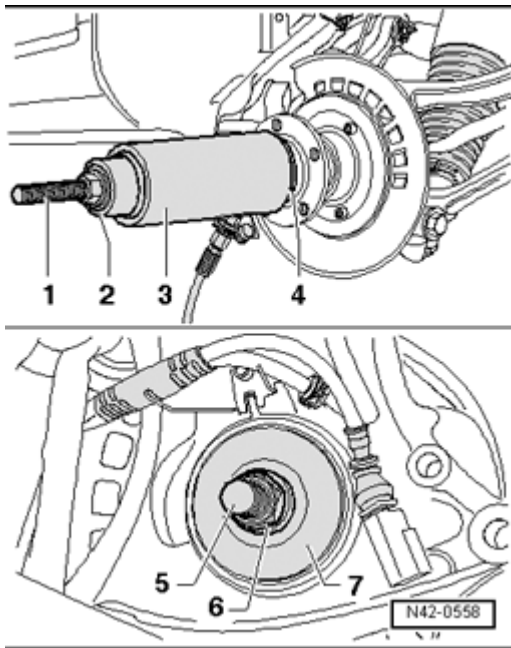
The following listed pressures apply only for the hydraulic press VAS 6178 .

While pressing in, the pressure reading must be between 100 and 190 bar shortly before the end of pressing in.

The maximum pressure for pressing in should not exceed 310 bar.

- Press in wheel bearing up to stop.
- Install circlip.

Pressing in wheel hub



- Assemble tools as shown in illustration.

Note:

- *The shoulder on press plate T10205/6 must face toward final drive.*
- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2
- Hydraulic press VAS 6178
- Press piece T10205/10
- Threaded rod M20 T10205/8-1
- Threaded nut M20 T10205/8-2
- Thrust pad T10205/6

- Attach manometer with connecting line VAS 6179/1 between hydraulic press VAS 6178 and hydraulic line of hydraulic press VAS 6178 .

The following listed pressures apply only for hydraulic press VAS 6178 .

While pressing in, the pressure reading must be between 30 and 100 bar shortly before the end of pressing in.

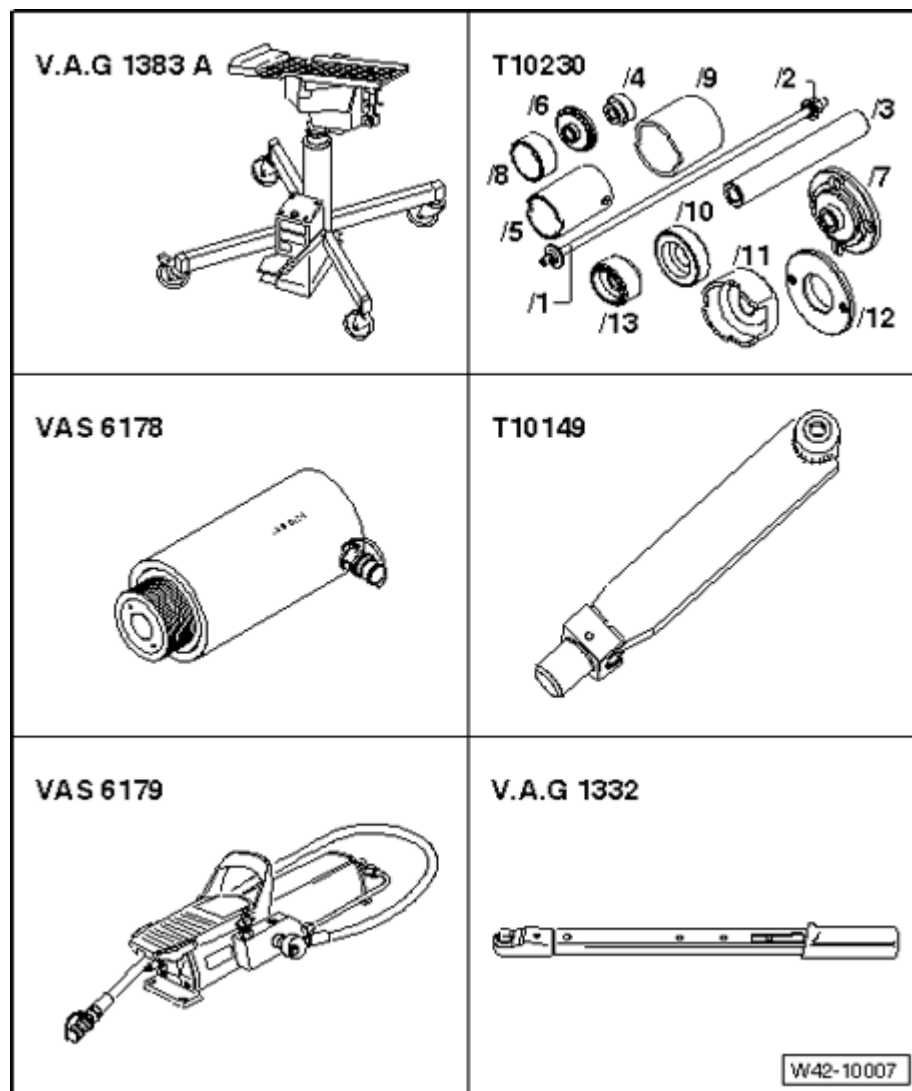
The maximum pressure for pressing in should not exceed 140 bar.

- Press in wheel bearing as far as stop.

- Install drive axle ⇒ [42-12, Installing](#) .

Further installation is in reverse sequence to removal.

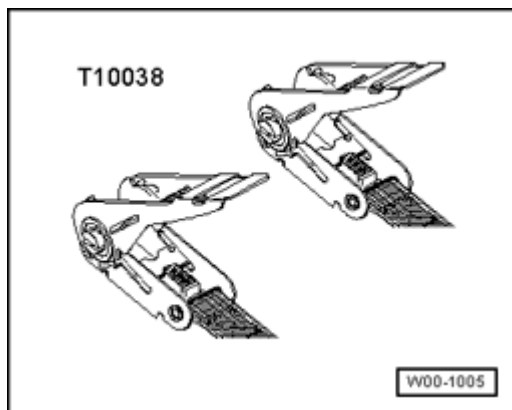
Wheel bearing housing, servicing



Special tools, testers and auxiliary items required

- Engine/transmission jack V.A.G 1383 A
- Assembly tool T10230
- Hydraulic press VAS 6178
- Wheel hub support T10149
- Hollow piston cylinder VAS 6179
- Torque wrench V.A.G 1332

Special tools, testers and auxiliary items required



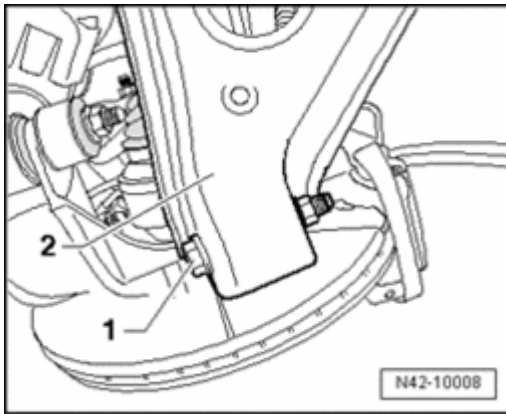
- Tightening strap T10038

Pressing out bonded rubber bushing

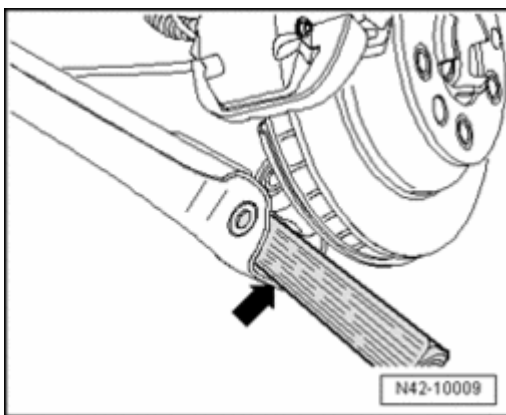
Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

- Remove wheel.



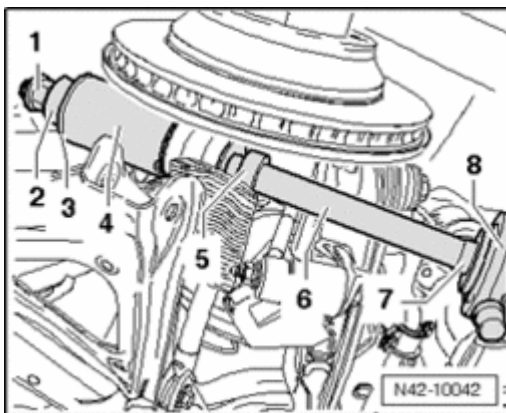
- Remove lower control arm - **2** - from wheel bearing housing, and remove bolt - **1** - .



- Insert a block of wood between control arm - **Arrow** - and wheel bearing housing.

Warning!

Without inserting the piece of wood, the risk of injury may occur if the lower control arm slips back to its starting position.



- Assemble special tools to wheel bearing housing as shown in illustration.

- Nut T10230/2
- Press piece T10230/13

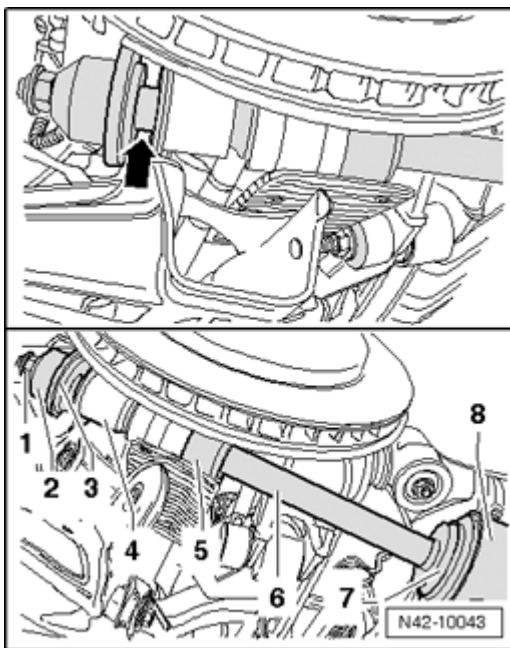
- Thrust pad T10230/6
- Tube T10230/5
- Press piece T10230/4
- Tube T10230/3
- Thrust plate T10230/7
- Hydraulic press VAS 6178

Caution!

Before pressing out, place a engine/transmission jack V.A.G 1383 A with universal mountings under the cylinder; the cylinder may fall down at the end of the pressing out procedure.

- Press out bonded rubber bushing.

Pressing in bonded rubber bushing



- Assemble special tools and bonded rubber bushing to wheel bearing housing as shown in illustration.

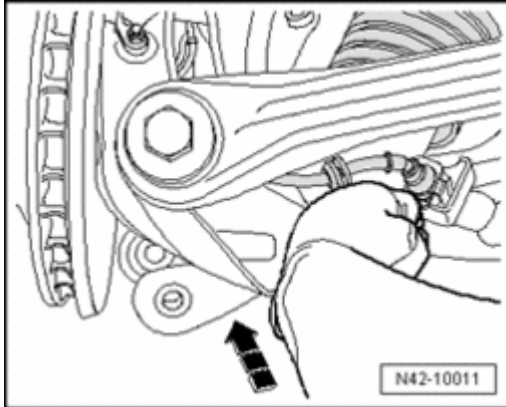
- Nut T10230/2
- Press piece T10230/13
- Thrust pad T10230/6
- Bonded rubber bushing
- Press piece T10230/8
- Tube T10230/3
- Thrust plate T10230/7
- Hydraulic press VAS 6178

- Press in bonded rubber bushing up to stop.

Thereby, the center of the bonded rubber bushing is pressed in further by the press piece T10230/6 - **arrow** - . This is necessary so that the outside lip of the bonded

rubber bushing contacts control arm. The center of the bonded rubber bushing sets itself in the correct position after the hydraulic press VAS 6178 is removed.

- Remove wood from between wheel bearing housing and lower control arm.



- Press wheel bearing housing in direction of - **arrow** - .

Warning!

Make absolutely sure that you are pressing only on the wheel bearing housing. There is a risk of injury at the point where the control arm and the wheel bearing housing meet.

The control arm now engages at wheel bearing housing.

Further installation is in reverse sequence to removal.

Tightening torques	
Control arm to wheel bearing housing ^{1) 2)}	150 Nm plus an additional $\frac{1}{4}$ (90 °)
Wheel to wheel hub	160 Nm

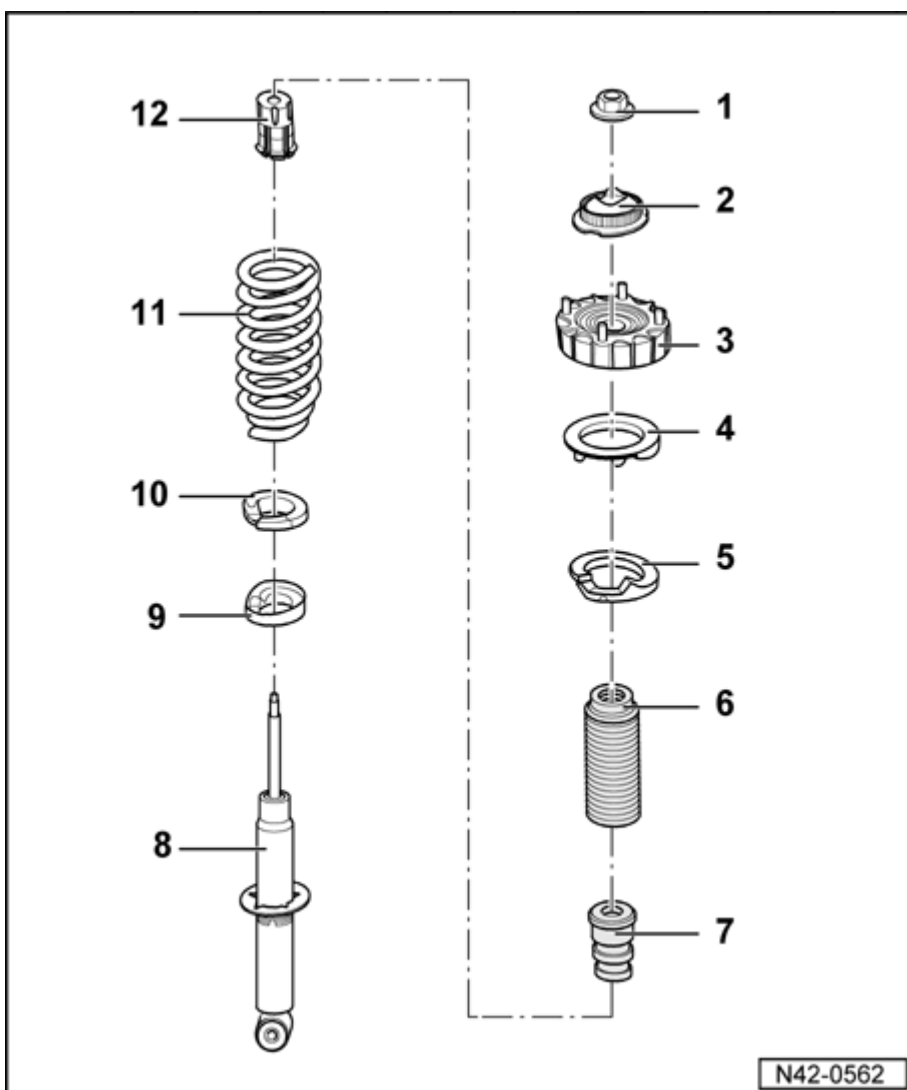
¹⁾ Use new bolt and nut.

²⁾ Fasten in unloaded position

V - Suspension strut, assembly overview

Note :

- If components using bonded rubber bushings are replaced, or bolts/nuts on these components are loosened, the respective wheel bearing housing must be brought into the unladen (empty) position before fasteners are tightened ⇒ [40-3, Bringing wheel bearing to curb weight position](#) .



- Self-locking nut
 - M14 x 1.5
 - 60 Nm
 - Always replace

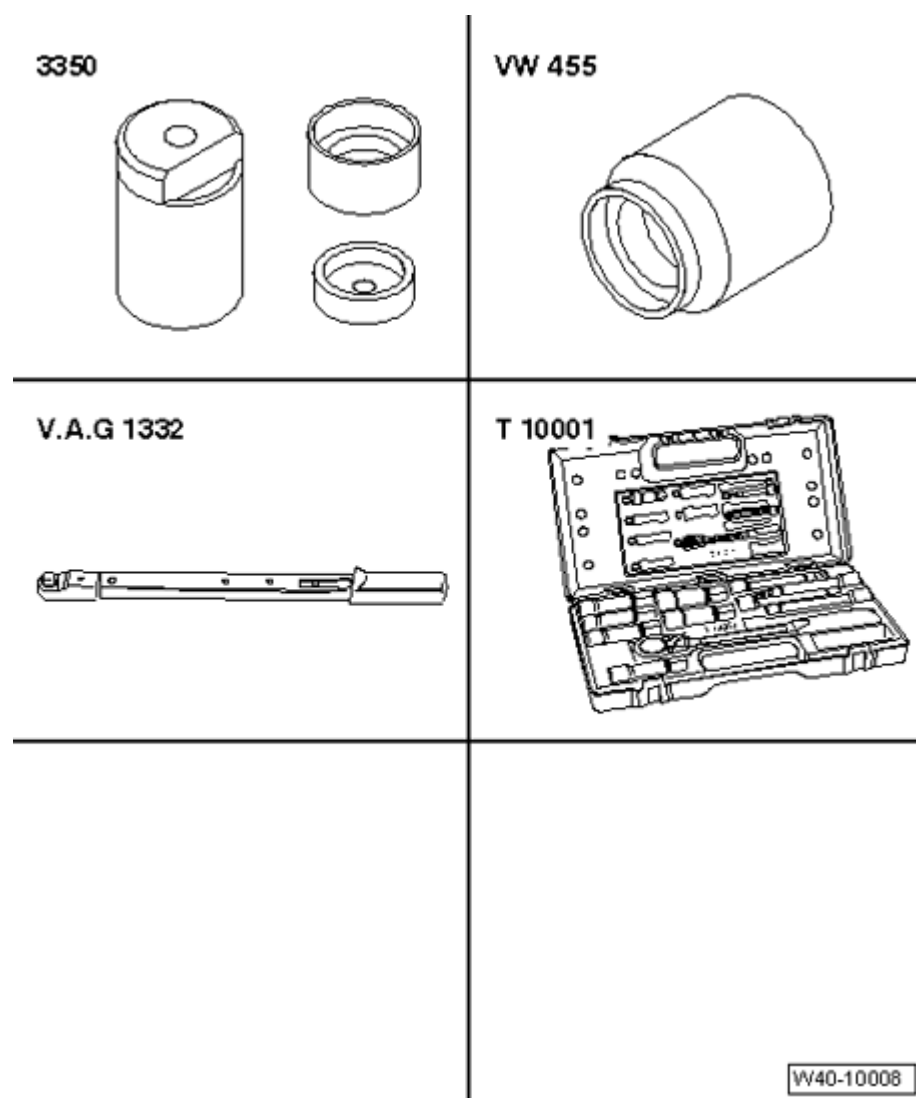
- **Mount**
- **Upper spring plate**
- **Upper spacer**
- **Upper support**
- **Protective sleeve**
- **Bump stop**
- **Shock absorber**
 - Application ⇒ *Electronic Parts Catalog "ETKA"*
- **Lower spacer**
 - Application ⇒ [42-10, Lower spacer, application](#)
- **Lower support**
- **Coil spring**
 - Outer surface of spring must not be damaged
 - Observe color coding
 - Application ⇒ *Electronic Parts Catalog "ETKA"*
- **Protective cap**

Lower spacer, application

To ensure even ride height at the front and rear axle, the coil springs must be installed with the correct spacer.

Three different color spacers: black, blue and beige are available.

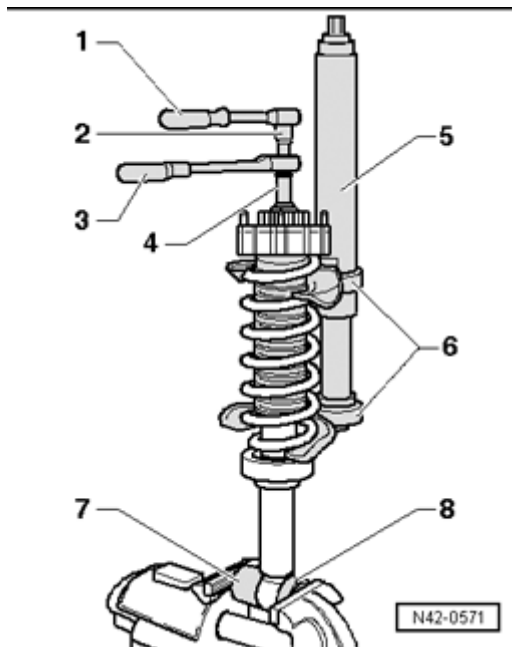
Number and color of markings (dots)	Color of the spacer to be used
1, 2 or 3 green	Black
1, 2 or 3 green + 1 blue	Blue
1, 2 or 3 green + 1 beige	Beige

Rear suspension strut, servicing**Special tools, testers and auxiliary items required**

- Assembly tool 3350
- Press sleeve VW 455
- Torque wrench V.A.G 1332
- Spring compressor VAS 6046
- Spring holder VAS 6046/3
- Shock absorber set T10001

- Strut removal ⇒ [42-8, Suspension strut removing and installing](#) .

Removing coil spring



- Pre-load coil spring until upper spring plate is free.
- Remove hex nut from piston rod.
- Use spring tensioner VAS 6046 and spring holder VAS 6046/3 to remove individual components of the suspension strut and coil spring.

1 - Ratchet (commercially available)

2 - T10001/14

3 - T10001/11

4 - T10001/5

5 - VAS 6046

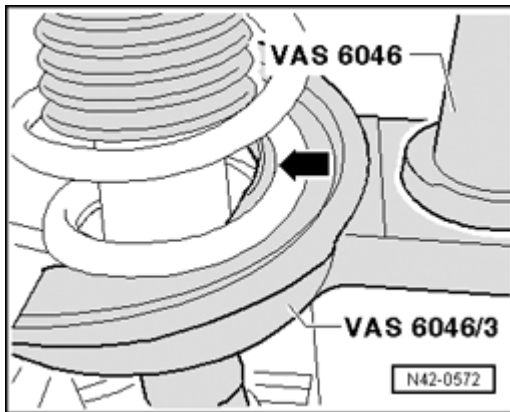
6 - VAS 6046/3

7 - VW 455

8 - 3350/2

Warning!

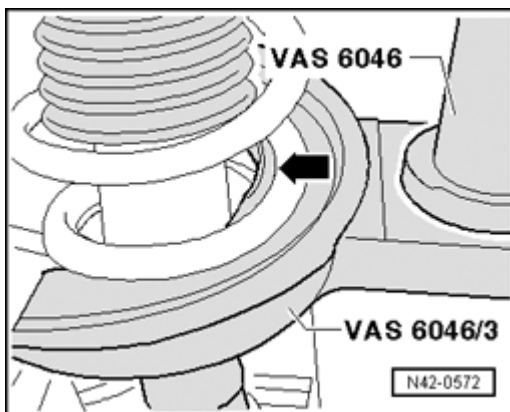
First pre-load the spring until the upper spring plate is no longer under load.



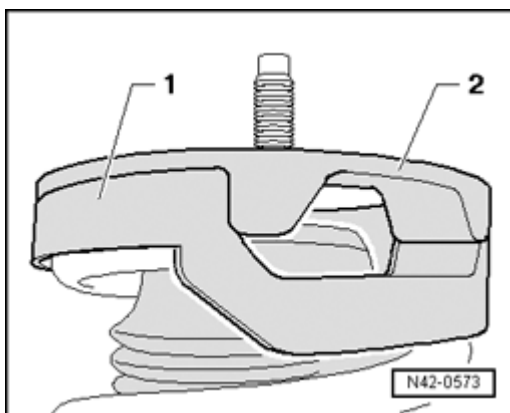
- Make sure the coil spring is properly seated in the spring holder VAS 6046/3 - **Arrow** - .

Installing coil spring

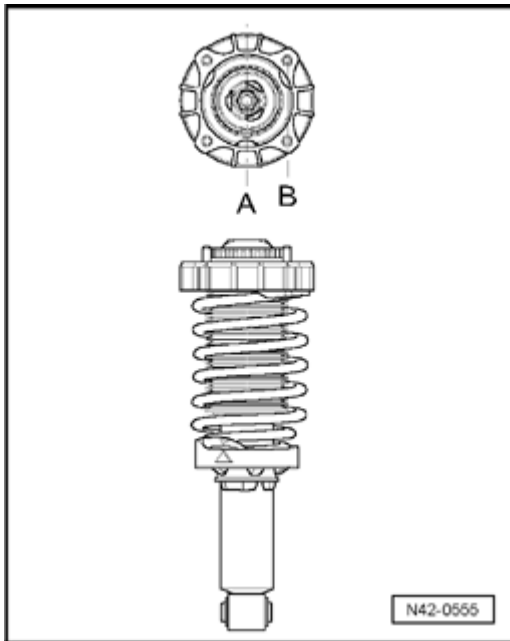
- Set coil spring on lower spring holder VAS 6046/3 .



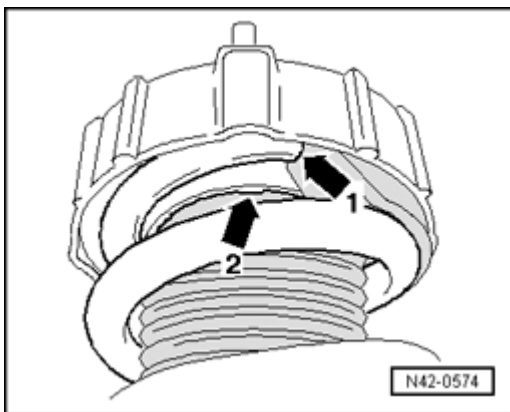
- Make sure the coil spring is properly seated in the spring holder VAS 6046/3 - **Arrow** - .



- Place upper support - **1** - on coil spring and then upper spacer - **2** - on upper support.



- Install upper spring plate so that the two center lines - **A and B** - are parallel to each other.



- The end of spring must lie against the stop on support - **Arrow 1** - .
- Make sure that the protective sleeve is clipped into upper spring plate - **Arrow 2** - .
- Tighten new hex nut on piston rod.
- Release tension on spring tensioner VAS 6046 and remove from coil spring.
- Install strut ⇒ [42-8, Removing](#) .

Tightening torque	
Nut for suspension strut	60 Nm
■ Use new nuts.	

VI - Rear air spring shock absorber

Air spring shock absorbers, repair notes for servicing

For driven distances greater than 200,000 km it is recommended that the air spring on opposite side is also replaced if air spring is damaged.

If shock absorbers are leaking, air suspension strut is to be replaced since the shock absorber oil may damage the dust boot ⇒ [Item - 4 -](#) .

When without pressure, air spring must not be twisted. There is the danger that the dust boot will be damaged on inside of the air spring by kinking or folding!

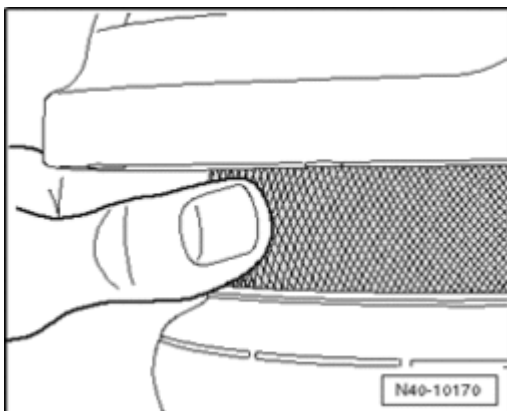
The maximum possible care, cleanliness and proper tools are essential to ensure satisfactory and successful air spring shock absorber repairs. The usual basic safety precautions also apply when performing vehicle repairs.

A number of generally applicable instructions for individual repair procedures, which are otherwise mentioned at various points in the Repair Manual, are summarized here. They apply to air spring shock absorber repairs.

A description of the construction and function of the air spring suspension can be found in
⇒ Self-study program no. 302 The Touareg Suspension and 4XMotion Systems .

Air spring shock absorbers

- Before loosening the installed air line, check whether air spring is still filled with residual pressure of approx. 3 bar.



- To do so, press thumb on bulge of air spring. There must be a tangible resistance.

- If no high resistance is felt, the air spring is without

pressure and must be replaced together with the residual pressure valve.

- Always clean connection points and vicinity and then loosen.
- When installing the air spring shock absorber, it must be filled with Argon or Corgon gas ⇒ [42-8, Air spring damper, filling](#) .
- Place removed parts on clean surface and cover them so they do not become soiled. Use foils and paper. Use lint-free cloths only!
- Only install clean components: Only unpack replacement parts immediately prior to installation.
- Use exclusively lubricants marked with part numbers.
- Carefully cover over opened components or seal, if repairs are not performed immediately.

Residual pressure valve

The residual pressure valve must only be replaced if:

- It was damaged when removing and installing or servicing the air spring shock absorber,
- The residual pressure valve no longer permits air to escape (is stuck),
- The sealing ring is faulty.

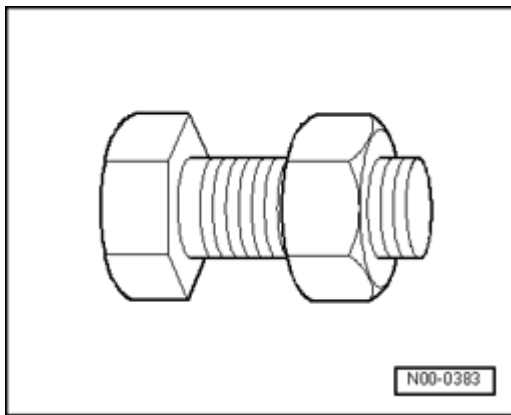
If the residual pressure valve no longer permits air to escape (is stuck), the vehicle must be lifted on a hoist and the wheels must turn freely in order to replace the residual pressure valve. The wheels must not be loaded when dust boot contains a vacuum!

Seals, sealing rings

- Always replace seals and boots.

- After removing seals, check contact surfaces on housings for burrs and damage.

Nuts, bolts

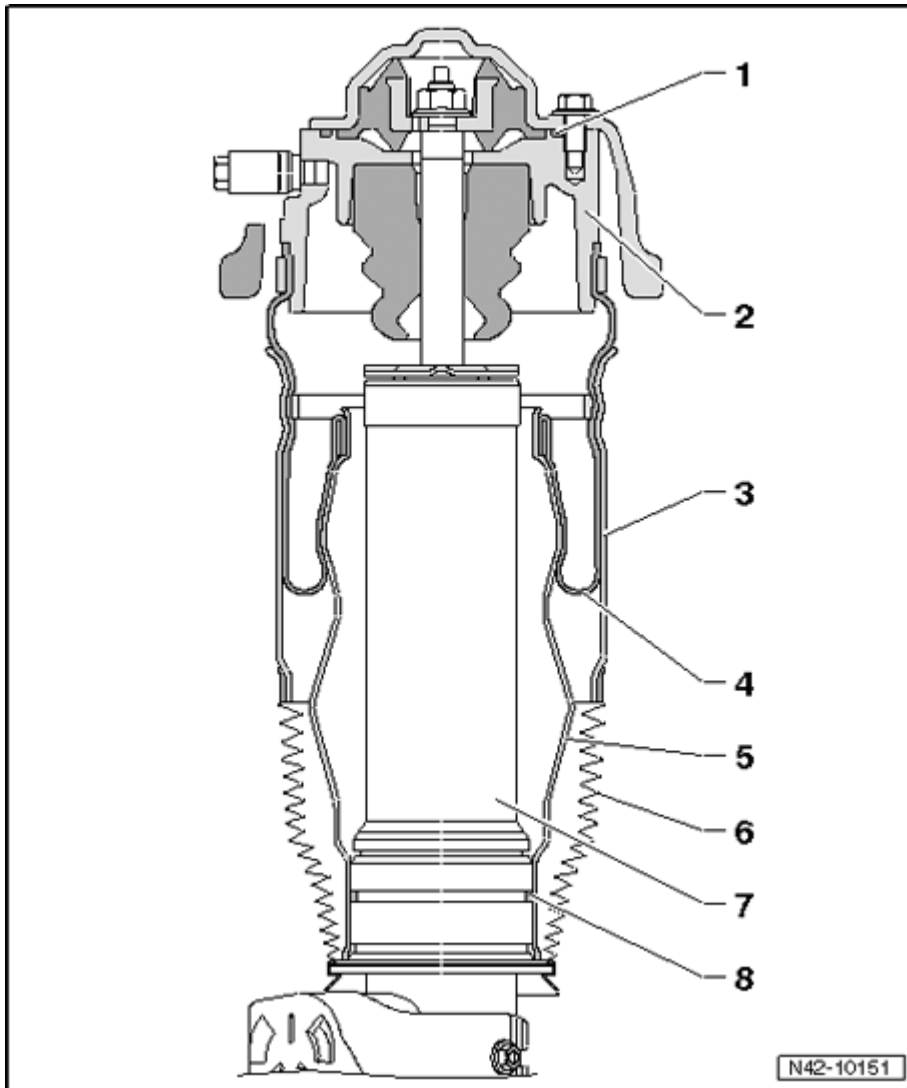


- Loosen and tighten bolts or nuts for securing covers and housings in diagonal sequence.
- The tightening torques stated apply to non-oiled nuts and bolts.

Rear air spring shock absorber, components

Note :

- ⇒ [Item - 2 -](#) , ⇒ [Item - 3 -](#) , ⇒ [Item - 4 -](#) and ⇒ [Item - 5 -](#) are components of the air spring. They are inseparably connected and cannot be disassembled.



- **Seal**

- Always replace

- **Cover**

- Installed as part of air spring with ⇒ [Item - 3 -](#) , ⇒ [Item - 4 -](#) and ⇒ [Item - 5 -](#)
- Cannot be removed and disassembled individually

- **Outer guide**

- Installed as part of air spring with ⇒ [Item - 2 -](#) , ⇒ [Item - 4 -](#) and ⇒ [Item - 5 -](#)
- Cannot be removed and disassembled individually

- **Dust boot**

- Installed as part of air spring with ⇒ [Item - 2 -](#) , ⇒ [Item - 3 -](#) and ⇒ [Item - 5 -](#)
- Cannot be removed and disassembled individually

- **Rolling piston**

- Installed as part of air spring with ⇒ [Item - 2 -](#) , ⇒ [Item - 3 -](#) and ⇒ [Item - 4 -](#)
- Cannot be removed and disassembled individually

- **Boot**

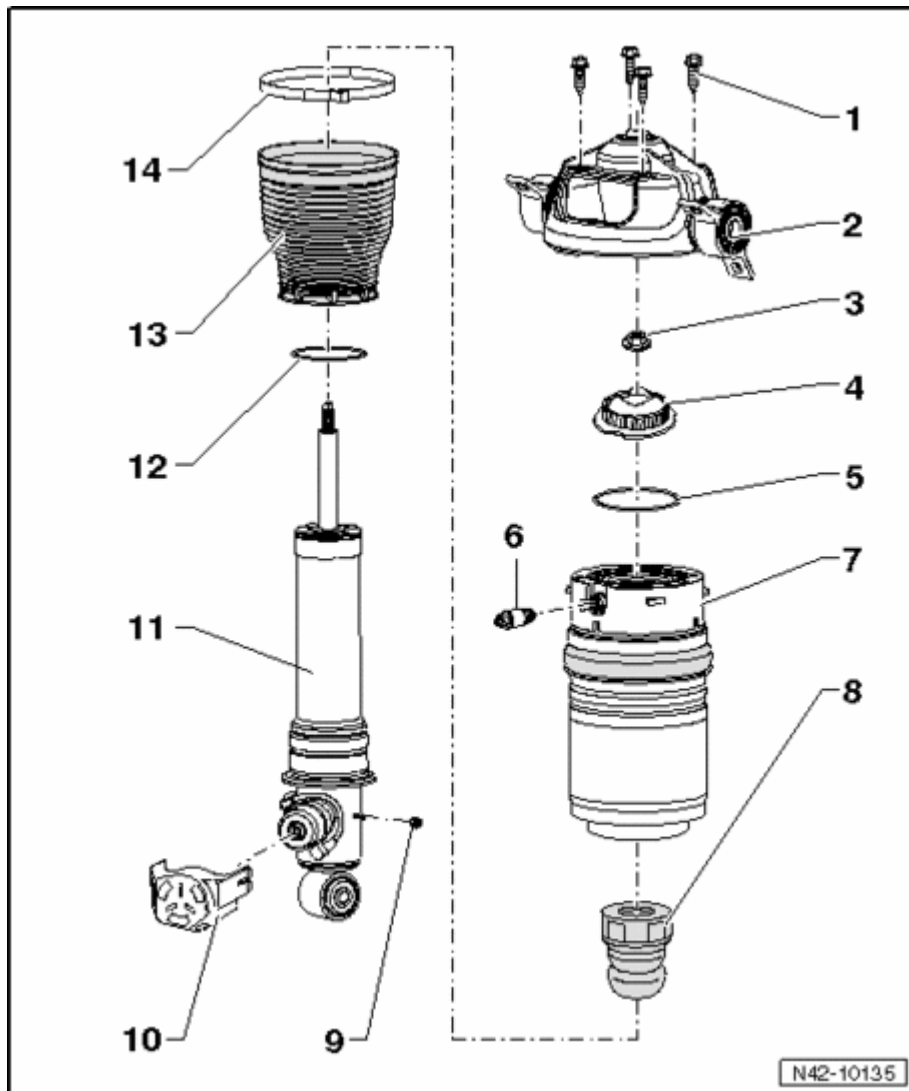
- Always replace

- **Shock absorber**

- **Seal**

- Always replace

Rear air spring shock absorber, assembly overview



- Hex bolt, 30 Nm
 - 4x
- Mounting bracket
- Hex nut, tighten to 60 Nm
 - Always replace after removal
- Mount
- Seal
 - Always replace
- Residual pressure valve, 10 Nm
 - Observe important notes on

removal and installation ⇒
[Topic 42-11](#)

- Removing and installing ⇒
[42-11, Residual pressure valve, removing and installing](#)

- **Air spring**

- Observe repair notes for servicing air spring shock absorber ⇒ [42-11, Air spring shock absorbers, repair notes for servicing](#)

For driven distances greater than 200,000 km it is recommended that the air spring on opposite side is also replaced if air spring is damaged.

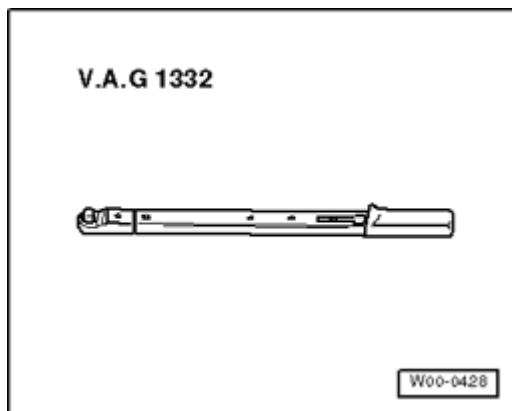
- **Buffer stop**
- **Hex nut, tighten to 7 Nm**
- **Protective cap**
- **Shock absorber**
 - Allocation ⇒ *Electronic parts catalog "ETKA"*
 - Observe repair notes for servicing air spring shock absorber ⇒ [42-11, Air spring shock absorbers, repair notes for servicing](#)
- **Seal**
 - Always replace
 - Grease with N 052 150 00

- **Protective sleeve**
- **Clamp**

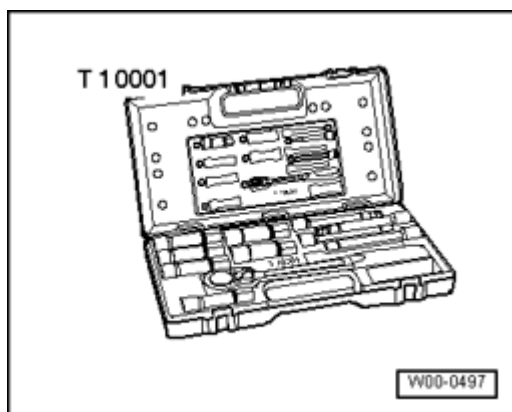
Rear air spring shock absorber, servicing

Note:

- *When replacing air spring, also boot must always be replaced.*
- *Observe repair notes for servicing air spring shock absorber ⇒ [42-11, Air spring shock absorbers, repair notes for servicing](#)*

Special tools, testers and auxiliary items required

- Torque Wrench 40-200Nm VAG1332

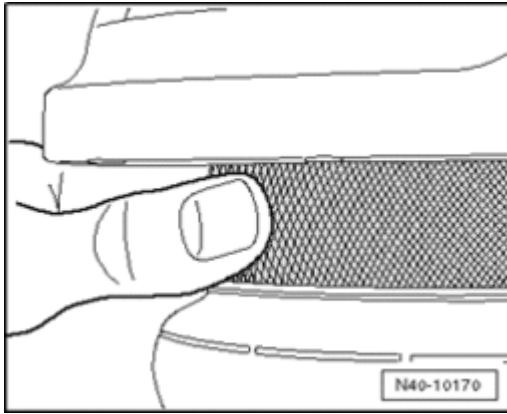


- Shock Absorber Set T10001

- Remove air spring shock absorber ⇒ [42-8, Air spring damper removing and installing](#) .

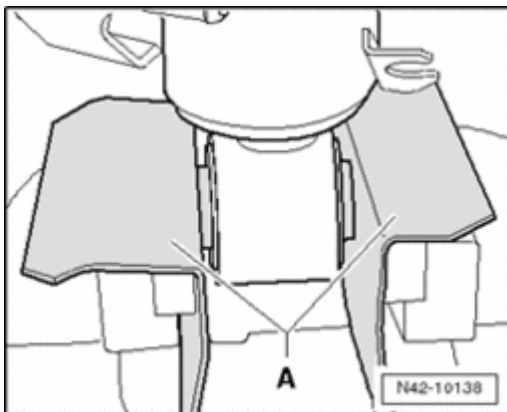
Note:

- *Check whether air spring is still filled with residual pressure of approx. 3 bar.*



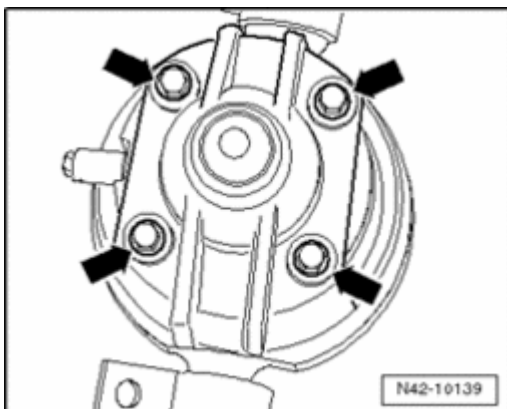
- *To do so, press thumb on bulge of air spring. There must be a tangible resistance.*
- *If no high resistance is felt, the air spring is without pressure and must be replaced together with the residual pressure valve.*

Air spring shock absorber, disassembling



- Secure air spring shock absorber at lower mount in vise with protective jaws - **A** - .

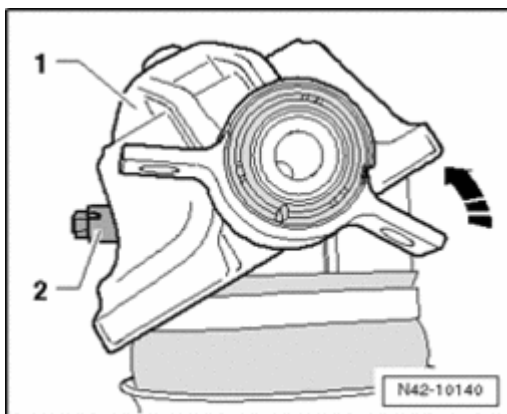
Make sure mount is not damaged.



- Loosen mounting bolts - **arrows** - from mounting bracket alternately until air escapes from air spring.

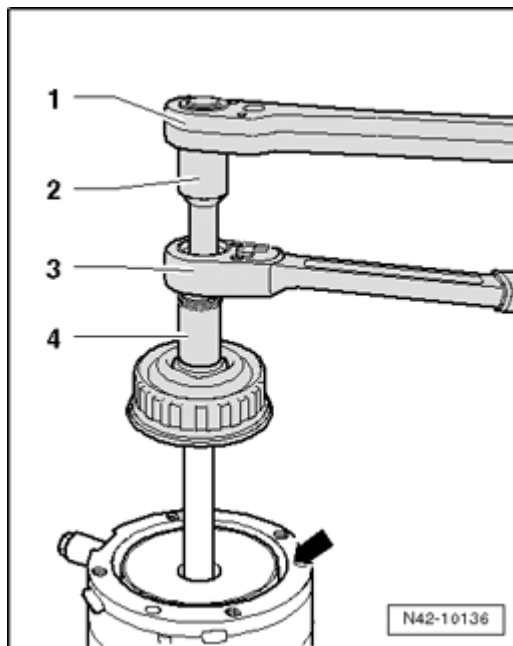
Warning!

- *The air spring has a residual pressure of approx. 3 bar. Therefore, always unscrew bolts - arrows - only one turn each until air escapes.*
- *While removing bolts, remove mounting bracket from air spring by slightly tilting it.*
- *When loosening bolts, do not lean over air spring shock absorber under any circumstance. If bolts are loosened too much and air has not escaped yet, there is the danger of injury by mounting bracket and bolts.*
- *When without pressure, air spring must not be twisted. There is the danger that the dust boot will be damaged on inside of the air spring by kinking or folding!*

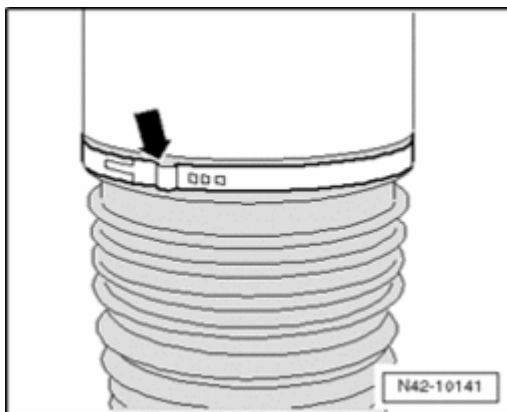


- Remove mounting bracket - **1** - from air spring shock absorber in - **direction of arrow** - .

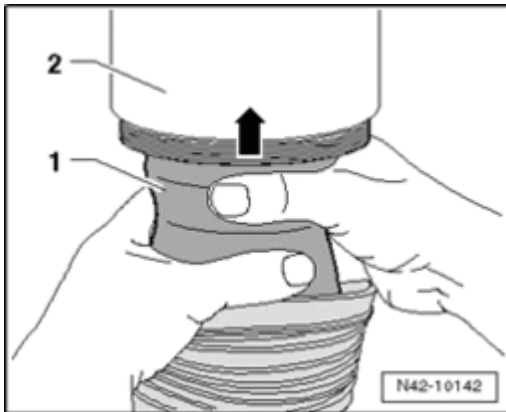
Mounting bracket - **1** - must be guided over the residual pressure valve - **2** - .



- Remove nut from bearing.
 - Commercially available ratchet
 - Supplement For T10001 T10001/14
 - T10001/11
 - T10001/3
- Remove bearing from shock absorber.



- Remove clamp for mounting the boot - **arrow** - .
- Push boot downward and let a second mechanic secure it.

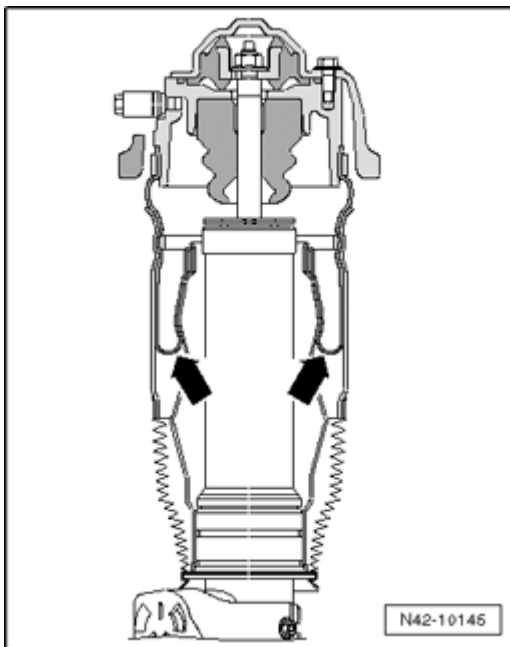


- Grasp rolling piston - **1** - of air spring with both hands and remove rolling piston upward - **direction of arrow** - from shock absorber with small rotations toward right and left.

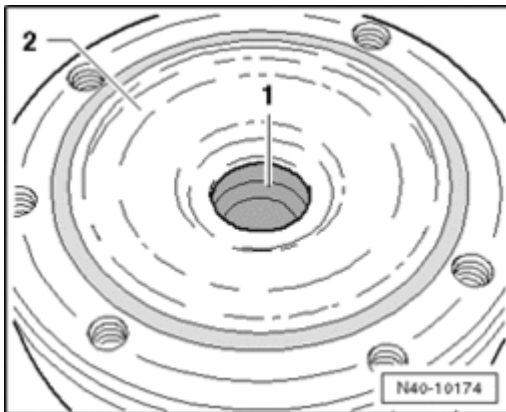
The entire air spring must turn when doing so.

Note:

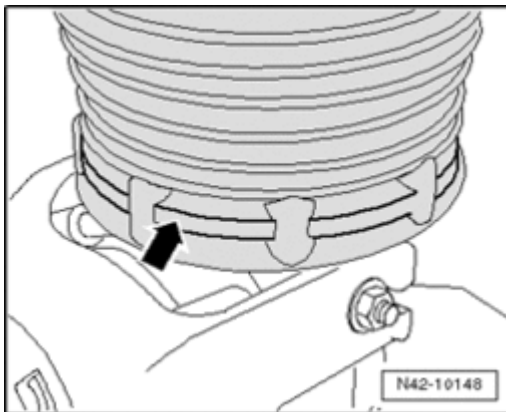
- *Make sure rolling piston - **1** - does not slip downward out of outer guide - **2** - .*



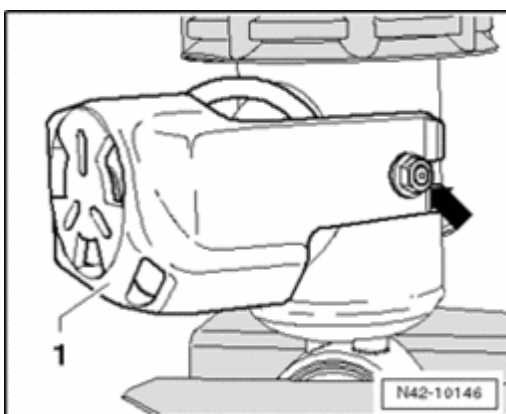
- *If the air spring is re-used but the rolling piston has slipped out of the outer guide, the rolling piston must be pushed inside again. Pay attention to forming a rolling fold evenly all around the rolling boot - **arrows** - .*



- When replacing air spring, remove buffer stop - **1** - downward out of air spring center.

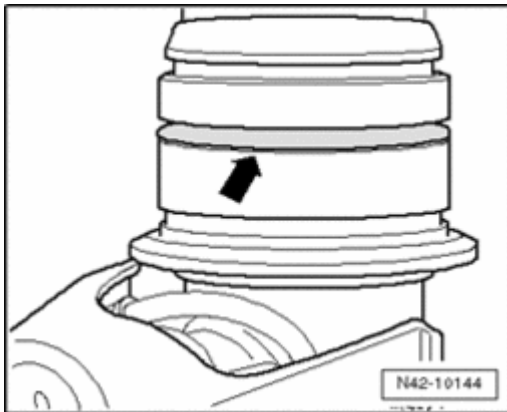


- Remove boot from collar on shock absorber - **arrow** - and remove from shock absorber.



- When shock absorber is replaced, cap - **1** - must be removed - **arrow** - and installed on new shock absorber.

Air spring shock absorber, assembling

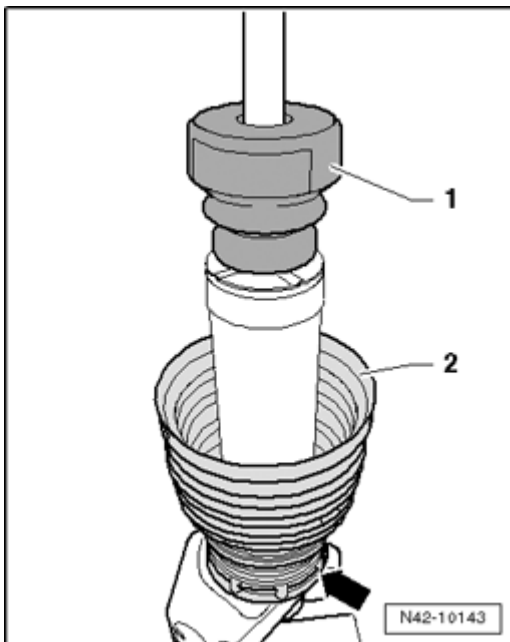


- If shock absorber was not replaced, sealing ring - **arrow** must be replaced.
- Clean contact surface using a lint-free rag.

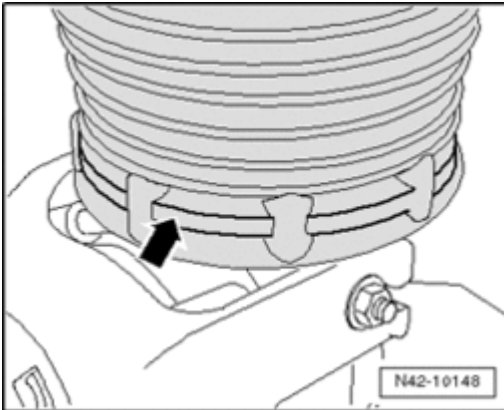
Note:

- *Even the smallest deposits cause leaks on the air spring shock absorber.*

- Coat sealing ring lightly with N 052 150 00 .

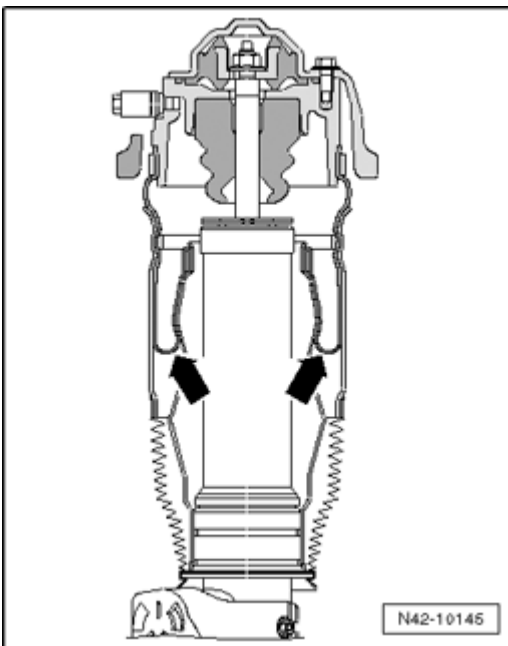


- Install boot - **2** - on shock absorber
- Slide buffer stop - **1** - with small diameter downward onto shock absorber.



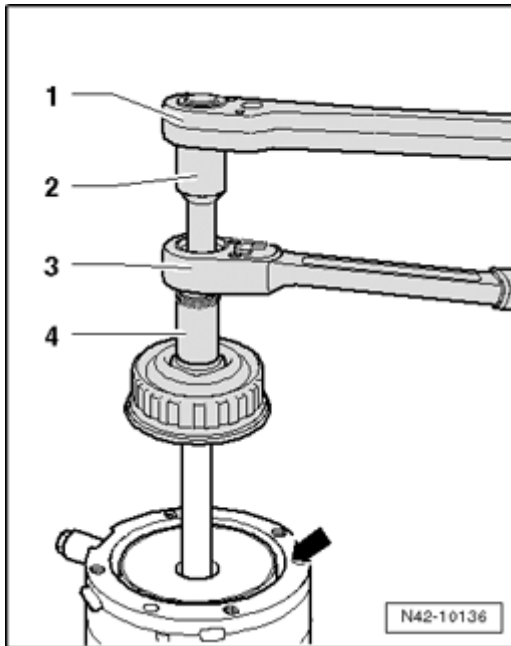
- Slip boot over shock absorber collar so that collar engages in boot groove - **arrow** - .
- Push boot downward and let a second mechanic secure it.

Note:



- *If the air spring is re-used but the rolling piston has slipped out of the outer guide, the rolling piston must be pushed inside again. Pay attention to forming a rolling fold evenly all around the rolling boot - **arrows** - .*

- Remove transport safety device from air spring.
- Install air spring on shock absorber and slide until stop onto shock absorber collar. When doing so, grasp air spring rolling piston ⇒ [Item - 5 -](#) with both hands and slide downward with small rotations toward right and left.



- Install bearing and secure using new nut.

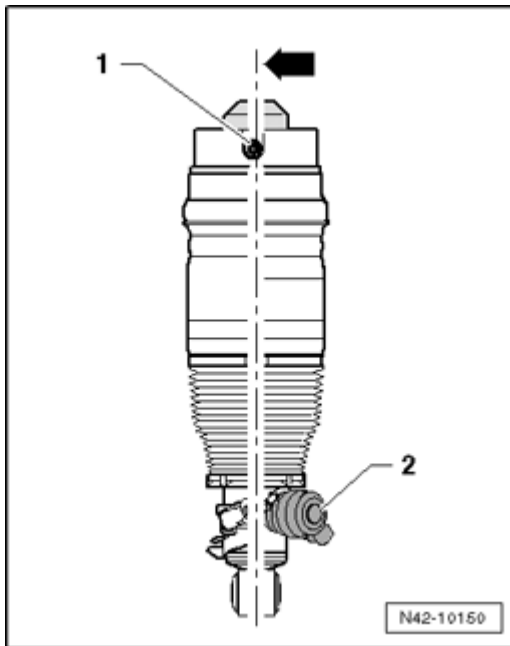
- Commercially available ratchet
- Supplement For T10001 T10001/14
- T10001/11
- T10001/3

- Clean contact surfaces on mounting bracket and air spring using lint-free rag.

Note:

- *Even the smallest deposits cause leaks on the air spring shock absorber.*

- Replace sealing ring - **arrow** - and slightly grease sealing ring using N 052 150 00 .



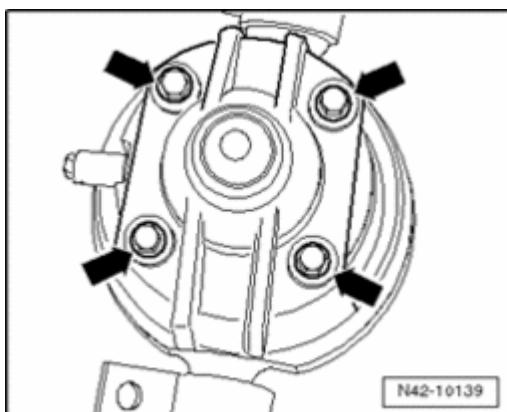
- Align air spring so that residual pressure valve - **1** - is placed slightly off the imaginary symmetrical axis - **arrow** - of air spring shock absorber (approx. 10 ° off center).

Note:

- Rotate rolling piston ⇒ [Item - 5](#) - only, in order to prevent damage to boot inside of air spring.

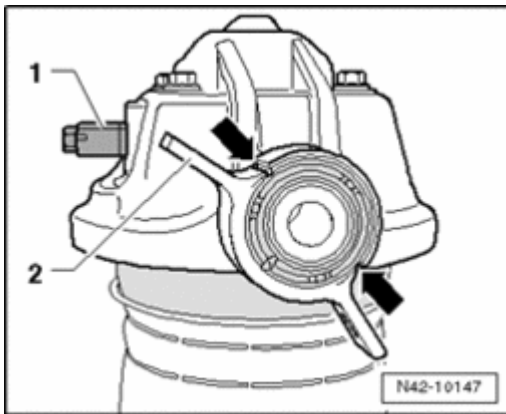
- Residual pressure valve - **1** - must always point away from CDC valve - **2** - .

- Slide boot onto air spring and secure using new clamp.



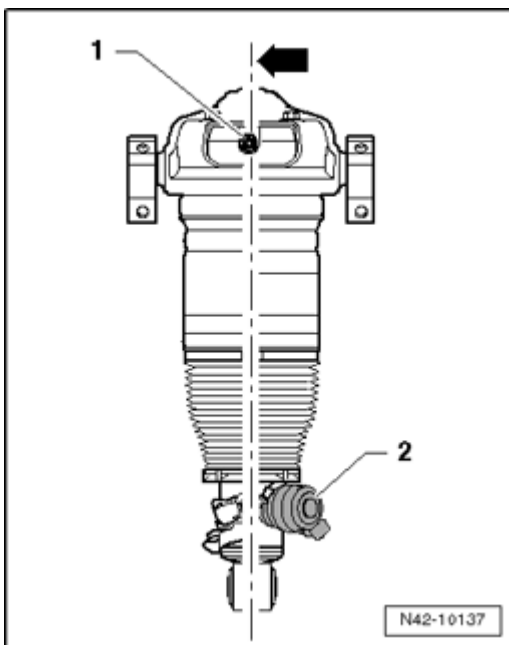
- Install mounting bracket and secure air spring using bolts - **arrows** - . Counterhold at mounting bracket in order to prevent dust boot from twisting.

- Fill air spring shock absorber ⇒ [40-7, Air spring damper, filling](#) .



Mounting bracket must be installed so that upper mount arm - **2** - points toward residual pressure valve - **1** - .

- Fill air spring shock absorber ⇒ [40-7, Air spring damper, filling](#) .



- Align air spring again so that residual pressure valve - **1** - is placed slightly off the imaginary symmetrical axis - **arrow** - of air spring shock absorber (approx. 10 ° off center).

- Residual pressure valve - **1** - must always point away from CDC valve - **2** - .

- Place air spring shock absorber completely in water bath in order check for proper seal.

If no air bubbles are detected in water bath, air spring shock absorber is properly sealed and can be re-installed in vehicle.

If there are air bubbles in the water bath escaping from the air spring shock absorber, the air spring shock absorber

must be disassembled once again and sealing rings must be replaced.

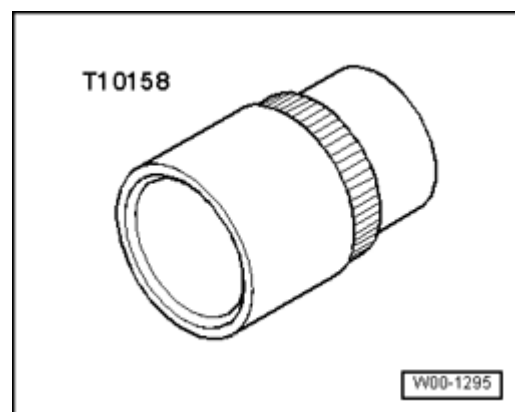
Note:

- *Before installing air spring shock absorber, all electrical connections and residual pressure valve must be blown out or dry with compressed air.*

Tightening torque	
Bearing to shock absorber ■ Use new nuts.	60 Nm
Mounting bracket to air spring	30 Nm

Residual pressure valve, removing and installing

Special tools, testers and auxiliary items required



- Socket T10158/1

Note:

- *Residual pressure valve must only be replaced if damaged when removing and installing or servicing air spring shock absorber or it no longer permits air to escape (is stuck).*
- *When air spring shock absorber is removed, no further preparations are necessary for replacing residual pressure valve ⇒ [Topic 42-11](#)*

Warning!

- ***If the residual pressure valve no longer permits air to escape (is stuck), the vehicle must be lifted***

on a hoist and the wheels must turn freely in order to replace the residual pressure valve.

- ***When loosening the air line, there is the danger to also loosen the residual pressure valve.***
- ***If the vehicle is not lifted via a hoist, the vehicle lowers immediately on the side where the residual pressure valve is loosened. There is the acute danger of injury since the arms get jammed.***
- ***Vehicle must stay on hoist until new residual pressure valve is installed and air spring shock absorber is filled again.***

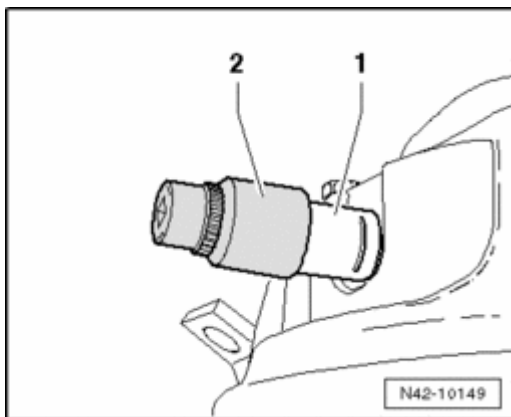
Removing

This work procedure applies to replacing the residual pressure valve with air spring shock absorber installed.

- Position vehicle on hoist and lift until wheels turn freely.
- Remove wheelhousing liner

⇒ [Repair Manual, Body Exterior, Repair Group 66, Wheelhousing liner](#)

- Unscrew air line from residual pressure valve.



- Remove residual pressure valve - **1** - from air spring shock absorber using socket T10158/1 - **2** - .

Installing

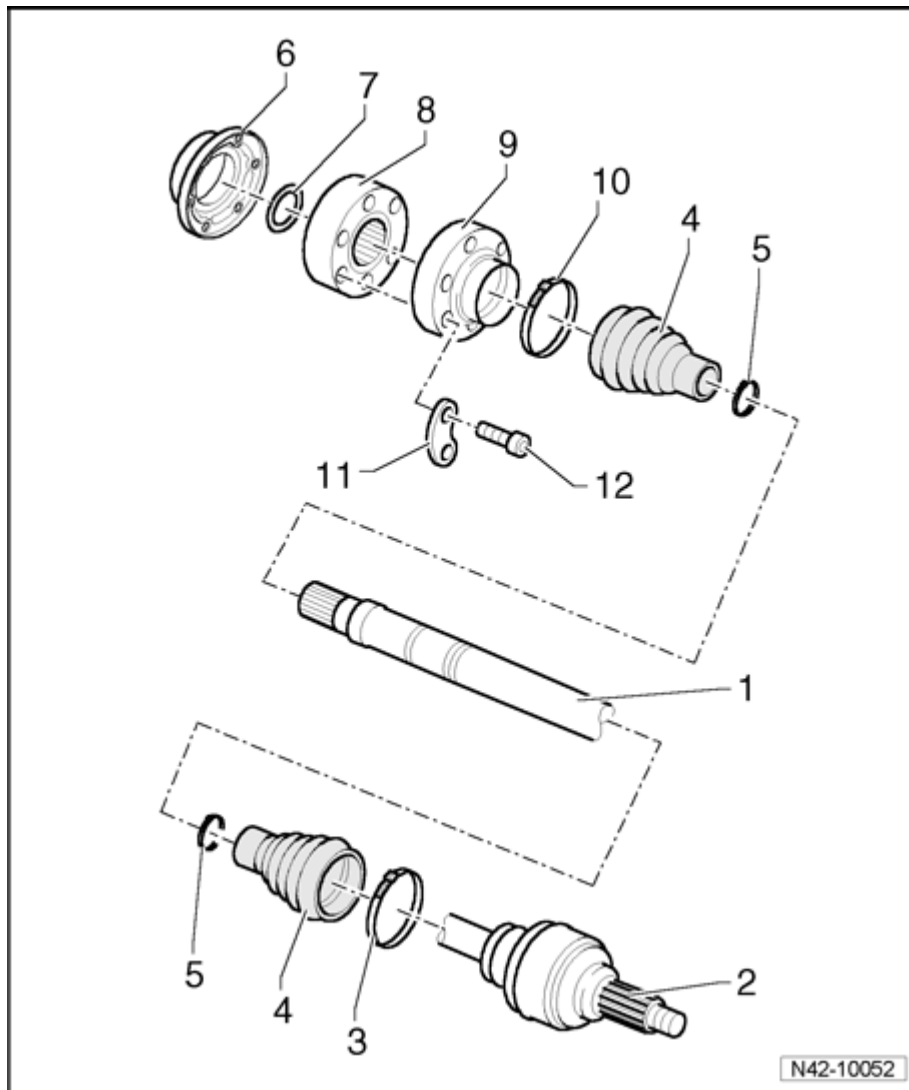
Installation is performed in the reverse order of removal.

- Fill air spring shock absorber using Vehicle Diagnosis, Testing and Information System VAS 5051 .

Tightening torque	
Residual pressure valve to shock absorber	10 Nm



VII - Rear drive axle, assembly overview



- **Drive axle**

- Removing and installing ⇒ 42-12, Rear drive axle, removing and installing
- Application ⇒ *Electronic Parts Catalog "ETKA"*

- **Outer constant velocity joint with drive axle**

- Replace as a complete unit
- If the CV boot on the outer joint must be replaced, the inner joint must first be

removed from drive axle.

- Coat spline with assembly paste G 052 109 A2 before assembly.
- On vehicle with bonded drive axle, clean spline, remove grease and apply locking compound D 154 000 A1 to spline ⇒ [Topic 42-12](#) .
- Application ⇒ *Electronic Parts Catalog "ETKA"*

■ **Clamp**

- Always replace
- Application ⇒ *Electronic Parts Catalog "ETKA"*

■ **Protective boot**

- Check for tears and chafing
- Application ⇒ *Electronic Parts Catalog "ETKA"*

■ **Clamp**

- Always replace
- Application ⇒ *Electronic Parts Catalog "ETKA"*

■ **Cover**

■ **Circlip**

- Removing and installing using circlip pliers VW 161 A

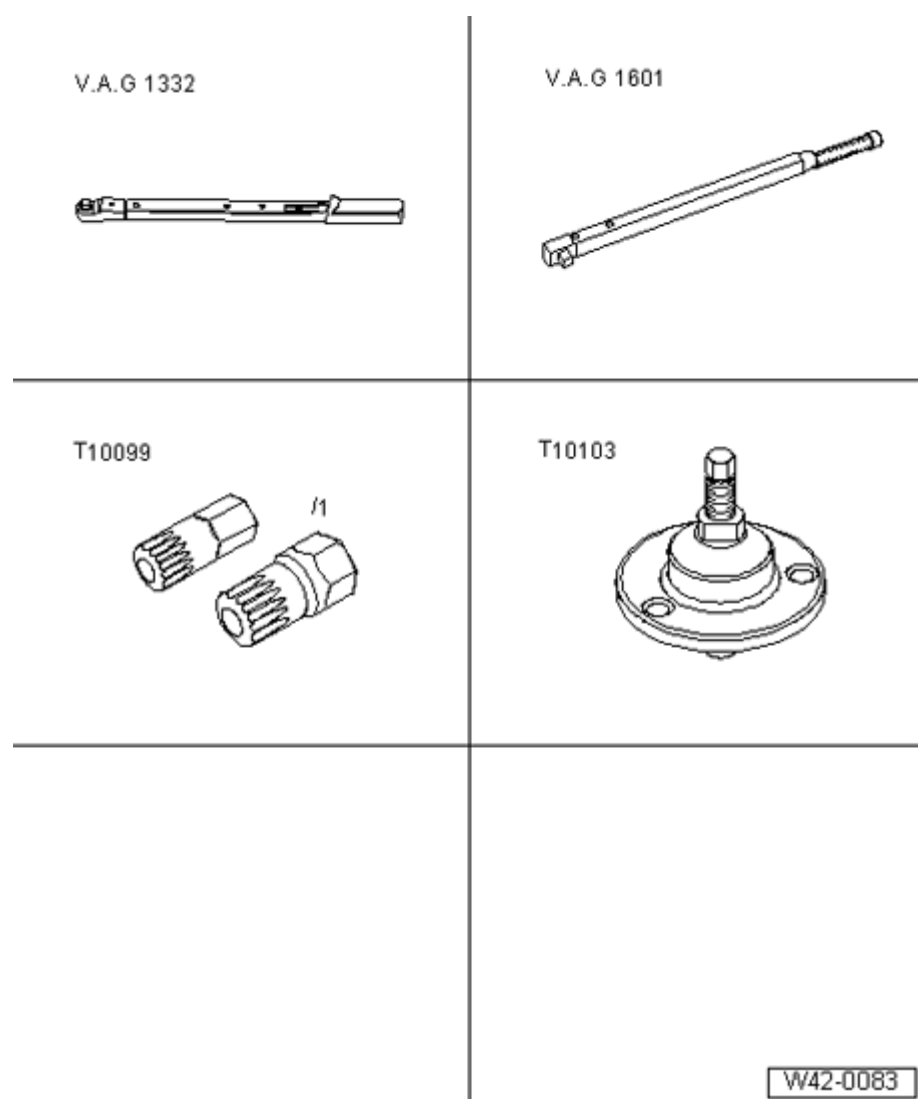
■ **Inner constant velocity joint**

- Replace as a complete unit
- Checking ⇒ [42-12, Checking inner constant velocity joint,](#)

- Application ⇒ *Electronic Parts Catalog "ETKA"*
- **Cover**
 - Application ⇒ *Electronic Parts Catalog "ETKA"*
- **Clamp**
 - Replace as a complete unit

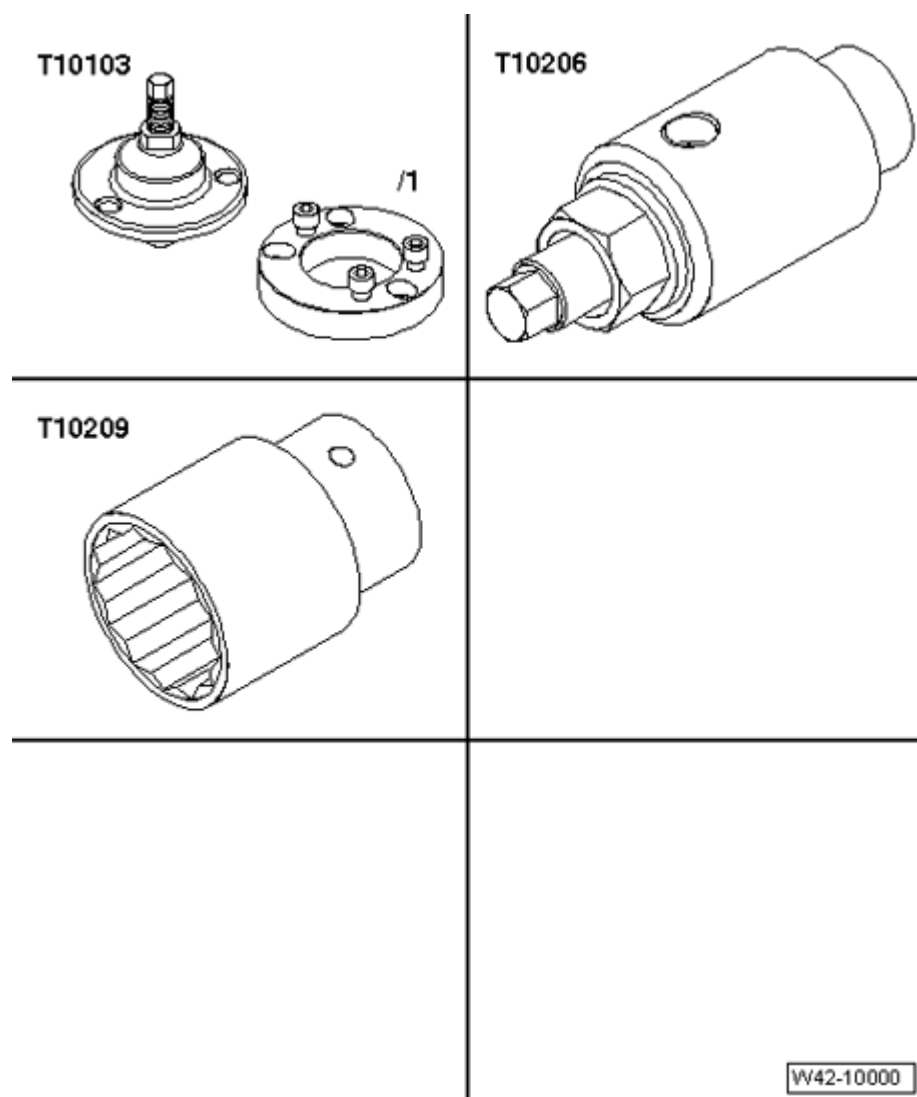
Application ⇒ *Electronic Parts Catalog "ETKA"*
- **Backing plate**
 - Application ⇒ *Electronic Parts Catalog "ETKA"*
- **Multi-point socket head bolt**
 - M10 x 52
 - 50 Nm plus an additional ¹ /₄ turn 90 °
 - Replace as a complete unit

Rear drive axle, removing and installing



Special tools, testers and auxiliary items required

- Torque wrench V.A.G 1332
- Torque wrench V.A.G 1601
- 12-mm socket T10099
- Press tool T10103



Special tools, testers and auxiliary items required

- Adapter for press tool T10103/1
- Seating tool T10206
- 12-mm socket T10209

Removing

Warning!

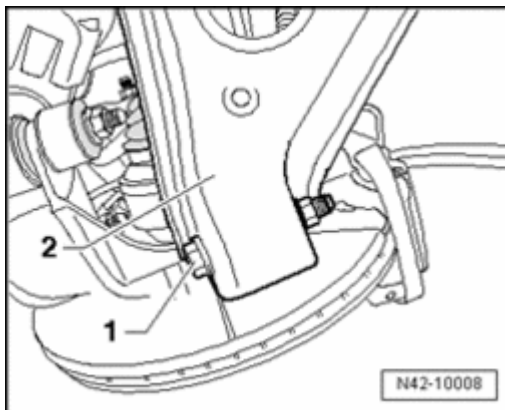
On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

- Loosen 12-point nut.

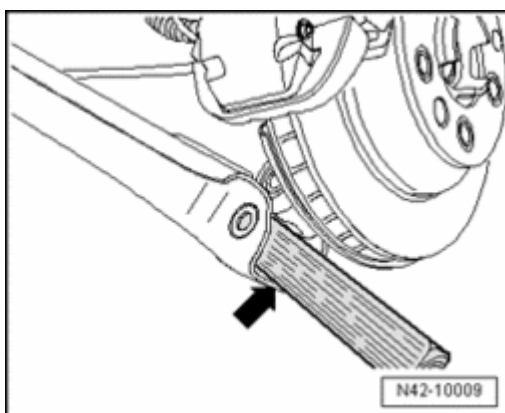
Note:

- *Loosen and tighten 12-point only when vehicle is standing on its wheels (danger of accident!).*
- *Do not move vehicle when the 12-point nut is loosened. Otherwise the wheel bearing could be damaged.*
- *When a drive axle has been removed and the vehicle is to be moved then an outer joint must be installed and tightened to 150 Nm.*

- Remove wheel and raise vehicle.
- Remove drive shaft from final drive. Use socket T10099 to loosen bolts.



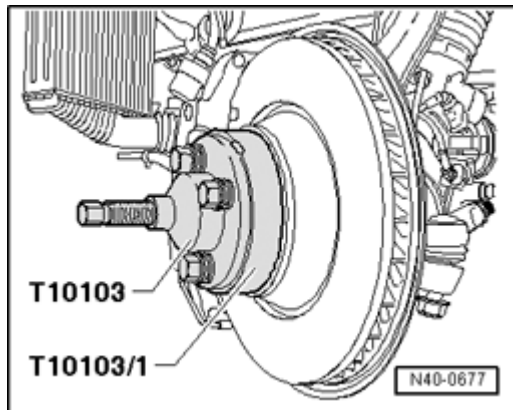
- Remove bolt - **1** - for control arm - **2** - .



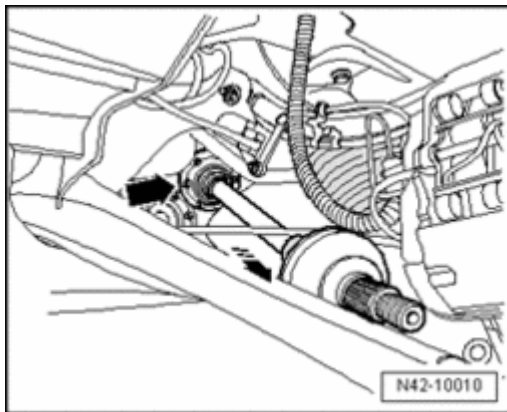
- Insert a block of wood between the control arm - **Arrow** - and wheel bearing housing.

Warning!

If this block of wood is not inserted, there is a risk of injury.



- Press out drive axle.



- Push drive axle as far as possible beyond final drive flange - **Arrow** - so that the outer joint can be pulled out of wheel bearing spline.
- Remove drive axle in direction of - **arrow** - .

Installing

Warning!

On vehicles with decouplable stabilizer bars, the stabilizer bars must be coupled in before beginning work. Otherwise, the risk of injury exists when decoupled stabilizer bars become unintentionally coupled.

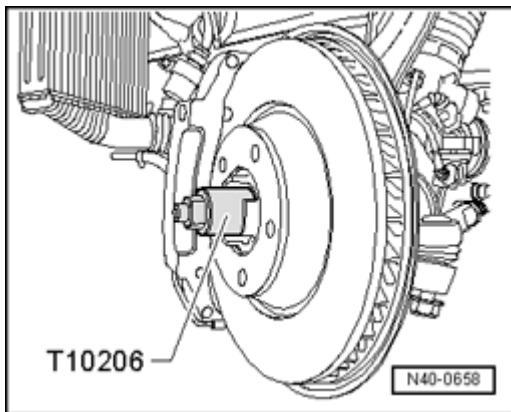
At the start of production, a change was made from bonded to non-bonded drive axles. If you find a bonded drive shaft in the vehicle, the following three additional steps have to be performed:

- Clean the remaining locking compound from spline on outer joint and on wheel hub.

- Create a metal surface and remove grease from spline on outer joint and wheel hub.
- Apply locking compound D 154 000 A1 to spline on outer joint.

Remaining installation applies to both drive axles, with special attention to the following:

- Coat spline with assembly paste G 052 109 A2 before assembly
- Insert outer joint as far as possible into the spline in the wheel hub.



- Seat drive axle as far as stop using seating tool T10206 .
- Remove seating tool T10206 .



- Press wheel bearing housing in direction of - **arrow** - .

Warning!

Make absolutely sure that you are pressing only on the wheel bearing housing. There is a risk of injury at the point where the control arm and the wheel bearing housing meet.

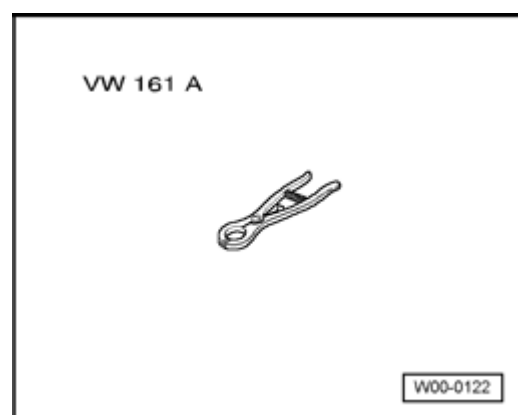
The control arm engages at wheel bearing housing.

Further installation is in reverse sequence to removal.

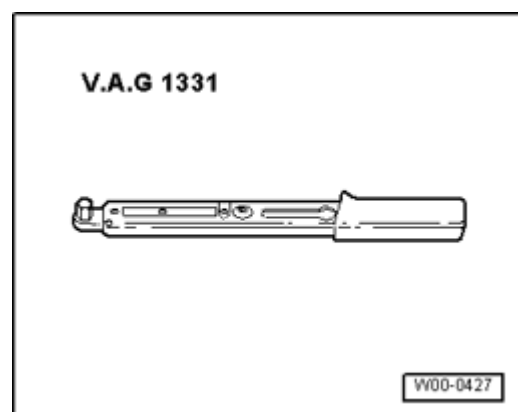
Tightening torques	
Drive shaft to final drive flange	50 Nm plus an additional $\frac{1}{4}$ (90°)
Drive axle to wheel bearing for vehicles with 17", 18" and 19" wheels ■ Use new nut.	500 Nm
Control arm to wheel bearing housing ■ Use new bolt and nut.	150 Nm plus an additional $\frac{1}{4}$ (90°)

Rear drive axle, servicing

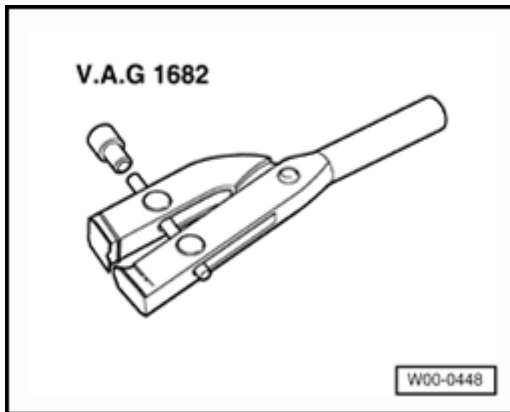
Special tools, testers and auxiliary items required



- Circlip pliers VW 161 A



- Torque wrench V.A.G 1331

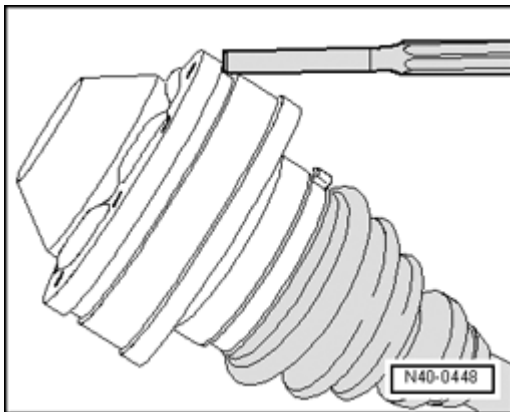


- CV joint boot clamp tool V.A.G 1682

Drive axle, disassembling

Removing inner constant velocity joint

- Remove both clamps from constant velocity joint boot.
- Pull constant velocity joint boot off from inner constant velocity joint.



- Drive off cover for inner constant velocity joint.

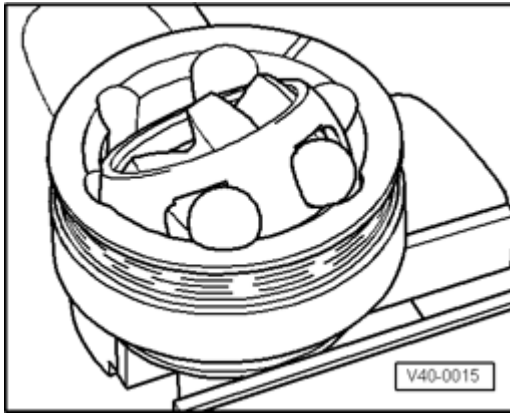
Remove circlip with circlip pliers VW 161 A .

- Remove inner joint from drive axle by hand.

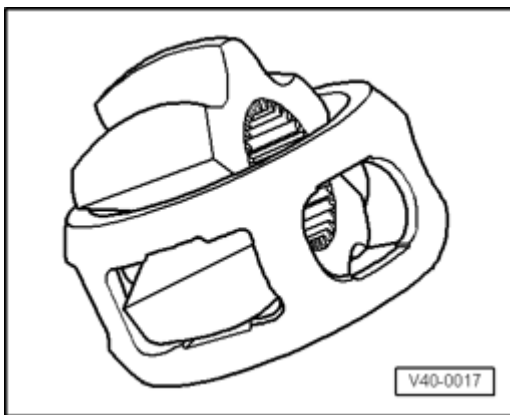
Checking inner constant velocity joint,

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

Removing:



- Before disassembling mark ball hub position in relation to ball cage and housing with an electric scriber or oil stone.
- Swivel ball hub and ball cage.
- Remove balls one after another.
- Lift out cage together with hub.



- Pivot segment of hub into opening in cage.
- 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.

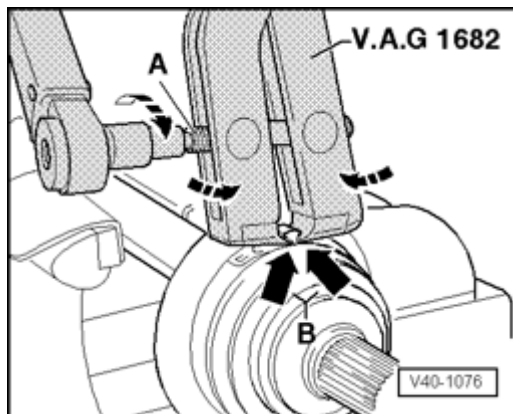
Installing:

- Press half of the total amount of grease 60 grams (1.4 oz.) into joint body.
- Install cage with hub in joint housing.
- Make sure that the shoulder of the inner diameter of the ball hub faces toward drive axle when installing.

- Press in balls one after another from opposite sides whereby the original position of hub to cage and joint housing must be restored.
- Distribute remaining grease in constant velocity joint boot.

Drive axle, assembling

- Place inner joint onto drive axle.
- Install circlip onto drive axle, using circlip pliers VW 161 A .



- Install CV joint boot clamp tool - **VAG 1682** - as shown in illustration. Make sure that the jaws of the tension clamp seat in the corners - **arrows B** - of hose clip.
- Tighten hose clamp by turning spindle with a torque wrench (do not bend tensioning clamp).

Note:

- *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 CV joint boot clamp tool V.A.G 1682 .*
- *Tightening torque: 25 Nm*
- *Use torque wrench with a range of 5 to 50 Nm (e.g. torque wrench V.A.G 1331).*
- *Make sure the spindle thread - **A** - 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.