

Workshop Manual Audi A1 2011 ➤

Running gear, front-wheel drive and four-wheel drive

Edition 09.2017

Audi

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List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 40 - Front suspension
- 42 - Rear suspension
- 43 - Self-levelling suspension
- 44 - Wheels, tyres, vehicle geometry
- 48 - Steering



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

Contents

00 - Technical data	1
1 General notes	1
1.1 Types of tyre	1
1.2 General notes on Tyre Pressure Loss Indicator (TPLI+)	1
1.3 General notes on drive shaft	1
2 Safety precautions	3
2.1 Safety precautions when working on vehicles with start/stop system	3
2.2 Safety precautions when working on subframe	3
2.3 Safety precautions when using testers and measuring instruments during a road test	4
3 Repair notes	5
3.1 Leaks at shock absorbers	5
3.2 Checking shock absorbers when removed	6
3.3 Checking shock absorbers on shock tester	6
3.4 Maximum values "a" in mm	8
3.5 Rules for cleanliness	8
3.6 General notes	8
3.7 General repair instructions	9
3.8 Contact corrosion	9
3.9 Steering rack	9
3.10 Gaskets and seals	10
3.11 Bolts and nuts	10
3.12 Electrical components	10
3.13 Repairing damaged threads in longitudinal member (subframe to body)	11
3.14 Lifting suspension to unladen position - vehicles with coil springs	11
4 Technical data	14
4.1 Running gear	14
4.2 Steering	14
5 Disposal	16
5.1 Releasing gas and draining front gas-filled shock absorbers	16
5.2 Releasing gas and draining gas-filled shock absorbers (rear)	17
5.3 Draining power steering rack	18
40 - Front suspension	19
1 Front axle	19
1.1 Overview - front axle	19
2 Subframe	20
2.1 Exploded view - subframe	20
2.2 Removing and installing subframe without steering rack	22
2.3 Removing and installing subframe with steering rack	25
2.4 Removing and installing anti-roll bar	30
2.5 Renewing anti-roll bar bushes	34
2.6 Removing and installing coupling rod	35
2.7 Fixing position of subframe	36
2.8 Lowering subframe	39
3 Suspension strut, upper links	43
3.1 Exploded view - suspension strut, upper links	43
3.2 Removing and installing suspension strut	44
3.3 Servicing suspension strut	49
4 Lower wishbone, swivel joint	53
4.1 Exploded view - lower wishbone, swivel joint	53
4.2 Removing and installing lower wishbone	54
4.3 Removing and installing swivel joint	57



4.4	Renewing bonded rubber bushes for lower wishbone	64
5	Wheel bearing	70
5.1	Exploded view - wheel bearing	70
5.2	Removing and installing wheel bearing housing	73
5.3	Removing and installing wheel bearing unit	79
6	Drive shaft	86
6.1	Exploded view - drive shaft	86
6.2	Removing and installing drive shaft	98
6.3	Loosening and tightening nut/bolt securing drive shaft	108
6.4	Removing and installing heat shield for drive shaft	112
6.5	Dismantling and assembling drive shaft	113
6.6	Checking outer constant velocity joint	139
6.7	Checking inner constant velocity joint	141
42	Rear suspension	143
1	Rear axle	143
1.1	Overview - rear axle	143
1.2	Removing and installing rear axle	146
2	Axle beam	153
2.1	Exploded view - axle beam	153
2.2	Removing and installing axle beam	154
2.3	Renewing bonded rubber bushes for axle beam	160
3	Subframe	168
3.1	Exploded view - subframe	168
3.2	Fixing position of subframe	170
3.3	Servicing subframe	173
4	Anti-roll bar	190
4.1	Exploded view - anti-roll bar	190
4.2	Removing and installing anti-roll bar	191
4.3	Removing and installing coupling rod (for anti-roll bar)	195
5	Suspension links, track rod	198
5.1	Exploded view - transverse links	198
5.2	Removing and installing upper transverse link	202
5.3	Removing and installing lower transverse link	205
5.4	Removing and installing track rod	209
6	Suspension strut/shock absorber, spring	214
6.1	Exploded view - suspension strut/shock absorber, spring	214
6.2	Removing and installing shock absorber	216
6.3	Servicing shock absorber	224
6.4	Removing and installing spring	229
7	Wheel bearing, trailing arm	235
7.1	Exploded view - wheel bearing	235
7.2	Exploded view - trailing arm	240
7.3	Removing and installing wheel bearing housing	241
7.4	Removing and installing wheel bearing unit	246
7.5	Renewing bonded rubber bush for wheel bearing housing	253
7.6	Removing and installing trailing arm with mounting bracket	261
7.7	Servicing trailing arm	267
8	Drive shaft	274
8.1	Exploded view - drive shaft	274
8.2	Removing and installing drive shaft	277
8.3	Dismantling and assembling drive shaft	281
8.4	Loosening and tightening bolt securing drive shaft	290
8.5	Checking outer constant velocity joint	291

8.6	Checking inner constant velocity joint	293
43	Self-levelling suspension	295
1	Electronic damping control	295
1.1	Overview of fitting locations - electronic damping control	295
1.2	Removing and installing electronically controlled damping control unit J250	295
2	Vehicle level senders	297
2.1	Exploded view - rear vehicle level sender	297
2.2	Removing and installing rear vehicle level sender	300
44	Wheels, tyres, vehicle geometry	303
1	Wheels, tyres	303
2	Wheel alignment	304
2.1	Notes on wheel alignment	304
2.2	Test requirements	305
2.3	Preparations for measurement	305
2.4	Wheel alignment specifications	306
2.5	Wheel alignment procedure	308
2.6	When does wheel alignment have to be checked?	309
2.7	Explanatory notes on production control numbers (PR numbers)	311
2.8	Adjusting camber at front wheels	311
2.9	Adjusting camber at rear wheels	312
2.10	Adjusting toe setting at rear wheels	314
2.11	Adjusting toe setting at front wheels	315
2.12	Wheel runout compensation	315
2.13	Checking centre position of rack (mechanical method)	315
2.14	Checking full steering lock	316
48	Steering	317
1	Steering wheel	317
1.1	Exploded view - steering wheel	317
1.2	Removing and installing steering wheel	317
2	Steering column	319
2.1	Exploded view - steering column	319
2.2	Checking steering column for damage	322
2.3	Handling and transporting steering column	322
2.4	Removing and installing steering column	325
2.5	Removing and installing intermediate steering shaft	332
2.6	Removing and installing control unit for electronic steering column lock J764	333
2.7	Removing and installing power steering control unit J500	335
3	Steering rack	337
3.1	Exploded view - steering rack	337
3.2	Removing and installing steering rack	342
3.3	Removing and installing boot	347
3.4	Removing and installing track rod	351
3.5	Removing and installing track rod ball joint	354
4	Hydraulic power steering	357
4.1	Exploded view - motor/pump unit	357
4.2	Checking fluid level in power steering system	359
4.3	Bleeding steering system after repairs	360
4.4	Checking steering system for leaks	361
4.5	Checking delivery pressure of motor/pump unit	361
4.6	Removing and installing motor/pump unit	364
4.7	Removing and installing reservoir on motor/pump unit	367



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00 – Technical data

1 General notes

(ARL005361; Edition 09.2017)

⇒ [“1.1 Types of tyre”, page 1](#)

⇒ [“1.2 General notes on Tyre Pressure Loss Indicator \(TPLI+\)”, page 1](#)

1.1 Types of tyre

For general information on wheel/tyre combinations, winter tyres, snow chains and recommended tyre makes, refer to ⇒ Wheel/Tyre Guide .

1.2 General notes on Tyre Pressure Loss Indicator (TPLI+)

Please observe the instructions in the ⇒ Owner's Manual .

For more detailed information on the Tyre Pressure Loss Indicator (TPLI), please refer to ⇒ Maintenance ; Booklet 819 .

1.3 General notes on drive shaft

- ◆ Before fitting the outer joint in the wheel hub, apply a thin coat of assembly paste to the splines on the outer joint ⇒ Electronic parts catalogue .
- ◆ When working on the vehicle, do not allow the drive shafts to hang down under their own weight and never let the joints bend to such an extent that they contact the end stop.
- ◆ The wheel bearings must not be subjected to load after loosening the bolt/nut securing the drive shaft at the wheel hub.
- ◆ If the wheel bearings are subjected to the full weight of the vehicle they will be overloaded, resulting in reduced service life. For this reason please note the following points:

Procedure for loosening bolt/nut securing drive shaft at wheel hub:

- Front axle
⇒ [“6.3 Loosening and tightening nut/bolt securing drive shaft”, page 108](#)
- Rear axle
⇒ [“8.4 Loosening and tightening bolt securing drive shaft”, page 290](#)

Procedure for tightening bolts securing drive shaft to flange shaft:

- First pre-tighten all 6 bolts to 10 Nm, then tighten in diagonal sequence to final specified torque (refer to [“6.1 Exploded view - drive shaft”, page 86](#) and/or [“8.1 Exploded view - drive shaft”, page 274](#)).

Do not attempt to move the vehicle without the drive shafts fitted; this would result in wheel bearing damage.

If moving the vehicle is unavoidable, note the following points:

- Fit an outer joint in place of the drive shaft.

Front axle:

- Tighten outer joint with 12-point nut to 50 Nm.
- Tighten outer joint with 12-point bolt to 200 Nm.



Rear axle:

- Tighten outer joint to 200 Nm.



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2 Safety precautions

⇒ [“2.1 Safety precautions when working on vehicles with start/stop system”, page 3](#)

⇒ [“2.2 Safety precautions when working on subframe”, page 3](#)

⇒ [“2.3 Safety precautions when using testers and measuring instruments during a road test”, page 4](#)

2.1 Safety precautions when working on vehicles with start/stop system

When performing repairs on vehicles with start/stop system, note the following:



WARNING

Risk of personal injury caused by automatic engine start on vehicles with start/stop system.

- ◆ *On vehicles with active start/stop system (indicated by a symbol and/or a message in the instrument cluster) the engine can start automatically under certain conditions.*
- ◆ *When working on the vehicle, it is therefore important to ensure that the start/stop system is deactivated (switch off ignition and switch on again if required).*

2.2 Safety precautions when working on subframe

Please note the following when working on the subframe:



Caution

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Risk of damage to running gear components.

- ◆ *Never place the vehicle on its wheels if the subframe mounting or steering rack is not correctly installed.*
- ◆ *Under no circumstances must the vehicle be supported on the subframe (e.g. using a trolley jack or similar).*

2.3 Safety precautions when using testers and measuring instruments during a road test

Please note the following if test and measuring equipment has to be used during a road test:



WARNING

There is a risk of accident if the driver's attention is distracted or if the test equipment is not adequately secured.

There is a risk of injury if the passenger's airbag is triggered during an accident.

- *The operation of test and measuring equipment during a road test distracts the driver's attention.*
- *There is an increased risk of injury if test and measuring equipment is not secured.*
- ◆ *All test equipment must be secured on the rear seat with a belt and operated by a 2nd person from this location.*



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3 Repair notes

- ⇒ ["3.1 Leaks at shock absorbers", page 5](#)
- ⇒ ["3.2 Checking shock absorbers when removed", page 6](#)
- ⇒ ["3.3 Checking shock absorbers on shock tester", page 6](#)
- ⇒ ["3.4 Maximum values "a" in mm", page 8](#)
- ⇒ ["3.5 Rules for cleanliness", page 8](#)
- ⇒ ["3.6 General notes", page 8](#)
- ⇒ ["3.7 General repair instructions", page 9](#)
- ⇒ ["3.8 Contact corrosion", page 9](#)
- ⇒ ["3.9 Steering rack", page 9](#)
- ⇒ ["3.10 Gaskets and seals", page 10](#)
- ⇒ ["3.11 Bolts and nuts", page 10](#)
- ⇒ ["3.12 Electrical components", page 10](#)
- ⇒ ["3.13 Repairing damaged threads in longitudinal member \(sub-frame to body\)", page 11](#)
- ⇒ ["3.14 Lifting suspension to unladen position - vehicles with coil springs", page 11](#)

3.1 Leaks at shock absorbers

Shock absorbers are often replaced because of externally visible leakage. Inspections on the test rig and in the vehicle have shown that in the majority of cases this replacement is not justified.

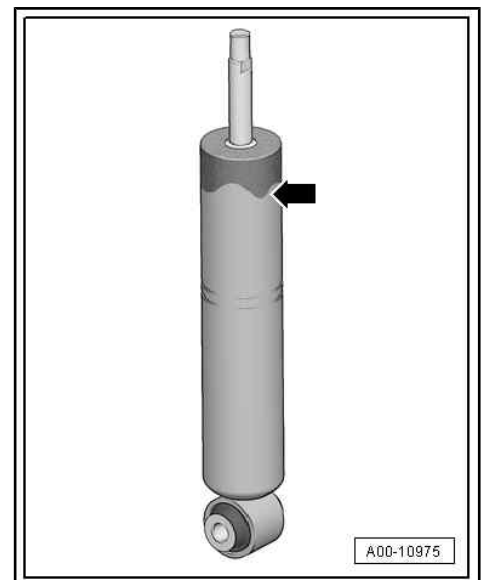
Slight loss of fluid ("sweating") at the piston rod seal is not a reason for renewing a shock absorber. A shock absorber with slight fluid leakage can be accepted as OK under the following conditions:



Note

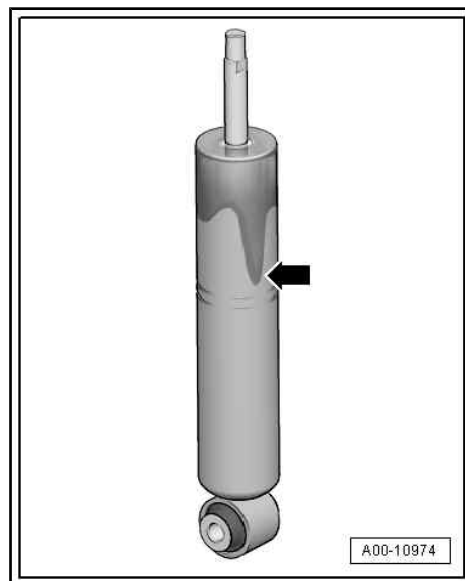
Slight fluid leakage is actually beneficial, as it lubricates the piston rod seal and thus extends the life of the shock absorber. This applies to shock absorbers on both the front and rear axles.

- ◆ Fluid seepage (as shown in the shaded part of the illustration -arrow-) is visible, but the fluid is dull and possibly dried by dust.
- ◆ A thin film of fluid or dirt has formed on one side; no drips.



A shock absorber cannot be accepted as OK if the following occurs:

- ◆ Drips running down the side -arrow-; large area wet with fluid.
- ◆ If the shock absorber has a wet film of fluid running down the side of the tube, it is leaking and must be renewed.



3.2 Checking shock absorbers when removed

Defective shock absorbers can be identified by loud rumbling noises when driving, caused by wheel hopping, especially on bad roads. Heavy fluid leakage is an additional visual indication.



Note

Shock absorbers are maintenance-free; shock absorber fluid cannot be topped up.

After removal, a shock absorber can be checked by hand as follows:

- Compress shock absorber by hand.
- The piston rod should move smoothly over the entire stroke with uniform resistance and without jolts.
- Release piston rod.
- If the shock absorber has sufficient gas pressure the piston rod will return by itself to its original position.



Note

- ◆ *If this is not the case, the shock absorber does not necessarily need to be renewed. Provided there has been no major loss of fluid, it will still be as effective as a conventional shock absorber.*
- ◆ *Even without gas pressure, the shock absorber will provide full damping effect as long as there has been no major loss of fluid. However, it may produce more noise.*

3.3 Checking shock absorbers on shock tester

The shock tester allows shock absorbers to be tested without removing them from the vehicle. The damping effect can be assessed on the basis of the pointer deflection or the print-out.

Special tools and workshop equipment required

- ◆ Maha shock absorber tester - VAS 1990S-
- ◆ Suspension strut test stand - VAS 6636-
- ◆ Suspension strut test stand - VAS 6640-

Test requirements

- Temperature: +10...+40 °C.
- Driver in vehicle
- Tyre pressure OK.
- Wheels of vehicle in a central and straight position on the tyre contact plates
- Front wheels in straight-ahead position
- Handbrake not applied, brake pedal not depressed

Test results

The condition of the shock absorbers can only be evaluated as follows:

- ◆ Satisfactory damping effect
- Or
- ◆ Unsatisfactory damping effect



Note

- ◆ *It is not possible to obtain intermediate readings specifying the exact degree of impairment of damping effect.*
- ◆ *A forecast of the remaining service life is not permissible.*
- ◆ *Test results will be falsified if the suspension contacts the bump stops when the readings are taken.*

The following values apply only to tests conducted on the test equipment listed above. If the maximum values listed below are exceeded, the effectiveness of the shock absorber has deteriorated significantly and replacement is recommended.

Example:

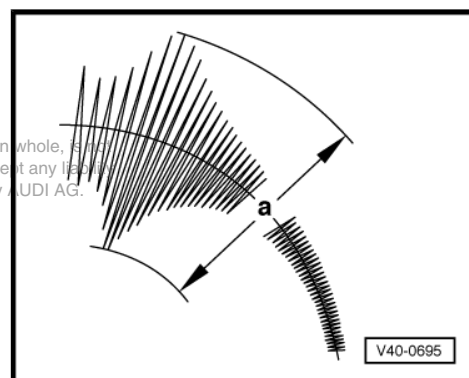
Maximum value = 70

- ◆ a = higher than 70: unsatisfactory damping effect
- ◆ a = lower than 70: satisfactory damping effect

The damper combinations fitted in the vehicle are indicated by the corresponding PR number on the vehicle data sticker.

Explanatory notes on production control numbers (PR numbers)

⇒ [page 311](#)



3.4 Maximum values "a" in mm



Note

- ◆ If the reading is higher than the maximum value "a" listed in the table, the damping effect is unsatisfactory ⇒ renew the shock absorber.
- ◆ If the reading is lower than the maximum value "a" listed in the table, the damping effect is satisfactory ⇒ the shock absorber does not have to be renewed.

Vehicle type	Front axle	Rear axle	Remarks
Standard running gear G22, G23	39	58	Unladen Tank full
Sports running gear G26, G27, G28, G29	38	51	Unladen Tank full
Heavy-duty running gear G31, G32, G51	39	58	Unladen Tank full

3.5 Rules for cleanliness

- ◆ Thoroughly clean all unions and the adjacent areas before disconnecting.
- ◆ Ensure proper seating of dowel sleeves for centralising suspension bracket and steering rack when installing.
- ◆ Place removed parts on a clean surface and cover them up to keep them clean. Use plastic sheeting or paper for this purpose. Only use lint-free cloths.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation.
- ◆ Use only the grease and sealants with the part number stated.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.

3.6 General notes

- ◆ All contact surfaces must be cleaned when installing wax-coated components. The contact surfaces must be free of wax and grease.
- ◆ Tightening torques refer to unloiled bolts and nuts.
- ◆ Always renew self-locking bolts/nuts.
- ◆ Always renew bolts and nuts which are tightened by turning through a specified angle.
- ◆ Load-bearing components and other suspension parts must not be welded or straightened.
- ◆ Do not subject coil springs to hammer blows or weld splashes and do not make any new colour markings.
- ◆ Do not perform welding or cutting operations (using power grinders) near the coil springs or suspension struts. Cover up coil springs or suspension struts if necessary.
- ◆ Make sketches or take photographs when unfastening or removing and installing hydraulic and pneumatic lines or electrical wires. This ensures re-installation at the original location.

- ◆ Any cable ties, brackets or fasteners removed during repair work must be re-attached at their original standard locations.
- ◆ For general notes on the drive shaft, refer to [⇒ page 1](#).
- ◆ Bonded rubber bushes can only be turned to a limited extent. The suspension must therefore always be in the unladen position [⇒ page 11](#) when the suspension link attachments are tightened.
- ◆ Always renew bonded rubber bushes on both sides of vehicle.
- ◆ If the wheel alignment has to be checked and adjusted at a later stage, all bolts and nuts which need to be slackened to make adjustments should initially only be tightened to the specified torque figure. After wheel alignment has been checked and adjusted, bolts and nuts must then be fully tightened by turning them through the specified angle.



WARNING

All bolts and nuts must be fully tightened according to specifications before the vehicle is driven on public roads.

3.7 General repair instructions

To avoid repetition, a number of notes that are generally applicable to the individual procedures described in this manual are summarised here. They apply for this individual Workshop Manual.

- ◆ Before carrying out repair work, identify the cause of the fault as exactly as possible using the [⇒ Vehicle diagnostic tester](#) in the operating modes “Guided Fault Finding”, “Vehicle Self-Diagnosis” and “Test Instruments”.

3.8 Contact corrosion

Contact corrosion can occur if unsuitable fasteners are used (e.g. bolts, nuts, washers, etc.).

For this reason, only fasteners with a special surface coating are fitted.

In addition, rubber parts, plastic parts and adhesives are made of non-conductive material.

Always install new parts as listed in the Electronic parts catalogue if you are not sure whether used parts can be refitted.

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- ◆ We recommend using only genuine replacement parts: these have been fully tested and are compatible with aluminium.
- ◆ We recommend the use of Audi accessories.
- ◆ Damage caused by contact corrosion is not covered by the warranty.

3.9 Steering rack

To achieve the desired results when performing repairs on the steering rack it is important to work with the greatest possible care and cleanliness, and to use proper tools in good condition. Always observe the basic safety rules when performing servicing procedures.

To avoid repetition, a number of notes that are generally applicable to the individual procedures described in this manual are

summarised here. They apply for this individual Workshop Manual.

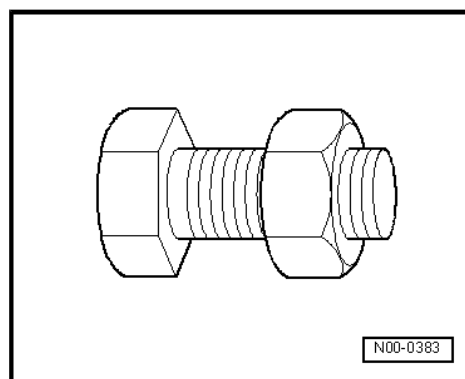
- ◆ Thoroughly clean all unions and the adjacent areas before disconnecting.
- ◆ Ensure proper seating of dowel sleeves for centralising suspension bracket and steering rack when installing.
- ◆ Place removed parts on a clean surface and cover them up to keep them clean. Use plastic sheeting or paper for this purpose. Only use lint-free cloths.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation.
- ◆ Use only the grease and sealants with the part number stated.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.

3.10 Gaskets and seals

- ◆ Always renew gaskets and seals.
- ◆ Check contact surface on housing or shafts for burrs and damage after removing the seals, and repair as required.
- ◆ Clean off all residues of liquid gasket thoroughly; make sure that no remaining material enters the steering rack housing.

3.11 Bolts and nuts

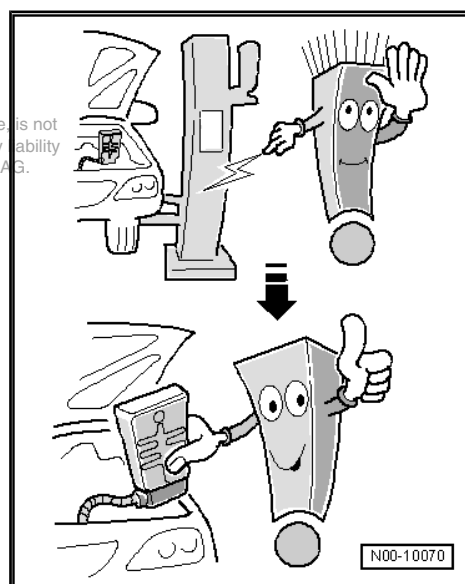
- ◆ Loosen and tighten bolts and nuts securing covers and housings in diagonal sequence.
- ◆ Take care not to tilt particularly sensitive components such as the servo motor with control unit; slacken off and tighten progressively in diagonal sequence.
- ◆ Tightening torques refer to uncoiled bolts and nuts.
- ◆ Always renew self-locking bolts/nuts.
- ◆ Always renew corroded nuts/bolts.
- ◆ Always renew bolts and nuts which are tightened by turning through a specified angle.



3.12 Electrical components

You have certainly experienced light electric shocks when touching metal objects. This is due to the electrostatic charge accumulated by the human body. This charge can cause malfunctions if you touch the electric steering rack components.

- Before working on electrical components, touch an earthed object (e.g. water pipe or lifting platform). Do not touch the contact pins of the electrical connectors.



3.13 Repairing damaged threads in longitudinal member (subframe to body)

Special tools and workshop equipment required

- ◆ Refer to ⇒ Body Repairs; Rep. gr. 50 .

Instructions for repairing damaged threads ⇒ Body Repairs; Rep. gr. 50 .

- ◆ Repair any damage to underseal ⇒ General Information; Body Repairs, General Body Repairs .

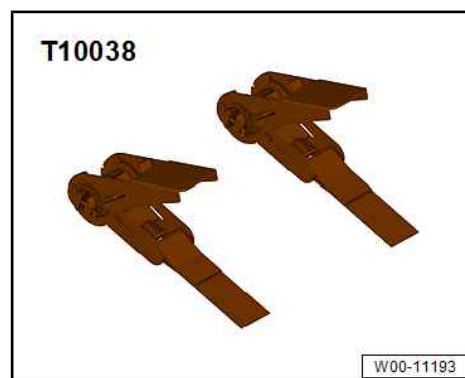
3.14 Lifting suspension to unladen position - vehicles with coil springs

Special tools and workshop equipment required

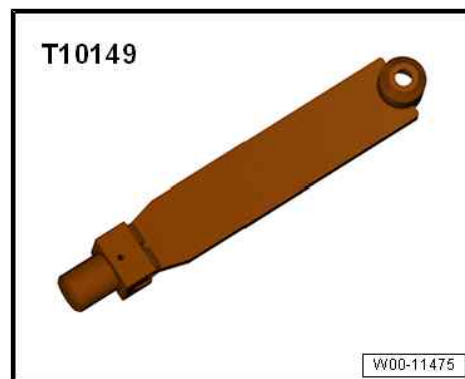
- ◆ Engine and gearbox jack - VAS 6931-



- ◆ Tensioning strap - T10038-



- ◆ Support - T10149-



**Note**

All bolts on running gear components with bonded rubber bushes must always be tightened with the suspension in the unladen position (vehicle unladen).

Bonded rubber bushes can only be turned to a limited extent.

Therefore, before tightening the bolts, suspension components with bonded rubber bushes must be brought into a position corresponding to the normal position of the unladen vehicle while driving (unladen position).

Otherwise, the bush would be subject to torsion loading and its service life would be shortened.

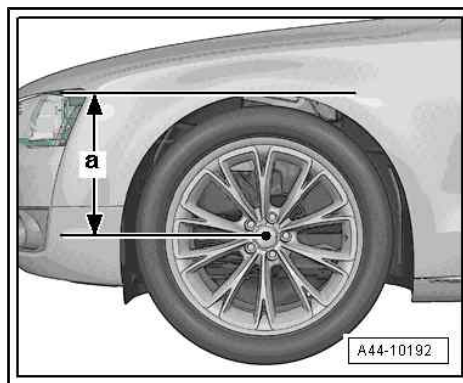
This position can be simulated on the lifting platform by raising the appropriate part of the suspension with the engine and gear-box jack - VAS 6931- and support - T10149- .

- Before commencing work, use measuring tape or similar to measure dimension -a- from wheel centre to lower edge of wheel housing.
- This measurement must be taken with the suspension in the unladen position (vehicle unladen).
- Make a note of the measured value. This will be needed when tightening the bolts and/or nuts on the suspension.

**WARNING**

The vehicle could slip off the lifting platform - risk of accident!

- ◆ ***For the following procedure, the vehicle must be secured to the support arms of the lifting platform on both sides.***



- Before raising wheel unit, secure vehicle to arms of lifting platform using tensioning straps - T10038- .
- Turn wheel hub until one of the wheel bolt holes is at the top.
- Attach support - T10149- to wheel hub using wheel bolt.



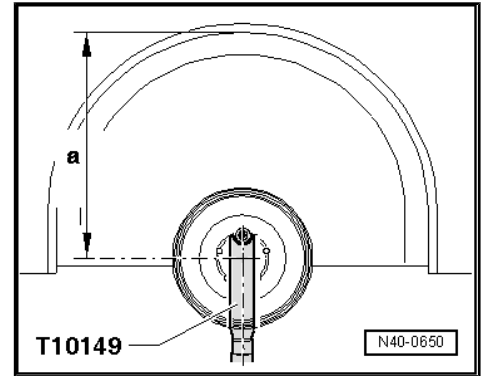
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- Raise wheel bearing housing with engine and gearbox jack - VAS 6931- until distance -a- is obtained.
- The bolts/nuts on the relevant suspension mountings must not be tightened until the distance -a- between the wheel centre and the lower edge of the wheel arch is the same as the distance measured before commencing work.



WARNING

- ◆ *Do not raise or lower vehicle when engine and gearbox jack - VAS 6931- is under vehicle.*
- ◆ *Do not leave engine and gearbox jack - VAS 6931- under vehicle for longer than necessary.*



- Tighten relevant nuts and bolts.
- Lower wheel bearing housing.
- Pull engine and gearbox jack out from below vehicle.
- Remove support - T10149- .



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4 Technical data

⇒ "4.1 Running gear", page 14

⇒ "4.2 Steering", page 14

4.1 Running gear

	Audi A1 with front-wheel drive
Front axle	MacPherson struts with lower wishbones Subframe Anti-roll bar
Rear axle	Torsion beam axle with separate spring/shock absorber layout no anti-roll bar
Wheelbase mm	approx. 2463
Track width (front/rear) ¹⁾ mm	approx. 1465 / 1467

1) Front/rear track width applicable to 185/60/R15 tyres on 6Jx15 ET30 rims (ET= rim offset)

	Audi A1 quattro
Front axle	MacPherson struts with lower wishbones Subframe Anti-roll bar
Rear axle	Four-link suspension with separate spring/shock absorber layout Tubular anti-roll bar
Wheelbase mm	2469
Track width (front/rear) ²⁾ mm	1463 / 1450

2) Front/rear track width only applicable to tyre size 225/35/R18 on 7.5Jx18 ET39.5 rims (ET= rim offset)

	Audi S1
Front axle	MacPherson struts with lower wishbones Subframe Anti-roll bar
Rear axle	Multi-link suspension with separate spring/shock absorber layout and anti-roll bar Shock absorbers with variable damper characteristics
Wheelbase mm	2470
Track width (front/rear) ³⁾ mm	1468 / 1448

3) Front/rear track width only applicable to tyre size 225/35/R18 on 7.5Jx18 ET37.5 rims (ET= rim offset)



Note

Different track width figures will apply if wheels with different rim offset are installed.

4.2 Steering

	Audi A1 with front-wheel drive (up to model year 2014), A1 quattro
Steering rack	Power-assisted, maintenance-free rack-and-pinion steering
Maximum steering angle at inside wheel	Approx. 39° 03'

	Audi A1 with front-wheel drive (up to model year 2014), A1 quattro
Turning circle diameter	approx. 10.6 m

	Audi A1 with front-wheel drive (from model year 2015 onwards), S1
Steering rack	Electro-mechanically assisted, maintenance-free rack-and-pinion steering
Maximum steering angle at inside wheel	Approx. 39° 03'
Turning circle diameter	approx. 10.6 m

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5 Disposal

⇒ ["5.1 Releasing gas and draining front gas-filled shock absorbers", page 16](#)

⇒ ["5.2 Releasing gas and draining gas-filled shock absorbers \(rear\)", page 17](#)

⇒ ["5.3 Draining power steering rack", page 18](#)

5.1 Releasing gas and draining front gas-filled shock absorbers

⇒ ["5.1.1 Releasing gas and draining front gas-filled shock absorbers - conventional shock absorbers", page 16](#)

⇒ ["5.1.2 Releasing gas from front gas-filled shock absorbers - version with variable damping", page 17](#)

5.1.1 Releasing gas and draining front gas-filled shock absorbers - conventional shock absorbers

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Special tools and workshop equipment required

- ◆ Hand-held drill
- ◆ Thread tap Ø 3 mm
- ◆ Thread tap Ø 6 mm
- ◆ Drip tray
- ◆ Safety goggles

Procedure

- Clamp gas-filled shock absorber vertically in vice, with piston rod pointing downwards.



WARNING

Danger of eye injuries!

- ◆ ***Put on safety goggles.***

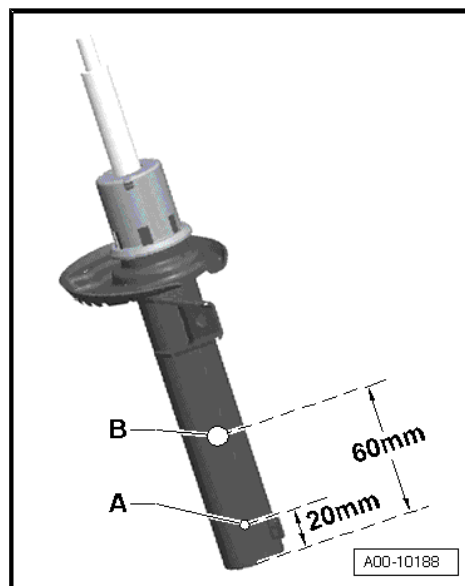
- Drill a 3 mm Ø hole -arrow A- through outer tube of shock absorber.



Note

Gas will escape during drilling.

- Continue drilling until inner tube is fully penetrated (approx. 25 mm deep).
- Drill a second hole (6 mm Ø) -arrow B- through outer and inner tubes of shock absorber.
- Hold shock absorber over a drip tray and move piston rod up and down several times through entire stroke until no more fluid comes out.



5.1.2 Releasing gas from front gas-filled shock absorbers - version with variable damping

Special tools and workshop equipment required

- ◆ Hand-held drill
- ◆ Thread tap $\varnothing$ 3 mm
- ◆ Thread tap $\varnothing$ 6 mm
- ◆ Drip tray
- ◆ Safety goggles

Procedure

- Clamp gas-filled shock absorber vertically in vice.



WARNING

Danger of eye injuries!

- ◆ *Put on safety goggles.*

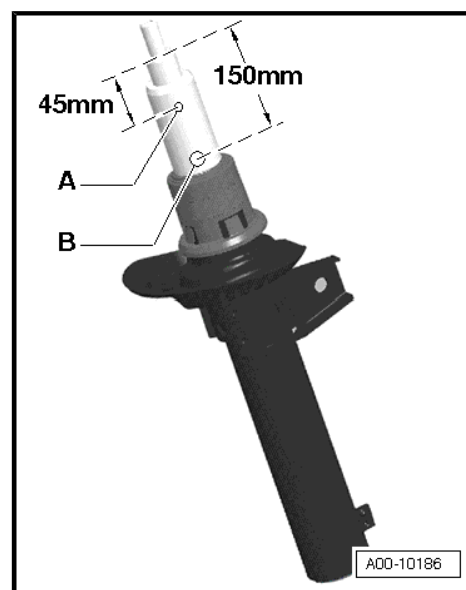
- Drill a 3 mm $\varnothing$ hole -arrow A- through outer tube of shock absorber.



Note

Gas will escape during drilling.

- Drill a second hole (6 mm $\varnothing$) -arrow B- through outer tube of shock absorber.
- Hold shock absorber over a drip tray and move piston rod up and down several times through entire stroke until no more fluid comes out.



5.2 Releasing gas and draining gas-filled shock absorbers (rear)



Note

The procedure is the same for conventional shock absorbers and shock absorbers with variable damping.

Special tools and workshop equipment required

- ◆ Hand-held drill
- ◆ Thread tap $\varnothing$ 3 mm
- ◆ Thread tap $\varnothing$ 6 mm
- ◆ Drip tray
- ◆ Safety goggles

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Procedure

- Clamp gas-filled shock absorber vertically in vice, with piston rod pointing downwards.



WARNING

Danger of eye injuries!

◆ *Put on safety goggles.*

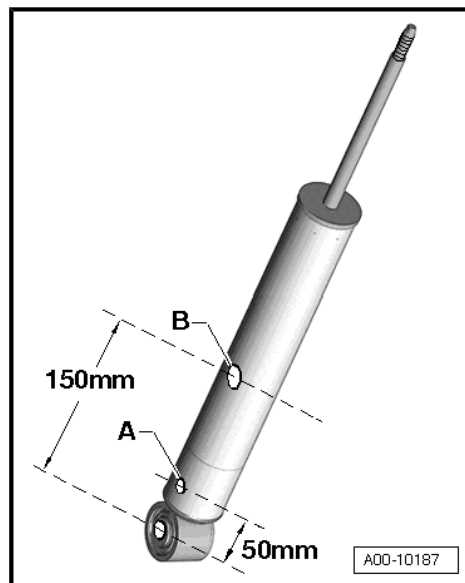
- Drill a 3 mm Ø hole -arrow A- through outer tube of shock absorber.



Note

Gas will escape during drilling.

- Continue drilling until inner tube is fully penetrated (approx. 25 mm deep).
- Drill a second hole (6 mm Ø) -arrow B- through outer and inner tubes of shock absorber.
- Hold shock absorber over a drip tray and move piston rod up and down several times through entire stroke until no more fluid comes out.



5.3 Draining power steering rack



Note

Room temperature should be at least 20 °C when draining the power steering rack.

- Hold power steering rack over drip tray and allow hydraulic fluid to drain off.
- Clamp power steering rack into vice with connections facing downwards.
- Place drip tray underneath power steering rack.
- By pushing and pulling track rod, move rack approx. 6 times backwards and forwards between its end positions.
- Dispose of power steering rack.

40 – Front suspension

1 Front axle

⇒ [“1.1 Overview - front axle”, page 19](#)

1.1 Overview - front axle

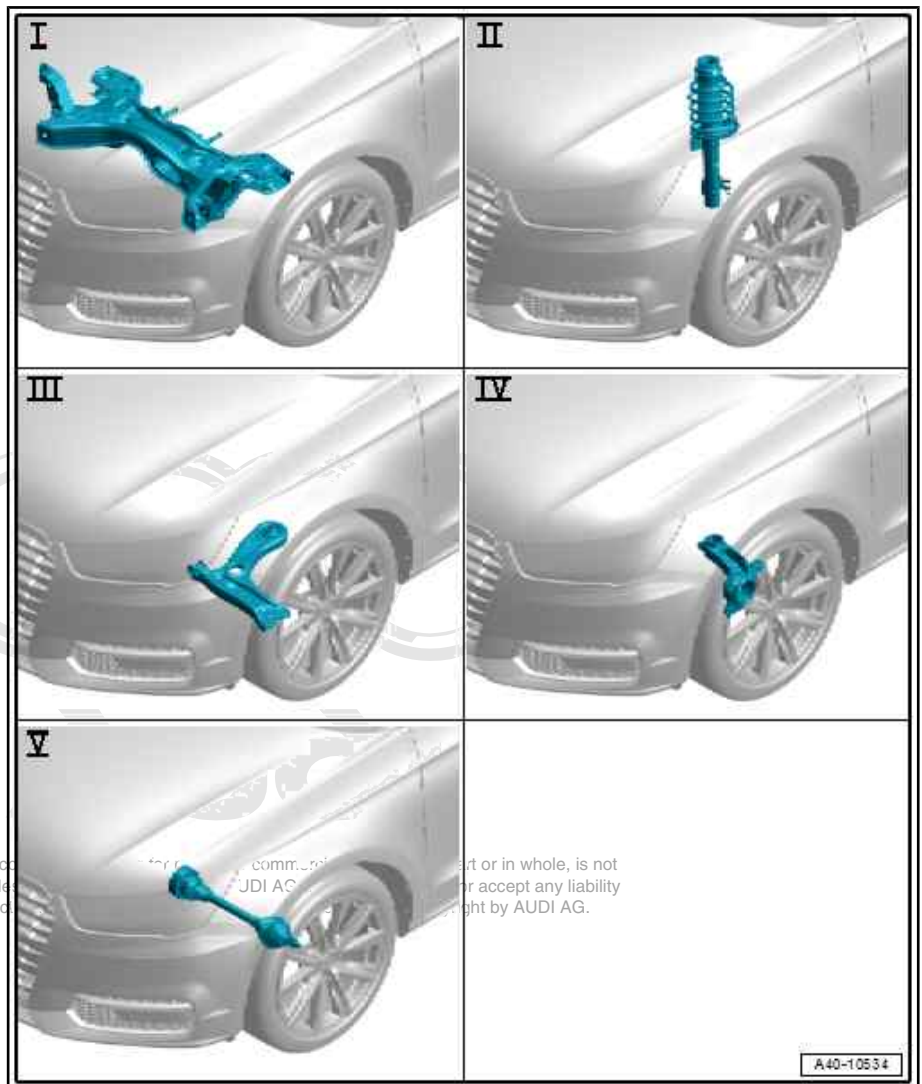
I - ⇒ [“2 Subframe”, page 20](#)

II -
⇒ [“3 Suspension strut, upper links”, page 43](#)

III -
⇒ [“4 Lower wishbone, swivel joint”, page 53](#)

IV -
⇒ [“5 Wheel bearing”, page 70](#)

V -
⇒ [“6 Drive shaft”, page 86](#)



2 Subframe

⇒ [“2.1 Exploded view - subframe”, page 20](#)

⇒ [“2.2 Removing and installing subframe without steering rack”, page 22](#)

⇒ [“2.3 Removing and installing subframe with steering rack”, page 25](#)

⇒ [“2.4 Removing and installing anti-roll bar”, page 30](#)

⇒ [“2.5 Renewing anti-roll bar bushes”, page 34](#)

⇒ [“2.6 Removing and installing coupling rod”, page 35](#)

⇒ [“2.7 Fixing position of subframe”, page 36](#)

⇒ [“2.8 Lowering subframe”, page 39](#)

2.1 Exploded view - subframe



Caution

Risk of damage to threads of bolts securing subframe to body.

- ◆ *DO NOT use an impact wrench when loosening or tightening the bolts that secure the subframe to the body.*
- ◆ *Always fit all bolts by hand; make the first few turns by hand.*



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1 - Bolt

- ☐ 20 Nm + 90°
- ☐ Always renew if removed

2 - Subframe

- ☐ Removing and installing without steering rack
⇒ [page 22](#)
- ☐ Removing and installing with steering rack
⇒ [page 25](#)
- ☐ Different versions; for correct version refer to
⇒ Electronic parts catalogue "ETKA"

3 - Bolt

- ☐ Always renew if removed
- ☐ If the thread of the welded nut is damaged, the thread can be repaired with a Heli-Coil thread insert ⇒ [page 11](#)
- ☐ 70 Nm + 180°

4 - Nut

- ☐ 40 Nm
- ☐ Always renew if removed

5 - Anti-roll bar

- ☐ Take care not to damage surface coating
- ☐ Removing and installing
⇒ [page 30](#)

6 - Rubber bush

- ☐ Removing and installing ⇒ [page 34](#)
- ☐ Always renew on both sides
- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue "ETKA"

7 - Suspension strut

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8 - Clamp

9 - Nut

- ☐ Always renew if removed
- ☐ 40 Nm

10 - Coupling rod

- ☐ Removing and installing ⇒ [page 35](#)

11 - Ribbed washer

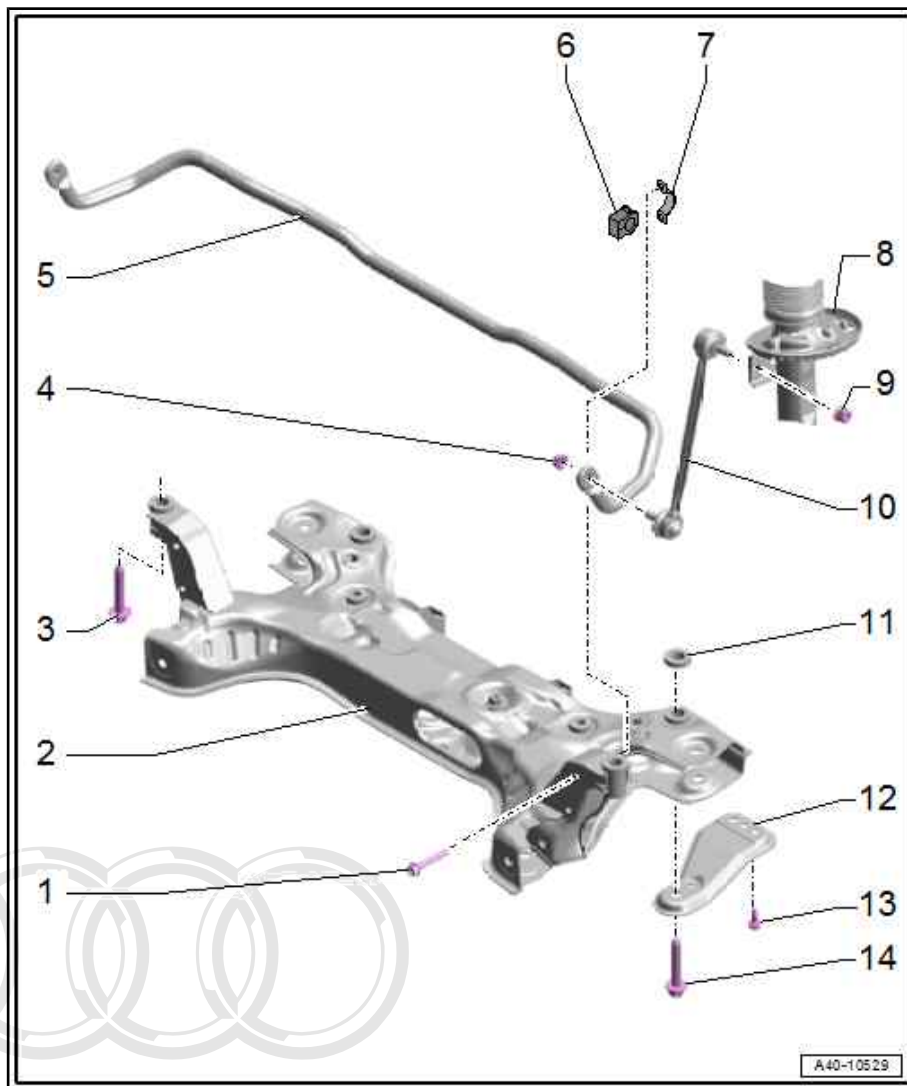
- ☐ For Audi S1 only

12 - Support

- ☐ Different versions for front-wheel drive and four-wheel drive. For correct version refer to ⇒ Electronic parts catalogue "ETKA"

13 - Bolt

- ☐ Always renew if removed



- ☐ If the thread of the welded nut is damaged, the thread can be repaired with a Heli-Coil thread insert
⇒ [page 11](#)
- ☐ 20 Nm + 90°

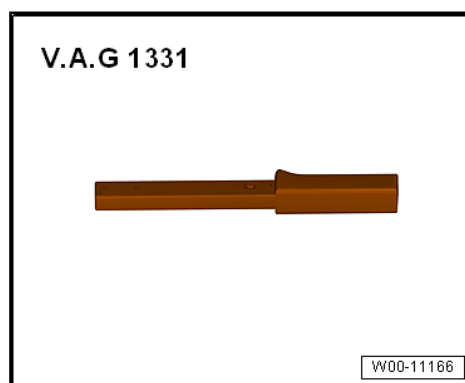
14 - Bolt

- ☐ Always renew if removed
- ☐ If the thread of the welded nut is damaged, the thread can be repaired with a Heli-Coil thread insert
⇒ [page 11](#)
- ☐ 70 Nm + 180°

2.2 Removing and installing subframe without steering rack

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Torque wrench - V.A.G 1332-

**Removing****Note**

The subframe is removed together with the wishbones.

- Remove wheels ⇒ [page 303](#) .



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- Remove nuts -arrows- on both sides of vehicle.
- Pull wishbone out of swivel joint.

 Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.

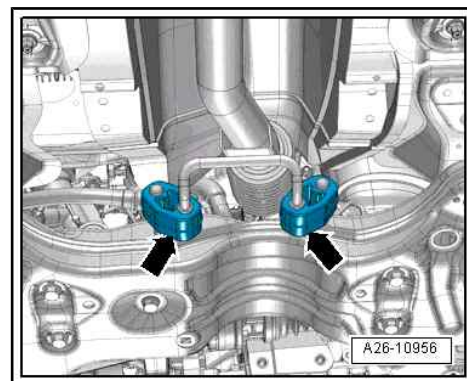
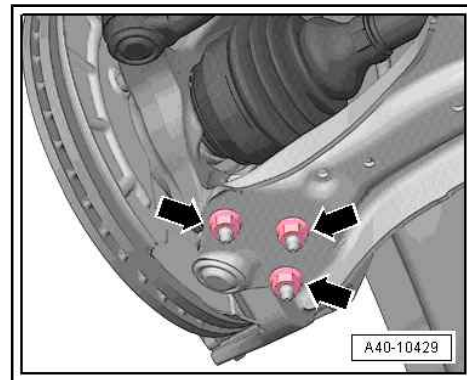
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

Vehicles with exhaust pipe beneath subframe

- Remove front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/ silencers; Exploded view - silencers .

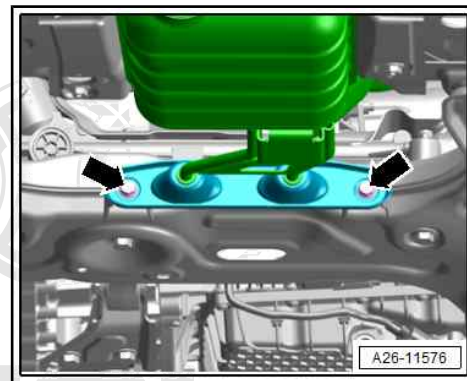
Vehicles with exhaust pipe above subframe

- Pull mountings -arrows- for front exhaust pipe off subframe.



Audi S1:

- Remove bolts -arrows- on bracket for front exhaust pipe.



Pendulum support - version 1:



WARNING

Risk of accident!

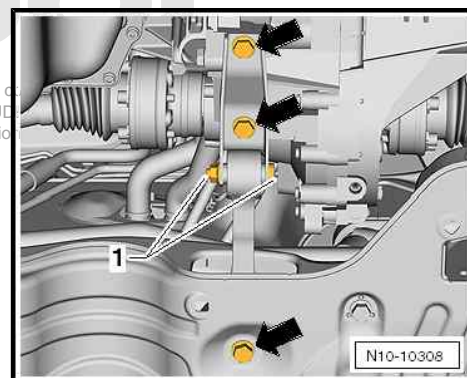
◆ **Bolted connection -1- must not be slackened.**

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- Remove bolts -top arrows- and detach pendulum support.

 Note

-Bottom arrow- can be disregarded.



Pendulum support - version 2:



WARNING

Risk of accident!

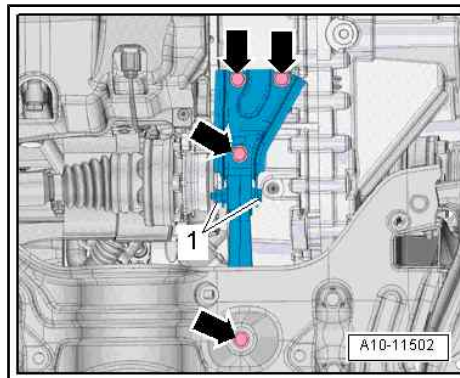
- ◆ Bolted connection -1- must not be slackened.

- Remove bolts -top arrows- and detach pendulum support.



Note

-Bottom arrow- can be disregarded.



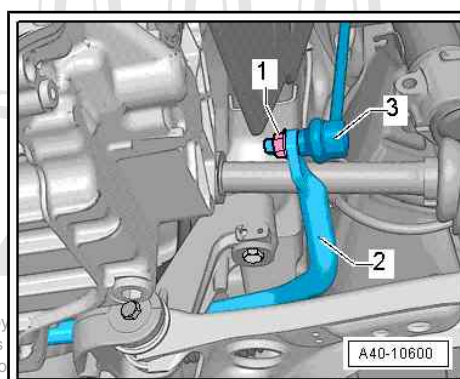
Continued for all vehicles:

- Remove nut -1- from coupling rod -3- on both sides
⇒ [page 35](#).
- Pull coupling rod -3- out of anti-roll bar -2- (left and right sides).



Note

Illustration shows installation position on vehicles from model year 2015 onwards.

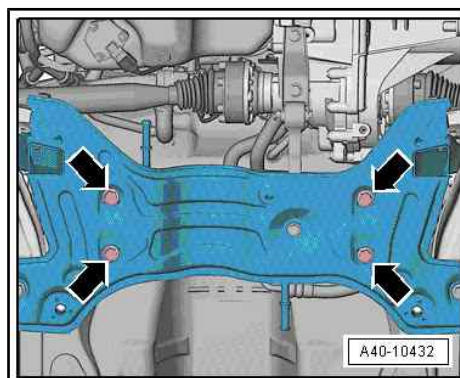


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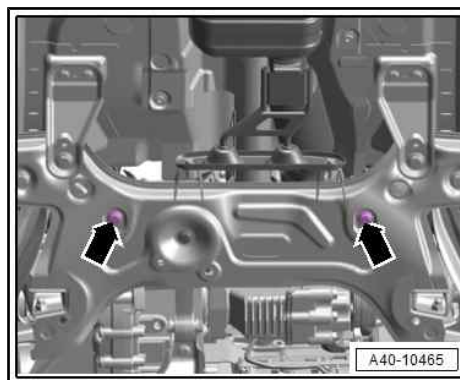
Vehicles up to and including model year 2014:

- Turn anti-roll bar upwards.
- Unbolt steering rack from subframe -arrows- and tie up to body with wire (or similar).



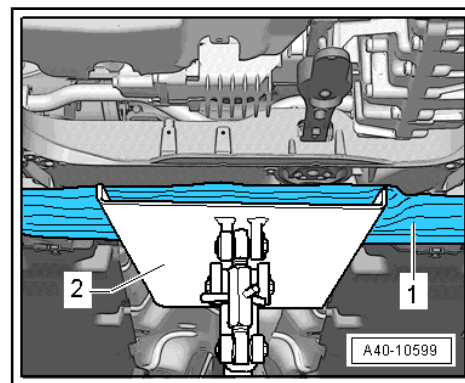
Vehicles from model year 2015 onwards:

- Unbolt steering rack from subframe -arrows- and tie up to body with wire (or similar).



Continued for all vehicles:

- Fix position of subframe ⇒ [page 36](#) .
- Lower subframe with engine and gearbox jack - VAS 6931-
-item 2-.

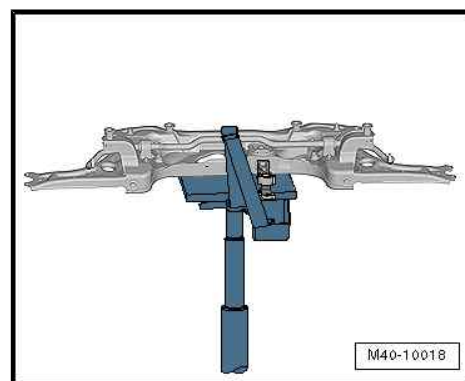


- Secure subframe to engine and gearbox jack - VAS 6931- with the appropriate strap.

Installing

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

- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)



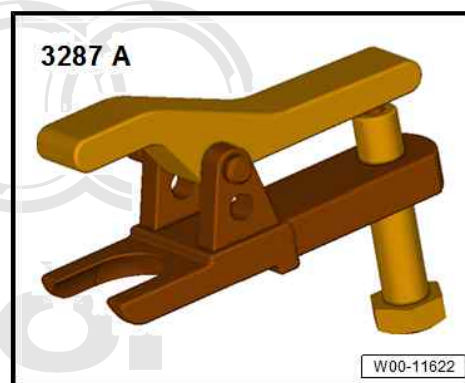
Tightening torques

- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ ⇒ [“3.1 Exploded view - steering rack”, page 337](#)
- ◆ Pendulum support ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings
- ◆ Front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)

2.3 Removing and installing subframe with steering rack

Special tools and workshop equipment required

- ◆ Ball joint puller - 3287 A-

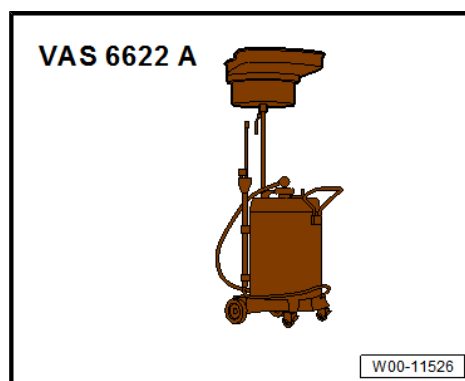


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- ◆ Torque wrench - V.A.G 1332-



- ◆ Used oil collection and extraction unit - VAS 6622A-



Removing



Note

The subframe is removed together with the wishbones.

- Turn steering wheel to straight-ahead position and remove ignition key so that the steering lock engages.

Vehicles with "keyless entry system"

- Switch off ignition and open driver's door so that steering lock engages.

All vehicles (continued):

- To prevent unintentional turning, secure steering wheel in straight-ahead position with adhesive tape -arrow-.

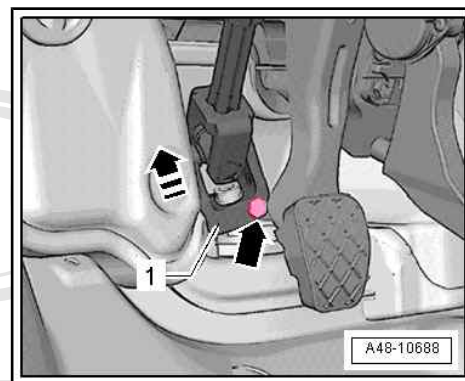


Note

- ◆ Use adhesive tape that can be completely removed afterwards without leaving marks.
- ◆ Do not turn steering wheel while performing repair work, as otherwise airbag coil connector and return ring with slip ring - F138- could be damaged.



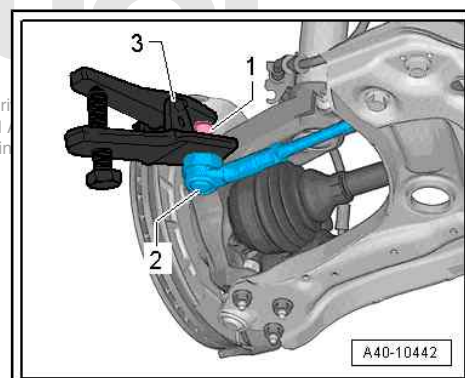
- Fold floor covering back slightly.
- Unscrew bolt -arrow- from universal joint -1- and pull off universal joint in direction of -arrow-.
- Remove wheels ⇒ [page 303](#) .



 Note

Leave nut screwed on a few turns to protect threads on joint pin.

- Loosen nut -1- on track rod ball joint -2- but do not remove completely.
- Press track rod ball joint off wheel bearing housing using ball joint puller - 3287 A- -item 3- and then remove nut.

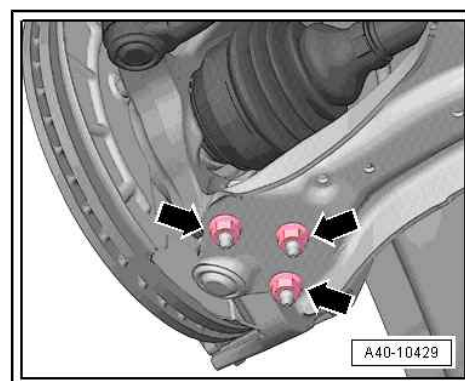


- Remove nuts -arrows- on both sides of vehicle.
- Pull wishbone out of swivel joint.

 Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



Vehicles with exhaust pipe beneath subframe

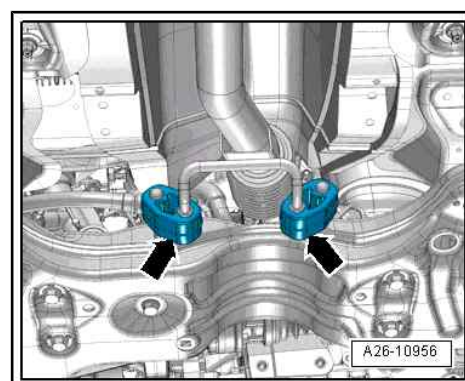
- Remove front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/ silencers; Exploded view - silencers .

Vehicles with battery on left side of engine compartment:

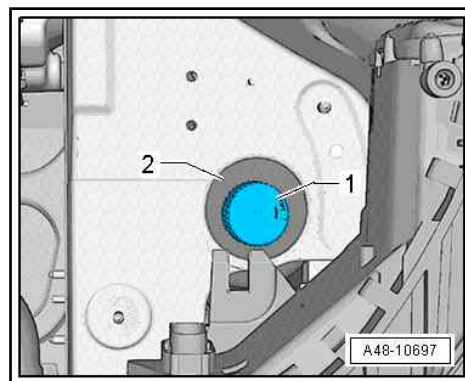
- Remove battery and battery tray ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery tray .

Vehicles up to and including model year 2014:

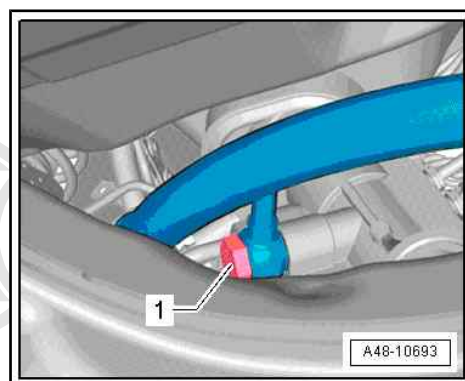
- Pull mountings -arrows- for front exhaust pipe off subframe.



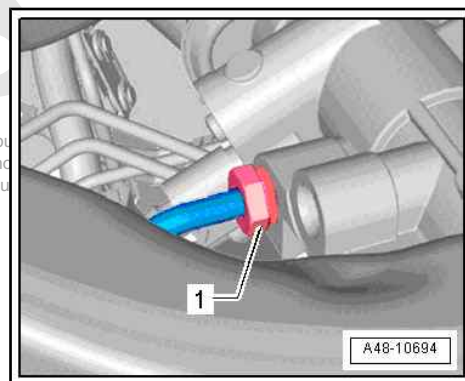
- Unscrew filler cap -1- from motor/pump unit -2-.
- Draw off as much hydraulic fluid as possible from motor/pump unit using used oil collection and extraction unit - VAS 6622A- .
- Place used oil collection and extraction unit - VAS 6622A- under connection.



- Unscrew banjo bolt -1- for pressure line from steering rack.
- Close off line with a plastic bag and adhesive tape.

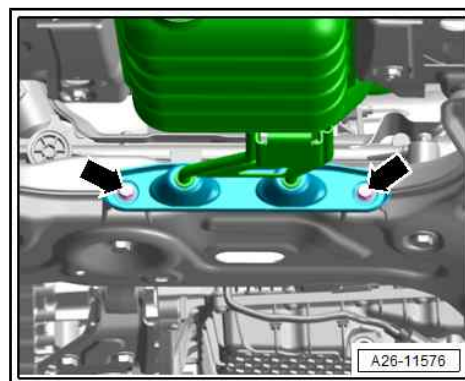


- Place used oil collection and extraction unit - VAS 6622A- under connection.
- Unscrew union screw -1- for return hose from steering rack.
- Close off line with a plastic bag and adhesive tape.
- Seal threaded holes in power steering rack with plastic sealing plugs.



Audi S1:

- Remove bolts -arrows- on bracket for front exhaust pipe.



Pendulum support - version 1:



WARNING

Risk of accident!

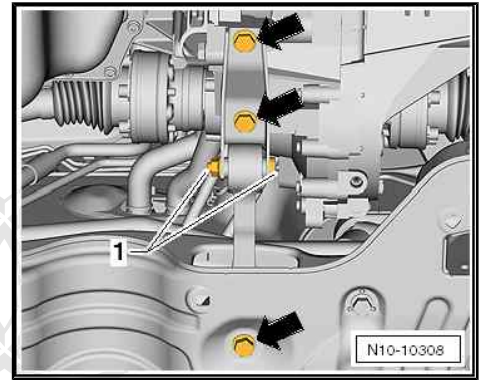
◆ Bolted connection -1- must not be slackened.

- Remove bolts -top arrows- and detach pendulum support.



Note

-Bottom arrow- can be disregarded.



Pendulum support - version 2:



WARNING

Risk of accident!

◆ Bolted connection -1- must not be slackened.

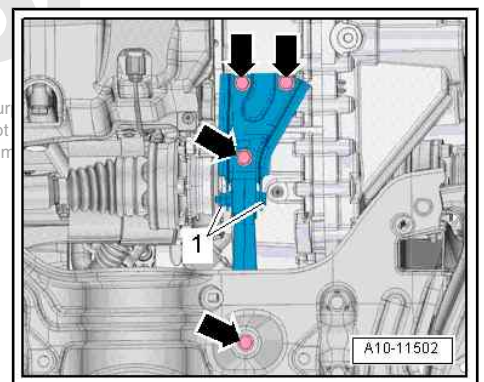
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- Remove bolts -top arrows- and detach pendulum support.



Note

-Bottom arrow- can be disregarded.



Continued for all vehicles:

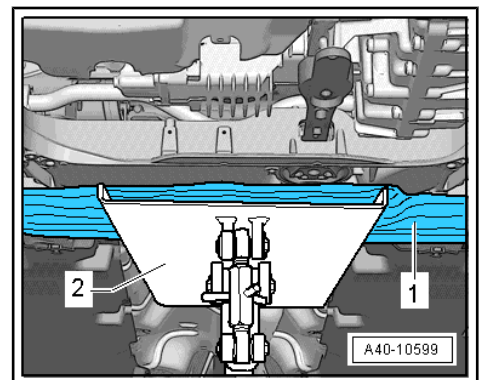
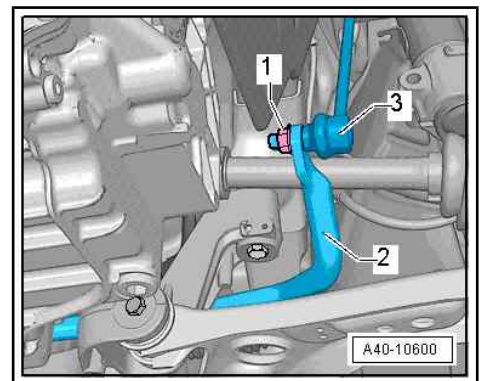
- Remove nut -1- from coupling rod -3- on both sides
⇒ [page 35](#) .
- Pull coupling rod out of anti-roll bar -2- (left and right sides).



Note

Illustration shows installation position on vehicles from model year 2015 onwards.

- Fix position of subframe ⇒ [page 36](#) .
- Lower subframe with engine and gearbox jack - VAS 6931-
-item 2-.



- Secure subframe to engine and gearbox jack - VAS 6931- with the appropriate strap.

Installing

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



Note

- ◆ Coat seal on steering rack with suitable lubricant, e.g. soft soap, before installing steering rack.
- ◆ After positioning steering rack in relation to universal joint, ensure seal on steering rack makes snug contact with base plate, without kinks, and properly seals off opening to footwell. Otherwise, this can result in water leaks and/or noise.
- ◆ Make sure sealing surfaces are clean.

- Align position of nuts -arrows- according to markings made on removal and tighten nuts.
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Install steering rack ⇒ [page 342](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

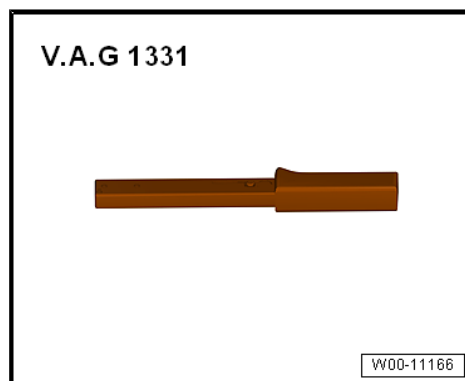
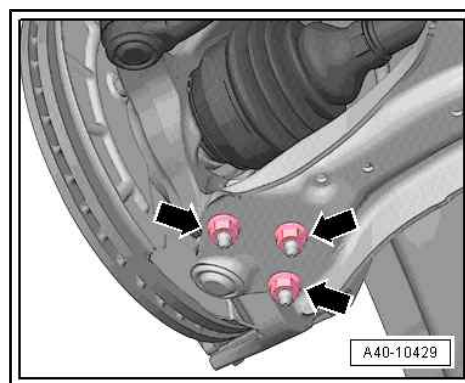
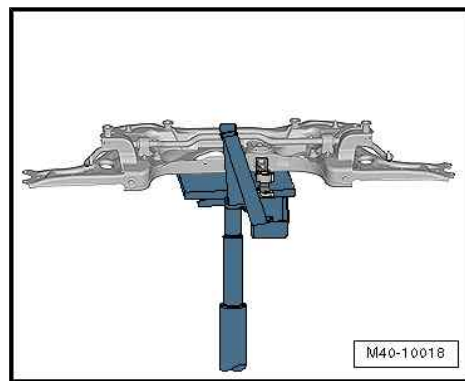
- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ ⇒ [“2.1 Exploded view - steering column”, page 319](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ Pendulum support ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings
- ◆ Front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

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2.4 Removing and installing anti-roll bar

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Torque wrench - V.A.G 1332-



Removing

- Remove wheels ⇒ [page 303](#) .
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove nut -1- from coupling rod -3- on both sides ⇒ [page 35](#) .
- Pull coupling rod out of anti-roll bar -2- (left and right sides).



Note

Illustration shows installation position on vehicles up to and including model year 2014.

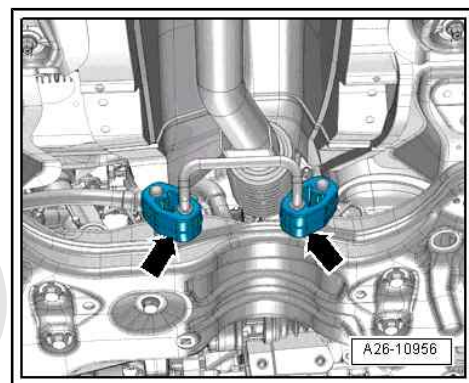
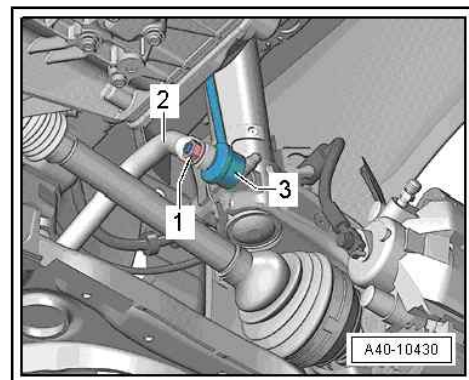
- Turn anti-roll bar upwards.

Vehicles with exhaust pipe beneath subframe

- Remove front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/ silencers; Exploded view - silencers .

Vehicles with exhaust pipe above subframe

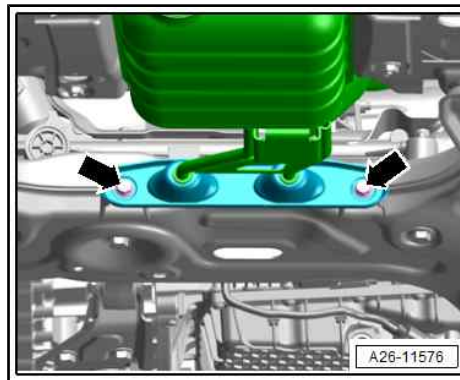
- Pull mountings -arrows- for front exhaust pipe off subframe.



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Audi S1:

- Remove bolts -arrows- on bracket for front exhaust pipe.



Pendulum support - version 1:



WARNING

Risk of accident!

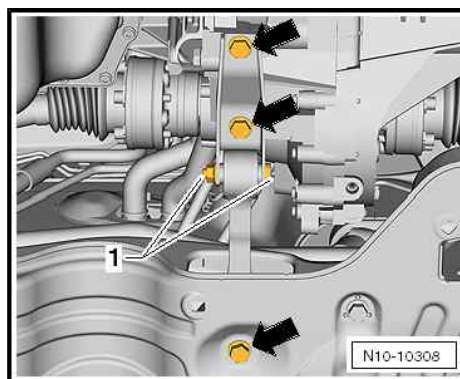
- ◆ Bolted connection -1- must not be slackened.

- Remove bolts -top arrows- and detach pendulum support.



Note

-Bottom arrow- can be disregarded.



Pendulum support - version 2:



WARNING

Risk of accident!

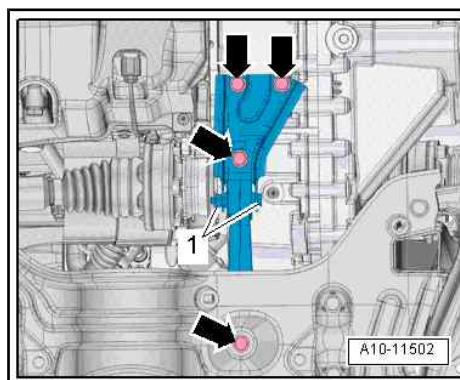
- ◆ Bolted connection -1- must not be slackened.

- Remove bolts -top arrows- and detach pendulum support.



Note

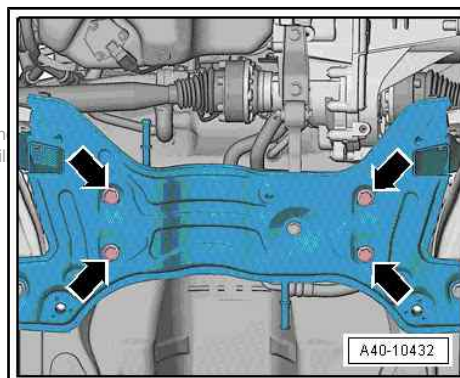
-Bottom arrow- can be disregarded.



Vehicles up to and including model year 2014:

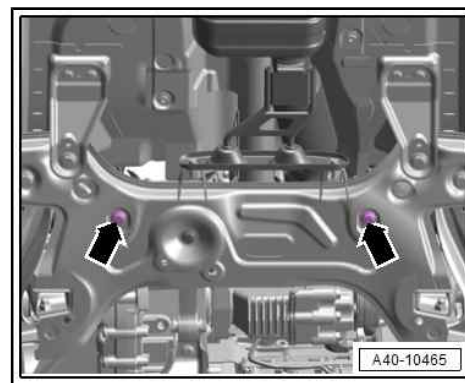
- Unbolt steering rack from subframe -arrows- and tie up to body with wire (or similar).

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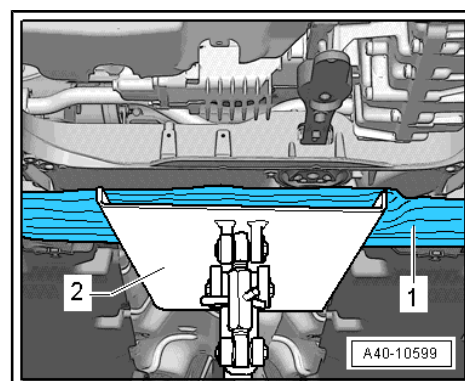
Vehicles from model year 2015 onwards:

- Unbolt steering rack from subframe -arrows- and tie up to body with wire (or similar).



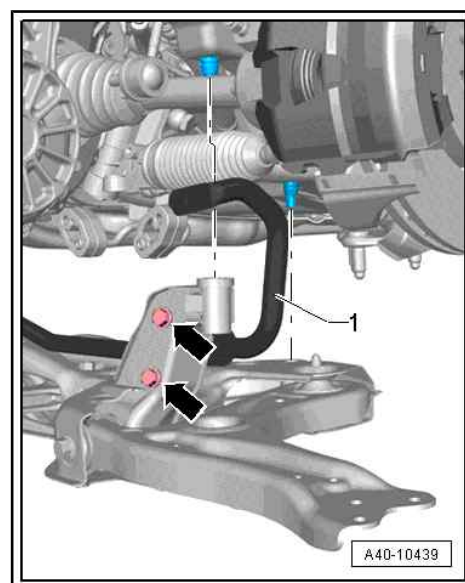
Continued for all vehicles:

- Fix position of subframe ⇒ [page 36](#) .
- Lower subframe with engine and gearbox jack - VAS 6931-
-item 2-.



Vehicles up to and including model year 2014:

- Remove bolts -arrows-.
- Remove anti-roll bar -1- towards rear.



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Vehicles from model year 2015 onwards:

- Remove bolts -arrows- on both sides and detach anti-roll bar -1-.

Installing

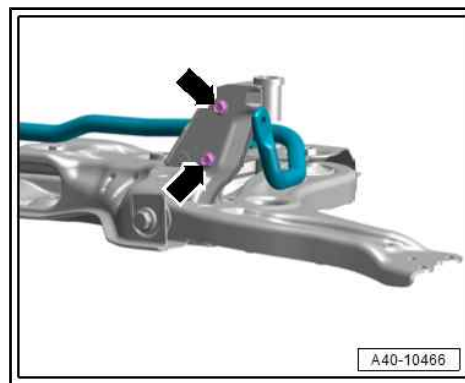
Install in reverse sequence, paying attention to the following:

- Insert anti-roll bar and secure to subframe with clamps.
- Install subframe ⇒ [page 22](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ Pendulum support ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings
- ◆ Front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation
- ◆ ⇒ [“1. Wheels, tyres” page 303](#)

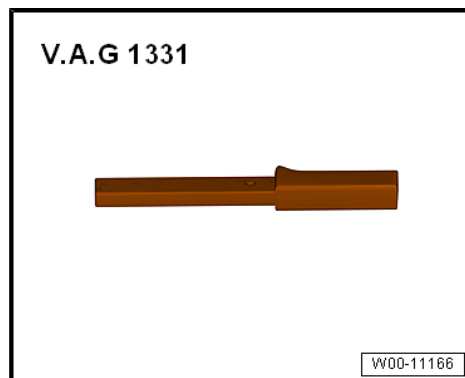
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2.5 Renewing anti-roll bar bushes

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Torque wrench - V.A.G 1332-



- ◆ Ring spanner insert - V.A.G 1331/3- (not illustrated)

Removing

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Disconnect drive shafts from gearbox on both sides and secure with wire.
- Remove bolts -arrows- on both sides.
- Pull anti-roll bar clamp off rubber bush.
- Detach rubber bush from anti-roll bar.

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Installing

- Fit new rubber bush -1- on anti-roll bar via opening -arrow-.



Note

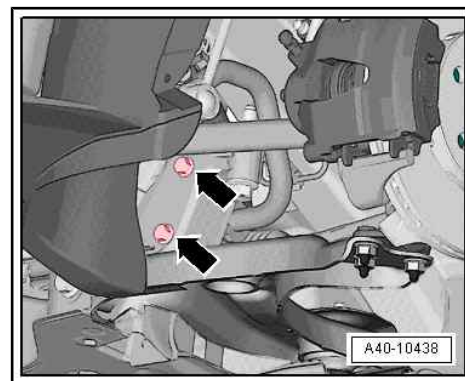
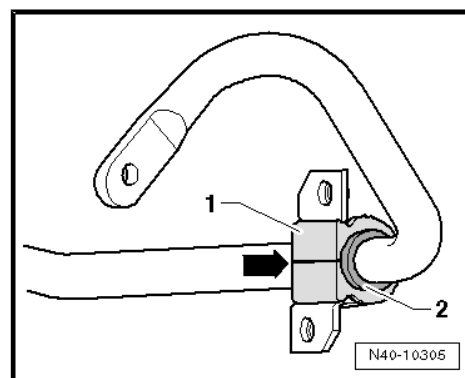
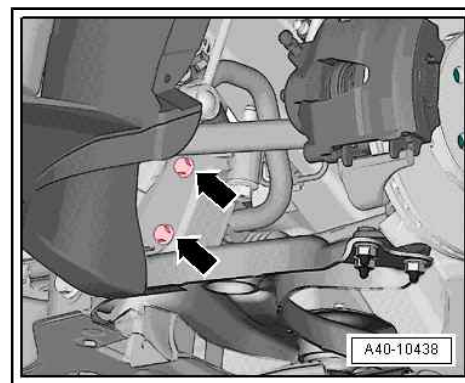
- ◆ *Ensure that the outer edge of rubber bush -1- lies against stop -2-.*
- ◆ *Depending on version, the stop -2- can be located on the left or on the right of the rubber bush.*

- Secure clamps to subframe -arrows-.

The remaining installation steps are carried out in the reverse sequence.

Tightening torques

- ◆ ⇒ ["2.1 Exploded view - subframe", page 20](#)
- ◆ ⇒ ["6.1 Exploded view - drive shaft", page 86](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



2.6 Removing and installing coupling rod

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



Removing

- Remove wheel ⇒ [page 303](#) .
- Unscrew nuts -arrows- securing coupling rod -1- to suspension strut/anti-roll bar.



Note

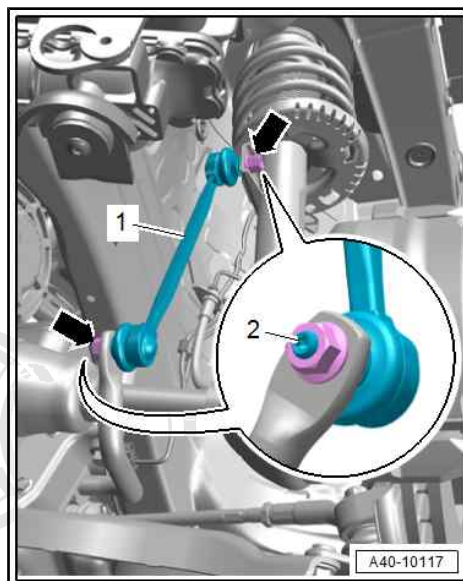
- ◆ *When loosening and tightening nuts, counterhold at stud -2- with a Torx socket.*
- ◆ *The tool used for counterholding must be applied straight.*
- ◆ *Illustration shows installation position on an Audi S1.*
- Pull coupling rod -1- out of anti-roll bar and suspension strut and detach coupling rod.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



2.7 Fixing position of subframe

Certain repairs on vehicles require the removal of the subframe or the entire front axle. The original position of the subframe relative to the body can be retained with the aid of the locating pins - T10096- . The locating pins - T10096- should always be screwed in just before lowering the subframe or the complete front axle. Perform test drive after completing repair work. Wheel alignment must be checked and adjusted if the steering wheel is not straight ⇒ [page 310](#) .

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



◆ Engine and gearbox jack - VAS 6931-



◆ Locating pins - T10096-



Procedure

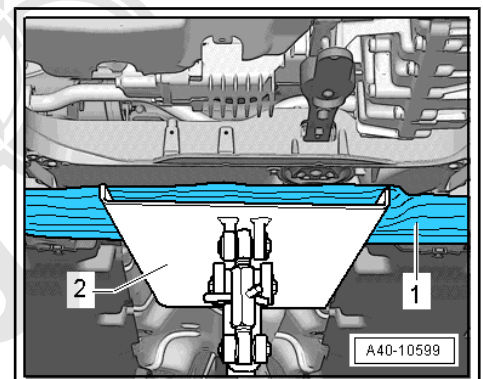
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

Vehicles with exhaust pipe beneath subframe

- Remove front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/ silencers; Exploded view - silencers .

All vehicles (continued):

- Position engine and gearbox jack - VAS 6931- -item 2- under subframe.
- Place a wooden block -1- or similar between engine and gearbox jack - VAS 6931- and subframe.
- If necessary, clean thread of locating pins - T10096- .



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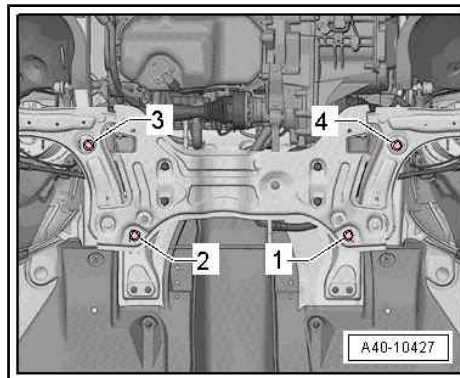
It is important to keep to the specified sequence for the following operations.



Caution

Risk of damage to threads of bolts securing subframe to body.

- ◆ **DO NOT use an impact wrench when loosening or tightening the bolts that secure the subframe to the body.**
- ◆ **Always fit all bolts by hand; make the first few turns by hand.**



To fix position of subframe, locating pins from locating pin set - T10096- must be screwed in one after the other at positions -1 ... 4-.

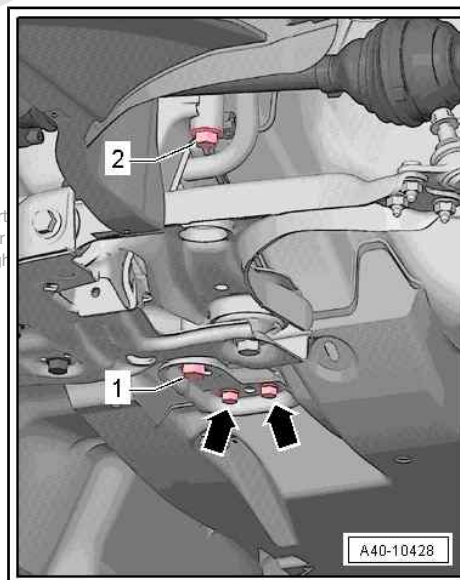
- Positions -3- and -4- must be fixed first.



Note

The locating pins must not be tightened to more than 20 Nm, otherwise the threads of the pins will be damaged.

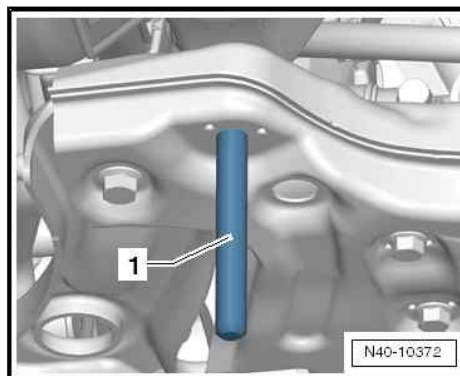
- Fit locating pins one after the other in place of securing bolts -2- on both sides of the vehicle and tighten to 20 Nm.
- Unscrew bolts -arrows- for support.
- Unscrew securing bolt -1- on one side of vehicle and remove support.
- Insert locating pin and tighten to 20 Nm.
- Repeat procedure on opposite side.



Note

If it is not possible to insert the locating pin, the sleeve in the subframe must be centred using assembly mandrel - 10-508-item 1-.

- The process of fixing the position of the subframe is complete when all 4 of the bolts have been replaced in turn with a locating pin from the locating pin set - T10096- .



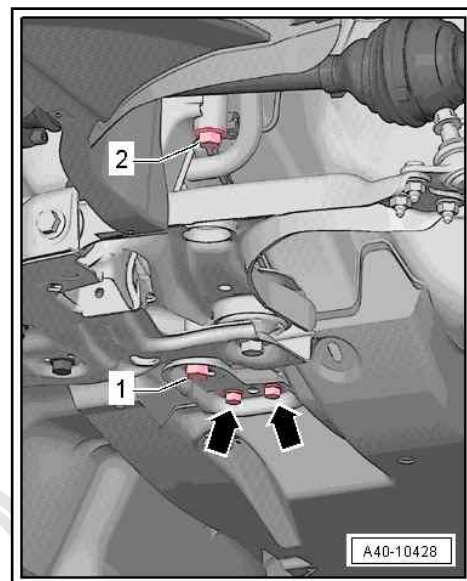
Removing locating pins of locating pin set - T10096-

- Unscrew only one locating pin at a time; replace it with a new bolt -1- and -2- and tighten bolt.
- Screw in bolts -arrows- for support and tighten.

After installation, check position of steering wheel by test-driving vehicle.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ Front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



2.8 Lowering subframe

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



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Procedure

- Turn steering wheel to straight-ahead position and remove ignition key so that the steering lock engages.

Vehicles with “keyless entry system”

- Switch off ignition and open driver's door so that steering lock engages.

All vehicles (continued):

- To prevent unintentional turning, secure steering wheel in straight-ahead position with adhesive tape -arrow-.



Note

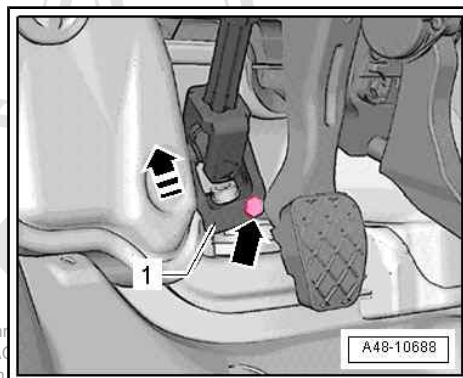
- ◆ Use adhesive tape that can be completely removed afterwards without leaving marks.
- ◆ Do not turn steering wheel while performing repair work, as otherwise airbag coil connector and return ring with slip ring - F138- could be damaged.



- Fold floor covering back slightly.
- Unscrew bolt -arrow- from universal joint -1- and pull off universal joint in direction of -arrow-.

Vehicles with exhaust pipe beneath subframe

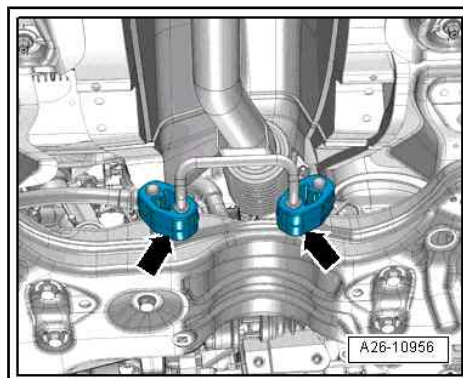
- Remove front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/ silencers; Exploded view - silencers .



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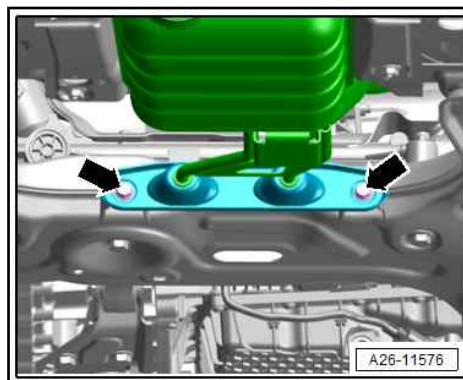
Vehicles with exhaust pipe above subframe

- Pull mountings -arrows- for front exhaust pipe off subframe.



Audi S1:

- Remove bolts -arrows- on bracket for front exhaust pipe.



Pendulum support - version 1:



WARNING

Risk of accident!

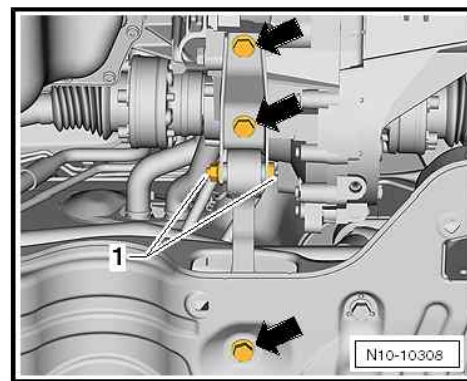
◆ Bolted connection -1- must not be slackened.

- Remove bolts -top arrows- and detach pendulum support.



Note

-Bottom arrow- can be disregarded.



Pendulum support - version 2:



WARNING

Risk of accident!

◆ Bolted connection -1- must not be slackened.

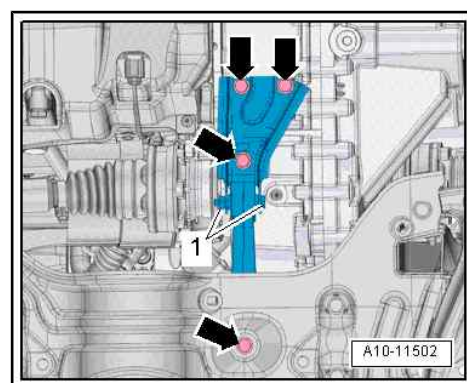
- Remove bolts -top arrows- and detach pendulum support.



Note

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-Bottom arrow- can be disregarded.



Continued for all vehicles:

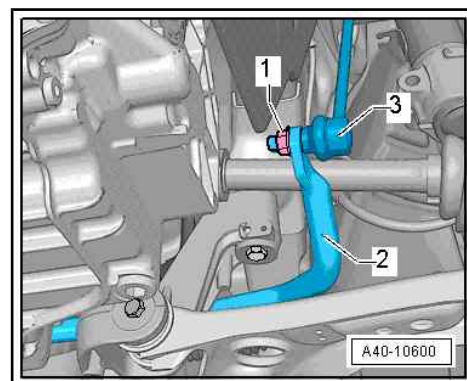
- Remove nut -1- from coupling rod -3- on both sides
⇒ [page 35](#) .
- Pull coupling rod -3- out of anti-roll bar -2- (left and right sides).



Note

Illustration shows installation position on vehicles from model year 2015 onwards.

- Fix position of subframe ⇒ [page 36](#) .



- Lower subframe with engine and gearbox jack - VAS 6931-item 2-.

Vehicles up to and including model year 2014:

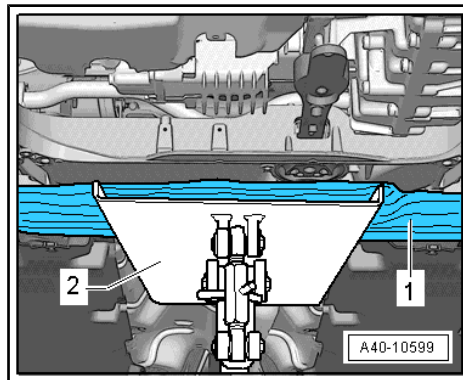
- ◆ Lower by a maximum of 70 mm, paying attention to hydraulic lines.

Vehicles from model year 2015 onwards:

- ◆ Lower by a maximum of 150 mm.

Installing

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



Note

- ◆ Coat seal on steering rack with suitable lubricant, e.g. soft soap, before installing steering rack.
- ◆ After positioning steering rack in relation to universal joint, ensure seal on steering rack makes snug contact with base plate, without kinks, and properly seals off opening to footwell. Otherwise, this can result in water leaks and/or noise.
- ◆ Make sure sealing surfaces are clean.
- Remove locating pins of locating pin set - T10096-
⇒ [page 39](#) .
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ ⇒ [“2.1 Exploded view - steering column”, page 319](#)
- ◆ Pendulum support ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings
- ◆ Front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

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3 Suspension strut, upper links

⇒ [“3.1 Exploded view - suspension strut, upper links”, page 43](#)

⇒ [“3.2 Removing and installing suspension strut”, page 44](#)

⇒ [“3.3 Servicing suspension strut”, page 49](#)

3.1 Exploded view - suspension strut, upper links

1 - Cap

- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue “ETKA”

2 - Nut

- ☐ Always renew if removed
- ☐ 60 Nm

3 - Stop

4 - Suspension turret

5 - Nut

- ☐ Always renew if removed
- ☐ 60 Nm

6 - Suspension strut mounting

- ☐ Note correct installation position ⇒ [page 44](#)

7 - Deep groove ball thrust bearing

8 - Spring plate

9 - Coil spring

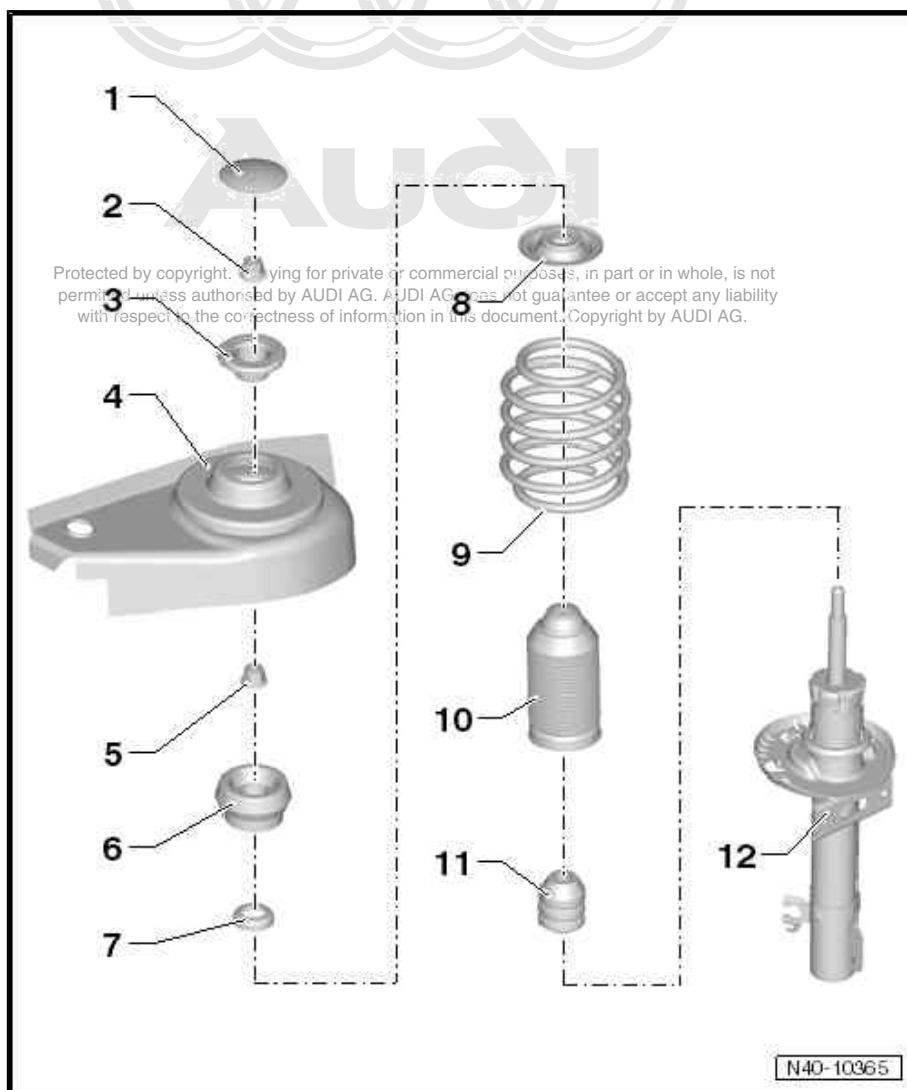
- ☐ Removing and installing ⇒ [page 49](#)
- ☐ Note colour code
- ☐ Select correct version according to PR number ⇒ Electronic parts catalogue “ETKA”
- ☐ Surface of spring coil must not be damaged

10 - Protective sleeve

11 - Bump stop

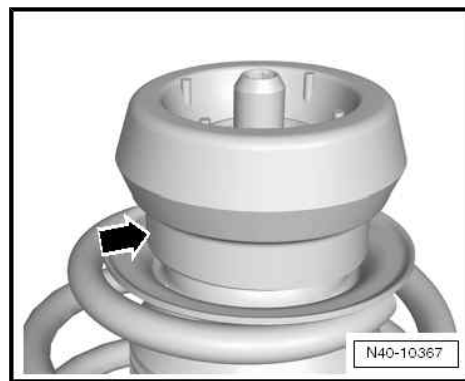
12 - Shock absorber

- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue “ETKA”



Installation position of suspension strut mounting

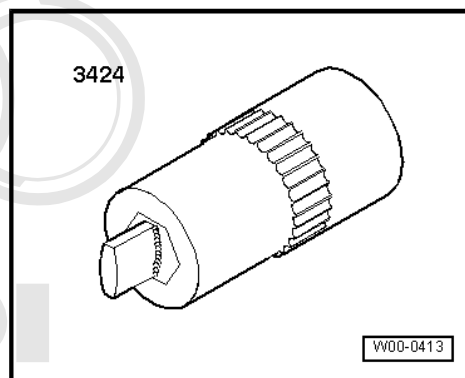
Shoulder of suspension strut mounting -arrow- must face towards spring plate.



3.2 Removing and installing suspension strut

Special tools and workshop equipment required

- ◆ Spreader - 3424-



- ◆ Torque wrench - V.A.G 1331-

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- ◆ Torque wrench - V.A.G 1332-



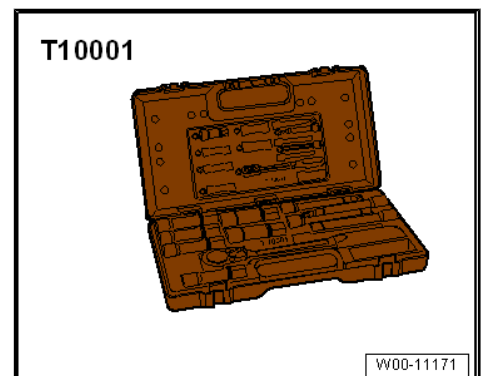
- ◆ Engine and gearbox jack - VAS 6931- or -V.A.G 1383 A-



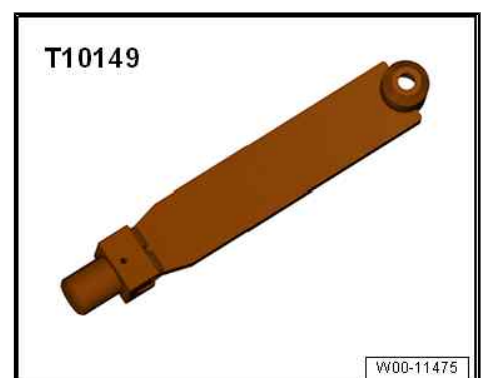
- ◆ Socket AF 36 mm - T10125-



- ◆ Shock absorber tool set - T10001-



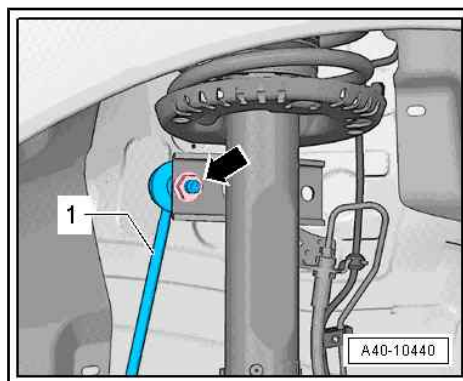
- ◆ Support - T10149-



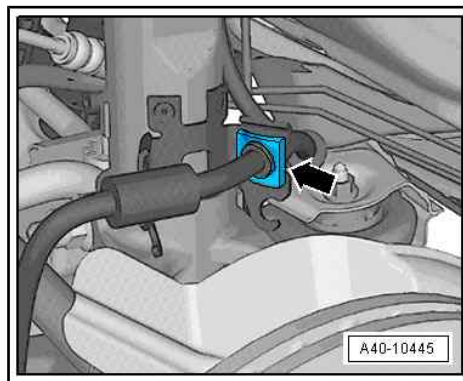
Removing

- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .

- Remove wheel ⇒ [page 303](#) .
- Unscrew nut -arrow- securing coupling rod -1- to suspension strut ⇒ [page 195](#) .
- Pull coupling rod out of suspension strut.



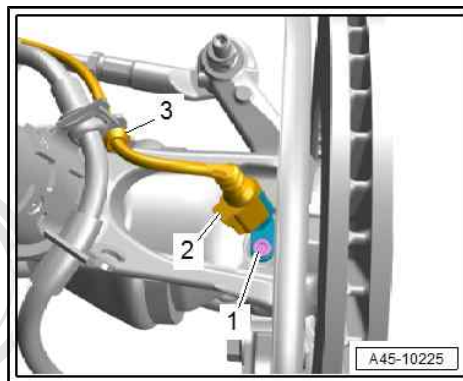
- Detach retaining spring -arrow- and disengage brake hose from suspension strut.



- Unplug electrical connector -2- at front left speed sensor - G47- and move electrical wire -3- clear at suspension strut.

**Note**

Disregard -item 1-.



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- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.

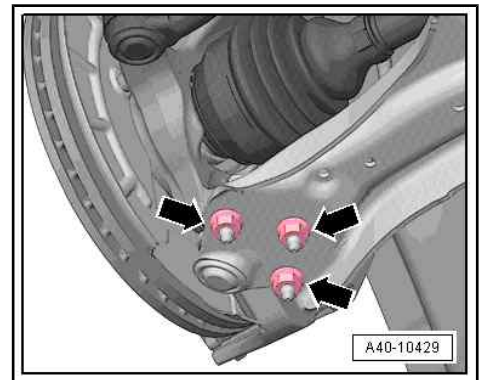
 Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.

- Pull outer joint of drive shaft out of wheel hub.

 Note

If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520- .



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

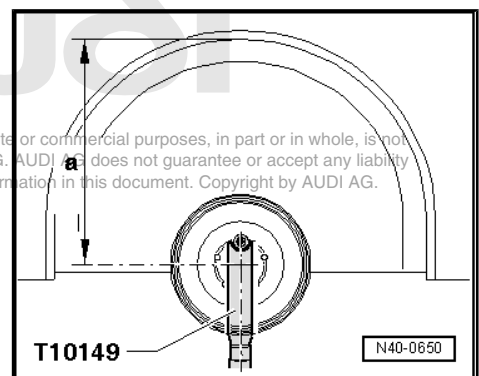
- Tie up drive shaft to body with wire.
- Secure swivel joint back onto wishbone.
- Use wheel bolt to attach engine and gearbox jack - VAS 6931- with support - T10149- to wheel hub.



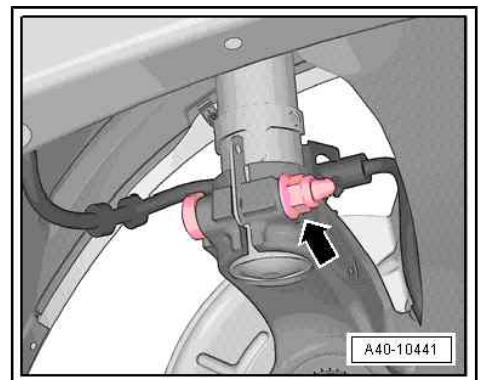
WARNING

- ◆ **Do not raise or lower vehicle when engine and gearbox jack - VAS 6931- is under vehicle. The vehicle could slip off the lifting platform.**
- ◆ **Do not leave engine and gearbox jack - VAS 6931- under vehicle for longer than necessary.**

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- Remove bolt and nut securing wheel bearing housing/suspension strut -arrow-.



- Insert spreader - 3424- in slot in wheel bearing housing.
- Turn ratchet handle through 90° and pull ratchet handle off spreader - 3424- .
- Press brake disc towards suspension strut.

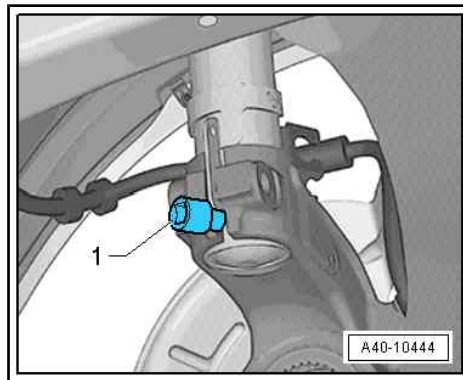
Otherwise the shock absorber tube can come out of line and jam in the bore of the wheel bearing housing.

- Pull wheel bearing housing downwards off shock absorber tube and lower with engine and gearbox jack - VAS 6931- until shock absorber tube is free.
- Attach wheel bearing housing to subframe with wire.
- Remove support - T10149- from wheel hub and remove engine and gearbox jack - VAS 6931- from beneath vehicle.



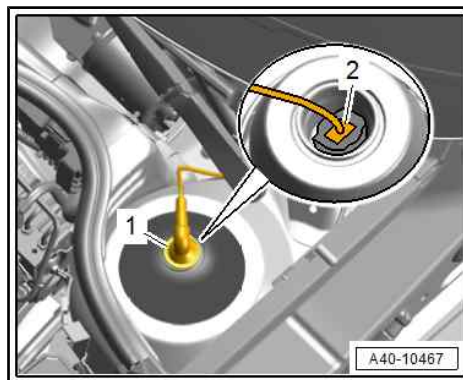
WARNING

- ◆ *Do not leave engine and gearbox jack - VAS 6931- under vehicle for longer than necessary.*



Vehicles with Audi drive select:

- Detach cover -1- and unplug electrical connector -2-.



Continued for all vehicles:

- Unscrew upper shock absorber mounting and remove suspension strut downwards.

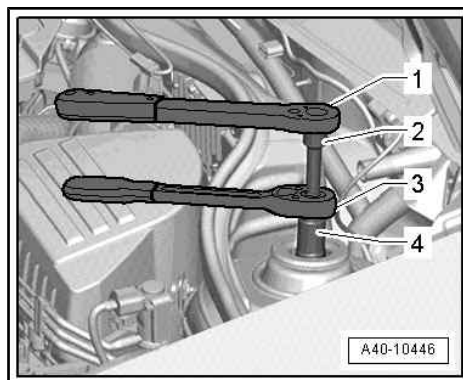
1 - Ratchet, commercially available

2 - T10001/8-

3 - T10001/11-

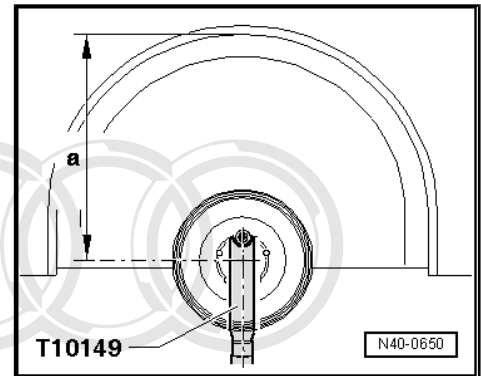
4 - T10001/5-

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Installing

- Use wheel bolt to attach engine and gearbox jack - VAS 6931- with support - T10149- to wheel hub.
- Fit suspension strut on wheel bearing housing and secure with new bolt and nut.
- The tip of the bolt must point in the direction of travel.
- Remove wire on wheel bearing housing.
- Take out spreader tool - 3424- .
- Raise wheel bearing housing using engine and gearbox jack until suspension strut lies against inside of suspension turret.

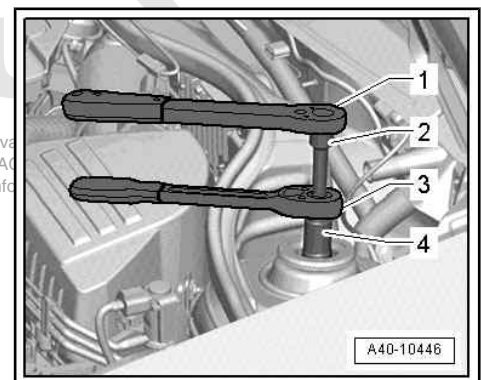


- Fit stop on suspension strut turret and tighten nut for upper shock absorber mounting to specified torque.

- 1 - Torque wrench - V.A.G 1332-
- 2 - -T10001/8-
- 3 - -T10001/11-
- 4 - -T10001/5-

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- Remove support - T10149- from wheel hub and remove engine and gearbox jack - VAS 6931- from beneath vehicle.



WARNING

- ◆ *Do not leave engine and gearbox jack - VAS 6931- under vehicle for longer than necessary.*

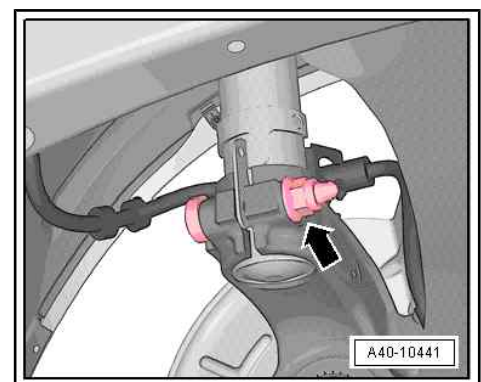
- Tighten bolted connection between wheel bearing housing and suspension strut -arrow-

Remaining installation steps are the reverse of removal; note the following:

- Install drive shaft ⇒ [page 98](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)

Tightening torques

- ◆ ⇒ ["3.1 Exploded view - suspension strut, upper links", page 43](#)
- ◆ ⇒ ["2.1 Exploded view - subframe", page 20](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)



3.3 Servicing suspension strut

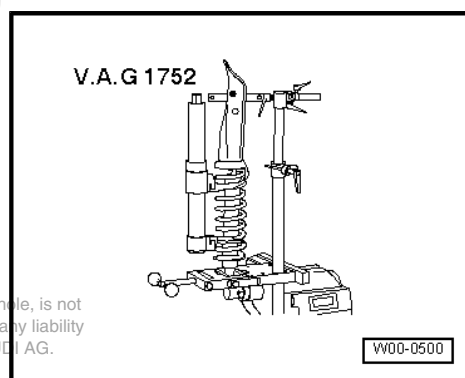
Special tools and workshop equipment required



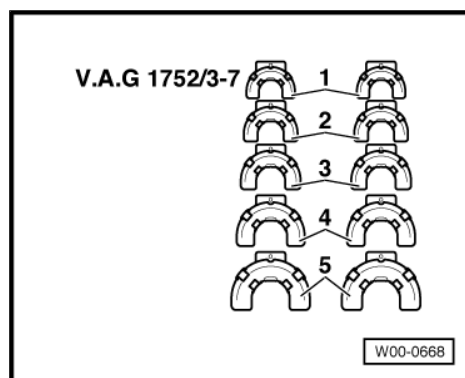
- ◆ Torque wrench - V.A.G 1332-



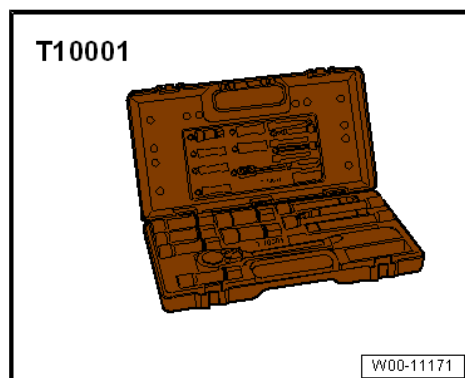
- ◆ Suspension strut spring compressor - V.A.G 1752-



- ◆ Spring retainer - V.A.G 1752/7-



- ◆ Shock absorber tool set - T10001-



Procedure

- Remove suspension strut ⇒ [page 44](#) .

Removing coil spring

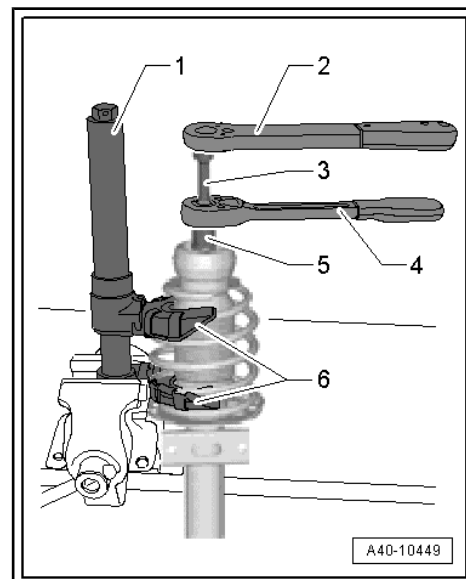
- Compress coil spring using spring compressor - V.A.G 1752- until deep groove ball thrust bearing is free at top.
- Unscrew nut from piston rod.
- Remove individual parts of suspension strut and coil spring with spring compressor - V.A.G 1752- .

- 1 - Spring compressor - V.A.G 1752/1-
- 2 - Ratchet, commercially available
- 3 - -T10001/8-
- 4 - -T10001/11-
- 5 - -T10001/5-
- 6 - Spring retainer - V.A.G 1752/7-



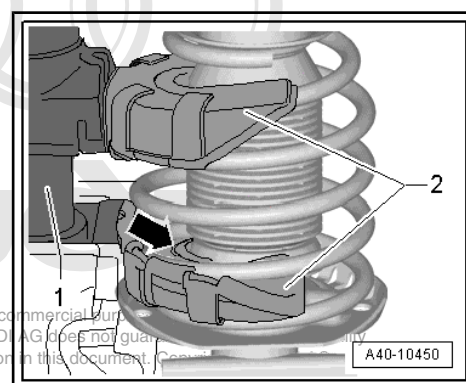
WARNING

First compress spring far enough to ensure that top spring plate is free.



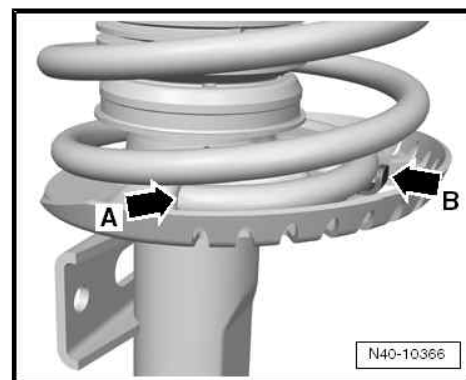
- Ensure that coil spring is correctly seated in spring retainer - V.A.G 1752/7- -arrow-.

- 1 - Spring compressor - V.A.G 1752/1-
- 2 - Spring retainer - V.A.G 1752/7-

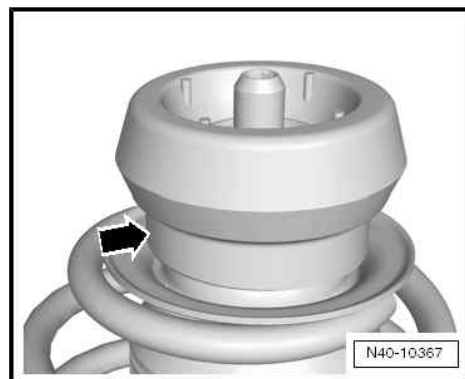
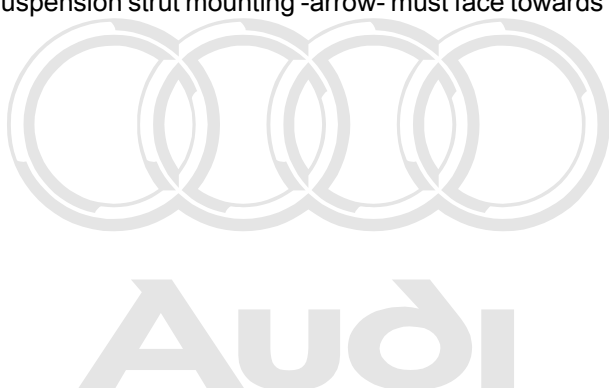


Installing coil spring

- Fit coil spring with spring compressor - V.A.G 1752- onto bottom spring seat.
- End of spring coil must make contact with stop -arrow A- and lug -arrow B-.
- Fit spring plate, deep groove ball thrust bearing and suspension strut mounting on spring.



Shoulder of suspension strut mounting -arrow- must face towards spring plate.



– Tighten new hexagon nut on piston rod.

1 - Spring compressor - V.A.G 1752/1-

2 - Torque wrench - V.A.G 1332-

3 - -T10001/8-

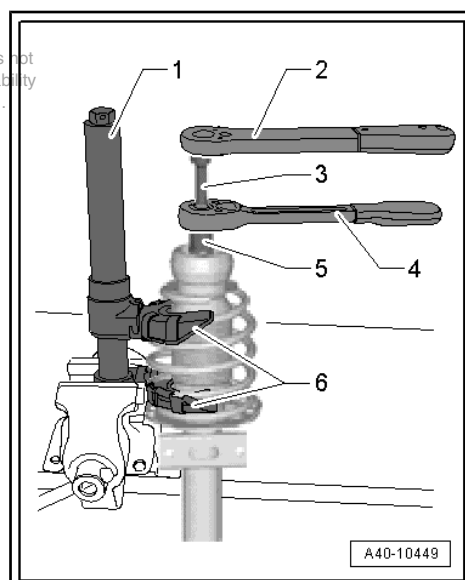
4 - -T10001/11-

5 - -T10001/5-

6 - Spring retainer - V.A.G 1752/7-

– Release spring compressor - V.A.G 1752- and remove from coil spring.

– Install suspension strut ⇒ [page 44](#) .



4 Lower wishbone, swivel joint

⇒ [“4.1 Exploded view - lower wishbone, swivel joint”, page 53](#)

⇒ [“4.2 Removing and installing lower wishbone”, page 54](#)

⇒ [“4.3 Removing and installing swivel joint”, page 57](#)

⇒ [“4.4 Renewing bonded rubber bushes for lower wishbone”, page 64](#)

4.1 Exploded view - lower wishbone, swivel joint

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1 - Wheel bearing housing

- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue “ETKA”
- ☐ Removing and installing ⇒ [page 73](#)

2 - Nut

- ☐ Always renew if removed
- ☐ 50 Nm +90°

3 - Swivel joint

- ☐ Checking ⇒ Maintenance ; Booklet 819
- ☐ Removing and installing ⇒ [page 57](#)
- ☐ Note correct installation position ⇒ [page 54](#)

4 - Nuts

- ☐ Always renew if removed
- ☐ 100 Nm

5 - Lower wishbone

- ☐ Removing and installing ⇒ [page 54](#)
- ☐ If wishbone is bent and must be renewed, swivel joint on same side of vehicle must also be renewed

6 - Bonded rubber bush (front)

- ☐ Renewing ⇒ [page 64](#)

7 - Bolt

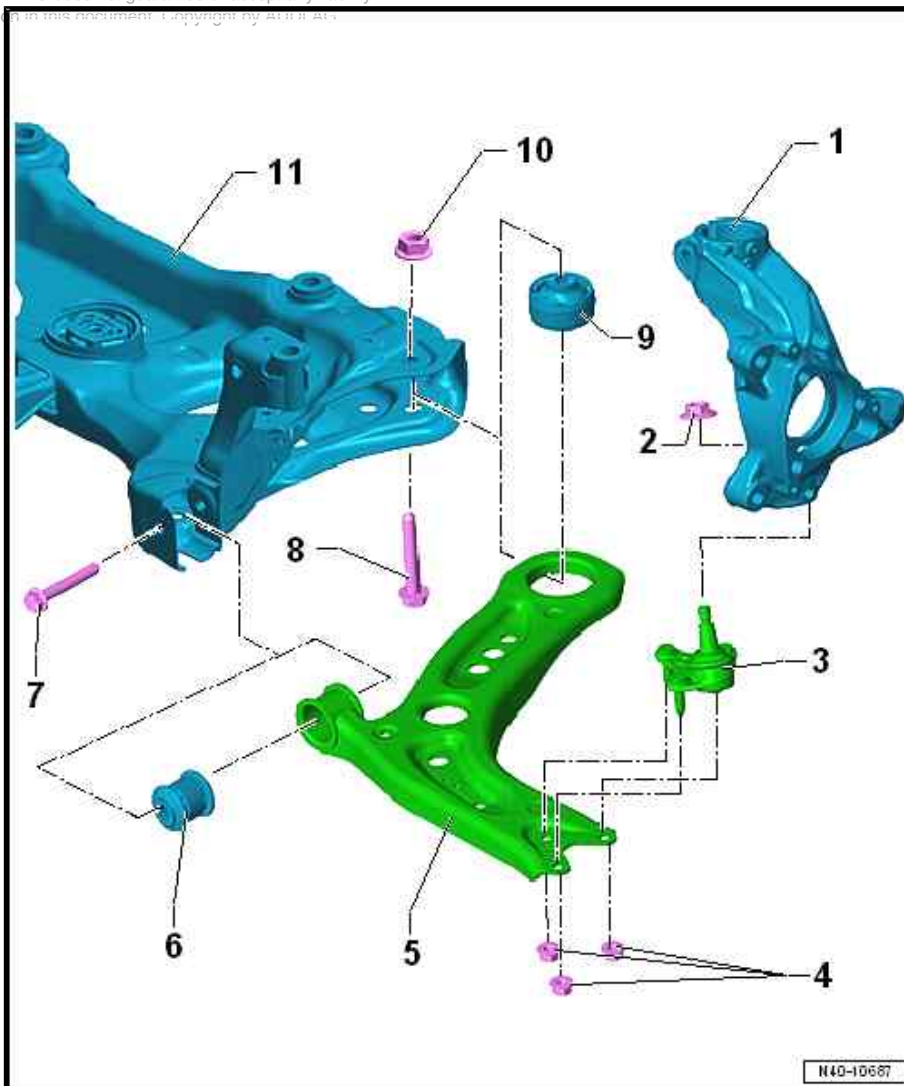
- ☐ Always renew if removed
- ☐ Tighten in unladen position ⇒ [page 11](#)
- ☐ 70 Nm +90°

8 - Bolt

- ☐ Always renew if removed
- ☐ 70 Nm +90°

9 - Bonded rubber bush (rear)

- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue “ETKA”
- ☐ Renewing ⇒ [page 67](#)



- ❑ Note correct installation position ⇒ [page 54](#)

10 - Nut

11 - Subframe

Installation position of rear bonded rubber bush in wishbone - standard running gear

One of the embossed arrows points between the two markings -arrows A- in the wishbone.

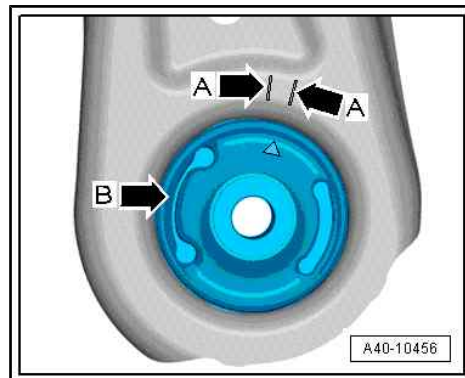
Cam -arrow B- must always face towards outside of vehicle.

Installation position of rear bonded rubber bush in wishbone - sports running gear



Note

On vehicles with sports running gear no specific installation position is required when pressing in the rear bonded rubber bush.



Installation position of swivel joints

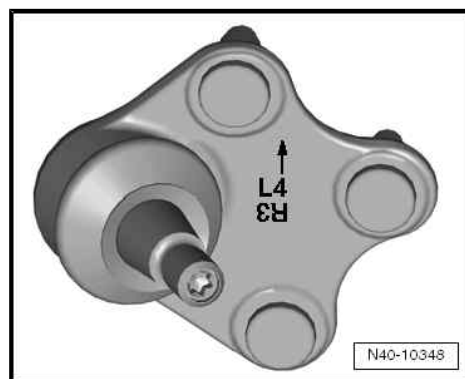


Note

Note correct installation position of swivel joints. Caster will be incorrect if swivel joints are not installed in correct position.

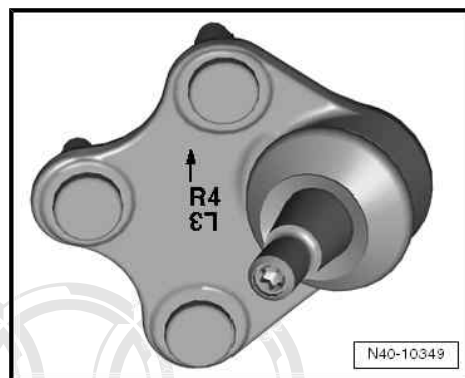
Left swivel joint

- Arrow with marking "L4" points in direction of travel



Right swivel joint

- Arrow with marking "R4" points in direction of travel



4.2 Removing and installing lower wishbone

Special tools and workshop equipment required



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- ◆ Torque wrench - V.A.G 1332-



Removing

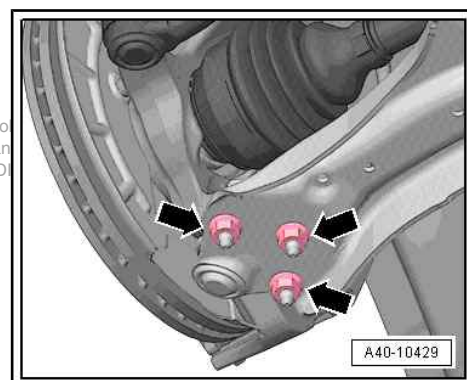
- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value [⇒ page 11](#).
- Loosen bolt/nut securing drive shaft at wheel hub [⇒ page 108](#).
- Remove wheel [⇒ page 303](#).
- Remove noise insulation [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation](#).
- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.



Note

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- ◆ *When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.*
- ◆ *If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520-.*



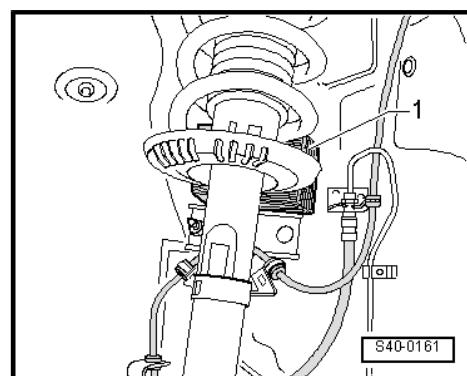
- Pull outer joint of drive shaft out of wheel hub.



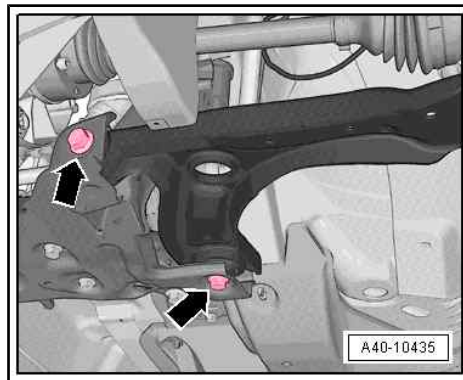
Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

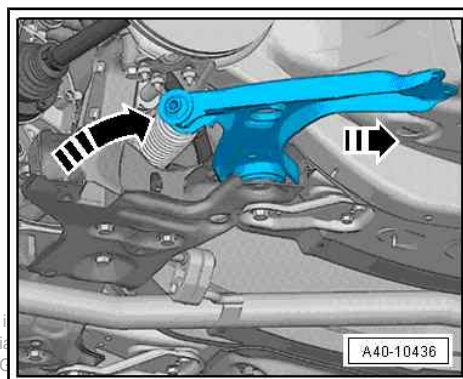
- Tie up drive shaft to body with wire.
- Pivot suspension strut outwards and hold in place with a wooden block or similar -1-; at the same time pull drive shaft out of wheel hub.



- Remove bolts -arrows-.



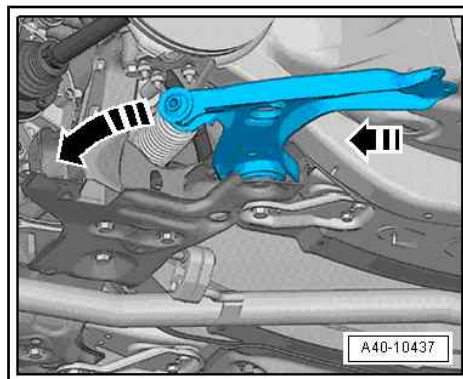
- Swivel wishbone backwards and pull out of subframe in direction of -arrow-.



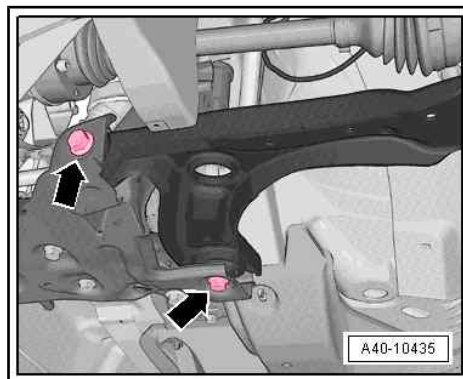
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Installing

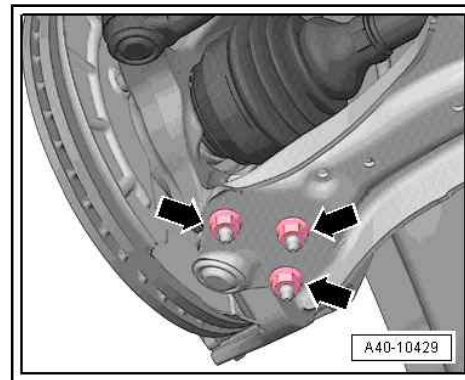
- Insert rear of wishbone into subframe in direction of -arrow- and swivel forwards.



- Install bolts -arrows- and tighten hand-tight.



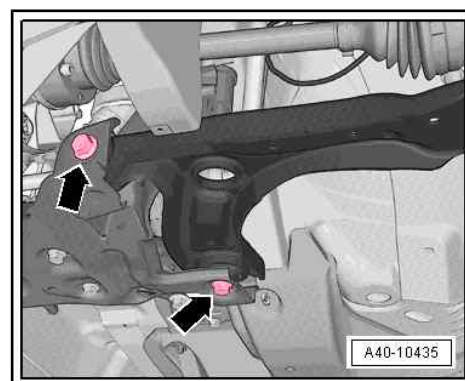
- Insert swivel joint in wishbone and tighten nuts -arrows-.



- Lift suspension to unladen position and tighten bolts -arrows- [⇒ page 11](#) .

The remaining installation steps are carried out in the reverse sequence.

- Tighten bolt/nut securing drive shaft at wheel hub [⇒ page 108](#) .
- Overview table: when does wheel alignment have to be checked? [⇒ page 309](#)



Tightening torques

- ◆ [⇒ "4.1 Exploded view - lower wishbone, swivel joint", page 53](#)
- ◆ [⇒ "1 Wheels, tyres", page 303](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)

4.3 Removing and installing swivel joint

[⇒ "4.3.1 Removing and installing swivel joint - Audi A1 with front-wheel drive", page 57](#)

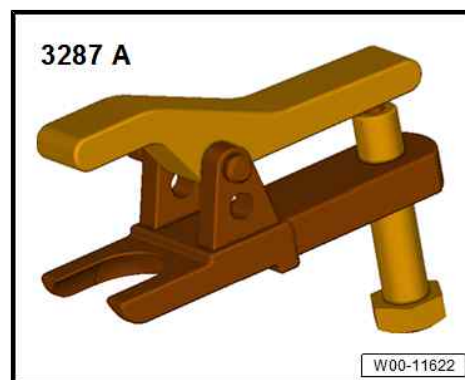
[⇒ "4.3.2 Removing and installing swivel joint - Audi A1 quattro", page 60](#)

[⇒ "4.3.3 Removing and installing swivel joint - Audi S1", page 62](#)

4.3.1 Removing and installing swivel joint - Audi A1 with front-wheel drive

Special tools and workshop equipment required

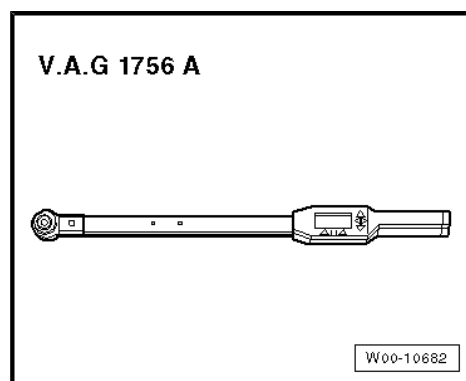
- ◆ Ball joint puller - 3287A-



◆ Torque wrench - V.A.G 1332-



◆ Angle wrench - V.A.G 1756 A-



◆ Engine and gearbox jack - VAS 6931-

**Removing**

- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove wheel ⇒ [page 303](#) .

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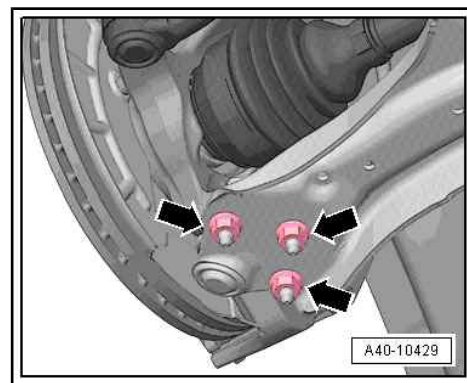
- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.



Note

- ◆ *When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.*
- ◆ *If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520- .*

- Pull outer joint of drive shaft out of wheel hub.



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

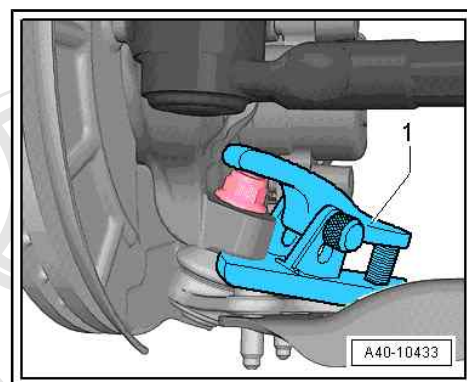
- Tie up drive shaft to body with wire.
- Loosen nut for swivel joint.



Note

Leave nut screwed on a few turns to protect threads on swivel joint.

- Apply ball joint puller - 3287 A- -item 1- as shown in illustration and press out swivel joint.



Note

Place engine and gearbox jack - VAS 6931- underneath (risk of accident from parts dropping down when swivel joint is pressed out).

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Installing

Install in reverse sequence, paying attention to the following:

- Insert swivel joint in wheel bearing housing.
- Note installation position ⇒ [page 54](#) .
- Screw on new nut (counterhold swivel joint with Torx key if necessary).
- Install drive shaft ⇒ [page 98](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)

Tightening torques

- ◆ ⇒ [“4.1 Exploded view - lower wishbone, swivel joint”, page 53](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)

4.3.2 Removing and installing swivel joint - Audi A1 quattro

Special tools and workshop equipment required

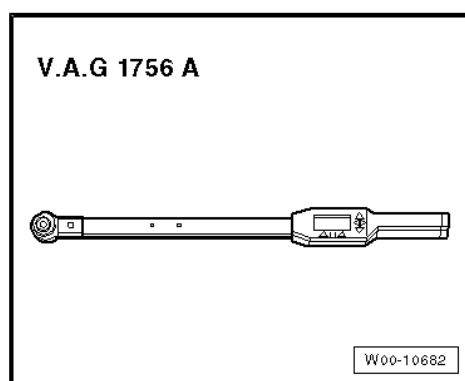
- ◆ Ball joint puller - 3287A-



- ◆ Torque wrench - V.A.G 1332-



- ◆ Angle wrench - V.A.G 1756 A-



- ◆ Engine and gearbox jack - VAS 6931-



Removing

- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove wheel ⇒ [page 303](#) .



Note

- ◆ *Turn the steering to the right when removing the left-side swivel joint.*
- ◆ *Turn the steering to the left when removing the right-side swivel joint.*
- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.



Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.

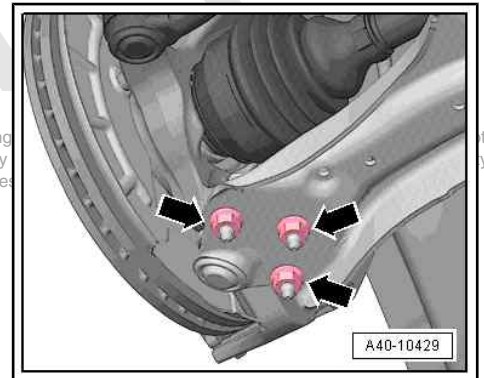
- Pull drive shaft out of wheel hub.



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

- Tie up drive shaft to body with wire.



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- Loosen nut -1- for swivel joint.



Note

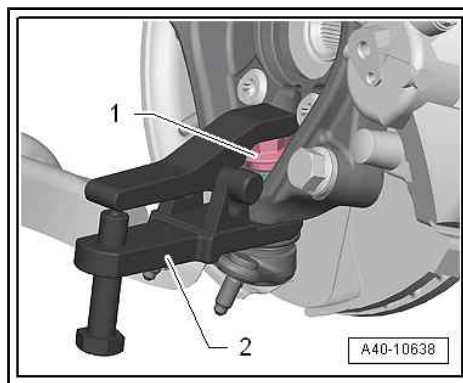
Leave nut screwed on a few turns to protect threads on swivel joint.

- Apply ball joint puller - 3287 A- -item 2- as shown in illustration and press out swivel joint.



Note

Place engine and gearbox jack - VAS 6931- underneath (risk of accident from parts dropping down when swivel joint is pressed out).



Installing

Install in reverse sequence, paying attention to the following:

- Insert swivel joint in wheel bearing housing.
- Note installation position ⇒ [page 54](#) .
- Screw on new nut (counterhold swivel joint with Torx key if necessary).
- Install drive shaft ⇒ [page 98](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)

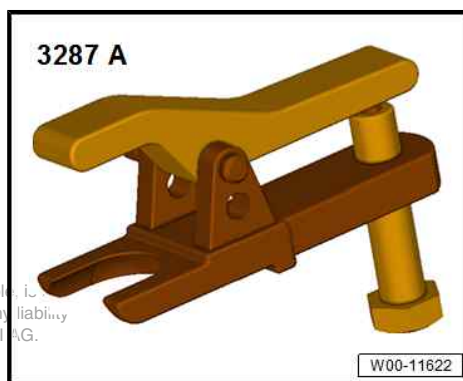
Tightening torques

- ♦ ⇒ [“4.1 Exploded view - lower wishbone, swivel joint”, page 53](#)
- ♦ ⇒ [“1 Wheels, tyres”, page 303](#)

4.3.3 Removing and installing swivel joint - Audi S1

Special tools and workshop equipment required

- ♦ Ball joint puller - 3287A-

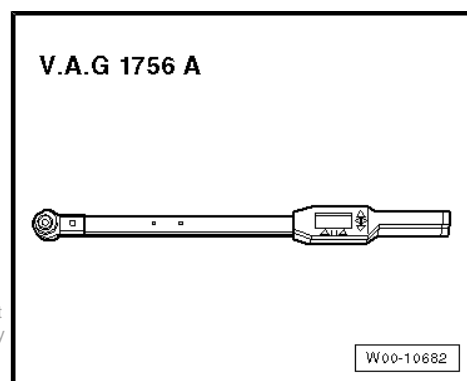


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- ◆ Torque wrench - V.A.G 1332-



- ◆ Angle wrench - V.A.G 1756 A-



- ◆ Engine and gearbox jack - VAS 6931-



Removing

- Remove wheel ⇒ [page 303](#) .



Note

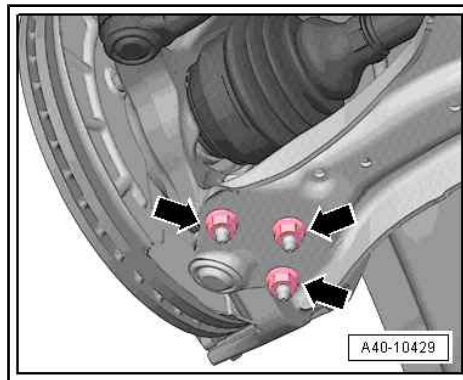
- ◆ *Turn the steering to the right when removing the left-side swivel joint.*
- ◆ *Turn the steering to the left when removing the right-side swivel joint.*

- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.



Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.



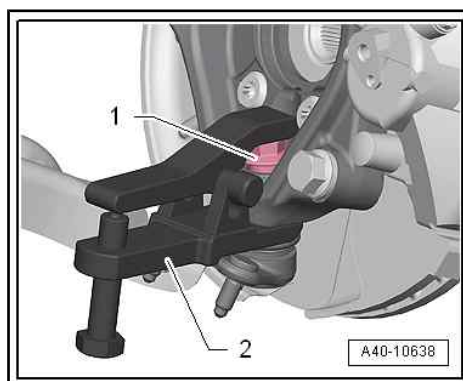
- Loosen nut -1- for swivel joint.



Note

Leave nut screwed on a few turns to protect threads on swivel joint.

- Apply ball joint puller - 3287 A- -item 2- as shown in illustration and press out swivel joint.



Note

Place engine and gearbox jack - VAS 6931- underneath (risk of accident from parts dropping down when swivel joint is pressed out).

Installing

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

- Insert swivel joint in wheel bearing housing.
- Note installation position ⇒ [page 54](#) .
- Screw on new nut (counterhold swivel joint with Torx key if necessary).
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)

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Tightening torques

- ♦ ⇒ [“4.1 Exploded view - lower wishbone, swivel joint”, page 53](#)
- ♦ ⇒ [“1 Wheels, tyres”, page 303](#)

4.4 Renewing bonded rubber bushes for lower wishbone

⇒ [“4.4.1 Renewing bonded rubber bush \(front\) for lower wishbone”, page 64](#)

⇒ [“4.4.2 Renewing bonded rubber bush \(rear\) for lower wishbone”, page 67](#)

4.4.1 Renewing bonded rubber bush (front) for lower wishbone

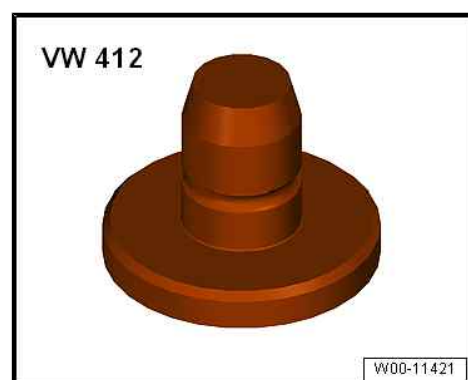
◆ Thrust plate - VW 402-



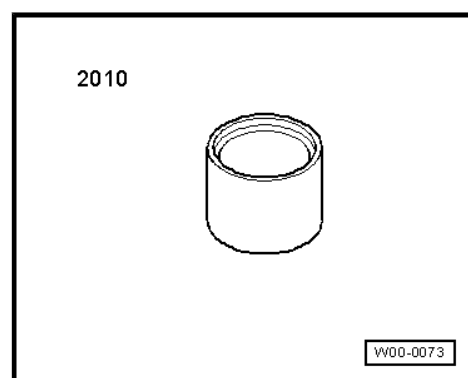
◆ Press tool - VW 411-



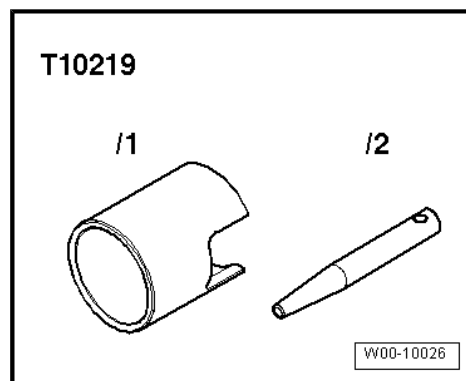
◆ Press tool - VW 412-



◆ Tube - 2010-



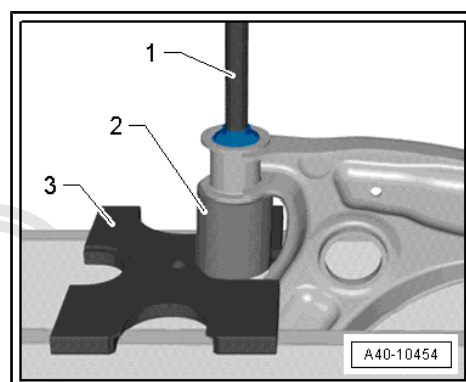
◆ Mandrel - T10219/2-



◆ Assembly lubricant - G 294 421 A1- ⇒ Electronic parts catalogue "ETKA"

Pressing out bonded rubber bush

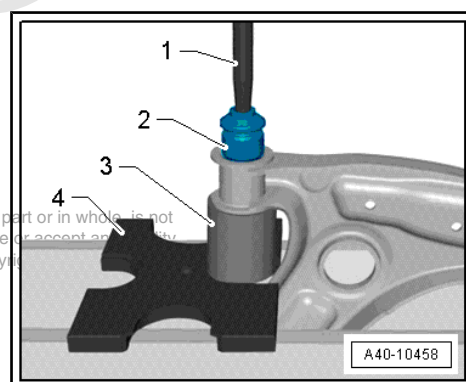
- Wishbone removed ⇒ [page 54](#) .
- Press out bonded rubber bush as shown.
- 1 - Press tool - VW 411-
- 2 - Tube - 2010- (larger internal diameter faces wishbone)
- 3 - Thrust plate - VW 402-



Pressing in bonded rubber bush

- Apply assembly lubricant - G 294 421 A1- to outside of bonded rubber bush (for lubricant refer to ⇒ Electronic parts catalogue "ETKA").
- Press in bonded rubber bush as illustrated.

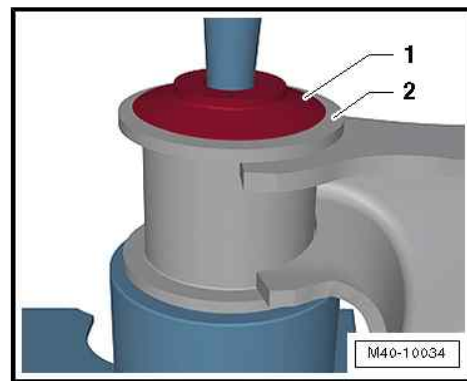
- 1 - Drift - T10219/2-
- 2 - Bonded rubber bush
- 3 - Tube - 2010- (larger internal diameter faces wishbone)
- 4 - Thrust plate - VW 402-



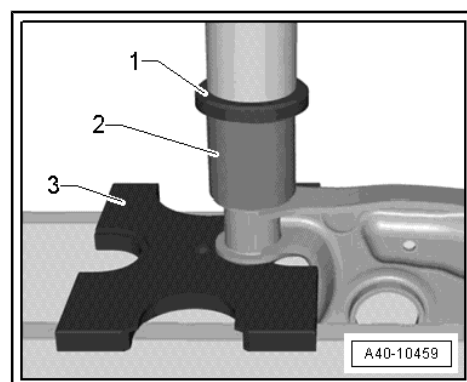
Note

The bush will move temporarily out of line at the start of the pressing-in process, but will straighten up when it is pressed in further. Additional guiding is not necessary.

- Press in bonded rubber bush until core of bush -1- is flush with hole in wishbone -2-.

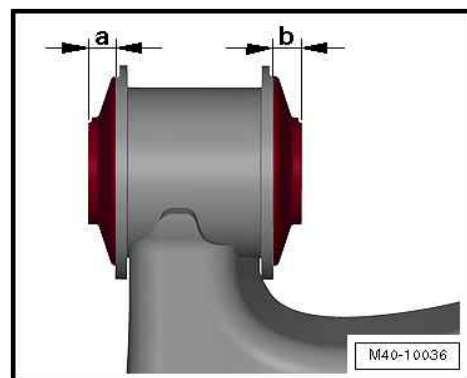


- Press bush back slightly in wishbone.
- 1 - Press tool - VW 412-
 - 2 - Tube - 2010- (larger internal diameter faces wishbone)
 - 3 - Thrust plate - VW 402-



Dimensions -a- and -b- must be the same.

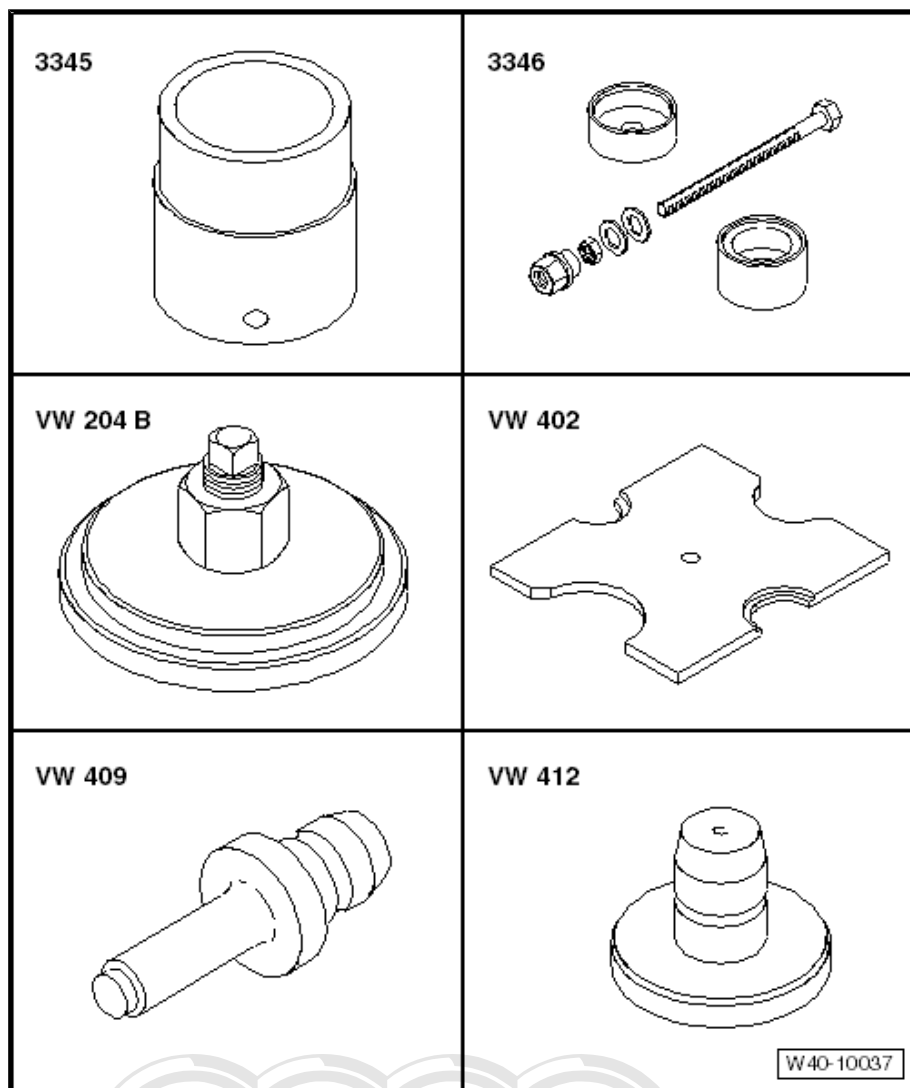
- Install wishbone ⇒ [page 56](#) .



4.4.2 Renewing bonded rubber bush (rear) for lower wishbone

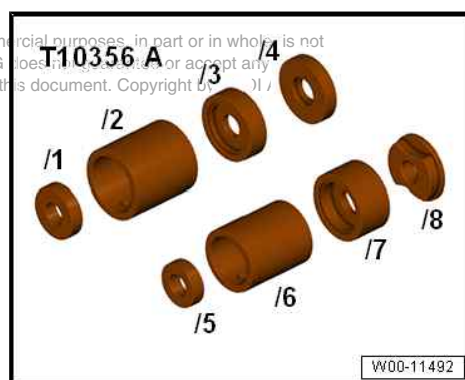
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Special tools and workshop equipment required



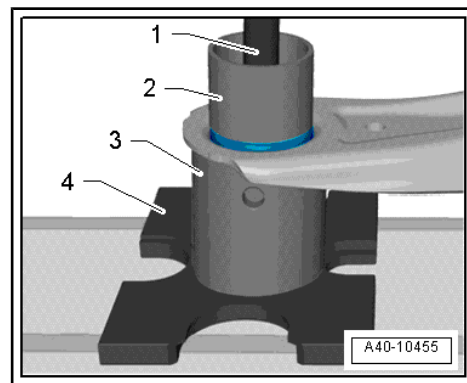
- ◆ Wheel bearing tube - 3345-
- ◆ Assembly tool - 3346-
- ◆ Crankshaft seal fitting tool - VW 204 B-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 409-
- ◆ Press tool - VW 412-
- ◆ Assembly tool - T10356A-

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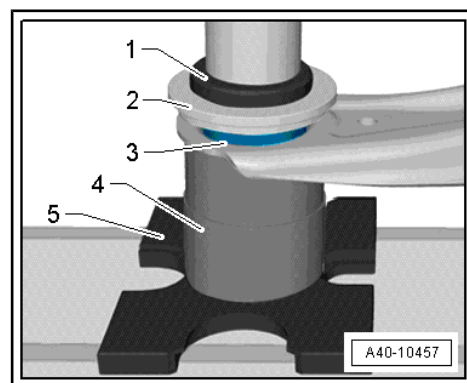
Pressing out

- Wishbone removed ⇒ [page 54](#) .
- Press out bonded rubber bush as shown.
- 1 - Press tool - VW 409-
- 2 - Thrust piece - 3346/1-
- 3 - Thrust piece - T10356/2-
- 4 - Thrust plate - VW 402-



Pressing in

- Installation position of rear bonded rubber bush in wishbone ⇒ [page 54](#)
- Press in bonded rubber bush as illustrated.
- 1 - Press tool - VW 412-
- 2 - Crankshaft seal fitting tool - VW 204 B-
- 3 - Bonded rubber bush
- 4 - Tube for wheel bearing - 3345- (smaller outer diameter faces wishbone)
- 5 - Thrust plate - VW 402-



Note

Press in bonded rubber bush until thrust piece of crankshaft seal fitting tool - VW 204 B- makes contact with wishbone.

- Install wishbone ⇒ [page 56](#) .

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5 Wheel bearing

⇒ [“5.1 Exploded view - wheel bearing”, page 70](#)

⇒ [“5.2 Removing and installing wheel bearing housing”, page 73](#)

⇒ [“5.3 Removing and installing wheel bearing unit”, page 79](#)

5.1 Exploded view - wheel bearing

⇒ [“5.1.1 Exploded view - wheel bearing, Audi A1 with front-wheel drive / Audi S1”, page 70](#)

⇒ [“5.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 72](#)

5.1.1 Exploded view - wheel bearing, Audi A1 with front-wheel drive / Audi S1

1 - Drive shaft

- ☐ General notes on drive shaft ⇒ [page 1](#)
- ☐ Removing and installing ⇒ [page 98](#)
- ☐ Servicing ⇒ [page 113](#)

2 - Suspension strut

- ☐ Removing and installing ⇒ [page 44](#)
- ☐ Servicing ⇒ [page 49](#)

3 - Nut

- ☐ Always renew if removed
- ☐ 60 Nm + 90°

4 - Bolt

- ☐ Threaded end of bolt points in direction of travel
- ☐ Always renew if removed

5 - Bolt

- ☐ Tightening torque ⇒ Brake system; Rep. gr. 45 ; Sensors; Exploded view - front wheel speed sensor

6 - Speed sensor

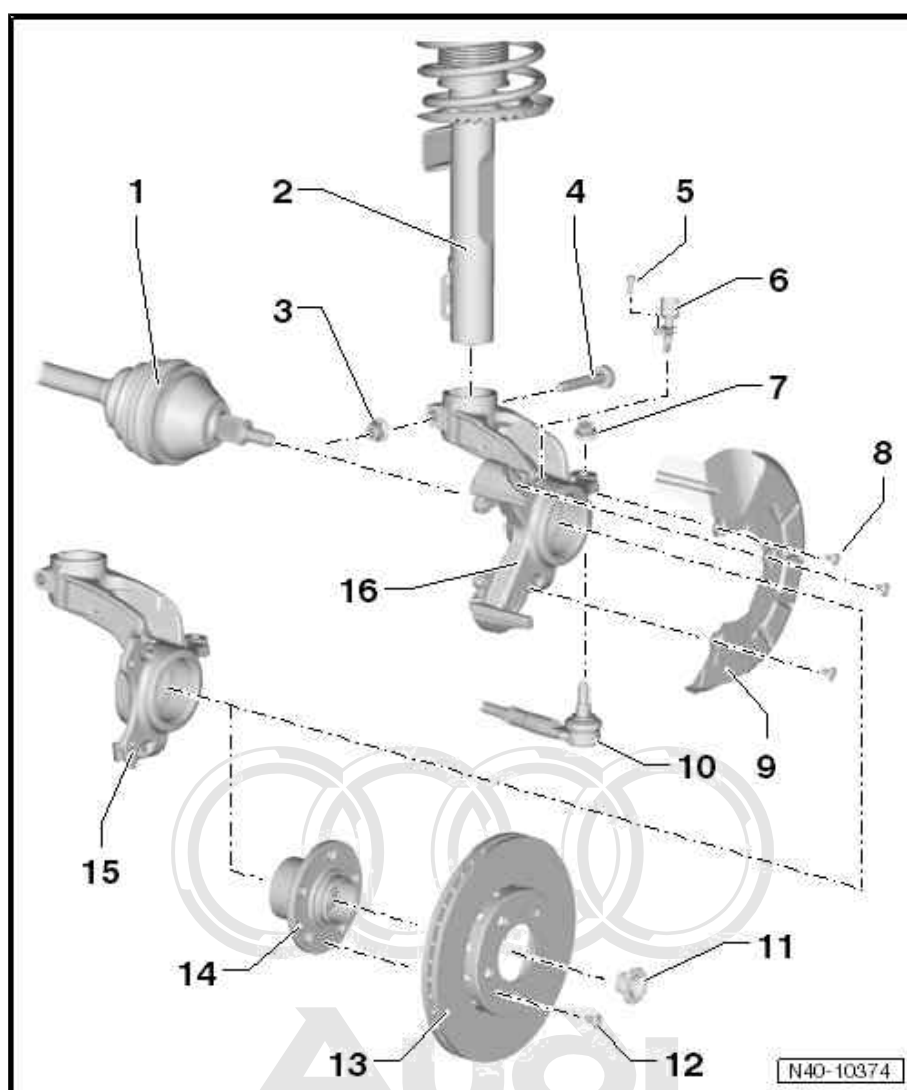
- ☐ Front right speed sensor - G45- , front left speed sensor - G47-
- ☐ Removing and installing ⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing front speed sensors -G45- / -G47-

7 - Nut

- ☐ Tightening torque ⇒ [page 337](#)

8 - Bolt

- ☐ Tightening torque ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake



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9 - Splash plate for brakes

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Front brakes; Removing and installing splash plate .

10 - Track rod ball joint

- ☐ Removing and installing ⇒ [page 354](#)

11 - 12-point nut

- ☐ Tightening torque ⇒ [page 86](#)

12 - Bolt

- ☐ Tightening torque ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake

13 - Brake disc

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Front brakes; Removing and installing brake disc .

14 - Wheel bearing unit

- ☐ Lateral run-out when installed: max. 0.02 mm
- ☐ Measure lateral run-out with dial gauge - VAS 6079- and dial gauge bracket for brake discs - VAS 6079/1-
- ☐ The ABS sensor ring is incorporated in the wheel hub
- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Renewing ⇒ [page 79](#)
- ☐ Wheel bearing unit cannot be repaired
- ☐ Always renew if removed: will be damaged upon removal

15 - Wheel bearing housing

- ☐ For vehicles with 15" running gear upwards
- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Removing and installing ⇒ [page 73](#)

16 - Wheel bearing housing

- ☐ For vehicles with 14" running gear
- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Removing and installing ⇒ [page 73](#)

5.1.2 Exploded view - wheel bearing, Audi A1 quattro

1 - Suspension strut

- ☐ Removing and installing ⇒ [page 44](#)
- ☐ Servicing ⇒ [page 49](#)

2 - Bolt

- ☐ Tightening torque ⇒ Brake system; Rep. gr. 45 ; Sensors; Exploded view - front wheel speed sensor

3 - Speed sensor

- ☐ Front right speed sensor - G45- , front left speed sensor - G47-
- ☐ Removing and installing ⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing front speed sensors - G45- / -G47-

4 - Nut

- ☐ Tightening torque ⇒ [page 337](#)

5 - Bolt

- ☐ Threaded end of bolt points in direction of travel
- ☐ Always renew if removed
- ☐ 70 Nm + turn 90° further

6 - Splash plate for brakes

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Front brakes; Removing and installing splash plate .

7 - Bolt

- ☐ Tightening torque ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake

8 - Track rod ball joint

- ☐ Removing and installing ⇒ [page 354](#)

9 - 12-point bolt

- ☐ Tightening torque ⇒ [Item 1 \(page 91\)](#)

10 - Bolt

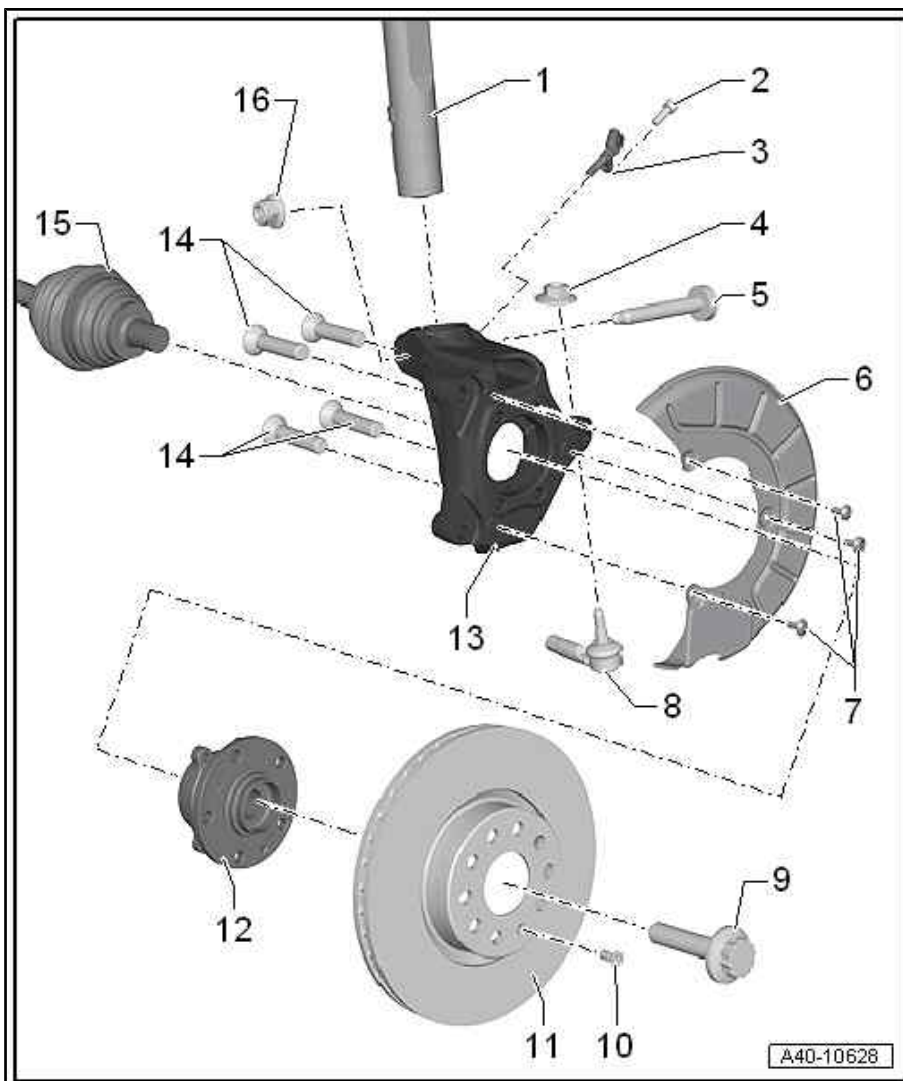
- ☐ Tightening torque ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake

11 - Brake disc

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Front brakes; Removing and installing brake disc .

12 - Wheel bearing unit

- ☐ Removing and installing ⇒ [page 84](#)
- ☐ The ABS sensor ring is incorporated in the wheel hub



13 - Wheel bearing housing

- ☐ Removing and installing ⇒ [page 76](#)

14 - Bolts

- ☐ Always renew if removed
- ☐ 70 Nm + turn 90° further

15 - Drive shaft

- ☐ General notes on drive shaft ⇒ [page 1](#)
- ☐ Removing and installing ⇒ [page 98](#)
- ☐ Servicing ⇒ [page 113](#)

16 - Hexagon nut

- ☐ Always renew if removed
- ☐ 70 Nm +90°

5.2 Removing and installing wheel bearing housing

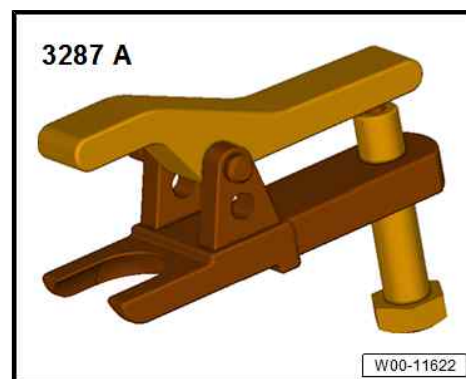
⇒ ["5.2.1 Removing and installing wheel bearing housing - Audi A1 with front-wheel drive / Audi S1", page 73](#)

⇒ ["5.2.2 Removing and installing wheel bearing housing - Audi A1 quattro", page 76](#)

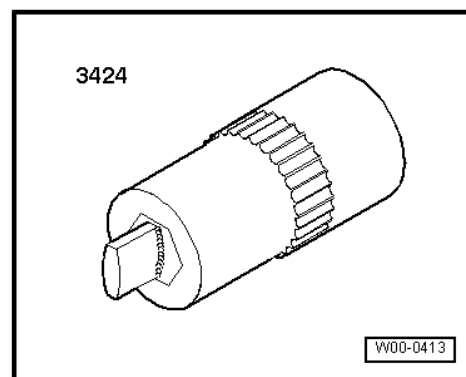
5.2.1 Removing and installing wheel bearing housing - Audi A1 with front-wheel drive / Audi S1

Special tools and workshop equipment required

- ◆ Ball joint puller - 3287A-



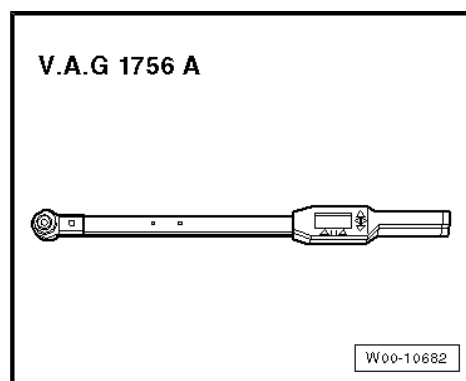
- ◆ Spreader - 3424-



◆ Torque wrench - V.A.G 1332-



◆ Angle wrench - V.A.G 1756 A-



◆ Engine and gearbox jack - VAS 6931-

**Removing**

- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove ABS speed sensor ⇒ Brake system; Rep. gr. 45 ;
Sensors; Removing and installing front speed sensor -G45- /
-G47- .
- Remove splash plate ⇒ Brake system; Rep. gr. 46 ; Front
brakes; Removing and installing splash plate .

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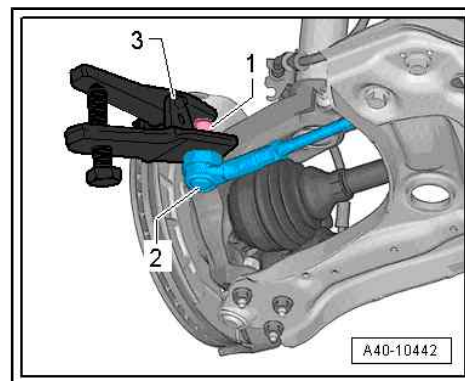
- Remove nut -1- from track rod ball joint -2-.



Note

Leave nut screwed on a few turns to protect threads on joint pin.

- Press track rod ball joint -2- off steering arm using ball joint puller - 3287A- -item 3-.



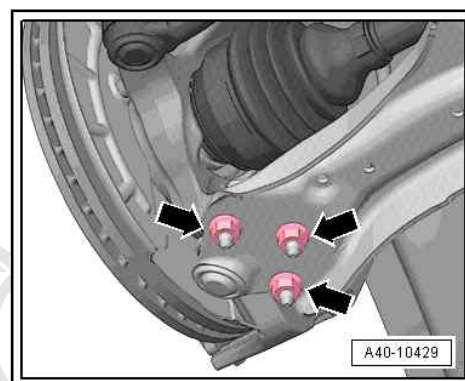
- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.



Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.

- Pull outer joint of drive shaft out of wheel hub.



Note

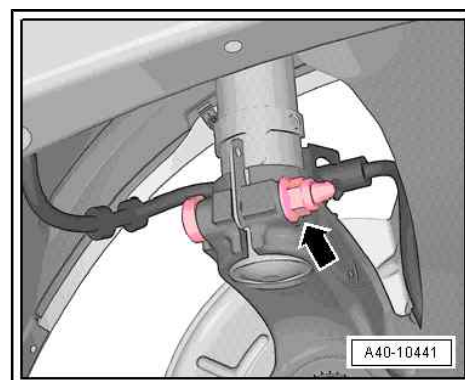
If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520- .



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

- Tie up drive shaft to body with wire.
- Position engine and gearbox jack - VAS 6931- under wheel bearing housing.
- Unscrew bolted connection between wheel bearing housing and suspension strut -arrow-.



- Insert spreader - 3424- -1- into slot in wheel bearing housing.
- Turn ratchet handle through 90° and pull ratchet handle off spreader - 3424- -1-.
- Pull wheel bearing housing off suspension strut.



Note

If wheel bearing housing is renewed, swivel joint must be transferred. Always use new nuts.

Installing

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

- Install drive shaft ⇒ [page 98](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)

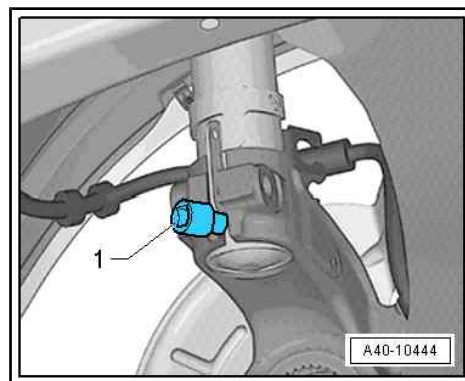
Tightening torques

- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ ⇒ [“5.1.1 Exploded view - wheel bearing, Audi A1 with front-wheel drive / Audi S1”, page 70](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake
- ◆ ⇒ Brake system; Rep. gr. 45 ; Sensors; Exploded view - front wheel speed sensor

5.2.2 Removing and installing wheel bearing housing - Audi A1 quattro

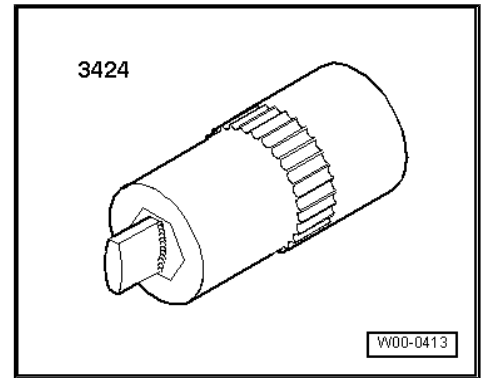
Special tools and workshop equipment required

- ◆ Ball joint puller - 3287A-



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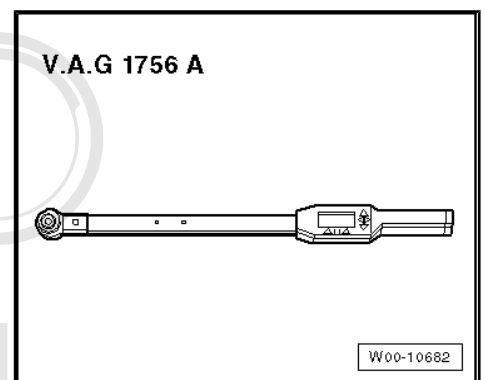
◆ Spreader - 3424-



◆ Torque wrench - V.A.G 1332-



◆ Angle wrench - V.A.G 1756 A-



◆ Engine and gearbox jack - VAS 6931-

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Removing

- Lift vehicle far enough to take weight off front axle.
- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove wheel ⇒ [page 303](#) .

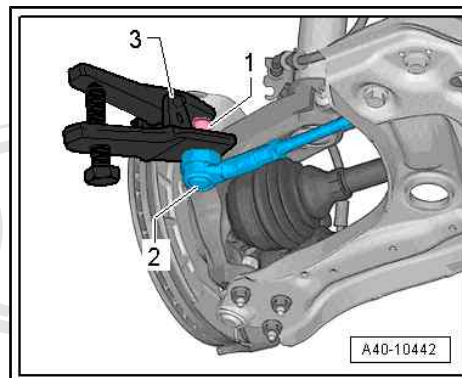
- Remove ABS speed sensor ⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing front speed sensor -G45- / -G47- .
- Remove splash plate ⇒ Brake system; Rep. gr. 46 ; Front brakes; Removing and installing splash plate .
- Remove nut -1- from track rod ball joint -2-.



Note

Leave nut screwed on a few turns to protect threads on joint pin.

- Press track rod ball joint -2- off steering arm.



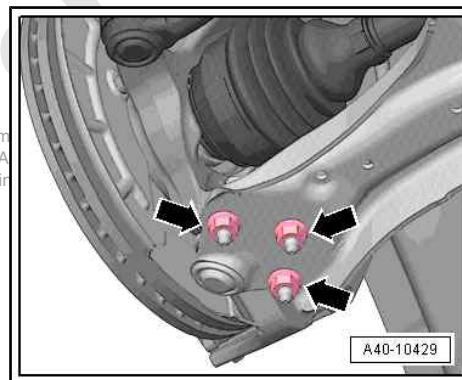
- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.
- Pull outer joint of drive shaft out of wheel hub.

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Note

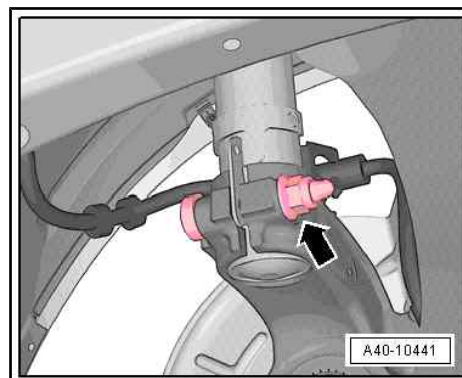
- ♦ *When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.*
- ♦ *If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520- .*



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

- Tie up drive shaft to body with wire.
- Position engine and gearbox jack - VAS 6931- under wheel bearing housing.
- Unscrew bolted connection between wheel bearing housing and suspension strut -arrow-.



- Insert spreader - 3424- -1- into slot in wheel bearing housing.
- Turn ratchet handle through 90° and pull ratchet handle off spreader - 3424- -1-.
- Pull wheel bearing housing off suspension strut.



Note

If wheel bearing housing is renewed, swivel joint must be transferred. Always use new nuts.

Installing

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

- Tighten bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#).
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)

Tightening torques

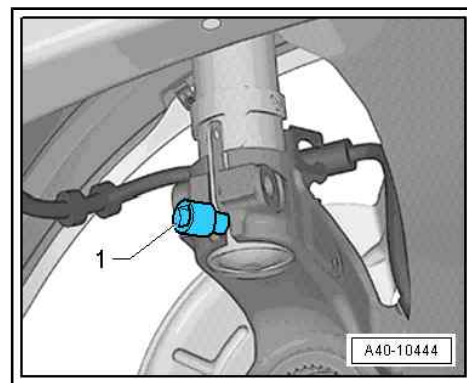
- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ ⇒ [“5.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 72](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake
- ◆ ⇒ Brake system; Rep. gr. 45 ; Sensors; Exploded view - front wheel speed sensor

5.3 Removing and installing wheel bearing unit

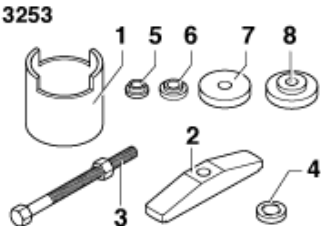
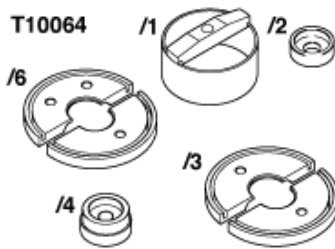
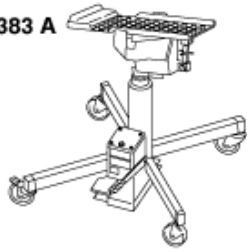
⇒ [“5.3.1 Removing and installing wheel bearing unit - Audi A1 with front-wheel drive / Audi S1”, page 79](#)

⇒ [“5.3.2 Removing and installing wheel bearing unit - Audi A1 quattro”, page 84](#)

5.3.1 Removing and installing wheel bearing unit - Audi A1 with front-wheel drive / Audi S1

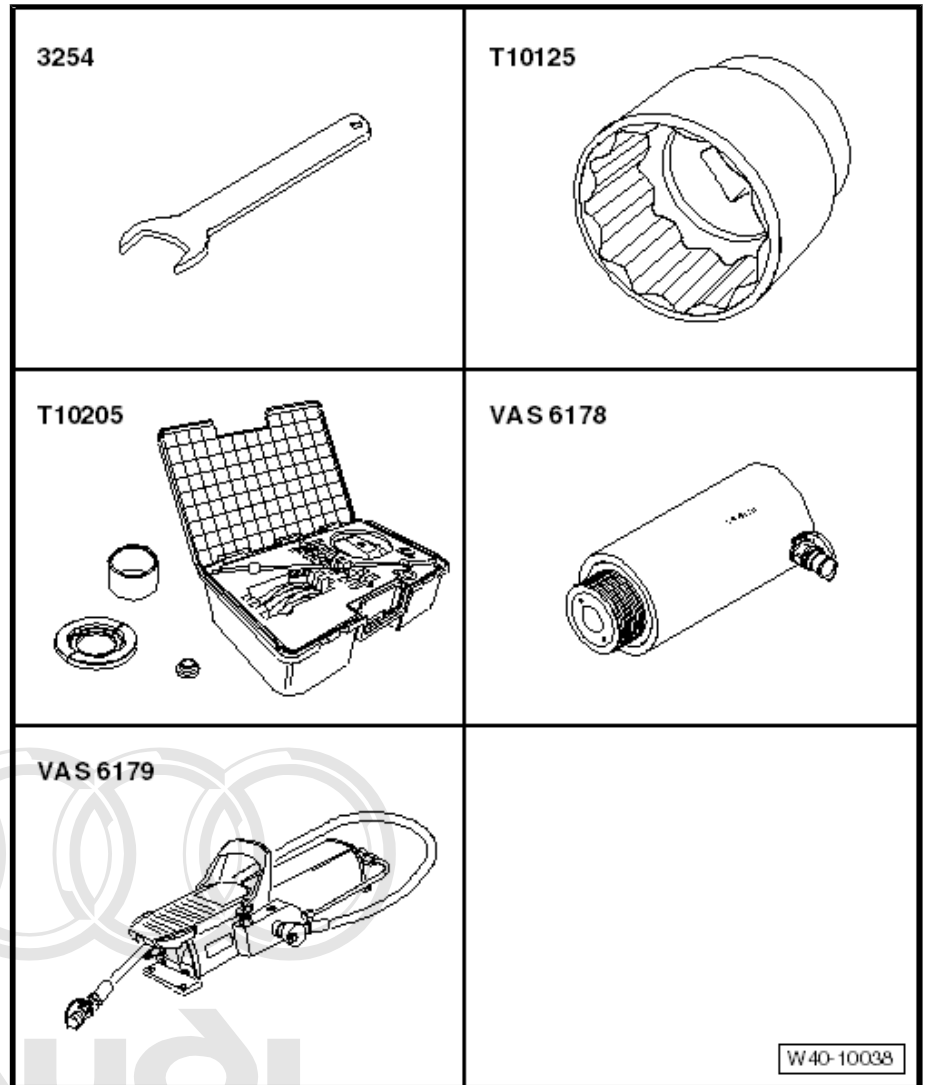


Special tools and workshop equipment required

 3253	 T10064
 V.A.G 1331	 V.A.G 1332
 V.A.G 1410	 V.A.G 1383 A W40-0117

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- ◆ Assembly tool - 3253-
- ◆ Assembly tool - T10064-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Torque wrench - V.A.G 1410-
- ◆ Engine and gearbox jack - VAS 6931- or -V.A.G 1383 A-



- ◆ Open-end spanner (50 mm) - 3254-
- ◆ Socket AF 36 mm - T10125-
- ◆ Assembly tool - T10205-
- ◆ Hydraulic cylinder - VAS 6178-
- ◆ Foot pump - VAS 6179-

Removing

- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove ABS speed sensor ⇒ Brake system; Rep. gr. 45 ;
Sensors; Removing and installing front speed sensor -G45- /
-G47- .
- Remove splash plate ⇒ Brake system; Rep. gr. 46 ; Front
brakes; Removing and installing splash plate .
- If fitted, unscrew bolt securing bracket for brake hose.

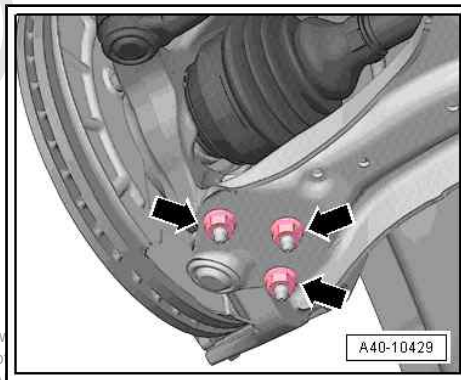
- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.



Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.

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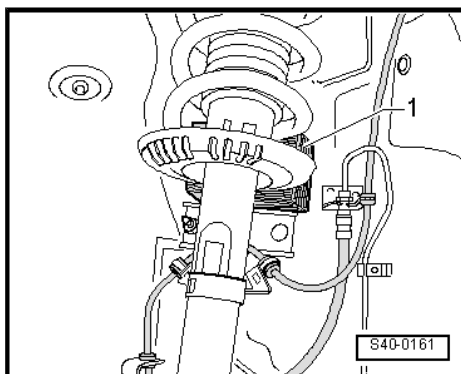


- Pivot suspension strut outwards and hold in place with a wooden block or similar -1-; at the same time pull drive shaft out of wheel hub.



Note

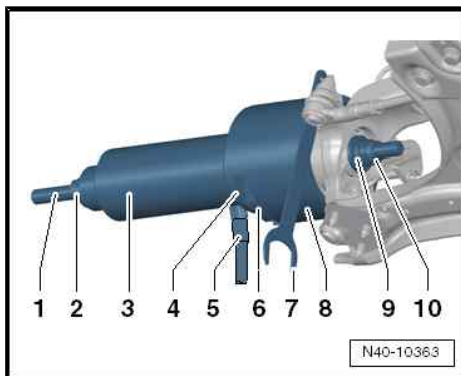
Place engine/gearbox jack - VAS 6931- underneath (danger of accident from parts dropping out when wheel hub and wheel bearing are pulled out).



Pulling out wheel hub with wheel bearing

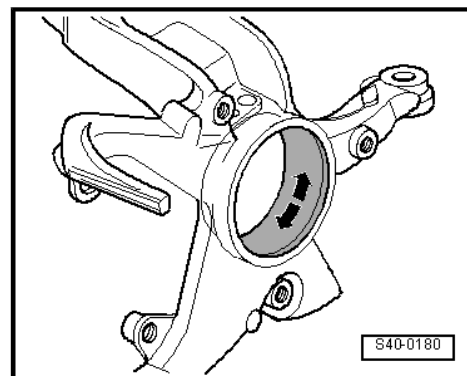
- Insert open-end spanner, 50 mm - 3254- between tube - 3253/1- and mounting surface on steering arm.
- Hold appliance firmly and pull out wheel hub with wheel bearing.

- 1 - Spindle - T10205/8-1-
- 2 - Nut - T10205/8-2-
- 3 - Hydraulic press - VAS 6178- with press attachment - T10205/13-
- 4 - Thrust plate - T10205/1-
- 5 - Foot pump - VAS 6179-
- 6 - Additional traverse - 3253/2-
- 7 - Open-end spanner (50 mm) - 3254-
- 8 - Tube - 3253/1-
- 9 - Thrust piece - T10205/3- , with larger diameter facing towards wheel bearing
- 10 - Nut - T10205/8-2-



Installing

- Remove remains of circlip from bore and groove in wheel bearing housing.
- Clean bore of wheel bearing housing.
- Apply Molypaste lubricant (⇒ Electronic parts catalogue “ET-KA”) to complete inner surface of bore.
- Use grease tube from repair kit.



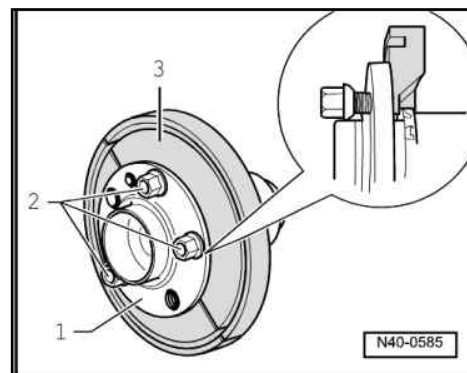
- Screw wheel bolts -2- into wheel hub.
- Fit gripping pieces - T10064/6A- onto wheel bolts.

1 - Wheel hub with wheel bearing

2 - Wheel bolts

3 - T10064/6A-

- Wheel bolts -2- must not protrude from backs of gripping pieces - T10064/6A- .



Installing wheel hub with wheel bearing

- Make sure wheel hub/wheel bearing unit is kept straight when installing.
- Pull in wheel hub together with wheel bearing until circlip engages audibly.

1 - Spindle - T10205/8-1-

2 - Nut - T10205/8-2-

3 - Hydraulic press - VAS 6178- with press attachment - T10205/13-

4 - Foot pump - VAS 6179-

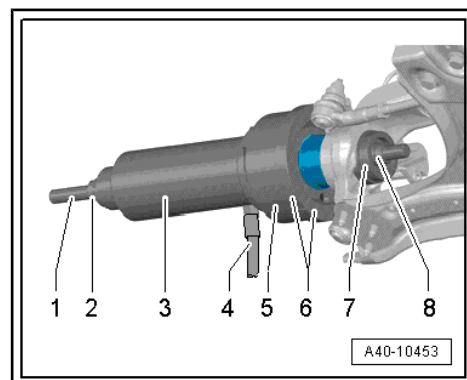
5 - Thrust plate - T10205/1-

6 - Tube - T10064/1-

7 - Gripping pieces - T10064/6A-

8 - Thrust piece - T10064/4- , with large diameter facing towards wheel bearing housing

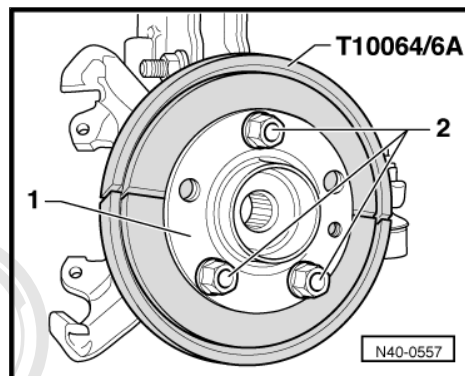
9 - Nut - T10205/8-2-



- Unscrew wheel bolts -2- from wheel hub with wheel bearing -1-.
- Remove gripping pieces - T10064/6A- .
- Install drive shaft ⇒ [page 98](#) .

Tightening torques

- ◆ ⇒ ["2.1 Exploded view - subframe", page 20](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake
- ◆ ⇒ Brake system; Rep. gr. 45 ; Sensors; Exploded view - front wheel speed sensor



5.3.2 Removing and installing wheel bearing unit - Audi A1 quattro

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

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Removing

- Loosen bolt/nut securing drive shaft at wheel hub ⇒ [page 108](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove ABS speed sensor ⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing front speed sensor -G45- / -G47- .
- Remove splash plate ⇒ Brake system; Rep. gr. 46 ; Front brakes; Removing and installing splash plate .

- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.
- Pull outer joint of drive shaft out of wheel hub.

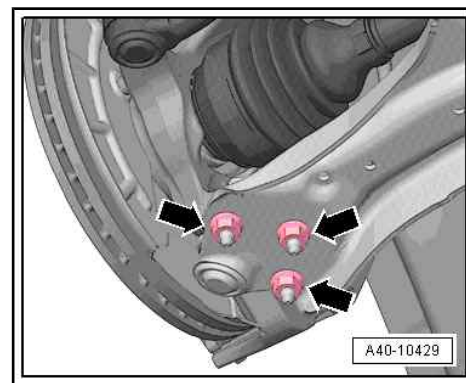
 Note

If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520- .

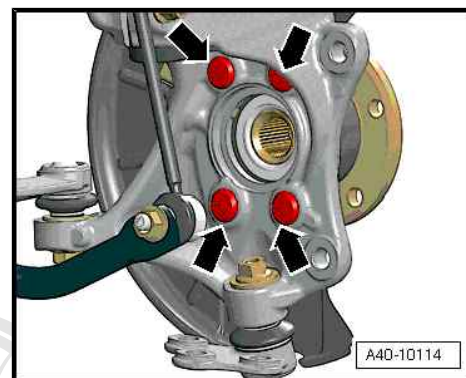


Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.



- Tie up drive shaft to body with wire.
- Pull outer joint of drive shaft out of wheel hub.
- Remove bolts -arrows-.
- Take wheel bearing unit out of wheel bearing housing.



Caution

Avoid dirtying or damaging the seal when laying it down or placing it in storage.

- The wheel bearing -1- must always be pointing upwards.
- Always put down the wheel bearing unit with the wheel hub -2- facing downwards.

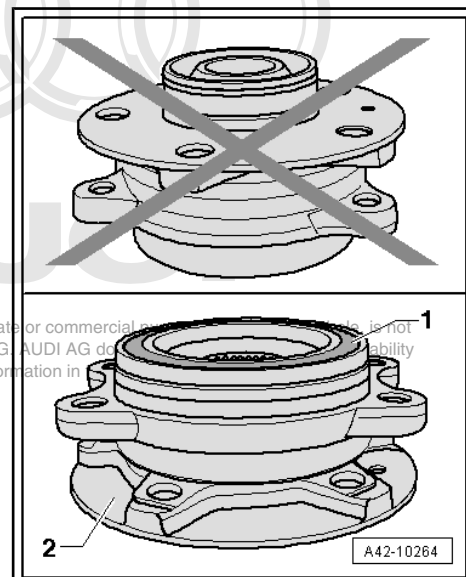
Installing

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

- Install drive shaft ⇒ [page 98](#) .

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - subframe”, page 20](#)
- ◆ ⇒ [“5.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 72](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Front brakes; Exploded view - front brake
- ◆ ⇒ Brake system; Rep. gr. 45 ; Sensors; Exploded view - front wheel speed sensor



6 Drive shaft

- ⇒ [“6.1 Exploded view - drive shaft”, page 86](#)
- ⇒ [“6.2 Removing and installing drive shaft”, page 98](#)
- ⇒ [“6.3 Loosening and tightening nut/bolt securing drive shaft”, page 108](#)
- ⇒ [“6.4 Removing and installing heat shield for drive shaft”, page 112](#)
- ⇒ [“6.5 Dismantling and assembling drive shaft”, page 113](#)
- ⇒ [“6.6 Checking outer constant velocity joint”, page 139](#)
- ⇒ [“6.7 Checking inner constant velocity joint”, page 141](#)

6.1 Exploded view - drive shaft

- ⇒ [“6.1.1 Exploded view - drive shaft, constant velocity joint VL90/ VL100”, page 86](#)
- ⇒ [“6.1.2 Exploded view - drive shaft, constant velocity joint VL107 with 12-point nut”, page 89](#)
- ⇒ [“6.1.3 Exploded view - drive shaft, constant velocity joint VL107 with 12-point bolt”, page 91](#)
- ⇒ [“6.1.4 Exploded view - drive shaft, triple roller joint AAR 2000/108”, page 93](#)
- ⇒ [“6.1.5 Exploded view - drive shaft, triple roller joint AAR3300i \(with bolted flange on gearbox\)”, page 95](#)
- ⇒ [“6.1.6 Exploded view - drive shaft, triple roller joint AAR3300i \(with external splines for insertion in gearbox\)”, page 96](#)

6.1.1 Exploded view - drive shaft, constant velocity joint VL90/VL100

1 - 12-point nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ Remove any corrosion on thread of outer joint before nut is screwed on
- ☐ Loosening and tightening ⇒ [page 108](#)
- ☐ 50 Nm + 45°

2 - Deflector ring

- ☐ Ensure deflector ring is seated correctly before installing drive shaft
⇒ [page 116](#)

3 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Removing ⇒ [page 115](#)
- ☐ Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA"
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft
- ☐ Installing: drive onto shaft as far as stop using plastic hammer
- ☐ Checking ⇒ [page 139](#)

4 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

5 - Spacer ring

- ☐ Installation position ⇒ [page 115](#)

6 - Dished spring

- ☐ Always renew if removed
- ☐ Installation position ⇒ [page 115](#)

7 - Hose clip

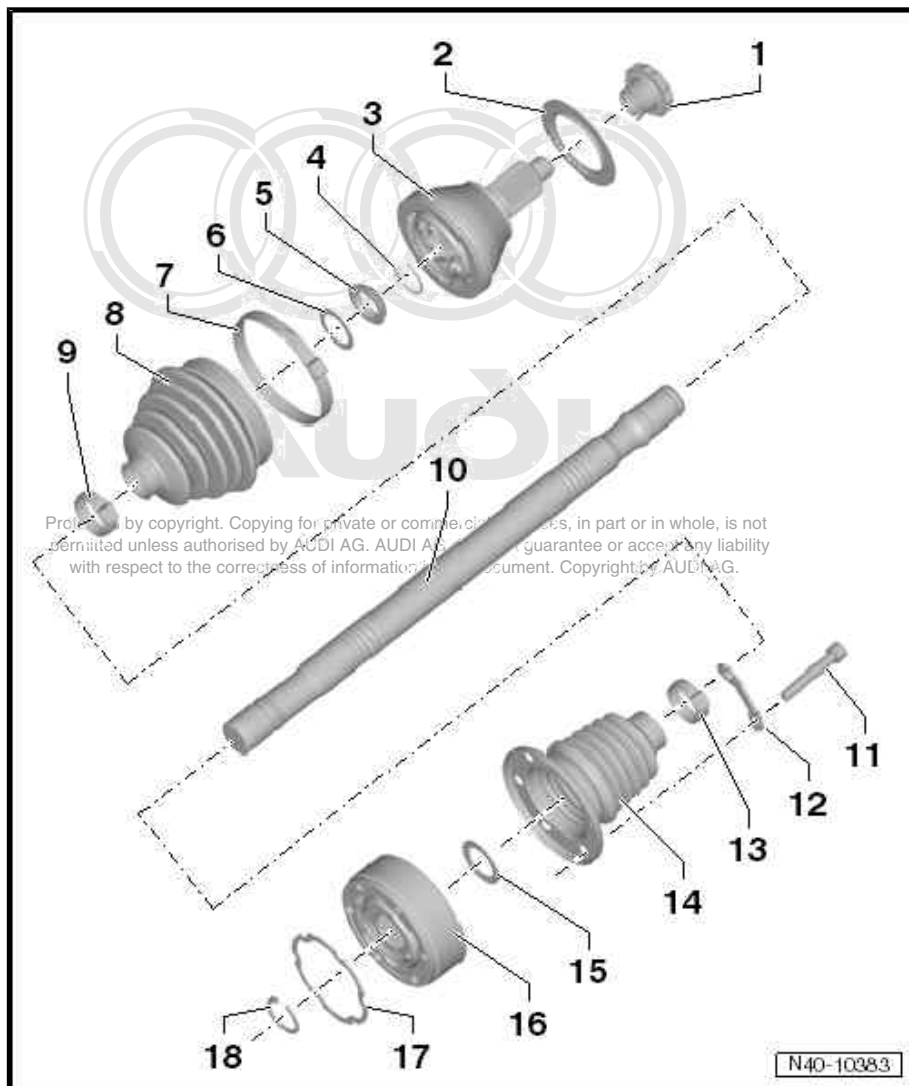
- ☐ Always renew if removed
- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Tightening, version 1 ⇒ [page 117](#) .
- ☐ Tightening, version 2 ⇒ [page 117](#) .

8 - Boot

- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit

9 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 118](#)



10 - Drive shaft

- ☐ Removing and installing ⇒ [page 98](#)
- ☐ Servicing ⇒ [page 113](#)
- ☐ Take care not to damage surface coating
- ☐ When repairing, install all parts supplied in repair kit

11 - Multi-point socket head bolt

- ☐ Always renew if removed
- ☐ Pre-tighten to 10 Nm
- ☐ Tighten diagonally
- ☐ M8: 40 Nm
- ☐ M10: 70 Nm

12 - Lock plate**13 - Hose clip**

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 118](#)

14 - Boot for inner constant velocity joint

- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ Drive off with drift
- ☐ Always renew if removed
- ☐ Before attaching to constant velocity joint, apply sealant - D 454 300 A2- to sealing surface ⇒ Electronic parts catalogue "ETKA"
- ☐ Adhesive surface must be free of oil and grease!
- ☐ When repairing, install all parts supplied in repair kit

15 - Dished spring

- ☐ Splines in inner diameter
- ☐ Installation position: larger diameter (concave side) contacts constant velocity joint

16 - Inner constant velocity joint

- ☐ Renew only as complete unit
- ☐ Pressing off ⇒ [page 116](#)
- ☐ Pressing on ⇒ [page 116](#)
- ☐ Checking ⇒ [page 141](#)
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft

17 - Gasket

- ☐ Renewing: pull off protective foil and stick onto joint

18 - Circlip

- ☐ Always renew if removed
- ☐ Remove and install using -VW 161 A-

6.1.2 Exploded view - drive shaft, constant velocity joint VL107 with 12-point nut

1 - 12-point nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ Remove any corrosion on thread of outer joint before nut is screwed on
- ☐ Loosening and tightening ⇒ [page 108](#)
- ☐ 50 Nm + 45°

2 - Deflector ring

- ☐ Ensure deflector ring is seated correctly before installing drive shaft
⇒ [page 120](#)

3 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Removing ⇒ [page 119](#)
- ☐ Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA"
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft
- ☐ Installing: drive onto shaft as far as stop using plastic hammer
- ☐ Checking ⇒ [page 139](#)

4 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

5 - Spacer ring

- ☐ Installation position ⇒ [page 120](#)

6 - Dished spring

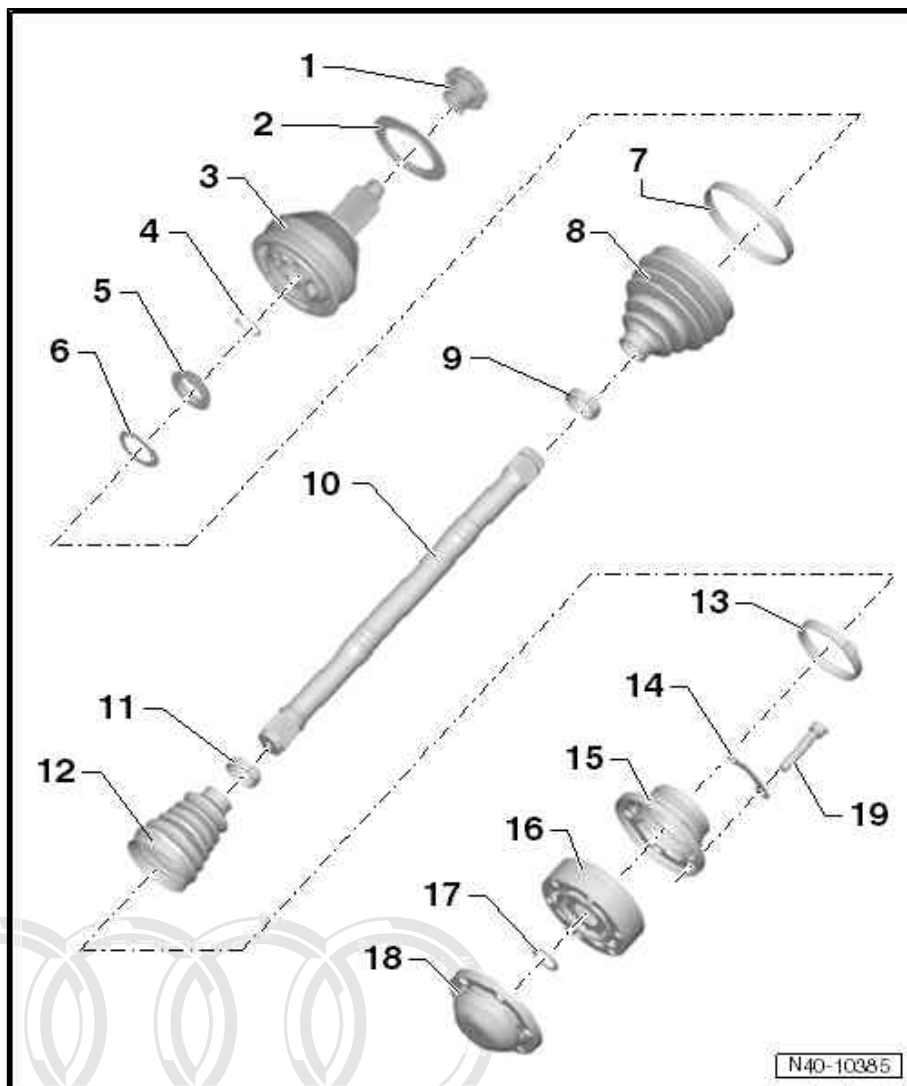
- ☐ Always renew if removed
- ☐ Installation position ⇒ [page 120](#)

7 - Hose clip

- ☐ Always renew if removed
- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Tightening, version 1 ⇒ [page 121](#) .
- ☐ Tightening, version 2 ⇒ [page 122](#) .

8 - Boot

- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit



9 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 122](#)

10 - Drive shaft

- ☐ Removing and installing ⇒ [page 98](#)
- ☐ Servicing ⇒ [page 118](#)
- ☐ Take care not to damage surface coating
- ☐ When repairing, install all parts supplied in repair kit

11 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 122](#)

12 - Boot for constant velocity joint

- ☐ Without vent hole
- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit

13 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 122](#)

14 - Lock plate**15 - Cap**

- ☐ Drive off carefully with drift
- ☐ Always renew if removed
- ☐ Before fitting on constant velocity joint, coat sealing surface with sealant - D 454 300 A2-
- ☐ Adhesive surface must be free of oil and grease!

16 - Inner constant velocity joint

- ☐ Renew only as complete unit
- ☐ Pressing off ⇒ [page 120](#)
- ☐ Pressing on ⇒ [page 121](#)
- ☐ Checking ⇒ [page 141](#)
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft

17 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

18 - Cover

- ☐ Drive off carefully with drift
- ☐ Always renew if removed
- ☐ Before attaching to constant velocity joint, apply sealant - D 454 300 A2- to sealing surface ⇒ Electronic parts catalogue "ETKA"
- ☐ Adhesive surface must be free of oil and grease!
- ☐ Pressing off ⇒ [page 120](#)

19 - Multi-point socket head bolt

- ☐ Always renew if removed
- ☐ Pre-tighten to 10 Nm
- ☐ Tighten diagonally
- ☐ M8: 40 Nm
- ☐ M10: 70 Nm

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6.1.3 Exploded view - drive shaft, constant velocity joint VL107 with 12-point bolt

1 - 12-point bolt

- ☐ Always renew if removed
- ☐ Before securing, clean the threads in the CV joint using a thread tap
- ☐ Loosening and tightening ⇒ [page 109](#)
- ☐ 200 Nm + 180°

2 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Removing ⇒ [page 119](#)
- ☐ Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA"
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft
- ☐ Installing: drive onto shaft as far as stop using plastic hammer
- ☐ Checking ⇒ [page 139](#)

3 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

4 - Spacer ring

- ☐ Installation position ⇒ [page 120](#)

5 - Dished spring

- ☐ Always renew if removed
- ☐ Installation position ⇒ [page 120](#)

6 - Hose clip

- ☐ Always renew if removed
- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Tightening ⇒ [page 122](#)

7 - Boot

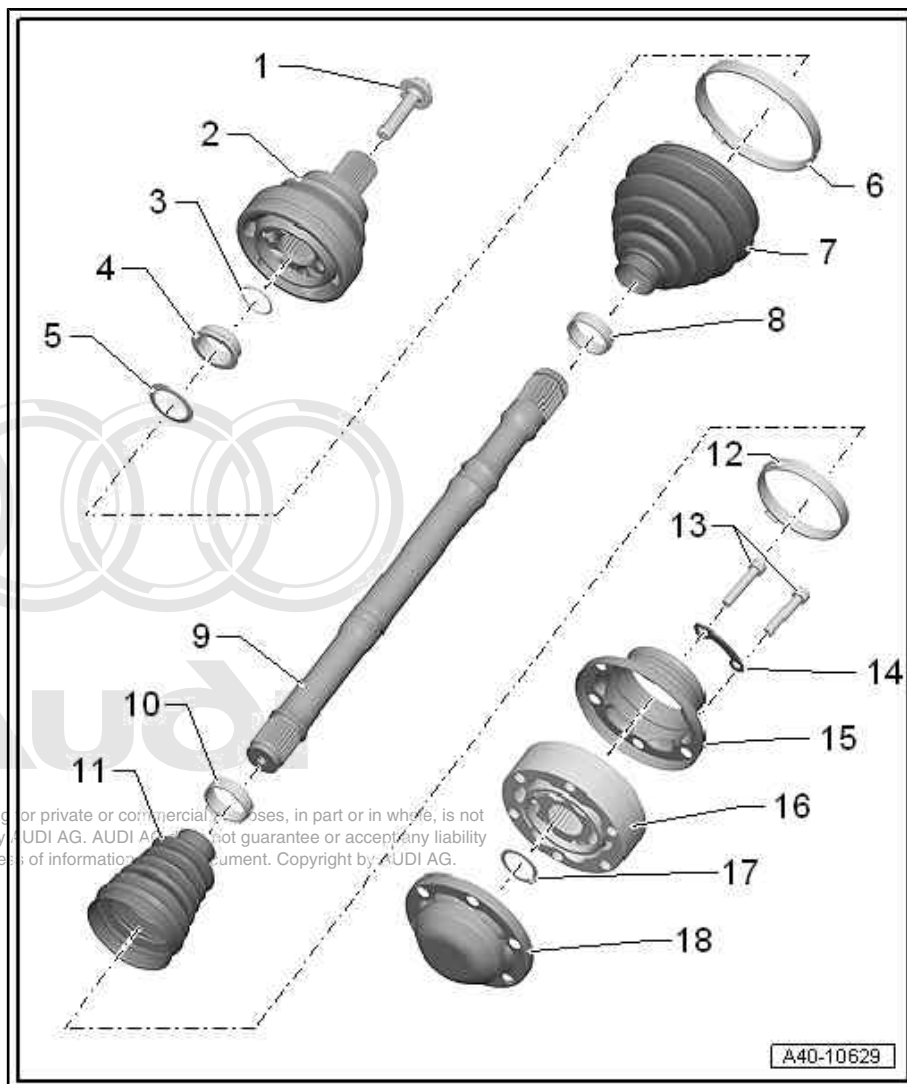
- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit

8 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 122](#)

9 - Drive shaft

- ☐ Removing and installing ⇒ [page 98](#)



- ☐ Servicing ⇒ [page 118](#)
- ☐ Take care not to damage surface coating
- ☐ When repairing, install all parts supplied in repair kit

10 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 122](#)

11 - Boot for constant velocity joint

- ☐ Without vent hole
- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ Drive off constant velocity joint with a drift
- ☐ When repairing, install all parts supplied in repair kit

12 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 122](#)

13 - Multi-point socket head bolt

- ☐ Always renew if removed
- ☐ Pre-tighten to 10 Nm
- ☐ Tighten diagonally
- ☐ M8: 40 Nm
- ☐ M10: 70 Nm

14 - Lock plate**15 - Cap**

- ☐ Drive off carefully with drift
- ☐ Always renew if removed
- ☐ Before attaching to constant velocity joint, apply sealant - D 454 300 A2- to sealing surface ⇒ Electronic parts catalogue "ETKA"
- ☐ Adhesive surface must be free of oil and grease!

16 - Inner constant velocity joint

- ☐ Renew only as complete unit
- ☐ Pressing off ⇒ [page 120](#)
- ☐ Pressing on ⇒ [page 121](#)
- ☐ Checking ⇒ [page 141](#)
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft

17 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

18 - Cover

- ☐ Drive off carefully with drift
- ☐ Always renew if removed
- ☐ Before attaching to constant velocity joint, apply sealant - D 454 300 A2- to sealing surface ⇒ Electronic parts catalogue "ETKA"
- ☐ Adhesive surface must be free of oil and grease!



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6.1.4 Exploded view - drive shaft, triple roller joint AAR 2000/108

1 - 12-point nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ Remove any corrosion on thread of outer joint before nut is screwed on
- ☐ Loosening and tightening ⇒ [page 108](#)
- ☐ 50 Nm + 45°

2 - Deflector ring

- ☐ Ensure deflector ring is seated correctly before installing drive shaft ⇒ [page 125](#)

3 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Removing ⇒ [page 125](#)
- ☐ Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA"
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft
- ☐ Installing: drive onto shaft with plastic hammer until compressed circlip seats
- ☐ Checking ⇒ [page 139](#)

4 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

5 - Spacer ring

- ☐ Installation position ⇒ [page 125](#)

6 - Dished spring

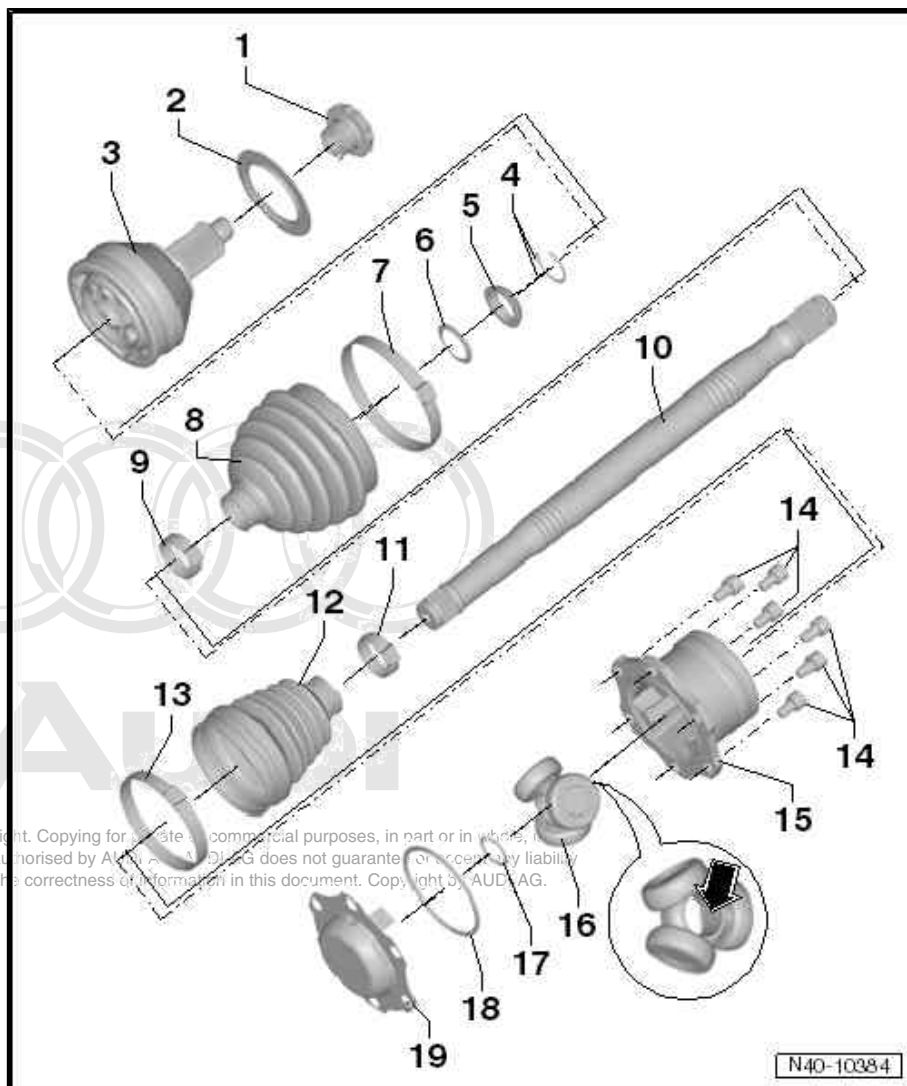
- ☐ Always renew if removed
- ☐ Installation position ⇒ [page 125](#)

7 - Hose clip

- ☐ Always renew if removed
- ☐ Different versions; for correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Tightening, version 1 ⇒ [page 126](#)
- ☐ Tightening, version 2 ⇒ [page 126](#)

8 - Boot for constant velocity joint

- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit



- ☐ Before attaching to constant velocity joint, apply sealant to sealing surface ⇒ Electronic parts catalogue "ETKA"

9 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 127](#)

10 - Drive shaft

- ☐ Removing and installing ⇒ [page 98](#)
- ☐ Servicing ⇒ [page 122](#)
- ☐ Take care not to damage surface coating
- ☐ When repairing, install all parts supplied in repair kit

11 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 129](#)

12 - Boot for triple roller joint

- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit

13 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 129](#)

14 - Multi-point socket head bolt

- ☐ Always renew if removed
- ☐ Pre-tighten to 10 Nm
- ☐ Tighten to 70 Nm in diagonal sequence

15 - Joint body

- ☐ Outside diameter: 108 mm

16 - Triple roller spider with rollers

Chamfer -arrow- faces towards drive shaft splines

17 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

18 - Seal

- ☐ Always renew if removed

19 - Cover

- ☐ Drive off carefully with drift
- ☐ Always renew if removed
- ☐ Before attaching to constant velocity joint, apply sealant - D 454 300 A2- to sealing surface ⇒ Electronic parts catalogue "ETKA"
- ☐ Adhesive surface must be free of oil and grease!

6.1.5 Exploded view - drive shaft, triple roller joint AAR3300i (with bolted flange on gearbox)

1 - Bolt

- ☐ Always renew if removed
- ☐ Loosening and tightening ⇒ [page 109](#)
- ☐ 200 Nm + 180°

2 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Removing ⇒ [page 132](#)
- ☐ Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA"
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft
- ☐ Installing: drive onto shaft with plastic hammer until compressed circlip seats
- ☐ Checking ⇒ [page 139](#)

3 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

4 - Spacer ring

- ☐ Installation position ⇒ [page 132](#)

5 - Dished spring

- ☐ Always renew if removed
- ☐ Installation position ⇒ [page 132](#)

6 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 134](#)

7 - Boot for constant velocity joint

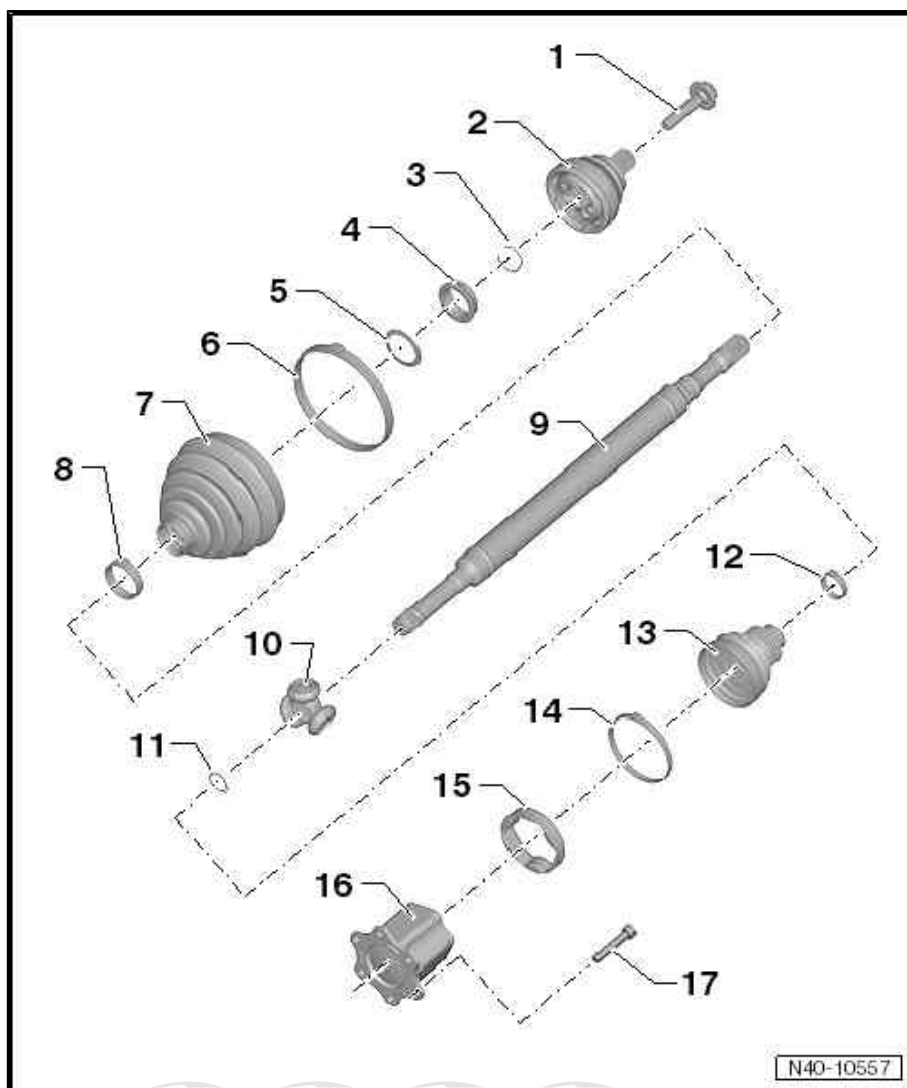
- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit
- ☐ Before attaching to constant velocity joint, apply sealant to sealing surface ⇒ Electronic parts catalogue "ETKA"

8 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 129](#)

9 - Drive shaft

- ☐ Removing and installing ⇒ [page 98](#)



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- ☐ Servicing ⇒ [page 130](#)
- ☐ Take care not to damage surface coating
- ☐ When repairing, install all parts supplied in repair kit

10 - Triple roller spider with rollers

Chamfer -arrow- faces towards drive shaft splines

- ☐ Removing ⇒ [page 132](#)

11 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

12 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 134](#)

13 - Boot for triple roller joint

- ☐ Check for splits and chafing
- ☐ Renew if damaged
- ☐ When repairing, install all parts supplied in repair kit

14 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 134](#)

15 - Adapter

16 - Joint body

- ☐ Removing ⇒ [page 132](#)

17 - Multi-point socket head bolt

- ☐ Always renew if removed
- ☐ Pre-tighten to 10 Nm
- ☐ Tighten to 70 Nm in diagonal sequence

6.1.6 Exploded view - drive shaft, triple roller joint AAR3300i (with external splines for insertion in gearbox)

Grease filling of joints

Grease	Outer joint	Inner joint/triple roller
⇒ Electronic parts catalogue "ETKA"		
Total quantity	120 g	140 g
In joint	80 g	70 g
In boot	40 g	70 g

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1 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Loosening and tightening ⇒ [page 109](#)
- ☐ Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA"
- ☐ Grease splines on drive shaft lightly with grease used in joint when fitting joint onto drive shaft

- ☐ Installing drive onto shaft with plastic hammer until compressed circlip seats

- ☐ Checking ⇒ [page 139](#)

2 - Bolt

- ☐ Always renew if removed
- ☐ Loosening and tightening ⇒ [page 109](#)
- ☐ Before securing, clean the threads in the CV joint using a thread tap
- ☐ 200 Nm + 180°

3 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

4 - Spacer ring

- ☐ Not installed in all versions
- ☐ Installation position ⇒ [page 137](#)

5 - Dished spring

- ☐ Not installed in all versions
- ☐ Installation position ⇒ [page 137](#)

6 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 139](#)

7 - Boot for constant velocity joint

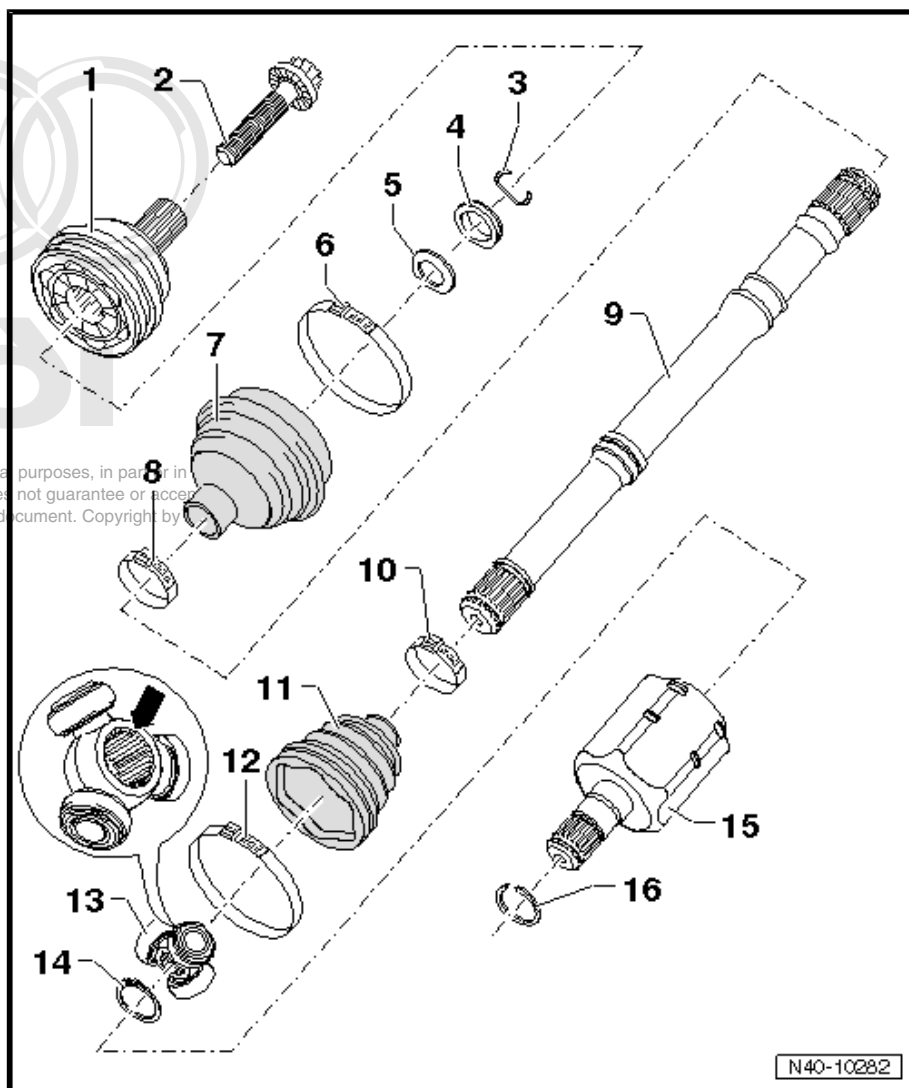
- ☐ Check for splits and chafing

8 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 139](#)

9 - Drive shaft

- ☐ Removing and installing ⇒ [page 104](#)
- ☐ Servicing ⇒ [page 135](#)
- ☐ Take care not to damage surface coating
- ☐ When repairing, install all parts supplied in repair kit



N40-10282

10 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 139](#)

11 - Boot for triple roller joint

- ☐ Check for splits and chafing

12 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 139](#)

13 - Triple roller spider with rollers

Chamfer -arrow- faces towards drive shaft splines

14 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

15 - Joint body**16 - Circlip**

- ☐ Always renew if removed

6.2 Removing and installing drive shaft

⇒ [“6.2.1 Removing and installing drive shaft \(left-side, with bolted flange on gearbox\)”, page 98](#)

⇒ [“6.2.2 Removing and installing drive shaft \(right-side, with bolted flange on gearbox\)”, page 101](#)

⇒ [“6.2.3 Removing and installing drive shaft \(left/right sides, with external splines for insertion in gearbox\)”, page 104](#)

6.2.1 Removing and installing drive shaft (left-side, with bolted flange on gearbox)

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

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**Removing**

- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove noise insulation ⇒ General body repairs, exterior;
Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

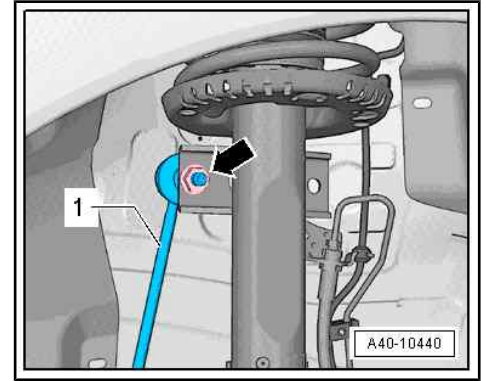
- Unscrew nut -arrow- (both sides) securing coupling rod -1- to suspension strut ⇒ [page 195](#) .
- Pull coupling rod out of suspension strut.

Audi A1 with front-wheel drive / four-wheel drive

- Pivot anti-roll bar upwards with coupling rods (left and right).

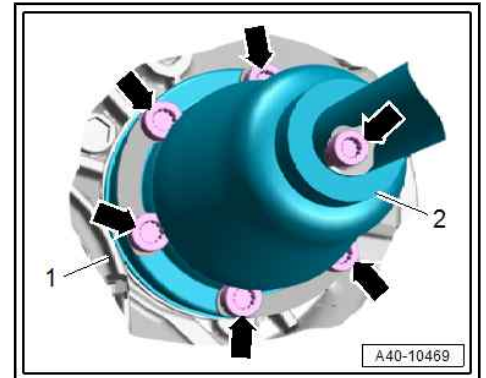
Audi S1

- Pivot anti-roll bar downwards with coupling rods (left and right).



All vehicles (continued):

- Unbolt drive shaft -2- from flange shaft -1- -arrows-.

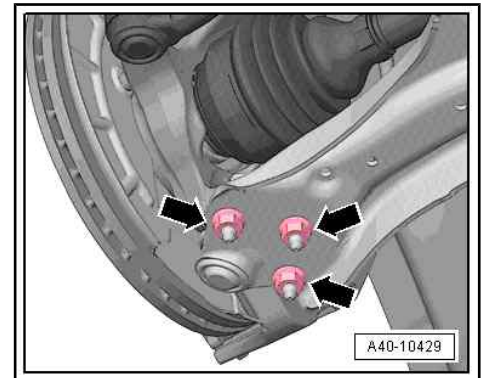


- Unscrew nuts -arrows-.
- Pull wishbone out of swivel joint.



Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.



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- Pivot suspension strut outwards and support with a wooden block -1- or similar; at the same time pull drive shaft out of wheel hub and remove outwards.



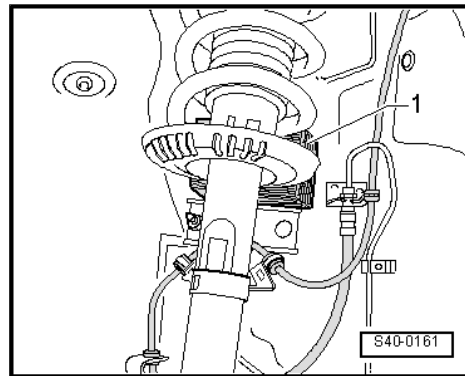
Note

If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520-.



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.



Installing

Install in reverse sequence, paying attention to the following:



Note

Clean thread and splines of stub axle on constant velocity joint and contact surface between wheel hub and 12-point nut/bolt.

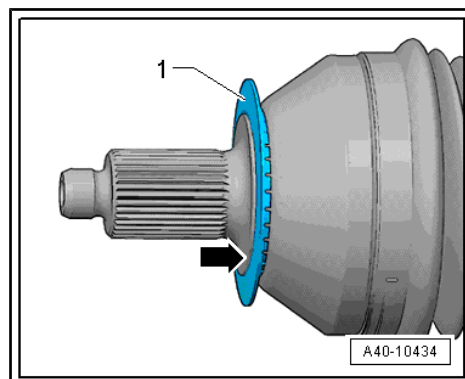
Audi A1 with front-wheel drive, Audi S1

Important: Make sure that deflector ring -1- is clipped completely onto outer joint.



Note

Deflector ring -1- must be flush with contact surface of outer joint -arrow-.



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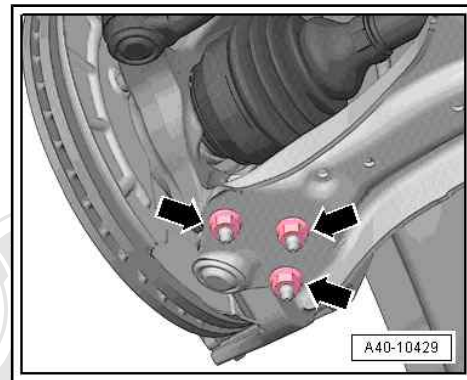
All vehicles (continued):



Note

Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA".

- Guide outer joint into wheel hub splines as far as possible and position drive shaft on flange shaft.
- Bolt swivel joint to wishbone with new nuts -arrows-.



Note

- ◆ *Ensure sealing boot is not damaged or twisted.*
- ◆ *If sealing boot is damaged, renew swivel joint.*
- Tighten bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#).

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Tightening torques

- ◆ ⇒ ["6.1 Exploded view - drive shaft", page 86](#)
- ◆ ⇒ ["4.1 Exploded view - lower wishbone, swivel joint", page 53](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

6.2.2 Removing and installing drive shaft (right-side, with bolted flange on gear-box)

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Torque wrench - V.A.G 1332-



Removing

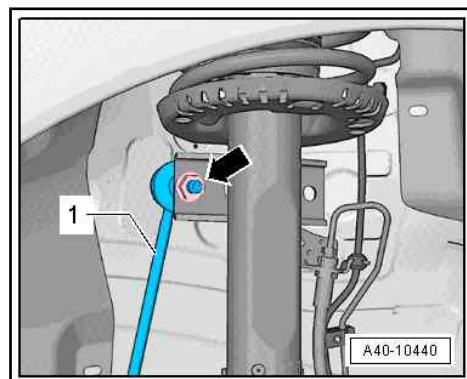
- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove front wheel ⇒ [page 303](#) .
- Remove noise insulation ⇒ General body repairs, exterior;
Rep. gr. 66 ; Noise insulation; Removing and installing noise
insulation .
- Unscrew nut -arrow- (both sides) securing coupling rod -1- to
suspension strut ⇒ [page 195](#) .
- Pull coupling rod out of suspension strut.

Audi A1 with front-wheel drive / four-wheel drive:

- Pivot anti-roll bar upwards with coupling rods (left and right).

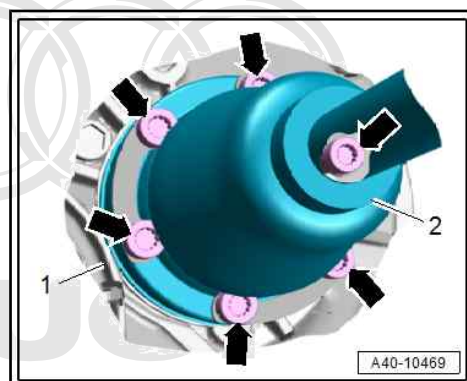
Audi S1:

- Pivot anti-roll bar downwards with coupling rods (left and
right).



Audi A1 with front-wheel drive / four-wheel drive:

- Remove heat shield ⇒ [page 112](#) .
- Unbolt drive shaft -2- from flange shaft (right-side) -1-
-arrows- and pivot upwards.
- Unbolt drive shaft from flange shaft on gearbox and pivot up-
wards.
- Pull drive shaft out of wheel hub between gearbox and body.
- Take out drive shaft from the front.



Note

If the drive shaft cannot be pulled out of the wheel hub by hand,
use press tool - 3283 A- or -T10520- .

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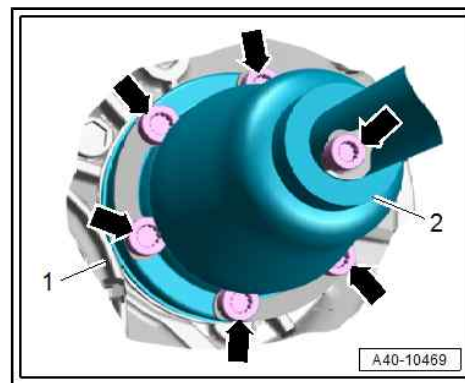
Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

- Tie up drive shaft to body with wire.

Audi S1:

- Unbolt drive shaft -2- from flange shaft (right-side) -1- -arrows- and pivot upwards.

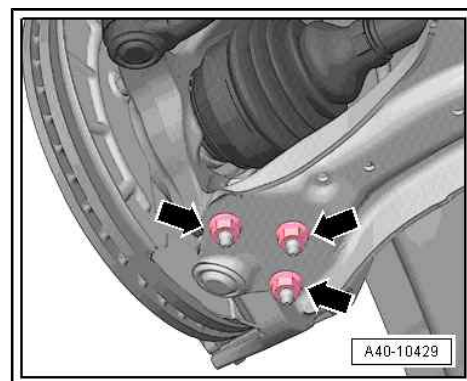


- Remove nuts -arrows- on swivel joint.
- Detach wishbone from swivel joint.



Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.

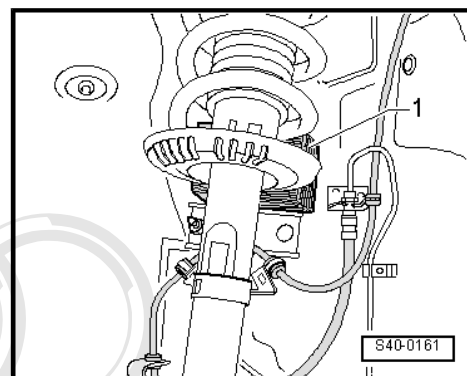


- Pivot suspension strut outwards and support with a wooden block -1- or similar; at the same time pull drive shaft out of wheel hub and remove outwards.



Note

If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520-.



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

- Tie up drive shaft to body with wire.

Installing

Install in reverse sequence, paying attention to the following:



Note

Clean thread and splines of stub axle on constant velocity joint and contact surface between wheel hub and 12-point nut/bolt.

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

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Audi A1 with front-wheel drive, Audi S1

Important: Make sure that deflector ring -1- is clipped completely onto outer joint.



Note

Deflector ring -1- must be flush with contact surface of outer joint -arrow-.

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All vehicles (continued):



Note

Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ *Electronic parts catalogue "ETKA"*.

- Guide outer joint into wheel hub splines as far as possible and position it on flange shaft.

Audi S1:

- Bolt swivel joint to wishbone with new nuts -arrows-.



Note

- ◆ Ensure sealing boot is not damaged or twisted.
- ◆ If sealing boot is damaged, renew swivel joint.

Audi A1 with front-wheel drive / four-wheel drive:

- Install heat shield ⇒ [page 112](#) .

All vehicles (continued):

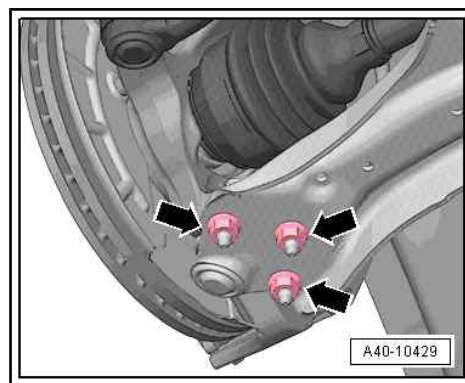
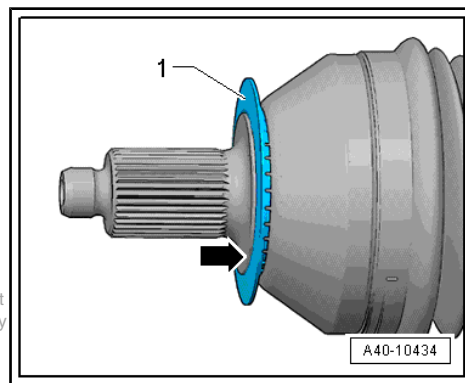
- Tighten bolt/nut securing drive shaft at wheel hub ⇒ [page 108](#) .

Tightening torques

- ◆ ⇒ ["6.1 Exploded view - drive shaft", page 86](#)
- ◆ ⇒ ["4.1 Exploded view - lower wishbone, swivel joint", page 53](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

6.2.3 Removing and installing drive shaft (left/right sides, with external splines for insertion in gearbox)

Special tools and workshop equipment required



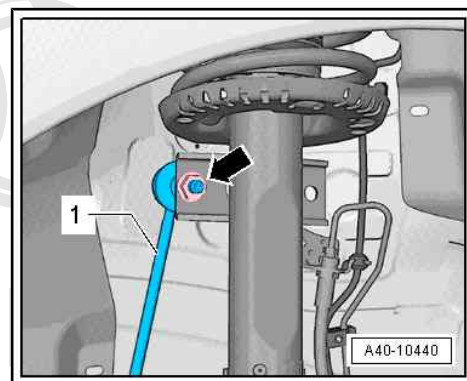
- ◆ Torque wrench - V.A.G 1332-



- ◆ Assembly lever

Removing

- Loosen bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .
- Remove front wheel ⇒ [page 303](#) .
- Remove noise insulation ⇒ General body repairs, exterior;
Rep. gr. 66 ; Noise insulation; Removing and installing noise
insulation .
- Unscrew nut -arrow- (both sides) securing coupling rod -1- to
suspension strut ⇒ [page 195](#) .
- Pull coupling rod out of suspension strut.

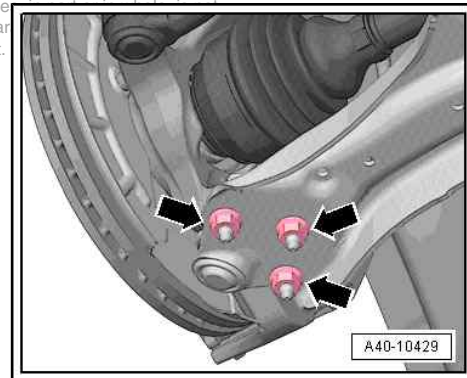


- Remove nuts -arrows- on swivel joint.
- Detach wishbone from swivel joint.



Note

When removing and installing, take care not to damage the rubber boot of the swivel joint. The boot should be protected against damage if necessary.



- Pivot suspension strut outwards and support with a wooden block -1- or similar; at the same time pull drive shaft out of wheel bearing and remove outwards.



Note

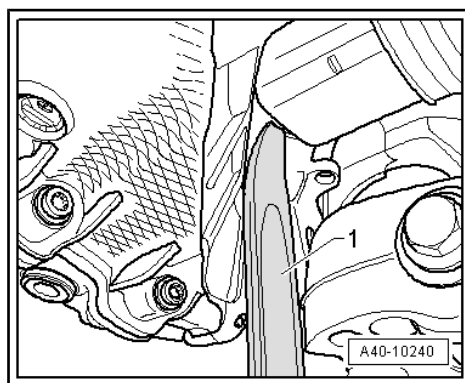
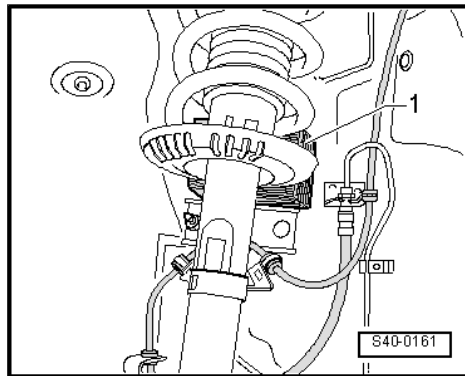
If the drive shaft cannot be pulled out of the wheel hub by hand, use press tool - 3283 A- or -T10520- .



Caution

Do not let the drive shaft hang down under its own weight, as otherwise excessive bending could damage the inner CV joint.

- A second person is required for the next steps.
- Apply assembly lever -1- between gearbox housing and inner triple roller joint.
- Carefully pry drive shaft off joint pin (have a second mechanic hold the drive shaft to prevent it from dropping).
- Take out drive shaft.

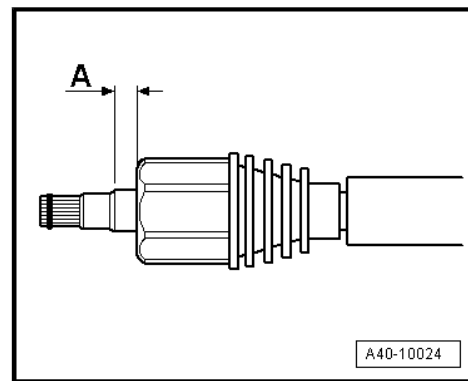


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Installing

Install in reverse sequence, paying attention to the following:

- Circlip on drive shaft must always be renewed following removal.
- Renew oil seal on gearbox ⇒ Rep. gr. 39 ; Oil seals; Overview of fitting locations - oil seals .
- Grease pin on end of joint in area -A- all round with approx. 0.5 g of grease ⇒ Electronic parts catalogue "ETKA" .
- Install drive shaft at gearbox end first.
- Mesh outer and inner splines of joint body and gearbox.
- Take hold of drive shaft and slide it into joint body as far as it will go.
- Then push joint body firmly into gearbox with a sudden, hard push so that circlip engages.



Note

- ◆ *If the drive shaft cannot be pushed in easily, even though the splines are aligned correctly, you can make use of the sliding travel in the constant velocity joint. However, do not pull the drive shaft too far out of the joint body.*
- ◆ *DO NOT use a hammer or the like.*
- Check that the joint body is fitted securely by pulling the joint against the resistance of the circlip.



Caution

When making this check, only pull on the joint body. Do not pull the drive shaft.



Note

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Before fitting in wheel hub, apply thin coat of assembly paste to splines on outer joint ⇒ Electronic parts catalogue "ETKA" .

- Guide outer joint into wheel hub splines as far as possible.
- Tighten bolt/nut securing drive shaft at wheel hub
⇒ [page 108](#) .

Tightening torques

- ◆ ⇒ ["4.1 Exploded view - lower wishbone, swivel joint", page 53](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

6.3 Loosening and tightening nut/bolt securing drive shaft

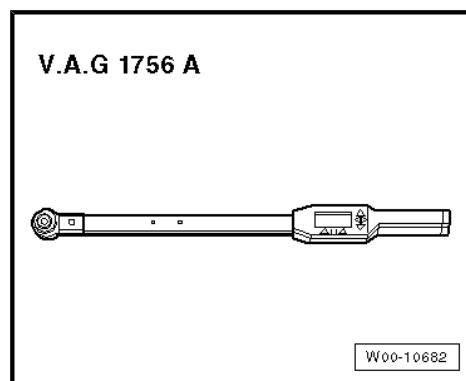
⇒ [“6.3.1 Loosening and tightening 12-point nut securing drive shaft”, page 108](#)

⇒ [“6.3.2 Loosening and tightening 12-point bolt securing drive shaft”, page 109](#)

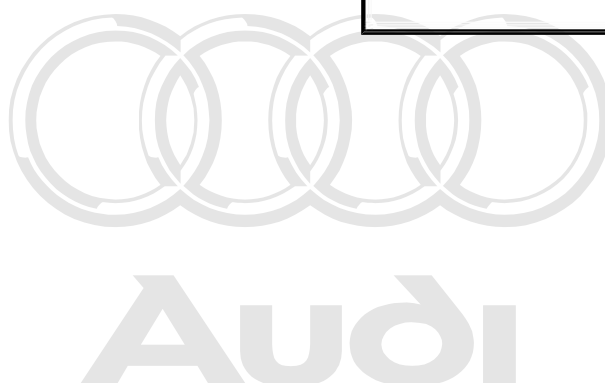
6.3.1 Loosening and tightening 12-point nut securing drive shaft

Special tools and workshop equipment required

◆ Angle wrench - V.A.G 1756 A-



◆ Socket AF 36 mm - T10125-



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Loosen 12-point nut.



Note

For general notes on the drive shaft, refer to [⇒ page 1](#).



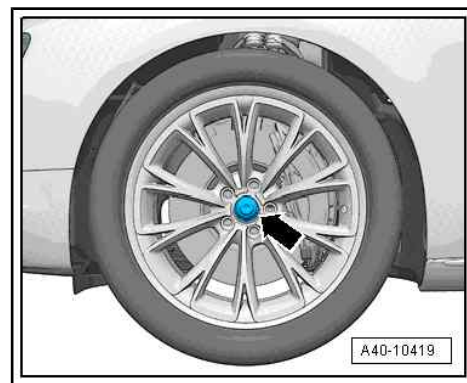
Caution

The wheel bearing can be damaged by the weight of the vehicle when the nut is loose.

- ◆ *The vehicle must not be standing on its wheels while the nut is being loosened.*

Risk of irreparable damage to bolt securing brake disc.

- ◆ *The corresponding front wheel must be bolted in place.*



- Raise vehicle so that wheels are off the ground.
- Have a second mechanic press the brake pedal.
- Remove 12-point nut -arrow-.
- If necessary, now (and not before) remove front wheel before performing further steps.

Installing 12-point nut



Note

Clean thread and splines of stub axle on constant velocity joint and contact surface between wheel hub and 12-point nut.

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- Renew 12-point nut.



Caution

The wheel bearing can be damaged by the weight of the vehicle if the nut has not been fully tightened.

- ◆ *The vehicle must not be standing on its wheels while the nut is being tightened.*

Risk of irreparable damage to bolt securing brake disc.

- ◆ *The corresponding front wheel must be bolted in place.*

- With a second mechanic pressing the brake pedal, tighten 12-point nut to specified torque and then turn through specified angle.

Tightening torques

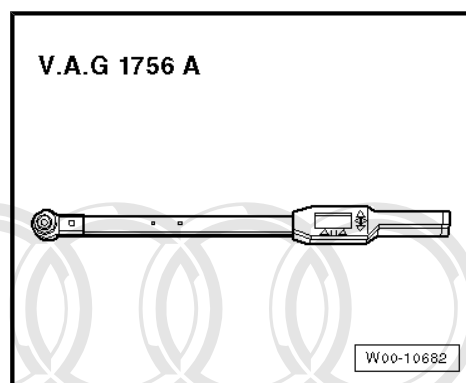
- ◆ [⇒ "6.1 Exploded view - drive shaft", page 86](#)

6.3.2 Loosening and tightening 12-point bolt securing drive shaft

Special tools and workshop equipment required



- ◆ Angle wrench - V.A.G 1756 A-



- ◆ Socket AF 24 mm - T10361 A-



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Loosening 12-point bolt



Note

General notes on drive shaft [⇒ page 1](#)



Caution

Risk of irreparable damage to bolt securing brake disc.

◆ **The corresponding front wheel must be bolted in place.**

- To avoid damage to wheel bearing, slacken off 12-point bolt -arrow- no further than 90° with vehicle standing on its wheels.
- Raise vehicle so that wheels are off the ground.
- Have a second mechanic press the brake pedal.
- Remove 12-point bolt -arrow-.
- If necessary, now (and not before) remove front wheel before performing further steps.

Installing 12-point bolt



Note

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Clean thread and splines of stub axle on constant velocity joint and contact surface between wheel hub and 12-point bolt.

- Renew 12-point bolt.



Caution

The wheel bearing can be damaged by the weight of the vehicle if the 12-point bolt has not been fully tightened.

◆ **Vehicle must not be in contact with ground when bolt is being tightened to specified torque.**

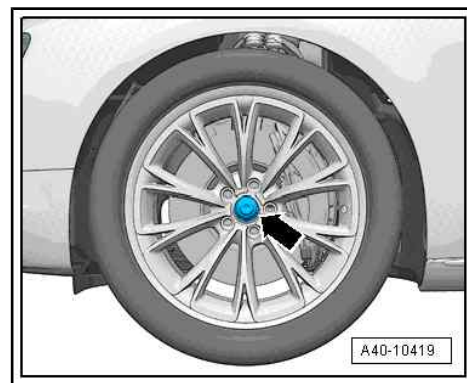
Risk of irreparable damage to bolt securing brake disc.

◆ **The corresponding front wheel must be bolted in place.**

- With a second mechanic pressing the brake pedal, tighten 12-point bolt to specified torque.
- Lower vehicle onto its wheels.
- Tighten 12-point bolt to final setting by turning through specified angle.

Tightening torques

- ◆ [⇒ "6.1 Exploded view - drive shaft", page 86](#)



6.4 Removing and installing heat shield for drive shaft

⇒ [“6.4.1 Removing and installing heat shield for drive shaft - Audi A1 with front-wheel drive”, page 112](#)

⇒ [“6.4.2 Removing and installing heat shield for drive shaft - Audi S1”, page 112](#)

6.4.1 Removing and installing heat shield for drive shaft - Audi A1 with front-wheel drive

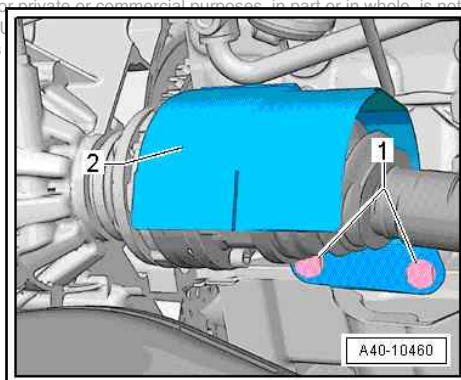
Removing

- Remove bolts -1- and detach heat shield -2-

Installation is carried out in reverse sequence.

Tightening torques

Applies to	Tightening torque
Heat shield to gearbox housing	25 Nm



6.4.2 Removing and installing heat shield for drive shaft - Audi S1

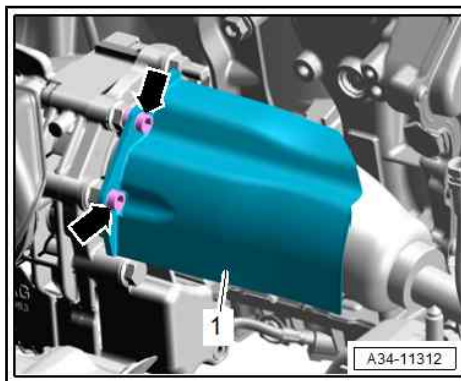
Removing

- Remove wheel ⇒ [page 303](#) .
- Remove nuts -arrows- and detach heat shield -1-.

Installation is carried out in reverse sequence.

Tightening torques

Applies to	Tightening torque
Heat shield to gearbox housing	20 Nm



6.5 Dismantling and assembling drive shaft

⇒ [“6.5.1 Dismantling and assembling drive shaft, constant velocity joint VL90/VL100”, page 113](#)

⇒ [“6.5.2 Dismantling and assembling drive shaft, constant velocity joint VL107”, page 118](#)

⇒ [“6.5.3 Dismantling and assembling drive shaft, triple roller joint AAR 2000/108”, page 122](#)

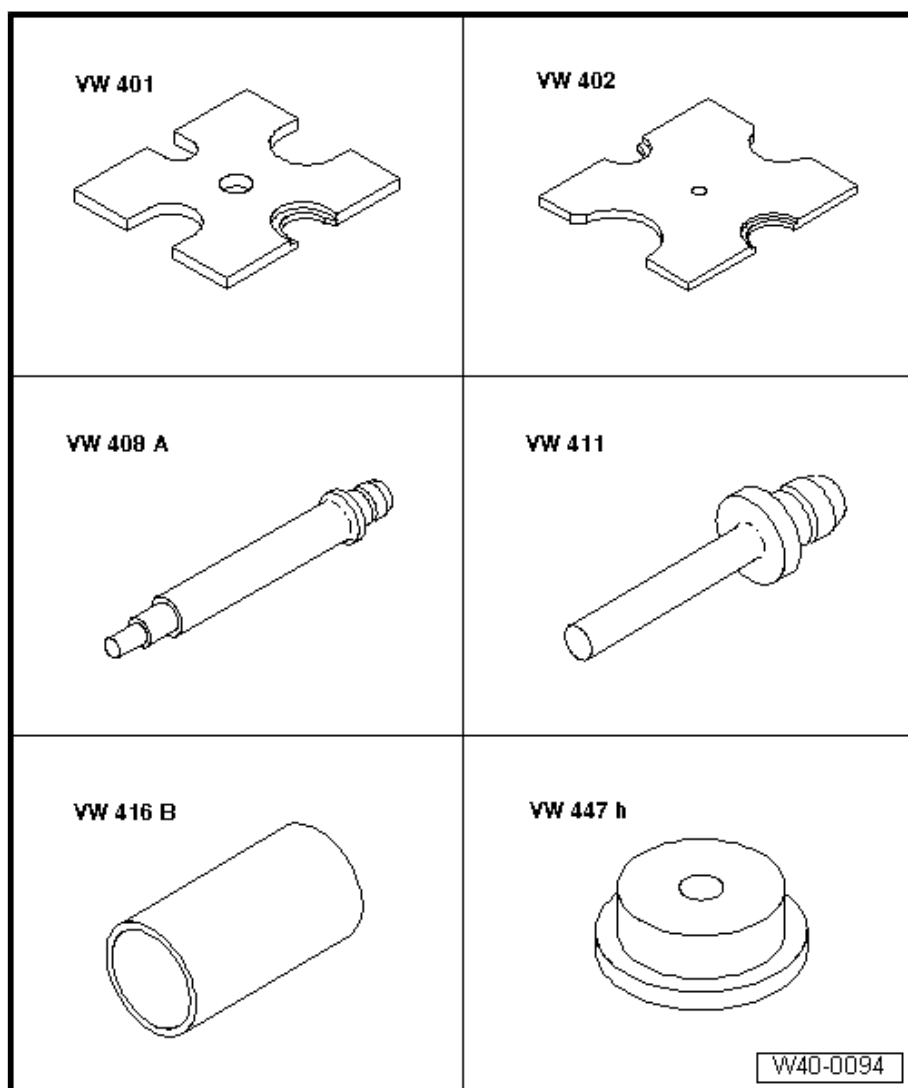
⇒ [“6.5.4 Dismantling and assembling drive shaft, triple roller joint AAR3300i \(with bolted flange on gearbox\)”, page 130](#)

⇒ [“6.5.5 Dismantling and assembling drive shaft, triple roller joint AAR3300i \(with external splines for insertion in gearbox\)”, page 135](#)

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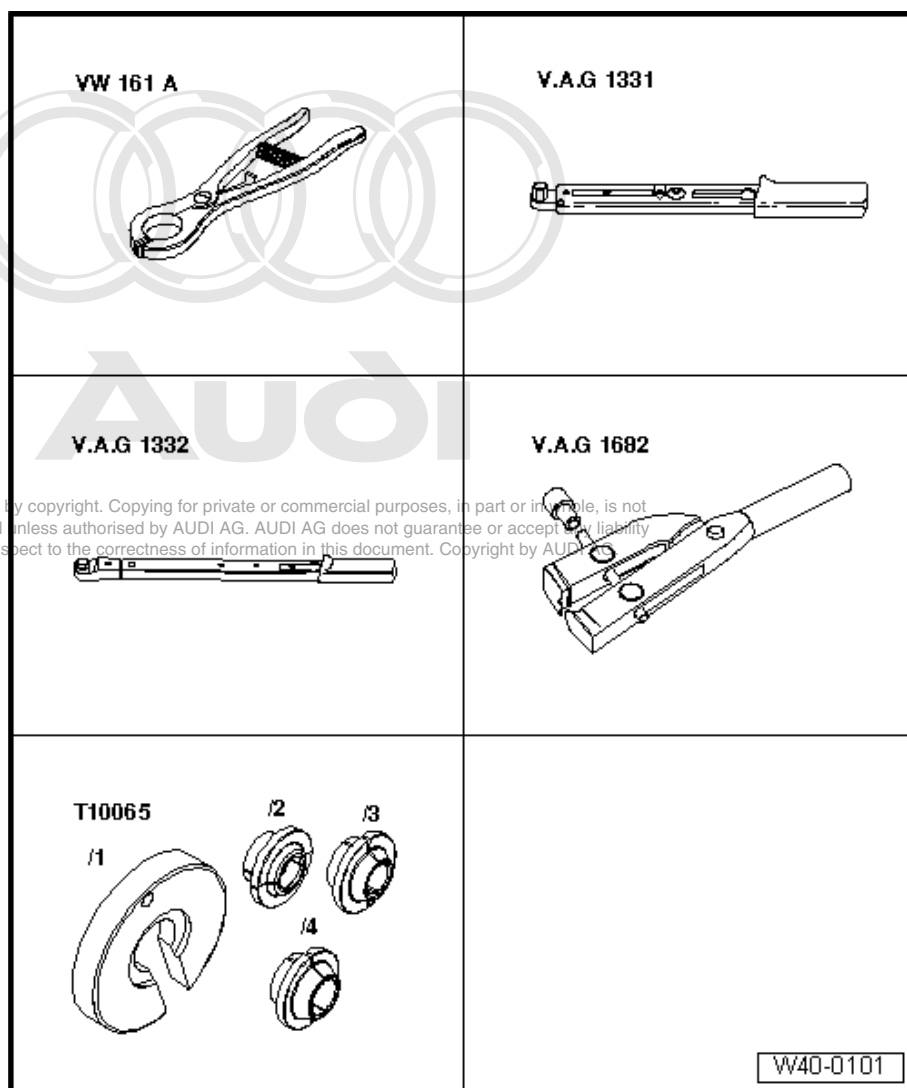
6.5.1 Dismantling and assembling drive shaft, constant velocity joint VL90/VL100

Special tools and workshop equipment required



- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 408 A-
- ◆ Press tool - VW 411-

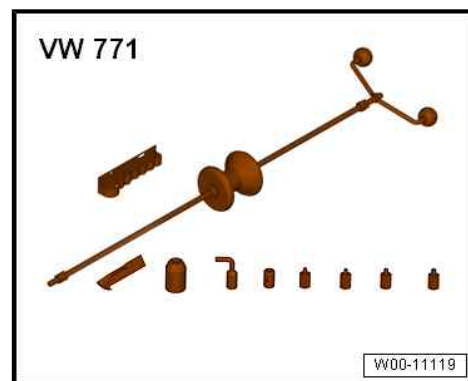
- ◆ Tube - VW 416 B-
- ◆ Thrust pad - VW 447 H-



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- ◆ Circlip pliers - VW 161 A-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Clamp tensioner - V.A.G 1682 A-
- ◆ Assembly tool - T10065-

◆ Multi-purpose tool - VW 771-



◆ Puller - T10382-

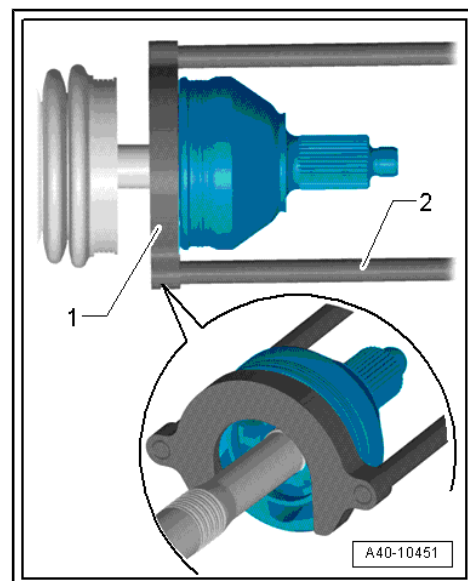


Removing outer constant velocity joint

- Clamp drive shaft in vice using protective jaw covers.
- Fold back rubber boot.
- Set up puller - T10382- so that smooth side of puller plate - T10382/1- faces towards spindles - T10382/2- .
- Assemble puller - T10382- together with multi-purpose tool - VW 771- .
- Pull CV joint off drive shaft using puller - T10382- and multi-purpose tool - VW 771- .

1 - Puller plate - T10382/1-

2 - Spindles - T10382/2-

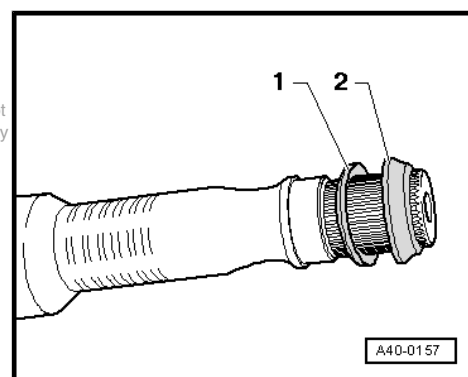


Driving on outer constant velocity joint

Installation position of dished spring and spacer ring on outer joint

- 1 - Dished spring
- 2 - Spacer ring

- Install new circlip.
- If necessary, push new joint boot onto drive shaft.
- Knock joint onto shaft with plastic hammer until circlip engages.

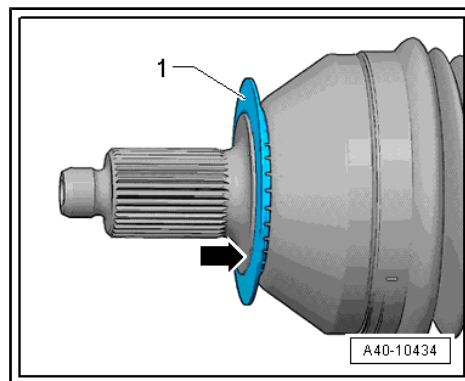


Important: Make sure that deflector ring -1- is clipped completely onto outer joint.



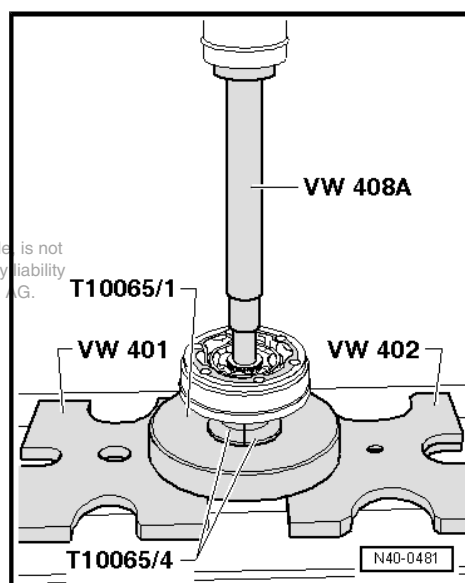
Note

Deflector ring -1- must be flush with contact surface of outer joint -arrow-.



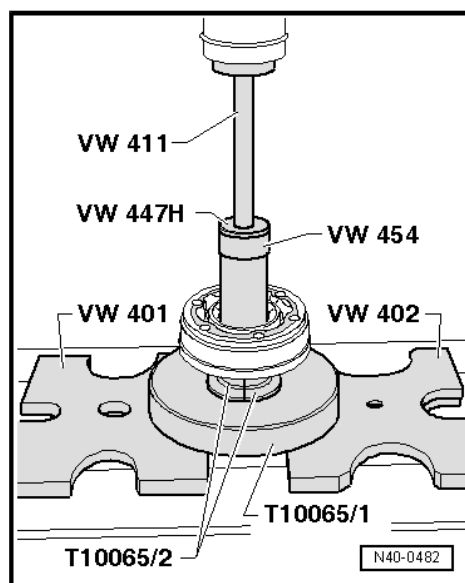
Pressing off inner constant velocity joint

- First drive rubber boot off with drift.



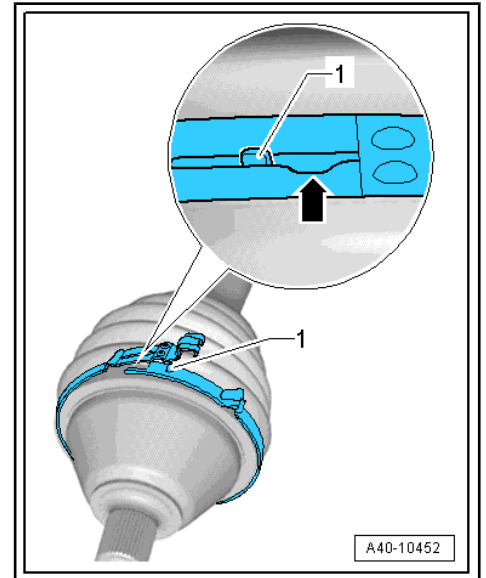
Pressing on inner constant velocity joint

- Press on joint as far as stop.
- Engage circlip.
- Chamfer on internal diameter of ball hub (splines) must face contact collar of drive shaft.

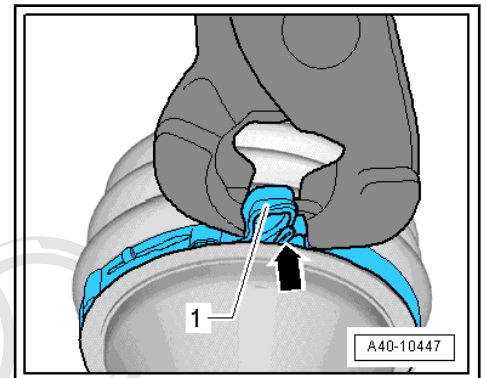


Tightening hose clip on outer joint - version 1

- Insert lug -1- of hose clip into guide -arrow-.



- Compress hose clip with pliers, e.g. locking pliers for Phaeton steering rack - VAS 6199- until upper part -1- locks with guide -arrow-.



Tightening hose clip on outer joint - version 2

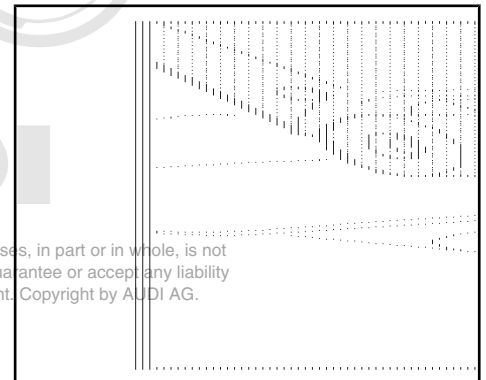
- Apply clamp tensioner - V.A.G 1682 A- as shown. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle with torque wrench (take care to keep tool straight).



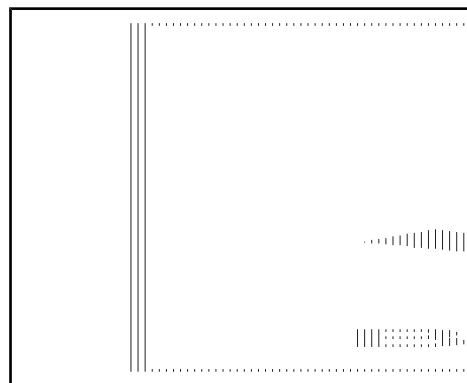
Note

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- ◆ Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A-.
- ◆ Tightening torque: 25 Nm.
- ◆ Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.
- ◆ If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.



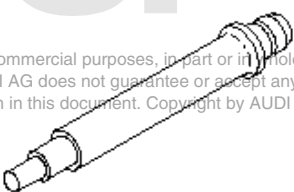
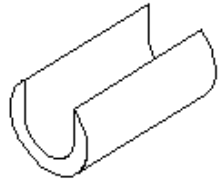
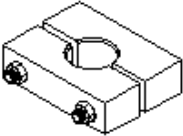
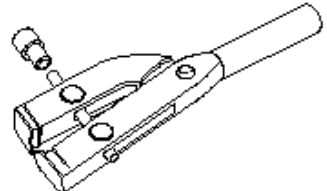
Tightening hose clip on small diameter of inner/outer joint



6.5.2 Dismantling and assembling drive shaft, constant velocity joint VL107

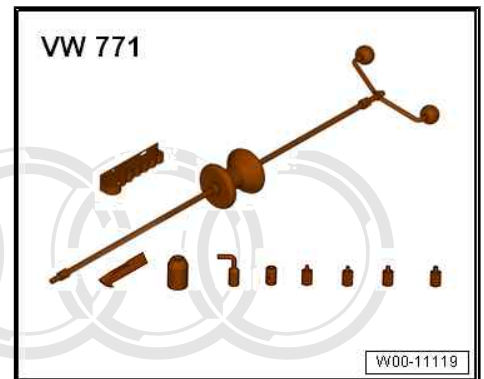
Special tools and workshop equipment required

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VW 401 	VW 402 
VW 408 A 	VW 522 
40-204 A 	V.A.G 1682  VW42-0056

- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 408 A-
- ◆ Support sleeve - VW 522-
- ◆ Clamp - 40 - 204 A-

- ◆ Clamp tensioner - V.A.G 1682 A-
- ◆ Multi-purpose tool - VW 771-

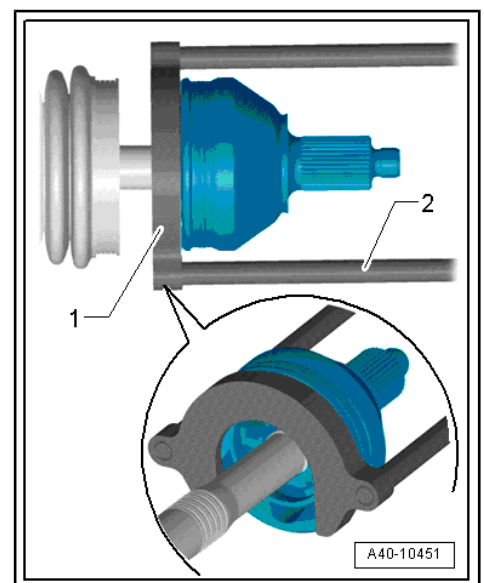


- ◆ Puller - T10382-



Removing outer constant velocity joint

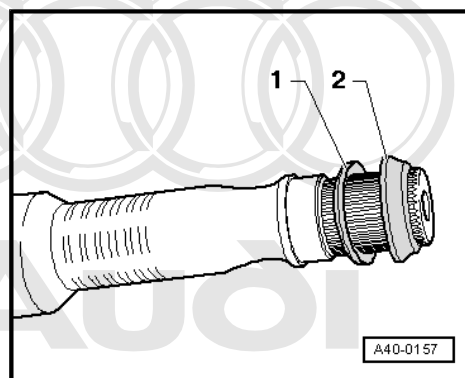
- Clamp drive shaft in vice using protective jaw covers.
 - Fold back rubber boot.
 - Set up puller - T10382- so that smooth side of puller plate - T10382/1- faces towards spindles - T10382/2- .
 - Assemble puller - T10382- together with multi-purpose tool - VW 771- .
 - Pull CV joint off drive shaft using puller - T10382- and multi-purpose tool - VW 771- .
- 1 - Puller plate - T10382/1-
2 - Spindles - T10382/2-



Driving on outer constant velocity joint

Installation position of dished spring and spacer ring on outer joint

- 1 - Dished spring
- 2 - Spacer ring
- Knock joint onto shaft with plastic hammer until circlip engages.

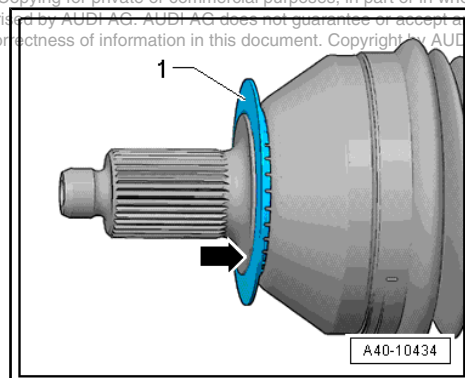


Important: Make sure that deflector ring -1- is clipped completely onto outer joint.



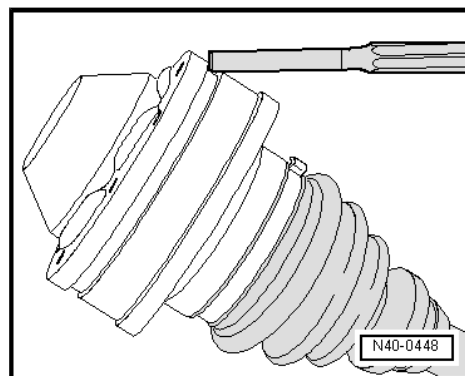
Note

Deflector ring -1- must be flush with contact surface of outer joint -arrow-.

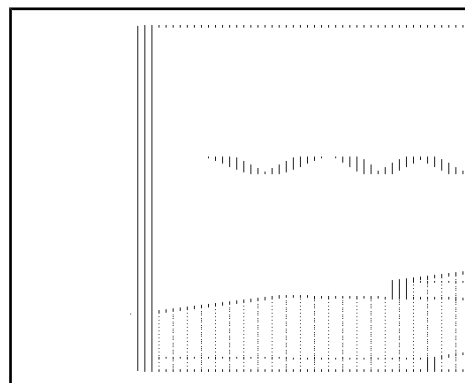


Driving off cover from inner joint

- Remove circlip.
- Detach both hose clips and slide boot towards outer joint.
- Use drift to drive off boot.

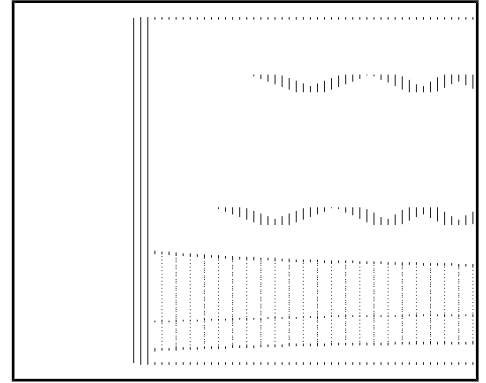


Pressing off inner constant velocity joint

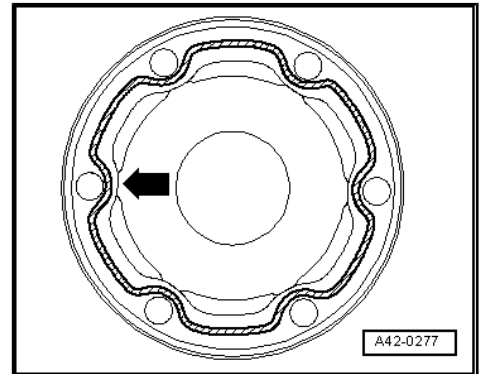


Pressing on inner constant velocity joint

- Press on joint as far as stop.
- Engage circlip.



- Coat sealing surface of cover with sealant - D 454 300 A2- .
- Apply continuous bead of sealant (2 ... 3 mm Ø) past inner edge of holes -arrow- to clean surface of cover.



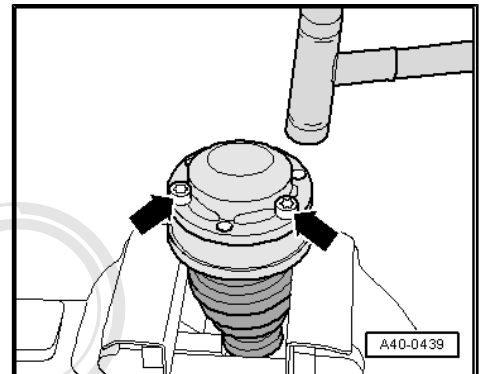
- Using bolts -arrows-, align new cover in relation to bolt holes.



Note

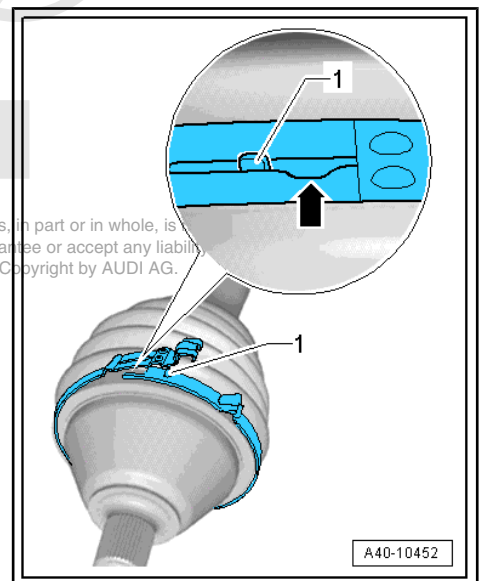
The alignment must be very accurate, because no further alignment is possible once the part has been hammered on.

- Drive on cover using a plastic hammer.
- Wipe off surplus sealant.



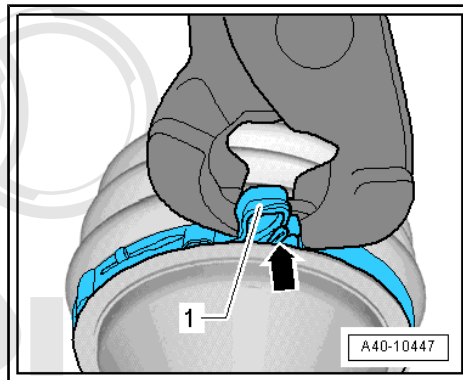
Tightening hose clip on outer joint - version 1

- Insert lug -1- of hose clip into guide -arrow-.



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- Compress hose clip with pliers, e.g. locking pliers for Phaeton steering rack - VAS 6199- until upper part -1- locks with guide -arrow-.



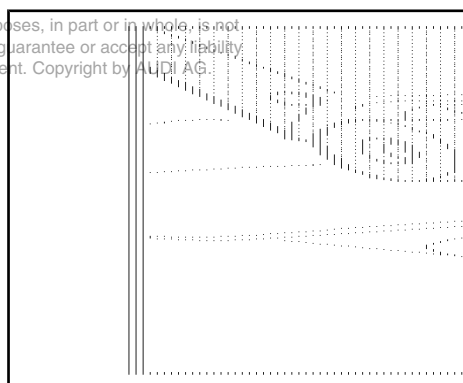
Tightening hose clip on outer joint - version 2

- Apply clamp tensioner - V.A.G 1682 A- as shown. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle with torque wrench (take care to keep tool straight).

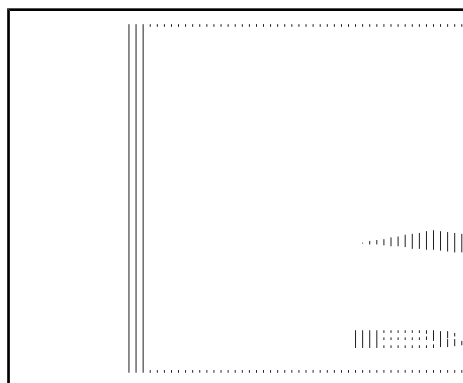


Note

- ◆ Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A- .
- ◆ Tightening torque: 25 Nm.
- ◆ Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.
- ◆ If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.

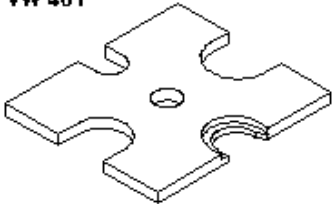
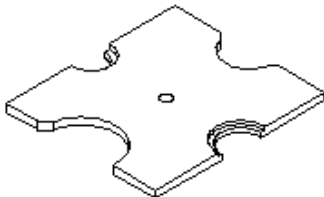
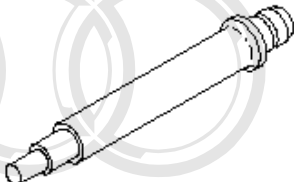
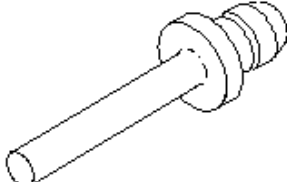
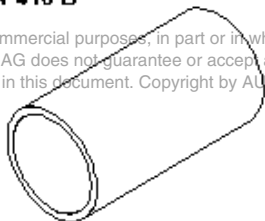
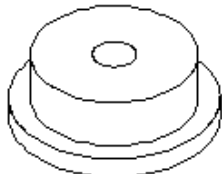


Tightening hose clip on small diameter of inner/outer joint

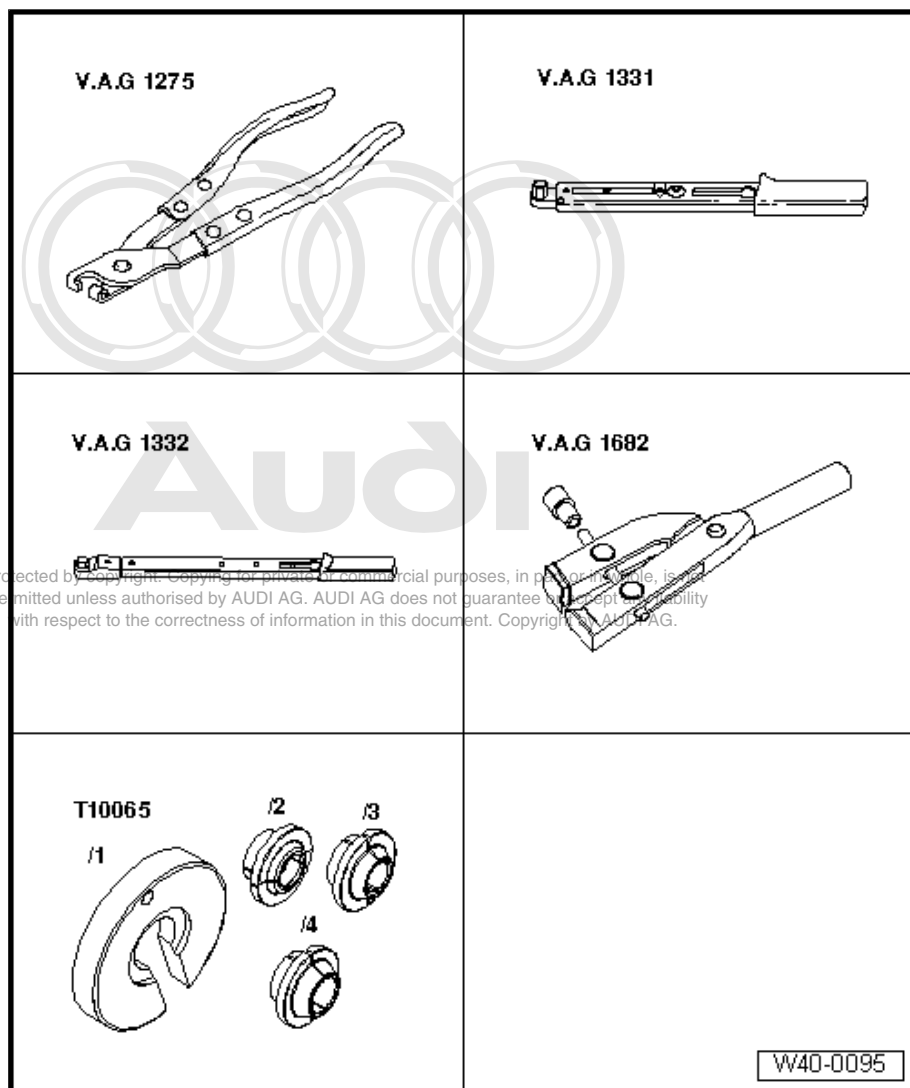


6.5.3 Dismantling and assembling drive shaft, triple roller joint AAR 2000/108

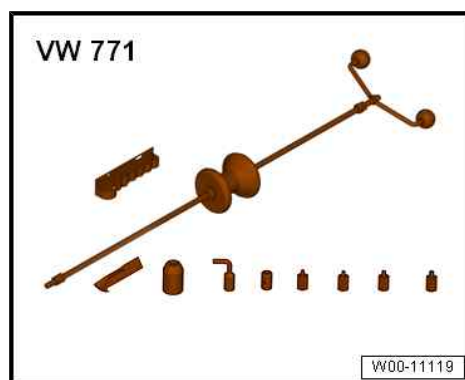
Special tools and workshop equipment required

VW 401 	VW 402 
VW 408 A 	VW 411 
VW 416 B 	VW 447 h  VW40-0094

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



- ◆ Hose clip pliers - V.A.G 1275-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Clamp tensioner - V.A.G 1682 A-
- ◆ Assembly tool - T10065-
- ◆ Multi-purpose tool - VW 771-



◆ Puller - T10382-

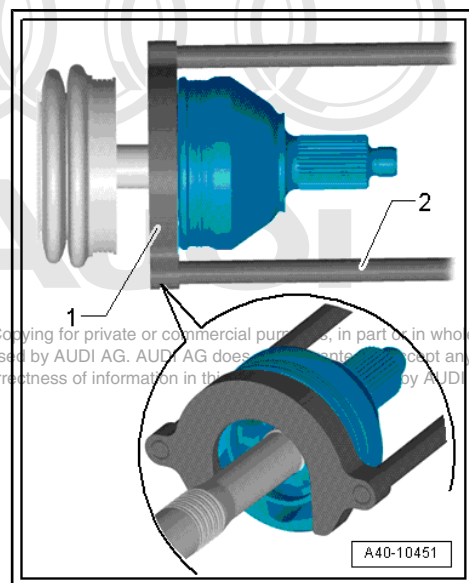


Removing outer constant velocity joint

- Clamp drive shaft in vice using protective jaw covers.
- Fold back rubber boot.
- Set up puller - T10382- so that smooth side of puller plate - T10382/1- faces towards spindles - T10382/2- .
- Assemble puller - T10382- together with multi-purpose tool - VW 771- .
- Pull CV joint off drive shaft using puller - T10382- and multi-purpose tool - VW 771- .

1 - Puller plate - T10382/1-

2 - Spindles - T10382/2-



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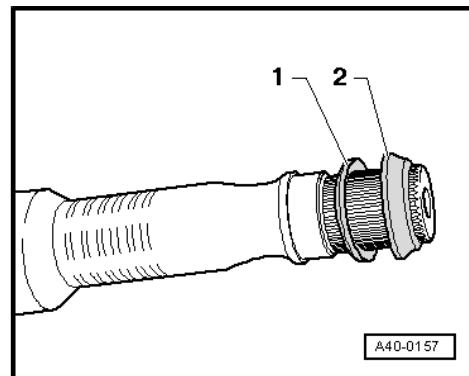
Driving on outer constant velocity joint

Installation position of dished spring and spacer ring on outer joint

1 - Dished spring

2 - Spacer ring

- Knock joint onto shaft with plastic hammer until circlip engages.

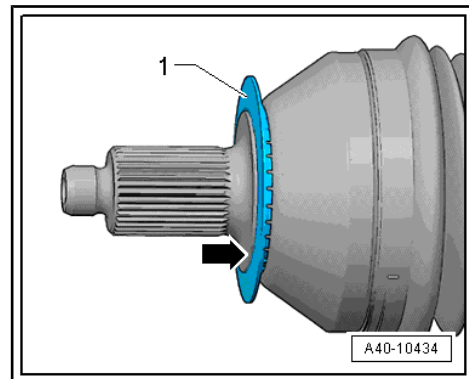


Important: Make sure that deflector ring -1- is clipped completely onto outer joint.



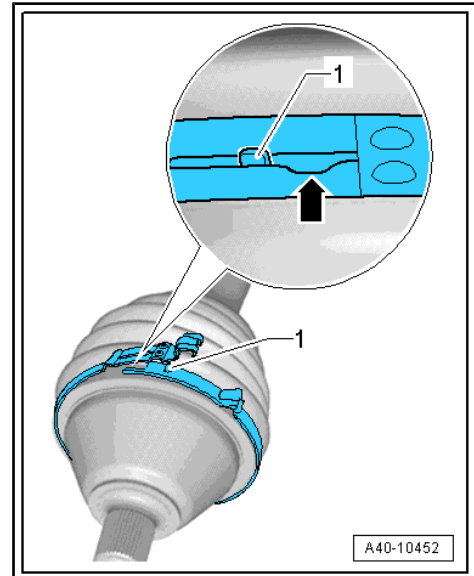
Note

Deflector ring -1- must be flush with contact surface of outer joint -arrow-.

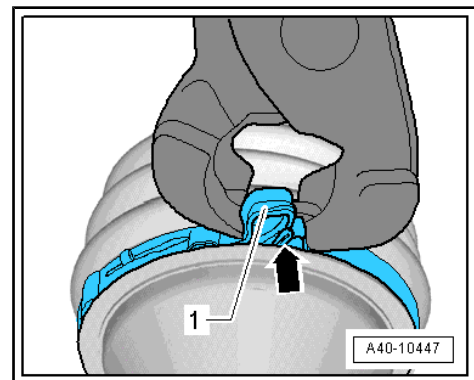


Tightening hose clip on outer joint - version 1

- Insert lug -1- of hose clip into guide -arrow-.



- Compress hose clip with pliers, e.g. locking pliers for Phaeton steering rack - VAS 6199- until upper part -arrow 1- locks with guide -2-.



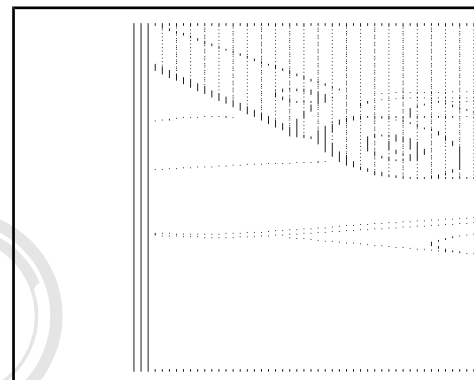
Tightening hose clip on outer joint - version 2

- Apply clamp tensioner - V.A.G 1682 A- as shown. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle with torque wrench (take care to keep tool straight).



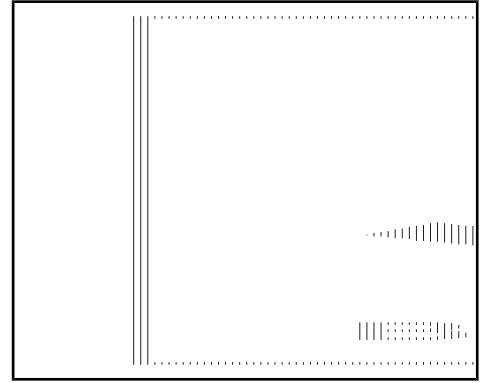
Note

- ◆ Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A- .
- ◆ Tightening torque: 25 Nm.
- ◆ Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.
- ◆ If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.



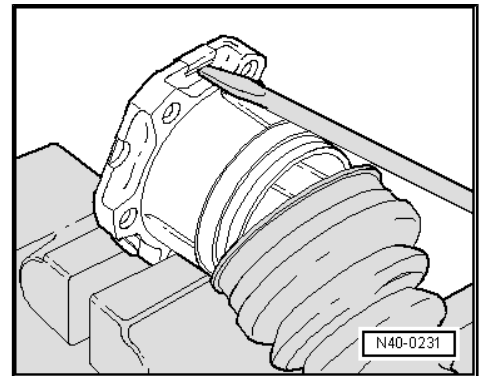
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Tightening hose clip at small diameter of boot



Dismantling triple roller joint

- Open hose clip on joint body and slide back boot.
- Open out metal tabs on cover using a flat-bladed screwdriver and lever off cover.



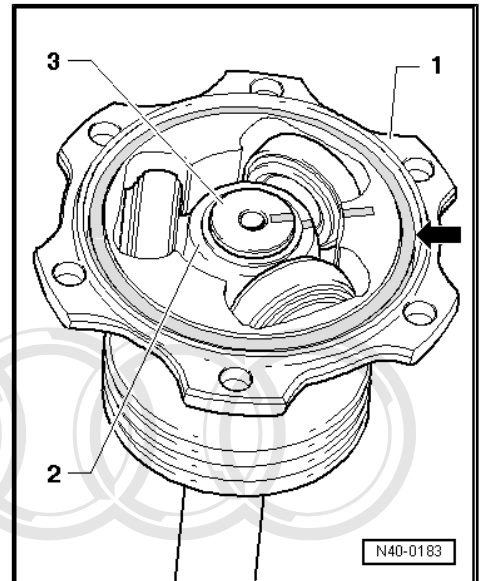
- Mark installation position of parts -1...3- with lines.

The joint may be noisy if these parts are not marked and reinstalled in their original positions.

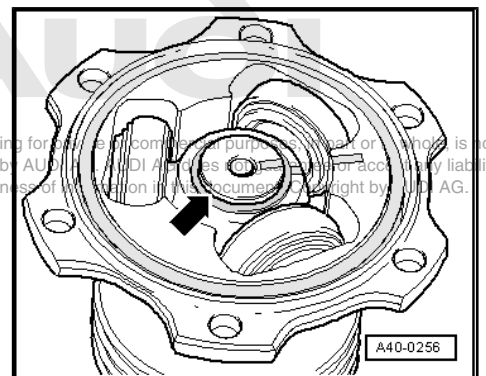
Use a waterproof felt-tip pen for marking.

- 1 - Joint body
- 2 - Triple roller spider
- 3 - Drive shaft

- Take seal -arrow- out of groove.



- Remove circlip -arrow-.
- Hold joint body and take drive shaft out of vice.
- Insert drive shaft in press.



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- Hold drive shaft, then press triple roller spider off drive shaft.
- Remove triple roller spider with rollers and place on a clean surface.
- Pull joint body off shaft.
- Pull boot off drive shaft.
- Clean shaft and joint body.

Assembling

- Push boot for inner joint onto shaft.
- Push joint body onto shaft.

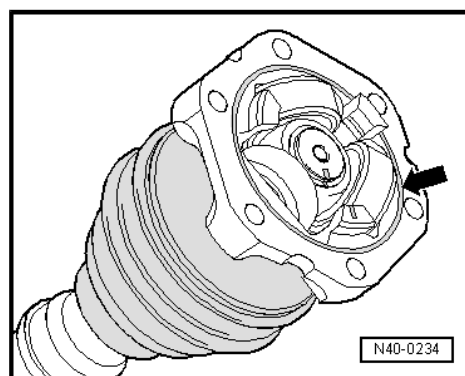
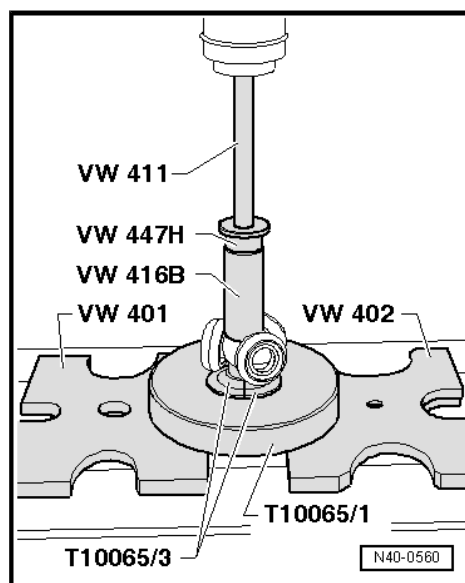
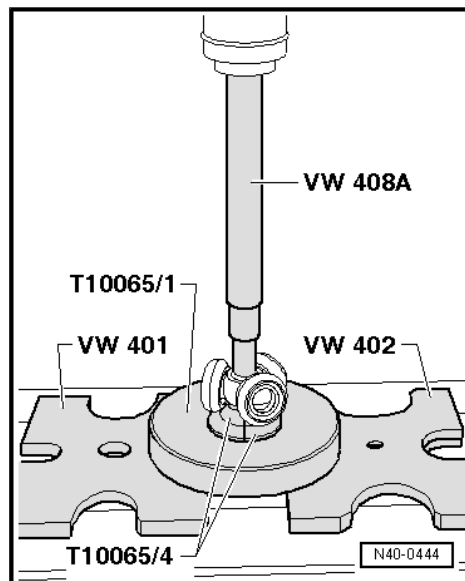
Fitting triple roller spider

Chamfer on spider faces towards shaft and is used as an assembly aid.

- Fit triple roller spider onto shaft according to markings and press on as far as stop.
- Install circlip (ensure proper seating).
- Slide joint body over rollers and hold in position.
- Press half the specified quantity of drive shaft grease from the repair kit into the triple roller joint.
- Press the other half of the specified quantity of drive shaft grease from the repair kit into the back of the triple roller joint.
- Install joint boot.

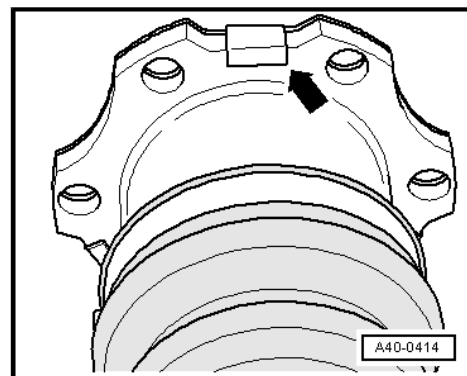
The bead in the drive shaft boot must engage in the groove on the joint body.

- Now take drive shaft out of vice and clamp joint body in position in vice.
- Insert new seal -arrow- from repair kit into groove.



- Attach new cover to joint body: tabs must be positioned on straight surfaces of joint body -arrow-.

Holes in cover and joint must align.

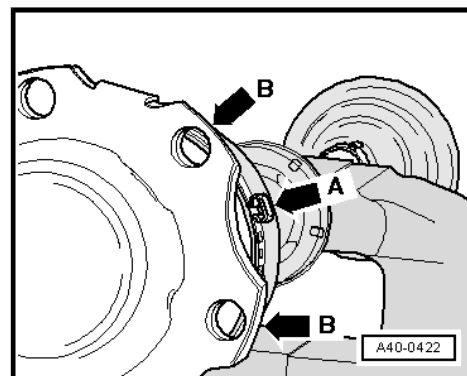


- Install hose clip.



Note

In order to insert the multi-point socket-head bolts when installing the drive shaft, the lug -arrow A- on the hose clip must be positioned between the mounting flanges -arrows B- on the joint body.



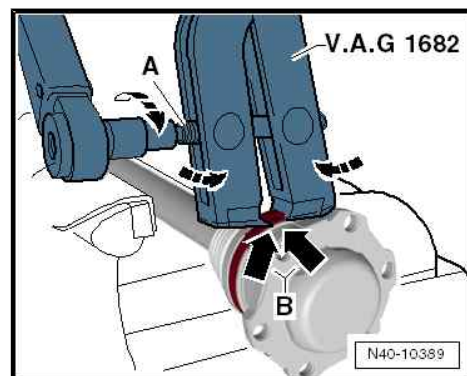
Tightening hose clip on large diameter of inner joint

- Apply clamp tensioner - V.A.G 1682 A- as shown. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle -A- with torque wrench (take care to keep clamp tensioner straight).

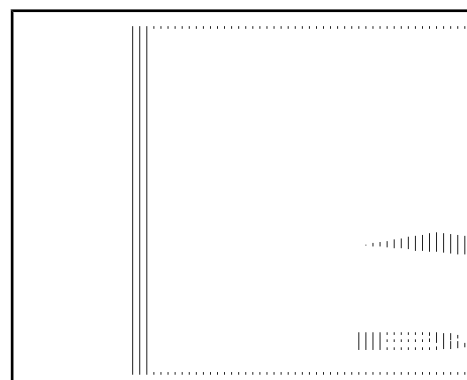


Note

- ◆ *Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A- .*
- ◆ *Tightening torque: 25 Nm.*
- ◆ *Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.*
- ◆ *If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.*

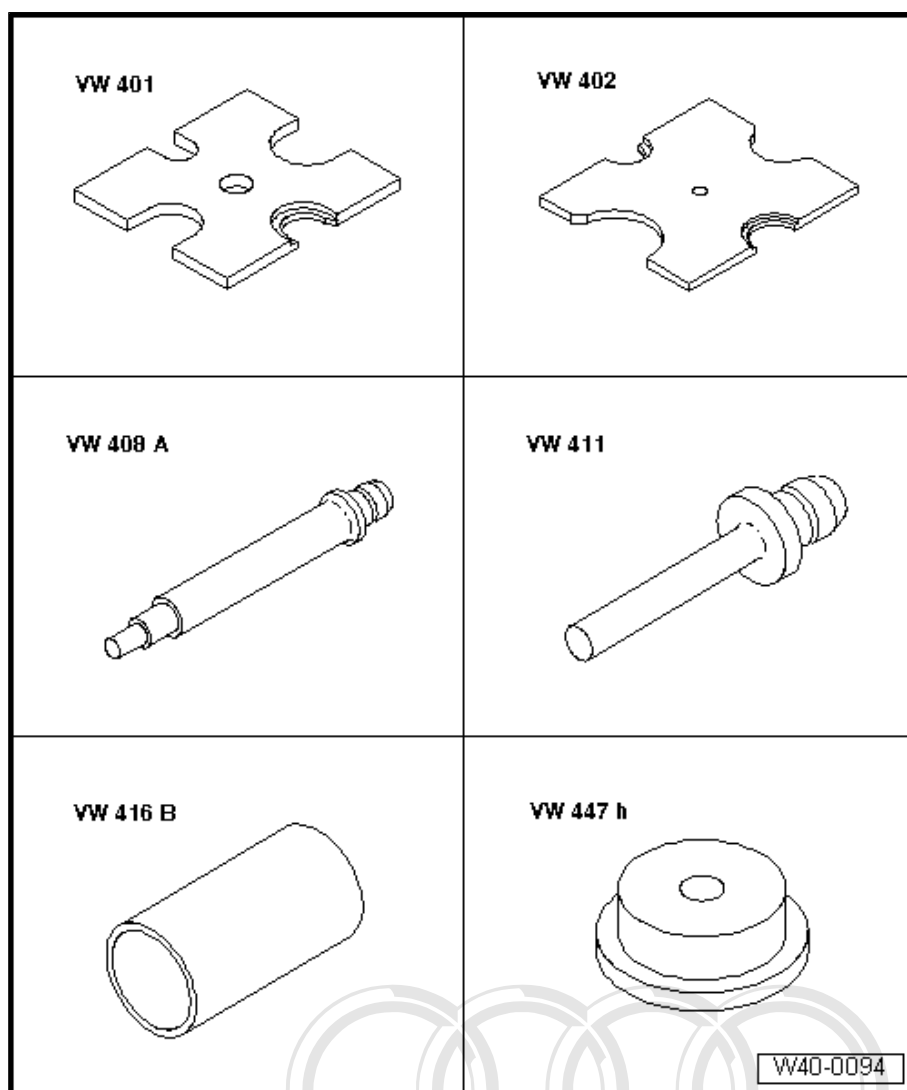


Tightening hose clip on small diameter of inner/outer joint



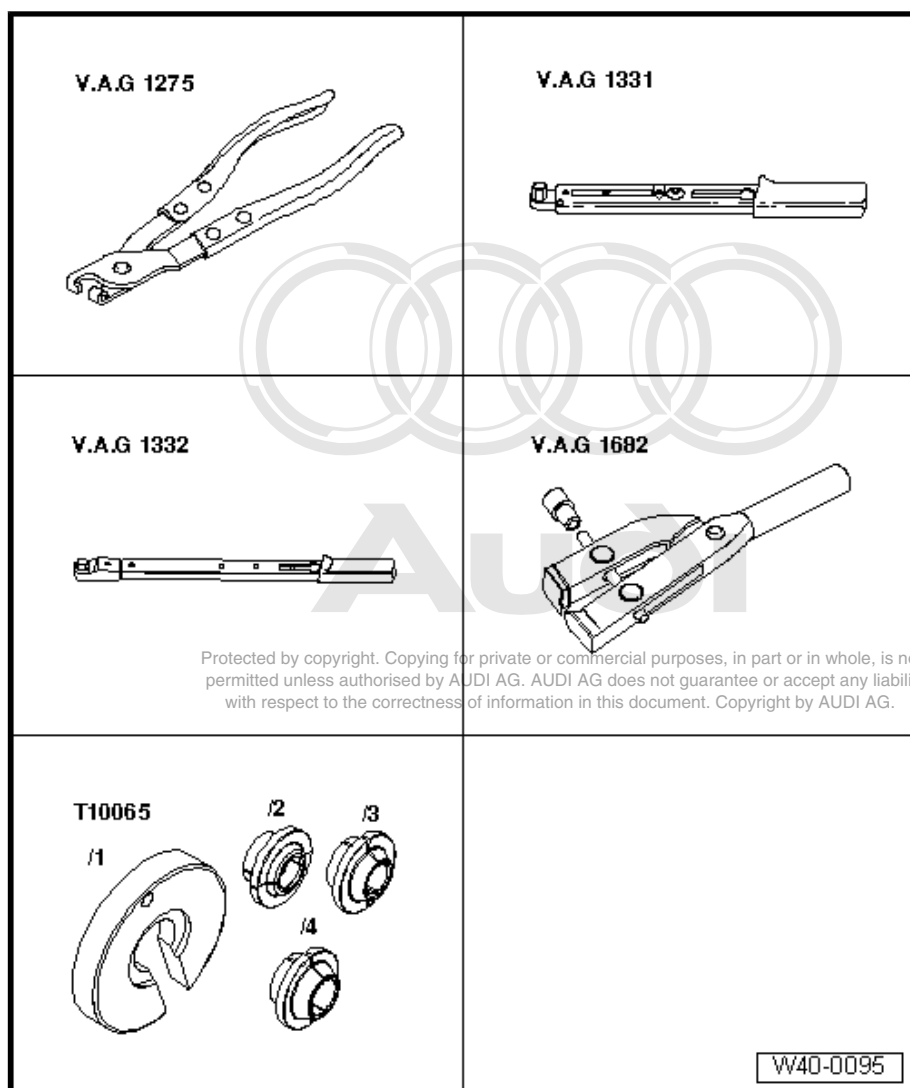
6.5.4 Dismantling and assembling drive shaft, triple roller joint AAR3300i (with bolted flange on gearbox)

Special tools and workshop equipment required

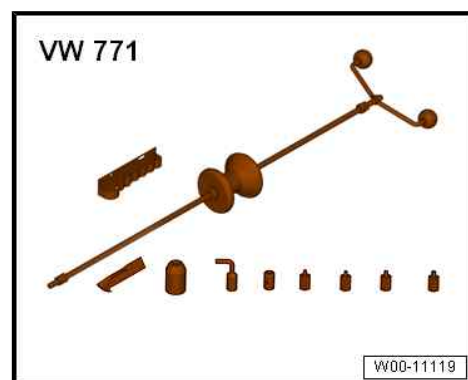


- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 408 A-
- ◆ Press tool - VW 411-
- ◆ Tube - VW 416 B-
- ◆ Thrust pad - VW 447 H-

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- ◆ Hose clip pliers - V.A.G 1275-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Clamp tensioner - V.A.G 1682 A-
- ◆ Assembly tool - T10065-
- ◆ Multi-purpose tool - VW 771-

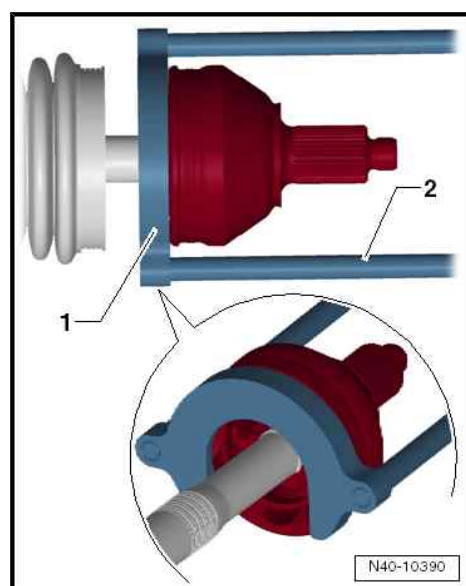


◆ Puller - T10382-



Removing outer constant velocity joint

- Clamp drive shaft in vice using protective jaw covers.
 - Fold back rubber boot.
 - Set up puller - T10382- so that smooth side of puller plate - T10382/1- faces towards spindles - T10382/2- .
 - Assemble puller - T10382- together with multi-purpose tool - VW 771- .
 - Pull CV joint off drive shaft using puller - T10382- and multi-purpose tool - VW 771- .
- 1 - Puller plate - T10382/1-
 - 2 - Spindles - T10382/2-



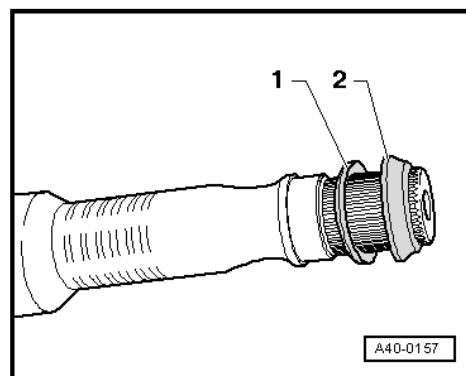
Driving on outer constant velocity joint

Installation position of dished spring and spacer ring at outer joint

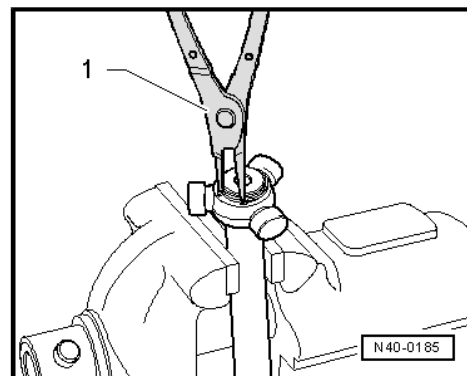
- 1 - Dished spring
 - 2 - Spacer ring
- Install new circlip.
 - If necessary, push new joint boot onto drive shaft.
 - Knock joint onto shaft with plastic hammer until circlip engages.

Dismantling triple roller joint

- Clamp drive shaft in vice using protective jaw covers.
- Open both hose clips on inner joint and push back boot.
- Pull joint body off drive shaft.



- Remove circlip.
- 1 - Pliers (commercial type)
- or -VW 161 A-
- Insert drive shaft in press.

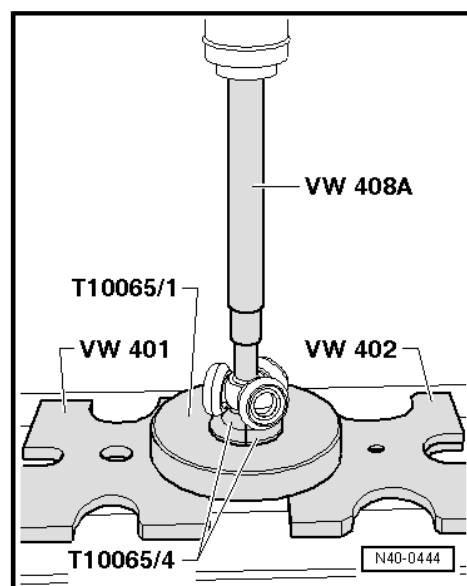


- Press triple roller spider off drive shaft.
- Pull boot off drive shaft.
- Clean shaft, joint body and groove for seal.

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Assembling triple roller joint

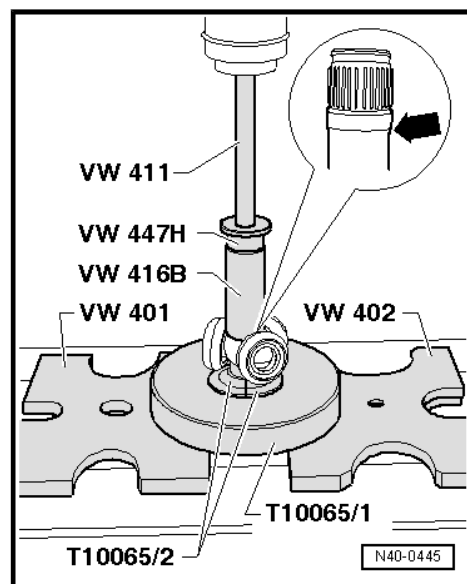
- Push small hose clip for boot onto shaft.
- Slide boot onto shaft.
- Push joint body onto shaft.



Fitting triple roller spider

The chamfer -arrow- on the spider faces the shaft and facilitates assembly.

- Fit triple roller spider on shaft and press on as far as stop.
- Make sure pressure does not exceed 3.0 t.
- If necessary, grease splines of drive shaft and triple roller spider with lubricating paste - G 052 142 A2- .
- Install circlip (ensure proper seating).
- Pack half the total quantity of grease from repair kit into triple roller joint.
- Slide joint body over rollers and hold in position.
- Pack remaining quantity of grease from repair kit into rear of triple roller joint.
- Install joint boot.

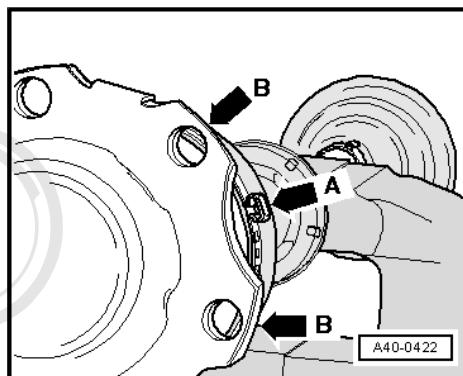


- Install hose clip.



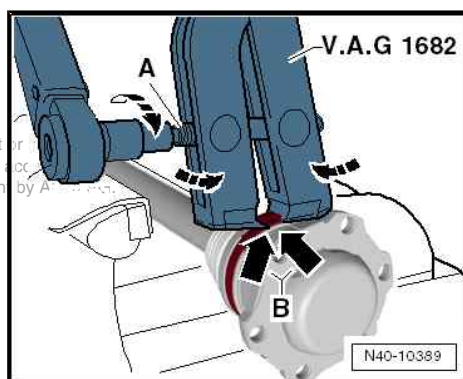
Note

In order to insert the multi-point socket-head bolts when installing the drive shaft, the lug -arrow A- on the hose clip must be positioned between the mounting flanges -arrows B- on the joint body.



Tightening hose clip on large diameter of inner joint

- Apply clamp tensioner - V.A.G 1682 A- as shown. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle with torque wrench (take care to keep tool straight).

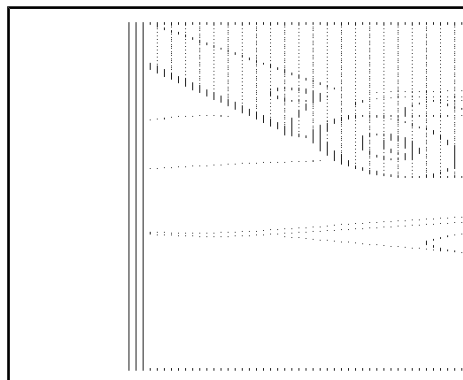


Note

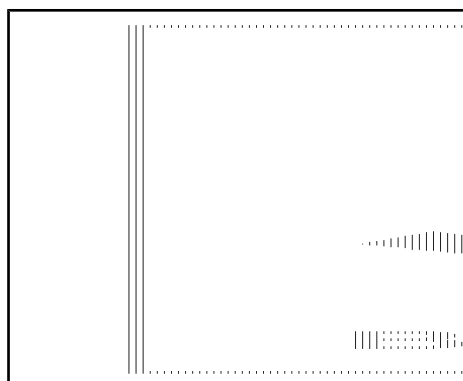
- ♦ Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A- .
- ♦ Tightening torque: 25 Nm.
- ♦ Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.
- ♦ If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.

Tightening hose clip on outer joint

- Apply clamp tensioner - V.A.G 1682 A- as illustrated. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle with torque wrench (take care to keep tool straight).

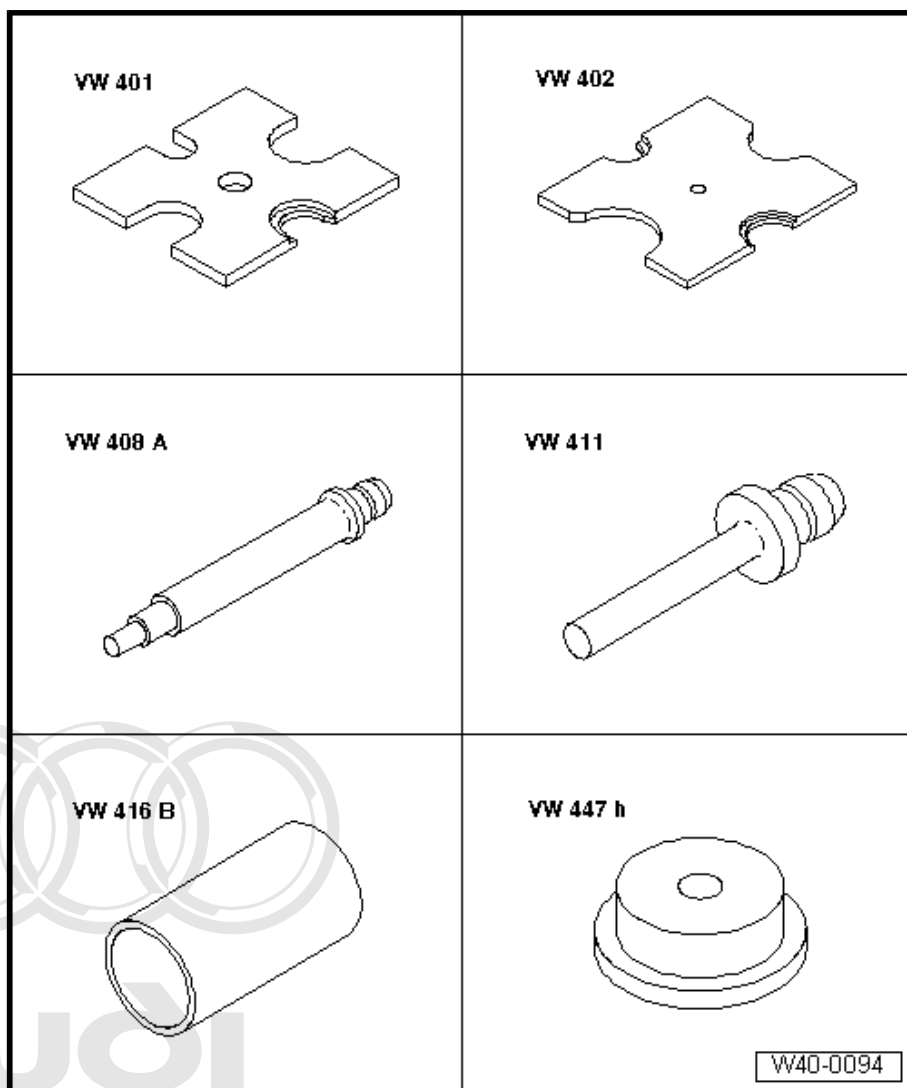


Tightening hose clip on small diameter of inner/outer joint



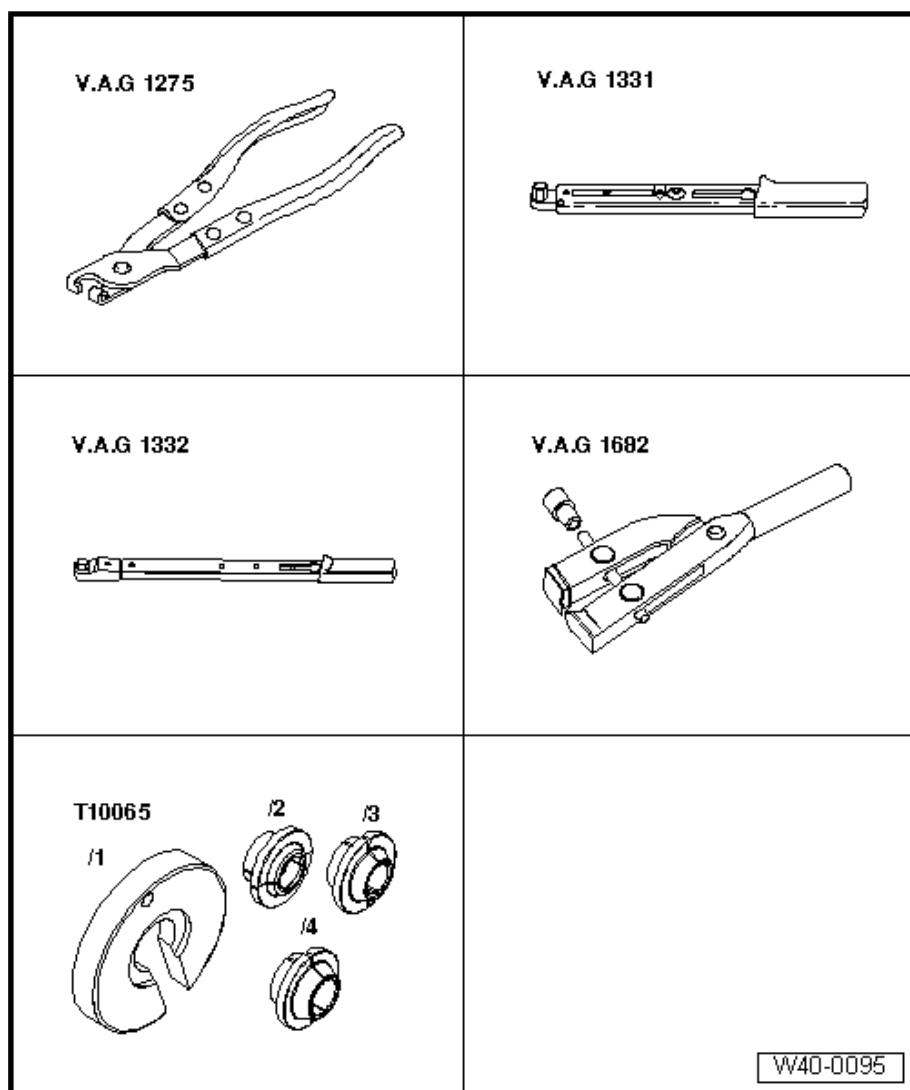
6.5.5 Dismantling and assembling drive shaft, triple roller joint AAR3300i (with external splines for insertion in gearbox)

Special tools and workshop equipment required



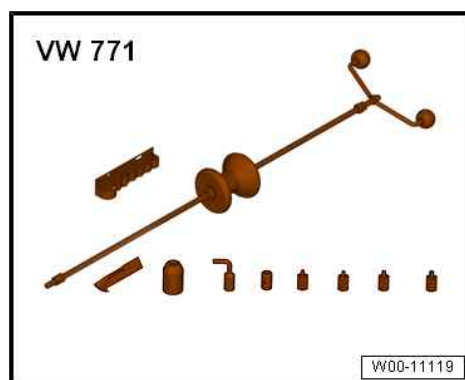
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- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 408 A-
- ◆ Press tool - VW 411-
- ◆ Tube - VW 416 B-
- ◆ Thrust pad - VW 447 H-



- ◆ Hose clip pliers - V.A.G 1275-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Clamp tensioner - V.A.G 1682 A-
- ◆ Assembly tool - T10065-
- ◆ Multi-purpose tool - VW 771-

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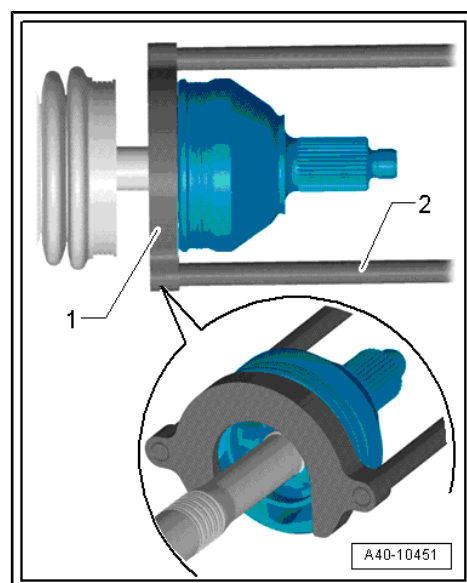


◆ Puller - T10382-



Removing outer constant velocity joint

- Clamp drive shaft in vice using protective jaw covers.
 - Fold back rubber boot.
 - Set up puller - T10382- so that smooth side of puller plate - T10382/1- faces towards spindles - T10382/2- .
 - Assemble puller - T10382- together with multi-purpose tool - VW 771- .
 - Pull CV joint off drive shaft using puller - T10382- and multi-purpose tool - VW 771- .
- 1 - Puller plate - T10382/1-
2 - Spindles - T10382/2-

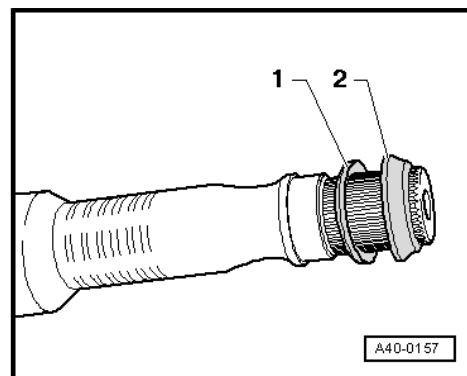


Driving on outer constant velocity joint

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Installation position of dished spring and spacer ring on outer joint (if fitted)

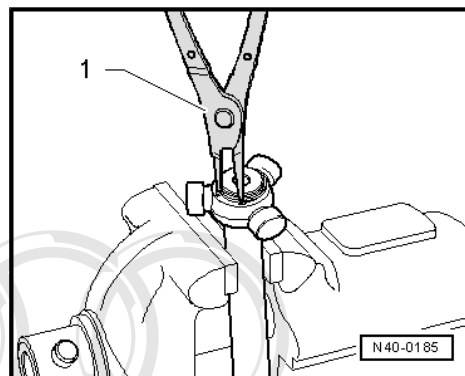
- 1 - Dished spring
2 - Spacer ring (plastic)
- Install new circlip.
 - If necessary, push new joint boot onto drive shaft.
 - Knock joint onto shaft with plastic hammer until circlip engages.



Dismantling

- Open both hose clips on inner joint and push back boot.
- Pull joint body off drive shaft.

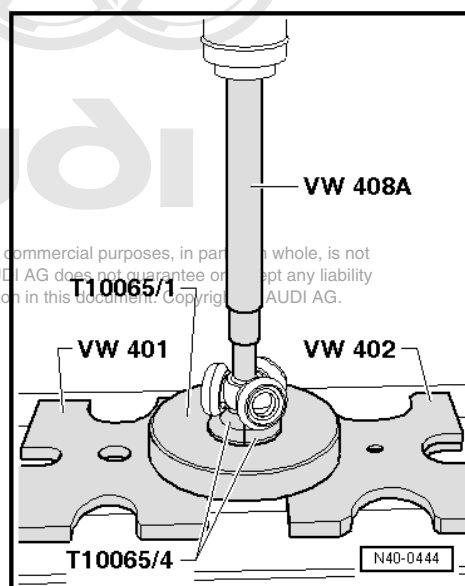
- Remove circlip.
- 1 - Pliers (commercial type)
- Insert drive shaft in press.



- Press triple roller spider off drive shaft.
- Pull boot off drive shaft.
- Clean shaft, joint body and groove for seal.

Assembling

- Push small hose clip for boot onto shaft.
- Slide boot onto shaft.
- Push joint body onto shaft.

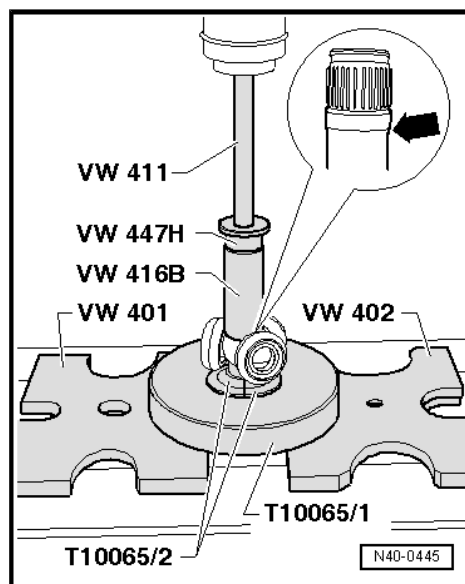


Fitting triple roller spider

Drive shaft - tapered version

Chamfer on spider faces towards shaft and is used as an assembly aid.

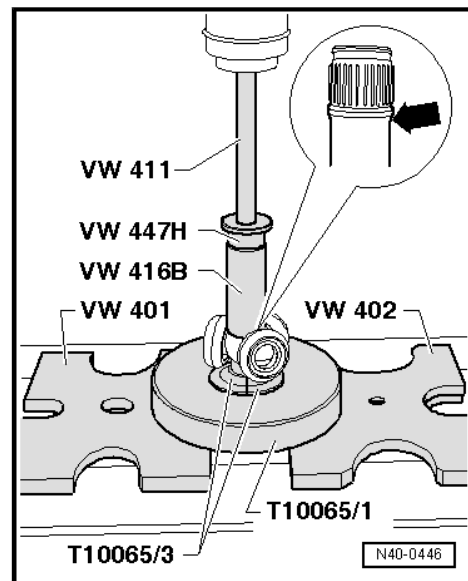
- Fit triple roller spider on shaft and press on as far as stop.
- Make sure pressure does not exceed 3.0 t.
- If necessary, grease splines of drive shaft and triple roller spider with lubricating paste - G 052 142 A2- .
- Install circlip (ensure proper seating).
- Press half the quantity of drive shaft grease from the repair kit into the triple roller joint.
- Slide joint body over rollers and hold in position.
- Press the other half of the drive shaft grease from the repair kit into the back of the triple roller joint.
- Install joint boot.



Fitting triple roller spider

Drive shaft - cylindrical version

- Fit triple roller spider on shaft and press on as far as stop.
- Make sure pressure does not exceed 3.0 t.
- If necessary, grease splines of drive shaft and triple roller spider with lubricating paste - G 052 142 A2- .
- Install circlip (ensure proper seating).
- Press half the quantity of drive shaft grease from the repair kit into the triple roller joint.
- Slide joint body over rollers and hold in position.
- Press the other half of the drive shaft grease from the repair kit into the back of the triple roller joint.
- Install joint boot.
- Push boot onto joint body and fit hose clip.



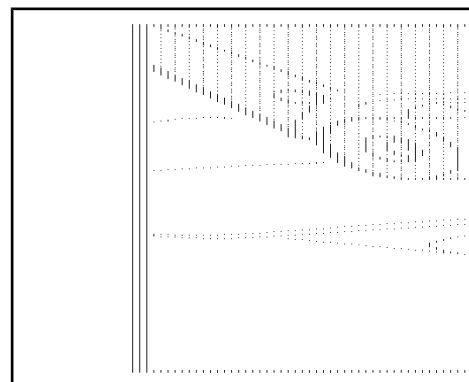
Tightening hose clip on outer joint

- Apply clamp tensioner - V.A.G 1682 A- as illustrated. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle -A- with torque wrench (take care to keep clamp tensioner straight).
- ◆ Tightening torque: 25 Nm.

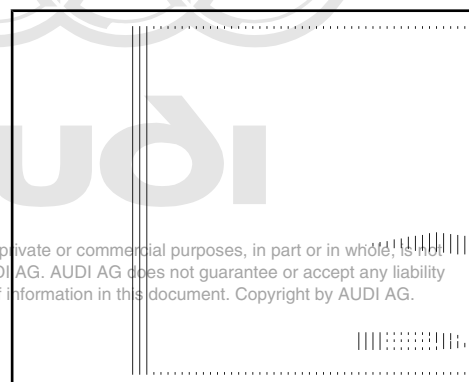


Note

- ◆ Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A- .
- ◆ Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.
- ◆ If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.



Tightening hose clip at small diameter of boot



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6.6 Checking outer constant velocity joint

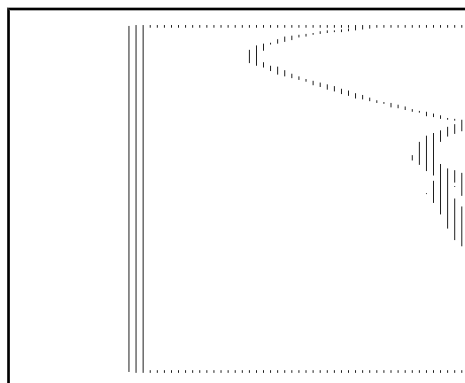
The joint must be dismantled:

- ◆ to fill with fresh grease,
- ◆ if joint has collected a large amount of dirt or

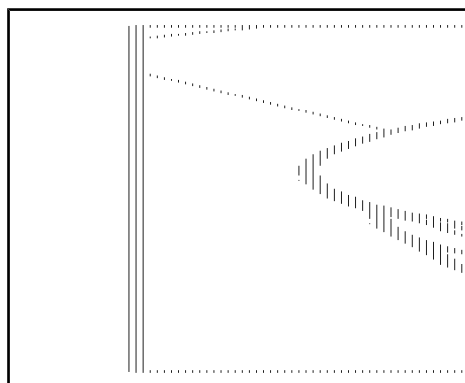
- ◆ if ball races are to be checked for wear and damage.

Removing

- Before dismantling, mark position of ball hub in relation to ball cage and joint body with an electric scribe or oil stone.
- Swivel ball hub and ball cage.
- Take out balls one after the other.



- Turn the cage until the two rectangular openings -arrow- are level with the joint body.
- Lift out cage together with hub.



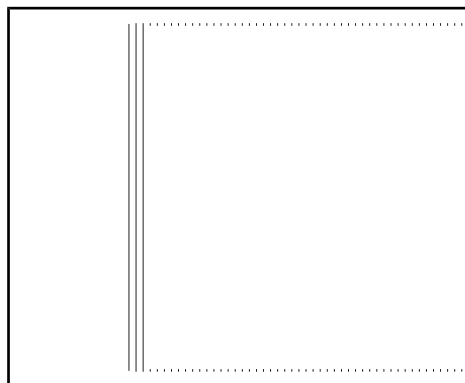
- Swivel one segment of hub into rectangular opening of cage.
- Pivot hub out of cage.

The 6 balls in each joint belong to one tolerance group. Check stub axle, hub, cage and balls for pitting and signs of seizure.

Excessive backlash in the joint will cause knocking or jolts under load change. In such cases the joint must be renewed. Polished areas and visible tracks in the ball races do not justify renewal of the joint.

Installing

- Pack half the total quantity of grease into the joint body.
- Fit cage with hub into joint body.
- Press in balls one after the other from opposite sides, taking care to re-establish original position of hub relative to cage and joint body.
- Fit new circlip into hub.
- Distribute remaining grease in boot.



6.7 Checking inner constant velocity joint

Removing

The joint must be dismantled:

- ◆ to fill with fresh grease,
- ◆ if joint has collected a large amount of dirt or
- ◆ if ball races are to be checked for wear and damage.
- Swivel ball hub and ball cage.
- Press out joint body in direction of -arrow-.
- Push balls out of cage.

Ball hub and joint body are paired. Do not interchange.

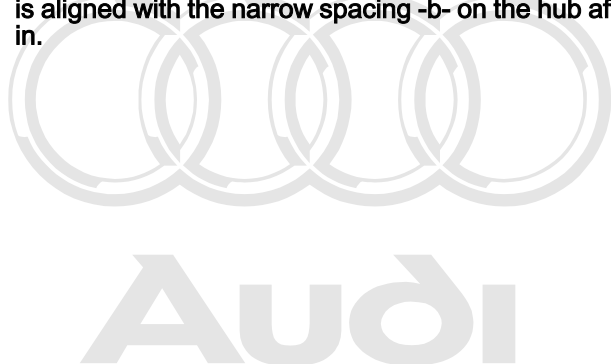
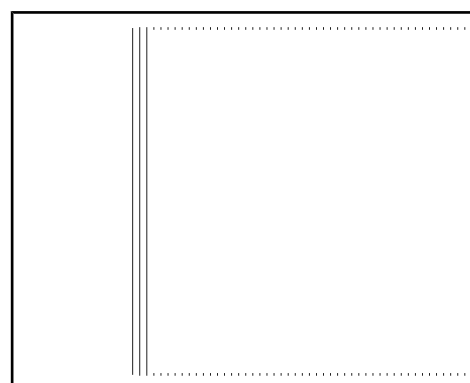
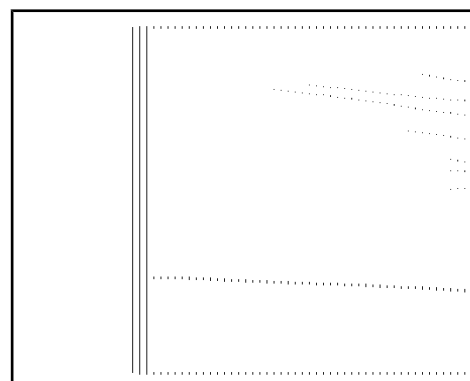
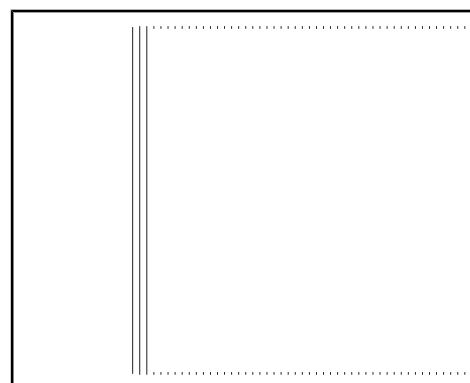
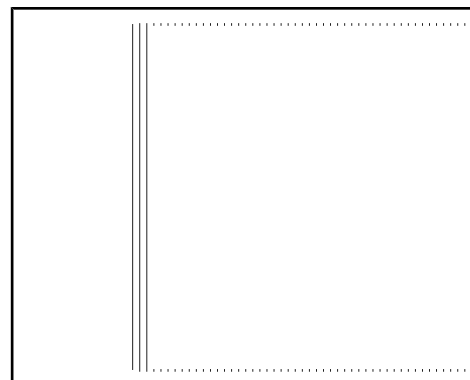
- Align ball hub with cage as shown -arrows- and pivot hub out of cage.
- Check joint, ball hub, ball cage and balls for pitting and signs of seizure.

Excessive backlash in the joint will cause knocking or jolts under load change. In such cases the joint must be renewed. Polished areas and visible tracks in the ball races are not a reason for renewing the joint.

Installing

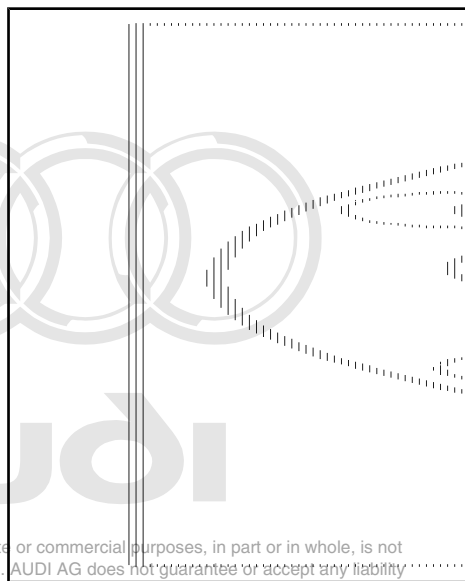
- Insert hub into cage via the two chamfers. No specific installation position is required. Push balls into cage.
- Insert hub with cage and balls at a right angle to the joint body.

When inserting, ensure that the wide spacing -a- on the joint body is aligned with the narrow spacing -b- on the hub after it is swung in.



Chamfer on internal diameter of ball hub (splines) must face large diameter of joint body.

- Swivel the hub into the joint body; at the same time the hub must be swivelled out of the cage -arrows- far enough to allow the balls to fit into the ball races.

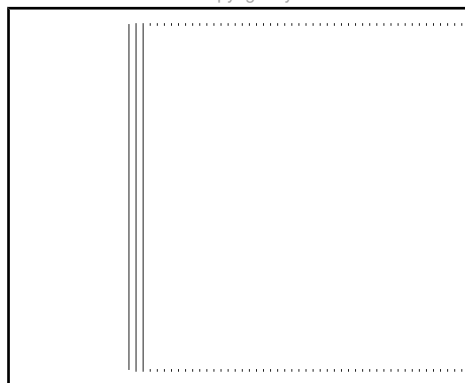


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- Swivel in the hub with balls by applying firm pressure on the cage -arrow-.

Checking function of constant velocity joint

The constant velocity joint has been correctly assembled if the ball hub can be moved by hand backwards and forwards over its entire axial range of movement.



42 – Rear suspension

1 Rear axle

⇒ [“1.1 Overview - rear axle”, page 143](#)

⇒ [“1.2 Removing and installing rear axle”, page 146](#)

1.1 Overview - rear axle

⇒ [“1.1.1 Overview - rear axle, Audi A1 with front-wheel drive”, page 143](#)

⇒ [“1.1.2 Overview - rear axle, Audi A1 quattro”, page 144](#)

⇒ [“1.1.3 Overview - rear axle, Audi S1”, page 146](#)

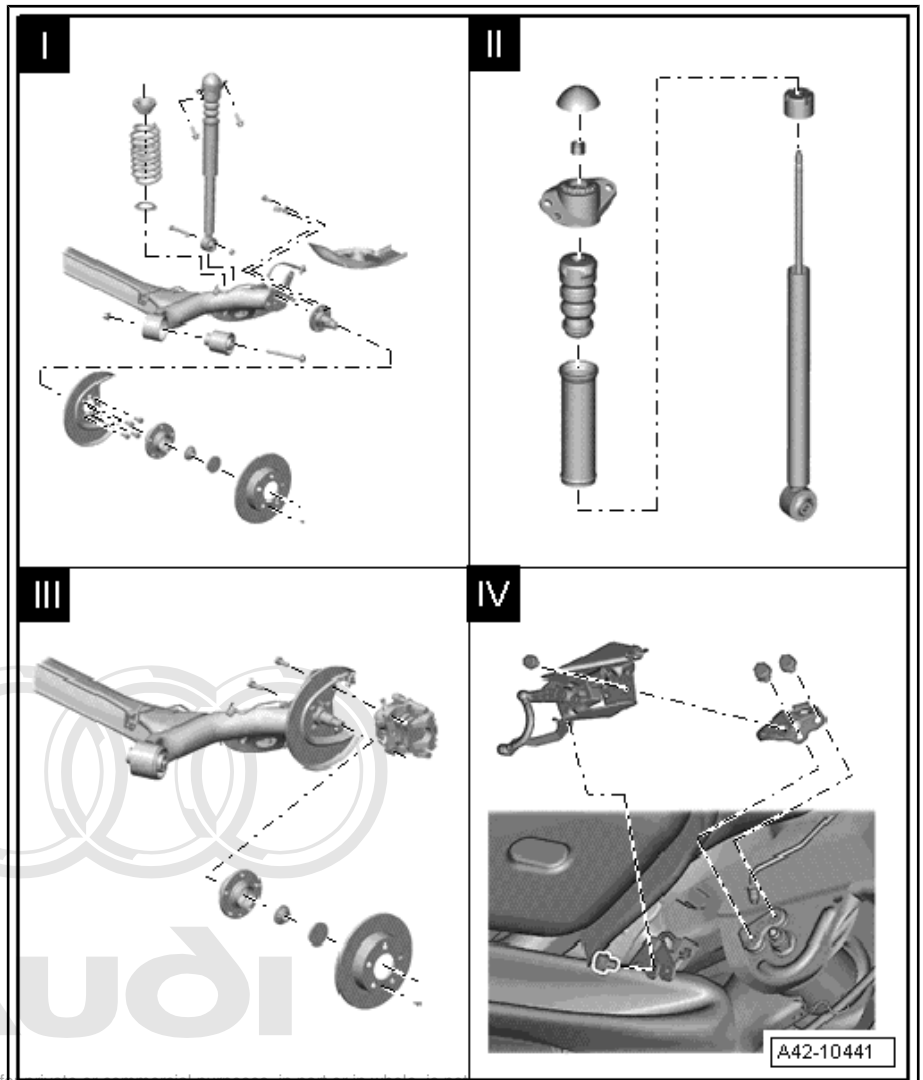
1.1.1 Overview - rear axle, Audi A1 with front-wheel drive

I - ⇒ [“2 Axle beam”, page 153](#)

II -
⇒ [“6 Suspension strut/shock absorber, spring”, page 214](#)

III -
⇒ [“7 Wheel bearing, trailing arm”, page 235](#)

IV -
⇒ [“2 Vehicle level senders”, page 297](#)



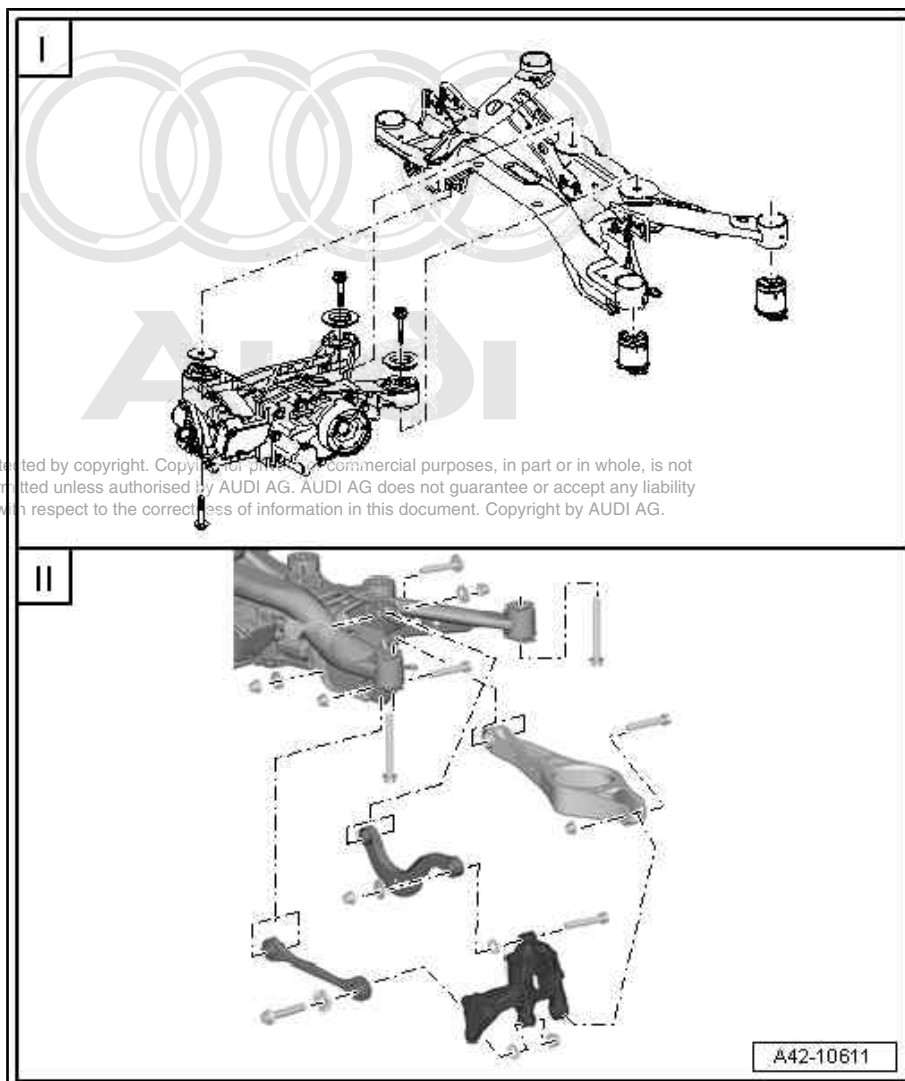
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1.1.2 Overview - rear axle, Audi A1 quattro

I - ⇒ ["3 Subframe", page 168](#)

II -

⇒ ["5 Suspension links, track rod", page 198](#)



III -

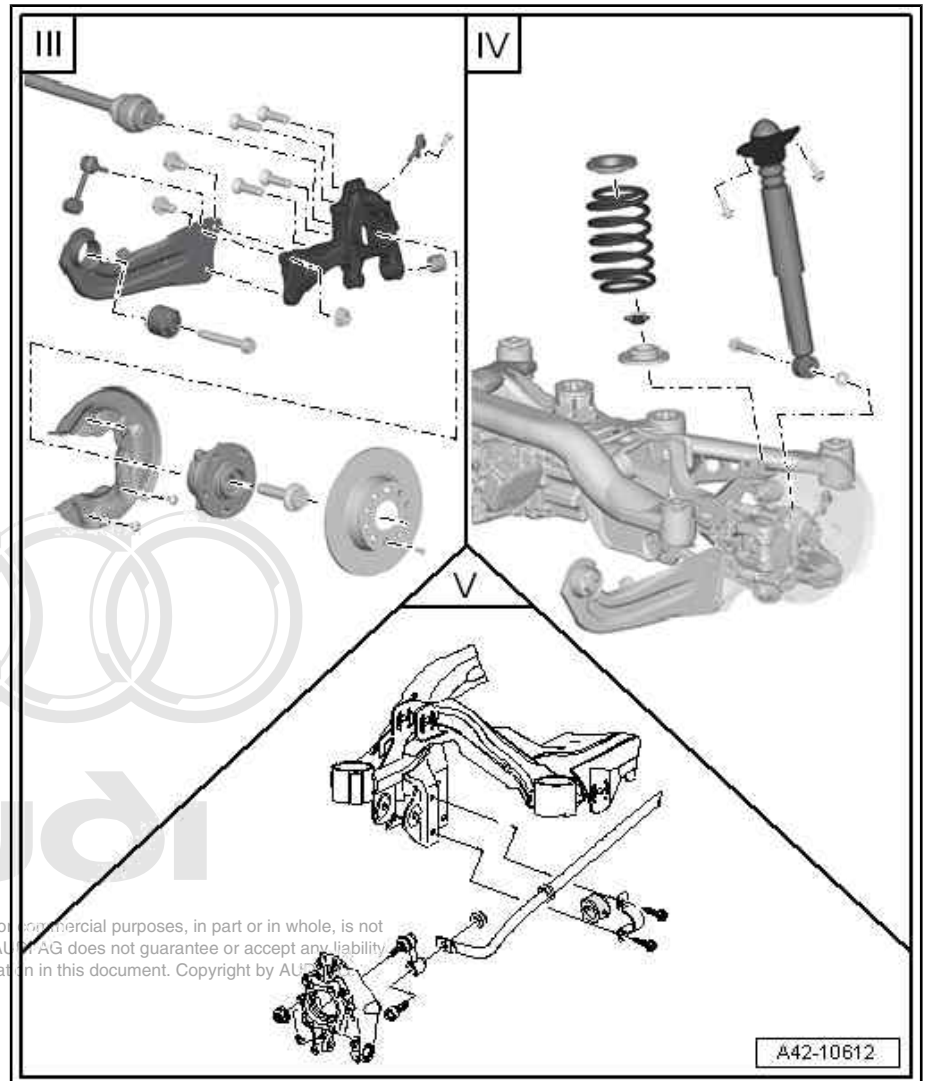
⇒ "7 Wheel bearing, trailing arm", page 235

IV -

⇒ "6 Suspension strut/shock absorber, spring", page 214

V -

⇒ "4 Anti-roll bar", page 190



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1.1.3 Overview - rear axle, Audi S1

I - ⇒ ["3 Subframe", page 168](#)

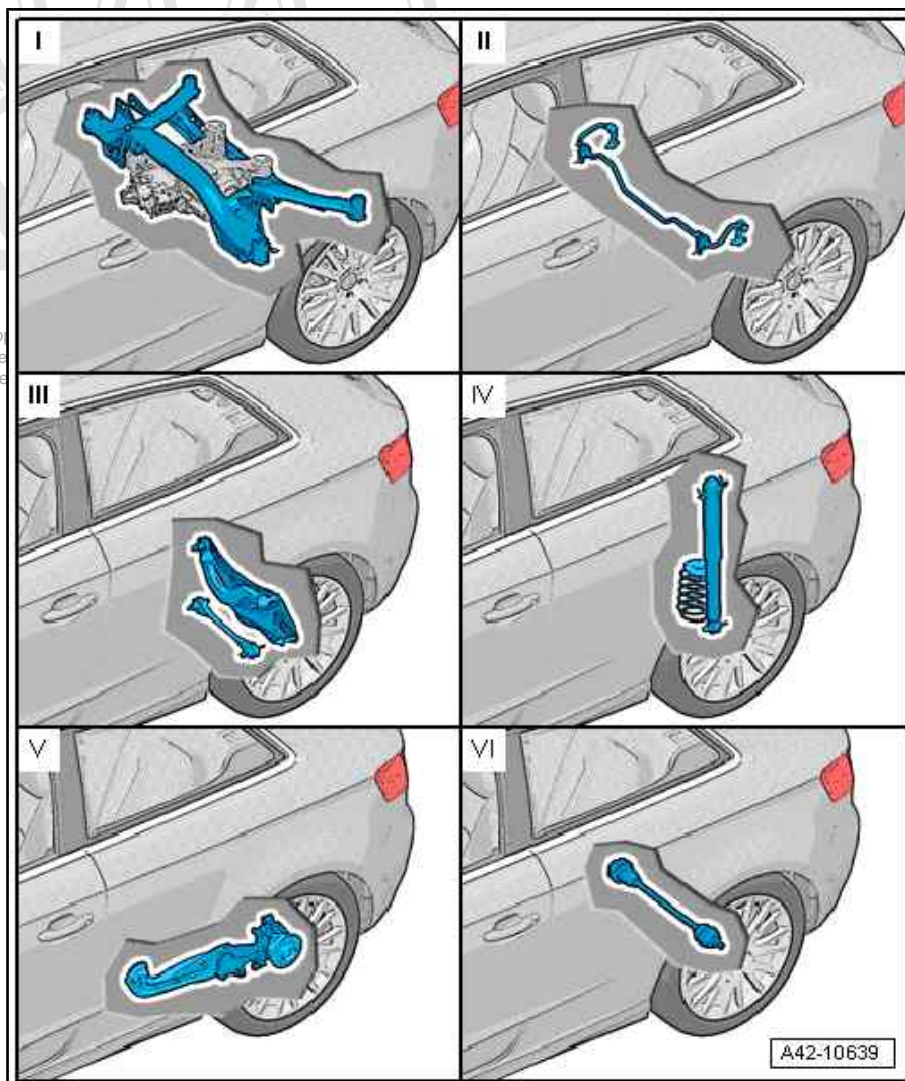
II -
⇒ ["4 Anti-roll bar", page 190](#)

III -
⇒ ["5 Suspension links, track rod", page 198](#)

IV -
⇒ ["6 Suspension strut/shock absorber, spring", page 214](#)

V -
⇒ ["7 Wheel bearing, trailing arm", page 235](#)

VI -
⇒ ["8 Drive shaft", page 274](#)



1.2 Removing and installing rear axle

⇒ ["1.2.1 Removing and installing rear axle - Audi A1 quattro", page 146](#)

⇒ ["1.2.2 Removing and installing rear axle - Audi S1", page 149](#)

1.2.1 Removing and installing rear axle - Audi A1 quattro

Special tools and workshop equipment required

◆ Torque wrench - V.A.G 1332-



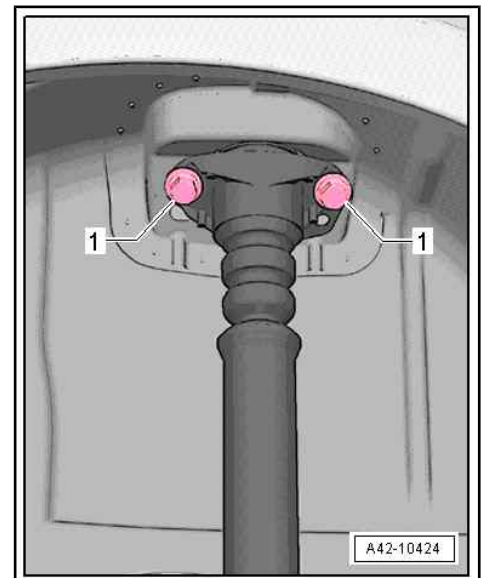
◆ Engine and gearbox jack - VAS 6931-



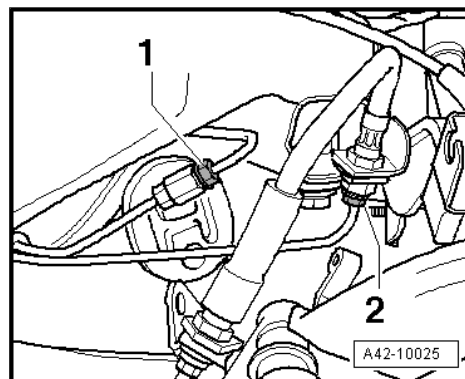
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Removing subframe with attachments

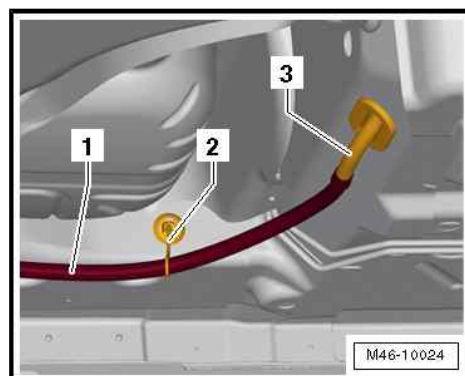
- Remove wheels ⇒ [page 303](#) .
- Remove fuel tank ⇒ Rep. gr. 20 ; Fuel tank; Removing and installing fuel tank .
- Remove springs ⇒ [page 230](#) .
- Unplug electrical connections between rear axle and body.
- Detach wheel housing trim (centre) on both sides of vehicle.
- Remove bolts -1- securing shock absorber to body on both sides of vehicle.



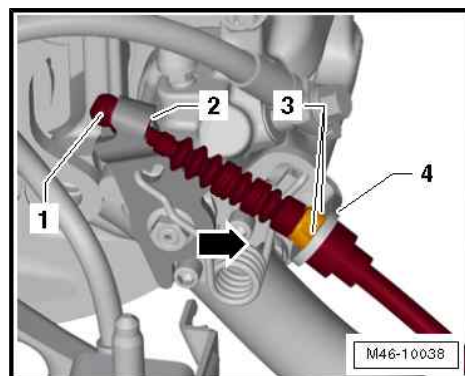
- Disconnect brake lines item -1- and -2-.



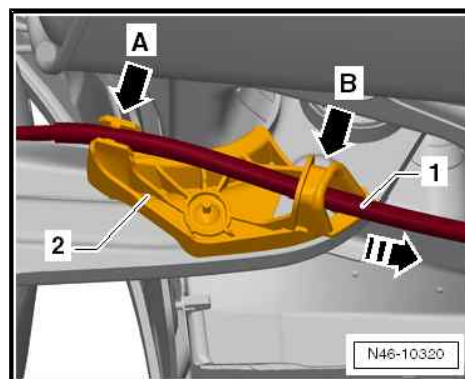
- Disengage handbrake cable -1- from retainer -2-.



- Press lever on brake caliper -2- in direction of -arrow-.
- Disengage handbrake cable -1- from lever on brake caliper -2-.
- Compress retaining tabs -3- and remove handbrake cable -1- from bracket -4- on brake caliper.



- Unclip handbrake cable -1- from retaining tab -arrow A- on bracket -2-.
- Pull handbrake cable -1- out of guide -arrow B- on bracket -2- in direction of -arrow-.
- Unplug connector for rear left vehicle level sender - G76- .
- Disconnect propshaft from rear final drive ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- Push rear propshaft tube towards gearbox as far as possible.
- Unplug electrical connector on Haldex coupling above final drive.



- Unscrew bolt -1- securing trailing arm on body.
- Fix position of subframe ⇒ [page 170](#) .
- Carefully lower subframe with attachments.



Note

When lowering, make sure there is enough clearance for brake lines, electrical wiring and propshaft centring pin.

Installing subframe with attachments

Installation is carried out in reverse sequence. Note the following points:

- Remove locating pins of locating pin set - T10096-
⇒ [page 173](#) .
- Attach propshaft to rear final drive ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- Install fuel tank ⇒ Rep. gr. 20 ; Fuel tank; Removing and installing fuel tank .
- Bleed brake system ⇒ Brake system; Rep. gr. 47 ; Hydraulic system; Bleeding hydraulic system (normal bleeding procedure) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“7.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 237](#)
- ◆ ⇒ [“6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro”, page 215](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)

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1.2.2 Removing and installing rear axle - Audi S1

Removing subframe with attachments

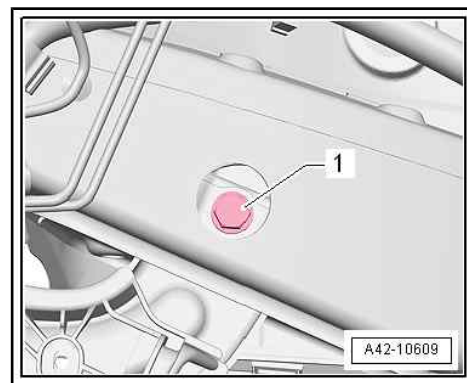
- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value
⇒ [page 11](#) .



Note

If the bolt securing the drive shaft has to be loosened for later operations, remember that this must be done with the vehicle standing on its wheels. Slacken bolt securing drive shaft to wheel hub ⇒ [page 290](#) .

- Remove wheels ⇒ [page 303](#) .
- Remove rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Remove springs ⇒ [page 232](#) .

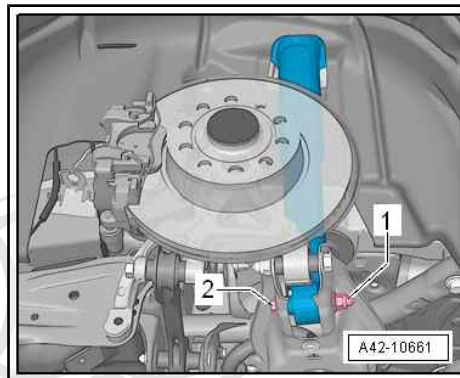




Note

For greater clarity, the illustrations for most steps only show one side of the vehicle.

- Unscrew nut -1- and remove bolt -2- for shock absorber.



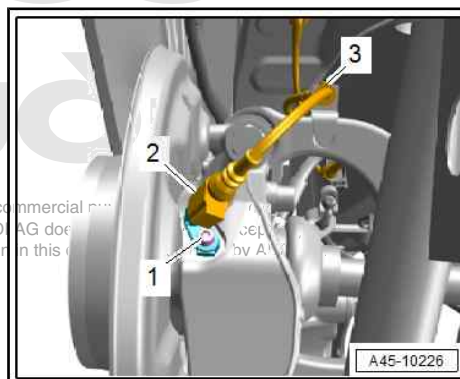
- Unplug electrical connector -2- for rear speed sensor -G44- / -G46- and move wire clear at bracket -3-.



Note

Disregard -item 1-.

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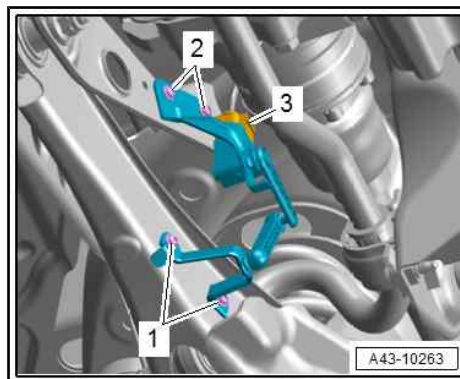
Vehicles with vehicle level senders

- Unplug electrical connector -3- for rear vehicle level sender.
- To prevent damage to rear vehicle level sender, remove bolts -1- from linkage for sender.
- Move electrical wiring from rear vehicle level sender clear at subframe.



Note

Disregard -item 2-.



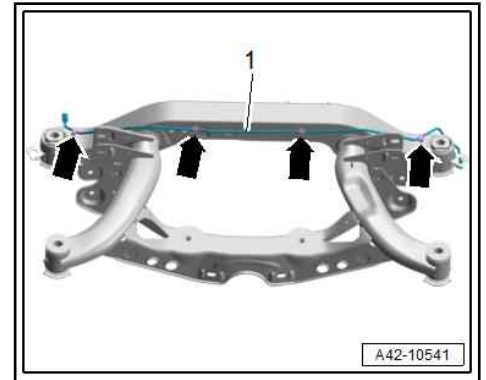
- Unplug electrical connector -1- on all-wheel drive control unit -J492-.



- Unclip brake line -1- -arrows-.

 Note

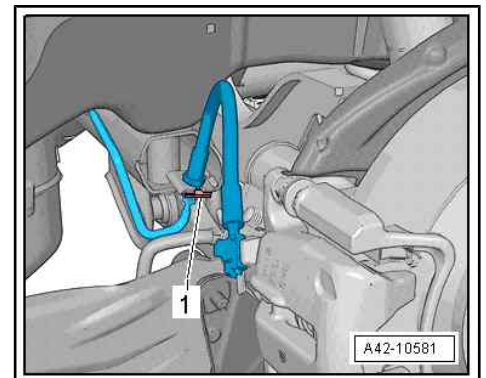
Clips cannot be released without being damaged irreparably.



- Pull out retaining clip -1-.
- Move brake line clear of retainer.

 Note

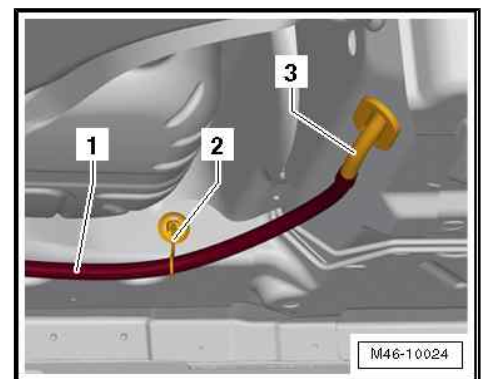
Do not disconnect brake line.



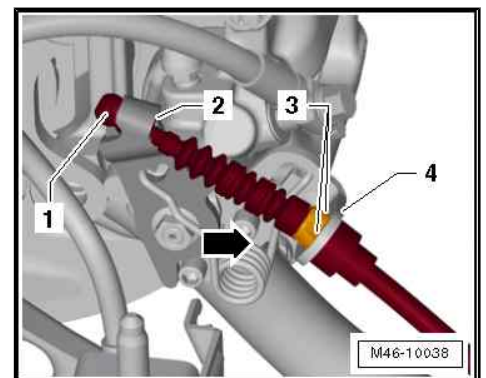
- Disengage handbrake cable -1- from retainer -2-.

 Note

Disregard -item 3-.

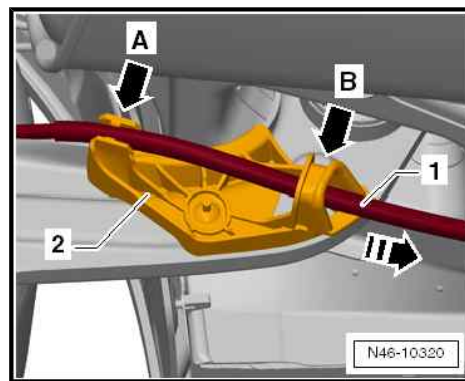


- Press lever on brake caliper -2- in direction of -arrow-.
- Disengage handbrake cable -1- from lever on brake caliper -2-.
- Compress retaining tabs -3- and remove handbrake cable -1- from bracket -4- on brake caliper.



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- Unclip handbrake cable -1- from retaining tab -arrow A- on bracket -2-.
- Pull handbrake cable -1- out of guide -arrow B- on bracket -2- in direction of -arrow-.
- Detach brake caliper and tie to body with brake lines connected ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing brake caliper .
- Unbolt propshaft from rear final drive ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- Push propshaft as far as possible towards gearbox.



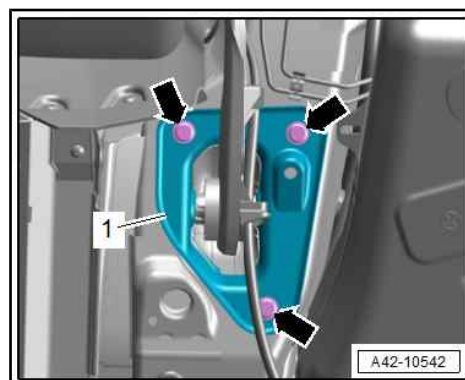
- Mark installation position of mounting bracket -1- on body.
- Remove bolts -arrows-.
- Fix position of subframe ⇒ [page 170](#) .
- Carefully lower subframe with attachments approx. 30 mm.



Note

When lowering, make sure there is enough clearance for brake lines, electrical wiring and propshaft centring pin.

- Carefully lower subframe with attachments.



Note

When lowering, make sure there is enough clearance for brake lines, electrical wiring and propshaft centring pin.

Installing subframe with attachments

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

- Remove locating pins of locating pin set - T10096- ⇒ [page 170](#) .
- Attach propshaft to rear final drive ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

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Tightening torques

- ◆ ⇒ ["7.1.3 Exploded view - wheel bearing, Audi S1", page 239](#)
- ◆ ⇒ ["3.1.2 Exploded view - subframe, Audi S1", page 170](#)
- ◆ ⇒ ["7.2 Exploded view - trailing arm", page 240](#)
- ◆ ⇒ ["6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1", page 216](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers

2 Axle beam

⇒ [“2.1 Exploded view - axle beam”, page 153](#)

⇒ [“2.2 Removing and installing axle beam”, page 154](#)

⇒ [“2.3 Renewing bonded rubber bushes for axle beam”, page 160](#)

2.1 Exploded view - axle beam

1 - Axle beam

- ☐ Keep contact surface and threaded holes for stub axle free from paint and dirt
- ☐ Removing and installing
⇒ [page 154](#)

2 - Spring seat

3 - Coil spring

- ☐ Note colour code
- ☐ Select correct version according to PR number
⇒ [Electronic parts catalogue “ETKA”](#)
- ☐ Surface of spring coil must not be damaged
- ☐ Removing and installing
⇒ [page 229](#)

4 - Spring seat

5 - Bolt

- ☐ Always renew if removed
- ☐ 30 Nm + 90°

6 - Shock absorber

- ☐ Different versions; for correct version refer to
⇒ [Electronic parts catalogue “ETKA”](#)
- ☐ Removing and installing
⇒ [page 216](#)

7 - Bolt

- ☐ Tighten in unladen position ⇒ [page 11](#)
- ☐ Always renew if removed
- ☐ 40 Nm + 90°

8 - Nut

- ☐ Always renew if removed

9 - Bolt

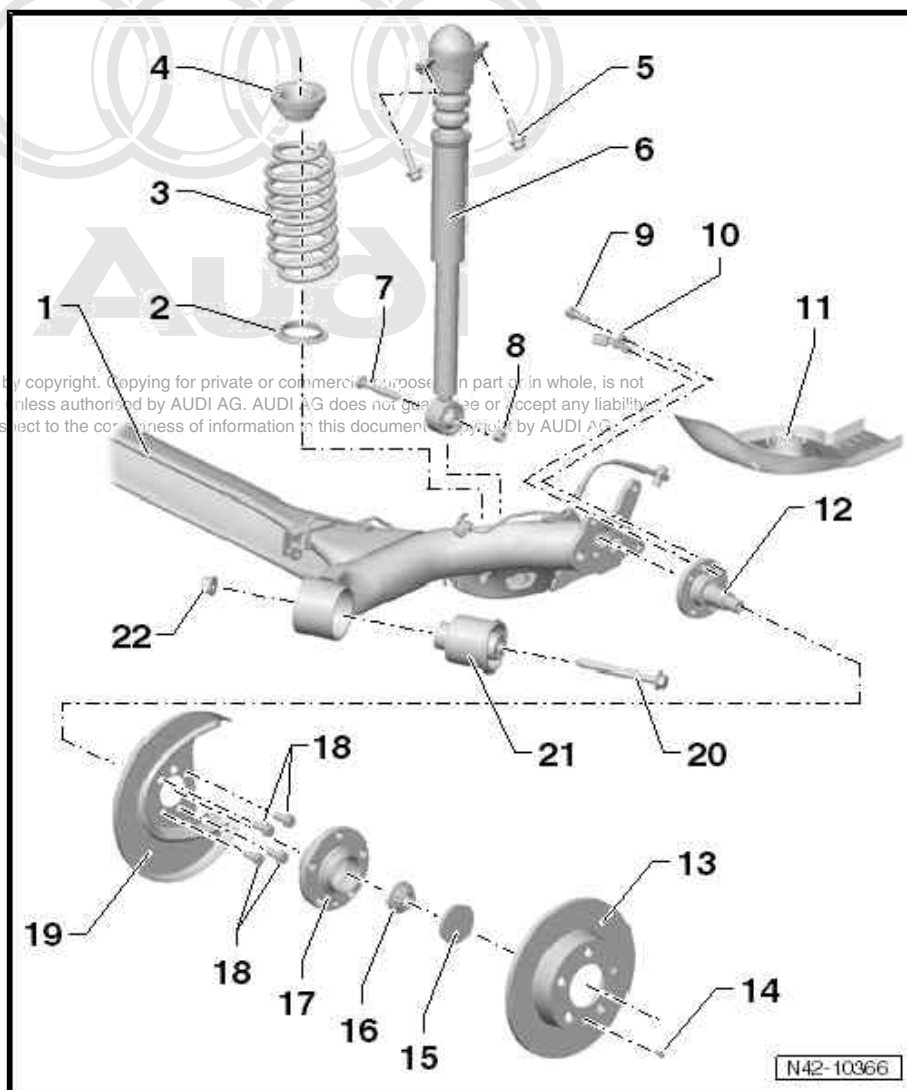
- ☐ 8 Nm

10 - ABS speed sensor

- ☐ Before inserting sensor, clean inner surface of bore and coat with lubricating paste

11 - Stone deflector

- ☐ For correct version refer to ⇒ [Electronic parts catalogue “ETKA”](#)



12 - Stub axle

- ☐ Must not be straightened
- ☐ Recutting the thread is not permitted

13 - Brake disc**14 - Bolt**

- ☐ 4 Nm

15 - Grease cap

- ☐ Always renew if removed
- ☐ Proper sealing can only be achieved by installing a new grease cap. This is essential for optimum function and service life of wheel bearing.

16 - 12-point nut

- ☐ Tightening torque ⇒ [Item 8 \(page 236\)](#)
- ☐ Always renew if removed

17 - Wheel hub with wheel bearing

- ☐ With ABS sensor ring
- ☐ The wheel bearing and wheel hub are combined in one housing
- ☐ The wheel hub with wheel bearing unit is maintenance and adjustment-free. There is no provision for adjustment or repair.
- ☐ Removing and installing ⇒ [page 246](#)

18 - Bolt

- ☐ Always renew if removed
- ☐ 30 Nm + 90°

19 - Splash plate**20 - Bolt**

- ☐ Insert from outside
- ☐ Always renew if removed
- ☐ Tighten in unladen position ⇒ [page 11](#)
- ☐ 45 Nm + 90°

21 - Bonded rubber bush

- ☐ Renewing ⇒ [page 160](#)

22 - Nut

- ☐ Always renew if removed

2.2 Removing and installing axle beam

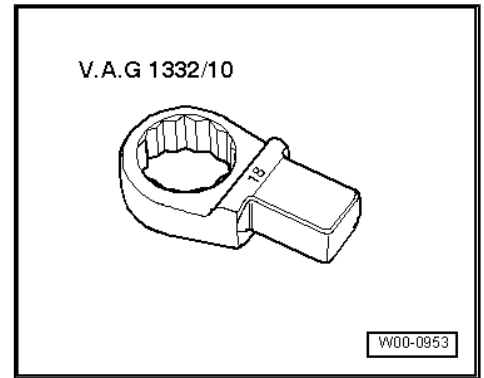
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

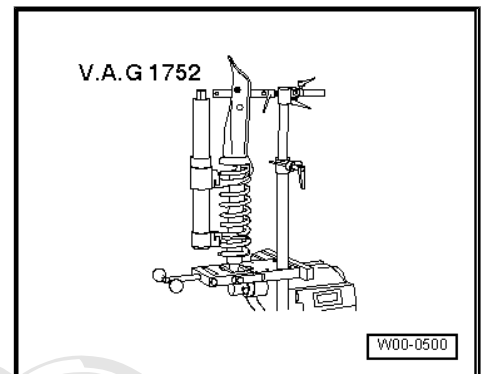
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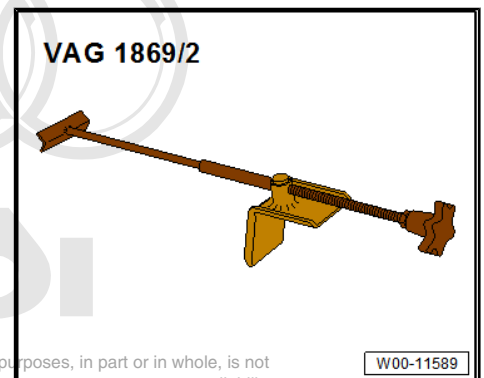
- ◆ Ring spanner insert - V.A.G 1332/10-



- ◆ Suspension strut spring compressor - V.A.G 1752-

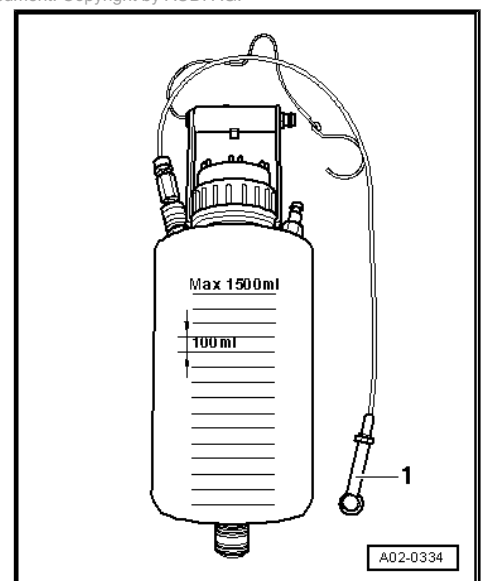


- ◆ Brake pedal actuator - V.A.G 1869/2-



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- ◆ Reservoir from brake filling and bleeding equipment - VAS 5234-





◆ Engine and gearbox jack - VAS 6931-



◆ Tensioning strap - T10038-



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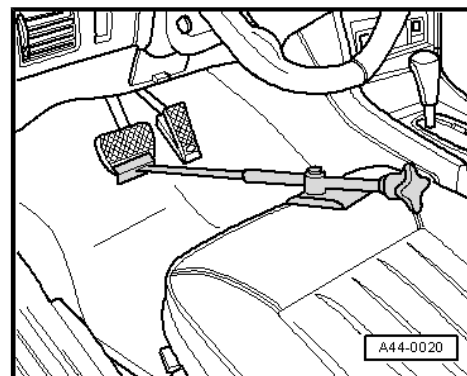
Removing

- Release handbrake.
- Remove wheels ⇒ [page 303](#) .
- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Depress brake pedal at least 60 mm.



Note

- ◆ *This closes the valves in the brake master cylinder and stops the brake fluid reservoir from running empty.*
- ◆ *Place a cloth under the connection to catch escaping brake fluid.*



WARNING

Risk of skin irritation.

- ◆ *Always wear chemical-resistant protective gloves to prevent brake fluid from contacting skin.*

Accident risk: if the water content in the brake fluid is too high, this can cause vapour bubbles in the fluid.

- ◆ *Brake fluid is hygroscopic, i.e. it absorbs moisture from the surrounding air.*
- ◆ *Seal open brake hoses and brake lines using sealing plugs from repair kit - 1H0 698 311 A- .*

Risk of malfunction if brake fluid comes into contact with fluids containing mineral oils.

- ◆ *Brake fluid must NOT come into contact with fluids containing mineral oils (oil, petrol, cleaning agents). Protective gloves must be free of oil and grease.*

Risk of damage to paintwork surfaces

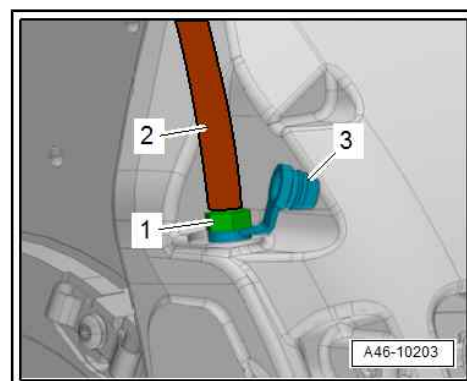
- ◆ *Due to its corrosive effect, brake fluid must not be allowed to come into contact with paintwork. Rinse off brake fluid spillages immediately using plenty of water.*

- Detach protective cap -3- from bleeder screw -1-.
- Fit bleeder hose -2- of reservoir onto bleeder screw.
- Open bleeder screw to relieve pressure in hydraulic system.
- Close bleeder screw and remove reservoir.

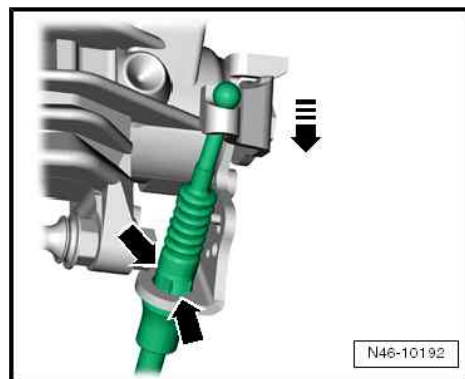


Note

The brake pedal actuator - V.A.G 1869/2- must not be removed.



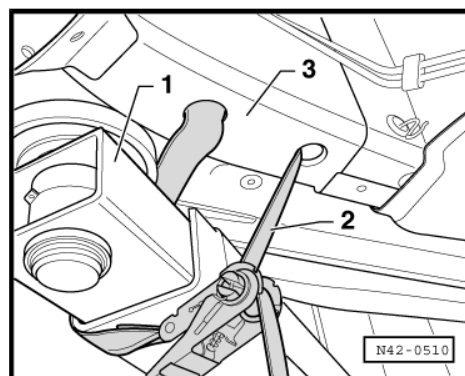
- Push brake lever in direction of -arrow- and unhook handbrake cable from brake lever.
- Compress both locking lugs -arrows-, then pull handbrake cable out of bracket on brake caliper.
- Repeat procedure on opposite side.


WARNING

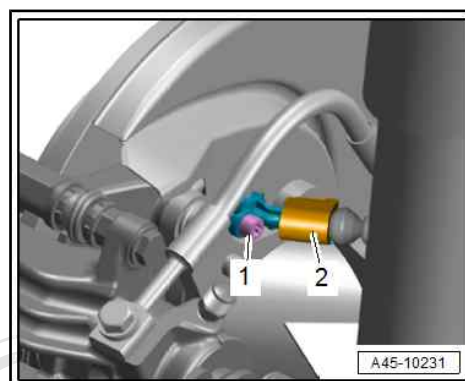
The vehicle could slip off the lifting platform - risk of accident!

- ◆ *For the following procedure, the vehicle must be secured to the support arms of the lifting platform on both sides.*

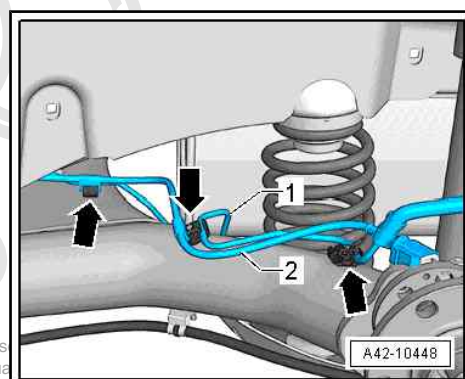
- Remove plug from longitudinal member -3- and pull in tensioning strap .
- 1 - Arm of lifting platform
- 2 - Tensioning strap - T10038-
- Unplug electrical connector -2- from speed sensor.


Note

Disregard -item 2-.



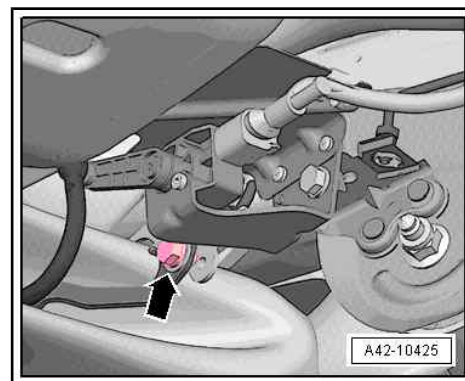
- Unclip wire -2- for speed sensor from brackets -arrows- and move wire clear.
- Repeat procedure on opposite side.
- Remove coil springs ⇒ [page 229](#) .
- Remove wheel spoiler on both sides ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear) .



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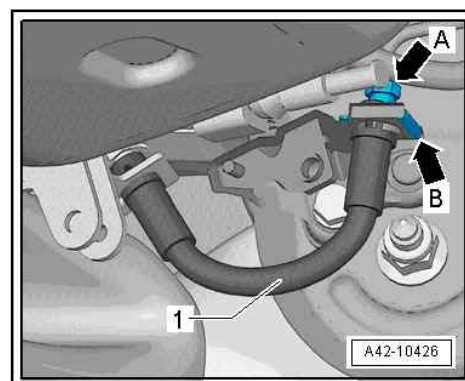
Vehicles with dynamic headlight range control

- Unscrew coupling rod of vehicle level sender - G76- from rear axle -arrow-.

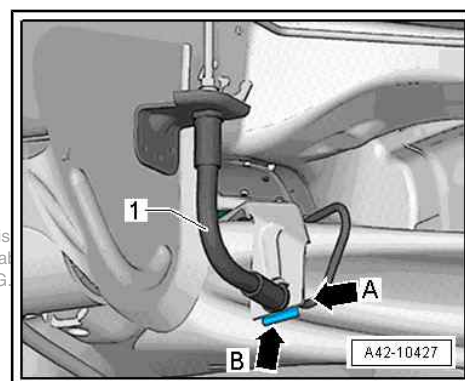


All vehicles (continued):

- Disconnect brake line (left-side) -arrow A- and remove clip -arrow B-.
- Pull brake hose (left-side) -1- out of bracket.
- Seal open connections immediately using clean sealing plugs from repair kit - 1H0 698 311 A- .

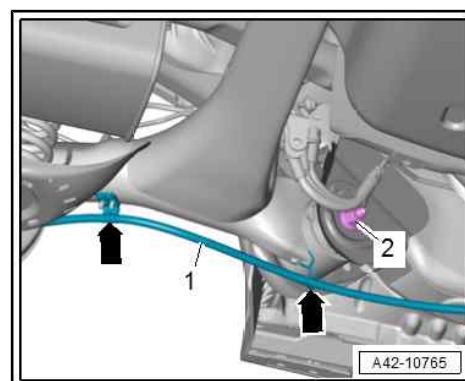


- Disconnect brake line (right-side) -arrow A- and remove clip -arrow B-.
- Pull brake hose (right-side) -1- out of axle beam.
- Seal open connections immediately using clean sealing plugs from repair kit - 1H0 698 311 A- .



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- Move handbrake cable -1- clear on both sides -arrows-.
- Bring engine and gearbox jack - VAS 6931- into position.
- Secure rear axle with a strap or similar when lowering and re-moving.
- Unscrew bolt -2- for axle beam on both sides.

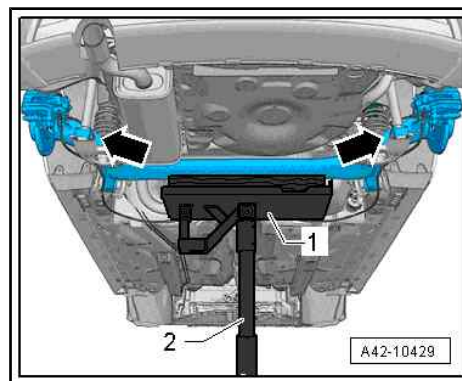


- Detach bolted connections -arrows- for shock absorber.
- Lower rear axle with engine and gearbox jack - VAS 6931- .

Installing

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

- Install springs ⇒ [page 229](#) .
- Tighten rear axle mountings in unladen position ⇒ [page 11](#) .
- Bleed brake system ⇒ Brake system; Rep. gr. 47 ; Hydraulic system; Bleeding hydraulic system (normal bleeding procedure) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 309](#)



Tightening torques

- ♦ ⇒ [“2.1 Exploded view - axle beam”, page 153](#)
- ♦ ⇒ [“1 Wheels, tyres”, page 303](#)
- ♦ Wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)

2.3 Renewing bonded rubber bushes for axle beam

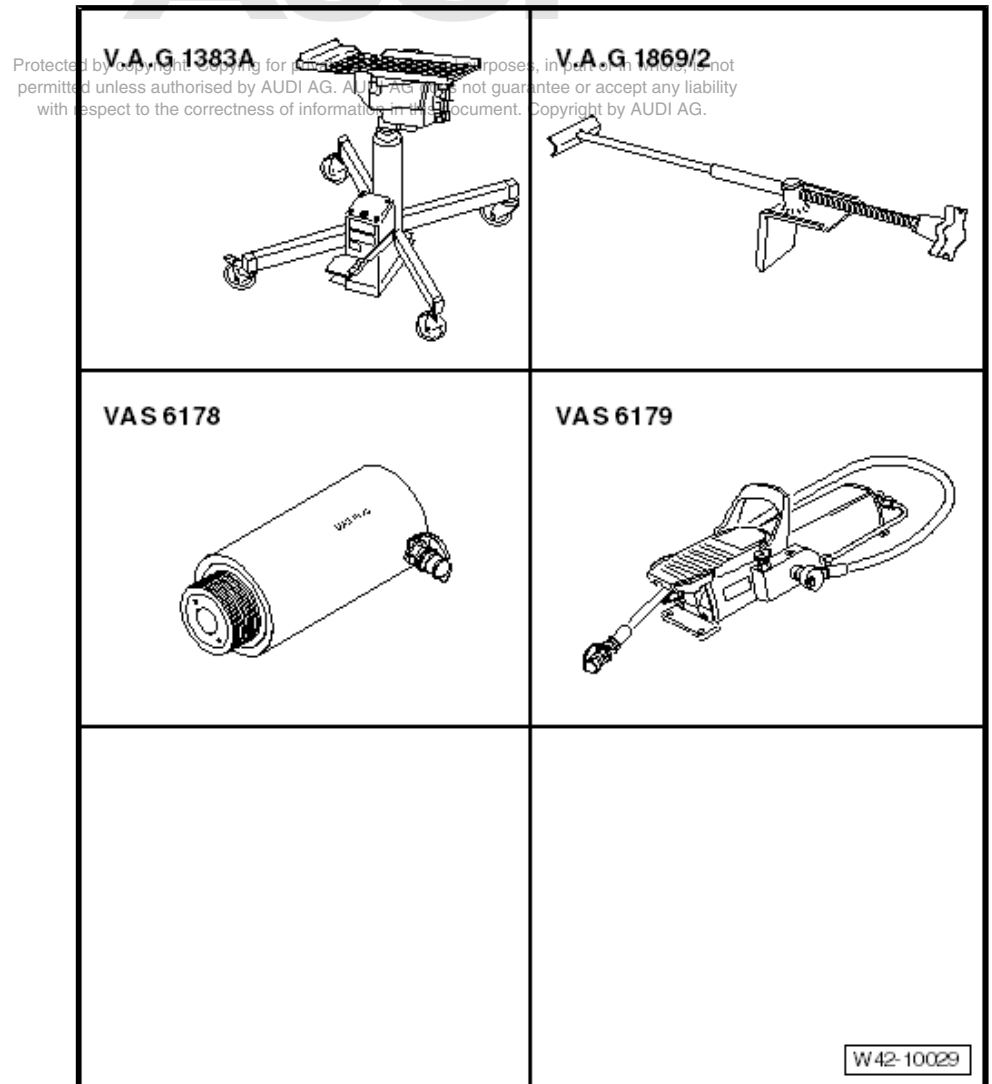
Special tools and workshop

3416/1	3416/2
T10205	T10254
T10263	V.A.G 1332 W42-10028

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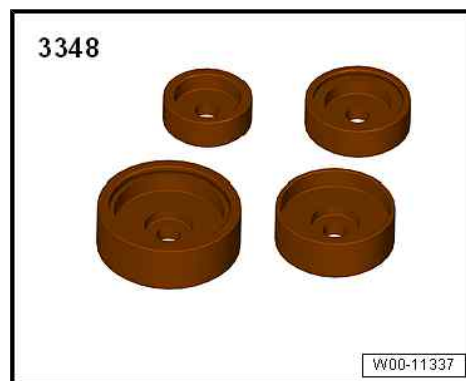
equipment required

- ◆ Thrust piece - 3416/2-
- ◆ Assembly tool - T10205-
- ◆ Assembly tool - T10254-
- ◆ Assembly tool - T10263-
- ◆ Torque wrench - V.A.G 1332-

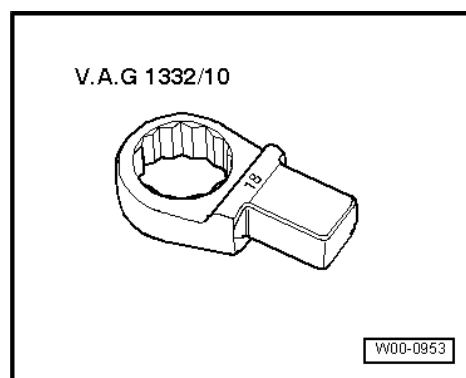


- ◆ Engine and gearbox jack - VAS 6931- or -V.A.G 1383 A-
- ◆ Brake pedal actuator - V.A.G 1869/2-
- ◆ Hydraulic cylinder - VAS 6178-
- ◆ Foot pump - VAS 6179-

- ◆ Thrust piece - 3348/1- from assembly tool - 3348-



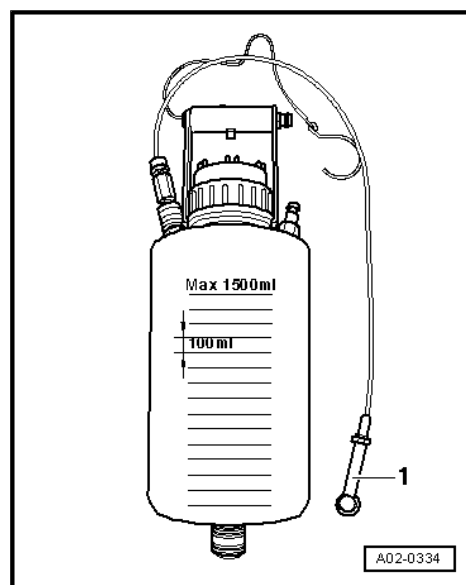
- ◆ Ring spanner insert - V.A.G 1332/10-



- ◆ Reservoir from brake filling and bleeding equipment - VAS 5234-



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- ◆ Two screw-type hose clips from charge air system tester - V.A.G 1687-

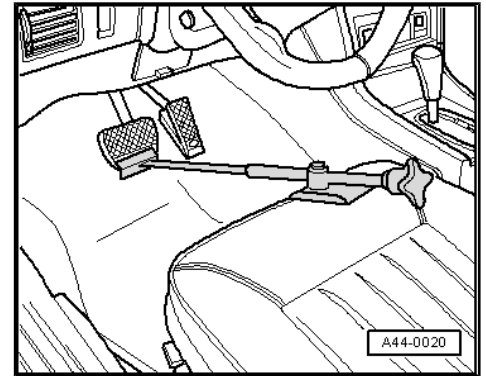
Removing

- Release handbrake.
- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheels ⇒ [page 303](#) .

- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Depress brake pedal at least 60 mm.

 Note

- ◆ *This closes the valves in the brake master cylinder and stops the brake fluid reservoir from running empty.*
- ◆ *Place a cloth under the connection to catch escaping brake fluid.*



WARNING

Risk of skin irritation.

- ◆ *Always wear chemical-resistant protective gloves to prevent brake fluid from contacting skin.*

Accident risk: if the water content in the brake fluid is too high, this can cause vapour bubbles in the fluid.

- ◆ *Brake fluid is hygroscopic, i.e. it absorbs moisture from the surrounding air.*
- ◆ *Seal open brake hoses and brake lines using sealing plugs from repair kit - 1H0 698 311 A- .*

Risk of malfunction if brake fluid comes into contact with fluids containing mineral oils.

- ◆ *Brake fluid must NOT come into contact with fluids containing mineral oils (oil, petrol, cleaning agents). Protective gloves must be free of oil and grease.*

Risk of damage to paintwork surfaces

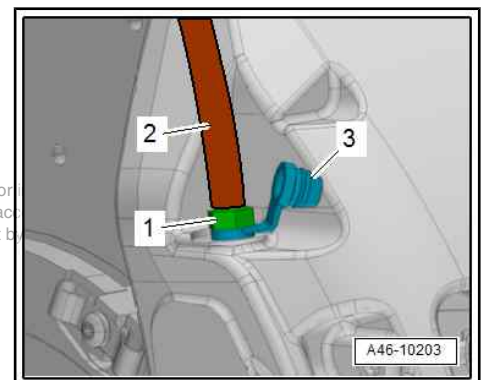
- ◆ *Due to its corrosive effect, brake fluid must not be allowed to come into contact with paintwork. Rinse off brake fluid spillages immediately using plenty of water.*

- Detach protective cap -3- from bleeder screw -1-.
- Fit bleeder hose -2- of reservoir onto bleeder screw.
- Open bleeder screw to relieve pressure in hydraulic system.
- Close bleeder screw and remove reservoir.

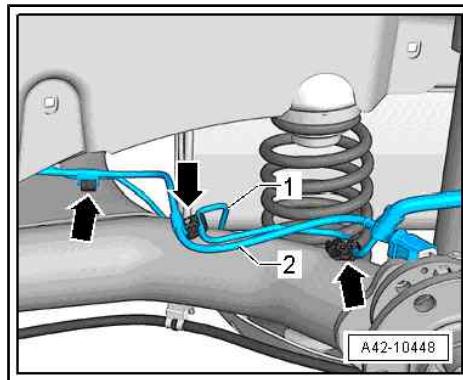
 Note

The brake pedal actuator - V.A.G 1869/2- must not be removed.

- Remove wheel spoiler on both sides ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear) .

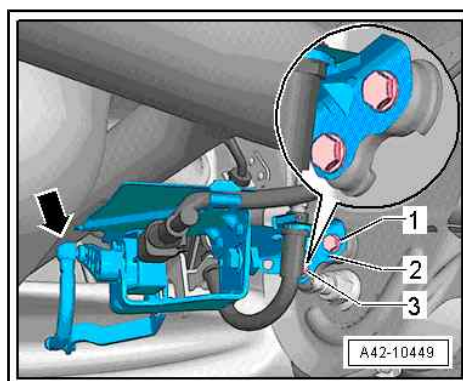


- Unclip wire -2- for speed sensor from brackets -arrows- on both sides.



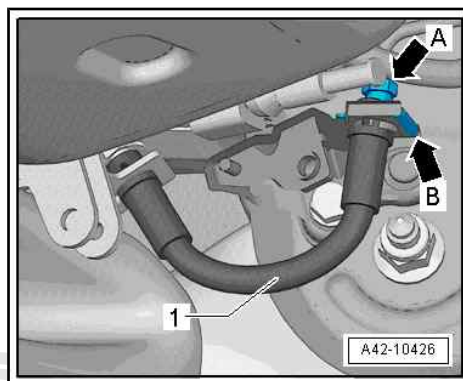
Vehicles with dynamic headlight range control

- Remove bolts -1 and 3-. Vehicle level sender - G76- with bracket -2- does not have to be removed.

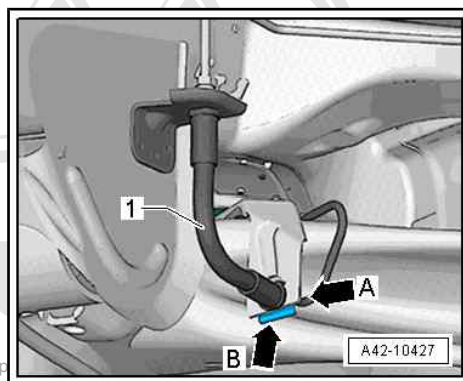


All vehicles (continued):

- Disconnect brake line (left-side) -arrow A- and remove clip -arrow B-.
- Pull brake hose (left-side) -1- out of bracket.
- Seal open connections immediately using clean sealing plugs from repair kit - 1H0 698 311 A- .

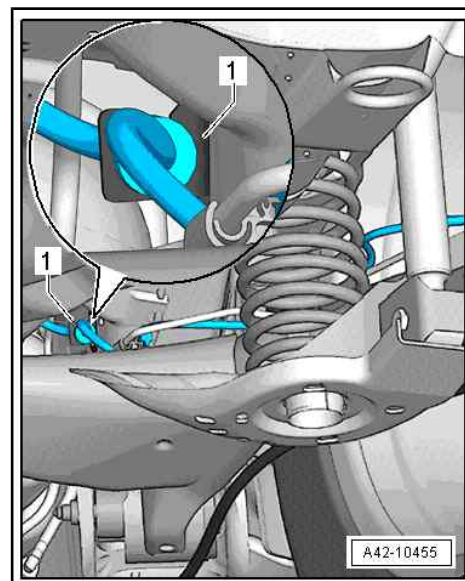


- Disconnect brake line (right-side) -arrow A- and remove clip -arrow B-.
- Pull brake hose (right-side) -1- out of axle beam.
- Seal open connections immediately using clean sealing plugs from repair kit - 1H0 698 311 A- .

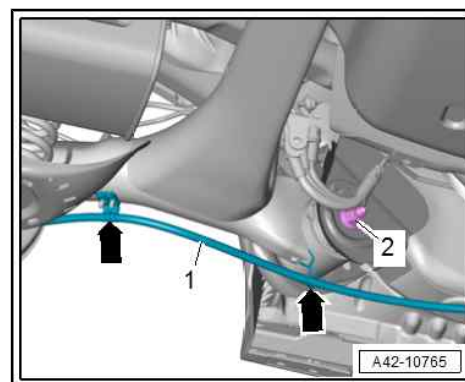


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- Unclip ABS wire (right-side) at bracket -1- and move clear.



- Move handbrake cable -1- clear on both sides -arrows-.
- Bring engine and gearbox jack - VAS 6931- into position with a suitable support block or similar.
- Secure rear axle with a strap or similar when lowering.
- Unscrew bolt -2- for axle beam on both sides.
- Carefully lower rear axle with engine and gearbox jack - VAS 6931- until bonded rubber bush is accessible.

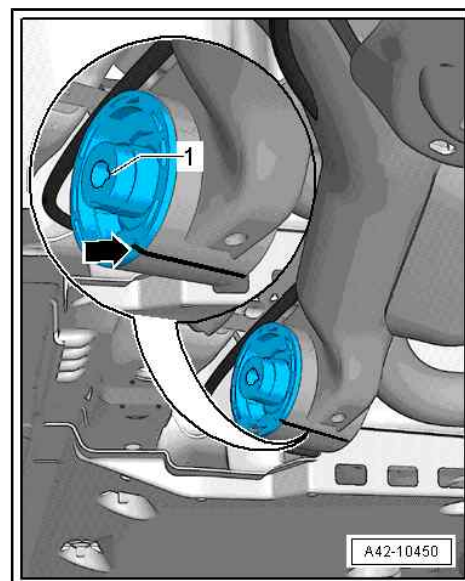


Note

When lowering the rear axle, pay attention to brake cables and electrical wiring.

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- Mark installation position of bonded rubber bush -1- in relation to axle beam at bottom slit in outer sleeve -arrow- using a felt-tip pen or similar
- Extend marking to opposite side of sleeve.



– Set up special tools as shown in illustration.

- 1 - Spindle - T10254/5-
- 2 - Nut - T10254/4-
- 3 - Thrust piece - 3416/2-
- 4 - Bonded rubber bush
- 5 - Tube - T10263/6-
- 6 - Thrust plate - T10205/1-
- 7 - Foot pump - VAS 6179-
- 8 - Hydraulic press - VAS 6178- with press attachment - T10205/13-
- 9 - Nut - T10254/4-

– Take up play in special tools.

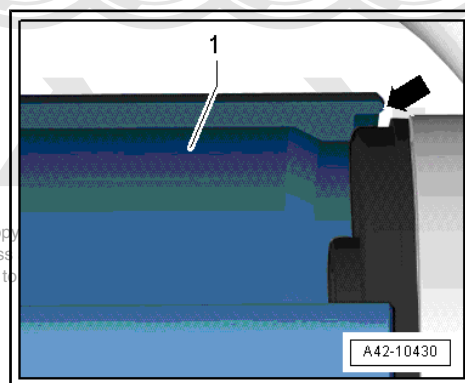
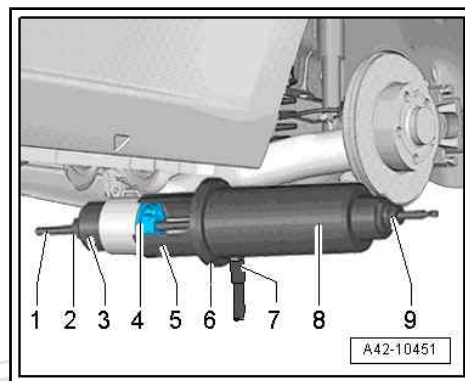
– Tube - T10263/6- -1- must be positioned on bonded rubber bush so that outer diameter is able to rest evenly on axle beam -arrow-.

– Pull out bonded rubber bush by operating the pump.

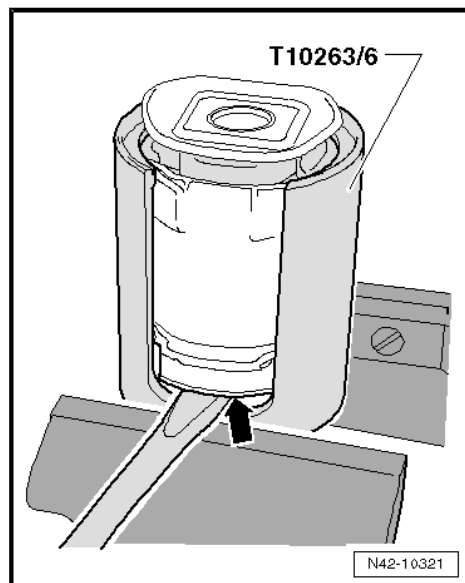


Note

The outer ring of the bonded rubber bush will shear off with a loud bang when the bush is removed.

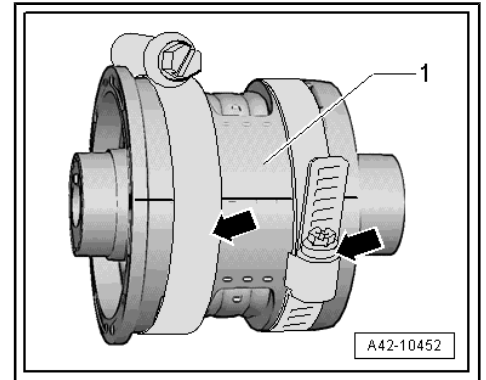


- The bonded rubber bush must be removed from the tube - T10356/6- once the bush has been pulled out.
- Clamp the tube - T10356/6- in a vice at the surfaces provided for this purpose.
- Use a screwdriver as a lever -arrow- between tube - T10356/6- and rubber bonded bush; if necessary, knock bonded rubber bush out by tapping a drift gently with a hammer.



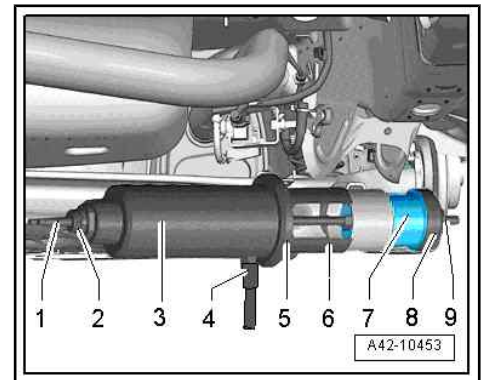
Installing

- The outer sleeve of the bonded rubber bush consists of two half-sections which have to be pressed together before installation in order to press the bush into the axle beam without damage.
- Compress new bonded rubber bush -1- with two screw-type hose clips -arrows- as shown in illustration until the two half-sections come together.



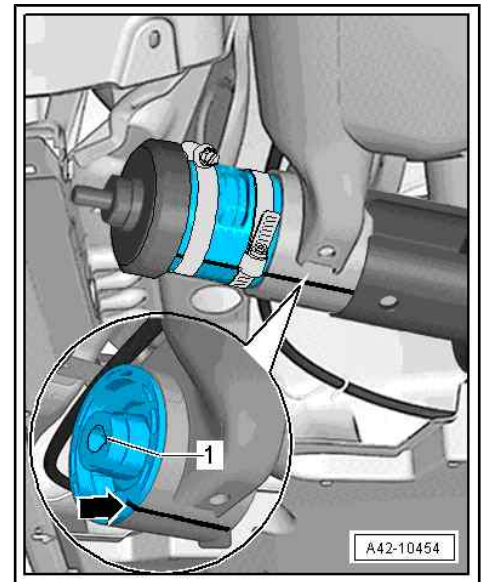
- Now bring bonded rubber bush with special tools into position at rear axle.

- 1 - Spindle - T10254/5-
- 2 - Nut - T10254/4-
- 3 - Hydraulic press - VAS 6178- with press attachment - T10205/13-
- 4 - Foot pump - VAS 6179-
- 5 - Thrust plate - T10205/1-
- 6 - Tube - T10263/6-
- 7 - Bonded rubber bush
- 8 - Thrust piece - 3348/1-
- 9 - Nut - T10254/4-



- Before pressing in bonded rubber bush, make sure groove -1- in inner core of bush faces towards rear of vehicle and bottom slit -arrow- in outer sleeve is in line with marking on axle beam.
- Press in bonded rubber bush as far as first hose clip and then remove hose clip.
- Press in bonded rubber bush as far as second hose clip and then remove hose clip.
- Press in bonded rubber bush as far as stop.
- After installation, check that bonded rubber bush is in correct position.
- Tighten rear axle mountings in unladen position ⇒ [page 11](#) .
- Bleed brake system ⇒ Brake system; Rep. gr. 47 ; Hydraulic system; Bleeding hydraulic system (normal bleeding procedure).

The remaining installation steps are carried out in the reverse sequence.



Tightening torques

- ◆ ⇒ ["2.1 Exploded view - axle beam", page 153](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ Wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)

3 Subframe

⇒ ["3.1 Exploded view - subframe", page 168](#)

⇒ ["3.2 Fixing position of subframe", page 170](#)

⇒ ["3.3 Servicing subframe", page 173](#)

3.1 Exploded view - subframe

⇒ ["3.1.1 Exploded view - subframe, Audi A1 quattro", page 168](#)

⇒ ["3.1.2 Exploded view - subframe, Audi S1", page 170](#)

3.1.1 Exploded view - subframe, Audi A1 quattro



Caution

Risk of damage to threads of bolts securing subframe to body.

- ◆ *DO NOT use an impact wrench when loosening or tightening the bolts that secure the subframe to the body.*
- ◆ *Always fit all bolts by hand; make the first few turns by hand.*

-Arrow- points in direction of travel.



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1 - Subframe

2 - Bonded rubber bush (rear)

- ☐ Renewing ⇒ [page 173](#)

3 - Bonded rubber bush (front)

- ☐ Renewing ⇒ [page 173](#)

4 - Final drive

- ☐ Removing and installing
⇒ Rear final drive; Rep.
gr. 39 ; Final drive; Re-
moving and installing fi-
nal drive

5 - Bolt

- ☐ Always renew if re-
moved
- ☐ 60 Nm + turn 90° further

6 - Washer

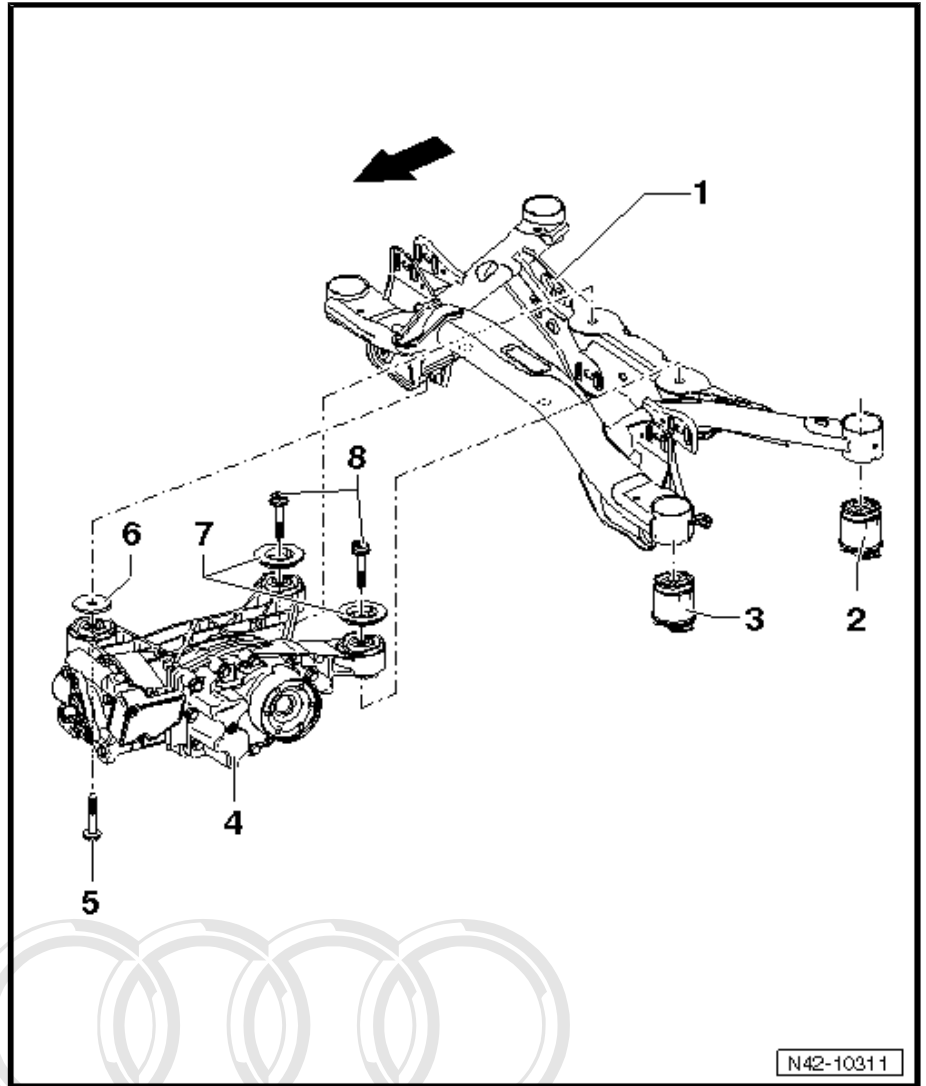
- ☐ Installed between final
drive and subframe

7 - Washer

- ☐ Holes in washer must be
fitted on projections on
bonded rubber bush

8 - Bolt

- ☐ Always renew if re-
moved
- ☐ 60 Nm + turn 90° further



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3.1.2 Exploded view - subframe, Audi S1



Caution

Risk of damage to threads of bolts securing subframe to body.

- ◆ **DO NOT use an impact wrench when loosening or tightening the bolts that secure the subframe to the body.**
- ◆ **Always fit all bolts by hand; make the first few turns by hand.**

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1 - Subframe

- ❑ Removing and installing subframe with attachments ⇒ [page 149](#)

2 - Bolt

- ❑ Renew after removing
- ❑ 70 Nm + 180°

3 - Bonded rubber bush (front)

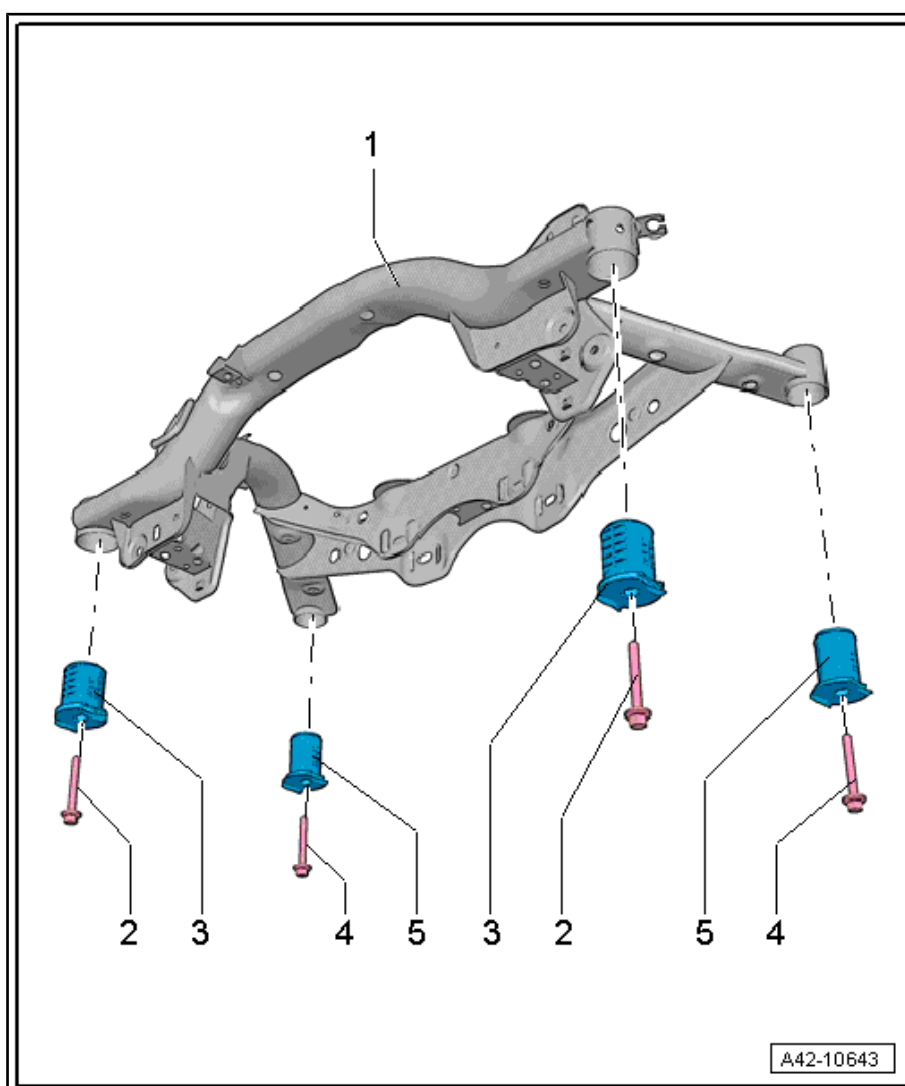
- ❑ Renewing ⇒ [page 179](#)

4 - Bolt

- ❑ Always renew if removed
- ❑ 70 Nm + 180°

5 - Bonded rubber bush (rear)

- ❑ Renewing ⇒ [page 179](#)



3.2 Fixing position of subframe

Certain repairs require the removal of the subframe or the entire rear axle. The original position of the subframe relative to the body can be retained with the aid of the locating pins - T10096- . The locating pins - T10096- should always be screwed in just before lowering the subframe or the complete rear axle. Perform test drive after completing repair work. Wheel alignment must be checked and adjusted if the steering wheel is not straight
⇒ [page 310](#) .

Special tools and workshop equipment required

◆ Torque wrench - V.A.G 1332-



◆ Engine and gearbox jack - VAS 6931-



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◆ Tensioning strap - T10038-



◆ Locating pins - T10096-



Procedure

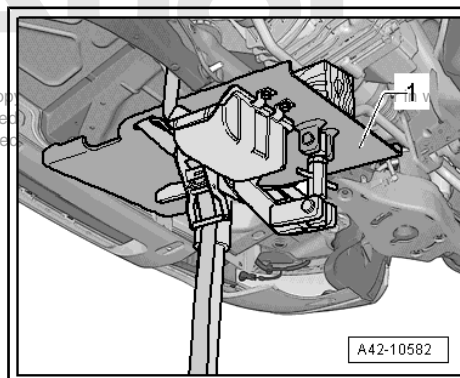
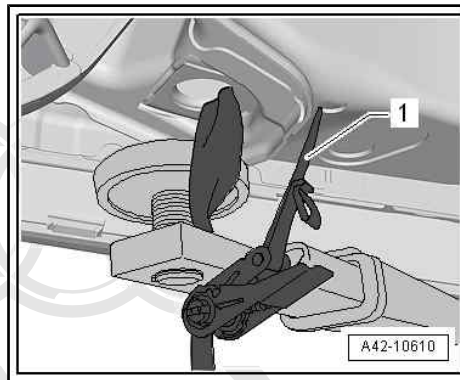


WARNING

The vehicle could slip off the lifting platform - risk of accident!

- ◆ *For the following procedure, the vehicle must be secured to the support arms of the lifting platform on both sides.*

- Use tensioning straps - T10038- to strap vehicle to support arms of lifting platform on both sides.
- 1 - Tensioning strap - T10038-
- Position engine and gearbox jack - VAS 6931- -item 1- under subframe and secure with tensioning strap.

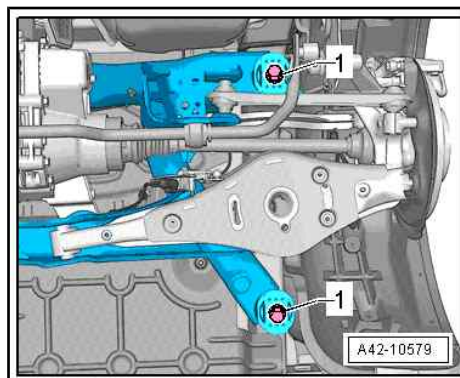


To fix position of subframe, locating pins from locating pin set - T10096- must be screwed in one after the other at positions -1-.



Note

The locating pins must not be tightened to more than 20 Nm, otherwise the threads of the pins will be damaged.

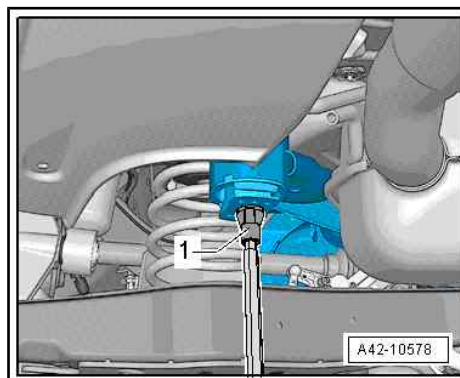


Caution

Risk of damage to threads of bolts securing subframe to body.

- ◆ *DO NOT use an impact wrench when loosening or tightening the bolts that secure the subframe to the body.*
- ◆ *Always fit all bolts by hand; make the first few turns by hand.*

- Fit locating pins one after the other in place of securing bolts -1- on both sides of the vehicle and tighten to 20 Nm.

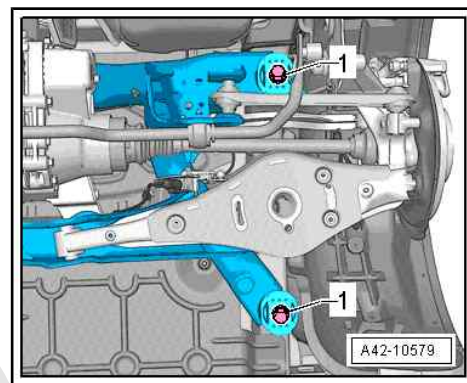


Removing locating pins of locating pin set - T10096-

- Unscrew only one locating pin at a time; replace it with a new bolt -1- and tighten bolt.

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - subframe”, page 168](#)



3.3 Servicing subframe

⇒ [“3.3.1 Servicing subframe - Audi A1 quattro”, page 173](#)

⇒ [“3.3.2 Renewing bonded rubber bushes \(front\) for subframe - Audi S1”, page 179](#)

⇒ [“3.3.3 Renewing bonded rubber bushes \(rear\) for subframe - Audi S1”, page 183](#)

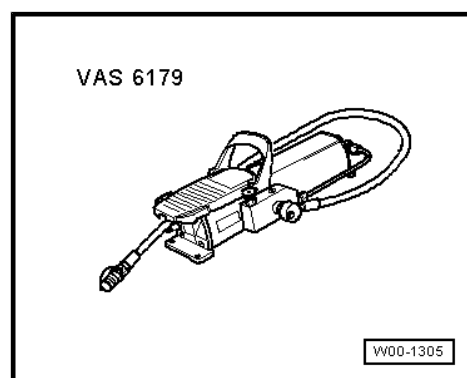
3.3.1 Servicing subframe - Audi A1 quattro

Special tools and workshop equipment required

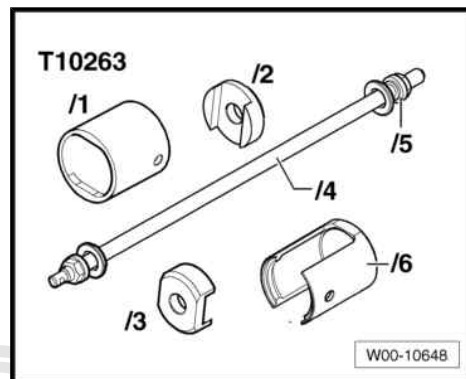
- ◆ Hydraulic press VAS 6178- with press attachment T10205/13-



- ◆ Foot pump - VAS 6179-



- ◆ Assembly tool - T10263-



Overview

Removing front bonded rubber bush ⇒ [page 174](#)

Fitting front bonded rubber bush ⇒ [page 175](#)

Removing rear bonded rubber bush ⇒ [page 176](#)

Fitting rear bonded rubber bush ⇒ [page 178](#)

Removing front bonded rubber bush

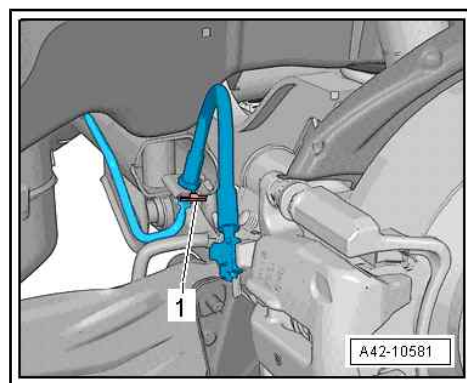
- Remove wheels ⇒ [page 303](#) .
- Remove coil springs ⇒ [page 230](#) .
- Remove rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Unplug electrical connections between rear axle and body.
- Remove anti-roll bar ⇒ [page 191](#) .
- Remove track rods ⇒ [page 209](#) .
- Remove clip -1-.



Note

Do not disconnect brake line.

- Fix position of subframe ⇒ [page 170](#) .
- Lower subframe 100 mm with engine and gearbox jack - VAS 6931- .
- Use felt-tip pen or similar to mark position of bonded rubber bush in relation to subframe.



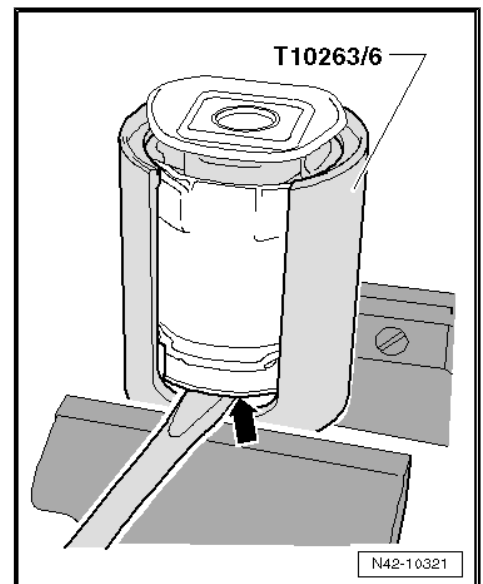
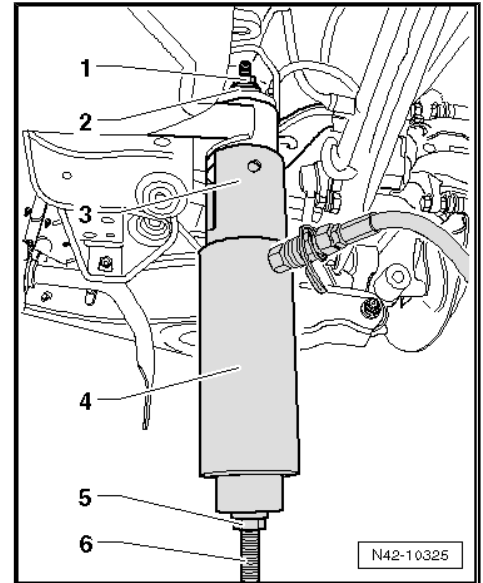
- Apply special tools as shown in illustration.
- 1 - Nut - T10263/5-
- 2 - Washer from -T10263-
- 3 - Tube - T10263/6-
- 4 - Hydraulic press - VAS 6178- with press attachment - T10205/13-
- 5 - Nut - T10263/5-
- 6 - Spindle - T10263/4-
- Take up play in special tools.
- Extract bonded rubber bush by actuating pump.



Note

The outer ring of the bonded rubber bush will shear off with a loud bang when the bush is removed.

- When the bonded rubber bush has been extracted, it must be removed from the tube - T10356/6-.
- Clamp the tube - T10356/6- in a vice at the surfaces provided for this purpose.
- Use a screwdriver as a lever -arrow- between tube - T10356/6- and rubber bonded bush; if necessary, knock bonded rubber bush out by tapping a drift gently with a hammer.



Fitting front bonded rubber bush

Installation is carried out in reverse sequence. Note the following points:

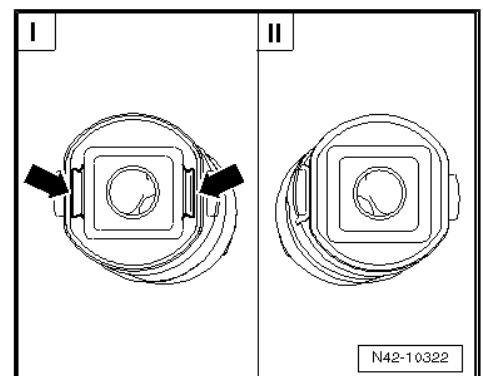
Distinguishing features of bonded rubber bushes

I - Bonded rubber bush (front)

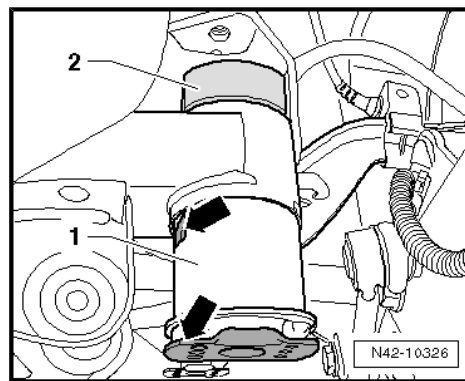
II - Bonded rubber bush (rear)

The front bonded rubber bushes have two notches on the top -arrows- and differ from the rear bushes slightly in height => Electronic parts catalogue "ETKA".

The bonded rubber bush must be installed facing in the correct direction; note the marks on the subframe for this purpose.



- Fit bonded rubber bush -1- into subframe so that lug and plate -arrows- are perpendicular to direction of travel.
- Apply thrust piece - T10263/3- -2- so that flattened side is also perpendicular to direction of travel.



- Set up special tools with bonded rubber bush on subframe as shown in illustration.

1 - Nut - T10263/5-

2 - Thrust piece - T10263/3-

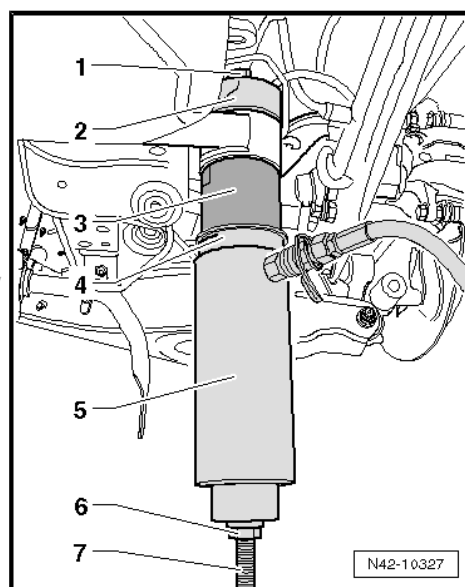
3 - Bonded rubber bush

4 - Thrust piece - T10263/2-

5 - Hydraulic press - VAS 6178- with press attachment T10205/13-

6 - Nut - T10263/5-

7 - Spindle - T10263/4-



- Take up play in special tools with bonded rubber bush.
- Carefully press in bonded rubber bush by actuating pump until collar is flush with subframe.
- Remove locating pins of locating pin set - T10096- ⇒ [page 173](#) .
- Install track rods ⇒ [page 209](#) .
- Install anti-roll bar ⇒ [page 191](#) .
- Join electrical connections between rear axle and body.
- Install rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Install coil springs ⇒ [page 230](#) .
- Fit wheels ⇒ [page 303](#) .

Removing rear bonded rubber bush

- Remove wheels ⇒ [page 303](#) .
- Remove coil springs ⇒ [page 230](#) .
- Remove rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .

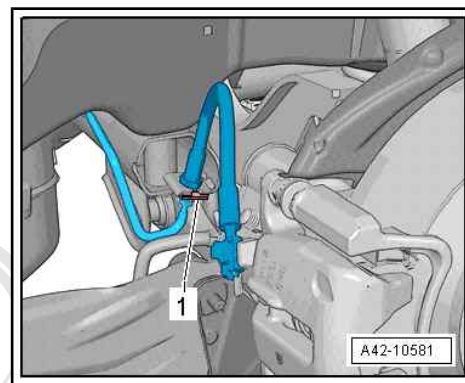
- Remove clip -1-.



Note

Do not disconnect brake line.

- Fix position of subframe ⇒ [page 170](#) .
- Lower subframe 100 mm with engine and gearbox jack - VAS 6931- .
- Use felt-tip pen or similar to mark position of bonded rubber bush in relation to subframe.



- Apply special tools as shown in illustration.

1 - Nut - T10263/5-

2 - Washer from -T10263-

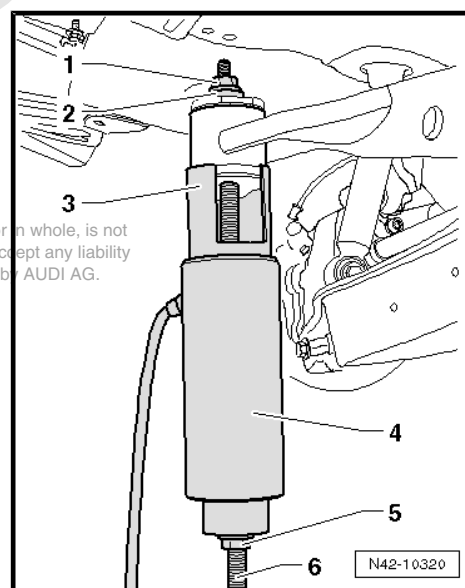
3 - Tube - T10263/6-

4 - Hydraulic press - VAS 6178- with press attachment - T10205/13-

5 - Nut - T10263/5-

6 - Spindle - T10263/4-

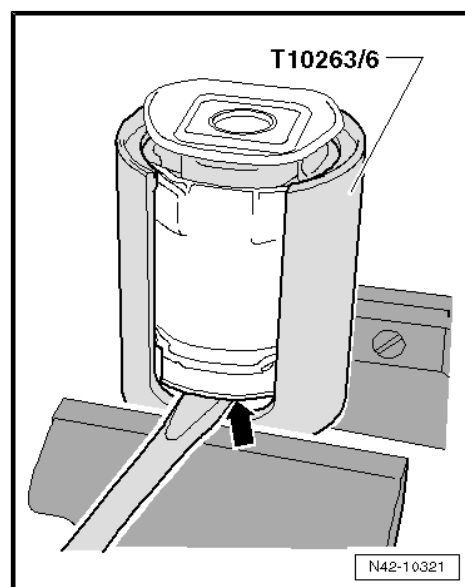
- Take up play in special tools.
- Extract bonded rubber bush by actuating pump.



Note

The outer ring of the bonded rubber bush will shear off with a loud bang when the bush is removed.

- When the bonded rubber bush has been extracted, it must be removed from the tube - T10356/6- .
- Clamp the tube - T10356/6- in a vice at the surfaces provided for this purpose.
- Use a screwdriver as a lever -arrow- between tube - T10356/6- and rubber bonded bush; if necessary, knock bonded rubber bush out by tapping a drift gently with a hammer.



Fitting rear bonded rubber bush

Installation is carried out in reverse sequence. Note the following points:

Distinguishing features of bonded rubber bushes

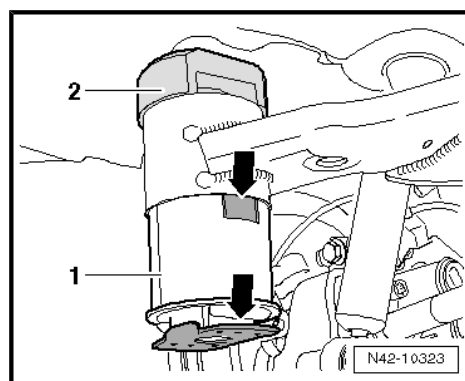
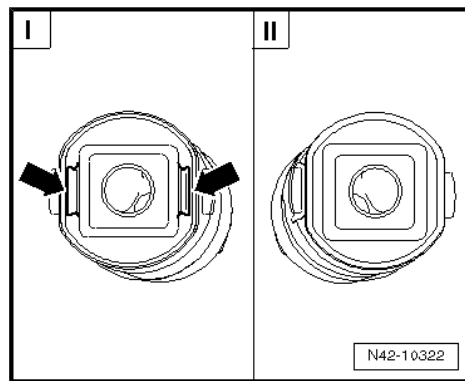
I - Bonded rubber bush (front)

II - Bonded rubber bush (rear)

The front bonded rubber bushes have two notches on the top -arrows- and differ from the rear bushes slightly in height ⇒ Electronic parts catalogue "ETKA".

The bonded rubber bush must be installed facing in the correct direction; note the marks on the subframe for this purpose.

- Fit bonded rubber bush -1- into subframe so that lug and plate -arrows- are perpendicular to direction of travel.
- Apply thrust piece - T10263/3- -2- so that flattened side is also perpendicular to direction of travel.



- Set up special tools with bonded rubber bush on subframe as shown in illustration.

1 - Nut - T10263/5-

2 - Thrust piece - T10263/3-

3 - Bonded rubber bush

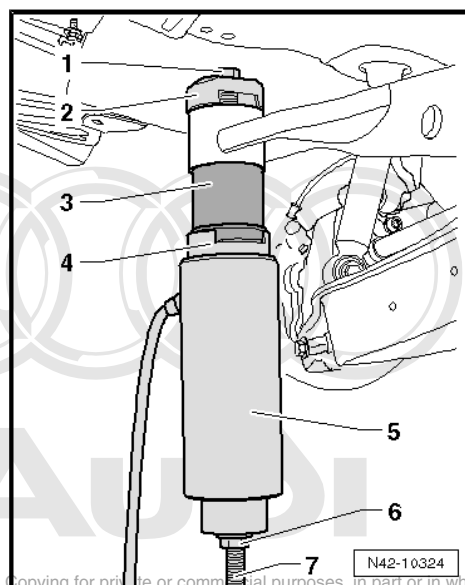
4 - Thrust piece - T10263/2-

5 - Hydraulic press - VAS 6178- with press attachment - T10205/13-

6 - Nut - T10263/5-

7 - Spindle - T10263/4-

- Take up play in special tools with bonded rubber bush.
- Carefully press in bonded rubber bush by actuating pump until collar is flush with subframe.
- Remove locating pins of locating pin set - T10096- ⇒ [page 173](#).
- Install coil springs ⇒ [page 230](#).



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Tightening torques

- ♦ ⇒ ["5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro", page 198](#)
- ♦ ⇒ ["1 Wheels, tyres", page 303](#)
- ♦ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers

3.3.2 Renewing bonded rubber bushes (front) for subframe - Audi S1

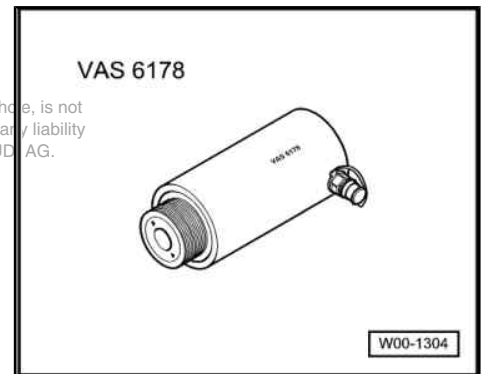
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

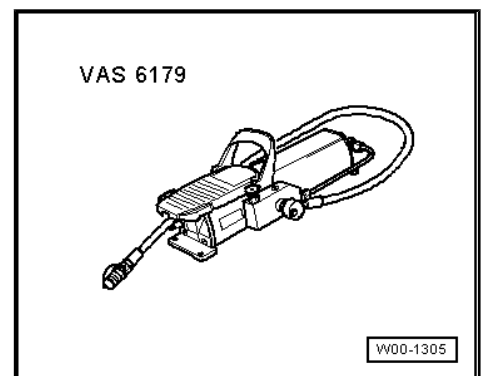


- ◆ Hydraulic press - VAS 6178- with press attachment - T10205/13-

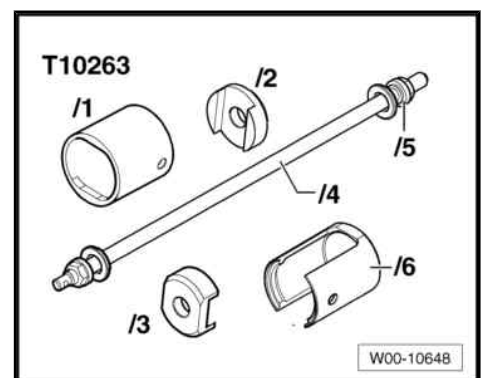
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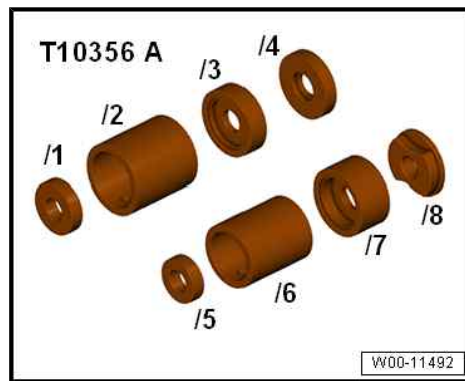
- ◆ Foot pump - VAS 6179-



- ◆ Assembly tool - T10263-



- ◆ Assembly tool - T10356 A-



- ◆ Assembly lubricant - G 294 421 A1- ⇒ Electronic parts catalogue "ETKA"



Note

- ◆ *If a bonded rubber bush on one side is defective, the bush on the other side must be renewed at the same time. For correct version refer to ⇒ Electronic parts catalogue "ETKA".*
- ◆ *Also check the other bushes before renewing a defective bonded rubber bush.*
- ◆ *If cracks or other damage are visible these bushes must also be renewed.*
- ◆ *Mark the position of the bonded rubber bushes in relation to the subframe before removing them.*

Pressing out bonded rubber bushes (front)

- Remove wheels ⇒ [page 303](#) .
- Remove springs ⇒ [page 232](#) .
- Remove rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- If fitted, remove underbody trim ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .
- Unbolt propshaft from rear final drive ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- Push propshaft as far as possible towards gearbox and tie up.
- Remove track rods ⇒ [page 211](#) .
- Fix position of subframe ⇒ [page 170](#) .

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- Unclip brake line on left side -arrows-.

 Note

Clips cannot be released without being damaged irreparably.

- Carefully lower subframe with attachments approx. 40 mm.

 Note

When lowering, make sure there is enough clearance for brake lines, electrical wiring and propshaft centring pin.

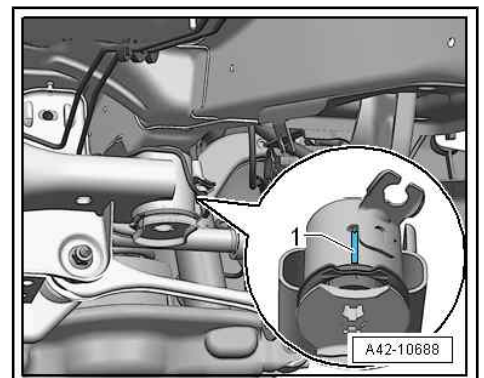
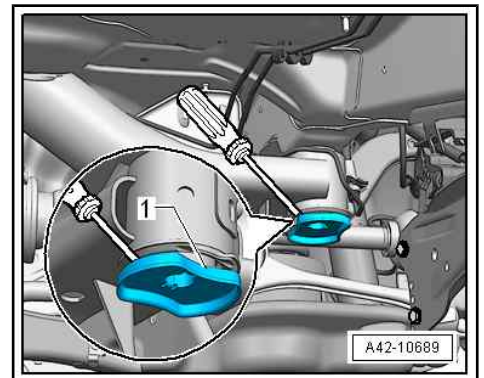
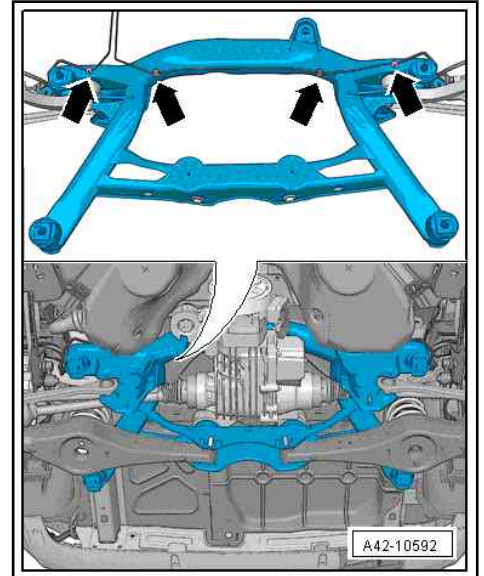
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- Prise locating element -1- off bonded rubber bush in area of retaining lugs.

- Mark installation position of bonded rubber bush in relation to subframe -1- using a felt-tip pen or similar.

 Note

Make marking -1- on subframe centrally in relation to cut-out in bonded rubber bush.

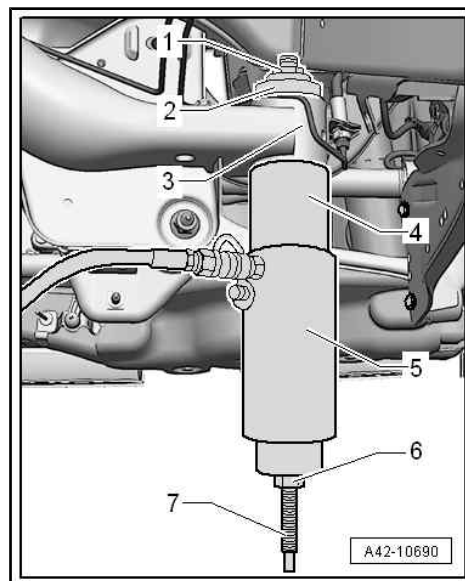


- Apply tools as shown in illustration.
- 1 - Nut - T10263/5-
- 2 - Thrust piece - T10356/1-
- 3 - Subframe
- 4 - Tube - T10356/2- (side with shoulder faces towards subframe)
- 5 - Hydraulic press - VAS 6178- with press attachment - T10205/13-
- 6 - Nut - T10263/5-
- 7 - Spindle - T10263/4-
- Take up play in special tools.
- Press out bonded rubber bush.



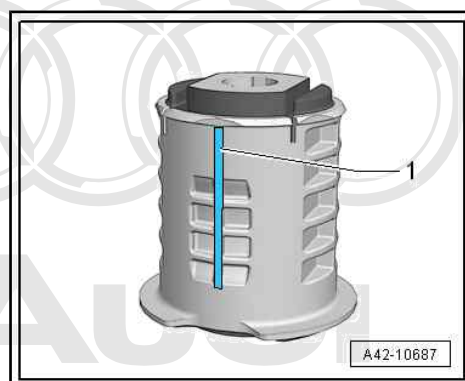
Note

- ◆ *The collar on the outer ring of the bonded rubber bush will shear off with a loud bang when the bush is removed.*
- ◆ *After it has been pulled out, the bonded rubber bush must be removed from the tube - T10356/2- with light blows from a hammer.*



Pressing in front bonded rubber bushes

- To assist assembly, a mark -1- should be made on the new bonded rubber bush.
- Lightly lubricate retaining tabs all round upper part of bonded rubber bush with assembly lubricant - G 294 421 A1- ⇒ Electronic parts catalogue "ETKA" .
- Mark line -1- on vertical ridge of bonded rubber bush, as shown in illustration.



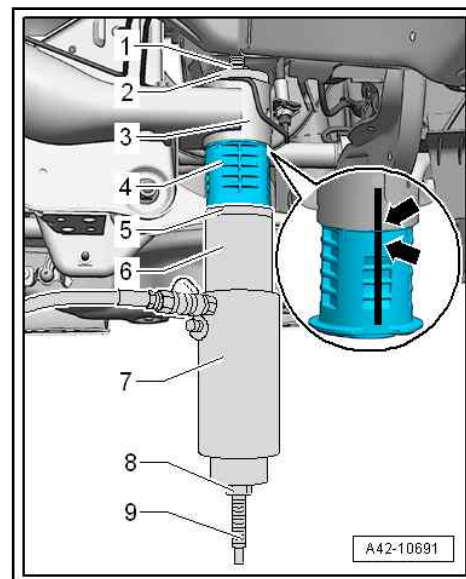
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- Set up special tools with bonded rubber bush on subframe as shown in illustration.

- 1 - Nut - T10263/5-
- 2 - Guide piece - T10356/7- with side »A« towards subframe
- 3 - Subframe
- 4 - Bonded rubber bush (align according to markings made earlier -arrows-; markings must be in line)
- 5 - Thrust piece - T10356/8-
- 6 - Tube - T10356/2-
- 7 - Hydraulic press - VAS 6178- with press attachment - T10205/13-
- 8 - Nut - T10263/5-
- 9 - Spindle - T10263/4-

- Check position of bonded rubber bush, align as required and take up play in special tools with bonded rubber bush.

- Press in bonded rubber bush by actuating pump until collar is flush with subframe. Ensure that the bonded rubber bush remains straight during the first stage of installation, otherwise the outer ring may be damaged.



The remaining installation steps are carried out in the reverse sequence.

- Remove locating pins of locating pin set - T10096-
⇒ [page 173](#) .
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ ["3.1.2 Exploded view - subframe, Audi S1", page 170](#)

- ◆ ⇒ ["5.1.3 Exploded view - track rod, Audi S1", page 202](#)

- ◆ ⇒ ["1 Wheels, tyres", page 303](#)

- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .

- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers

3.3.3 Renewing bonded rubber bushes (rear) for subframe - Audi S1

Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1332-



- ◆ Engine and gearbox jack - VAS 6931-

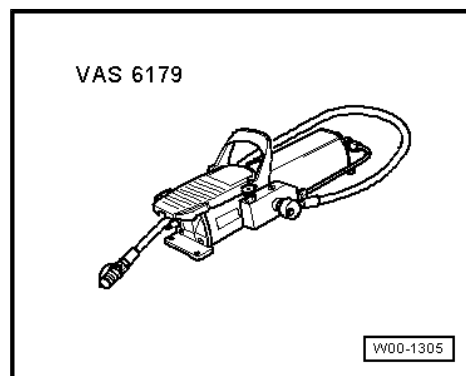


- ◆ Hydraulic press - VAS 6178 - with press attachment T10205/13-

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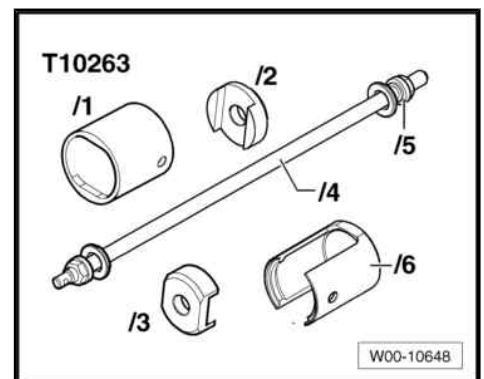
- ◆ Foot pump - VAS 6179-



◆ Tensioning strap - T10038-

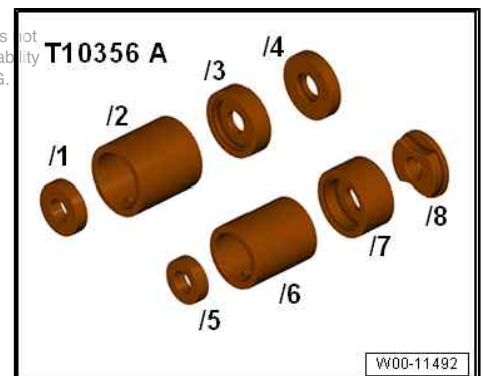


◆ Assembly tool - T10263-



◆ Assembly tool - T10356 A-

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◆ Assembly lubricant - G 294 421 A1- ⇒ Electronic parts catalogue "ETKA"

Procedure



Note

- ◆ If a bonded rubber bush on one side is defective, the bush on the other side must be renewed at the same time. For correct version refer to ⇒ Electronic parts catalogue "ETKA".
- ◆ Also check the other bushes before renewing a defective bonded rubber bush.
- ◆ If cracks or other damage are visible these bushes must also be renewed.
- ◆ The front or rear part of the subframe is lowered in order to renew the bonded rubber bushes. The subframe does not have to be removed.
- ◆ Lower the subframe at each end separately. This avoids the need for checking and adjusting wheel alignment.
- ◆ Do not lower the subframe more than 4 cm.
- ◆ Mark the position of the bonded rubber bushes in relation to the subframe before removing them.

Pressing out bonded rubber bushes (rear)

- Remove wheels ⇒ [page 303](#) .
- Remove springs ⇒ [page 232](#) .
- Remove rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .

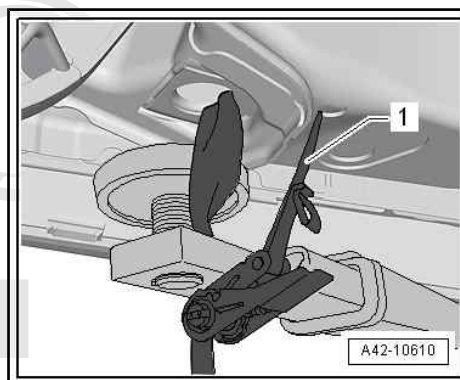


WARNING

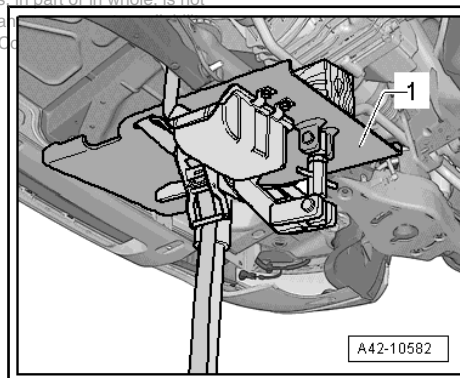
The vehicle could slip off the lifting platform - risk of accident!

- ◆ For the following procedure, the vehicle must be secured to the support arms of the lifting platform on both sides.

- Use tensioning straps - T10038- -1- to strap vehicle to support arms of lifting platform on both sides.



- Position engine and gearbox jack VAS 6931- -item 1- under subframe and secure with tensioning strap.

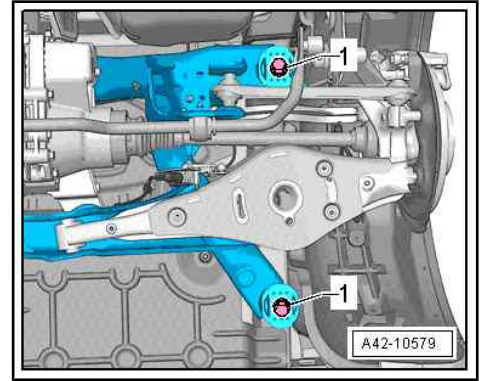


- Remove rear hexagon bolts -1- on both sides.

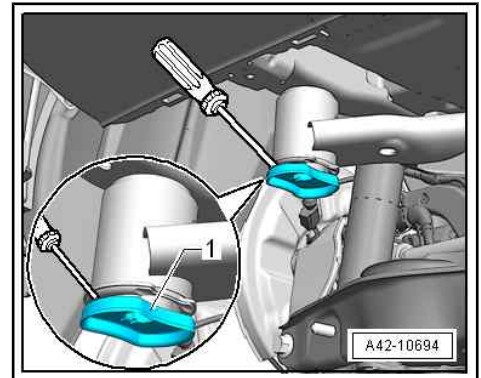
 Note

For clarity, illustration only shows right side of vehicle.

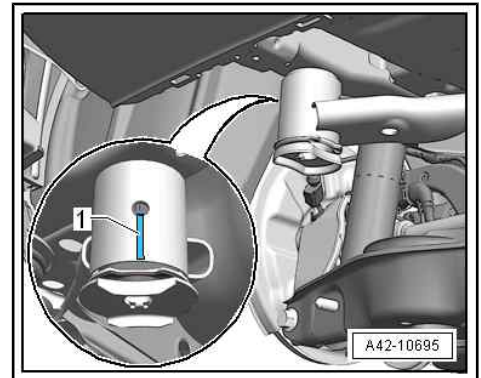
- Lower subframe approx. 40 mm with engine and gearbox jack - VAS 6931- .



- Prise locating element -1- off bonded rubber bush in area of retaining lugs.



- Mark installation position of bonded rubber bush in relation to subframe -1- using a felt-tip pen or similar.
- Make marking -1- on subframe centrally in relation to cut-out in bonded rubber bush.



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– Apply tools as shown in illustration.

1 - Nut - T10263/5-

2 - Thrust piece - T10356/5-

3 - Subframe

4 - Tube - T10356/6- (side with shoulder faces towards subframe)

5 - Hydraulic press - VAS 6178- with press attachment - T10205/13-

6 - Nut - T10263/5-

7 - Spindle - T10263/4-

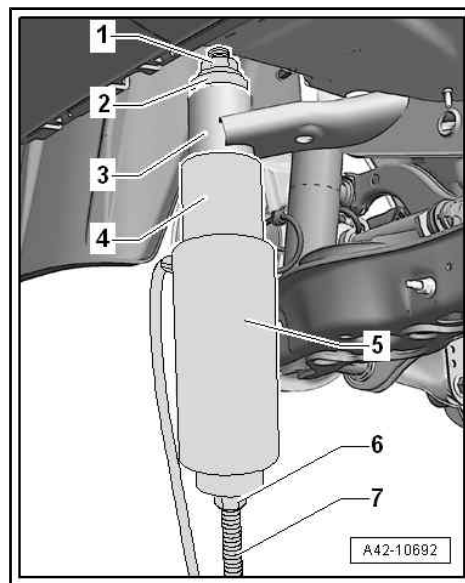
– Take up play in special tools.

– Press out bonded rubber bush.



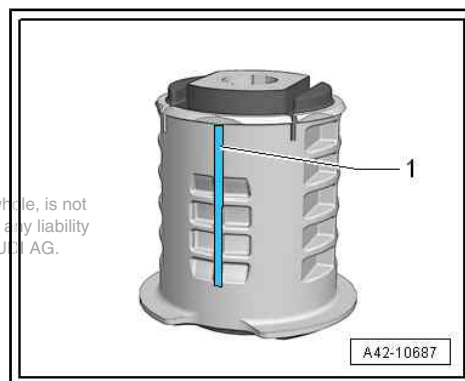
Note

- ◆ *The collar on the outer ring of the bonded rubber bush will shear off with a loud bang when the bush is removed.*
- ◆ *After it has been pulled out, the bonded rubber bush must be removed from the tube - T10356/2- with light blows from a hammer.*



Pressing in bonded rubber bushes (rear)

- To assist assembly, make a mark -1- on the new bonded rubber bush.
- Retaining tabs all round upper part of bonded rubber bush must be lightly lubricated with assembly lubricant - G 294 421 A1- ⇒ Electronic parts catalogue "ETKA"
- Mark line -1- on vertical ridge of bonded rubber bush, as shown in illustration.



- Set up special tools with bonded rubber bush on subframe as shown in illustration.

1 - Nut - T10263/5-

2 - Guide piece - T10356/7- with side »B« towards subframe

3 - Subframe

4 - Bonded rubber bush (align according to markings made earlier -arrows-; markings must be in line)

5 - Thrust piece - T10356/8-

6 - Tube - T10356/2-

7 - Hydraulic press - VAS 6178- with press attachment - T10205/13-

8 - Nut - T10263/5-

9 - Spindle - T10263/4-

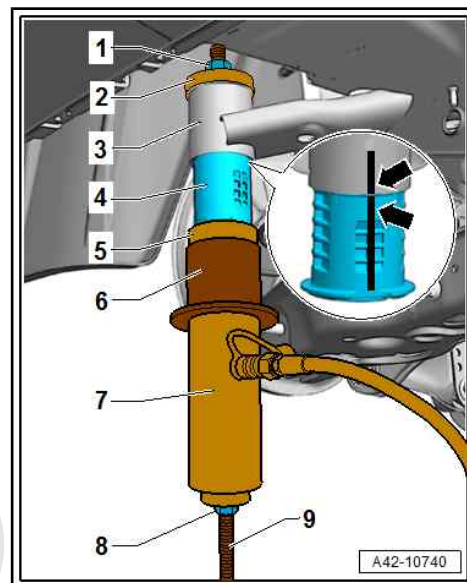
- Check position of bonded rubber bush, align as required and take up play in special tools with bonded rubber bush.

- Press in bonded rubber bush by actuating pump until collar is flush with subframe. Ensure that the bonded rubber bush remains straight during the first stage of installation, otherwise the outer ring may be damaged.

The remaining installation steps are carried out in the reverse sequence.

Tightening torques

- ◆ ⇒ ["3.1.2 Exploded view - subframe, Audi S1", page 170](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers



4 Anti-roll bar

⇒ "4.1 Exploded view - anti-roll bar", page 190

⇒ "4.2 Removing and installing anti-roll bar", page 191

⇒ "4.3 Removing and installing coupling rod (for anti-roll bar)", page 195

4.1 Exploded view - anti-roll bar

⇒ "4.1.1 Exploded view - anti-roll bar, Audi A1 quattro", page 190

⇒ "4.1.2 Exploded view - anti-roll bar, Audi S1", page 191

4.1.1 Exploded view - anti-roll bar, Audi A1 quattro

-Arrow- points in direction of travel.

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1 - Subframe

2 - Multi-point socket head bolt

- ☐ 25 Nm + turn 45° further
- ☐ Always renew if removed
- ☐ Tighten evenly

3 - Clamp

4 - Bush

- ☐ Always renew bushes on both sides of vehicle

5 - Anti-roll bar

- ☐ Removing and installing
⇒ page 191

6 - Bolt

- ☐ Always renew if removed

7 - Nut

- ☐ 45 Nm
- ☐ Self-locking
- ☐ Always renew if removed

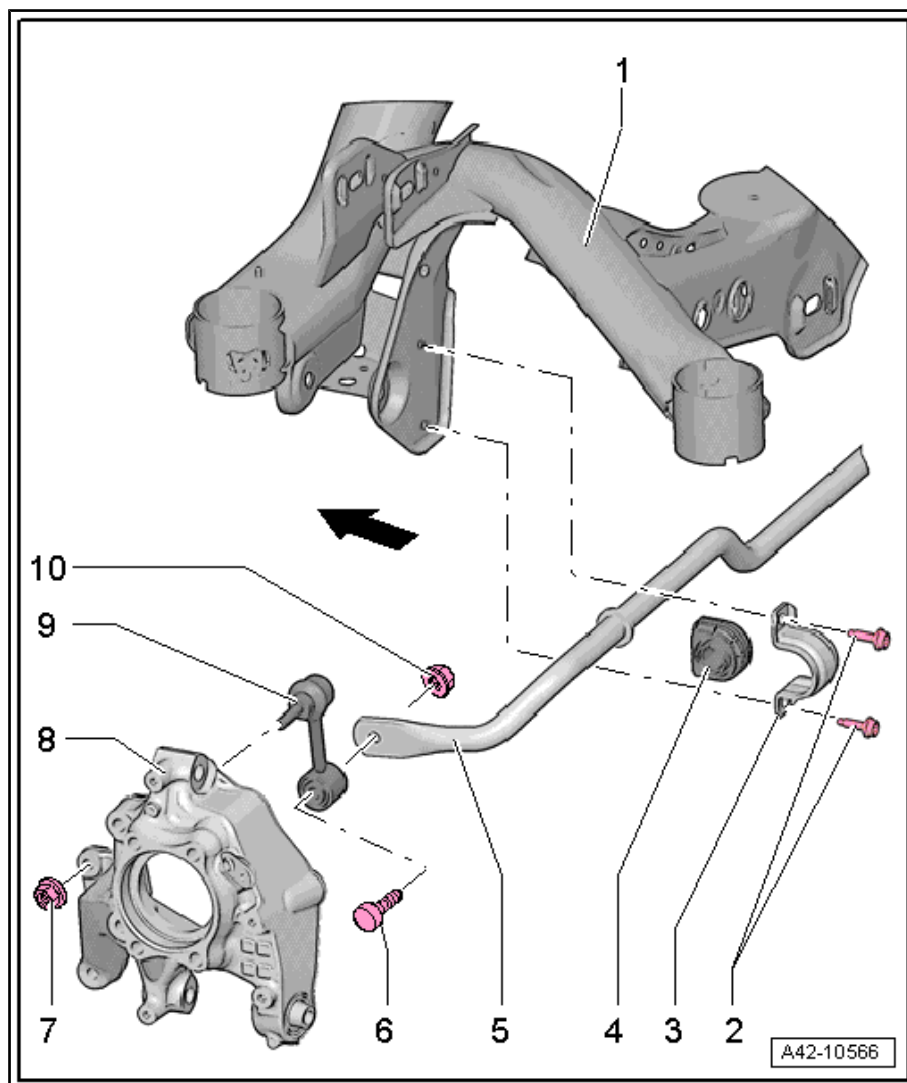
8 - Wheel bearing housing

9 - Coupling rod

- ☐ Connects anti-roll bar to trailing arm/wheel bearing housing

10 - Nut

- ☐ 45 Nm
- ☐ Self-locking
- ☐ Always renew if removed



4.1.2 Exploded view - anti-roll bar, Audi S1

1 - Anti-roll bar

- ☐ With rubber bushes
- ☐ Removing and installing
⇒ [page 193](#)

2 - Coupling rod

- ☐ Removing and installing
⇒ [page 195](#)

3 - Lower transverse link

4 - Nut

- ☐ Always renew if removed
- ☐ 20 Nm + 180°

5 - Bolt

- ☐ Always renew if removed

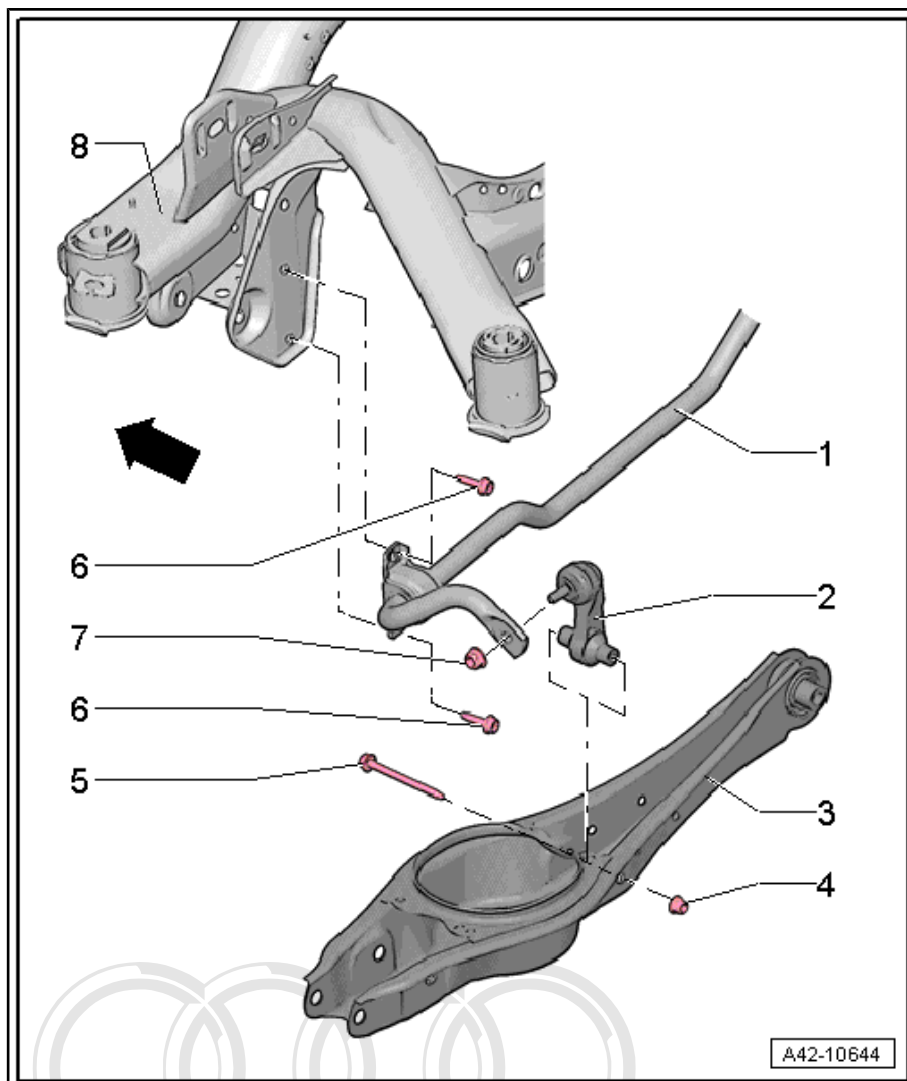
6 - Bolt

- ☐ Tighten evenly
- ☐ Always renew if removed
- ☐ 20 Nm + 90°

7 - Nut

- ☐ When tightening, counterhold at multi-point socket of coupling rod
- ☐ 55 Nm

8 - Subframe



4.2 Removing and installing anti-roll bar

⇒ [“4.2.1 Removing and installing anti-roll bar - Audi A1 quattro”, page 191](#)

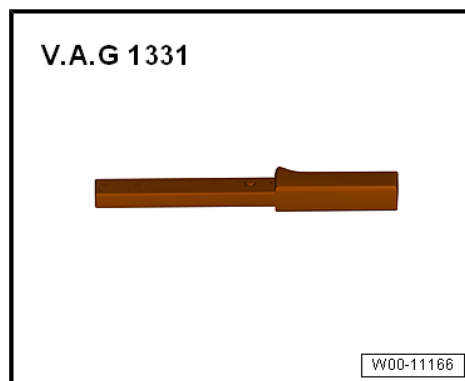
⇒ [“4.2.2 Removing and installing anti-roll bar - Audi S1”, page 193](#)

4.2.1 Removing and installing anti-roll bar - Audi A1 quattro

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Special tools and workshop equipment required

◆ Torque wrench - V.A.G 1331-



◆ Torque wrench - V.A.G 1332-



Removing

- Remove wheels ⇒ [page 303](#) .



Note

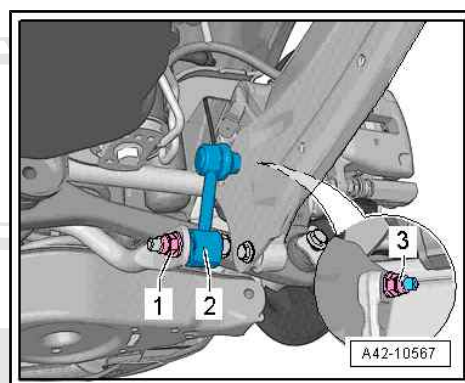
*The following steps are described for the left side of the vehicle.
The procedure for the right side of the vehicle is identical.*

- Unscrew nut -1- ⇒ [page 35](#) and pull coupling rod -2- out of anti-roll bar.



Note

Disregard item -3-.



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- Unscrew bolts -arrows- for anti-roll bar clamp.
- Remove anti-roll bar.

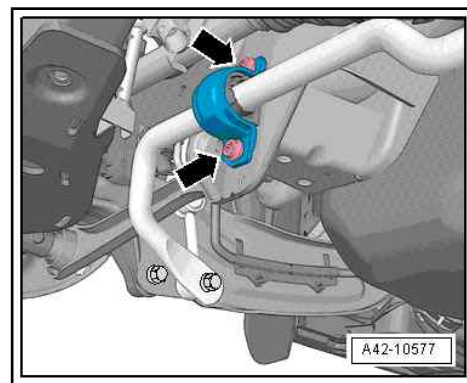
Installing

Install in reverse sequence, paying attention to the following:

- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

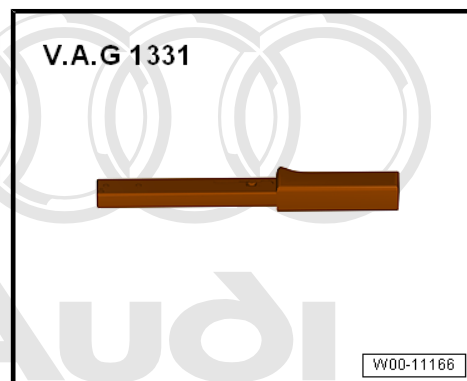
- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“7.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 237](#)
- ◆ ⇒ [“6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro”, page 215](#)
- ◆ ⇒ [“4.1.1 Exploded view - anti-roll bar, Audi A1 quattro”, page 190](#)



4.2.2 Removing and installing anti-roll bar - Audi S1

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Ring spanner insert, 16 mm - V.A.G 1331/12- (not illustrated)
- ◆ Engine and gearbox jack - VAS 6931-



◆ Tensioning strap - T10038-



◆ Support - T10149-



Note

- ◆ When loosening and tightening nuts securing coupling rod to anti-roll bar, counterhold at socket on coupling rod.
- ◆ The tool used for counterholding **must be applied straight**.

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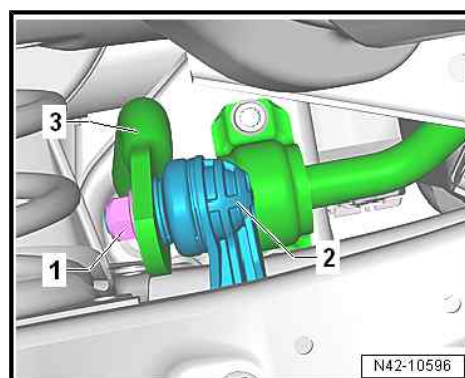


Note

The following steps are described for the left side of the vehicle.
The procedure for the right side of the vehicle is identical.

Removing

- Remove rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Remove nut -1- from coupling rod -2-.
- Pull coupling rod -2- out of anti-roll bar -3-.
- If the upper bolt of the anti-roll bar clamp cannot be removed, then the following additional work must be performed:



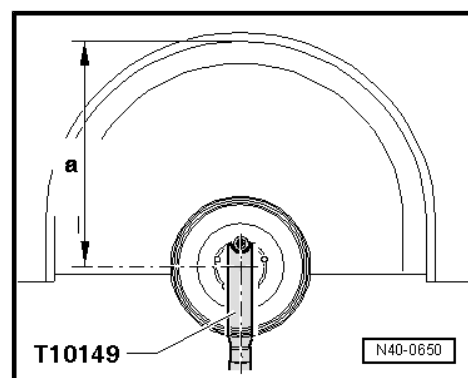
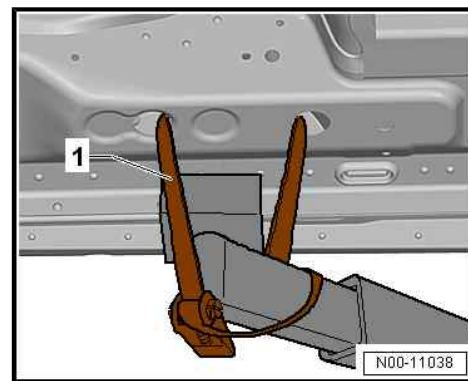


WARNING

The vehicle could slip off the lifting platform - risk of accident!

- ◆ *For the following procedure, the vehicle must be secured to the support arms of the lifting platform on both sides.*

- Use tensioning straps -T10038- -item 1- to secure vehicle to support arms of lifting platform on both sides.
- Remove wheels ⇒ [page 303](#) .
- Attach support - T10149- to wheel hub using wheel bolt.
- Raise wheel hub with support - T10149- and engine and gear-box jack - VAS 6931- until bolts on corresponding anti-roll bar clamp are accessible.
- Remove anti-roll bar.



Installing

Install in reverse sequence, paying attention to the following:

- Evenly tighten bolts -arrows- for anti-roll bar clamp.



Note

Items -2 and 3- can be disregarded.

Tightening torques

- ◆ ⇒ ["4.1.2 Exploded view - anti-roll bar, Audi S1", page 191](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)

- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - si-

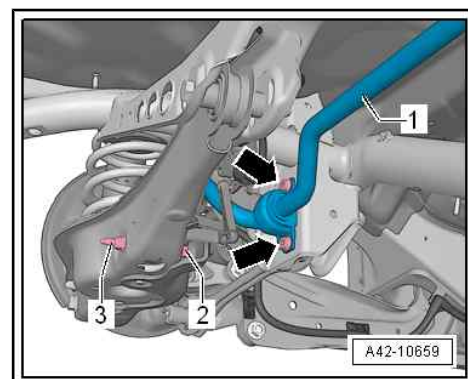
lencers

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4.3 Removing and installing coupling rod (for anti-roll bar)

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



V.A.G 1331



W00-11166

- ◆ Ring spanner insert (16 mm) - V.A.G 1331/12-



Note

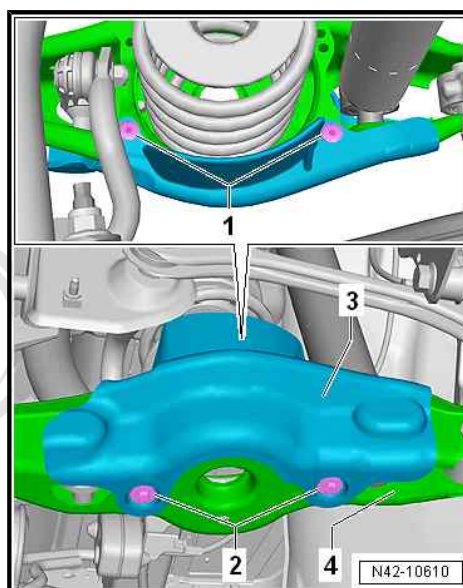
- ◆ *When loosening and tightening nuts securing coupling rod to anti-roll bar, counterhold at socket on coupling rod.*
- ◆ *The tool used for counterholding must be applied straight.*

Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value [⇒ page 11](#) .
- Remove wheel [⇒ page 303](#) .

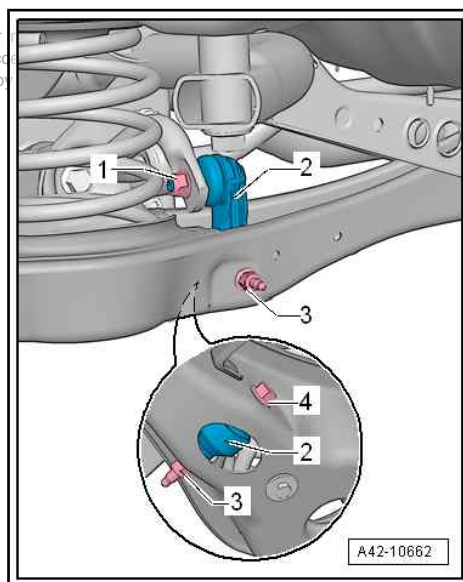
Vehicles with stone deflector

- Remove spreader rivets -1-.
- Unscrew bolts -2- and detach stone deflector -3-.



All vehicles (continued):

- Unscrew nuts -1- and 3- and pull out bolt -4-.
- Pull coupling rod -2- out of anti-roll bar and suspension link.



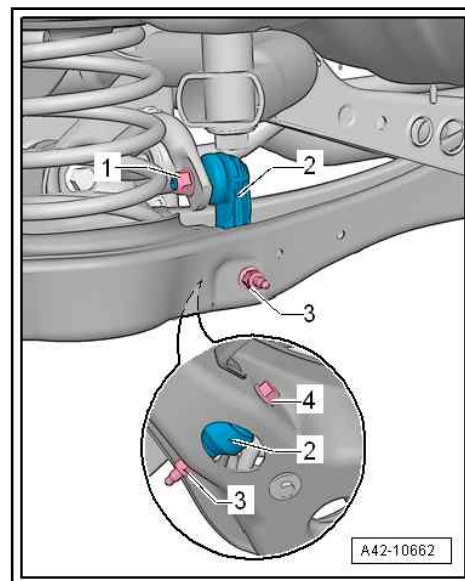
Installing

Install in reverse sequence, paying attention to the following:

- Insert coupling rod -2-, fit nuts -1 and 3- and tighten with suspension in unladen position ⇒ [page 11](#) .
- When tightening nut -1-, counterhold at multi-point socket of bolt.

Tightening torques

- ◆ ⇒ [“4.1.2 Exploded view - anti-roll bar, Audi S1”, page 191](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



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5 Suspension links, track rod

⇒ "5.1 Exploded view - transverse links", page 198

⇒ "5.2 Removing and installing upper transverse link", page 202

⇒ "5.3 Removing and installing lower transverse link", page 205

⇒ "5.4 Removing and installing track rod", page 209

5.1 Exploded view - transverse links

⇒ "5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro", page 198

⇒ "5.1.2 Exploded view - transverse links, Audi S1", page 200

⇒ "5.1.3 Exploded view - track rod, Audi S1", page 202

5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro

1 - Subframe

2 - Eccentric bolt

- ☐ After slackening off, perform wheel alignment
⇒ page 310
- ☐ Do not turn more than 90° in either direction (i.e. from minimum to maximum adjustment position)

3 - Nut

- ☐ Self-locking
- ☐ Can be loosened and re-tightened up to 5 times for adjustment purposes
- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position
⇒ page 11
- ☐ 95 Nm



Note

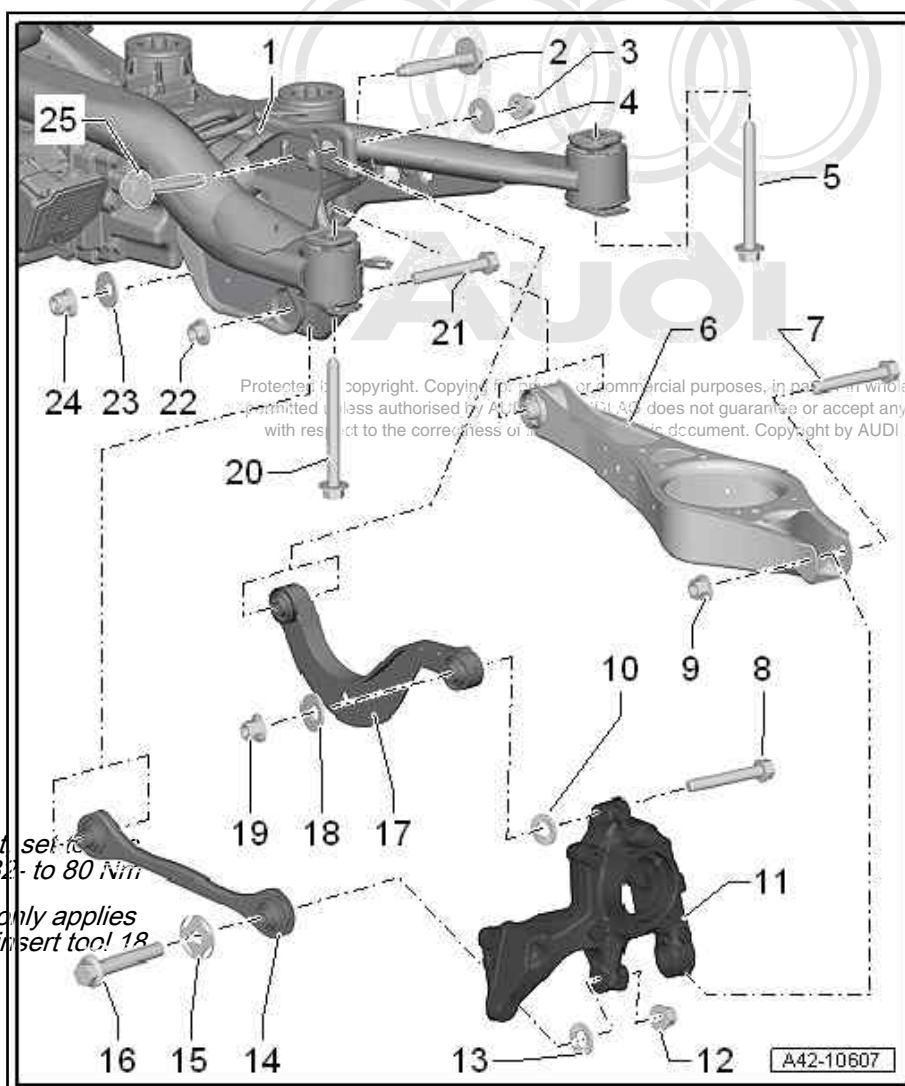
- ◆ When tightening nut, set to torque wrench - V.A.G 1332 - to 80 Nm
- ◆ This torque setting only applies in conjunction with insert too! 18 mm - T10179-

4 - Eccentric washer

- ☐ With lug on inner bore

5 - Bolt

- ☐ Always renew if removed
- ☐ 90 Nm + turn 90° further



6 - Lower suspension link

- ☐ Removing and installing ⇒ [page 205](#)

7 - Bolt

- ☐ Always renew if removed

8 - Bolt

- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)
- ☐ 130 Nm + turn 90° further

9 - Nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)
- ☐ 90 Nm + turn 90° further

10 - Washer

11 - Wheel bearing housing

- ☐ Removing and installing ⇒ [page 241](#)

12 - Nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)

13 - Washer

14 - Track rod

- ☐ Open side facing downwards
- ☐ Removing and installing ⇒ [page 209](#)

15 - Washer

16 - Bolt

- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)
- ☐ 130 Nm + turn 90° further

17 - Upper suspension link

- ☐ Removing and installing ⇒ [page 202](#)

18 - Washer

19 - Nut

- ☐ Self-locking
- ☐ Always renew if removed

20 - Bolt

- ☐ Always renew if removed
- ☐ 90 Nm + turn 90° further

21 - Bolt

- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)

22 - Nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ 90 Nm + turn 90° further

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23 - Eccentric washer

- ☐ With lug on inner bore

24 - Nut

- ☐ Self-locking
- ☐ Can be loosened and re-tightened up to 5 times for adjustment purposes
- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)
- ☐ 95 Nm

25 - Eccentric bolt

- ☐ After slackening off, perform wheel alignment ⇒ [page 310](#)
- ☐ Do not turn more than 90° in either direction (i.e. from minimum to maximum adjustment position)

5.1.2 Exploded view - transverse links, Audi S1

1 - Lower transverse link

- ☐ Removing and installing
⇒ [page 206](#)

2 - Eccentric bolt

- ☐ After slackening off, perform wheel alignment
⇒ [page 310](#)
- ☐ Do not turn more than 90° in either direction (i.e. from minimum to maximum adjustment position)

3 - Subframe

4 - Eccentric washer

- ☐ With lug on inner bore

5 - Nut

- ☐ Renew after removing
- ☐ Always tighten bolted joints with suspension in unladen position
⇒ [page 11](#)
- ☐ 95 Nm without insert tool 18 mm - T10179-
- ☐ 80 Nm with insert tool 18 mm - T10179-

6 - Eccentric bolt

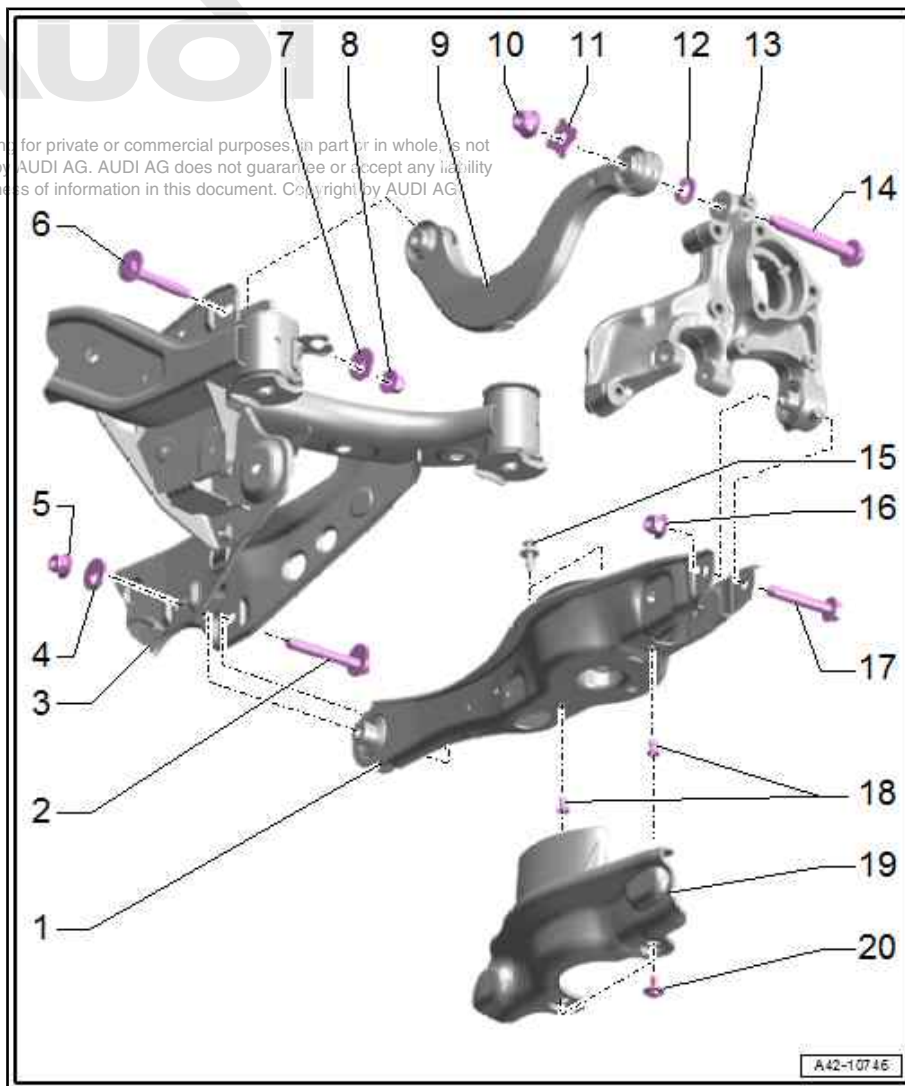
- ☐ After slackening off, perform wheel alignment
⇒ [page 310](#)
- ☐ Do not turn more than 90° in either direction (i.e. from minimum to maximum adjustment position)

7 - Eccentric washer

- ☐ With lug on inner bore

8 - Nut

- ☐ Renew after removing



- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)
- ☐ 95 Nm

9 - Upper transverse link

- ☐ Removing and installing ⇒ [page 204](#)

10 - Nut

- ☐ Renew after removing

11 - Washer

12 - Ribbed washer

13 - Wheel bearing housing

- ☐ Removing and installing ⇒ [page 243](#)

14 - Bolt

- ☐ Renew after removing
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)
- ☐ 130 Nm + 180°

15 - Spreader rivet

- ☐ 2x

16 - Nut

- ☐ Renew after removing

17 - Bolt

- ☐ Renew after removing
- ☐ Always tighten bolted joints with suspension in unladen position ⇒ [page 11](#)
- ☐ 70 Nm + 180°

18 - Pop rivet nuts

19 - Stone deflector

20 - Bolts

- ☐ 8 Nm

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5.1.3 Exploded view - track rod, Audi S1

1 - Subframe

2 - Bolt

- ☐ Always renew if removed

3 - Wheel bearing housing

4 - Track rod

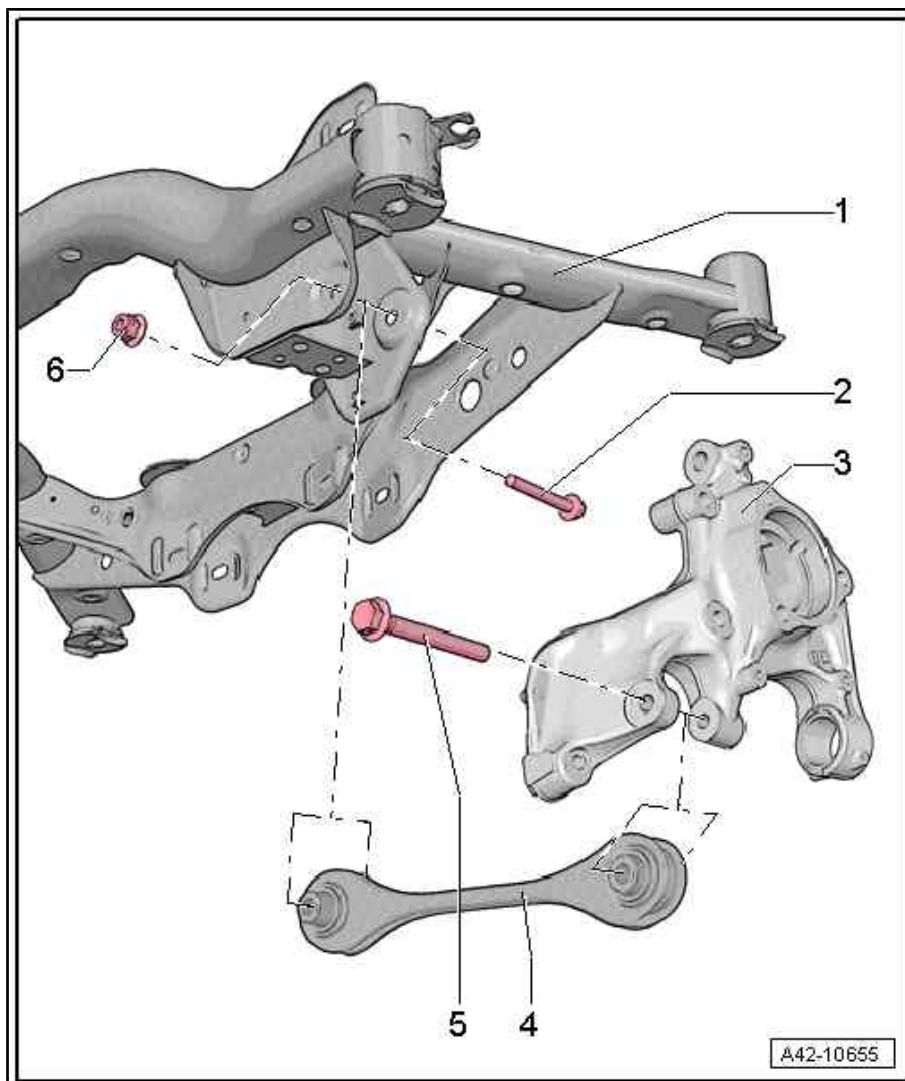
- ☐ Removing and installing
⇒ [page 211](#)

5 - Bolt

- ☐ Always renew if removed
- ☐ Always tighten bolted joints with suspension in unladen position
⇒ [page 11](#)
- ☐ 70 Nm + 180°

6 - Nut

- ☐ Always renew if removed
- ☐ 70 Nm + 180°



5.2 Removing and installing upper transverse link

⇒ [“5.2.1 Removing and installing upper transverse link - Audi A1 quattro”, page 202](#)

⇒ [“5.2.2 Removing and installing upper transverse link - Audi S1”, page 204](#)

5.2.1 Removing and installing upper transverse link - Audi A1 quattro

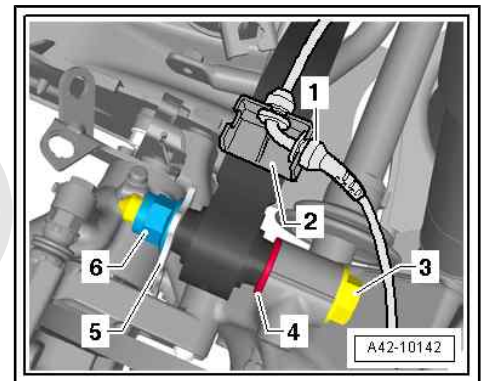
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



Removing

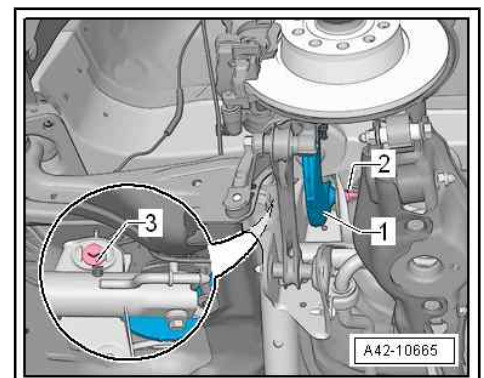
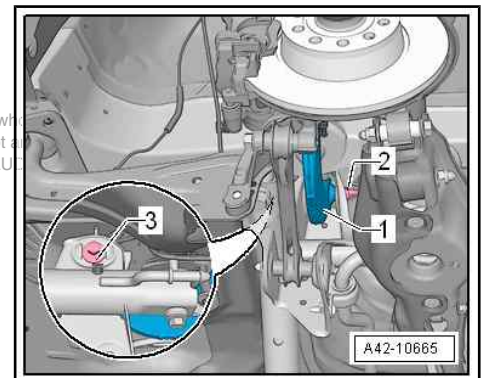
- Remove wheel ⇒ [page 303](#) .
- Remove coil spring ⇒ [page 230](#) .
- Unhook wire -1- from bracket -2-.
- Unscrew nut -6- and remove bolt -3- with washers -4 and 5-.



- Use felt-tip pen or similar to mark position of eccentric bolt -3- in relation to subframe.
- Unscrew nut -2- and pull out eccentric bolt -3-.
- Take out upper suspension link -1-.

Installing

- Fit upper suspension link in vehicle and hand-tighten bolts.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Bolt upper suspension link -1- to subframe and tighten new nut -2-.
- Note mark for position of eccentric bolt -3- in relation to sub-frame.



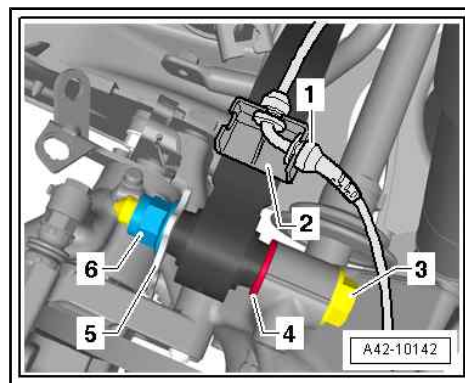
- Tighten bolt -3- for upper suspension link.

Washer -5- must be installed so that there is a gap between washer and brake splash plate.

- Attach speed sensor wiring -1- to upper suspension link.
- Install coil spring ⇒ [page 230](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



5.2.2 Removing and installing upper transverse link - Audi S1

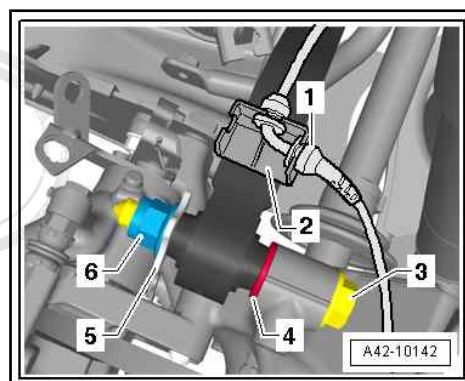
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove spring ⇒ [page 230](#) .
- Disengage wire -1- from bracket -2- and move it clear.
- Unscrew nut -6- and take off washer -5-.
- Remove bolt -3- and, if fitted, washer -4-.

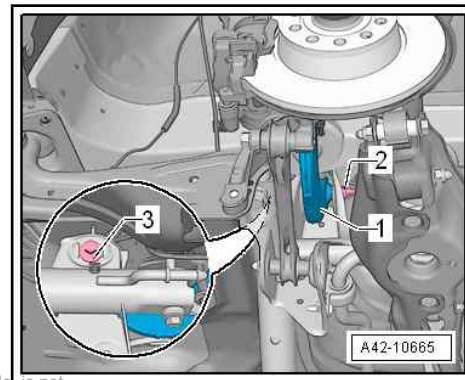


- Use felt-tip pen or similar to mark position of eccentric bolt -3- in relation to subframe.
- Unscrew nut -2- and pull out eccentric bolt -3-.
- Take out upper transverse link -1-.

Installing

Install in reverse sequence, paying attention to the following:

- Note mark for position of eccentric bolt -3- in relation to subframe.
- Tighten bolts with axle in unladen position ⇒ [page 11](#).
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)



Tightening torques

- ◆ ⇒ [“5.1.2 Exploded view - transverse links, Audi S1”, page 200](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)

5.3 Removing and installing lower transverse link

⇒ [“5.3.1 Removing and installing lower transverse link - Audi A1 quattro”, page 205](#)

⇒ [“5.3.2 Removing and installing lower transverse link - Audi S1”, page 206](#)

5.3.1 Removing and installing lower transverse link - Audi A1 quattro

Special tools and workshop equipment required

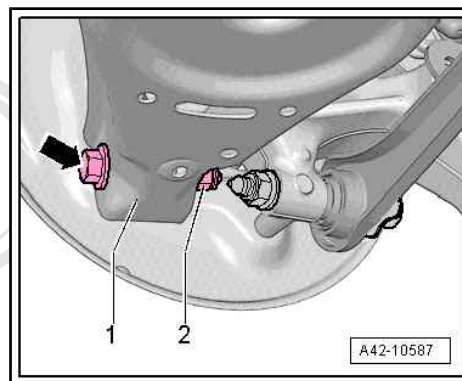
- ◆ Torque wrench - V.A.G 1332-



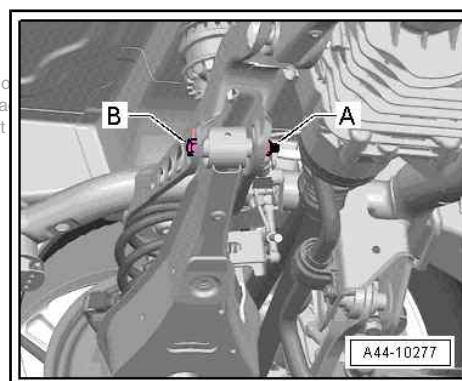
Removing

- Remove wheel ⇒ [page 303](#).
- Remove coil spring ⇒ [page 230](#).

- Unscrew nut -2- and pull out bolt -arrow- for lower suspension link -1-.
- Disengage and lower rear part of exhaust system.

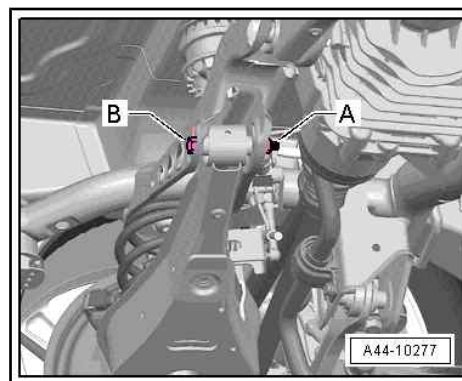


- Use felt-tip pen or similar to mark position of eccentric bolt -B- relative to subframe.
- Unscrew nut -A- and pull out eccentric bolt -B-.
- Take out lower suspension link.

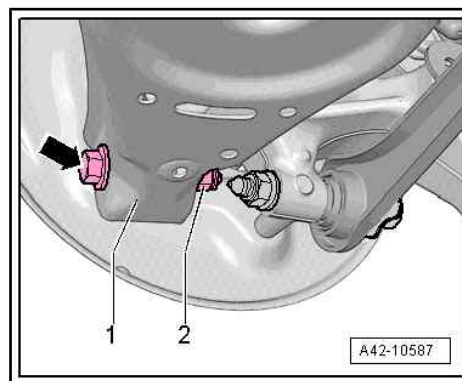


Installing

- Fit lower suspension link in vehicle and hand-tighten bolts.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .



- Secure lower suspension link to subframe and tighten new nut -A- only to specified tightening torque.
- Observe marking made previously for position of eccentric bolt -B- relative to subframe.
- Install rear section of exhaust system.



- Fit bolt -arrow- for lower suspension link -1- and tighten nut -2- in unladen position ⇒ [page 11](#) .
- Install coil spring ⇒ [page 230](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ♦ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ♦ ⇒ [“1 Wheels, tyres”, page 303](#)

5.3.2 Removing and installing lower transverse link - Audi S1

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove rear silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .

Vehicles with vehicle level senders

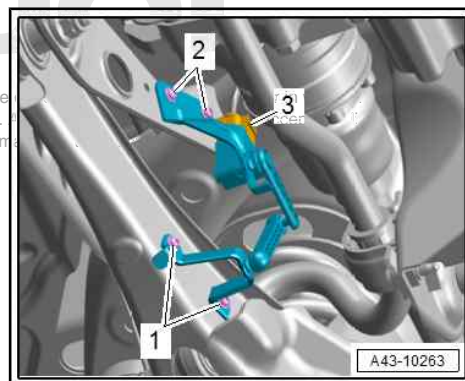
- Unscrew bolts -1- on linkage for rear vehicle level sender.



Note

Disregard items -2 and 3-.

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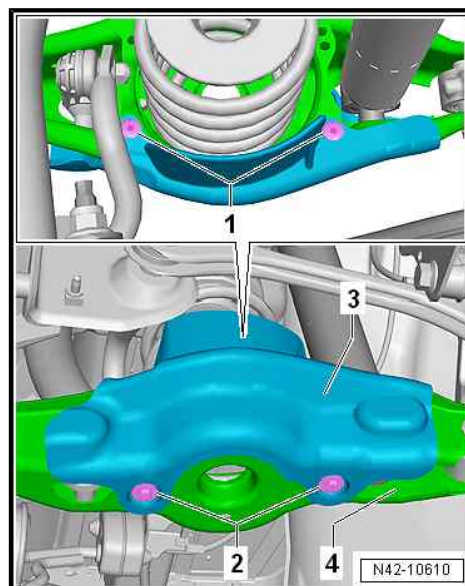


Vehicles with stone deflector

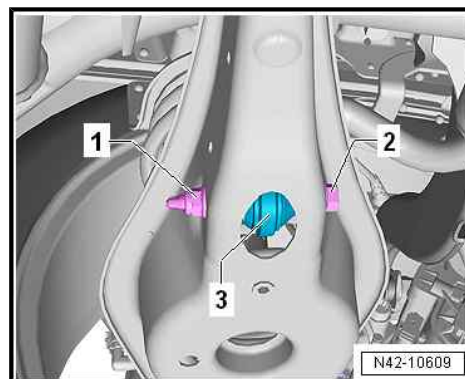
- Remove spreader rivets -1-.
- Unscrew bolts -2- and detach stone deflector -3-.

All vehicles (continued):

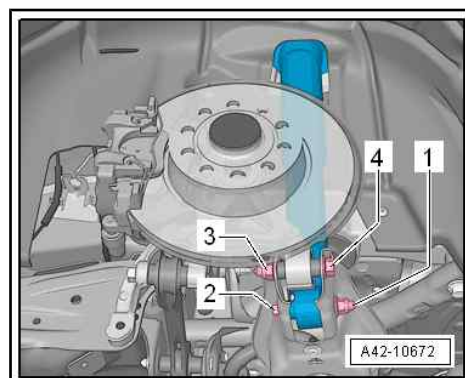
- Remove coil spring ⇒ [page 230](#) .



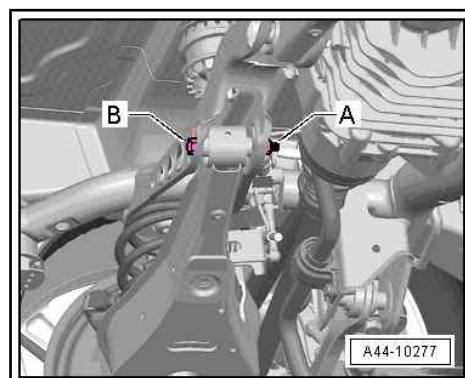
- Unscrew nut -1- ⇒ [page 35](#) and pull out bolt -2- for coupling rod -3-.



- Unscrew nut -1- and pull out bolt -2- securing shock absorber.
- Unscrew nut -3- and pull out bolt -4- securing wheel bearing housing.



- Use felt-tip pen or similar to mark position of eccentric bolt -B- relative to subframe.
- Unscrew nut -A- and pull out eccentric bolt -B-.
- Take out lower transverse link.



Installing

Install in reverse sequence, paying attention to the following:

- Observe marking made previously for position of eccentric bolt -B- relative to subframe.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“7.1.3 Exploded view - wheel bearing, Audi S1”, page 239](#)
- ◆ ⇒ [“5.1.2 Exploded view - transverse links, Audi S1”, page 200](#)
- ◆ ⇒ [“6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1”, page 216](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ ⇒ Rep. gr. 26; Exhaust pipes/silencers; Exploded view - silencers

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5.4 Removing and installing track rod

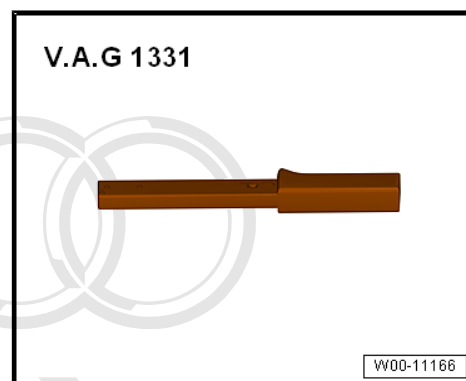
⇒ ["5.4.1 Removing and installing track rod - Audi A1 quattro", page 209](#)

⇒ ["5.4.2 Removing and installing track rod - Audi S1", page 211](#)

5.4.1 Removing and installing track rod - Audi A1 quattro

Special tools and workshop equipment required

◆ Torque wrench - V.A.G 1331-



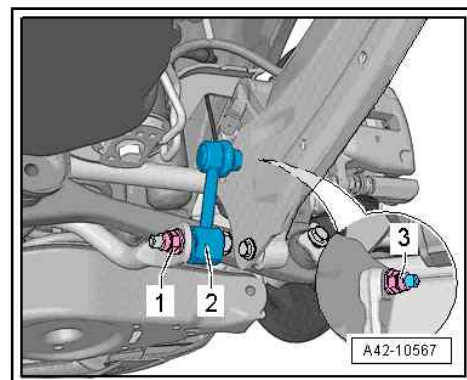
◆ Torque wrench - V.A.G 1332-



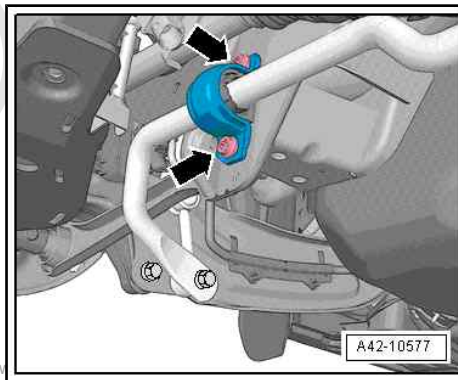
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Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .
- Unscrew nut -1- ⇒ [page 35](#) and pull coupling rod -2- out of anti-roll bar.



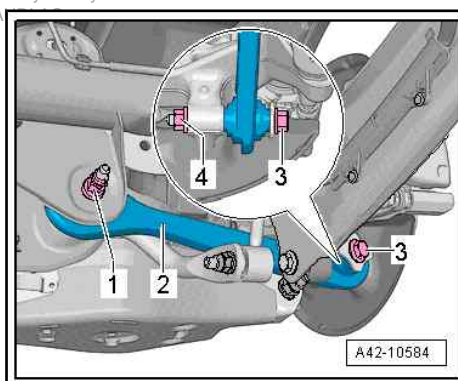
- Unscrew bolts -arrows- for anti-roll bar clamp.



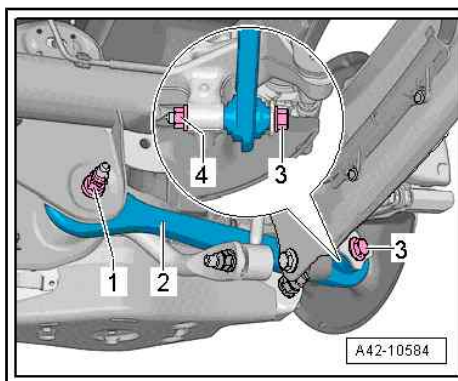
- Unscrew nut -4- and remove bolt -3-.
- Unscrew nut -1- and remove bolt towards rear.
- Remove bolt -2-.

Installing

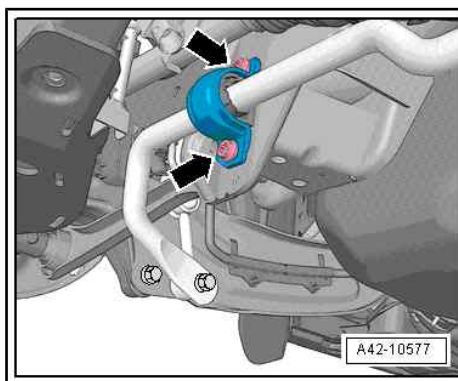
- Fit track rod in vehicle with open side facing downwards and hand-tighten bolts.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .



- Bolt track rod -2- to subframe and tighten new nut -1-.
- Fit bolt -3- and tighten nut -4-.



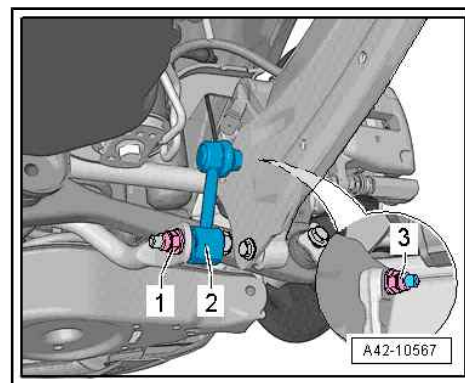
- Tighten bolts -arrows- for anti-roll bar clamp.



- Fit coupling rod -2- into anti-roll bar and tighten nut -1-.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

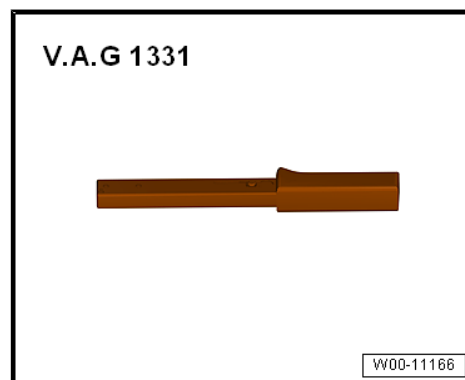
- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“4.1.1 Exploded view - anti-roll bar, Audi A1 quattro”, page 190](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



5.4.2 Removing and installing track rod - Audi S1

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Torque wrench - V.A.G 1332-



- ◆ Engine and gearbox jack - VAS 6931-



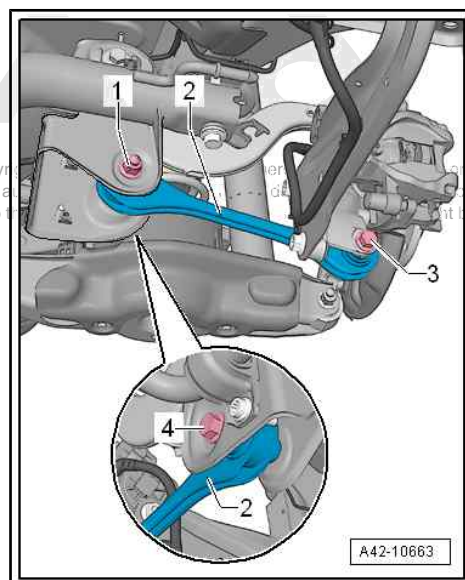
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◆ Tensioning strap - T10038-



Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .
- Unscrew nut -1- and bolt -3- by a few turns.
- Unscrew nut -1- and remove bolt -4- towards rear.
- Unscrew bolt -3- and remove.
- Take out track rod -2-.



Note

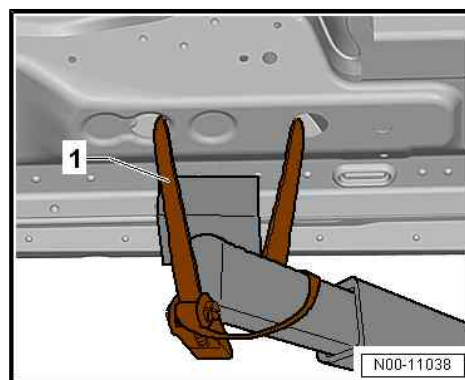
If bolt -4- cannot be removed, perform the following steps:



WARNING

The vehicle could slip off the lifting platform - risk of accident!

- ◆ **For the following procedure, the vehicle must be secured to the support arms of the lifting platform on both sides.**



- Use tensioning straps -T10038- -item 1- to secure vehicle to support arms of lifting platform on both sides.

- Attach support - T10149- to wheel hub using wheel bolt.
- Raise wheel hub with support - T10149- and engine and gear-box jack - VAS 6931- until bolt for track rod can be removed.

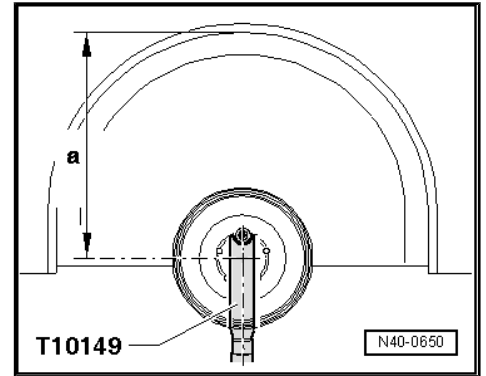
Installing

Install in reverse sequence, paying attention to the following:

- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“5.1.3 Exploded view - track rod, Audi S1”, page 202](#)
- ◆ ⇒ [“4.1.2 Exploded view - anti-roll bar, Audi S1”, page 191](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



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6 Suspension strut/shock absorber, spring

⇒ "6.1 Exploded view - suspension strut/shock absorber, spring", page 214

⇒ "6.2 Removing and installing shock absorber", page 216

⇒ "6.3 Servicing shock absorber", page 224

⇒ "6.4 Removing and installing spring", page 229

6.1 Exploded view - suspension strut/shock absorber, spring

⇒ "6.1.1 Exploded view - suspension strut/shock absorber, spring, Audi A1 with front-wheel drive", page 214

⇒ "6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro", page 215

⇒ "6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1", page 216

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6.1.1 Exploded view - suspension strut/shock absorber, spring, Audi A1 with front-wheel drive

1 - Protective cap

2 - Nut

- ☐ Always renew if removed
- ☐ Removing ⇒ page 215
- ☐ 25 Nm

3 - Shock absorber mounting

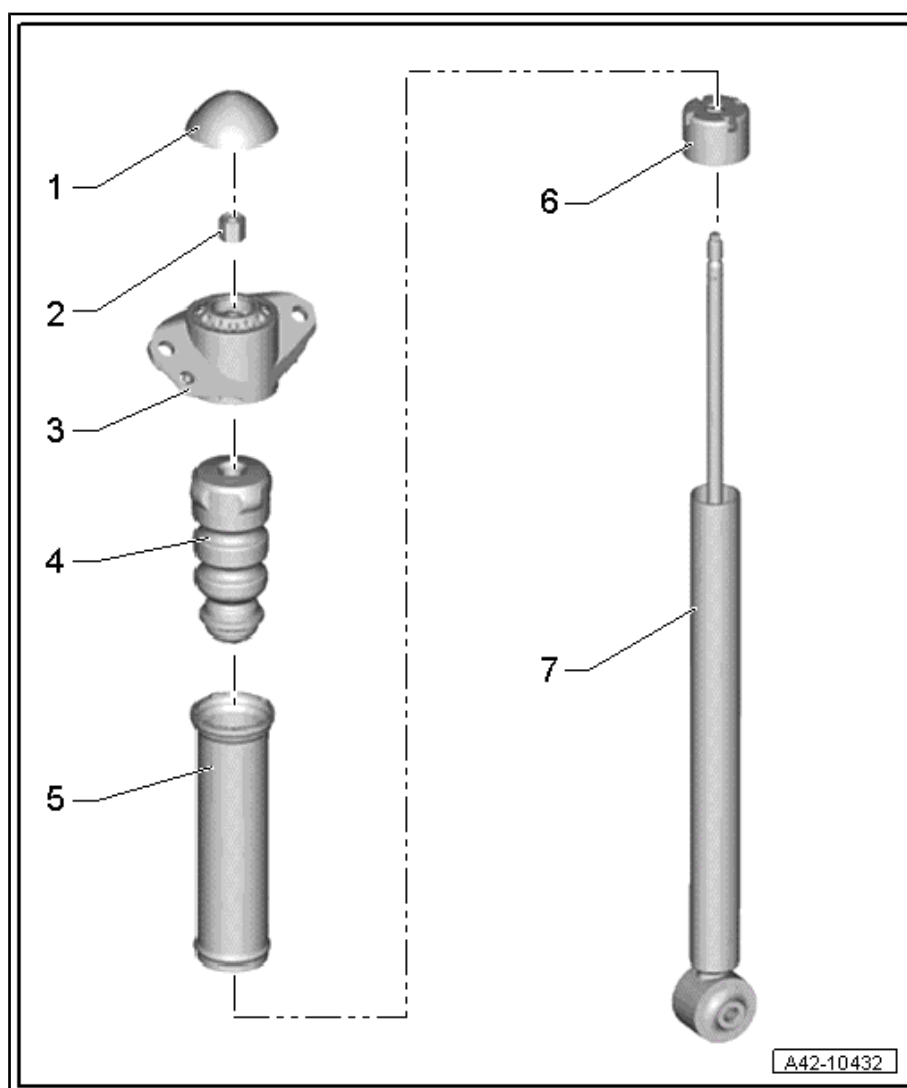
4 - Bump stop

5 - Protective tube

6 - Protective cap

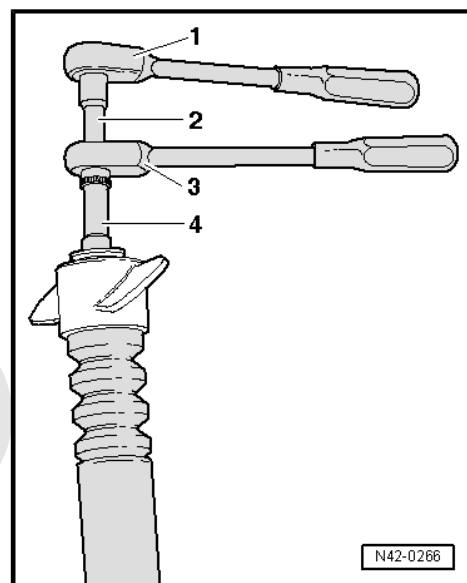
7 - Gas-filled shock absorber

- ☐ Select correct version according to PR number
- ⇒ Electronic parts catalogue "ETKA"



Removing hexagon nut from gas-filled shock absorber

- 1 - Commercially available ratchet
- 2 - Tool insert - T10001/9-
- 3 - -T10001/11-
- 4 - Tool insert - T10001/1-



6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro

1 - Bottom spring seat

- ☐ Turn end of spring against stop

2 - Assembly aid

- ☐ Does not have to be re-installed after removal

3 - Coil spring

- ☐ Removing and installing
⇒ [page 230](#)

4 - Top spring seat

5 - Bolt

- ☐ 180 Nm

6 - Bolt

- ☐ Always renew if removed
- ☐ 50 Nm + turn 45° further

7 - Shock absorber

- ☐ Removing and installing
⇒ [page 219](#)
- ☐ Servicing ⇒ [page 224](#)

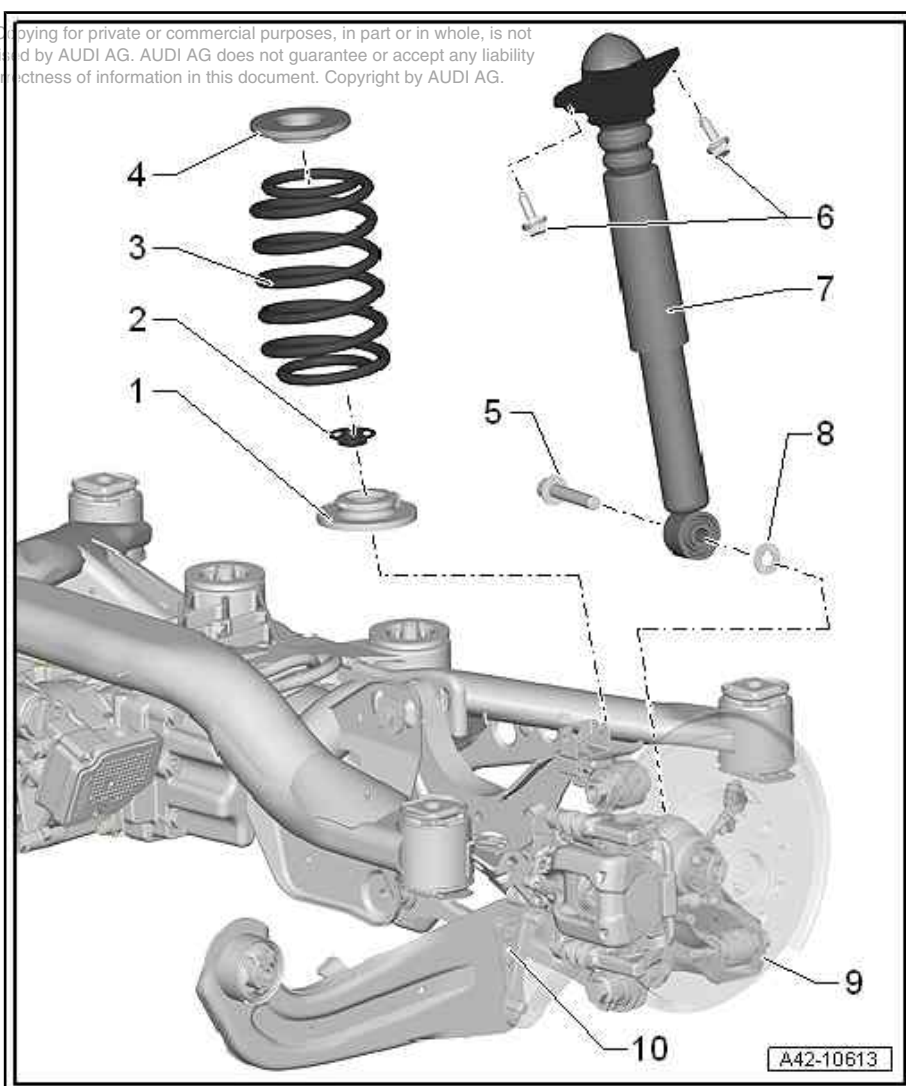
8 - Washer

9 - Lower suspension link

- ☐ Removing and installing
⇒ [page 205](#)

10 - Wheel bearing housing

- ☐ Removing and installing
⇒ [page 241](#)



6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1

1 - Bolt

- ☐ Renew after removing
- ☐ 50 Nm + 45°

2 - Shock absorber

- ☐ With shock absorber damper adjustment valve
- ☐ Removing and installing
⇒ [page 221](#)

3 - Bolt

- ☐ Always renew if removed

4 - Lower transverse link

5 - Clip

- ☐ Assists with installation

6 - Coil spring

- ☐ Removing and installing
⇒ [page 232](#)

7 - Top spring seat

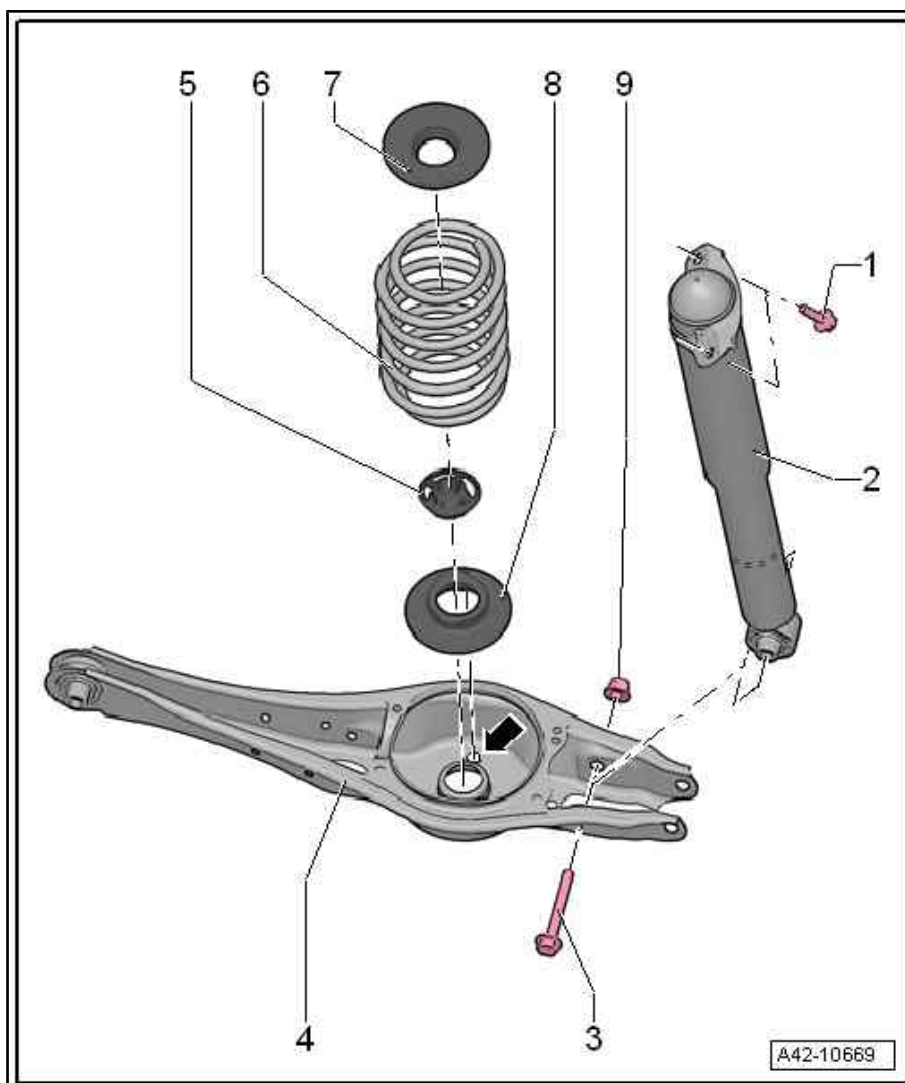
- ☐ Fit on lug on body

8 - Bottom spring seat

- ☐ Turn end of spring against stop
- ☐ When installing, fit pin in hole in lower transverse link

9 - Nut

- ☐ Renew after removing
- ☐ Always tighten bolted connection with suspension in unladen position
⇒ [page 11](#)
- ☐ 70 Nm + 180°



6.2 Removing and installing shock absorber

⇒ [“6.2.1 Removing and installing shock absorber - Audi A1 with front-wheel drive”, page 216](#)

⇒ [“6.2.2 Removing and installing shock absorber - Audi A1 quattro”, page 219](#)

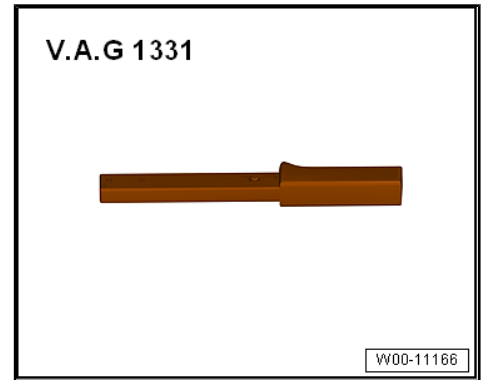
⇒ [“6.2.3 Removing and installing shock absorber - Audi S1”, page 221](#)

6.2.1 Removing and installing shock absorber - Audi A1 with front-wheel drive

Special tools and workshop equipment required

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◆ Torque wrench - V.A.G 1331-



◆ Torque wrench - V.A.G 1332-



◆ Engine and gearbox jack - VAS 6931-



◆ Support - T10149-



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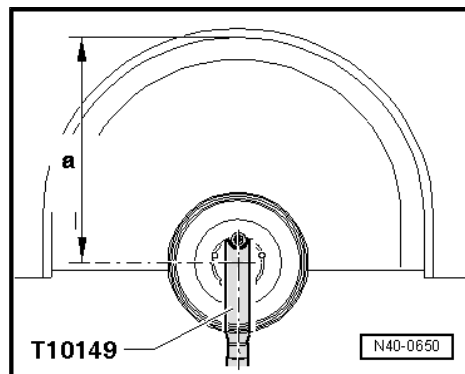
Removing shock absorber

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value [⇒ page 11](#).
- Remove wheel [⇒ page 303](#).

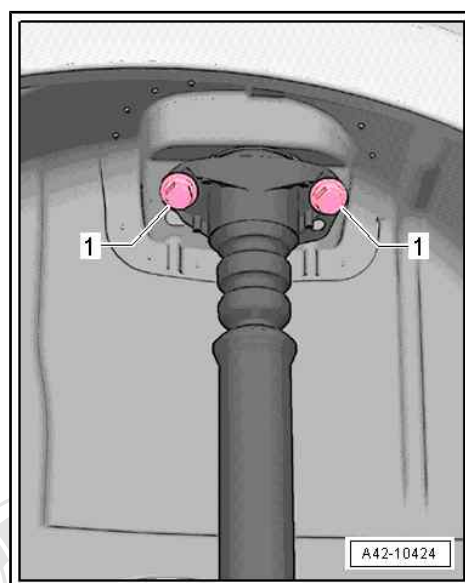
- Remove wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear) .
- Use wheel bolt to attach engine and gearbox jack - VAS 6931- with support - T10149- to wheel hub, and raise approx. 20 mm.


WARNING

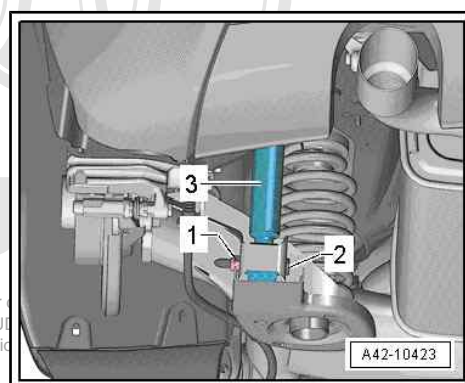
- ◆ *Do not raise or lower vehicle when engine and gearbox jack - VAS 6931- is under vehicle. The vehicle could slip off the lifting platform.*
- ◆ *Do not leave engine and gearbox jack - VAS 6931- under vehicle for longer than necessary.*



- Remove bolts -1-.



- Unscrew nut -1- and take out bolt -2- for shock absorber -3-.
- Take out shock absorber.



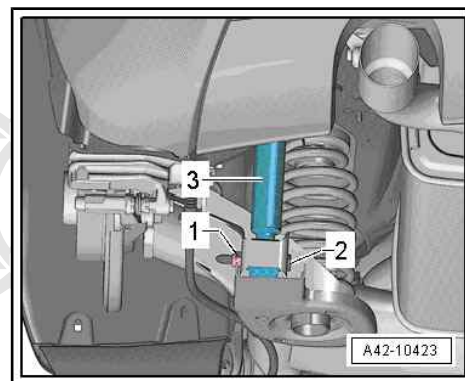
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Installing shock absorber

- Fit shock absorber in position.
- Secure shock absorber -3- hand-tight to rear axle using new hexagon bolt -2- and new nut -1-.
- Bolt shock absorber to body.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .

Tightening torques

- ◆ ⇒ ["2.1 Exploded view - axle beam", page 153](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)



6.2.2 Removing and installing shock absorber - Audi A1 quattro

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Special tools and workshop equipment required

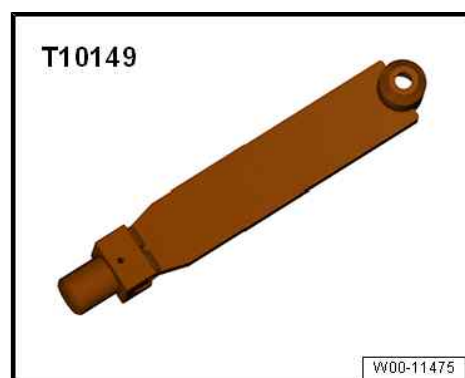
- ◆ Torque wrench - V.A.G 1332-



- ◆ Engine and gearbox jack - VAS 6931-



- ◆ Support - T10149-



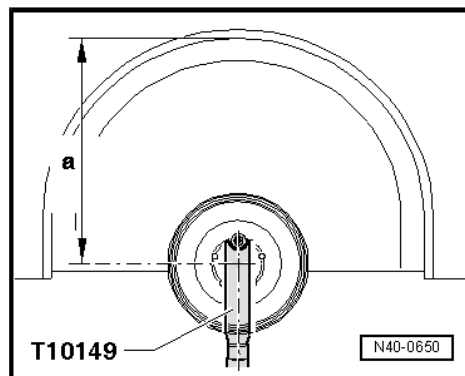
Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear) .
- Use wheel bolt to attach engine and gearbox jack - VAS 6931- with support - T10149- to wheel hub, and raise approx. 20 mm.

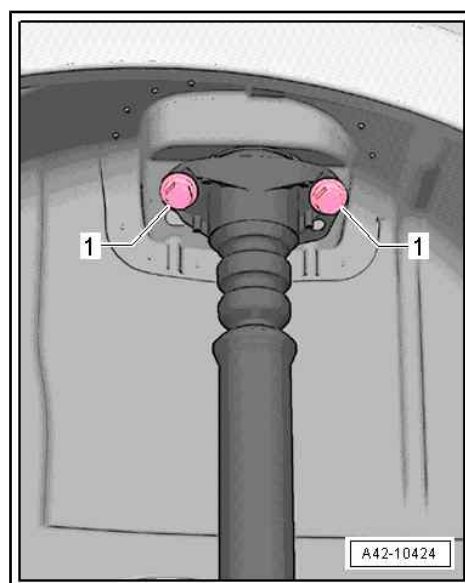


WARNING

- ◆ **Do not raise or lower vehicle when engine and gearbox jack - VAS 6931- is under vehicle. The vehicle could slip off the lifting platform.**
- ◆ **Do not leave engine and gearbox jack - VAS 6931- under vehicle for longer than necessary.**



- Remove coil spring ⇒ [page 230](#) .
- Remove bolts -1-.

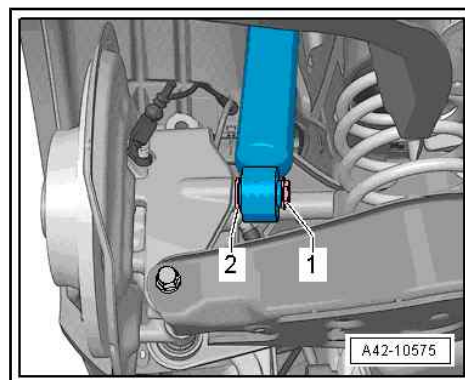


- Remove bolt -1- and take off washer -2-.
- Take out shock absorber.

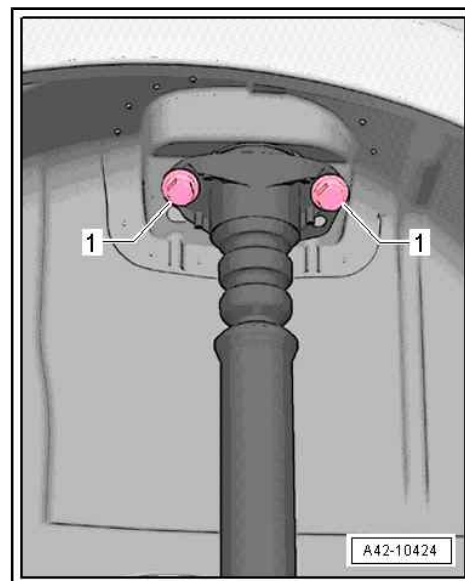
Installing

Installation is carried out in reverse sequence. Note the following points:

- Tighten bolts with axle in unladen position ⇒ [page 11](#) .



- Install shock absorber and tighten bolts -1-.



- Install bolt -1- with washer -2- and tighten bolt.



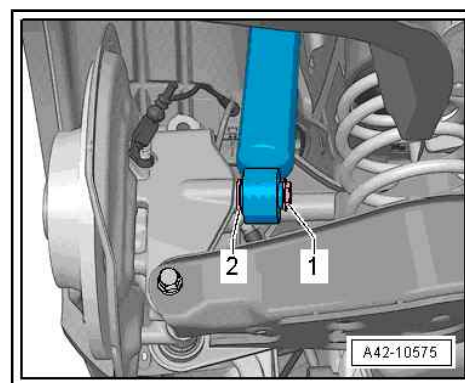
Note

Make sure that washer is fitted between wheel bearing housing and shock absorber.

- Install coil spring ⇒ [page 230](#) .

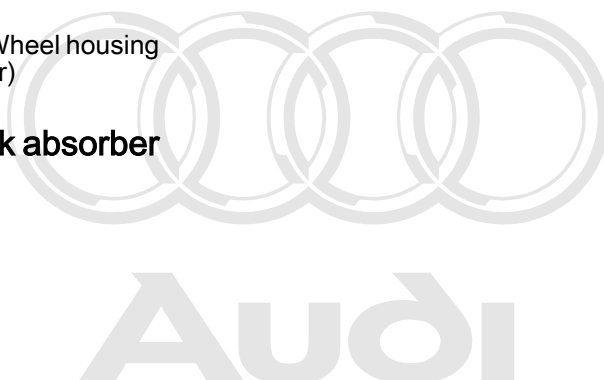
Tightening torques

- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“7.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 237](#)
- ◆ ⇒ [“6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro”, page 215](#)
- ◆ ⇒ [“4.1.1 Exploded view - anti-roll bar, Audi A1 quattro”, page 190](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



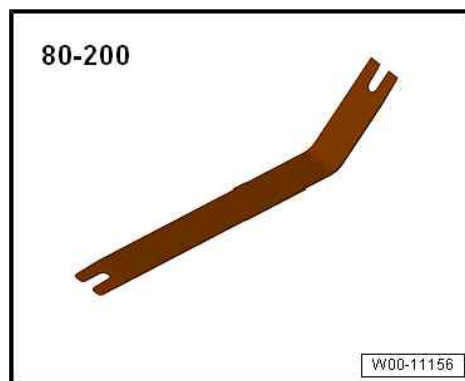
6.2.3 Removing and installing shock absorber - Audi S1

Special tools and workshop equipment required



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◆ Removal lever - 80-200-



◆ Torque wrench - V.A.G 1332-



◆ Engine and gearbox jack - VAS 6931-



◆ Support - T10149-

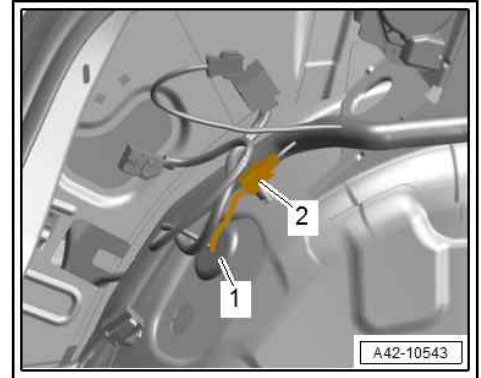


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Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .

- Remove wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear) .
- Remove lock carrier trim ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing lock carrier trim .
- Prise luggage compartment side trim (in rear section) off body using removal lever - 80 - 200- .
- Move clear electrical connector -2- and unplug.
- Thread electrical wire with grommet -1- through opening to wheel housing.



- Use wheel bolt to attach engine and gearbox jack - VAS 6931- with support - T10149- to wheel hub, and raise approx. 20 mm.

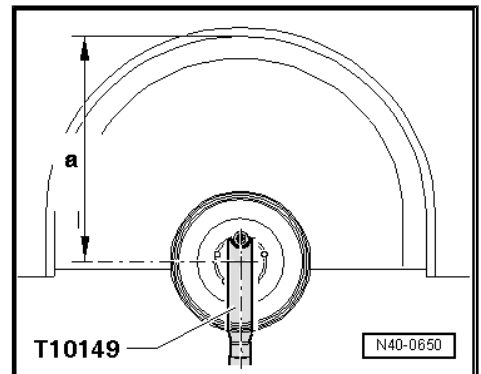


WARNING

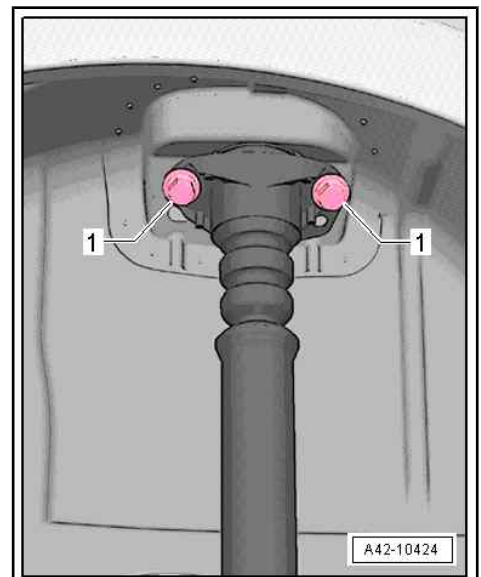
- ◆ ***Do not raise or lower vehicle when engine and gearbox jack - VAS 6931- is under vehicle. The vehicle could slip off the lifting platform.***

- ◆ ***Do not leave engine and gearbox jack - VAS 6931- under vehicle for longer than necessary.***

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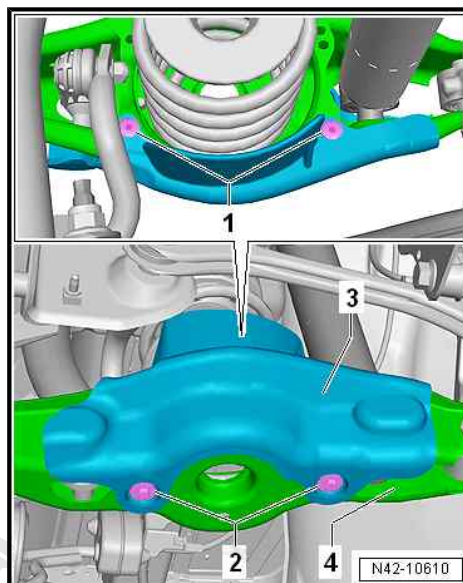


- Remove bolts -1-.



Vehicles with stone deflector

- Remove spreader rivets -1-.
- Unscrew bolts -2- and detach stone deflector -3-.



All vehicles (continued):

- Unscrew nut -1- and remove bolt -2-.
- Take out shock absorber.

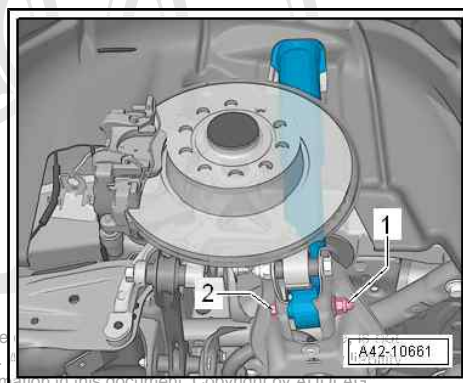
Installing

Installation is carried out in reverse sequence. Note the following points:

- Tighten bolts with axle in unladen position ⇒ [page 11](#) .

Tightening torques

- ◆ ⇒ [“6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1”, page 216](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



6.3 Servicing shock absorber

⇒ [“6.3.1 Servicing shock absorber - conventional version”, page 224](#)

⇒ [“6.3.2 Servicing shock absorber - version with variable damping”, page 226](#)

6.3.1 Servicing shock absorber - conventional version

1 - Protective cap

2 - Nut

- ☐ Always renew if removed
- ☐ Removing ⇒ [page 226](#)
- ☐ 25 Nm

3 - Shock absorber mounting

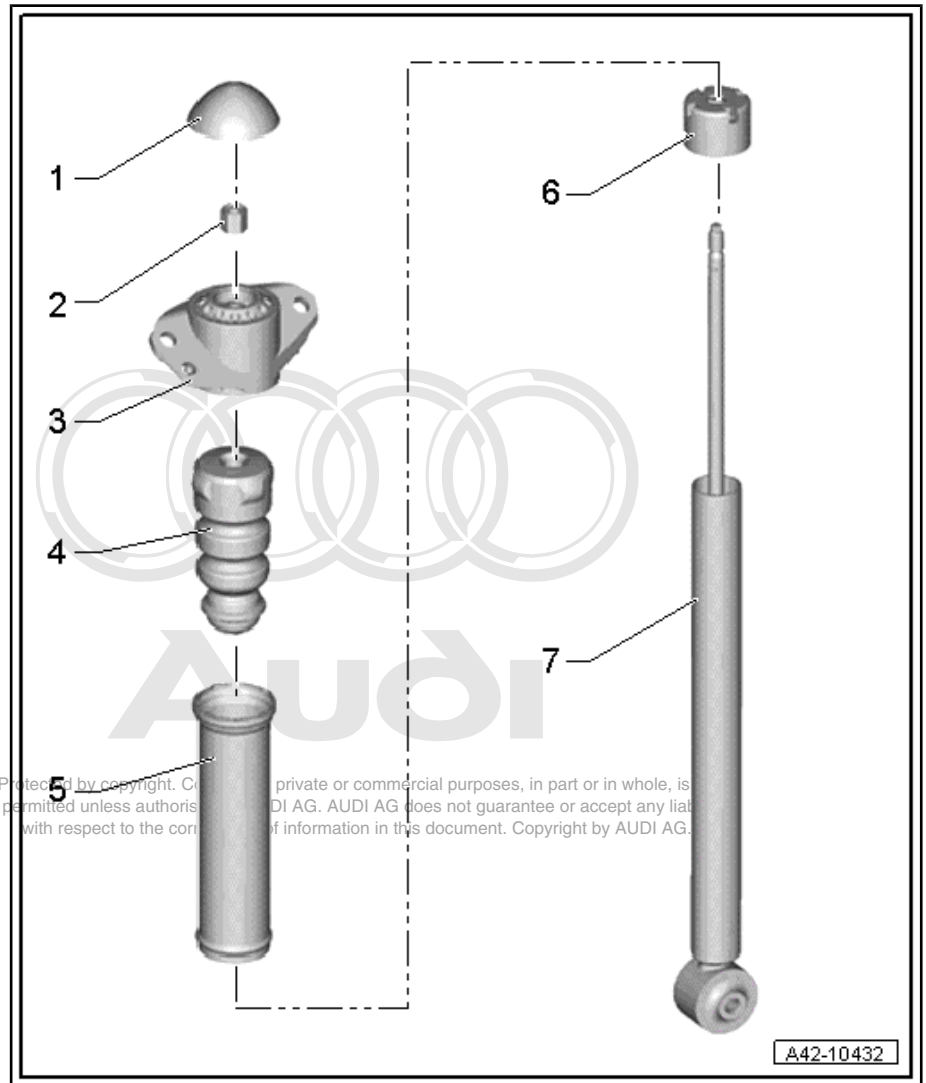
4 - Bump stop

5 - Protective tube

6 - Protective cap

7 - Gas-filled shock absorber

- ☐ Select correct version according to PR number
⇒ Electronic parts catalogue "ETKA"

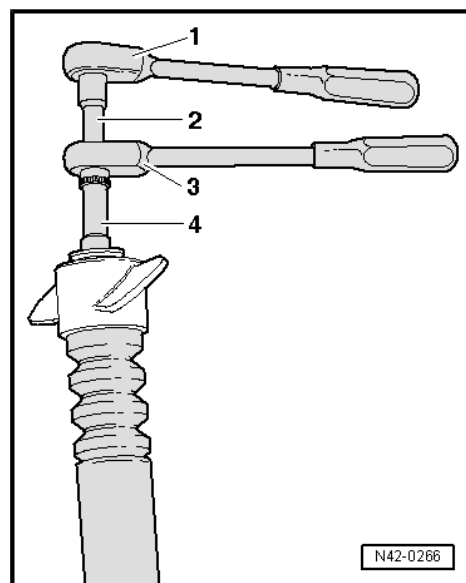
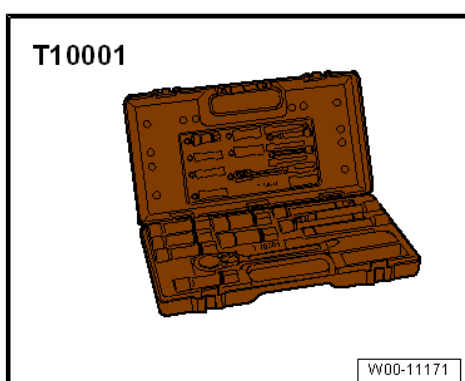


Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



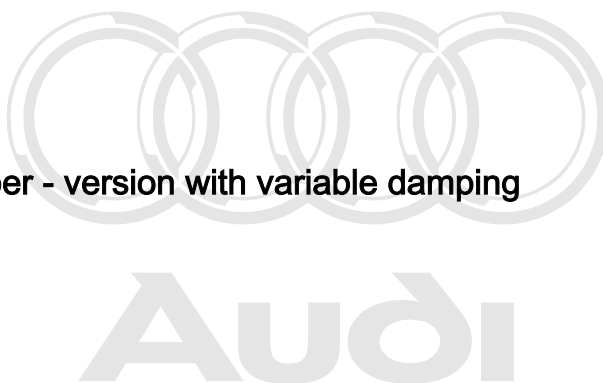
- ◆ Shock absorber set - T10001-



Loosening and tightening nut on shock absorber mounting

- Shock absorber removed
- 1 - Commercially available ratchet
- 2 - Tool insert - T10001/9-
- 3 - Ratchet - T10001/11-
- 4 - Tool insert - T10001/1-

6.3.2 Servicing shock absorber - version with variable damping



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1 - Shock absorber

- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Removing and installing ⇒ [page 221](#)
- ☐ Defective shock absorbers must always be degassed and drained before disposal ⇒ [page 17](#)
- ☐ Checking shock absorber following removal ⇒ [page 6](#)

2 - Protective tube

- ☐ Combined with -item 3- as one unit

3 - Bump stop

- ☐ Combined with -item 2- as one unit

4 - Shock absorber mounting

5 - Not installed

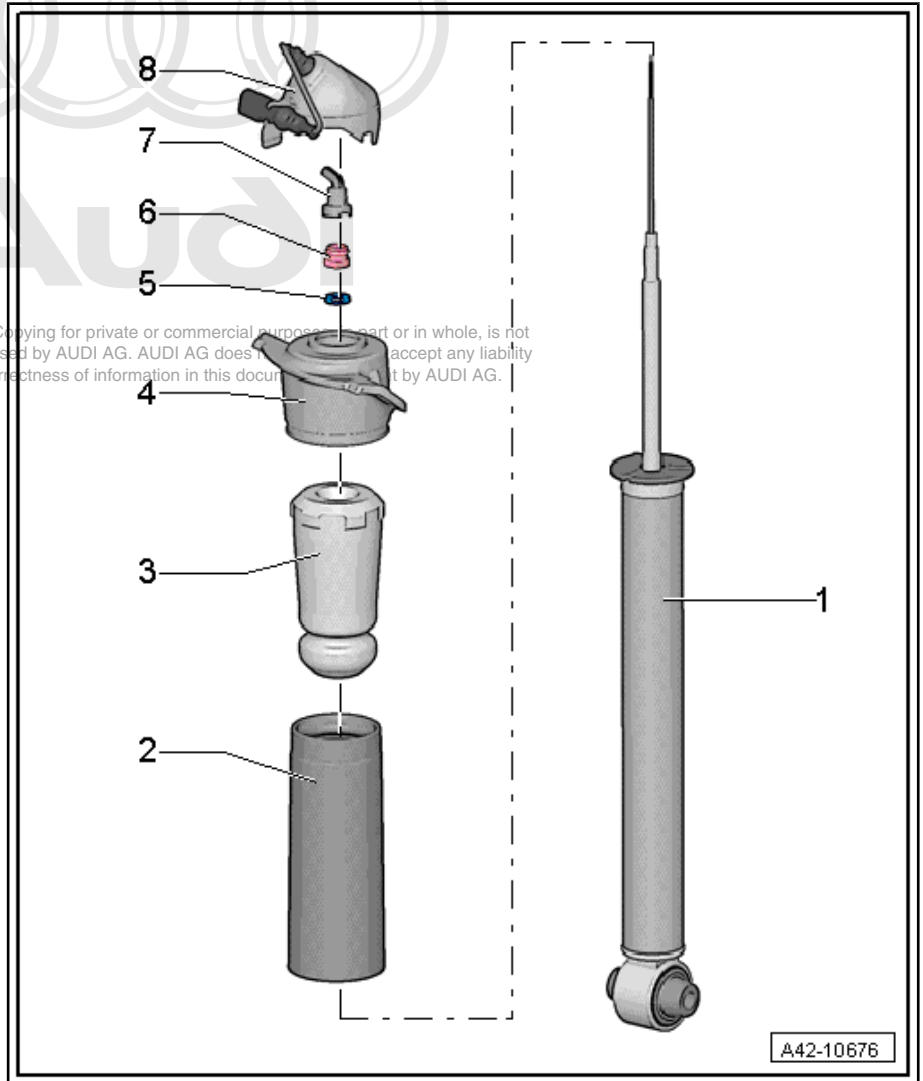
6 - Nut

- ☐ Always renew if removed
- ☐ 25 Nm

7 - Wiring guide

8 - Trim

- ☐ With connector fastening

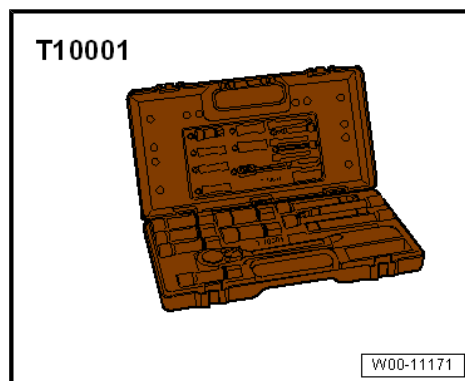


Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

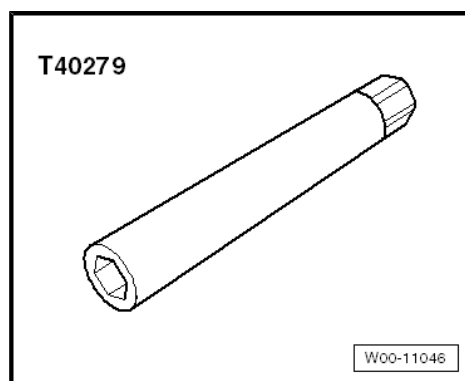


◆ Shock absorber tool set - T10001-



◆ Counterhold tool -T40279- for shock absorber piston rod (8 mm spanner size) or counterhold tool -T40255- for shock absorber piston rod (9 mm spanner size)

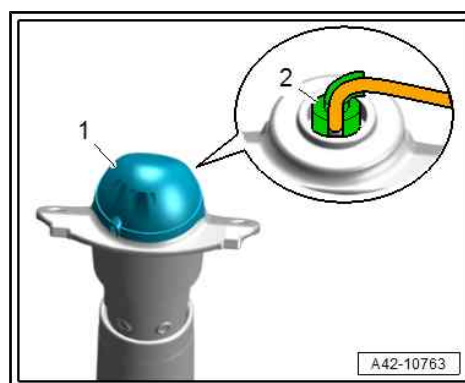
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◆ Ring spanner insert (commercial type, e.g. »Hazet 6630c-21«)

Procedure

- Shock absorber removed
- Take off cover -1-.
- Move electrical wiring clear and unclip cable guide -2-.
- Release contacts and detach connector housing from electrical wire ⇒ Electrical system; General information; Rep. gr. 97 ; Releasing and dismantling connector housings .
- Disconnect cable guide ⇒ [Item 7 \(page 227\)](#) from nut ⇒ [Item 6 \(page 227\)](#) .



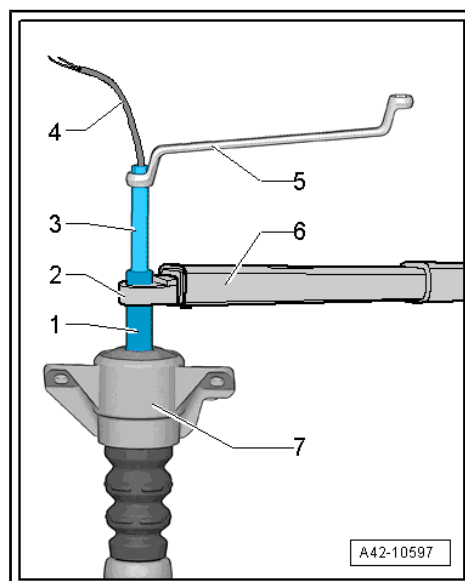
Loosening and tightening nut on shock absorber mounting

- 1 - Tool insert - T10001/1-
- 2 - Ring spanner insert (commercial type, e.g. »Hazet 6630c-21«)
- 3 - Counterhold tool -T40255- or counterhold tool -T40279-
- 4 - Cable
- 5 - Ring spanner (commercially available type)
- 6 - Torque wrench - V.A.G 1331-
- 7 - Shock absorber mounting

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ [Item 6 \(page 227\)](#)



6.4 Removing and installing spring

⇒ [“6.4.1 Removing and installing spring - Audi A1 with front-wheel drive”, page 229](#)

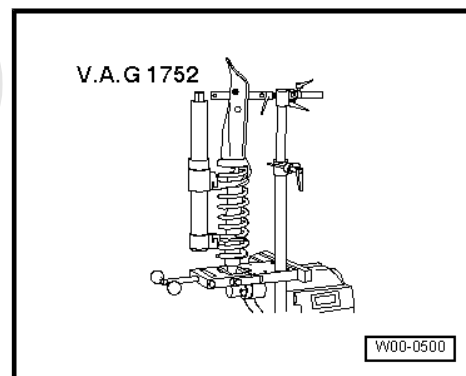
⇒ [“6.4.2 Removing and installing spring - Audi A1 quattro”, page 230](#)

⇒ [“6.4.3 Removing and installing spring - Audi S1”, page 232](#)

6.4.1 Removing and installing spring - Audi A1 with front-wheel drive

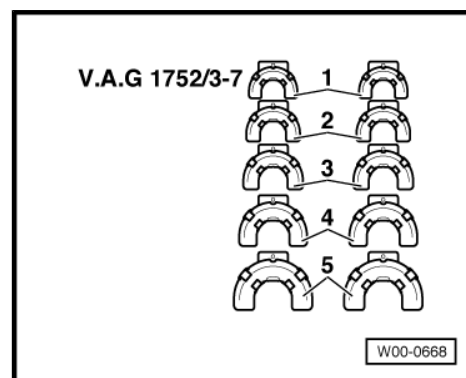
Special tools and workshop equipment required

- ◆ Suspension strut spring compressor - V.A.G 1752-



- ◆ Spring compressor - V.A.G 1752/1-

- ◆ Spring retainer - V.A.G 1752/3A-

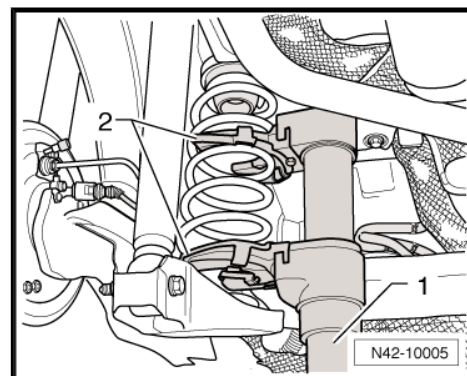


Removing

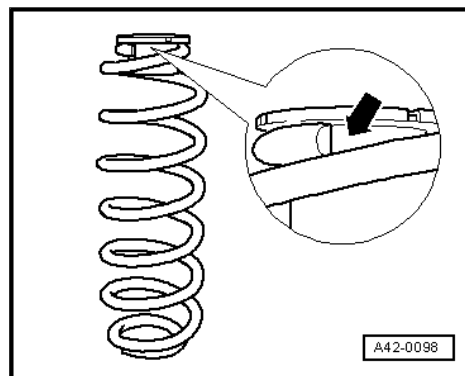
- Insert spring compressor -1- (push rear silencer slightly to one side if necessary).
- 1 - Spring compressor - V.A.G 1752/1-
- 2 - Spring retainer - V.A.G 1752/3A-
- Compress coil spring until it can be removed.
- Remove coil spring (push rear silencer slightly to one side if necessary).

Installing

- Check that spring seat is not damaged.
- Check spring seat for damage and renew if necessary.
- Install coil spring together with spring seat.



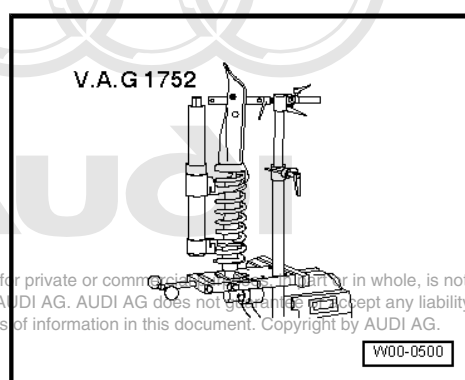
- The end of the spring should contact the stop on the top spring seat -arrow-.
- Take the pressure off the spring and remove the spring compressor (do not damage protective coating of spring).



6.4.2 Removing and installing spring - Audi A1 quattro

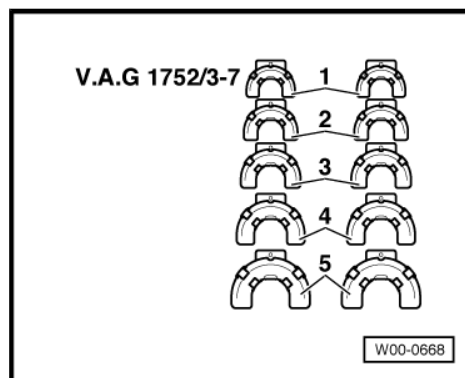
Special tools and workshop equipment required

- ◆ Suspension strut spring compressor - V.A.G 1752-



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- ◆ Spring retainer - V.A.G 1752/4-



- ◆ Adapter - V.A.G 1752/9- , not illustrated

Removing

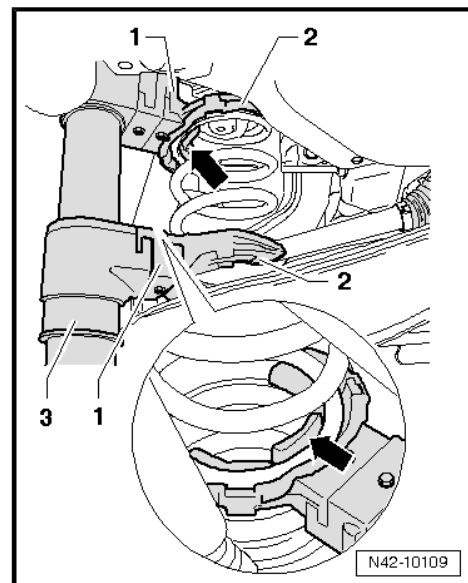
- Remove wheel ⇒ [page 303](#).
- Attach spring compressor -3-.



WARNING

Make sure coil spring is properly seated in spring retainer - V.A.G 1752/4- (risk of accident).

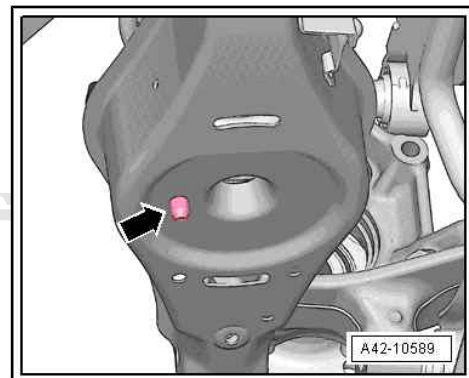
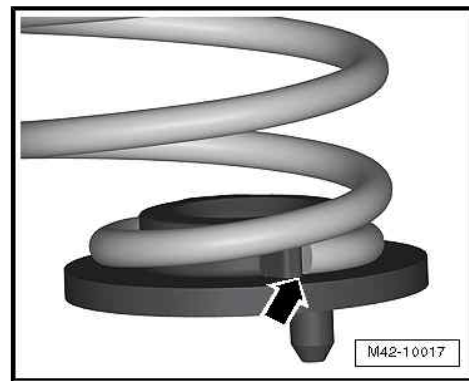
- Use a suitable wrench or reversible ratchet to operate the spring compressor.
 - Compress coil spring until it can be removed.
 - Remove spring.
- 1 - Adapter - V.A.G 1752/9-
 2 - Retainer - V.A.G 1752/4-
 3 - Spring compressor - V.A.G 1752/1-



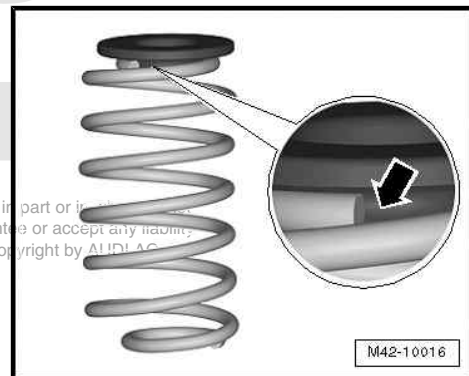
Installing

Install in reverse sequence, paying attention to the following:
 End of spring -arrow- must lie against stop on bottom spring seat.

- Install spring together with spring seat.
- The bottom spring seat has a pin.
- Insert this pin into hole in lower transverse link -arrow-.



- Insert top spring seat into upper end of spring.
- The end of the spring should contact the stop on the top spring seat -arrow-.
- Slacken off spring. When doing so, locate upper spring seat onto lug on body.



Tightening torques

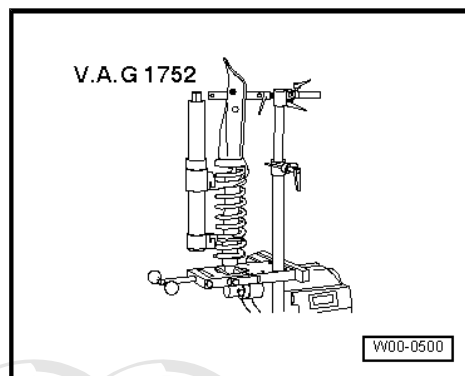
- ♦ ⇒ ["1 Wheels, tyres", page 303](#)

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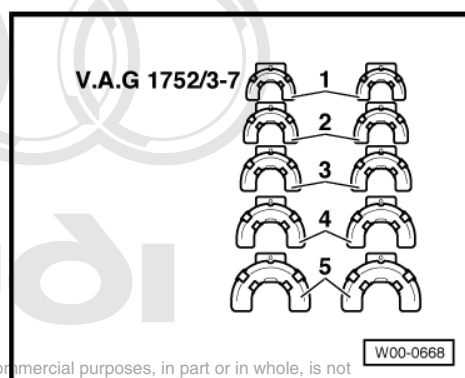
6.4.3 Removing and installing spring - Audi S1

Special tools and workshop equipment required

- ◆ Spring compressor - V.A.G 1752/1-



- ◆ Spring retainer - V.A.G 1752/3A-

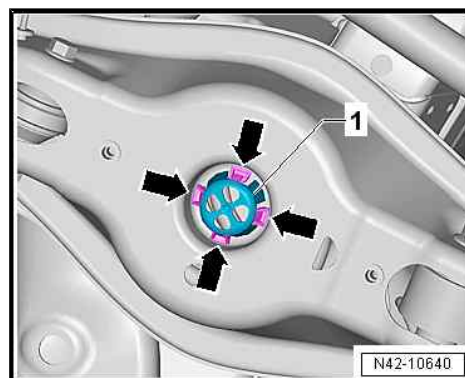


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- ◆ Adapter - V.A.G 1752/9- , not illustrated

Removing

- Remove wheel ⇒ [page 303](#) .
- Press in lugs -arrows- of assembly tool -1-.
- Lift out assembly tool -1-.



- Insert spring compressor -3-.
- 1 - Spring retainer - V.A.G 1752/3A-
- 2 - Adapter - V.A.G 1752/9-
- 3 - Spring compressor - V.A.G 1752/1-
- 4 - Spring



WARNING

Ensure that coil spring is correctly seated in spring retainer - V.A.G 1752/3A- -arrow- (accident risk).

- Compress coil spring until it can be removed.



Note

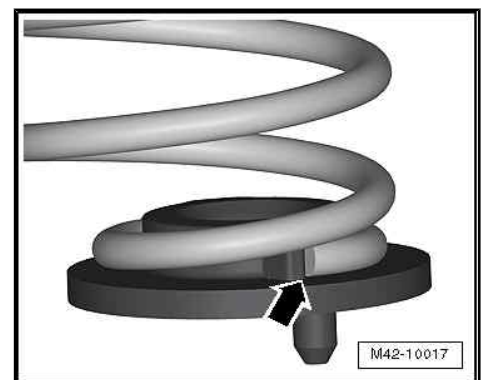
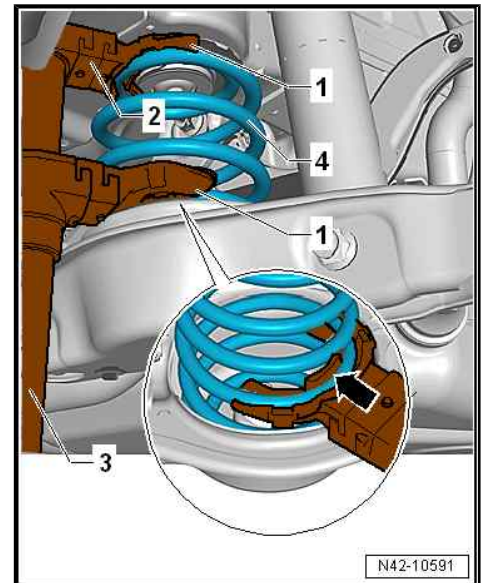
Use a suitable wrench or reversible ratchet to operate the spring compressor.

- Remove spring.

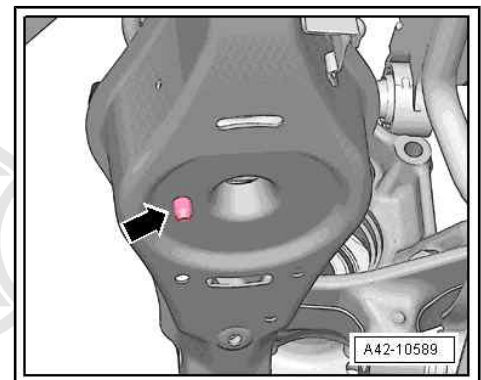
Installing

Install in reverse sequence, paying attention to the following:
End of spring -arrow- must lie against stop on bottom spring seat.

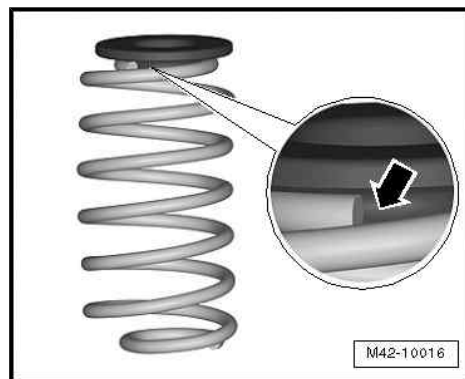
- Install spring together with spring seat.



- The bottom spring seat has a pin.
- Insert this pin in hole in lower suspension link -arrow-.



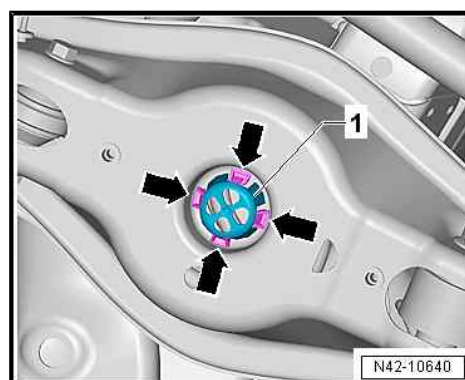
- Insert top spring seat into upper end of spring.
- Projection on spring seat -arrow- must fit correctly on coil spring.
- Slacken coil spring, and at the same time locate upper spring seat on lug on body.
- Take out spring compressor.



- Insert assembly tool -1- and press down until lugs -arrows- engage.
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ ["1 Wheels, tyres", page 303](#)



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7 Wheel bearing, trailing arm

⇒ [“7.1 Exploded view - wheel bearing”, page 235](#)

⇒ [“7.2 Exploded view - trailing arm”, page 240](#)

⇒ [“7.3 Removing and installing wheel bearing housing”, page 241](#)

⇒ [“7.4 Removing and installing wheel bearing unit”, page 246](#)

⇒ [“7.5 Renewing bonded rubber bush for wheel bearing housing”, page 253](#)

⇒ [“7.6 Removing and installing trailing arm with mounting bracket”, page 261](#)

⇒ [“7.7 Servicing trailing arm”, page 267](#)

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7.1 Exploded view - wheel bearing

⇒ [“7.1.1 Exploded view - wheel bearing, Audi A1 with front-wheel drive”, page 235](#)

⇒ [“7.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 237](#)

⇒ [“7.1.3 Exploded view - wheel bearing, Audi S1”, page 239](#)

7.1.1 Exploded view - wheel bearing, Audi A1 with front-wheel drive

1 - Axle beam

- ☐ Removing and installing
⇒ [page 154](#)

2 - Bolt

- ☐ Tightening torque ⇒
Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake

3 - Splash plate for brakes

- ☐ Removing and installing
⇒ Brake system; Rep. gr. 46 ; Rear brakes;
Removing and installing splash plate

4 - Brake caliper

- ☐ Removing and installing
⇒ Brake system; Rep. gr. 46 ; Rear brakes;
Removing and installing brake caliper

5 - Stub axle

- ☐ Must not be straightened
- ☐ Recutting the thread is not permitted

6 - Bolt

- ☐ Always renew if removed
- ☐ 30 Nm + 90°

7 - Wheel hub with wheel bearing

- ☐ With ABS sensor ring
- ☐ The wheel bearing and wheel hub are combined in one housing

- ☐ The wheel hub with wheel bearing unit is maintenance and adjustment-free. There is no provision for adjustment or repair.

- ☐ Removing and installing ⇒ [page 246](#)

8 - 12-point nut

- ☐ Always renew if removed
- ☐ 80 Nm + 30°

9 - Grease cap

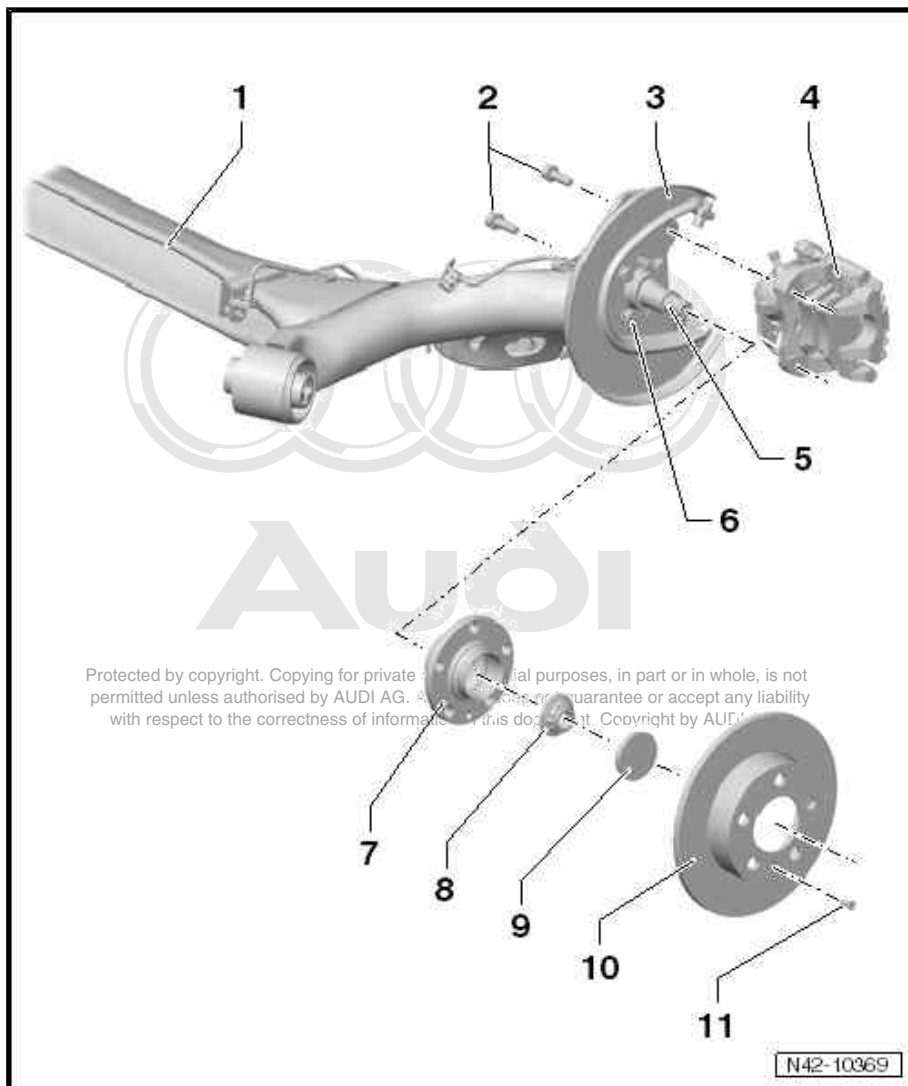
- ☐ Always renew if removed
- ☐ Proper sealing can only be achieved by installing a new grease cap.
- ☐ This is essential for optimum function and service life of wheel bearing.

10 - Brake disc

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing brake disc

11 - Bolt

- ☐ Tightening torque ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake



1 - Drive shaft

- 2 - Multi-point socket head bolt**

- ### 3 - Wheel bearing housing

- #### 4 - Rear speed sensor

- ### 5 - Bolt

- ### 6 - Bonded rubber bush

- ## 7 - Nut

- ## 8 - Bolt

- ### 9 - Bonded rubber bush

- ## 10 - Bolt

- ## 11 - Brake disc

- ## 12 - Bolt

-
- This diagram illustrates the assembly of a rear wheel hub and brake. The components are numbered as follows:
- 1: Drive shaft
 - 2: Two types of bolts (one for the hub, one for the brake)
 - 3: Hub
 - 4: Nut
 - 5: Washer
 - 6: Bolt
 - 7: Nut
 - 8: Bolt
 - 9: Bolt
 - 10: Brake disc
 - 11: Bolt
 - 12: Nut
 - 13: Hub
 - 14: Bolt
 - 15: Bolt
 - 16: Bolt
 - 17: Bolt
 - 18: Bolt
- The diagram shows the hub (3) being bolted to the drive shaft (1) using bolts (2) and nuts (4). The brake disc (10) is bolted to the hub (13) using bolts (11) and nuts (12). The hub (13) is also bolted to the frame using bolts (14) and nuts (15). The brake disc (10) is also bolted to the frame using bolts (16) and nuts (17). The hub (13) is also bolted to the frame using bolts (18) and nuts (19).

13 - Wheel hub with wheel bearing

- ☐ The ABS sensor ring is installed in the wheel bearing
- ☐ Removing and installing ⇒ [page 241](#)
- ☐ The wheel bearing and wheel hub are combined in one housing
- ☐ The wheel hub with wheel bearing unit is maintenance and adjustment-free. There is no provision for adjustment or repair.

14 - Bolt

- ☐ Tightening torque ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake

15 - Splash plate for brakes

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing splash plate

16 - Trailing arm

- ☐ Removing and installing ⇒ [page 261](#)
- ☐ Servicing ⇒ [page 267](#)

17 - Coupling rod

- ☐ Connects anti-roll bar to trailing arm/wheel bearing housing

18 - Bolt

- ☐ Always renew if removed
- ☐ Observe correct tightening sequence ⇒ [page 242](#)
- ☐ 90 Nm + 45°

7.1.3 Exploded view - wheel bearing, Audi S1

1 - Bolt

- ☐ Always renew if removed
- ☐ 80 Nm +90°

2 - Drive shaft

- ☐ Exploded view
⇒ [page 274](#)
- ☐ Removing and installing
⇒ [page 277](#)

3 - Wheel bearing housing

- ☐ Removing and installing
⇒ [page 243](#)

4 - Rear speed sensor

- ☐ Rear right speed sensor - G44- / rear left speed sensor - G46-
- ☐ Removing and installing
⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing rear speed sensor - G44- / -G46-

5 - Bolt

- ☐ Tightening torque ⇒
Brake system; Rep. gr. 45 ; Sensors; Exploded view - rear wheel speed sensor

6 - Bonded rubber bush

- ☐ Renewing ⇒ [page 256](#)

7 - Bolt

- ☐ Tightening torque ⇒
Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake

8 - Brake disc

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing brake disc

9 - Bolt

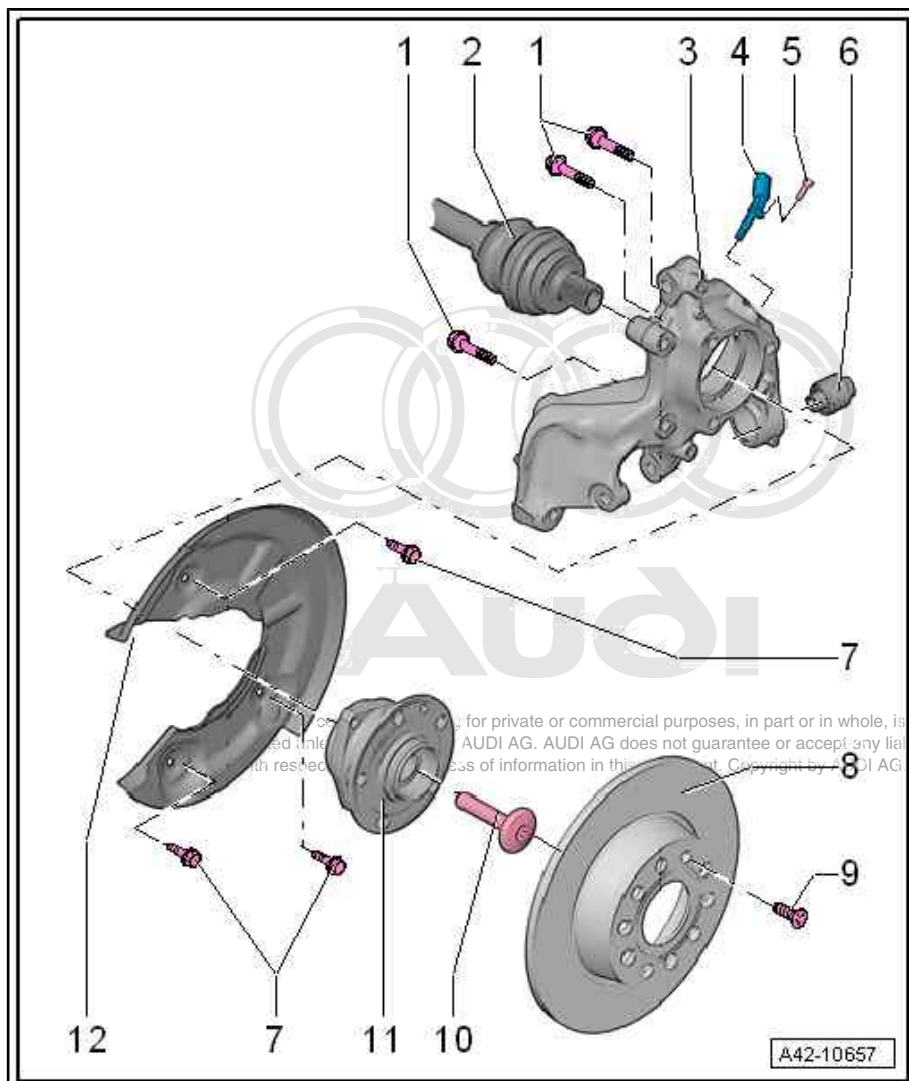
- ☐ Tightening torque ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake

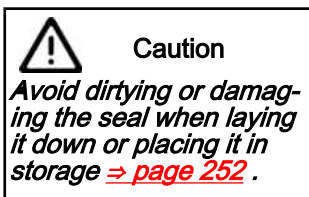
10 - Bolt

- ☐ Always renew if removed
- ☐ Before securing, clean threads in stub axle using a thread tap
- ☐ Twelve-point flange bolt -WHT.005.437- / black: 200 Nm + turn 180° further ⇒ [page 290](#)
- ☐ Twelve-point flange bolt -WHT.005.437.A- / silver: 200 Nm + turn 90° further ⇒ [page 290](#)

11 - Wheel bearing unit

- ☐ Removing and installing ⇒ [page 251](#)
- ☐ Wheel bearing and wheel hub are combined in one housing.
- ☐ This wheel bearing unit is maintenance-free and has zero play. There is no provision for adjustment or repair.





12 - Splash plate for brakes

- ☐ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing splash plate

7.2 Exploded view - trailing arm



Note

The exploded view relates to the Audi S1.

1 - Trailing arm

- ☐ Removing and installing
 ⇒ [page 264](#)

2 - Bonded rubber bush

- ☐ Note correct installation position ⇒ [page 241](#)
- ☐ Renewing ⇒ [page 270](#)

3 - Bolt

- ☐ Renew after removing
- ☐ 70 Nm +90°

4 - Bolt

- ☐ Renew after removing
- ☐ 50 Nm + 45°

5 - Mounting bracket

6 - Trim

7 - Bolt

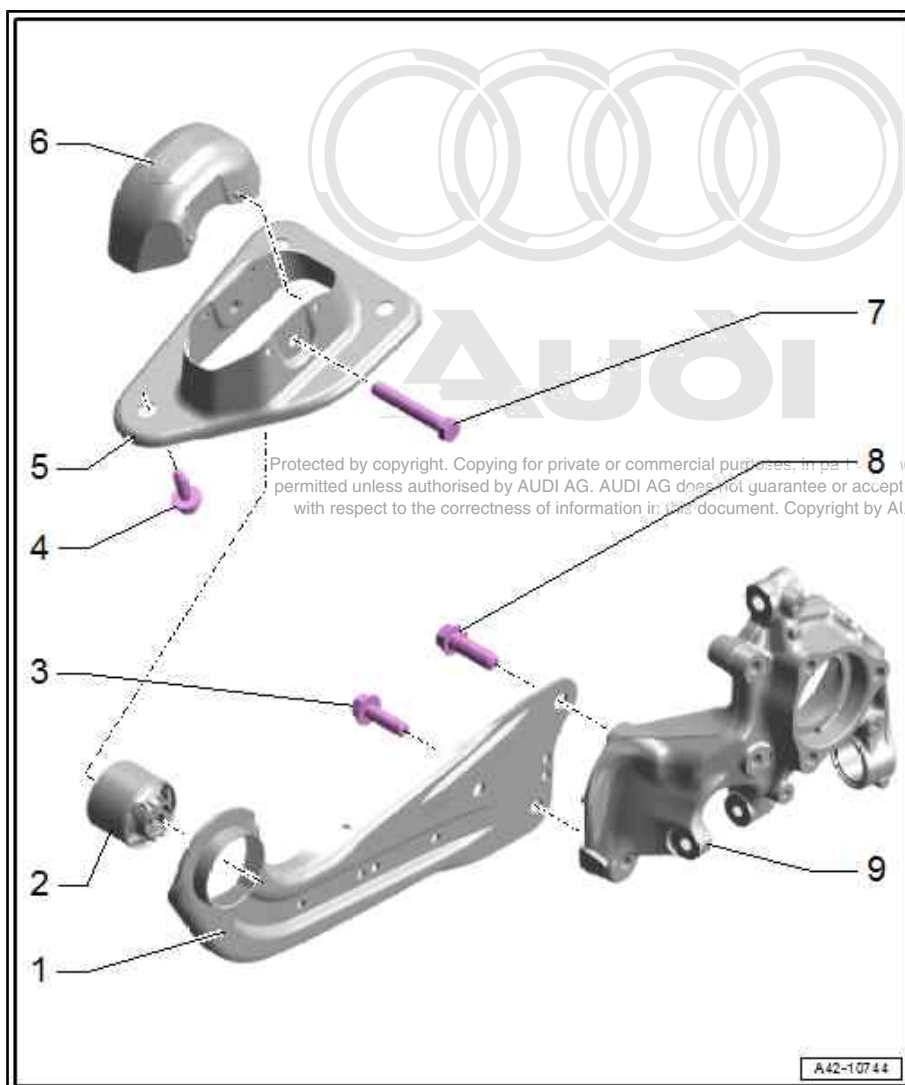
- ☐ Renew after removing
- ☐ 70 Nm +90°

8 - Bolt

- ☐ Renew after removing
- ☐ 70 Nm +90°

9 - Wheel bearing housing

- ☐ Removing and installing
 ⇒ [page 243](#)



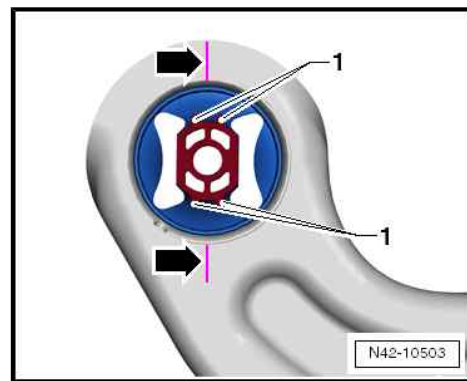
Installation position of bonded rubber bush:

Position bonded rubber bush on trailing arm so that marked vertical line -arrows- lies between raised portions -1-.



Note

It is very important that the bonded rubber bush is installed in the correct position relative to the bush of the trailing arm.



7.3 Removing and installing wheel bearing housing

⇒ [“7.3.1 Removing and installing wheel bearing housing - Audi A1 quattro”, page 241](#)

⇒ [“7.3.2 Removing and installing wheel bearing housing - Audi S1”, page 243](#)

7.3.1 Removing and installing wheel bearing housing - Audi A1 quattro

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

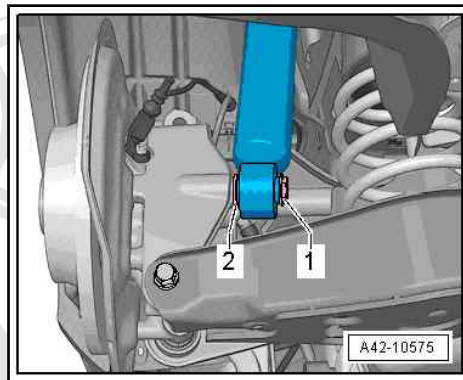


Removing

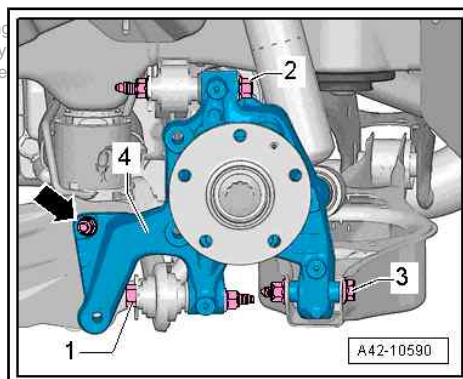
- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Loosen bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove coil spring ⇒ [page 230](#) .
- Remove splash plate ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing splash plate .
- Remove ABS speed sensor from wheel bearing housing.

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- Remove bolt -1- and take off washer -2-.



- Unscrew bolts for track rod -1-, upper suspension link -2- and lower suspension link -3- from wheel bearing housing -4-.
- Unbolt coupling rod from wheel bearing housing -arrow-.



- Pull coupling rod -1- out of trailing arm.
- Hold wheel bearing housing and unscrew bolts -arrows-.
- Take out wheel bearing housing.

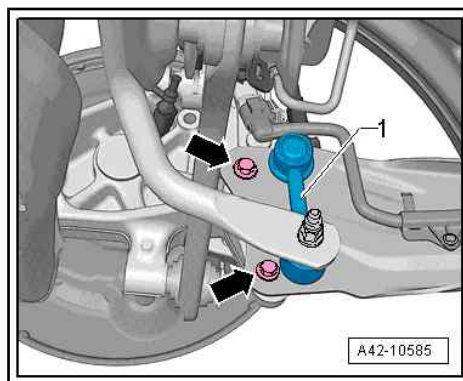
Installing

Install in reverse sequence, paying attention to the following:



Note

Important: washers must always be fitted between the track rod, upper suspension link, shock absorber and wheel bearing housing.

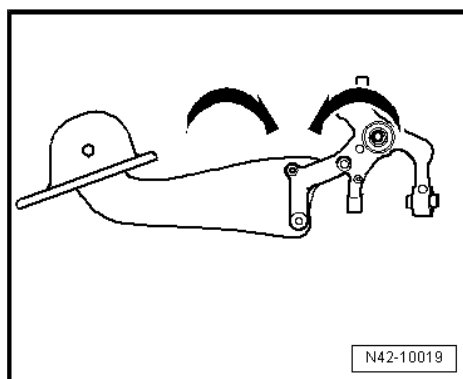


Installation position: Bolted connection between trailing arm and wheel bearing housing

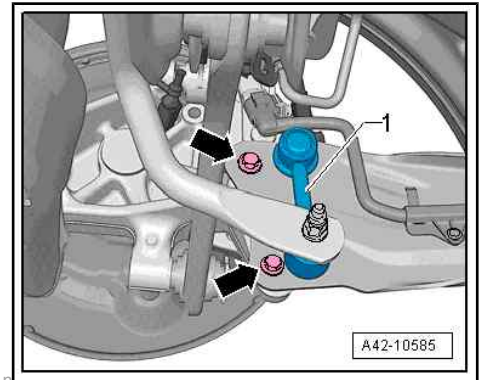
Do not tighten bolts securing trailing arm to wheel bearing housing until all other suspension components (especially spring and shock absorber) on that side are fitted. The suspension must be in extended position before securing. The trailing arm and the wheel bearing housing will only then move into the required position -arrows-.

- Install coil spring ⇒ [page 230](#) .

It is important to keep to the specified sequence for the following operations.



- Fit trailing arm to wheel bearing housing with bolts -arrows- (do not tighten at this stage).
- Insert coupling rod -1- in trailing arm (do not tighten nut at this stage).
- Lower suspension with engine and gearbox jack - VAS 6931- and remove support - T10149- from wheel hub.
- Tighten trailing arm bolts -arrows- to torque (ensure that components are positioned as required) ⇒ [page 242](#) .
- Attach coupling rod -1- to wheel bearing housing and anti-roll bar.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Tighten bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)



Tightening torques

- ◆ ⇒ ["5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro", page 198](#)
- ◆ ⇒ ["7.1.2 Exploded view - wheel bearing, Audi A1 quattro", page 237](#)
- ◆ ⇒ ["6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro", page 215](#)
- ◆ ⇒ ["4.1.1 Exploded view - anti-roll bar, Audi A1 quattro", page 190](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake

7.3.2 Removing and installing wheel bearing housing - Audi S1

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Loosen bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- Remove wheel ⇒ [page 303](#) .

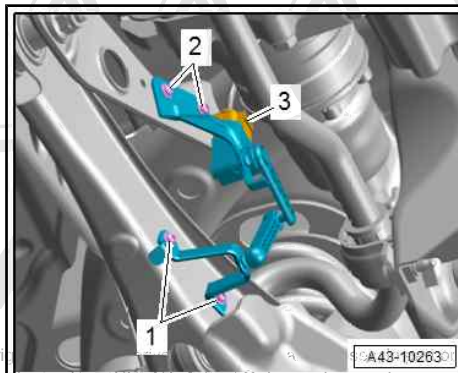
Vehicles with vehicle level senders

- Unscrew bolts -1- on linkage for rear vehicle level sender.



Note

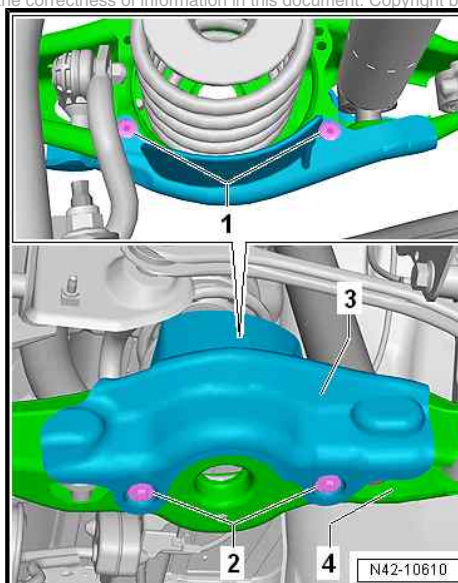
Disregard items -2 and 3-.



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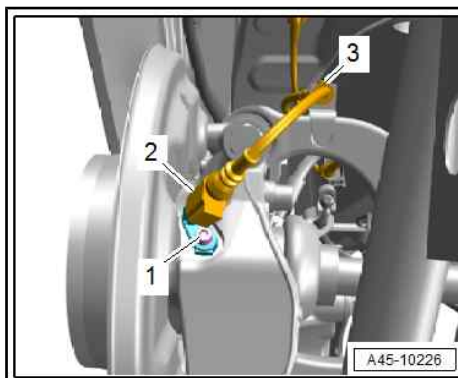
Vehicles with stone deflector

- Remove spreader rivets -1-.
- Unscrew bolts -2- and detach stone deflector -3-.



All vehicles (continued):

- Remove spring ⇒ [page 232](#) .
- Unplug electrical connector -2- at ABS speed sensor.
- Move electrical wire clear at bracket -3-.
- Remove splash plate ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing splash plate .

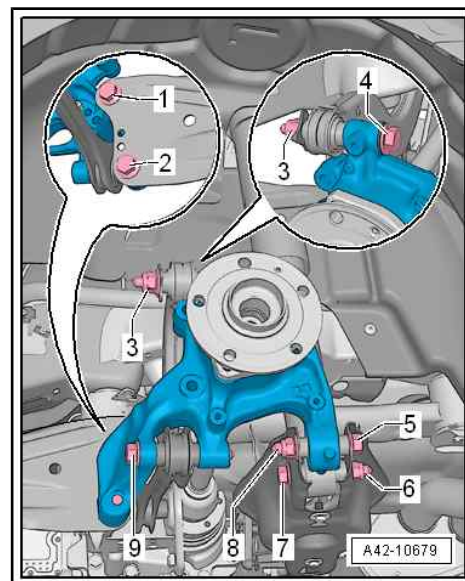


- Remove bolts -1, 2, 9-.
- Remove nuts -3, 8- and bolts -4, 5-.
- Take out wheel bearing housing.



Note

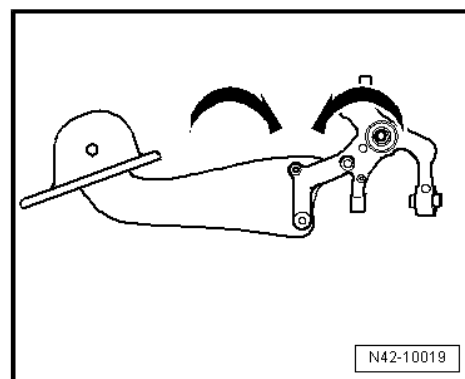
Disregard items -6 and 7-.



Installing

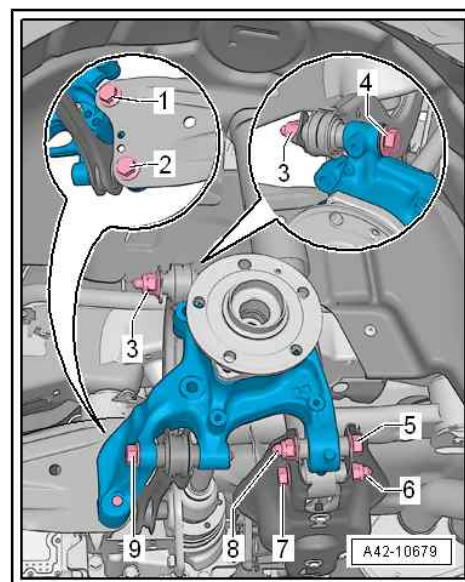
Install in reverse sequence, paying attention to the following:

Do not tighten bolts securing trailing arm to wheel bearing housing until all other suspension components (especially spring and shock absorber) on that side are fitted. The suspension must be in extended position before securing. The trailing arm and the wheel bearing housing will only then move into the required position -arrows-.



It is important to keep to the specified sequence for the following operations.

- Fit wheel bearing housing.
- Insert bolts -4, 5- and tighten nuts -3, 8- hand-tight.
- Tighten bolt -9- hand-tight.
- Tighten bolts -1, 2- hand-tight.
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .



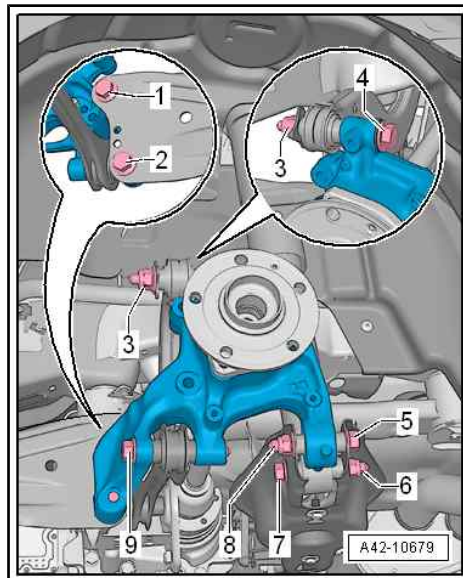
- Tighten nuts and bolts -3 to 9-.
- Install spring ⇒ [page 232](#) .
- Tighten bolts -1 and 2-.

Remaining installation steps are the reverse of removal; note the following:

- Tighten bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“7.1.3 Exploded view - wheel bearing, Audi S1”, page 239](#)
- ◆ ⇒ [“5.1.3 Exploded view - track rod, Audi S1”, page 202](#)
- ◆ ⇒ [“7.1.3 Exploded view - wheel bearing, Audi S1”, page 239](#)
- ◆ ⇒ [“7.2 Exploded view - trailing arm”, page 240](#)
- ◆ ⇒ [“6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1”, page 216](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake



7.4 Removing and installing wheel bearing unit

⇒ [“7.4.1 Removing and installing wheel bearing unit - Audi A1 with front-wheel drive”, page 246](#)

⇒ [“7.4.2 Removing and installing wheel bearing unit - Audi A1 quattro”, page 249](#)

⇒ [“7.4.3 Removing and installing wheel bearing unit - Audi S1”, page 251](#)

7.4.1 Removing and installing wheel bearing unit - Audi A1 with front-wheel drive

Special tools and workshop equipment required

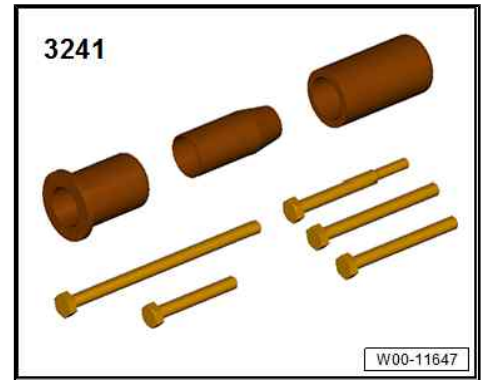
- ◆ Hub grease cap puller - VW 637/2-



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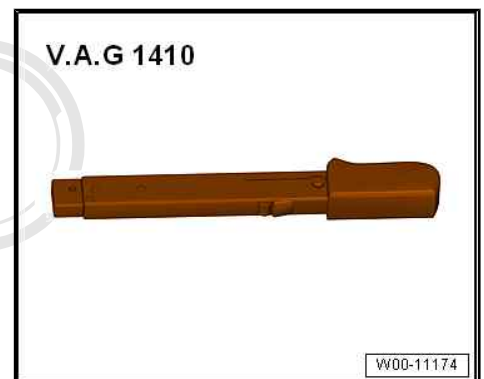
- ◆ Fitting sleeve - 3241/4- from fitting sleeves - 3241-



- ◆ Torque wrench - V.A.G 1332-

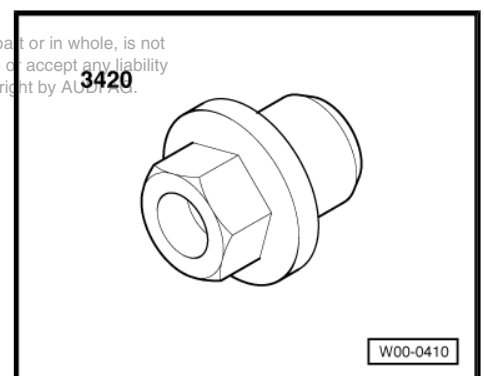


- ◆ Torque wrench - V.A.G 1410-



- ◆ Assembly tool - 3420-

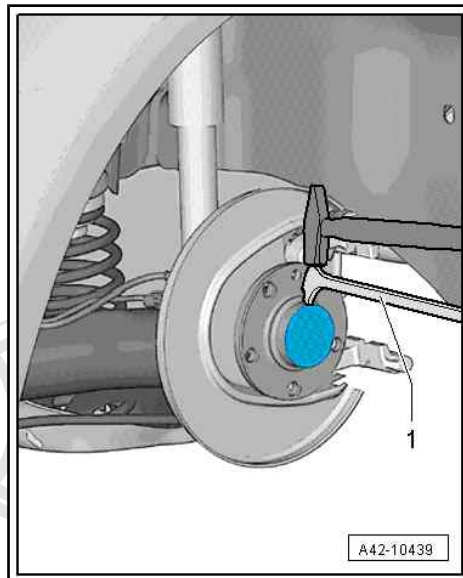
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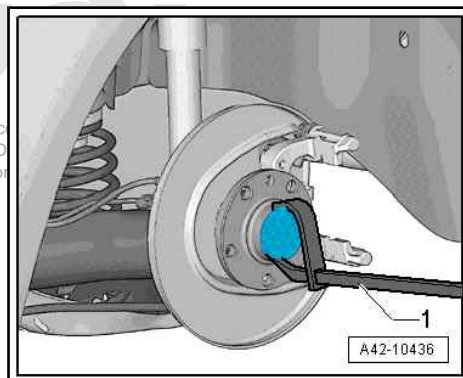
Removing

- Remove wheel ⇒ [page 303](#) .
- Remove brake disc ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing brake disc .

- Loosen grease cap from seat by tapping lightly on claw of hub grease cap puller -VW 637/2- -item 1-.



- Lever off grease cap using hub grease cap puller -VW 637/2- -item 1-, as shown in illustration.
- Unscrew 12-point nut.
- Pull wheel hub/wheel bearing unit off stub axle.



Caution

Avoid dirtying or damaging the seal when laying it down or placing it in storage.

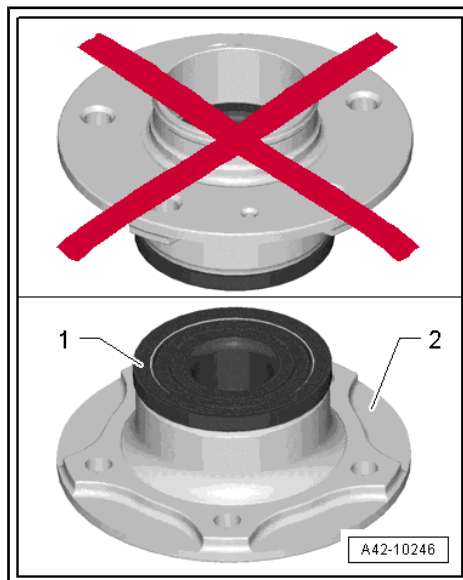
- The wheel bearing -1- must always be pointing upwards.
- Always put down the wheel bearing unit with the wheel hub -2- facing downwards.

Installing

Install in reverse sequence, paying attention to the following:

- Carefully push wheel hub/wheel bearing unit onto stub axle.

Ensure that the wheel hub/wheel bearing unit remains straight.



If the wheel bearing unit cannot be pushed by hand onto the stub axle as far as the stop, proceed as follows.

- Fit wheel bearing unit onto stub axle as far as possible.



Note

When pulling the wheel bearing unit onto the stub axle, pressure may only be applied to the inner bearing race.

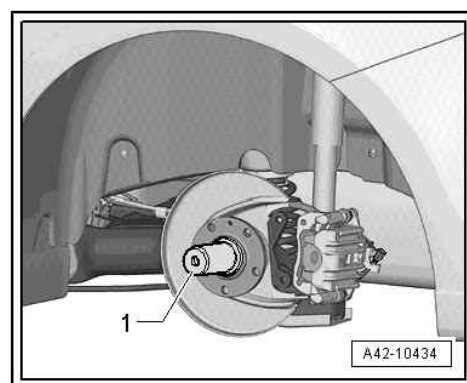
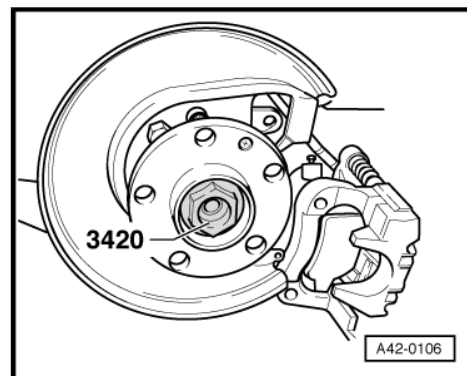
- Attach assembly tool - 3420- and pull wheel bearing unit on as far as stop.
- Unscrew assembly tool - 3420- .
- Install and tighten new 12-point nut.
- Drive in grease cap using fitting sleeve - 3241/4- -item 1-.

Always renew grease caps.

Damaged grease caps allow moisture to enter the bearing. For this reason it is important to use the tool shown in the illustration.

Tightening torques

- ◆ ⇒ [“7.1.1 Exploded view - wheel bearing, Audi A1 with front-wheel drive”, page 235](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake



7.4.2 Removing and installing wheel bearing unit - Audi A1 quattro

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



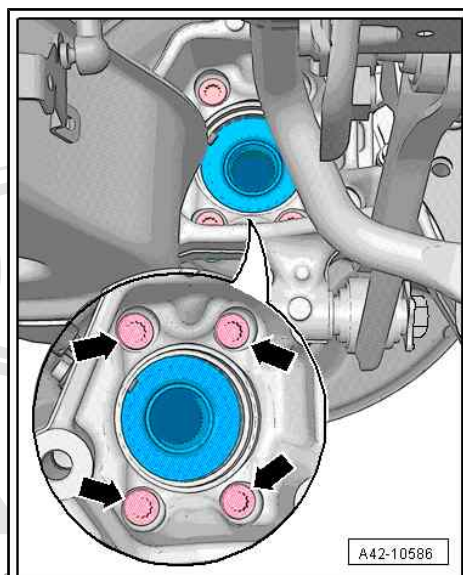
- ◆ Torque wrench - V.A.G 1410-



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Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value
⇒ [page 11](#) .
- Remove coil spring ⇒ [page 230](#) .
- Remove drive shaft ⇒ [page 277](#) .
- Remove brake disc ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing brake disc .
- Remove bolts -arrows-.
- Pull wheel bearing unit out of wheel bearing housing.



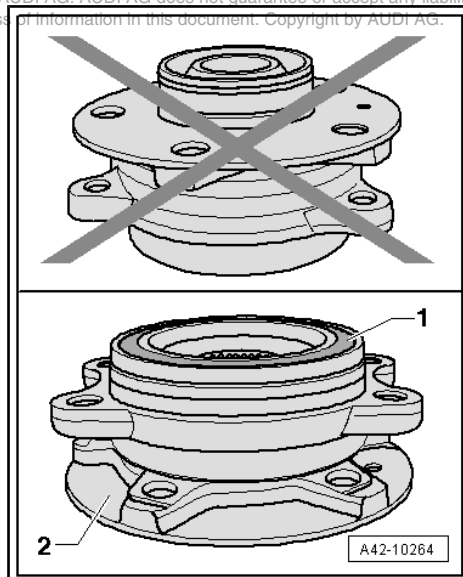
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Caution

Avoid dirtying or damaging the seal when laying it down or placing it in storage.

- The wheel bearing -1- must always be pointing upwards.
- Always put down the wheel bearing unit with the wheel hub -2- facing downwards.



- Do not touch the inside of the wheel bearing when you pick it up.
- Always take hold of the outside of the wheel bearing.

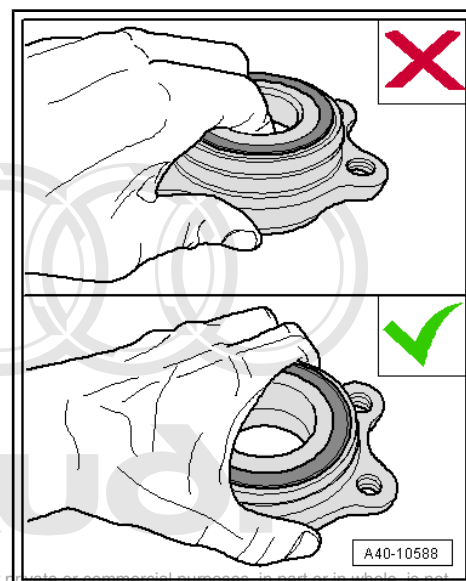
Installing

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

- Install and tighten new bolt ⇒ [Item 12 \(page 237\)](#) .
- Install drive shaft ⇒ [page 277](#) .
- Install spring ⇒ [page 230](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“7.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 237](#)
- ◆ ⇒ [“6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro”, page 215](#)
- ◆ ⇒ [“4.1.1 Exploded view - anti-roll bar, Audi A1 quattro”, page 190](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake



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7.4.3 Removing and installing wheel bearing unit - Audi S1

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

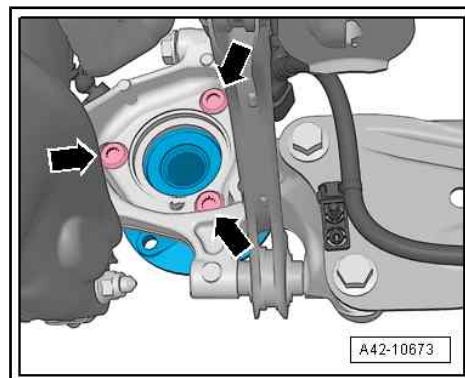


- ◆ Torque wrench - V.A.G 1410-



Removing

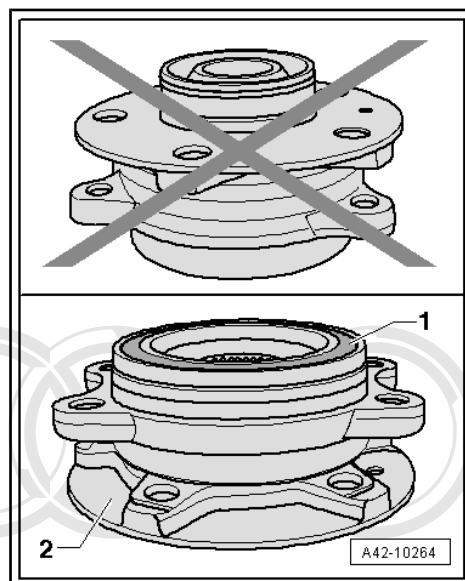
- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Loosen bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- Remove brake disc ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing brake disc .
- Remove spring ⇒ [page 232](#) .
- Remove drive shaft ⇒ [page 277](#) .
- Remove bolts -arrows-.
- Pull wheel bearing unit out of wheel bearing housing.



Caution

Avoid dirtying or damaging the seal when laying it down or placing it in storage.

- The wheel bearing -1- must always be pointing upwards.
- Always put down the wheel bearing unit with the wheel hub -2- facing downwards.



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- Do not touch the inside of the wheel bearing when you pick it up.
- Always take hold of the outside of the wheel bearing.

The same procedure applies to the wheel bearing without wheel hub.

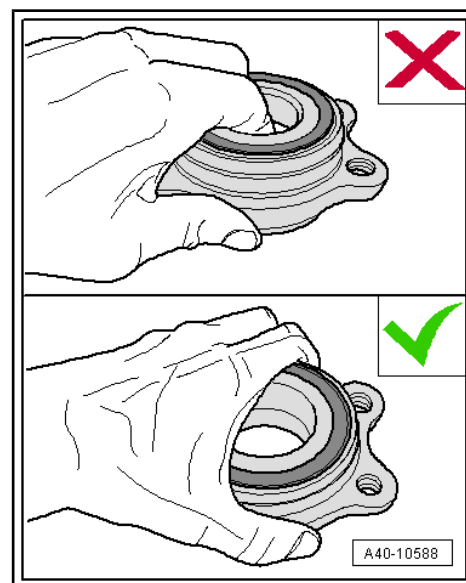
Installing

Install in reverse sequence, paying attention to the following:

- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Tighten bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“7.1.3 Exploded view - wheel bearing, Audi S1”, page 239](#)
- ◆ ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Exploded view - rear brake



7.5 Renewing bonded rubber bush for wheel bearing housing

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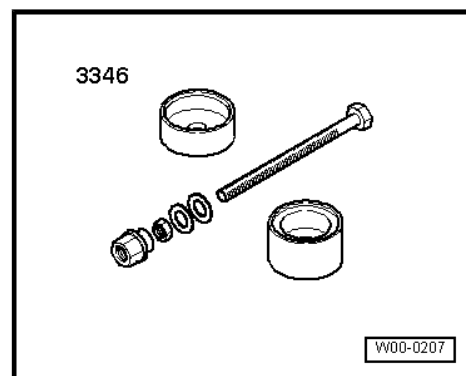
⇒ [“7.5.1 Renewing bonded rubber bush for wheel bearing housing - Audi A1 quattro”, page 253](#)

⇒ [“7.5.2 Renewing bonded rubber bush for wheel bearing housing - Audi S1”, page 256](#)

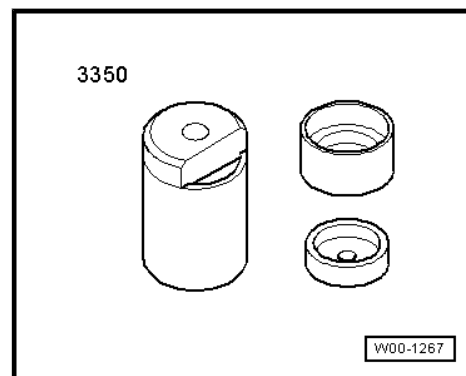
7.5.1 Renewing bonded rubber bush for wheel bearing housing - Audi A1 quattro

Special tools and workshop equipment required

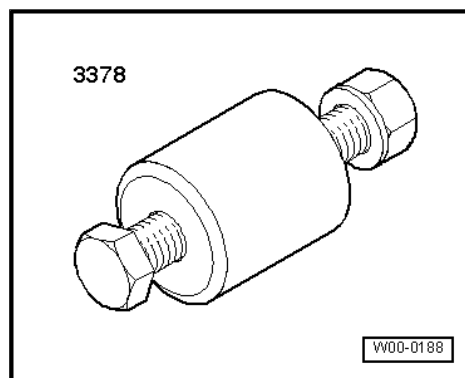
- ◆ Assembly tool - 3346-



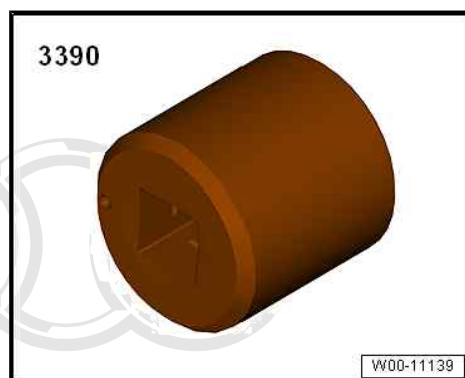
- ◆ Assembly tool - 3350-



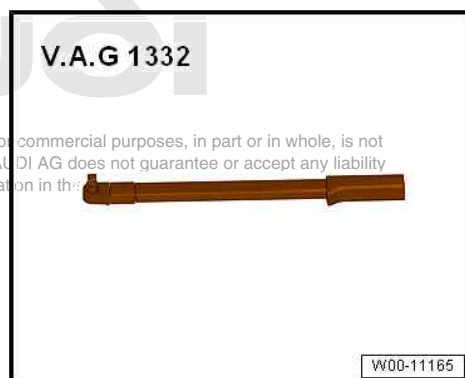
◆ Fitting sleeve - 3378-



◆ Carrier - 3390-



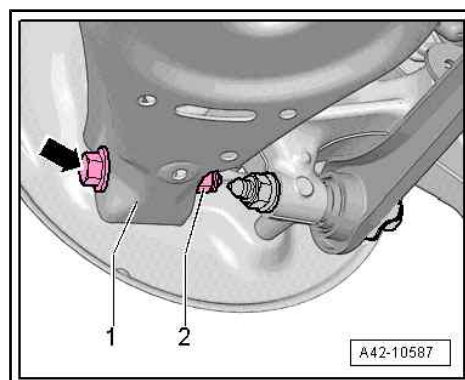
◆ Torque wrench - V.A.G 1332-



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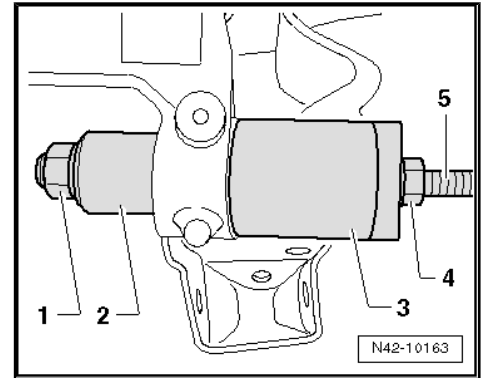
Procedure

- Detach vehicle level sender from lower suspension link
⇒ [page 297](#) .
- Unscrew nut -2- and remove bolt -arrow- for lower suspension link -1-.
- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value
⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove coil spring ⇒ [page 230](#) .
- Remove splash plate ⇒ Brake system; Rep. gr. 46 ; Rear brakes; Removing and installing splash plate .
- Unscrew bolt -arrow- for lower suspension link -1-.



Pressing out bonded rubber bush

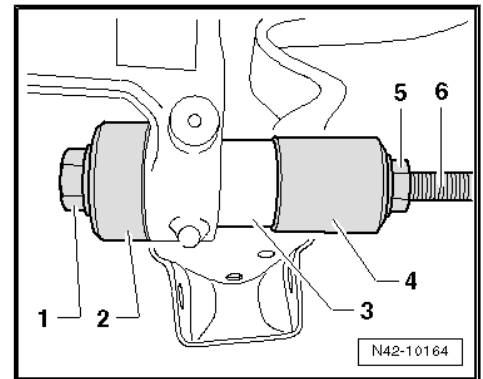
- Attach tools as shown in illustration.
- 1 - Nut - 3346/3-
- 2 - Carrier - 3390-
- 3 - Assembly tool - 3350-
- 4 - Nut (commercially available type)
- 5 - Spindle - 3346/2-
- Pull out bonded rubber bush by turning spindle.



Installing bonded rubber bush

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- Attach tools as shown in illustration.
- 1 - Nut - 3346/3-
- 2 - Assembly tool - 3346-
- 3 - Bonded rubber bush
- 4 - Fitting sleeve - 3378-
- 5 - Nut (commercially available type)
- 6 - Spindle - 3346/2-
- Draw in the bonded rubber bush by turning the spindle.



Note

- ◆ Do not use lubricant.
- ◆ Insert bush carefully to keep it straight.

- After installing, check that bonded rubber bush is in correct position.
- Dimensions -A- and -B- must be equal (measured at points without projecting seam or burrs on casting).
- Press bush in further if dimensions -A- and -B- are not equal.

If the bonded rubber bush has to be pressed in further, use a 27 mm socket (commercially available type) in place of fitting sleeve - 3378- .

Installing

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

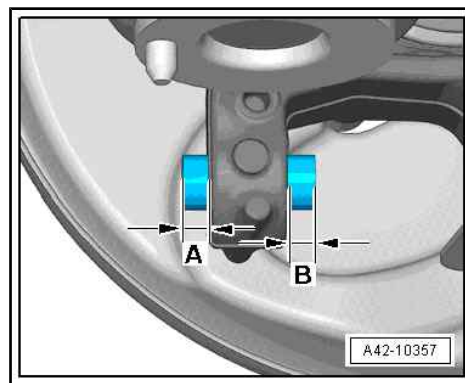
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Install spring ⇒ [page 230](#) .

Tightening torques

- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“7.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 237](#)
- ◆ ⇒ [“6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro”, page 215](#)
- ◆ ⇒ [“4.1.2 Exploded view - anti-roll bar, Audi S1”, page 191](#)
- ◆ ⇒ [“2.1 Exploded view - rear vehicle level sender”, page 297](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)

- ◆ ⇒ [Brake system; Rep. gr. 46 : Rear brakes; Exploded view - rear brake](#)

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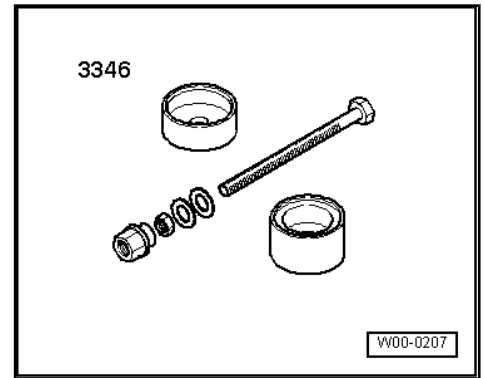
7.5.2 Renewing bonded rubber bush for wheel bearing housing - Audi S1

Special tools and workshop equipment required

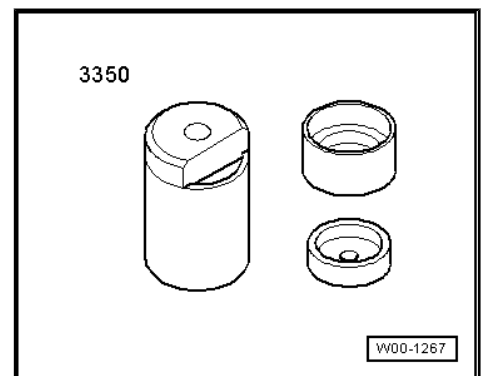
- ◆ Assembly tool - 3301-



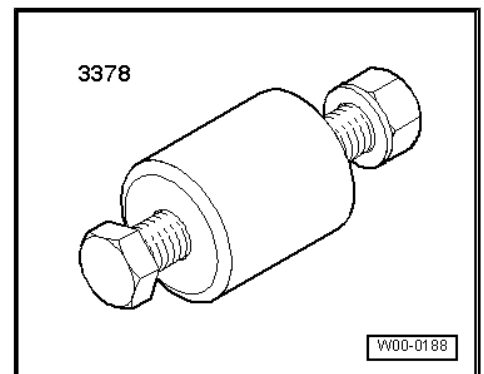
◆ Assembly tool - 3346-



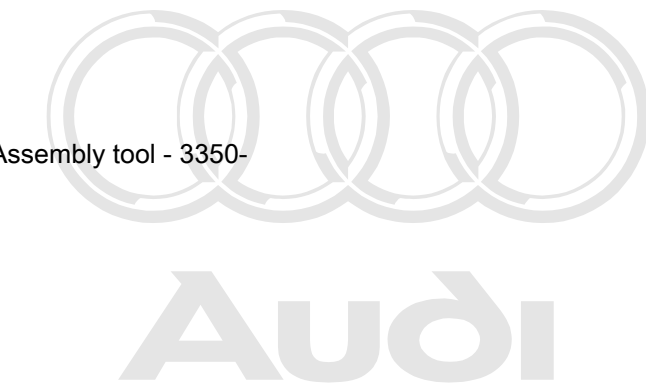
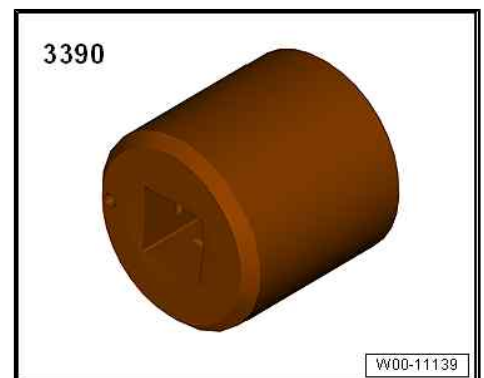
◆ Assembly tool - 3350-



◆ Fitting sleeve - 3378-



◆ Carrier - 3390-



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- ◆ Torque wrench - V.A.G 1332-



Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove spring ⇒ [page 232](#) .

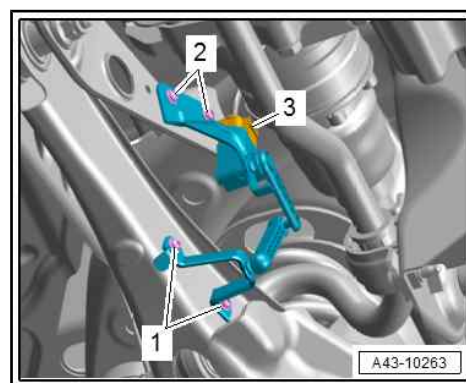
Vehicles with vehicle level senders

- Unscrew bolts -1- on linkage for rear vehicle level sender.



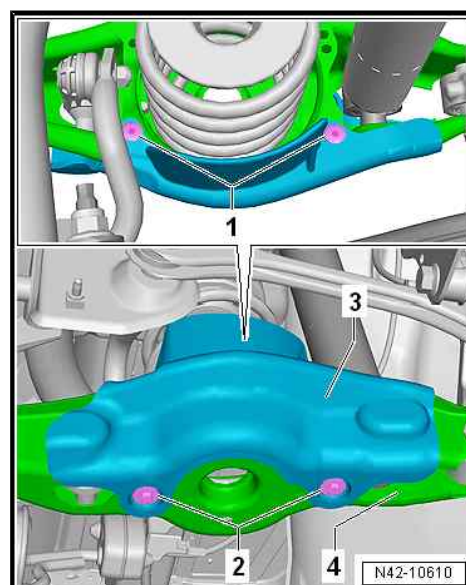
Note

Disregard items -2 and 3-.



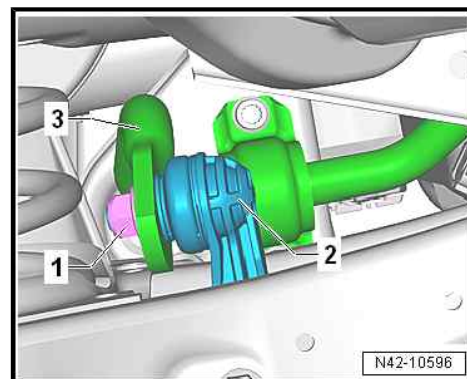
Vehicles with stone deflector

- Remove spreader rivets -1-.
- Unscrew bolts -2- and detach stone deflector -3-.

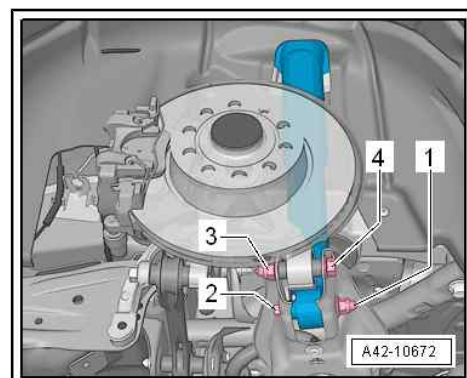


All vehicles (continued):

- Remove nut -1- from coupling rod -2-.
- Pull coupling rod -2- out of anti-roll bar -3-.



- Unscrew nut -1- and pull out bolt -2- securing shock absorber.
- Unscrew nut -3- and pull out bolt -4- securing wheel bearing housing.



Pressing out bonded rubber bush

1 - Nut - 3346/3-

2 - Carrier - 3390-

3 - Wheel bearing housing

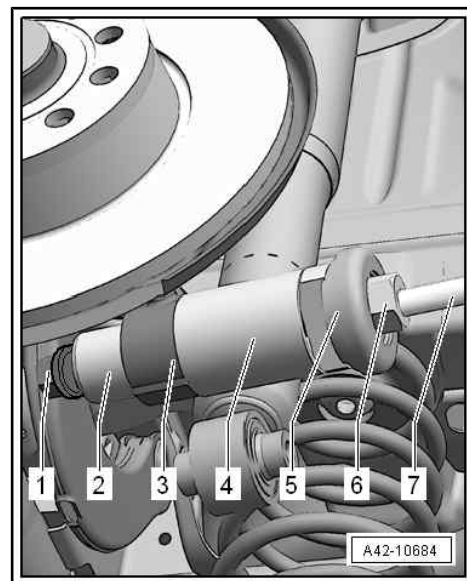
4 - Assembly tool - 3350-

5 - Thrust plate from assembly tool - 3301-

6 - Nut - 3346/3-

7 - Spindle - 3346/2-

- Pull out bonded rubber bush by turning nut - 3346/3- -6-.
- Counterhold spindle - 3346/2- -7- if necessary.



Installing bonded rubber bush

- 1 - Spindle - 3346/2-
 - 2 - Nut - 3346/3-
 - 3 - Thrust plate from assembly tool - 3301-
 - 4 - Fitting sleeve - 3378-
 - 5 - Bonded rubber bush
 - 6 - Wheel bearing housing
 - 7 - Assembly tool - 3346-
 - 8 - Nut - 3346/3-
- Pull in bonded rubber bush by turning nut - 3346/3- -2-. Counterhold spindle - 3346/2- -1- if necessary.



Note

- ◆ *Do not use lubricant.*
- ◆ *Insert bush carefully to keep it straight.*
- After installing, check that bonded rubber bush is in correct position.
- Dimensions -A- and -B- must be equal.
- Press bush in further if dimensions -A- and -B- are not equal.

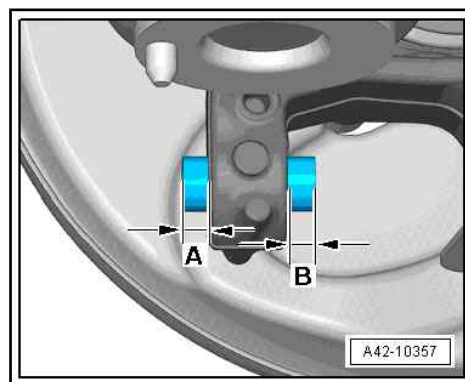
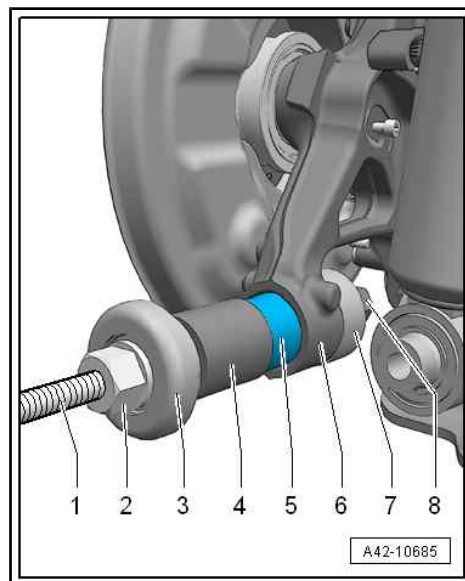
Installing

Install in reverse sequence, paying attention to the following:

- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ [“7.1.3 Exploded view - wheel bearing, Audi S1”, page 239](#)
- ◆ ⇒ [“6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1”, page 216](#)
- ◆ ⇒ [“4.1.2 Exploded view - anti-roll bar, Audi S1”, page 191](#)
- ◆ ⇒ [“2.1.3 Exploded view - rear vehicle level sender, Audi S1”, page 299](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



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7.6 Removing and installing trailing arm with mounting bracket

⇒ [“7.6.1 Removing and installing trailing arm with mounting bracket - Audi A1 quattro”, page 261](#)

⇒ [“7.6.2 Removing and installing trailing arm with mounting bracket - Audi S1”, page 264](#)

7.6.1 Removing and installing trailing arm with mounting bracket - Audi A1 quattro

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



- ◆ Engine and gearbox jack - VAS 6931-



- ◆ Support - T10149-

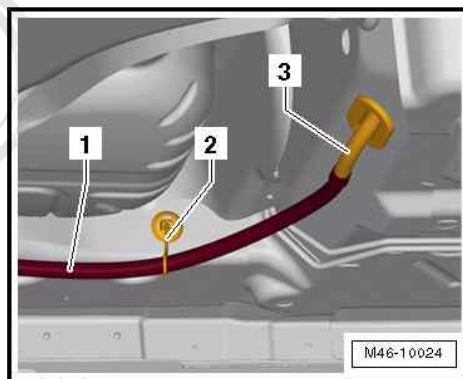


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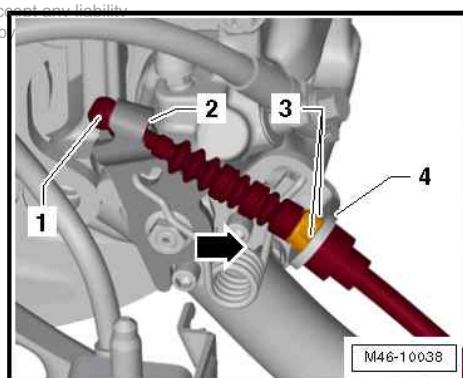
Removing

- Remove fuel tank ⇒ Rep. gr. 20 ; Fuel tank; Removing and installing fuel tank .
- Remove wheel ⇒ [page 303](#) .
- Remove coil spring ⇒ [page 230](#) .

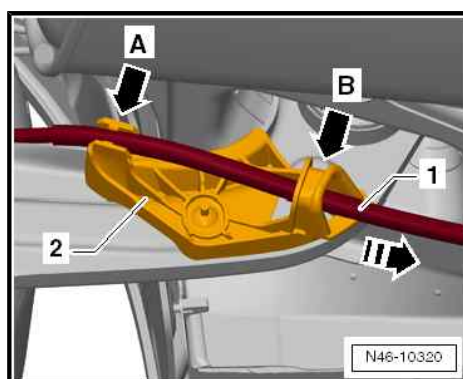
- Disengage handbrake cable -1- from retainer -2-.



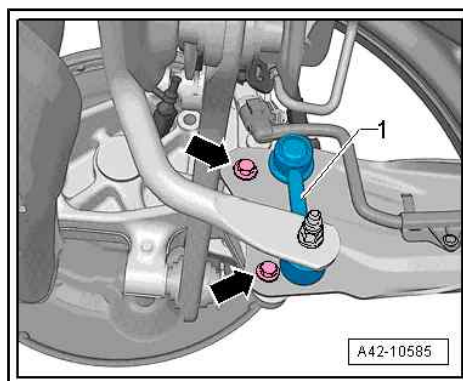
- Press lever on brake caliper -2- in direction of -arrow-.
- Disengage handbrake cable -1- from lever on brake caliper -2-.
- Compress retaining tabs -3- and remove handbrake cable -1- from bracket -4- on brake caliper.



- Unclip handbrake cable -1- from retaining tab -arrow A- on bracket -2-.
- Pull handbrake cable -1- out of guide -arrow B- on bracket -2- in direction of -arrow-.



- Unbolt coupling rod -1- from trailing arm.
- Remove bolts -arrows-.



- Unscrew bolt -1- securing trailing arm on body.
- Take out trailing arm.

Installing

Install in reverse sequence, paying attention to the following:

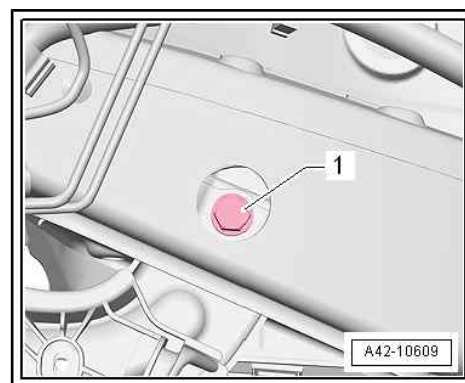
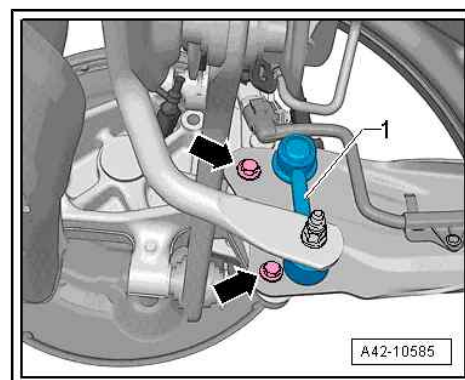
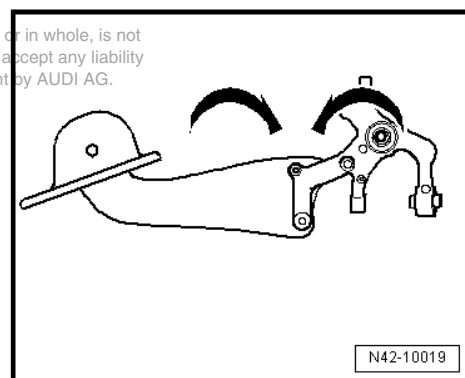
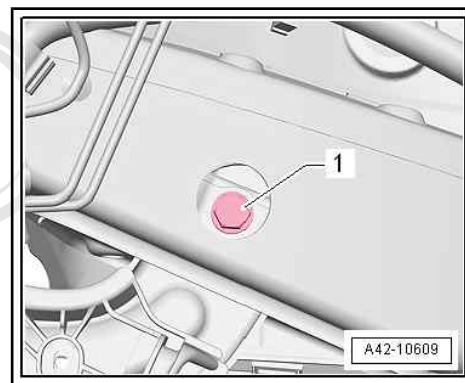
Do not tighten bolts securing trailing arm to wheel bearing housing until all other suspension components (especially spring and shock absorber) on that side are fitted. The suspension must be in extended position before securing. The trailing arm and the wheel bearing housing will only then move into the required position -arrows-.

Installation position: Bolted connection between trailing arm and wheel bearing housing

It is important to keep to the specified sequence for the following operations.

- Fit trailing arm and mounting bracket to wheel bearing housing with bolts -arrows- (do not tighten at this stage).
- Insert coupling rod -1- in trailing arm (do not tighten nut at this stage).
- Raise suspension with engine and gearbox jack - VAS 6931- and support - T10149- .

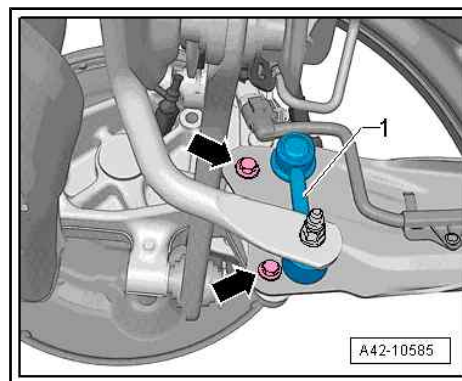
- Fit and tighten bolt -1- securing trailing arm on body.
- Lower suspension with engine and gearbox jack - VAS 6931- and remove support - T10149- from wheel hub.
- Install coil spring ⇒ [page 230](#) .



- Tighten trailing arm bolts -arrows- to torque (ensure that components are positioned as required) ⇒ [page 263](#) .
- Tighten nut -1- securing coupling rod to trailing arm.
- The remaining installation steps are carried out in the reverse sequence.
- Install fuel tank ⇒ Rep. gr. 20 ; Fuel tank; Removing and installing fuel tank .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)

Tightening torques

- ◆ ⇒ ["5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro", page 198](#)
- ◆ ⇒ ["7.1.2 Exploded view - wheel bearing, Audi A1 quattro", page 237](#)
- ◆ ⇒ ["6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro", page 215](#)
- ◆ ⇒ ["4.1.1 Exploded view - anti-roll bar, Audi A1 quattro", page 190](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)



7.6.2 Removing and installing trailing arm with mounting bracket - Audi S1

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

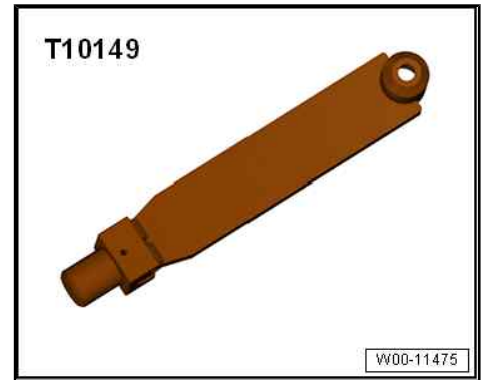


- ◆ Engine and gearbox jack - VAS 6931-



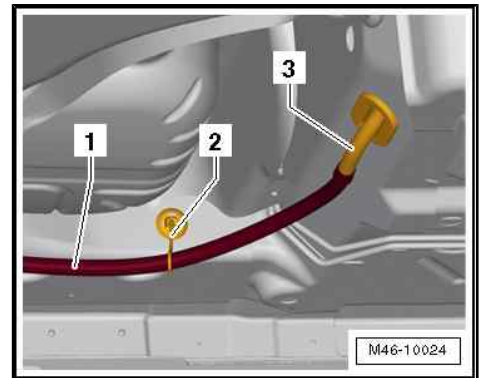
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◆ Support - T10149-

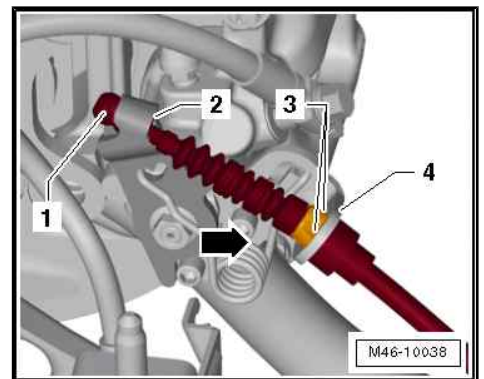


Removing

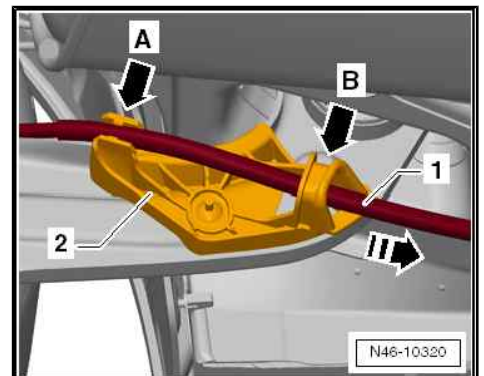
- Remove wheel ⇒ [page 303](#) .
- Remove spring ⇒ [page 232](#) .
- Disengage handbrake cable -1- from retainer -2-.



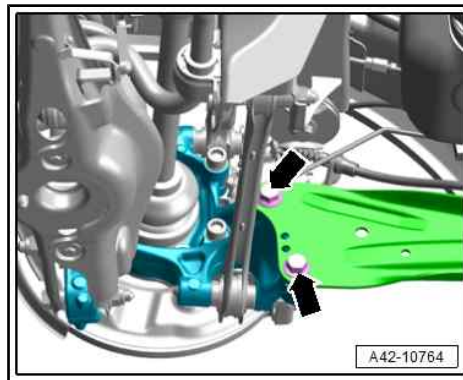
- Press lever on brake caliper -2- in direction of -arrow-.
- Disengage handbrake cable -1- from lever on brake caliper -2-.
- Compress retaining tabs -3- and remove handbrake cable -1- from bracket -4- on brake caliper.



- Unclip handbrake cable -1- from retaining tab -arrow A- on bracket -2-.
- Pull handbrake cable -1- out of guide -arrow B- on bracket -2- in direction of -arrow-.



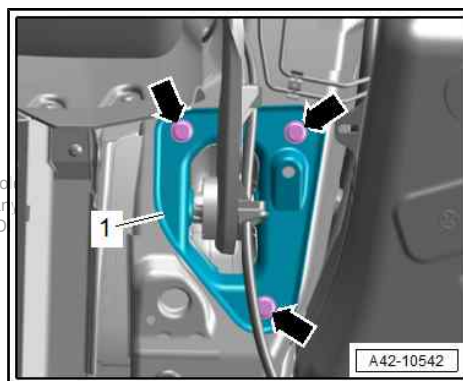
- Remove bolts -arrows- for trailing arm.



- Mark installation position of mounting bracket -1- on body.
- Remove bolts -arrows-.
- Take out trailing arm with mounting bracket.

- If the mounting bracket has to be separated from the trailing arm for subsequent repair work, the position of the mounting bracket relative to the trailing arm must be adjusted before installation.

- Clamp trailing arm in vice using protective jaw covers.



Adjusting position of mounting bracket in relation to trailing arm

Dimension -a- is 37 mm.

1 - Trailing arm

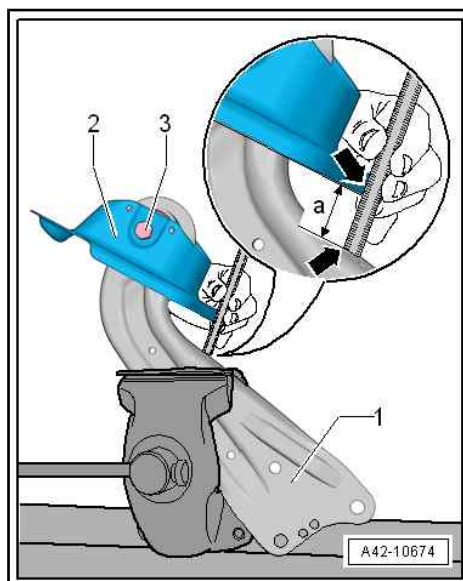
2 - Mounting bracket

- Apply a steel ruler to the mounting bracket as shown in the illustration and set the dimension given above, ensuring that the complete surface of the steel ruler is touching the mounting bracket and that the ruler is applied to the inner edge of the trailing arm.

- Tighten bolt -3- when dimension -a- is set.

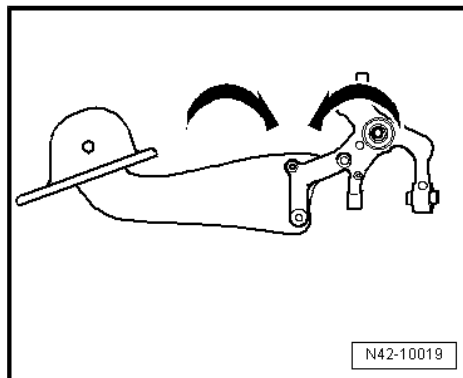
Installing

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



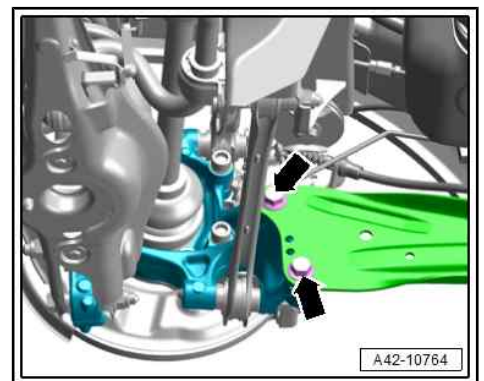
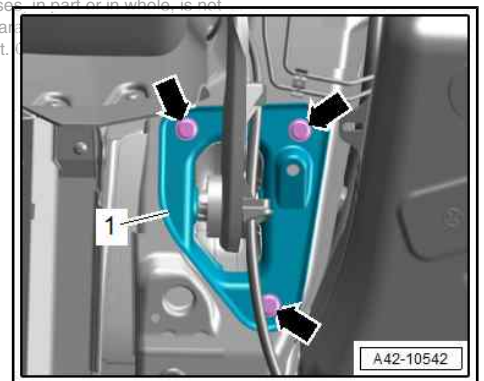
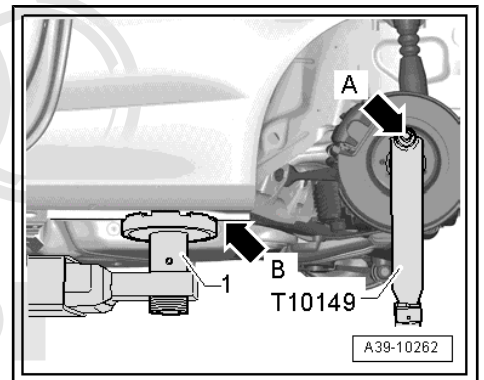
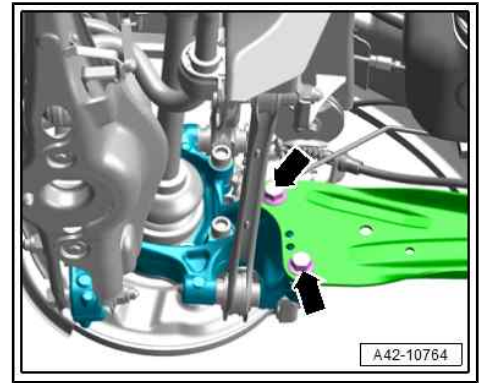
Installation position: Bolted connection between trailing arm and wheel bearing housing

Do not tighten bolts securing trailing arm to wheel bearing housing until all other suspension components (especially spring and shock absorber) on that side are fitted. The suspension must be in extended position before securing. The trailing arm and the wheel bearing housing will only then move into the required position -arrows-.



It is important to keep to the specified sequence for the following operations.

- Fit trailing arm and mounting bracket to wheel bearing housing with bolts -arrows- (do not tighten at this stage).
- Raise suspension with engine and gearbox jack - VAS 6931- and support - T10149- until mounting bracket makes contact with body.
- Tighten bolts -arrows- onto old impression marks or previously applied marks.
- Lower suspension with engine and gearbox jack - VAS 6931- and remove support - T10149- from wheel hub.
- Install spring ⇒ [page 232](#) .
- Tighten trailing arm bolts -arrows- to torque (ensure that components are positioned as required) ⇒ [page 266](#) .
- Overview table: when does wheel alignment have to be checked? ⇒ [page 310](#)



Tightening torques

- ◆ ⇒ ["7.2 Exploded view - trailing arm", page 240](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .

7.7 Servicing trailing arm

⇒ ["7.7.1 Servicing trailing arm - Audi A1 quattro", page 267](#)

⇒ ["7.7.2 Servicing trailing arm - Audi S1", page 270](#)

7.7.1 Servicing trailing arm - Audi A1 quattro

Special tools and workshop equipment required

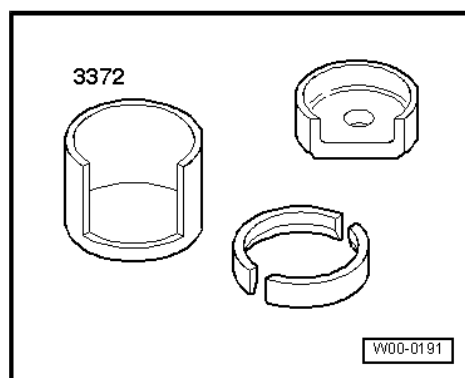
◆ Thrust plate - VW 401-



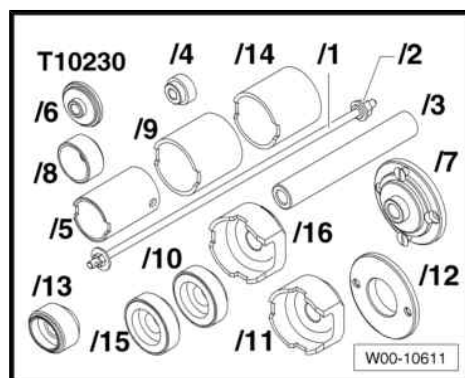
◆ Thrust plate - VW 402-



◆ Removal tool - 3372-



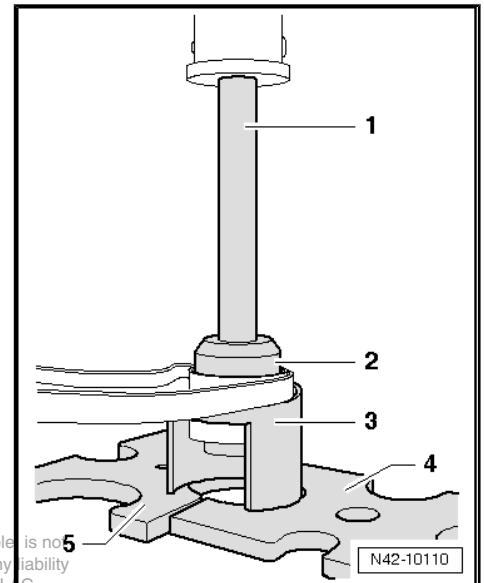
◆ Assembly tool - T10230-



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Pressing out bonded rubber bush

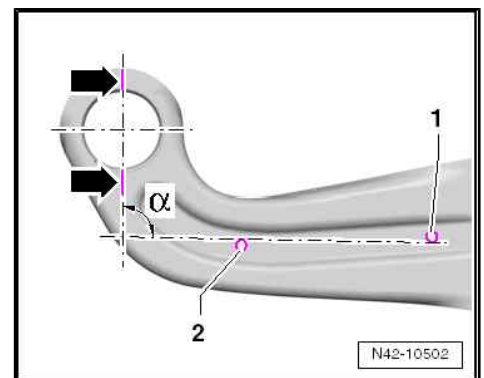
- Remove trailing arm ⇒ [page 261](#) .
- Apply tools as shown in illustration.
- 1 - Tube - T10230/3-
- 2 - Thrust piece - T10230/10-
- 3 - Removal tool - 3372-
- 4 - Thrust plate - VW 401-
- 5 - Thrust plate - VW 402-
- Press out bonded rubber bush.



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Pressing in bonded rubber bush

- Using a set square (right-angle gauge), mark position of bonded rubber bush on trailing arm.
- Position outer edge of set square on lower radius of hole -1- and upper radius of hole -2-.
- Make marks above and below bush of trailing arm -arrows-.
- $\alpha - 90^\circ$

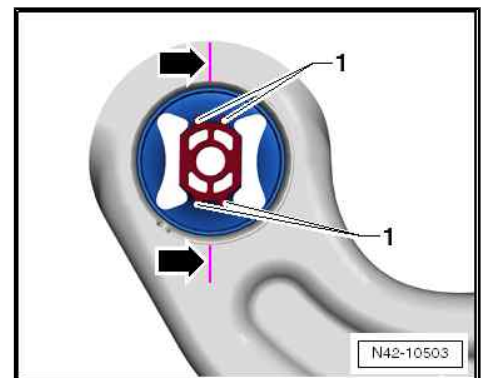


Position bonded rubber bush on trailing arm so that marked vertical line -arrows- lies between raised portions -1-.

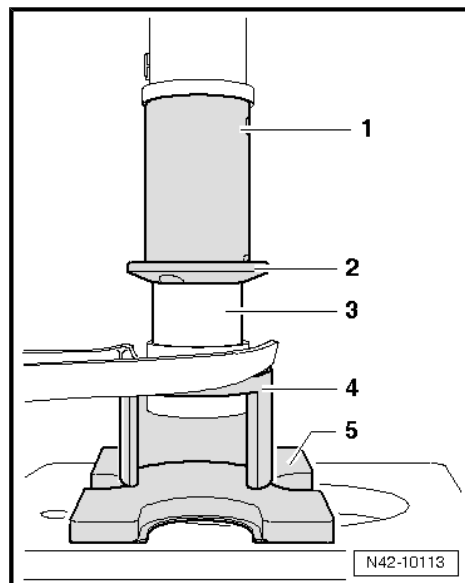


Note

It is very important that the bonded rubber bush is installed in the correct position relative to the bush of the trailing arm.



- Apply tools as shown in illustration.
- 1 - Tube - T10230/5-
- 2 - Thrust plate - T10230/12- (chamfer must face bonded rubber bush)
- 3 - Bonded rubber bush
- 4 - Removal tool - 3372-
- 5 - Thrust plate - VW 402-
- Press in bonded rubber bush until flush.
- Install trailing arm ⇒ [page 261](#) .

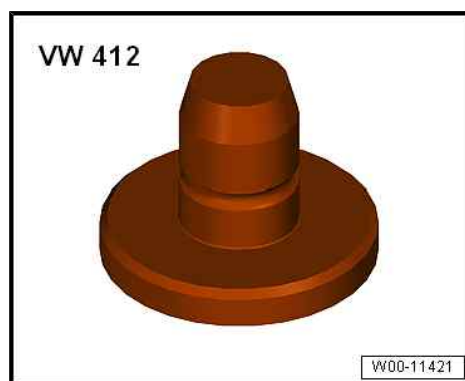


7.7.2 Servicing trailing arm - Audi S1

- ◆ Thrust plate - VW 402-

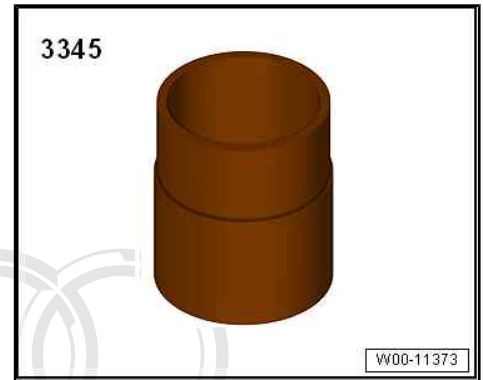


- ◆ Press tool - VW 412-

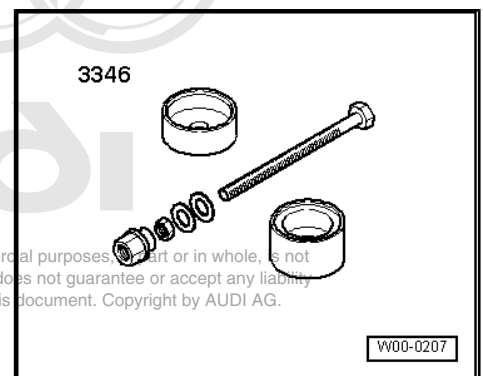


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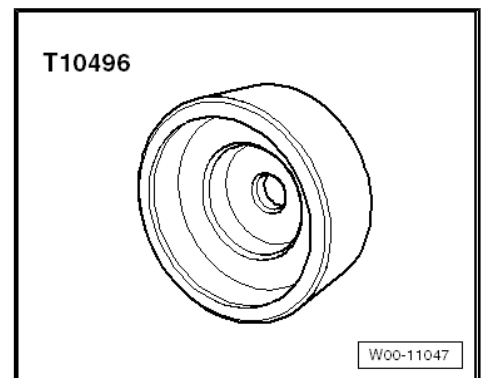
◆ Wheel bearing tube - 3345-



◆ Assembly tool - 3346-

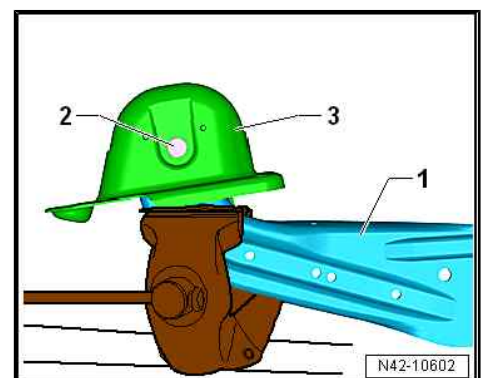


◆ Thrust piece - T10496-

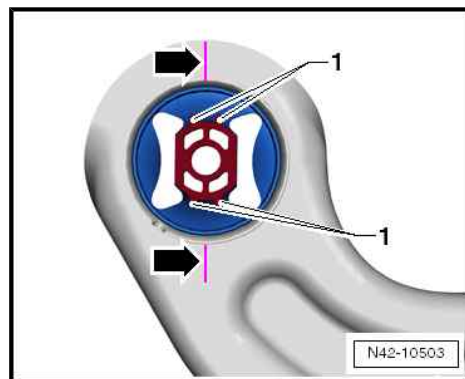


Procedure

- Remove trailing arm with mounting bracket => [page 264](#) .
- Clamp trailing arm -1- in vice using protective jaw covers.
- Unscrew bolt -2- and detach mounting bracket -3- from trailing arm.

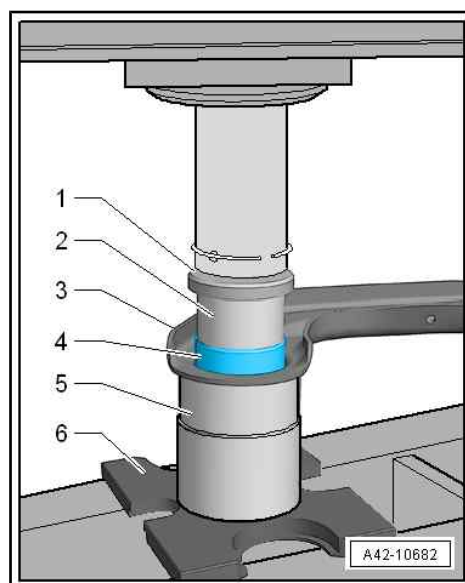


- Mark installation position of bonded rubber bush on trailing arm.
- To do so, make marks above and below bush of trailing arm -arrows- between raised sections -1-.



Pressing out bonded rubber bush

- Apply tools as shown in illustration.
- 1 - Press tool - VW 412-
- 2 - Tube -3346/1- from assembly tool - 3346-
- 3 - Trailing arm
- 4 - Bonded rubber bush
- 5 - Wheel bearing tube - 3345-
- 6 - Thrust plate - VW 401-
- Press out bonded rubber bush.



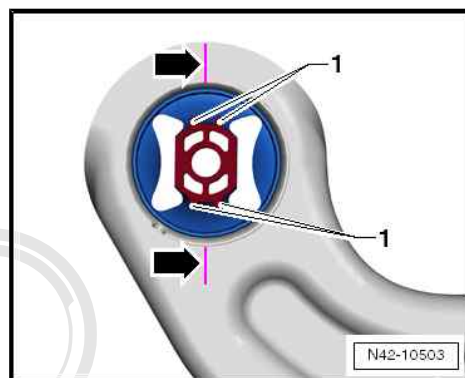
Pressing in bonded rubber bush

- Position bonded rubber bush on trailing arm so that marked vertical line -arrows- lies between raised portions -1-.

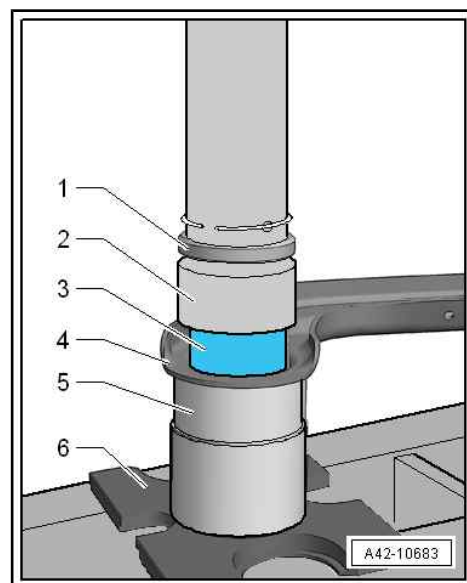


Note

It is very important that the bonded rubber bush is installed in the correct position relative to the bush of the trailing arm.



- Apply tools as shown in illustration.
- 1 - Press tool - VW 412-
- 2 - Thrust piece - T10496-
- 3 - Bonded rubber bush
- 4 - Trailing arm
- 5 - Wheel bearing tube - 3345-
- 6 - Thrust plate - VW 402-
- Press in bonded rubber bush.
- Assemble trailing arm with mounting bracket [⇒ page 266](#) .
- Install trailing arm with mounting bracket [⇒ page 264](#) .



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8 Drive shaft

⇒ ["8.1 Exploded view - drive shaft", page 274](#)

⇒ ["8.2 Removing and installing drive shaft", page 277](#)

⇒ ["8.3 Dismantling and assembling drive shaft", page 281](#)

⇒ ["8.4 Loosening and tightening bolt securing drive shaft", page 290](#)

⇒ ["8.5 Checking outer constant velocity joint", page 291](#)

⇒ ["8.6 Checking inner constant velocity joint", page 293](#)

8.1 Exploded view - drive shaft

⇒ ["8.1.1 Exploded view - drive shaft, Audi A1 quattro", page 274](#)

⇒ ["8.1.2 Exploded view - drive shaft, Audi S1", page 275](#)

8.1.1 Exploded view - drive shaft, Audi A1 quattro

1 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Removing ⇒ [page 284](#)
- ☐ Installing: drive onto shaft as far as stop using a plastic head hammer

2 - Bolt

- ☐ Always renew if removed
- ☐ Before securing, clean threads in stub axle using a thread tap
- ☐ Twelve-point flange bolt -WHT.005.437- / black: 200 Nm + turn 180° further ⇒ [page 290](#)
- ☐ Twelve-point flange bolt -WHT.005.437.A- / silver: 200 Nm + turn 90° further ⇒ [page 290](#)

3 - Drive shaft

- ☐ Removing and installing ⇒ [page 277](#)

4 - Hose clip

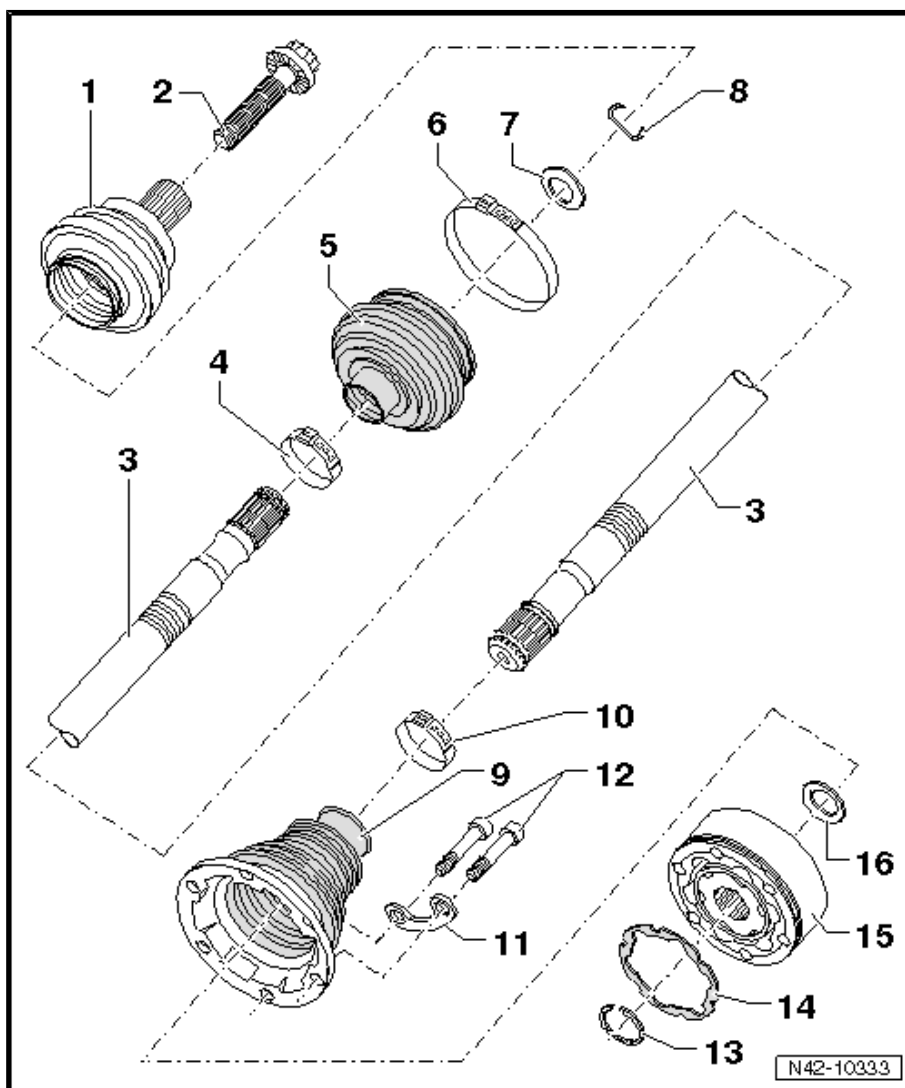
- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 286](#)

5 - Boot

- ☐ Check for splits and chafing

6 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 286](#)



7 - Dished spring

- ☐ With internal splines
- ☐ Installation position ⇒ [page 285](#)

8 - Circlip

- ☐ Always renew if removed
- ☐ Insert in groove on shaft

9 - Boot for constant velocity joint

- ☐ Without vent hole
- ☐ Check for splits and chafing
- ☐ Drive off constant velocity joint with a drift
- ☐ Before fitting on constant velocity joint, coat sealing surface with sealant - D 454 300 A2-

10 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 286](#)

11 - Lock plate

12 - Multi-point socket head bolt

- ☐ Always renew if removed
- ☐ Pre-tighten to 10 Nm
- ☐ Tighten to 20 Nm in diagonal sequence and turn 180° further

13 - Circlip

- ☐ Always renew if removed
- ☐ Remove and install using circlip pliers - VW 161 A-

14 - Gasket

- ☐ Always renew if removed
- ☐ Adhesive surface on constant velocity joint must be free of oil and grease

15 - Inner constant velocity joint

- ☐ Renew only as complete unit
- ☐ Pressing off ⇒ [page 285](#)
- ☐ Pressing on ⇒ [page 285](#)
- ☐ Checking ⇒ [page 293](#)

16 - Dished spring

- ☐ With internal splines
- ☐ Installation position ⇒ [page 285](#)

8.1.2 Exploded view - drive shaft, Audi S1

Grease ⇒ Electronic parts catalogue "ETKA"	Outer joint Ø	Inner joint Ø
	82 mm	100 mm
Total quantity	45 g	110 g

1 - Outer constant velocity joint

- ☐ Renew only as complete unit
- ☐ Removing ⇒ [page 289](#)
- ☐ Installing: drive onto shaft as far as stop using plastic hammer
- ☐ Distribute grease filling evenly in joint
- ☐ Checking ⇒ [page 291](#)

2 - Bolt

- ☐ Always renew if removed
- ☐ Before securing, clean the threads in the CV joint using a thread tap
- ☐ Twelve-point flange bolt -WHT.005.437- / black: 200 Nm + turn 180° further ⇒ [page 290](#)
- ☐ Twelve-point flange bolt -WHT.005.437.A- / silver: 200 Nm + turn 90° further ⇒ [page 290](#)

3 - Drive shaft

- ☐ Removing and installing ⇒ [page 279](#)

4 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 290](#)

5 - Boot

- ☐ Check for splits and chafing

6 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 290](#)

7 - Dished spring

- ☐ With internal splines
- ☐ Installation position ⇒ [page 289](#)

8 - Circlip

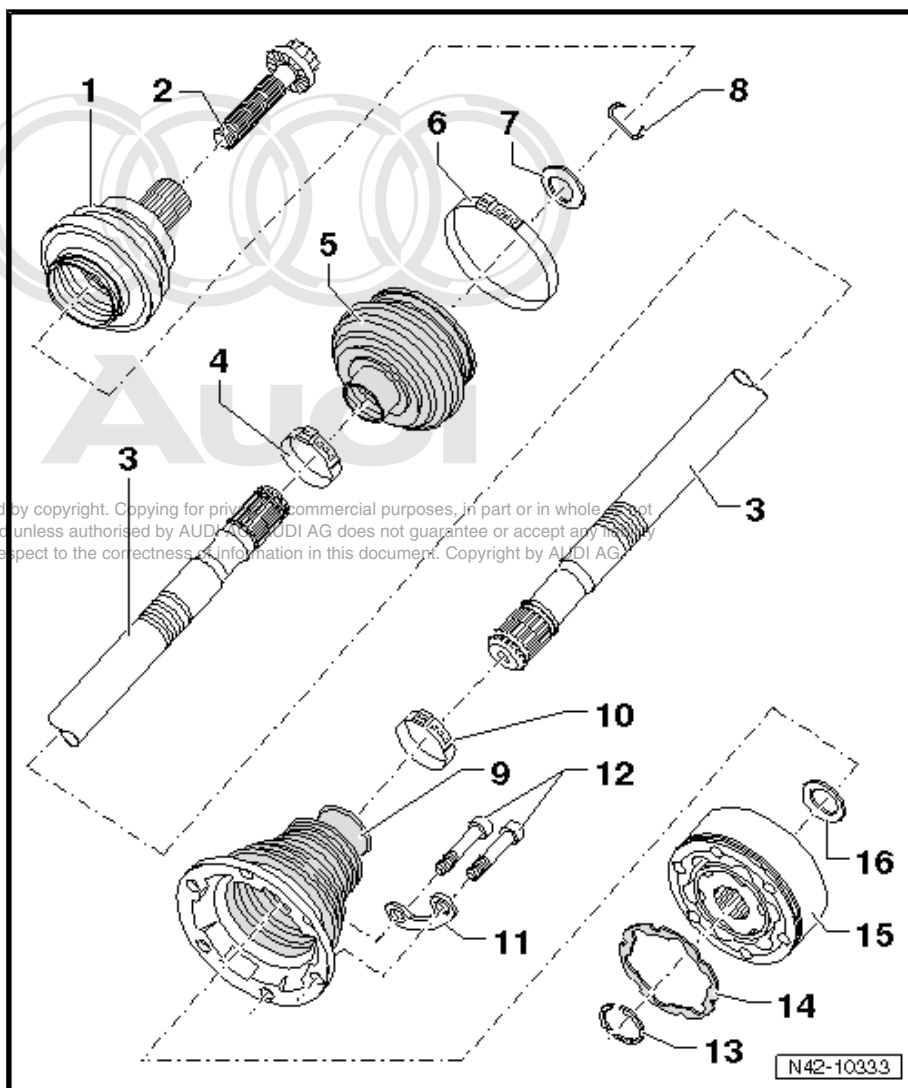
- ☐ Always renew if removed
- ☐ Insert in groove on shaft

9 - Boot for constant velocity joint

- ☐ Without vent hole
- ☐ Check for splits and chafing
- ☐ Drive off constant velocity joint with a drift
- ☐ Before fitting on constant velocity joint, coat sealing surface with sealant - D 454 300 A2-

10 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 290](#)



11 - Lock plate

12 - Multi-point socket head bolt

- ☐ Always renew if removed
- ☐ Pre-tighten to 10 Nm
- ☐ Tighten to 20 Nm in diagonal sequence and turn 180° further

13 - Circlip

- ☐ Always renew if removed
- ☐ Remove and install using circlip pliers - VW 161 A-

14 - Gasket

- ☐ Always renew if removed
- ☐ Adhesive surface on constant velocity joint must be free of oil and grease

15 - Inner constant velocity joint

- ☐ Renew only as complete unit
- ☐ Distribute grease filling evenly in joint
- ☐ Pressing off ⇒ [page 289](#)
- ☐ Pressing on ⇒ [page 290](#)
- ☐ Checking ⇒ [page 293](#)

16 - Dished spring

- ☐ With internal splines
- ☐ Installation position ⇒ [page 289](#)

8.2 Removing and installing drive shaft

⇒ ["8.2.1 Removing and installing drive shaft - Audi A1 quattro", page 277](#)

⇒ ["8.2.2 Removing and installing drive shaft - Audi S1", page 279](#)

8.2.1 Removing and installing drive shaft - Audi A1 quattro

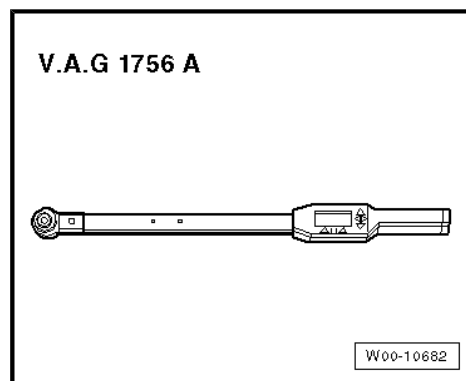
Special tools and workshop equipment required

◆ Torque wrench - V.A.G 1332-

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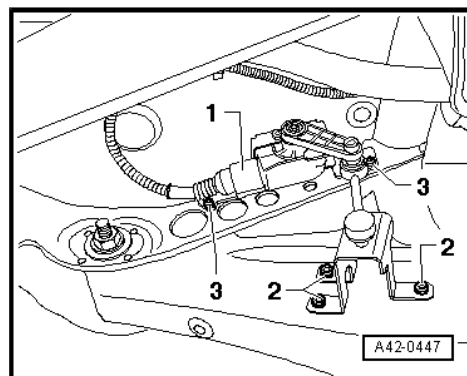


- ◆ Angle wrench - V.A.G 1756 A-

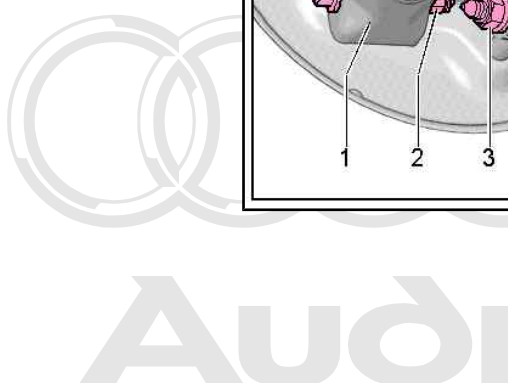
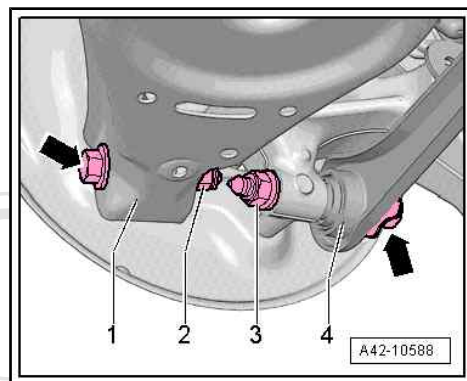


Removing

- Loosen bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove coil spring ⇒ [page 230](#) .
- Remove bolts -2-.



- Remove bolts -arrows- for lower suspension link -1- and track rod -4- from wheel bearing housing.



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- Unscrew bolt -1- and remove together with washer -2-.
- Detach drive shaft from final drive.
- Pivot wheel bearing housing outwards and pull drive shaft out of internal splines.
- Take out drive shaft.

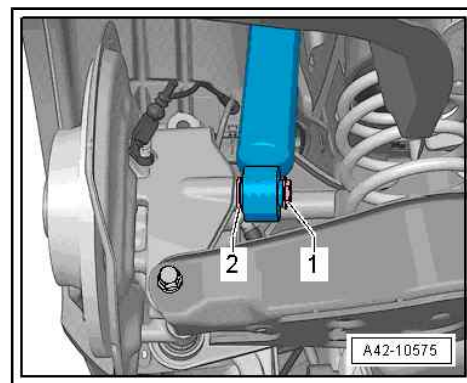
Installing

Install in reverse sequence, paying attention to the following:

- Before fitting the outer joint in the wheel hub, apply a thin coat of assembly paste to the splines on the outer joint → Electronic parts catalogue “ETKA” .
- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Tighten bolt securing drive shaft at wheel hub ⇒ [page 290](#) .

Tightening torques

- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“7.1.2 Exploded view - wheel bearing, Audi A1 quattro”, page 237](#)
- ◆ ⇒ [“6.1.2 Exploded view - suspension strut/shock absorber, spring, Audi A1 quattro”, page 215](#)
- ◆ ⇒ [“4.1.1 Exploded view - anti-roll bar, Audi A1 quattro”, page 190](#)
- ◆ ⇒ [“8.1.1 Exploded view - drive shaft, Audi A1 quattro”, page 274](#)



8.2.2 Removing and installing drive shaft - Audi S1

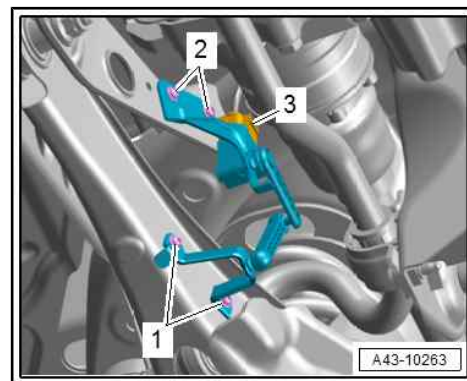
Removing

- Before commencing work, measure distance from wheel centre to lower edge of wheel housing and note measured value ⇒ [page 11](#) .
- Loosen bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- Remove wheel ⇒ [page 303](#) .
- Remove spring ⇒ [page 232](#) .
- Remove anti-roll bar ⇒ [page 193](#) .
- Unscrew bolts -1- on linkage for rear vehicle level sender.



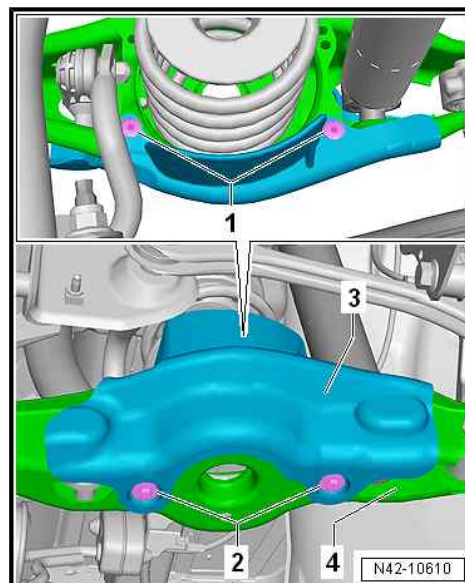
Note

Disregard items -2 and 3-.



Vehicles with stone deflector

- Remove spreader rivets -1-.
- Unscrew bolts -2- and detach stone deflector -3-.



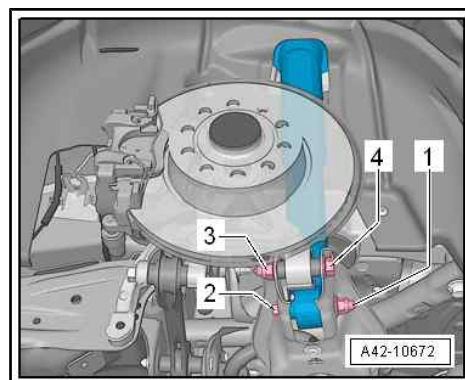
All vehicles (continued):

- Unscrew nut -3- and remove bolt -4-.



Note

Disregard items -1 and 2-.



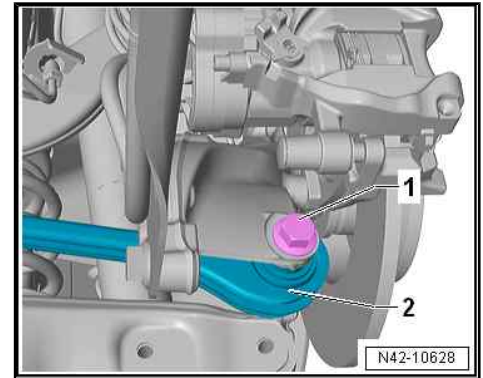
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- Unscrew bolt -1- for track rod -2- and remove.
- Disconnect drive shaft from rear final drive.
- Pivot wheel bearing housing outwards and pull drive shaft off rear final drive.
- Pull drive shaft out of wheel hub and remove towards centre of vehicle.

Installing

Install in reverse sequence, paying attention to the following:

- Tighten bolts with axle in unladen position ⇒ [page 11](#) .
- Before fitting the outer joint in the wheel hub, apply a thin coat of assembly paste to the splines on the outer joint ⇒ Electronic parts catalogue "ETKA" .
- Tighten bolt securing drive shaft at wheel hub ⇒ [page 290](#) .
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .



Tightening torques

- ◆ ⇒ ["5.1.2 Exploded view - transverse links, Audi S1", page 200](#)
- ◆ ⇒ ["5.1.3 Exploded view - track rod, Audi S1", page 202](#)
- ◆ ⇒ ["6.1.3 Exploded view - suspension strut/shock absorber, spring, Audi S1", page 216](#)
- ◆ ⇒ ["2.2.3 Removing and installing rear vehicle level sender - Audi S1", page 301](#)
- ◆ ⇒ ["8.1 Exploded view - drive shaft", page 274](#)
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)

8.3 Dismantling and assembling drive shaft

⇒ ["8.3.1 Dismantling and assembling drive shaft - Audi A1 quattro", page 281](#)

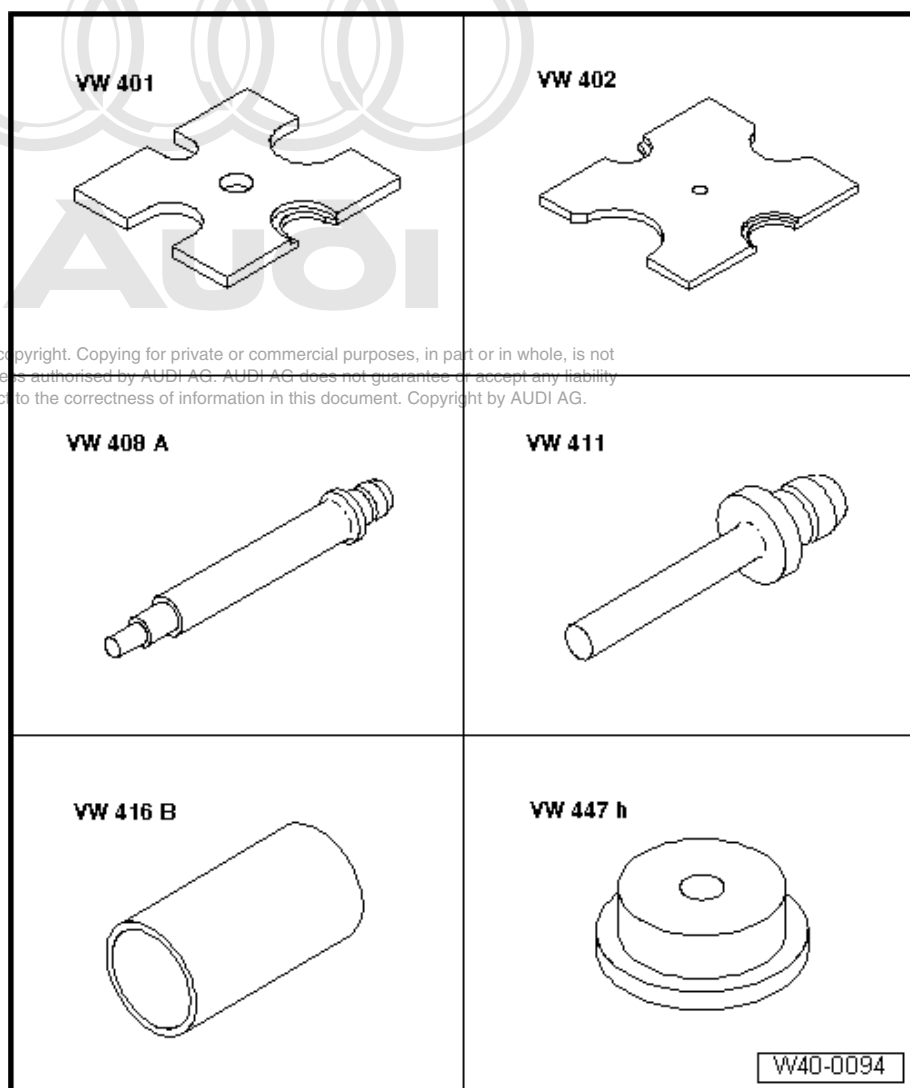
⇒ ["8.3.2 Dismantling and assembling drive shaft - Audi S1", page 286](#)

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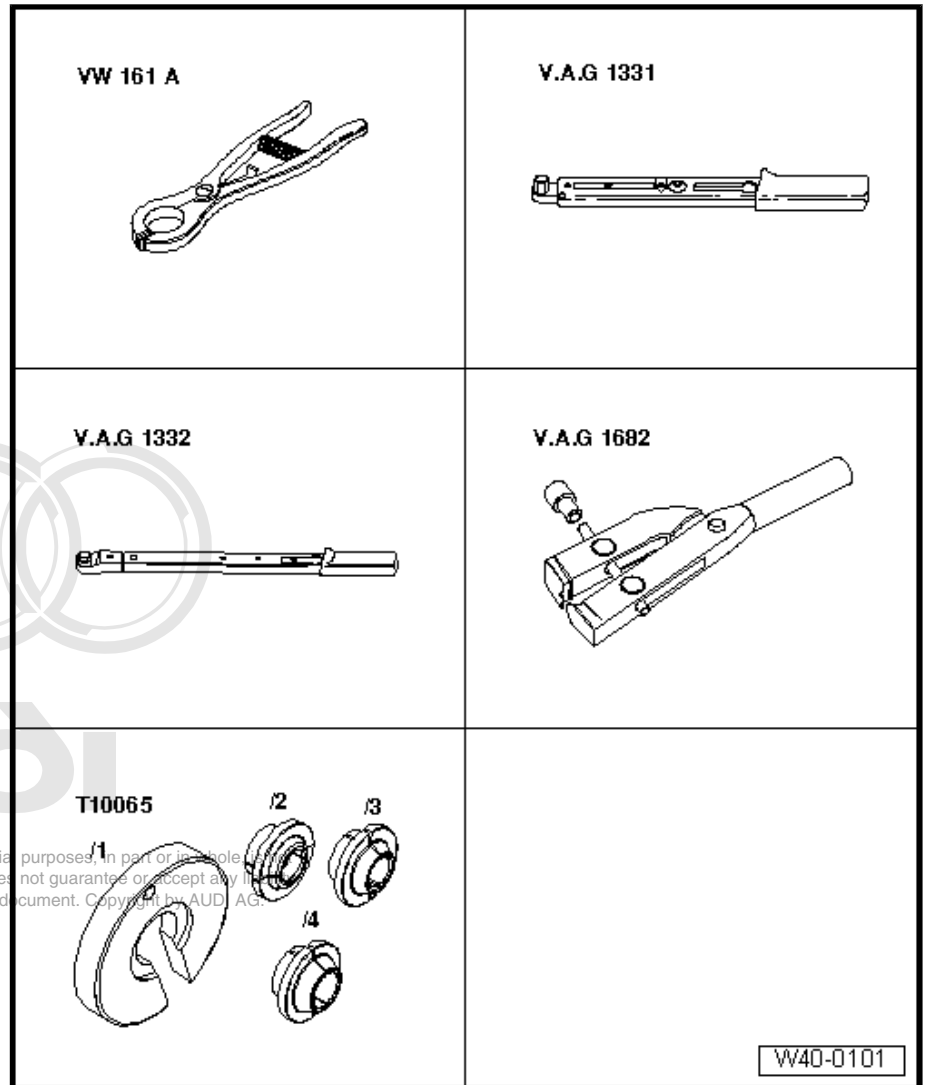
8.3.1 Dismantling and assembling drive shaft - Audi A1 quattro

Special tools and workshop equipment required

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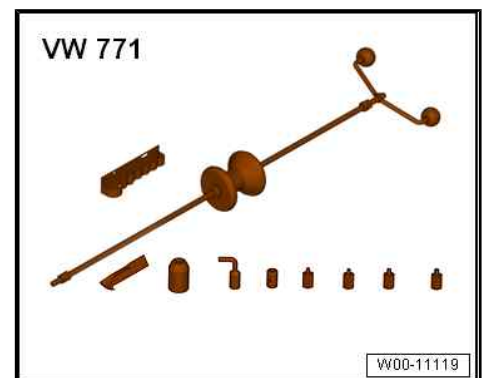


- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 408 A-
- ◆ Press tool - VW 411-
- ◆ Tube - VW 416 B-
- ◆ Thrust pad - VW 447 H-



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- ◆ Circlip pliers - VW 161 A-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Clamp tensioner - V.A.G 1682 A-
- ◆ Assembly tool - T10065-
- ◆ Multi-purpose tool - VW 771-

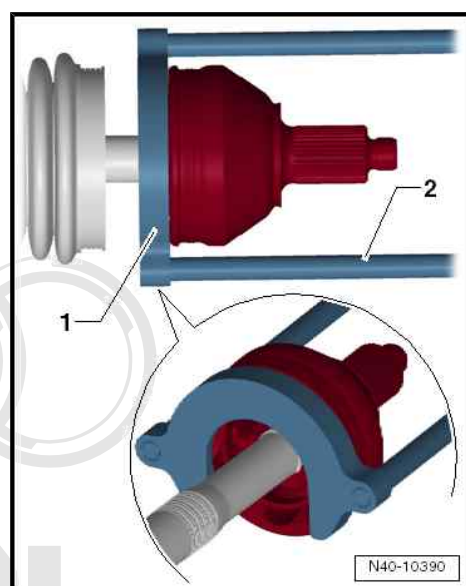


◆ Puller - T10382-



Removing outer constant velocity joint

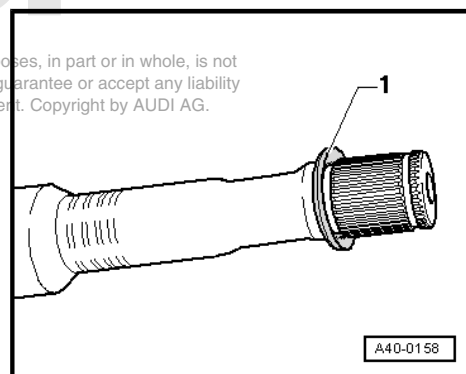
- Clamp drive shaft in vice using protective jaw covers.
 - Fold back rubber boot.
 - Set up puller - T10382- so that smooth side of puller plate - T10382/1- faces towards spindles - T10382/2- .
 - Assemble puller - T10382- together with multi-purpose tool - VW 771- .
 - Pull CV joint off drive shaft using puller - T10382- and multi-purpose tool - VW 771- .
- 1 - Puller plate - T10382/1-
 - 2 - Spindles - T10382/2-



Driving on outer constant velocity joint

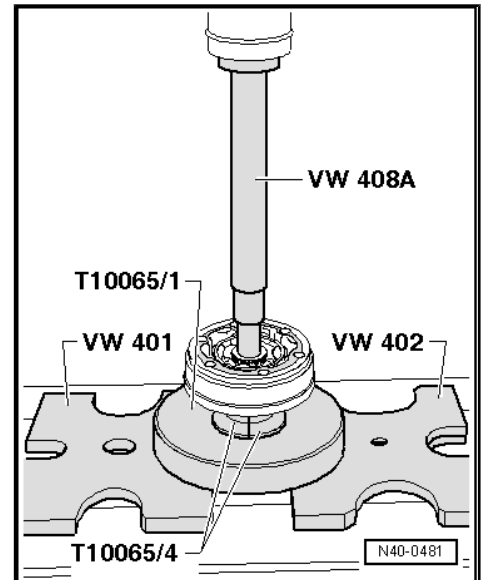
Installation position of dished spring and spacer ring at outer joint

- 1 - Dished spring
 - Install new circlip.
 - If necessary, push new joint boot onto drive shaft.
 - Knock joint onto shaft with plastic hammer until circlip engages.



Pressing off inner constant velocity joint

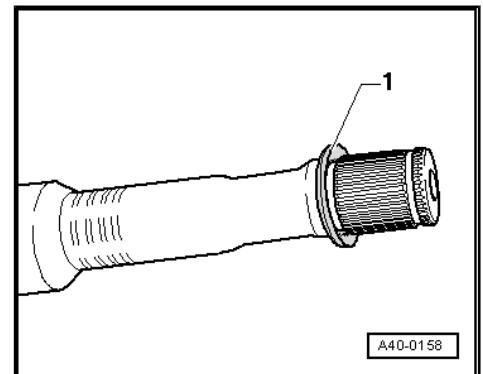
- Use a drift to press boot off joint.
- Remove circlip.
- Detach both hose clips and slide boot towards outer joint.



Assembling

Installation position of dished spring at inner and outer joint

- 1 - Dished spring



Pressing on inner constant velocity joint

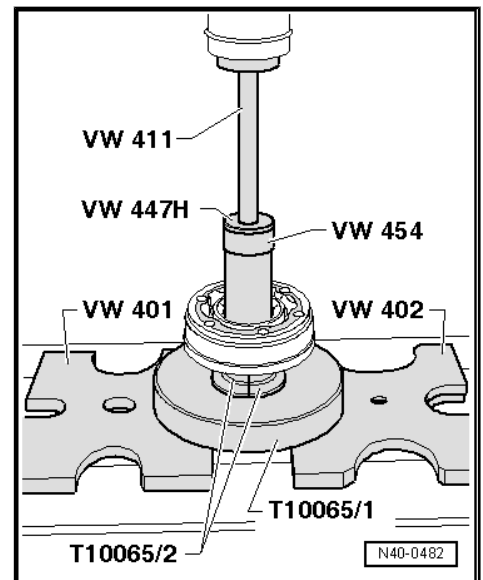


Note

Chamfer on internal diameter of ball hub (splines) must face contact collar of drive shaft.

- Press on joint as far as stop.

- Engage circlip.



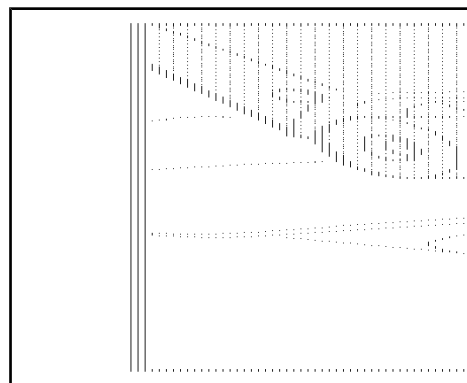
Tightening hose clip on outer joint

- Apply clamp tensioner - V.A.G 1682 A- as shown. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle with torque wrench (take care to keep tool straight).

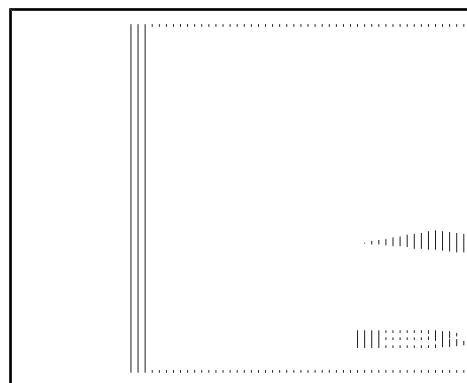


Note

- ◆ Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A- .
- ◆ Tightening torque: 25 Nm.
- ◆ Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.
- ◆ If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.



Tightening hose clip at small diameter of boot

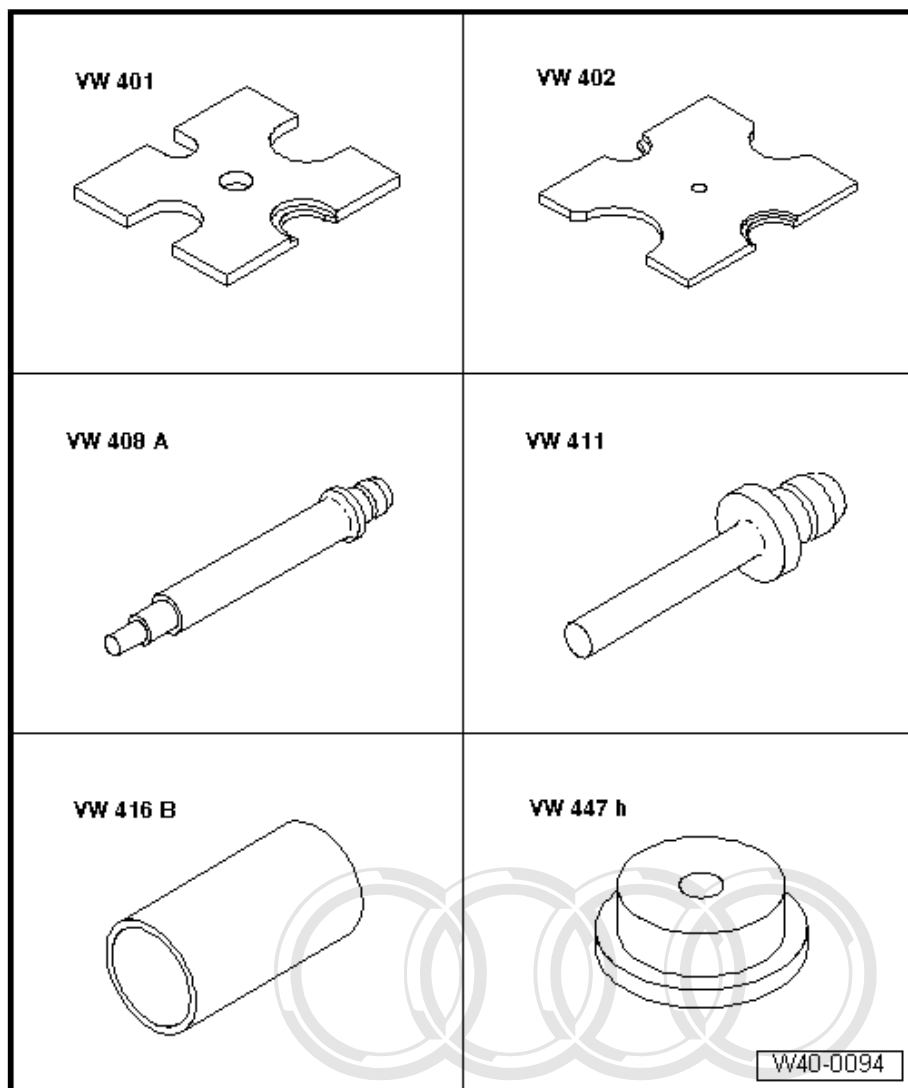


8.3.2 Dismantling and assembling drive shaft - Audi S1



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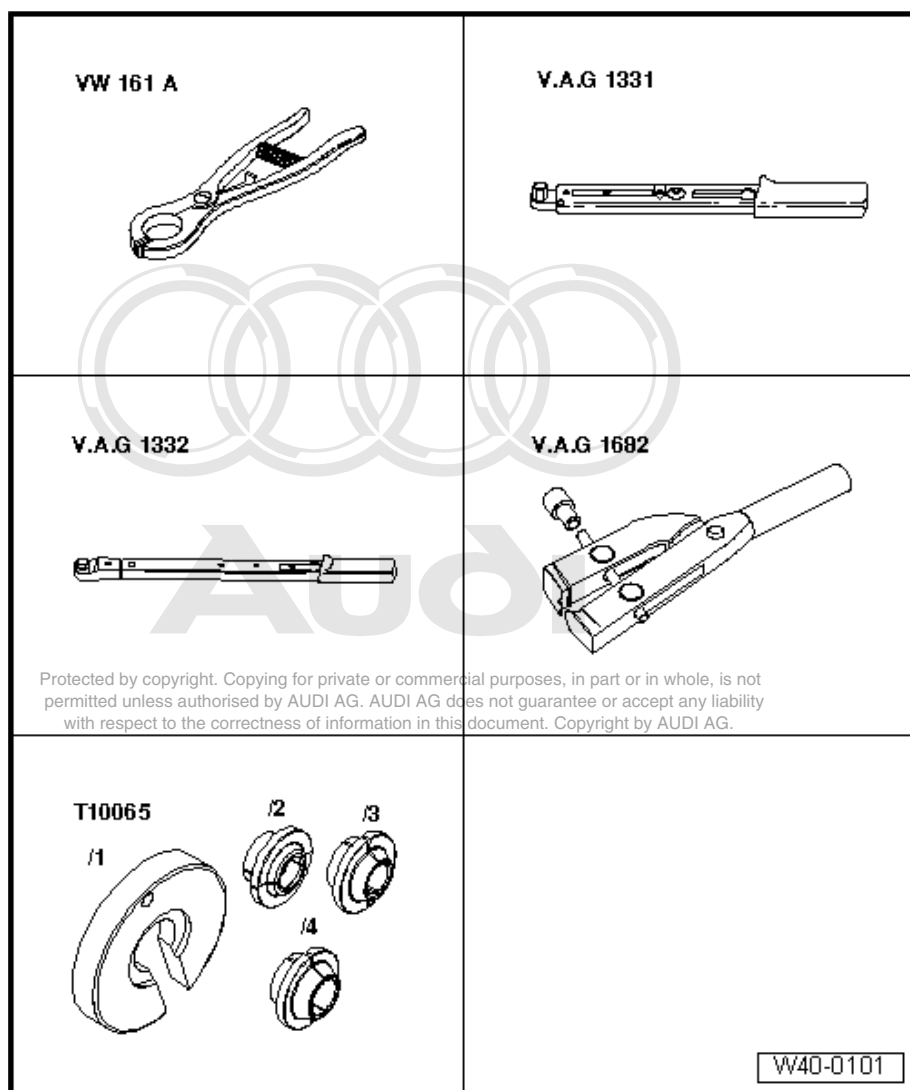
Special tools and workshop equipment required



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

Audi

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- ◆ Circlip pliers - VW 161 A-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Clamp tensioner - V.A.G 1682 A-
- ◆ Assembly tool - T10065-

Dismantling constant velocity joint

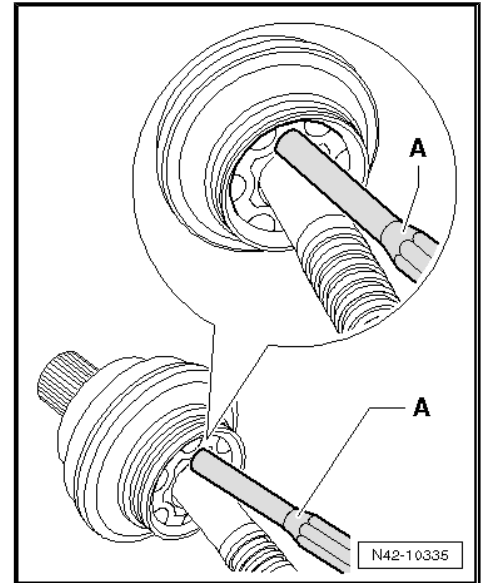
Driving off outer constant velocity joint

- Clamp drive shaft in vice using protective jaw covers.
- Fold back rubber boot.
- Drive constant velocity joint off drive shaft using a drift -A-.

The drift must be applied exactly on the ball hub of the constant velocity joint.

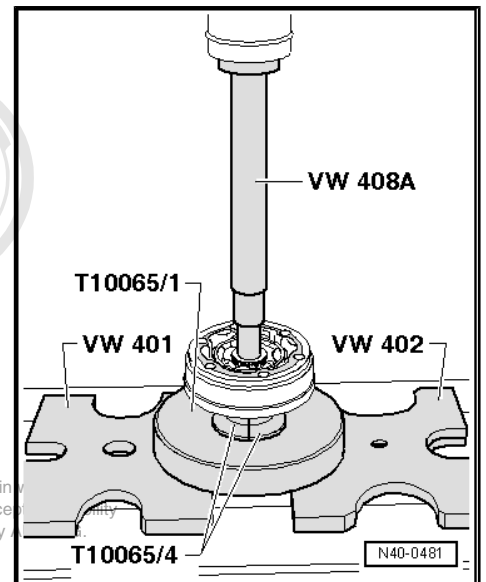
Installing joint

- Knock joint onto shaft with plastic hammer until circlip engages.



Pressing off inner constant velocity joint

- Use a drift to press boot off joint.
- Remove circlip.
- Detach both hose clips and slide boot towards outer joint.

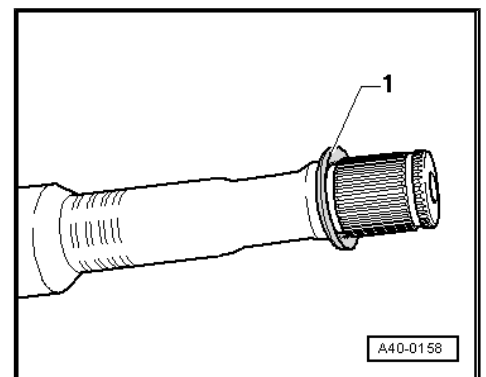


Assembling

Installation position of dished spring at inner and outer joint

1 - Dished spring

- Press on joint as far as stop.
- Engage circlip.



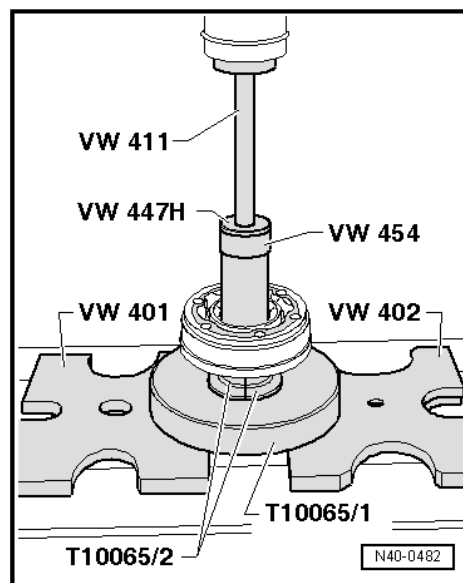
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Pressing on inner constant velocity joint



Note

Chamfer on internal diameter of ball hub (splines) must face contact collar of drive shaft.



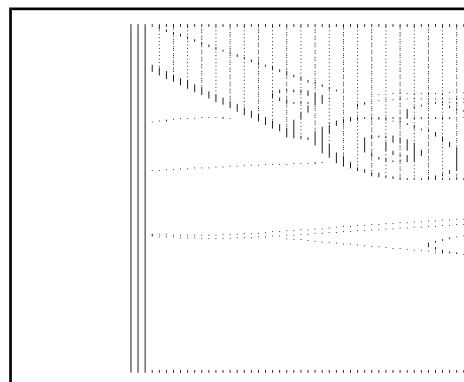
Tightening hose clip on outer joint

- Apply clamp tensioner - V.A.G 1682 A- as shown. Ensure jaws of tool make contact with lugs -arrows B- on hose clip.
- Tighten hose clip by turning spindle -A- with torque wrench (take care to keep clamp tensioner straight).
- ◆ Tightening torque: 25 Nm.

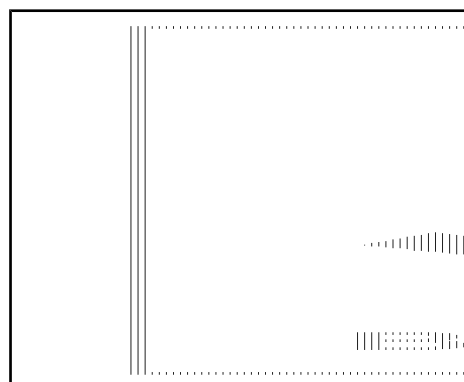


Note

- ◆ Due to the hard material of the CV joint boot (as opposed to rubber), a stainless steel hose clip is required; this can only be tightened using clamp tensioner - V.A.G 1682 A- .
- ◆ Make sure thread of spindle -A- on clamp tensioner moves freely. Lubricate with MoS₂ grease if necessary.
- ◆ If the thread is stiff (e.g. due to dirt), the required clamping force will not be attained at the hose clip when the specified tightening torque is applied.



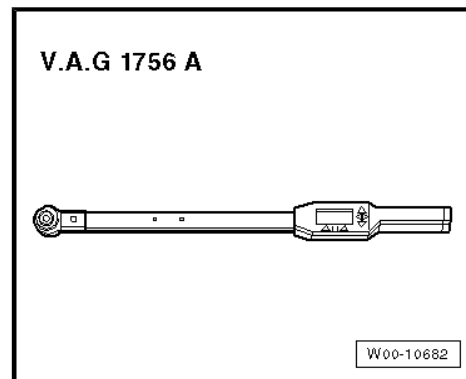
Tightening hose clip at small diameter of boot



8.4 Loosening and tightening bolt securing drive shaft

Special tools and workshop equipment required

- ◆ Angle wrench - V.A.G 1756 A-



- ◆ Socket AF 24 mm - T10361 A-



Loosening 12-point bolt

- To avoid damage to wheel bearing, slacken off 12-point bolt no further than 90° with vehicle still standing on its wheels, using socket AF 24 mm - T10361 A-.
- Raise vehicle so that wheels are off the ground.
- Have a second mechanic press the brake pedal.
- Remove 12-point bolt -arrow-

Installing 12-point bolt

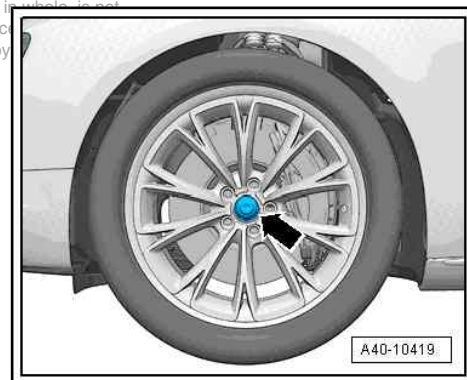
- Renew 12-point bolt.



Note

The wheels must not be in contact with the ground when initially tightening the drive shaft bolt; otherwise the wheel bearing can be damaged.

- Have a second mechanic press the brake pedal.
- Tighten 12-point bolt to 200 Nm.
- Lower vehicle onto its wheels.
- Turn 12-point bolt -WHT.005.437- / black 180° further.
- Turn 12-point bolt -WHT.005.437.A- / silver 90° further.

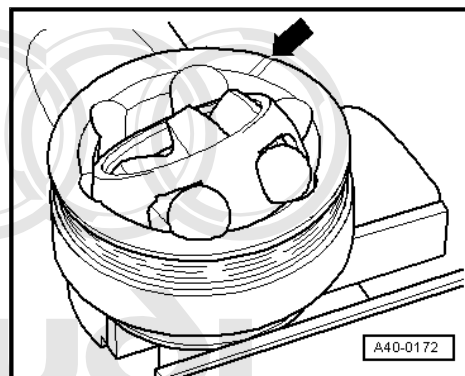


8.5 Checking outer constant velocity joint

The joint should be dismantled to renew dirty grease or for checking the balls and ball races for wear and damage.

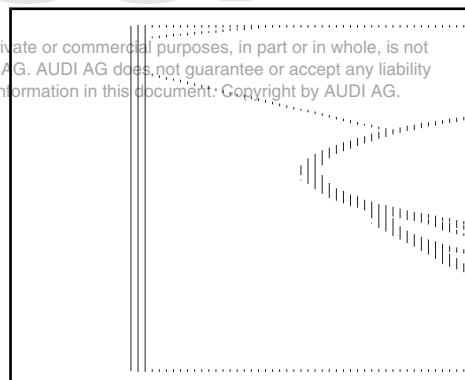
Removing

- Before dismantling, mark position of ball hub in relation to ball cage and joint body with an electric scribe or oil stone -arrow-.
- Swivel ball hub and ball cage.
- Take out balls one after the other.



- Turn the cage until the two rectangular openings -arrow- are level with the joint body.
- Lift out cage together with hub.

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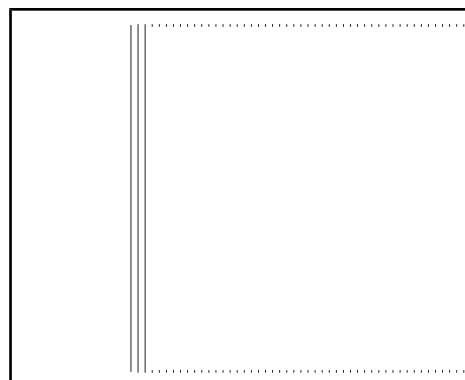
- Swivel one segment of hub into rectangular opening of cage.
- Pivot hub out of cage.

The 6 balls in each joint belong to one tolerance group. Check stub axle, hub, cage and balls for pitting and signs of seizure. Excessive backlash in the joint will cause knocking or jolts under load change; in such cases the joint must be renewed. Polished areas and visible tracks in the ball races do not justify renewal of the joint.

Installing

- Pack half of total grease quantity (40 g) into joint body.
- Fit cage with hub into joint body.
- Press in balls one after the other from opposite sides, taking care to re-establish original position of hub relative to cage and joint body.
- Fit new circlip into hub.
- Distribute remaining grease in boot.
- Check function of constant velocity joint.

The constant velocity joint has been correctly assembled if the ball hub can be moved by hand backwards and forwards over its entire axial range of movement.



8.6 Checking inner constant velocity joint

Removing

The joint should be dismantled to renew dirty grease or for checking the balls and ball races for wear and damage.

- Swivel ball hub and ball cage.
- Push out joint body in direction of -arrow-.
- Push balls out of cage.



Note

Ball hub and joint body are paired. Do not interchange.

- Align ball hub with cage as shown -arrows- and pivot hub out of cage.
- Check joint, ball hub, ball cage and balls for pitting and signs of seizure.

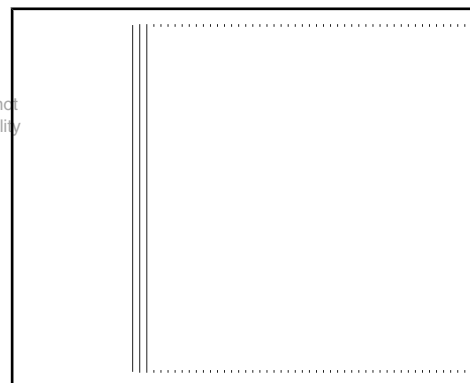
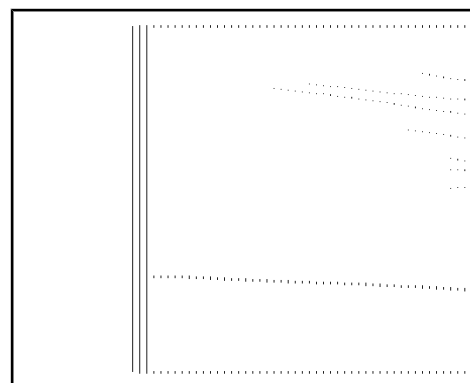
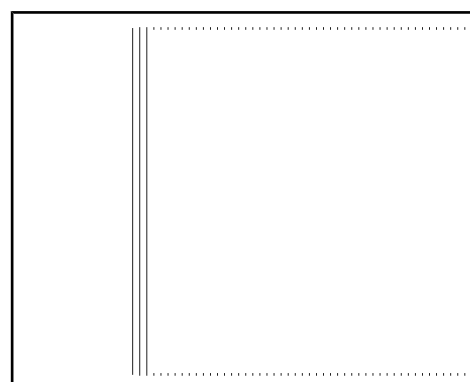
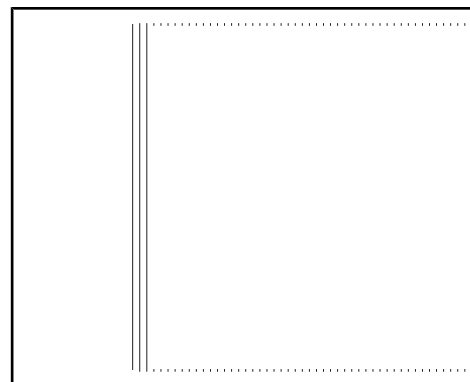
Excessive backlash in the joint will cause knocking or jolts under load change. In such cases the joint must be renewed. Polished areas and visible tracks in the ball races are not a reason for renewing the joint.

Installing

- Insert hub into cage via the two chamfers. No specific installation position is required. Push balls into cage.

There are two different spacings between the ball races on the hub: one is wider and one narrower.

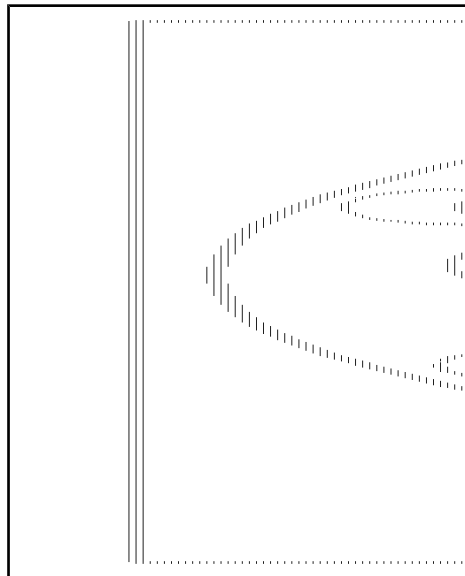
- Insert hub with cage and balls perpendicularly into joint body; one of the narrower spacings -b- must face the open side of the joint body.
- Note that the chamfer on the internal diameter of the ball hub must be visible after the hub has been swivelled into position.



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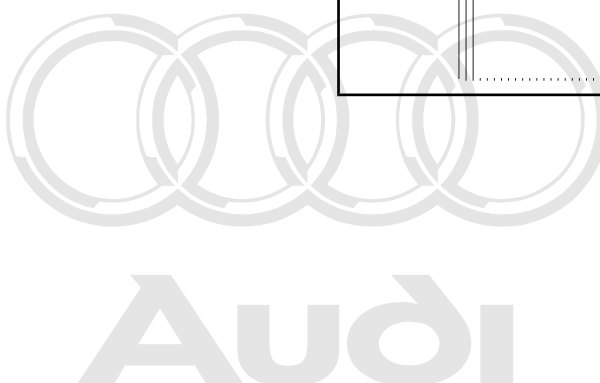
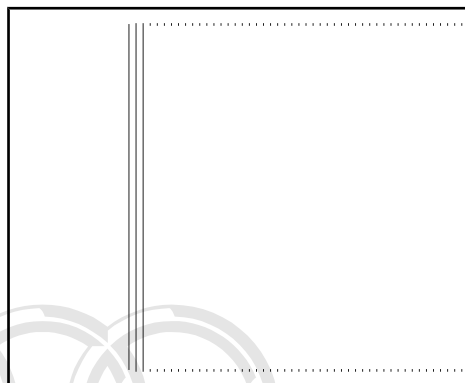


- Swivel ball hub into joint body; at the same time hub must be partly swivelled out of cage -arrows- as shown in illustration.



- Swivel in the hub with balls by applying firm pressure on the cage -arrow-.
- Check function of constant velocity joint.

The constant velocity joint has been correctly assembled if the ball hub can be moved by hand backwards and forwards over its entire axial range of movement.



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43 – Self-levelling suspension

1 Electronic damping control

⇒ [“1.1 Overview of fitting locations - electronic damping control”, page 295](#)

⇒ [“1.2 Removing and installing electronically controlled damping control unit J250”, page 295](#)

1.1 Overview of fitting locations - electronic damping control

1 - Shock absorber with front left shock absorber damper adjustment valve - N336-

- ❑ Removing and installing suspension strut ⇒ [page 44](#)
- ❑ Servicing suspension strut ⇒ [page 49](#)

2 - Shock absorber with front right shock absorber damper adjustment valve - N337-

- ❑ Removing and installing suspension strut ⇒ [page 44](#)
- ❑ Servicing suspension strut ⇒ [page 49](#)

3 - Electronically controlled damping control unit - J250-

- ❑ Location: on right or left behind dash panel
- ❑ Removing and installing ⇒ [page 295](#)

4 - Shock absorber with rear right shock absorber damper adjustment valve - N339-

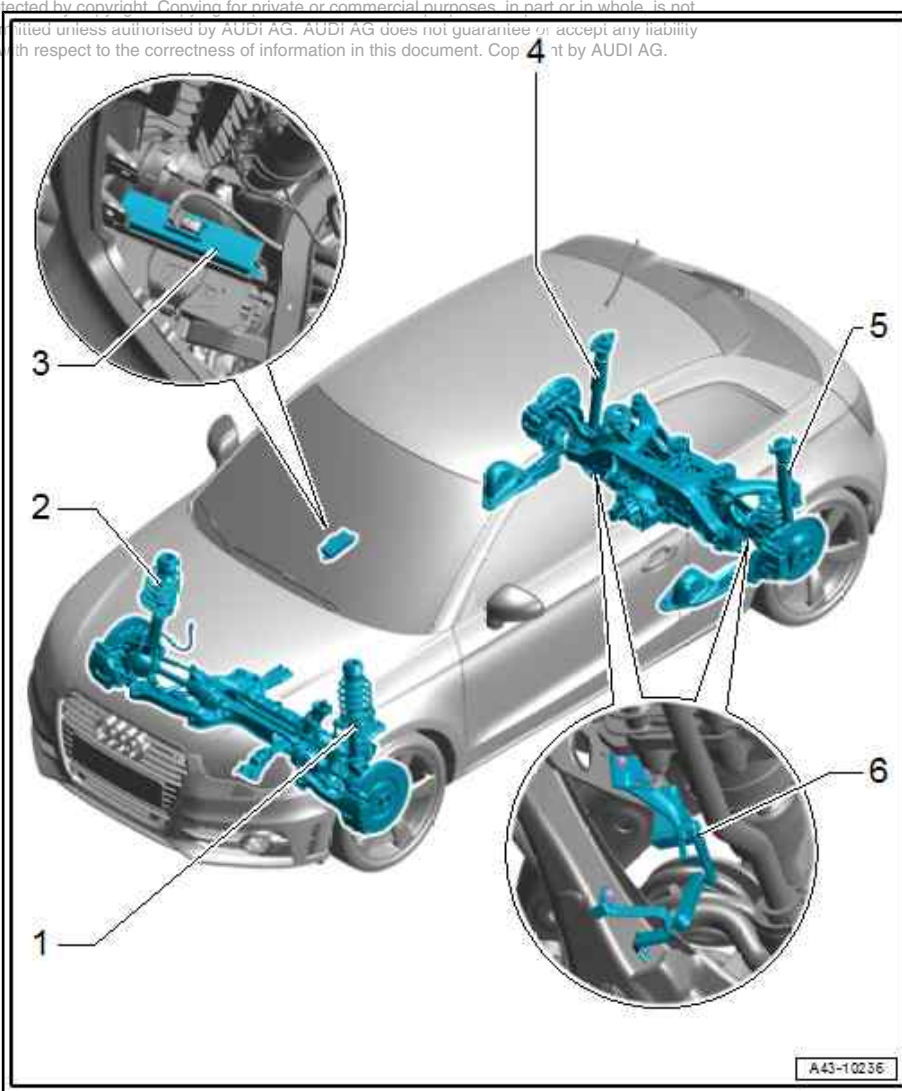
- ❑ Removing and installing ⇒ [page 221](#)
- ❑ Servicing ⇒ [page 226](#)

5 - Shock absorber with rear left shock absorber damper adjustment valve - N338-

- ❑ Removing and installing ⇒ [page 221](#)
- ❑ Servicing ⇒ [page 226](#)

6 - Rear left vehicle level sender - G76-

- ❑ Removing and installing ⇒ [page 301](#)



1.2 Removing and installing electronically controlled damping control unit - J250-

Special tools and workshop equipment required

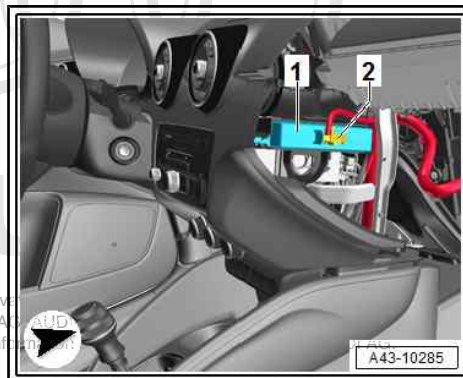
- ◆ Vehicle diagnostic tester

Removing

- Remove glove box ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/trim panels; Removing and installing glove box .
- Unplug electrical connector -2-.

Left-hand drive vehicles:

- Unclip electronically controlled damping control unit - J250- -item 1- from bracket and remove control unit.



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Right-hand drive vehicles:

- Unclip electronically controlled damping control unit - J250- -item 1- from bracket and remove control unit.

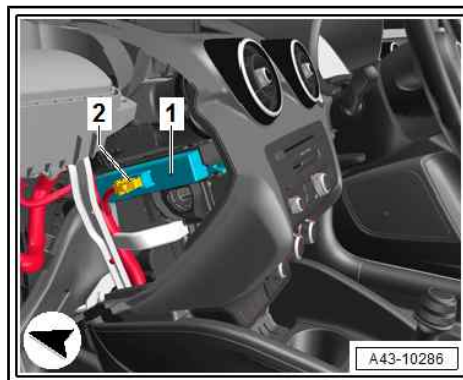
Installing

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

- Function “Replace control unit” must be performed with ⇒ Vehicle diagnostic tester if electronically controlled damping control unit - J250- has been renewed.

VAS PC:

- ⇒ Vehicle diagnostic tester is connected.
- Select **Guided Fault Finding** mode.
- Press the **Go to** button, select the option “Function/component selection” and then select the following menu items:
 - ◆ Body
 - ◆ Electrical system
 - ◆ 01 - Self-diagnosis compatible systems



ODIS - Offboard Diagnostic Information System:

- ⇒ Vehicle diagnostic tester is connected.
- Select **Diagnosis** mode and begin diagnosis.
- Select **Test plan** tab.
- Choose **Select own test** and select following options one after the other:
 - ◆ Body
 - ◆ Electrical system
 - ◆ 01 - Self-diagnosis compatible systems

Both types of vehicle diagnostic tester (continued):

From this point you are guided through the calibration procedure by the ⇒ Vehicle diagnostic tester.

2 Vehicle level senders

⇒ [“2.1 Exploded view - rear vehicle level sender”, page 297](#)

⇒ [“2.2 Removing and installing rear vehicle level sender”, page 300](#)

2.1 Exploded view - rear vehicle level sender

⇒ [“2.1.1 Exploded view - rear vehicle level sender, Audi A1 with front-wheel drive”, page 297](#)

⇒ [“2.1.2 Exploded view - rear vehicle level sender, Audi A1 quattro”, page 298](#)

⇒ [“2.1.3 Exploded view - rear vehicle level sender, Audi S1”, page 299](#)

2.1.1 Exploded view - rear vehicle level sender, Audi A1 with front-wheel drive



Note

The vehicle level sender is available as a replacement part only complete with coupling rod and retaining plate.

1 - Bolt

- ☐ 20 Nm

2 - Rear left vehicle level sender - G76-

- ☐ Complete with mounting parts
- ☐ Removing and installing ⇒ [page 300](#)
- ☐ Perform basic setting of headlights after renewing ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights

3 - Bolt

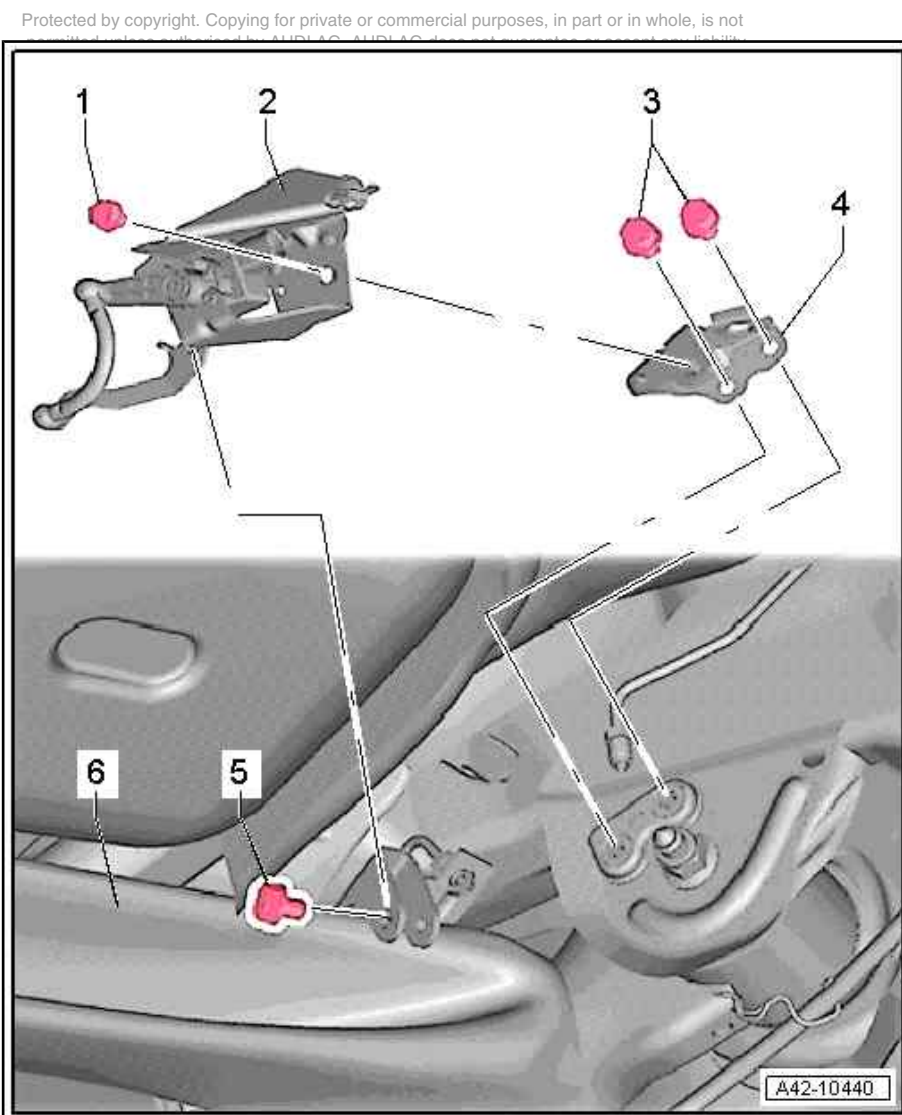
- ☐ Depending on version: 1x or 2x
- ☐ 20 Nm

4 - Bracket

5 - Bolt

- ☐ 15 Nm

6 - Axle beam



2.1.2 Exploded view - rear vehicle level sender, Audi A1 quattro



Note

- ◆ The vehicle level sender is only available as a replacement part complete with coupling rod and upper and lower retaining plates.
- ◆ Renewing without removing subframe ⇒ [page 300](#).

1 - Bolt

- 5 Nm

2 - Rear left vehicle level sender - G76-

- Complete with mounting parts
- Lever must face outwards
- Renewing in vehicle ⇒ [page 300](#)
- Perform basic setting of headlights after renewing ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights

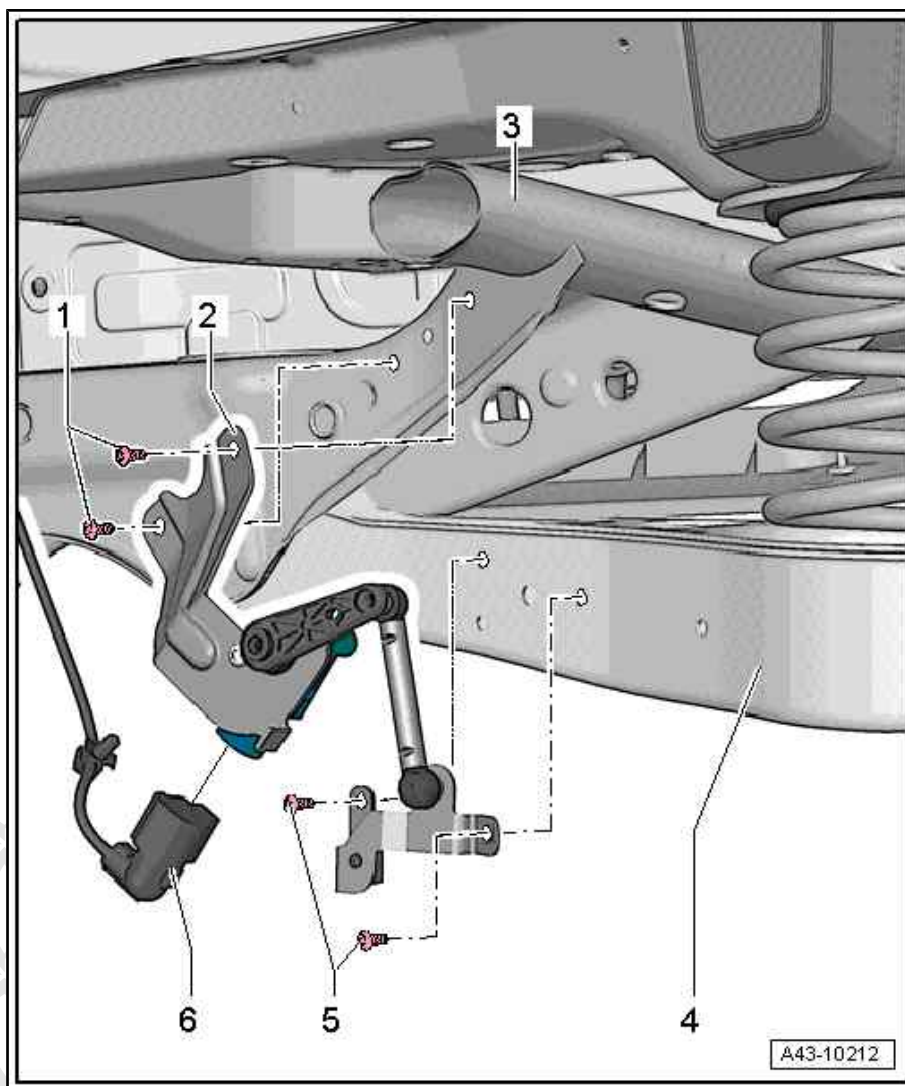
3 - Subframe

4 - Lower suspension link

5 - Bolt

- 5 Nm

6 - Electrical connector



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2.1.3 Exploded view - rear vehicle level sender, Audi S1

Note

The vehicle level sender is only available as a replacement part complete with coupling rod and upper and lower retaining plates.

1 - Lower suspension link

2 - Pop rivet nuts

3 - Pop rivet nuts

4 - Subframe

5 - Bolts

☐ 5 Nm

6 - Rear left vehicle level sender - G76-

☐ Complete with mounting parts

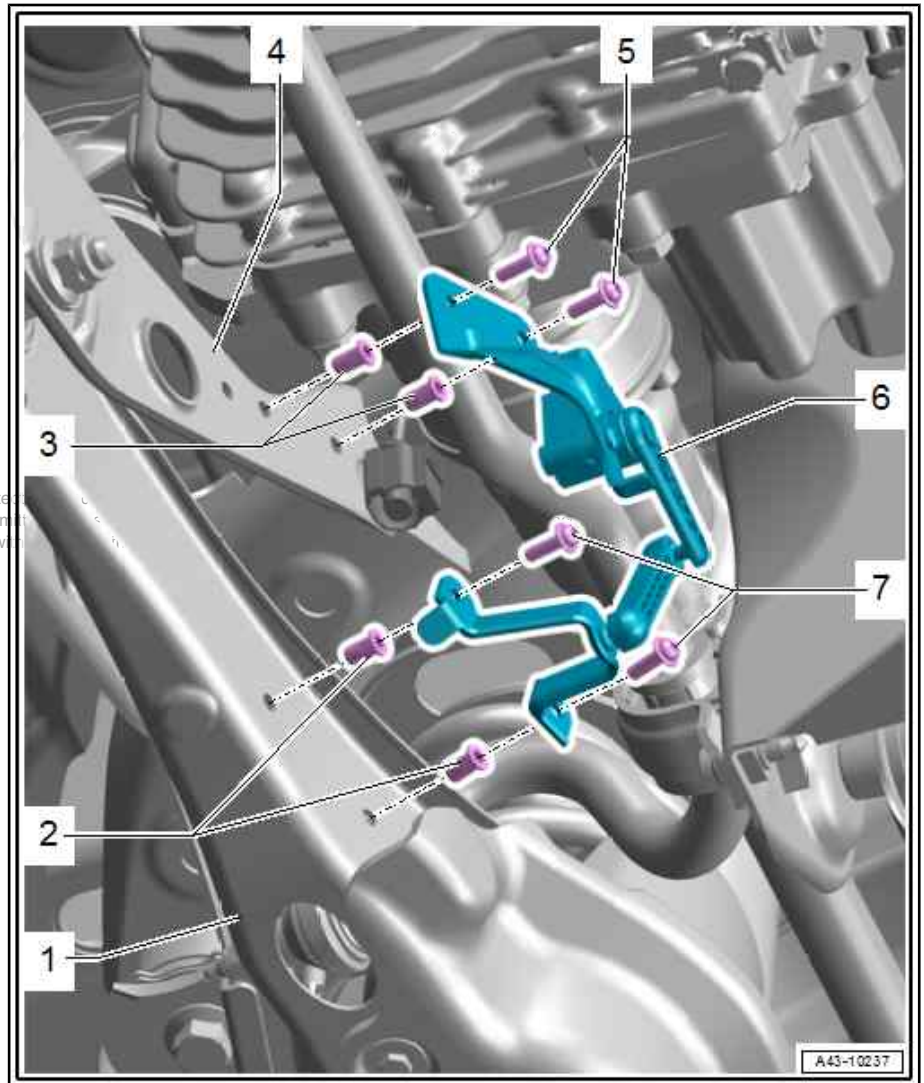
☐ Lever must face outwards

☐ Removing and installing
⇒ [page 301](#)

☐ Perform basic setting of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights

7 - Bolts

☐ 5 Nm



2.2 Removing and installing rear vehicle level sender

⇒ [“2.2.1 Removing and installing rear vehicle level sender - Audi A1 with front-wheel drive”, page 300](#)

⇒ [“2.2.2 Removing and installing rear vehicle level sender - Audi A1 quattro”, page 300](#)

⇒ [“2.2.3 Removing and installing rear vehicle level sender - Audi S1”, page 301](#)

2.2.1 Removing and installing rear vehicle level sender - Audi A1 with front-wheel drive

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

V.A.G 1331

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W00-11166

Removing

- Unplug connector -1-.
- Unscrew bolt -2- from axle beam.
- Unscrew bolt -3- from bracket.
- Take out rear left vehicle level sender - G76- .

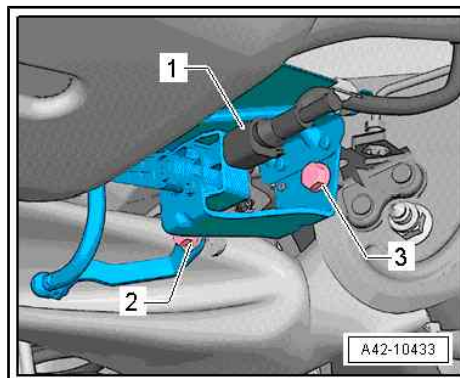
Installing

Installation is carried out in reverse sequence. Note the following points:

- Perform basic setting of headlights after renewing ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .

Tightening torques

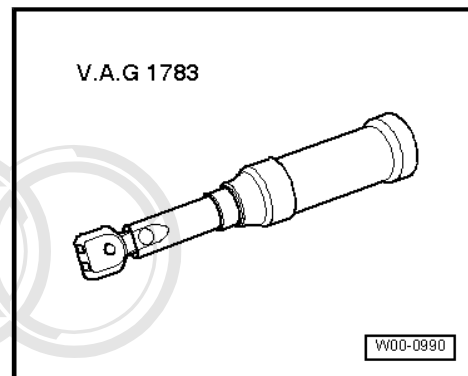
- ◆ ⇒ [“2.1.1 Exploded view - rear vehicle level sender, Audi A1 with front-wheel drive”, page 297](#)



2.2.2 Removing and installing rear vehicle level sender - Audi A1 quattro

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1783-



Removing

- Unplug connector -2-.
- Remove bolts -arrows-.
- Take out rear left vehicle level sender - G76- -1-.

Installing

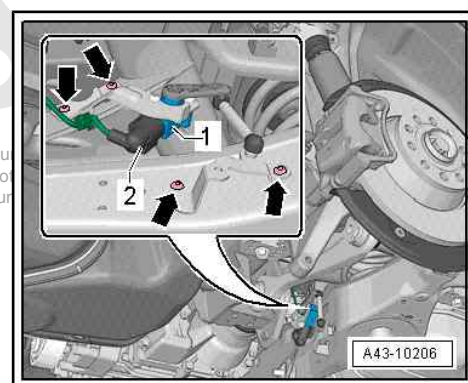
Installation is carried out in reverse sequence. Note the following points:

The lever on the rear left vehicle level sender - G76- must face outwards.

- Perform basic setting of headlights after renewing ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .

Tightening torques

- ◆ ⇒ ["2.1.2 Exploded view - rear vehicle level sender, Audi A1 quattro", page 298](#)



2.2.3 Removing and installing rear vehicle level sender - Audi S1

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-



Removing

- Unplug electrical connector -3-.
- Remove bolts -1, 2-.
- Take out rear vehicle level sender .

Installing

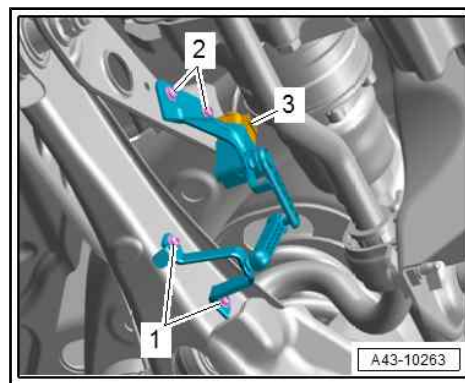
Installation is carried out in the reverse order; note the following:

The lever on the vehicle level sender must face outwards.

- Perform basic setting of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .

Tightening torques

- ◆ ⇒ [“2.1.3 Exploded view - rear vehicle level sender, Audi S1”](#),
[page 299](#)



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44 – Wheels, tyres, vehicle geometry

1 Wheels, tyres

This information is contained in the Workshop Manual on Wheels and tyres ⇒ Wheels and tyres; Rep. gr. 44 ; Fitting wheels / tyres / Tyre Pressure Monitoring System / Tyre Pressure Loss Indicator .



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2 Wheel alignment

- ⇒ [“2.1 Notes on wheel alignment”, page 304](#)
- ⇒ [“2.2 Test requirements”, page 305](#)
- ⇒ [“2.3 Preparations for measurement”, page 305](#)
- ⇒ [“2.4 Wheel alignment specifications”, page 306](#)
- ⇒ [“2.5 Wheel alignment procedure”, page 308](#)
- ⇒ [“2.6 When does wheel alignment have to be checked?”, page 309](#)
- ⇒ [“2.7 Explanatory notes on production control numbers \(PR numbers\)”, page 311](#)
- ⇒ [“2.8 Adjusting camber at front wheels”, page 311](#)
- ⇒ [“2.9 Adjusting camber at rear wheels”, page 312](#)
- ⇒ [“2.10 Adjusting toe setting at rear wheels”, page 314](#)
- ⇒ [“2.11 Adjusting toe setting at front wheels”, page 315](#)
- ⇒ [“2.12 Wheel runout compensation”, page 315](#)
- ⇒ [“2.13 Checking centre position of rack \(mechanical method\)”, page 315](#)
- ⇒ [“2.14 Checking full steering lock”, page 316](#)

2.1 Notes on wheel alignment

Wheel alignment must always be performed using wheel alignment equipment approved by VW/Audi.

The alignment check must always include both the front and the rear axles.

Otherwise, the rack may not be located in the central position.

This is important to achieve proper handling and road behaviour.

The latest »updates« on wheel alignment data appear in the Audi ServiceNet.

⇒ Audi ServiceNet; Systems; Wheel alignment computer software; Wheel alignment; Beissbarth

⇒ Audi ServiceNet; Systems; Wheel alignment computer software; Wheel alignment; Hunter

⇒ Audi ServiceNet; Systems; Wheel alignment computer software; Wheel alignment; Corgi

⇒ Audi ServiceNet; Systems; Wheel alignment computer software; Wheel alignment; John Bean



Note

- ◆ *Wheel alignment should not be checked until the vehicle has completed 1000 to 2000 km, when the coil springs have had time to settle.*
- ◆ *When making adjustments, try to obtain the specified settings as accurately as possible.*
- ◆ *Vibrations can also be caused by excessive residual imbalance and/or radial runout of the wheels.*

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WARNING

If adjustments are made to the suspension geometry, the steering angle sender - G85- must be calibrated on vehicles with ESP or ABS ⇒ page 309 .

2.2 Test requirements

- Check suspension, steering and steering linkage for excessive play or damage and service if necessary.
- Tread depth difference of no more than 2 mm on one axle.
- Tyres inflated to correct pressures.
- Vehicle accurately aligned, suspension bounced and rocked several times.
- Drive vehicle onto wheel alignment unit and ensure that suspension is not under stress, if necessary by moving vehicle backwards and forwards several times.
- Before starting the initial measurement and before making any adjustments, make sure that the steering is returned correctly to the centre position by turning the steering wheel uniformly in both directions using the steering wheel balance - VAS 6458- .
- Sensors must be properly attached and adjusted; refer to operating instructions of equipment manufacturer.
- Vehicle in unladen condition⁴⁾

4) "Unladen condition" means: the height of the vehicle ready for the road (with full tank, spare wheel, vehicle tools and vehicle jack).

- Spare wheel, vehicle tool kit and jack must be in their specified positions.
- Perform compensation of wheel rim runout: A certain amount of axial runout at the wheel rims is permissible, but this may already exceed the specified toe-in tolerance. In such cases it is not possible to set the toe-in correctly without first compensating for the wheel runout.
- Ensure that the sliding plates and turntables are not touching the end stop when checking the alignment.

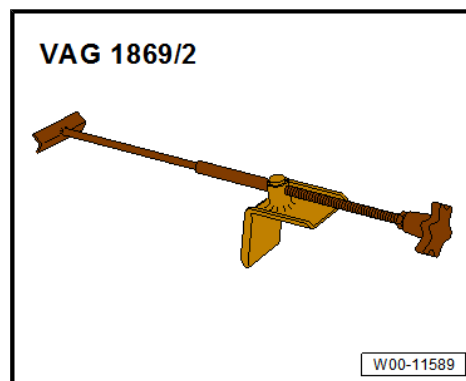
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- Wheel alignment platforms and computer measuring equipment can lose their original levelling setting and calibration over a period of time.
- Wheel alignment platforms and computer equipment should therefore be serviced and calibrated at least once a year.
- Precision equipment should be treated with appropriate care.
- If necessary, contact the manufacturer for familiarisation with the proper use of the wheel alignment equipment.

2.3 Preparations for measurement

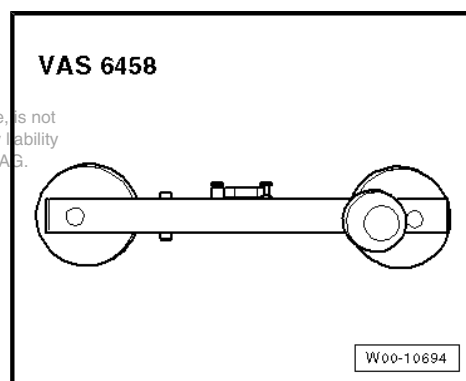
Special tools and workshop equipment required

◆ Brake pedal actuator - V.A.G 1869/2-



◆ Steering wheel balance - VAS 6458-

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- ◆ Wheel alignment computer approved by VW/Audi
- Sensors must be properly attached and adjusted; refer to operating instructions of equipment manufacturer.
- Ensure that the sliding plates and turntables are not touching the end stop when checking the alignment.
- Drive vehicle onto wheel alignment unit and ensure that suspension is not under stress, if necessary by moving vehicle backwards and forwards several times.
- Before starting the initial measurement and before making any adjustments, make sure that the steering is returned correctly to the centre position by turning the steering wheel uniformly in both directions using the steering wheel balance - VAS 6458- .

2.4 Wheel alignment specifications

These specifications are applicable to all engines.

Explanatory notes on production control numbers (PR nos.)

⇒ [page 311](#)

Front axle (front-wheel drive)	Standard running gear	Sports running gear	Heavy duty running gear
PR numbers	G22, G23	G26, G27, G28, G29	G31, G32, G51
Toe setting for each wheel	+5' ± 05'	+5' ± 05'	+5' ± 05'
Total toe	+10' ± 10'	+10' ± 10'	+10' ± 10'
Camber (in straight-ahead position)	-39' ± 30'	-39' ± 30'	-28' ± 30'
Maximum permissible difference between left and right	max. 30'	max. 30'	max. 30'
Toe-out on turns at 20° left and right lock ¹⁾	1° 20' ± 20'	1° 20' ± 20'	1° 19' ± 20'
Caster (not adjustable)	+5° 09' ± 30'	+5° 09' ± 30'	+4° 54' ± 30'

Front axle (front-wheel drive)	Standard running gear	Sports running gear	Heavy duty running gear
PR numbers	G22, G23	G26, G27, G28, G29	G31, G32, G51
Maximum permissible difference between left and right	max. 30'	max. 30'	max. 30'

1) Toe-out on turns may be displayed as a negative value on the wheel alignment computer, depending on the manufacturer.

Front axle (four-wheel drive)	Sports running gear	Sports running gear	
PR numbers	G29, G61	G58/G60	
Toe setting for each wheel	+5' ± 05'	+5' ± 05'	
Total toe	+10' ± 10'	+10' ± 10'	
Camber (in straight-ahead position)	-1° ± 30'	-1° ± 30'	
Maximum permissible difference between left and right	max. 30'	max. 30'	
Toe-out on turns at 20° left and right lock ¹⁾	1° 20' ± 20'	1° 20' ± 20'	
Caster (not adjustable)	+5° 09' ± 30'	+5° 09' ± 30'	
Maximum permissible difference between left and right	max. 30'	max. 30'	

1) Toe-out on turns may be displayed as a negative value on the wheel alignment computer, depending on the manufacturer.

Rear axle (front-wheel drive)	Standard running gear	Sports running gear	Heavy duty running gear
PR numbers	G22, G23	G26, G27, G28, G29	G31, G32, G51
Camber	-1° 30' ± 10'	-1° 30' ± 10'	-1° 30' ± 10'
Maximum permissible difference between left and right	max. 30'	max. 30'	max. 30'
Total toe (with specified camber)	+26' ± 13'	+26' ± 13'	+21' ± 10'
Toe setting for each wheel	+13' ± 06.5'	+13' ± 06.5'	+10.5' ± 05'
Maximum permissible deviation from direction of travel	max. 20'	max. 20'	max. 20'

Additional vehicle data:

The additional data listed ⇒ [page 1](#) are intended only to facilitate diagnosis after an accident.

Rear axle (four-wheel drive)	Sports running gear	Sports running gear	
PR numbers	G29, G61	G58/G60	
Camber	-50' ± 30'	-1° 30' ± 10'	
Maximum permissible difference between left and right	max. 30'	max. 30'	
Total toe (with specified camber)	+20' ± 10'	+26' ± 13'	
Toe setting for each wheel	+10' ± 05'	+13' ± 06.5'	
Maximum permissible deviation from direction of travel	max. 20'	max. 20'	

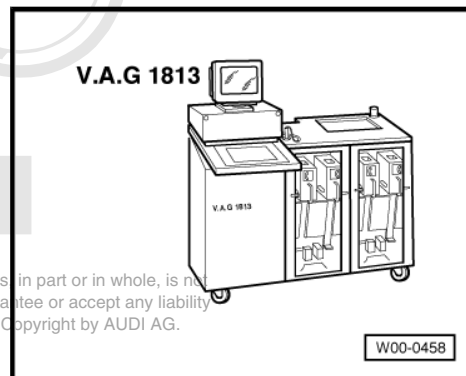
Additional vehicle data:

The additional data listed [⇒ page 1](#) are intended only to facilitate diagnosis after an accident.

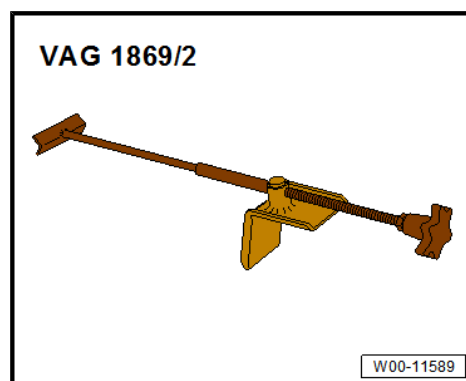
2.5 Wheel alignment procedure

Special tools and workshop equipment required

- ◆ Wheel alignment computer - V.A.G 1813- or VW/Audi approved wheel alignment equipment



- ◆ Brake pedal actuator - V.A.G 1869/2-

**Sequence of operations for checking and adjusting wheel alignment****Note**

The vehicle must always be in unladen condition when measuring wheel alignment [⇒ page 305](#).

Always keep to the following sequence of operations.

- Please observe the instructions given on the wheel alignment unit.

1 - Drive vehicle onto wheel alignment unit and ensure that suspension is not under stress, if necessary by moving vehicle backwards and forwards several times.

2 - Before starting the initial measurement and before making any adjustments, make sure that the steering is returned correctly to the centre position by turning the steering wheel uniformly in both directions using the steering wheel balance - VAS 6458-.

3 - Carry out wheel rim runout compensation [⇒ page 315](#).

4 - Check camber at front wheels and centralise if necessary [⇒ page 311](#).

5 - Check camber at rear wheels (front-wheel drive)

⇒ [page 312](#) .

- Adjust camber at rear wheels (four-wheel drive) ⇒ [page 313](#)

6 - Check toe setting at rear wheels (front-wheel drive)

⇒ [page 314](#)

- Adjust toe setting at rear wheels (four-wheel drive)

⇒ [page 314](#)

7 - Check toe setting at front wheels and adjust if necessary

⇒ [page 315](#) .

8 - If adjustments have been made to the suspension geometry during wheel alignment on vehicles from model year 2015 onwards, basic setting must be performed for steering angle sender

- G85- ⇒ [page 309](#) .

9 - On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .

Basic setting of steering angle sender - G85-

- Vehicle diagnostic tester is connected.
- Select Guided Fault Finding mode.
- Press the Go to button, select the option "Function/component selection" and then select the following menu items:
 - ◆ Running gear (Rep. gr. 01; 40-49)
 - ◆ Steering (Rep. Gr. 44)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 44 - Power steering (electromechanical)
 - ◆ 44 - Power steering, functions
 - ◆ 44 - Basic setting, steering angle sender -G85-
- Follow instructions on screen.

2.6

When does wheel alignment have to be checked?

Wheel alignment must be checked:

- ◆ In the event of handling problems
- ◆ If the vehicle has been involved in an accident and components have been renewed
- ◆ If suspension components have been removed or renewed
- ◆ If tyres are worn unevenly.

Overview table: when does wheel alignment have to be checked (front-wheel drive)?

Front suspension component renewed	Wheel alignment check required		Rear suspension component renewed	Wheel alignment check required	
	Yes	No		Yes	No
Wishbone	X		Shock absorber		X
Wheel bearing housing	X		Coil spring		X
Track rod/track rod ball joint	X		Torsion beam axle	X	
Steering rack	X				
Subframe	X				
Suspension strut		X			

Front suspension component renewed	Wheel alignment check required		Rear suspension component renewed	Wheel alignment check required	
	Yes	No		Yes	No
Anti-roll bar		X ¹⁾			
Swivel joint		X			

Overview table: when does wheel alignment have to be checked (four-wheel drive)?

Front suspension component renewed	Wheel alignment check required		Rear suspension component renewed	Wheel alignment check required	
	Yes	No		Yes	No
Wishbone	X		Shock absorber		X
Wheel bearing housing	X		Coil spring		X
Track rod/track rod ball joint	X		Wheel bearing housing	X	
Steering rack	X		Subframe	X	
Subframe	X		Lower suspension link	X	
Suspension strut		X	Upper suspension link	X	
Anti-roll bar		X ¹⁾	Track rod	X	
Swivel joint		X	Trailing arm	X	
			Anti-roll bar		X

¹⁾ Prerequisite: the position of the subframe was fixed before the part was removed ⇒ [page 36](#).

Overview table: when does wheel alignment have to be checked (front-wheel drive)?

Front suspension component removed and reinstalled	Wheel alignment check required		Rear suspension component removed and reinstalled	Wheel alignment check required	
	Yes	No		Yes	No
Wishbone		X	Shock absorber		X
Wheel bearing housing		X	Coil spring		X
Track rod/track rod ball joint	X		Torsion beam axle	X	
Steering rack	X				
Subframe		X ¹⁾			
Suspension strut		X			
Anti-roll bar		X ¹⁾			
Swivel joint		X			

Overview table: when does wheel alignment have to be checked (four-wheel drive)?

Front suspension component removed and reinstalled	Wheel alignment check required		Rear suspension component removed and reinstalled	Wheel alignment check required	
	Yes	No		Yes	No
Wishbone		X	Lower suspension link	X	
Wheel bearing housing		X	Upper suspension link	X	
Track rod/track rod ball joint	X		Track rod	X	

Front suspension component removed and reinstalled	Wheel alignment check required		Rear suspension component removed and reinstalled	Wheel alignment check required	
	Yes	No		Yes	No
Steering rack	X		Wheel bearing housing	X	
Subframe		X ¹⁾	Subframe		X ²⁾
Suspension strut		X	Coil spring		X
Anti-roll bar		X ¹⁾	Shock absorber		X
Swivel joint		X	Anti-roll bar		X
			Trailing arm	X	

1) Prerequisite: the position of the subframe was fixed before the part was removed ⇒ [page 36](#).

2) Prerequisite: the position of the subframe was fixed before the part was removed ⇒ [page 170](#) (four-wheel drive only).

2.7 Explanatory notes on production control numbers (PR numbers)

The PR no. on the vehicle data sticker indicates the type of running gear (for front axle and rear axle) and which version of the Tyre Pressure Monitoring System / Tyre Pressure Loss Indicator is fitted in the vehicle.

The vehicle data sticker can be found in the spare wheel well and in the Service Schedule.

Information on the type of running gear that is fitted on the vehicle is currently not available on the data sticker.

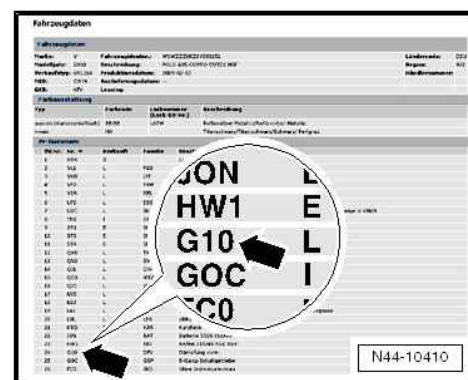
The required information on the type of running gear fitted can be found in ELSA in the ⇒ Vehicle-specific notes in the document "Vehicle data".

In this example the vehicle is fitted with standard running gear, version G10 -arrow-.

Running gear versions

- ◆ G22, G23 = standard running gear
- ◆ G26, G27, G28, G29, G58, G60, G61 = sports running gear
- ◆ G31, G32, G51 = heavy-duty running gear

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2.8 Adjusting camber at front wheels

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



The camber cannot be adjusted.

By moving the subframe, it is possible to centralise the camber setting symmetrically within the specified tolerance range.

The subframe may be moved to the left or right, but NOT forwards or backwards in a longitudinal direction.

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Loosen bolts -1- to -4- securing subframe to body.

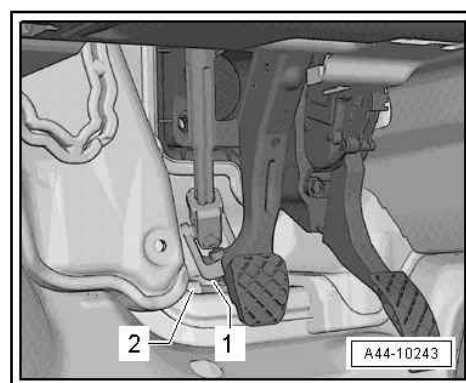
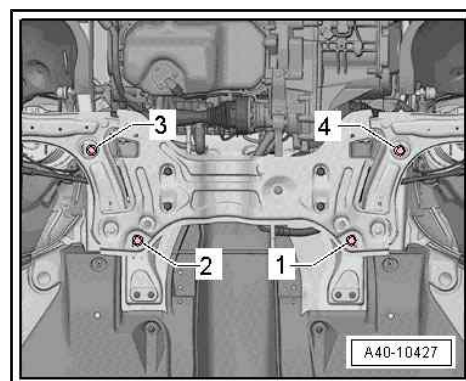
The camber adjustment range is limited by the tolerances of the holes in the subframe. If the specified value is not obtained by shifting the subframe, the subframe and the body must be inspected.

- Camber can now be adjusted to specification by moving subframe.
- Secure subframe using new bolts ⇒ [page 20](#).

After shifting the subframe/steering rack, the clearance between the steering column universal joint and the cut-out in the bulkhead must be checked.

- Fold floor covering back slightly.

There must be a clearance of at least 5 mm all round between universal joint -1- and cut-out in bulkhead -2-.



2.9 Adjusting camber at rear wheels

⇒ [“2.9.1 Adjusting camber at rear wheels - front-wheel drive vehicles”, page 312](#)

⇒ [“2.9.2 Adjusting camber at rear wheels - four-wheel drive vehicles”, page 313](#)

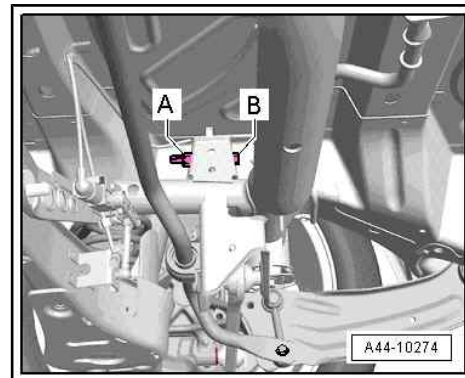
2.9.1 Adjusting camber at rear wheels - front-wheel drive vehicles

Camber cannot be adjusted.

If the measurements are outside the permitted tolerances, check the axle beam for damage and renew if necessary.

2.9.2 Adjusting camber at rear wheels - four-wheel drive vehicles

- Unscrew nut -A- on bolted connection between upper suspension link and subframe, and loosely screw on new nut.

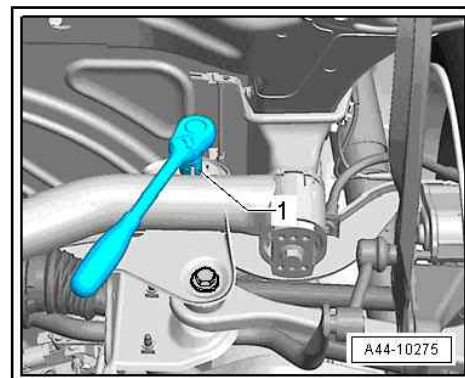


- Adjust camber by turning eccentric bolt -B- with 18 mm socket - T10001- (special tool).

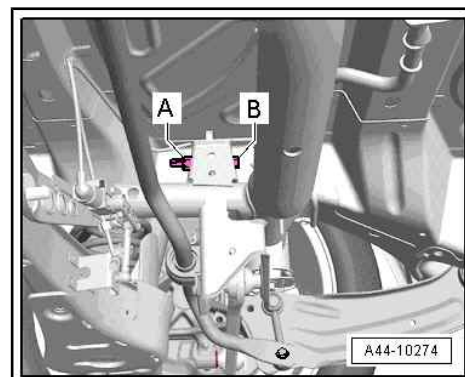


Note

The maximum adjustment range is 90° to the left or right of the centre position.



- Tighten nut -A- using ring spanner insert tool - T10179- .

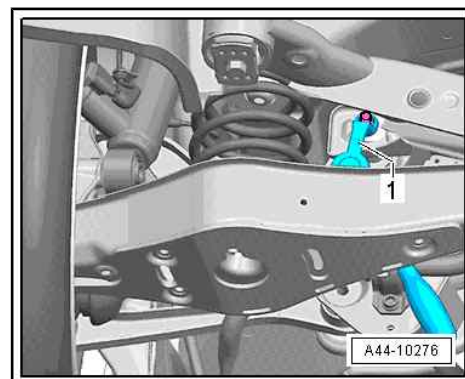


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- Use ring spanner insert tool - T10179- -1- as shown in illustration.
- Check camber value again after tightening nut -A- [⇒ page 306](#) .

Tightening torques

- ◆ [⇒ "5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro", page 198](#)



2.10 Adjusting toe setting at rear wheels

⇒ [“2.10.1 Adjusting toe setting at rear wheels - front-wheel drive vehicles”, page 314](#)

⇒ [“2.10.2 Adjusting toe setting at rear wheels - four-wheel drive vehicles”, page 314](#)

2.10.1 Adjusting toe setting at rear wheels - front-wheel drive vehicles

Toe cannot be adjusted.

If the measurements are outside the permitted tolerances, check the axle beam for damage and renew if necessary.

2.10.2 Adjusting toe setting at rear wheels - four-wheel drive vehicles

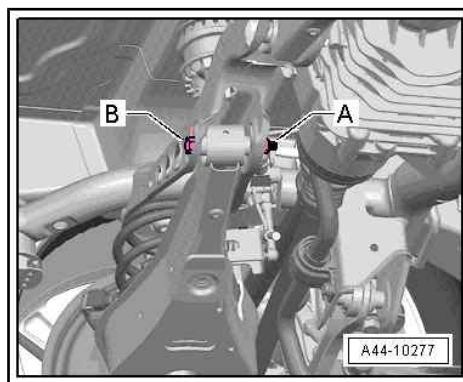
- Unscrew nut -A- on bolted connection between lower suspension link and subframe and loosely screw on new nut.
- Adjust toe setting by turning eccentric bolt -B-.



Note

The maximum adjustment range is 90° to the left or right of the centre position.

- Tighten nut -A-.
- Check toe setting again after tightening nut -A- ⇒ [page 306](#) .



Tightening torques

- ◆ ⇒ [“5.1.1 Exploded view - transverse links, track rod, Audi A1 quattro”, page 198](#)
- ◆ ⇒ [“5.1.3 Exploded view - track rod, Audi S1”, page 202](#)



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2.11 Adjusting toe setting at front wheels

Counterhold track rod ball joint with a spanner when loosening and tightening lock nut -1-.

- Loosen lock nut -1-.
- Adjust toe by turning left and/or right track rod -arrow-.



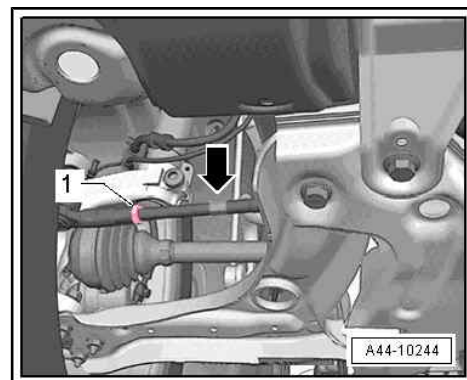
Note

- ◆ *Make sure boot on steering rack is not damaged or twisted. Twisted rubber boots wear out quickly.*
- ◆ *The vehicle must be standing on the ground and the track rod ball joint must be parallel with the contact surface on the steering arm of the wheel bearing housing when tightening the lock nuts on the track rod.*

- Tighten lock nut -1- ⇒ [page 339](#) .
- Check toe values again.

It is possible that the value will change slightly when lock nut -1- is tightened.

However, the adjustment is correct if the measured toe value is still inside the tolerance.



2.12 Wheel runout compensation

- Please observe the instructions given on the wheel alignment unit.

A certain amount of axial runout at the wheel rims is permissible, but this may already exceed the specified toe-in tolerance.

The existing lateral runout of the wheel rims must be compensated accordingly. Otherwise false results will be obtained.

The toe-in cannot be set correctly without performing wheel runout compensation.

2.13 Checking centre position of rack (mechanical method)



Note

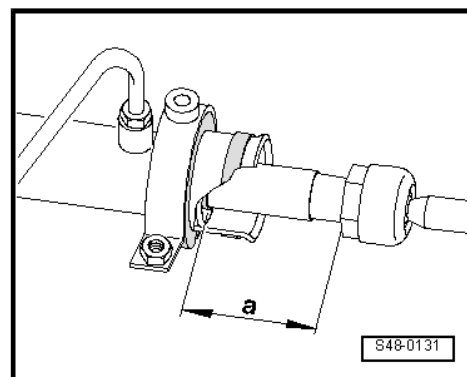
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The markings for the centre position of the rack are only provided on vehicles up to and including model year 2014.

The rack must be set in the centre position before installing the power steering rack unit.

- Move rack until distance -a- is obtained.

Dimension -a- = 75.5 mm

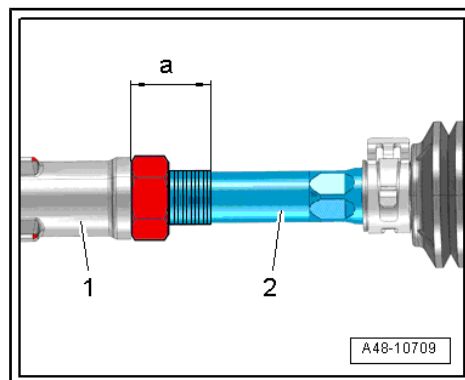


2.14 Checking full steering lock

- If the value was outside the tolerance when determining the full steering lock on the wheel alignment unit, inspect the steering and suspension for any damage or distortion and check the symmetry of the track rods. If necessary, shorten the “longer” track rod ball joint (by screwing it further onto the track rod) and renew any damaged components.
- If the steering wheel was found to be out of alignment when checking the centre position of the steering on the wheel alignment unit, inspect the steering and suspension for damage or distortion and renew any damaged parts. Also check the symmetry of the track rods.
- Measure dimension -a- on “shorter” track rod ball joint. Shorten the “longer” track rod ball joint to the same dimension. To do so, screw track rod ball joint -1- further onto track rod -2-.

Dimension -a- on track rod ball joint (right-side) = dimension -a- on track rod ball joint (left-side); maximum permissible difference between right and left < 2.5 mm.

- When returning steering to centre position, allow steering wheel to “settle” by rocking it evenly back and forth past centre position a few times.



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1 Steering wheel

⇒ “1.2 Removing and installing steering wheel”, page 317

1 - Steering column electronics control unit - J527-

- ☐ With driver side airbag igniter - N95-

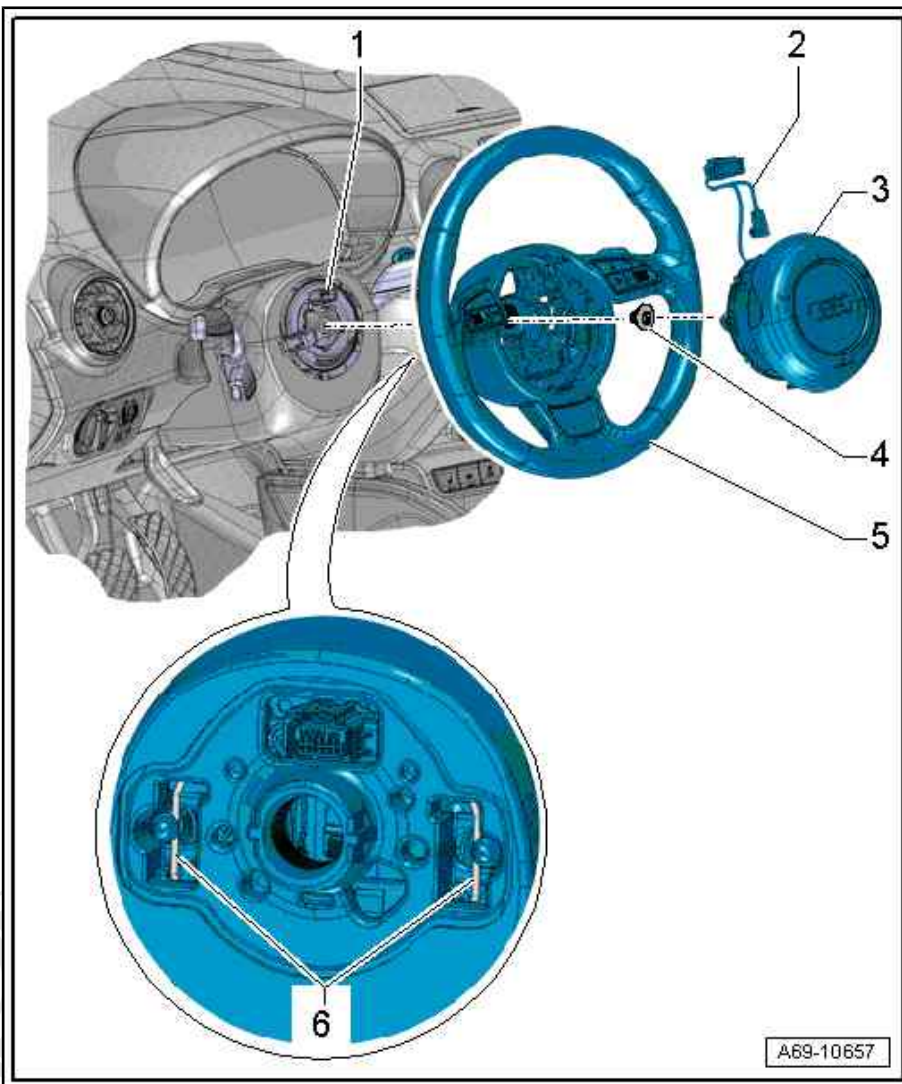


Observe safety precautions for working on airbags ⇒ General body repairs, interior; Rep. gr. 00 ; Safety precautions; Safety precautions when working with pyrotechnic components .

- ## 5 - Airbag steering wheel

- ❏ Removing and installing → page 317

6 - Locking bar



❑ Removing and installing ➔ [page 317](#)

6 - Locking bar

Special tools and workshop equipment required

◆ Torque wrench - V.A.G 1332-



Removing

- Move steering wheel upwards and rearwards as far as possible, using the full range of the steering column adjuster.
- Remove airbag unit ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag (driver side); Removing and installing airbag unit with igniters .
- Turn wheels to straight ahead position.



Note

The steering must be in the centre position (wheels straight-ahead) when the steering wheel is removed and installed.

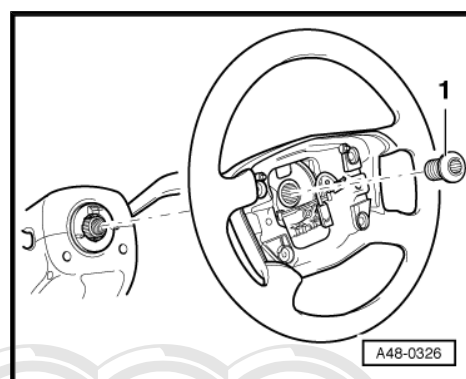
- Remove bolt -1-.
- Mark position of steering wheel relative to steering column with a felt-tipped pen.
- Pull steering wheel off steering column.

Installing

Install in reverse sequence, paying attention to the following:

Before fitting steering wheel, make sure wheels are in straight ahead position.

- When installing a steering wheel that has been removed, make sure that the markings on the steering column and steering wheel are in line.
- If installing new steering wheel (no marks): Steering wheel must be mounted in centre position (spoke horizontal and wheels in straight-ahead position).
- Guide connector for steering angle sender - G85- into opening provided in base of steering wheel.
- Install steering wheel.
- Install airbag unit ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag (driver side); Removing and installing airbag unit with igniters .
- Road-test vehicle.
- If the steering wheel is not correctly centred, it must be removed again and re-fitted onto the splines of the steering column.



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Tightening torques

- ◆ ⇒ ["1.1 Exploded view - steering wheel", page 317](#)

2 Steering column

- ⇒ [“2.1 Exploded view - steering column”, page 319](#)
- ⇒ [“2.2 Checking steering column for damage”, page 322](#)
- ⇒ [“2.3 Handling and transporting steering column”, page 322](#)
- ⇒ [“2.4 Removing and installing steering column”, page 325](#)
- ⇒ [“2.5 Removing and installing intermediate steering shaft”, page 332](#)
- ⇒ [“2.6 Removing and installing control unit for electronic steering column lock J764”, page 333](#)
- ⇒ [“2.7 Removing and installing power steering control unit J500”, page 335](#)

2.1 Exploded view - steering column

- ⇒ [“2.1.1 Exploded view - steering column, vehicles up to and including model year 2014”, page 319](#)
- ⇒ [“2.1.2 Exploded view - steering column, vehicles from model year 2015 onwards”, page 321](#)

2.1.1 Exploded view - steering column, vehicles up to and including model year 2014

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1 - Central tube for dash panel

2 - Crash bar

- ❑ Different versions available; for correct version, refer to ⇒ Electronic parts catalogue "ETKA"
- ❑ Removing and installing ⇒ General body repairs, interior; Rep. gr. 70 ; Central tube for dash panel; Exploded view - central tube for dash panel

3 - Bolt

- ❑ Tightening torque ⇒ General body repairs, interior; Rep. gr. 70 ; Central tube for dash panel; Exploded view - central tube for dash panel

4 - Shear bolt

- ❑ Tighten shear bolt until head shears off

5 - Steering lock housing with lock cylinder and ignition/start-switch

- ❑ Removing and installing ⇒ Electrical system; Rep. gr. 94 ; Steering column switch module; Removing and installing steering lock housing

6 - Control unit for electronic steering column lock - J764-

- ❑ Installed on vehicles with "keyless entry system"
- ❑ Removing and installing ⇒ [page 333](#)

7 - Bolt

- ❑ Observe correct tightening sequence ⇒ [page 328](#)
- ❑ 20 Nm

8 - Bolt

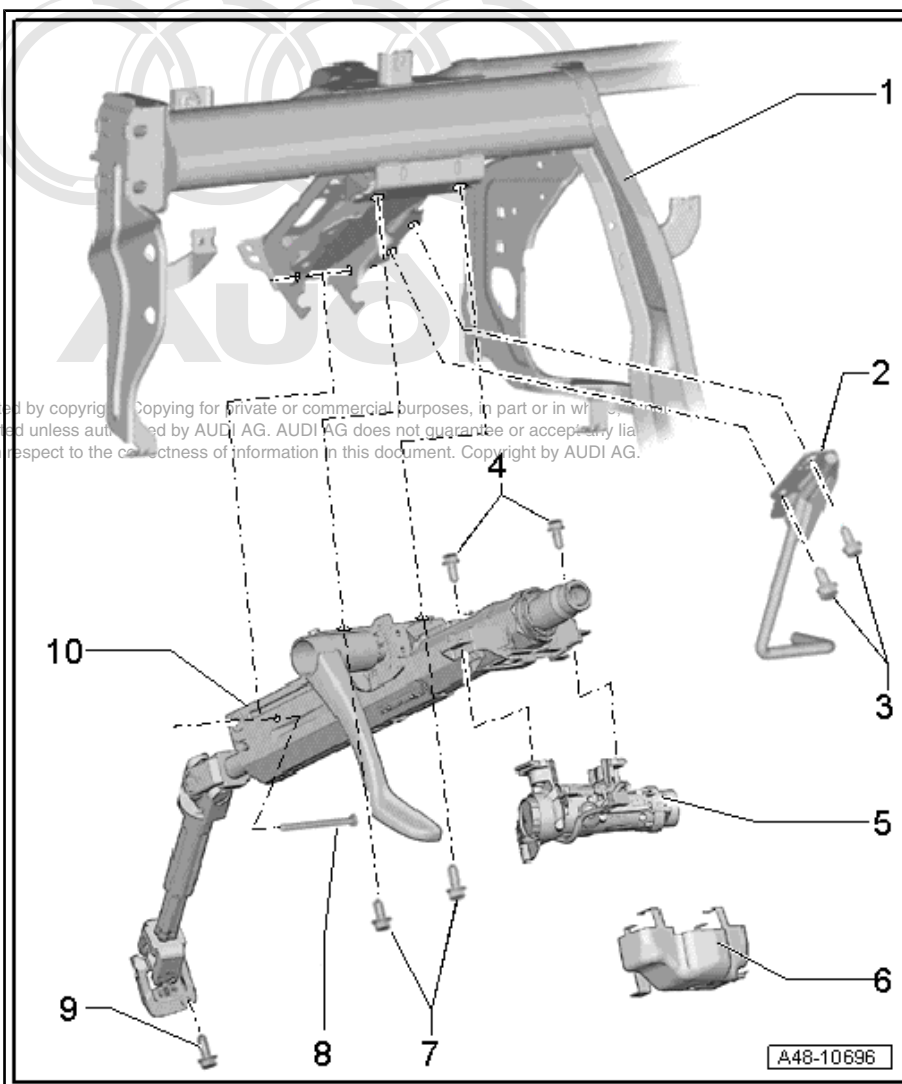
- ❑ Observe correct tightening sequence ⇒ [page 328](#)
- ❑ 8 Nm

9 - Bolt

- ❑ Always renew if removed
- ❑ 30 Nm

10 - Steering column

- ❑ Removing and installing ⇒ [page 325](#)
- ❑ Observe instructions for handling and transporting steering column ⇒ [page 322](#)



2.1.2 Exploded view - steering column, vehicles from model year 2015 onwards

1 - Intermediate steering shaft

- ☐ Removing and installing
⇒ [page 332](#)

2 - Steering column

- ☐ Removing and installing
⇒ [page 325](#)
- ☐ Observe instructions for handling and transporting steering column
⇒ [page 322](#)

3 - Bolt

- ☐ 20 Nm

4 - Central tube for dash panel

5 - Shear bolt

- ☐ Tighten shear bolt until head shears off

6 - Power steering control unit - J500-

- ☐ Checking ⇒ Vehicle diagnostic tester, Guided Fault Finding
- ☐ Removing and installing
⇒ [page 335](#)

7 - Steering lock housing with lock cylinder and ignition/starter switch

- ☐ Removing and installing
⇒ Electrical system;
Rep. gr. 94 ; Steering column switch module;
Removing and installing steering lock housing

8 - Control unit for electronic steering column lock - J764-

- ☐ Installed on vehicles with "keyless entry system"
- ☐ Removing and installing ⇒ [page 333](#)

9 - Bolt

- ☐ 5.5 Nm

10 - Bolt

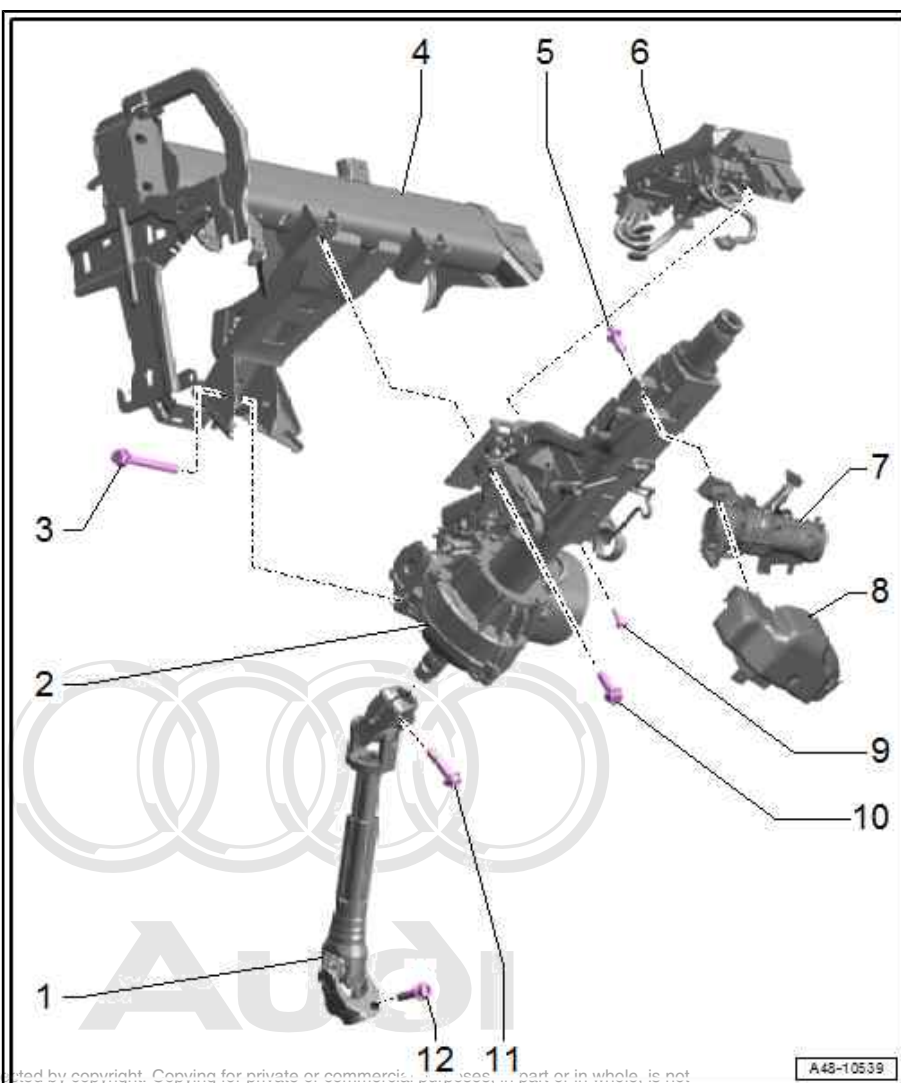
- ☐ 20 Nm

11 - Bolt

- ☐ 30 Nm
- ☐ Always renew if removed

12 - Bolt

- ☐ 30 Nm
- ☐ Always renew if removed



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2.2 Checking steering column for damage

Visual inspection

- Check all steering column parts for damage.

Checking function

- Check that steering column turns smoothly and easily.
- Check that steering column can be adjusted for height and reach.

2.3 Handling and transporting steering column

⇒ [“2.3.1 Handling and transporting steering column - vehicles up to and including model year 2014”, page 322](#)

⇒ [“2.3.2 Handling and transporting steering column - vehicles from model year 2015 onwards”, page 323](#)

2.3.1 Handling and transporting steering column - vehicles up to and including model year 2014



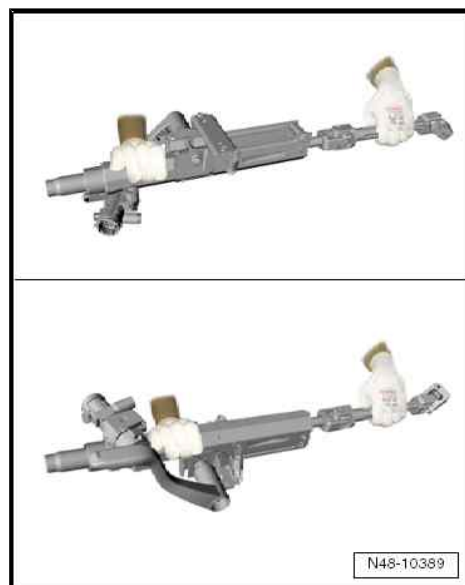
WARNING

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- ◆ *These instructions for handling the steering column **MUST** be observed at all times.*
- ◆ *Incorrect handling can damage the steering column and thus cause a safety risk.*

Correct handling and transportation of steering column

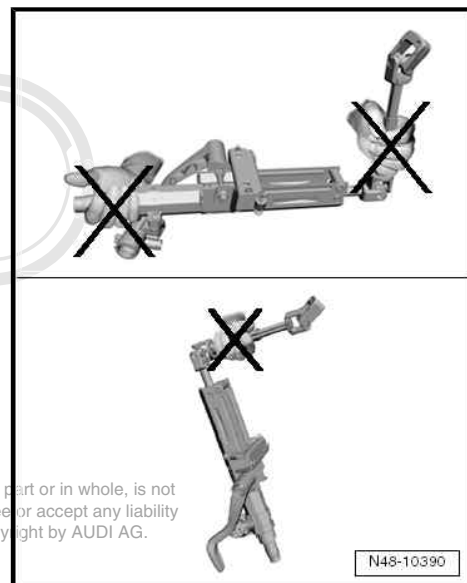
- ◆ Use both hands to carry the steering column.
- ◆ Hold steering column at upper column tube and in area below upper universal joint.



Improper handling of steering column – this can cause a safety risk!

The following methods of handling will damage the universal joint bushes and lower steering column bearing:

- ◆ Transporting steering column with one hand on jointed shaft.
- ◆ Bending joints more than 90°.



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2.3.2 Handling and transporting steering column - vehicles from model year 2015 onwards

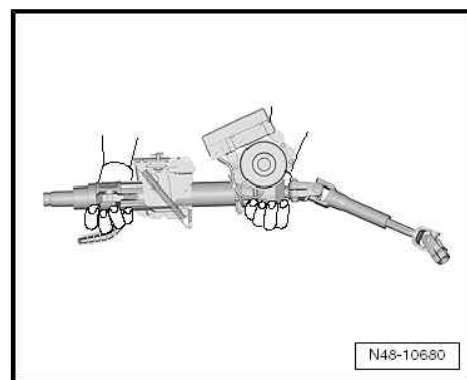


WARNING

- ◆ *These instructions for handling the steering column MUST be observed at all times.*
- ◆ *Incorrect handling can damage the steering column and thus cause a safety risk.*

Correct handling and transportation of steering column

- ◆ Use both hands to carry the steering column.
- ◆ Hold steering column at upper column tube and in area below gearbox housing.



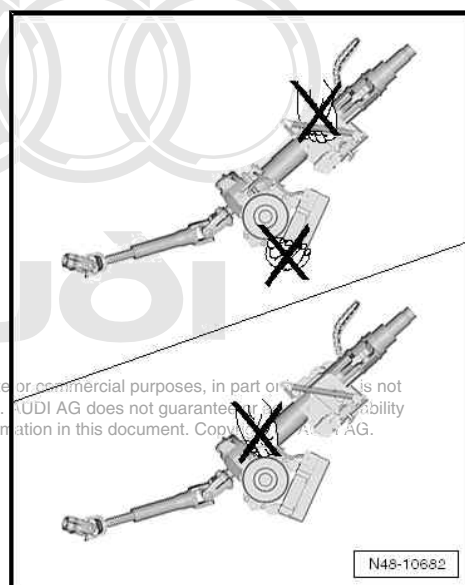
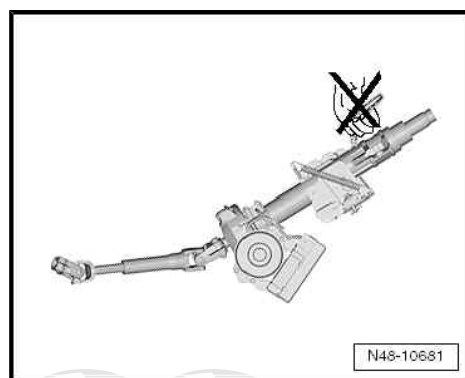
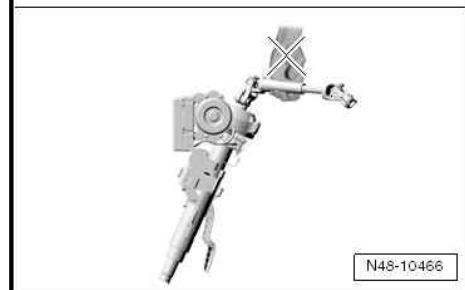
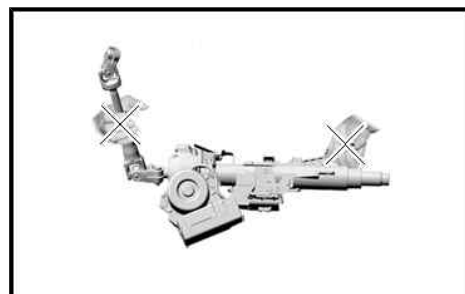
Improper handling of steering column – this can cause a safety risk!

The following methods of handling will damage the universal joint bushes and lower steering column bearing:

- ◆ Transporting steering column with one hand on jointed shaft.
- ◆ Bending joints more than 90°.

The following methods of handling will cause damage to the steering column:

- ◆ Picking it up and carrying it by the clamping lever
- ◆ Picking it up and carrying it by the weight balancing spring
- ◆ Picking it up and carrying it by the steering column electronics control unit - J500- /motor
- ◆ Picking it up and carrying it by the wiring for the steering column electronics control unit - J500-



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2.4 Removing and installing steering column

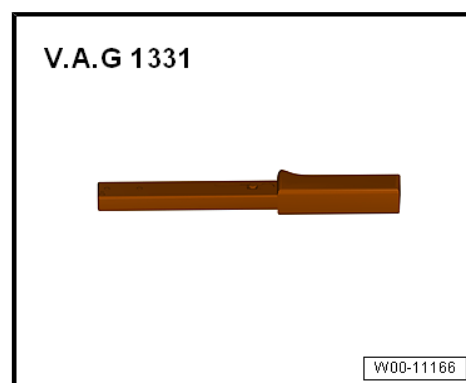
⇒ ["2.4.1 Removing and installing steering column - vehicles up to and including model year 2014", page 325](#)

⇒ ["2.4.2 Removing and installing steering column - vehicles from model year 2015 onwards", page 329](#)

2.4.1 Removing and installing steering column - vehicles up to and including model year 2014

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Torque wrench - V.A.G 1332-



Removing

The replacement steering column is only supplied as a complete unit. Repair is not possible.

The following parts must be transferred if the steering column is renewed:

On vehicles with no "keyless entry system", remove steering lock housing ⇒ Electrical system; Rep. gr. 94 ; Steering column switch module; Removing and installing steering lock housing .

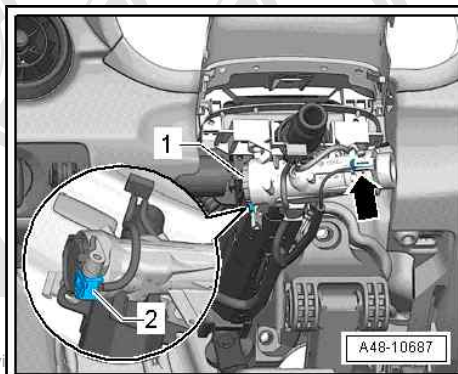
On vehicles with "keyless entry system", remove control unit for electronic steering column lock - J764- ⇒ [page 333](#) .

- Remove steering wheel ⇒ [page 317](#) .
- Remove dash panel cover (driver side) ⇒ Rep. gr. 68 ; Shelves/trim panels; Removing and installing dash panel cover (driver side) .
- Remove crash bar ⇒ General body repairs, interior; Rep. gr. 70 ; Central tube for dash panel; Exploded view - central tube for dash panel .

- Remove steering column switch module ⇒ Electrical system; Rep. gr. 94 ; Steering column switch module; Removing and installing steering column switch module .

Vehicles with ignition lock

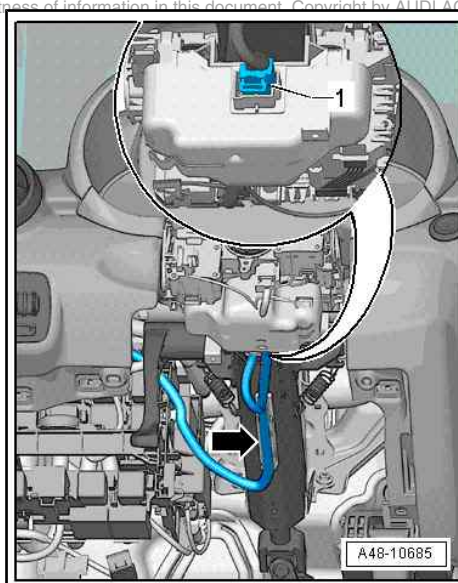
- Unplug connector -arrow- from immobiliser reader coil - D2- .
- Unplug connector -2- from ignition/starter switch -1-.
- Move electrical wiring clear.



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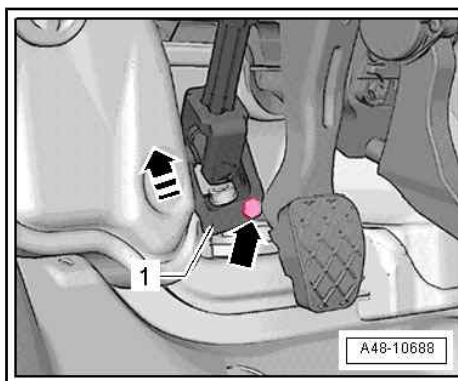
Vehicles with "keyless entry system"

- Release connector -1- and detach from control unit for electronic steering column lock - J764- .
- Unclip cable guide -arrow- and move electrical wiring clear.

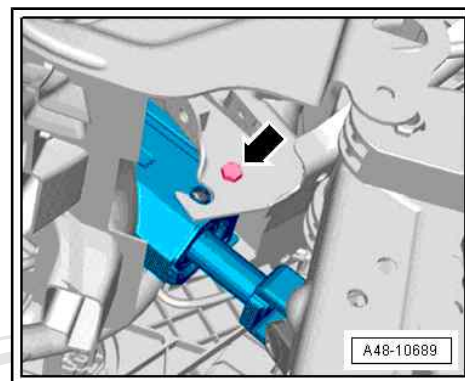


All vehicles (continued):

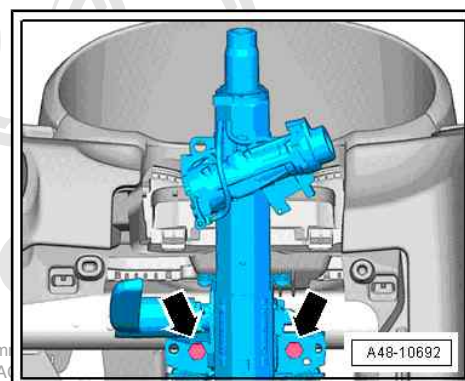
- Fold floor covering back slightly.
- Unscrew bolt -arrow- from universal joint -1- and pull off universal joint in direction of -arrow-.



- Unscrew lower securing bolt -arrow-.



- Unscrew bolts -arrows- from steering column and hold steering column.

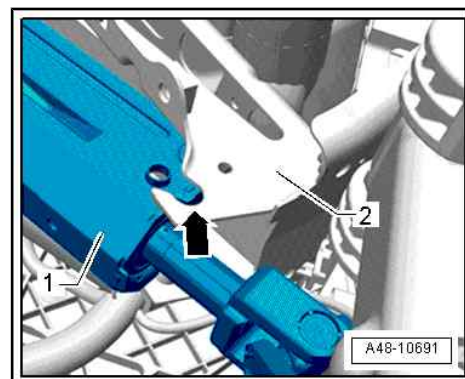


- Lower steering column -1- slightly and pull carefully out of guide -arrow- on central tube -2- for dash panel.



Caution

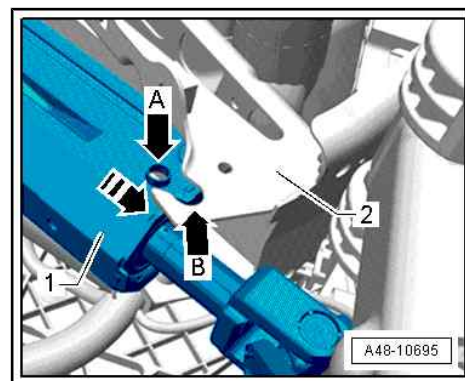
Observe instructions for handling and transporting steering column ⇒ [page 322](#).



Installing

Install in reverse sequence, paying attention to the following:

- Fit projections -arrow A- on steering column -1- into guides -arrow B- on central tube -2- for dash panel.



- Swivel steering column up, align with mounting bracket and bring into position.
- The holes -arrows- be aligned with the pins -1-.

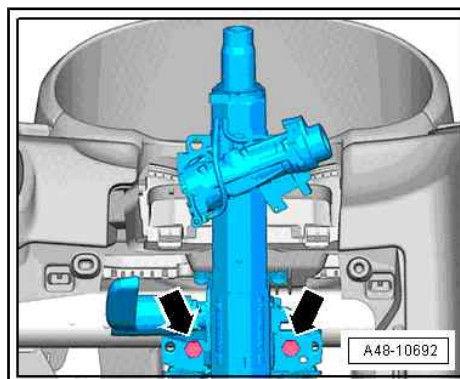
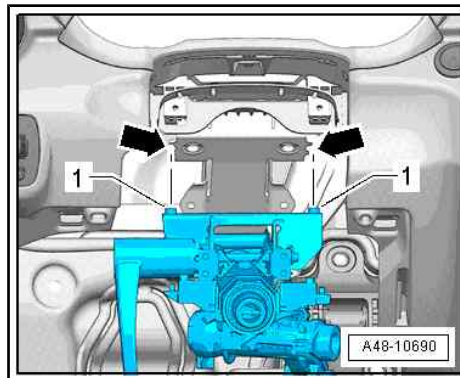
If this is not done, it will not be possible to locate the steering column correctly in relation to the central tube for dash panel.



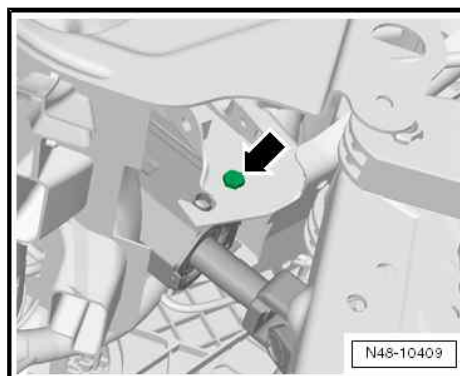
Note

When installing the steering column, it is important to keep strictly to the specified sequence for fitting the securing bolts.

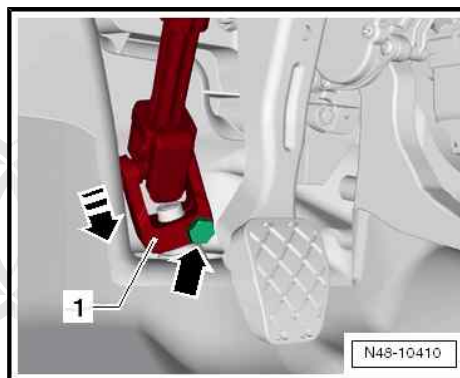
- Tighten steering column bolts -arrows-.
- Release lever on side of steering column.



- Screw in lower securing bolt -arrow- and tighten.



- Fit universal joint -1- onto steering pinion.
- Insert new hexagon bolt -arrow- and tighten.
- The remaining installation steps are carried out in the reverse sequence.



WARNING

Make sure there is no-one in the vehicle when connecting the battery.

Tightening torques

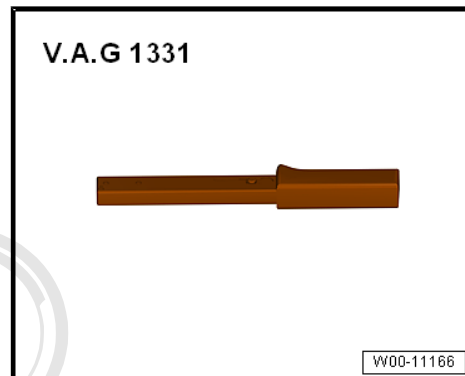
- ♦ ⇒ [“2.1.1 Exploded view - steering column, vehicles up to and including model year 2014”, page 319](#)

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2.4.2 Removing and installing steering column - vehicles from model year 2015 onwards

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Torque wrench - V.A.G 1332-



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Removing

The replacement steering column is only supplied as a complete unit. Repair is not possible.

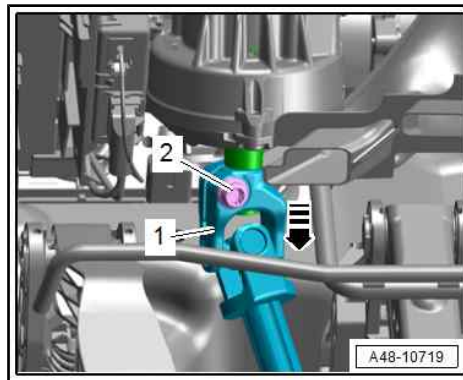
The following parts must be transferred if the steering column is renewed:

On vehicles with no "keyless entry system", remove steering lock housing ⇒ Electrical system; Rep. gr. 94 ; Steering column switch module; Removing and installing steering lock housing .

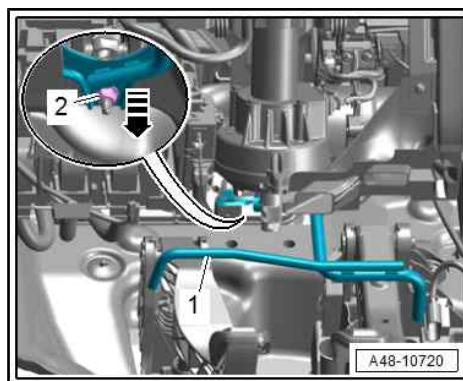
On vehicles with "keyless entry system", remove control unit for electronic steering column lock - J764- ⇒ [page 333](#) .

- Remove steering wheel ⇒ [page 317](#) .
- Remove footwell vent (driver side) ⇒ Heating, air conditioning; Rep. gr. 87 ; Air duct system; Exploded view - routing of air flow and air distribution in passenger compartment .
- Remove steering column switch module ⇒ Electrical system; Rep. gr. 94 ; Steering column switch module; Removing and installing steering column switch module .

- Remove bolt -2-.
- Detach intermediate shaft from steering column and pivot to one side.



- Unscrew nut -2-.
- Detach crash bar -1- from stud -arrow- and remove.

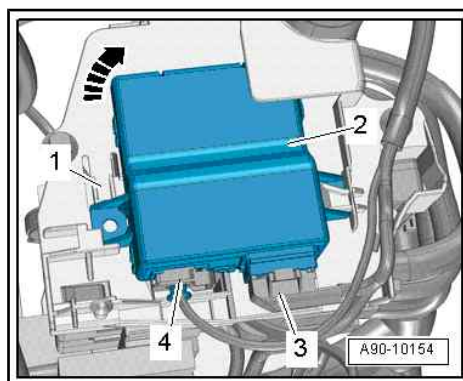


- Release retaining clip -1-, pivot data bus diagnostic interface - J533- -item 2- out of retaining frame -arrow- and move it to one side.

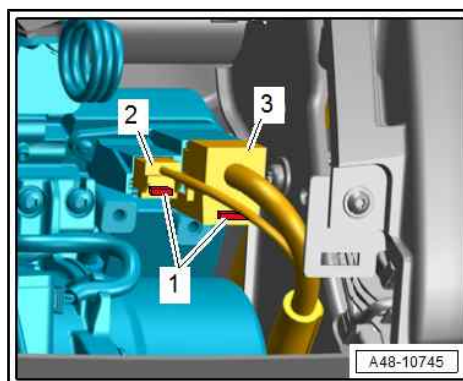


Note

Disregard items -3 and 4-.

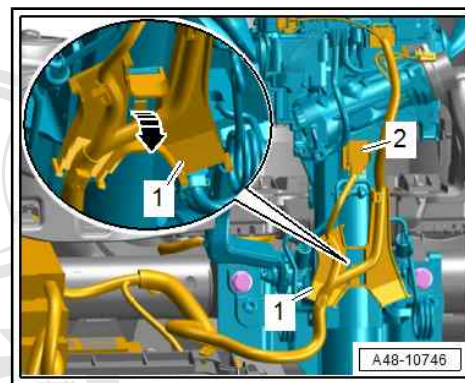


- Pull out connector locking elements -1-, press down release mechanism and unplug electrical connectors -2, 3-.



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- Unplug electrical connector -2-.
- Release catch -arrow- and detach bracket -1- for wiring harness downwards.

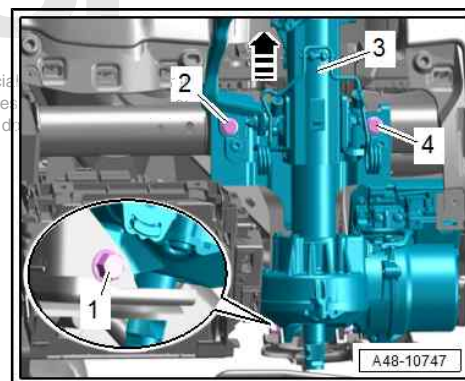


- Remove bolts -1, 2, 4-.
- Detach steering column -3- from central tube for dash panel -arrow- and remove.



Caution

Observe instructions for handling and transporting steering column ⇒ [page 322](#).



Installing

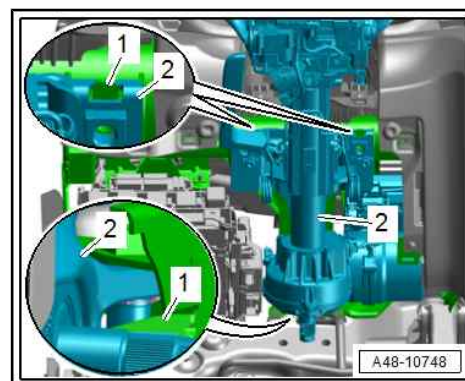
Installation is carried out in the reverse order; note the following:

- Attach steering column -2- to central tube -1- for dash panel, as shown in illustration.



Note

When installing the steering column, it is important to keep strictly to the specified sequence for fitting the securing bolts.



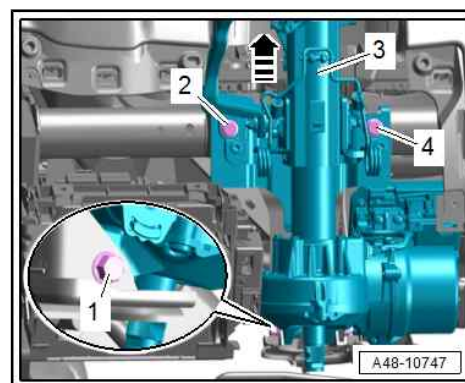
- Tighten bolts -2, 4- for steering column.
- Release lever on side of steering column.
- Fit bolt -1- at bottom and tighten.



Note

-Arrow- can be disregarded.

- Install crash bar ⇒ General body repairs, interior; Rep. gr. 70 ; Central tube for dash panel; Exploded view - central tube for dash panel .



- Fit intermediate shaft -1- onto steering pinion.
- Intermediate shaft can only be attached to steering pinion in one position.
- Insert and tighten new bolt -2-.



Note

-Arrow- can be disregarded.

- Install steering column switch module ⇒ Electrical system;
Rep. gr. 94 ; Steering column switch module; Removing and installing steering column switch module .
- Install footwell vent (driver side) ⇒ Heating, air conditioning;
Rep. gr. 87 ; Air duct system; Exploded view - routing of air flow and air distribution in passenger compartment .
- Install steering wheel ⇒ [page 317](#) .
- Perform basic setting for steering angle sender - G85- .
- Vehicle diagnostic tester is connected.
- Select **Guided Fault Finding** mode.
- Press the **Go to** button, select the option “Function/component selection” and then select the following menu items:
 - ◆ Running gear (Rep. gr. 01; 40-49)
 - ◆ Steering (Rep. Gr. 44)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 44 - Power steering (electromechanical)
 - ◆ 44 - Power steering, functions
 - ◆ 44 - Basic setting, steering angle sender -G85-
- Follow instructions on screen.

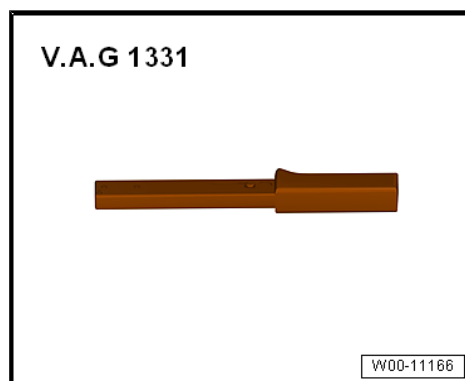
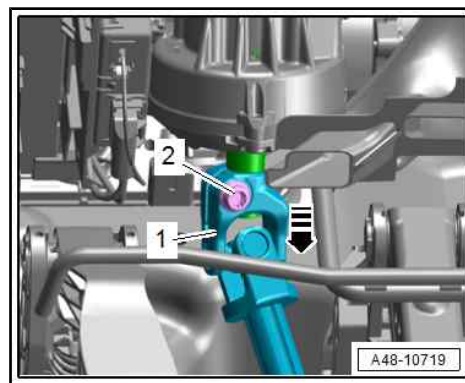
Tightening torques

- ◆ ⇒ [“2.1.2 Exploded view - steering column, vehicles from model year 2015 onwards”, page 321](#)

2.5 Removing and installing intermediate steering shaft

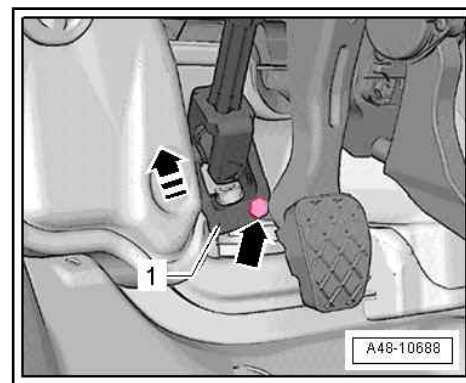
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



Removing

- Fold floor covering back slightly.
- Unscrew bolt -arrow- from universal joint -1- and pull off universal joint in direction of -arrow-.



- Remove bolt -2-.
- Detach universal joint -1- for intermediate shaft from steering column -arrow- and remove.

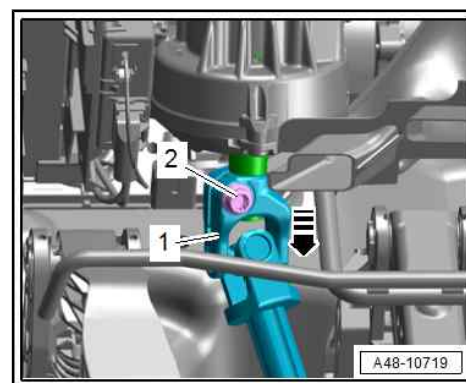
Installing

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



Note

Universal joint for intermediate shaft can only be attached to steering pinion in one position.



Tightening torques

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⇒ [2.1 Exploded view, steering column, page 319](#)

2.6 Removing and installing control unit for electronic steering column lock - J764-

Special tools and workshop equipment required

- ◆ Right angle drill
- ◆ Drill bit, 8.5 mm Ø

Removing

When renewing control unit, select "Replace" function for relevant control unit in "Guided Functions" on ⇒ vehicle diagnostic tester .

Follow the instructions on the screen.

- Turn wheels to straight ahead position.
- Pull down lever on side of steering column.
- Swing steering column down as far as possible and pull out.
- Press lever on side of steering column back up.
- Remove steering wheel ⇒ [page 317](#) .
- Remove steering column switch module ⇒ Electrical system; Rep. gr. 94 ; Steering column switch module; Removing and installing steering column switch module .

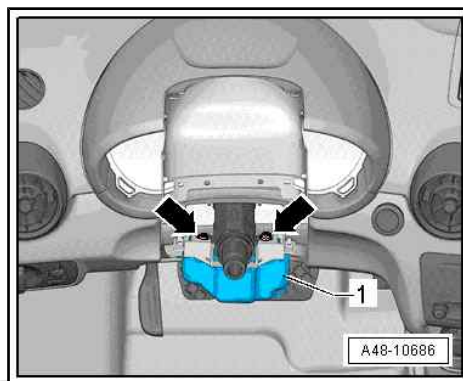


Caution

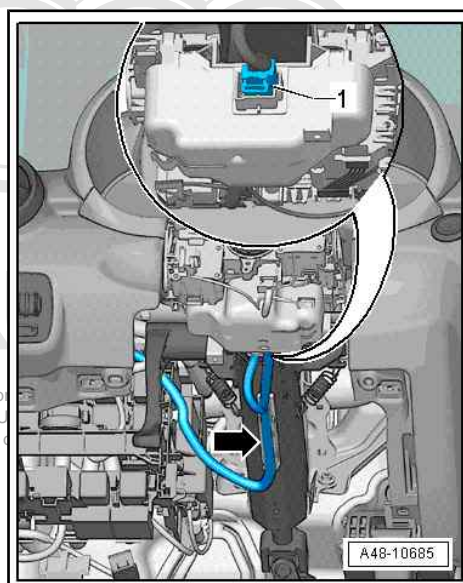
No swarf must enter the steering column.

Use a cloth or similar to prevent swarf from dropping into the steering column.

- Drill out shear bolts-arrows- using right angle drill with 8.5 mm Ø bit.
- Remove swarf with small brush.



- Unplug connector -arrow- and carefully detach control unit for electronic steering column lock - J764- -1- from steering column.

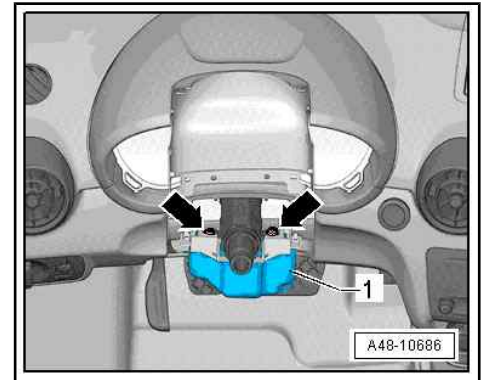


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Installing

Installation is carried out in reverse sequence. Note the following points:

- Secure control unit for electronic steering column lock - J764- -1- with new shear bolts -arrows-.
- Tighten shear bolts -arrows- evenly until bolt heads shear off.
- Control unit for electronic steering column lock - J764- must be adapted if it has been renewed; to do so, select "Replace" function in "Guided Functions" on ⇒ vehicle diagnostic tester .



Vehicles from model year 2015 onwards:

- Perform basic setting for steering angle sender - G85- .
- Vehicle diagnostic tester is connected.
- Select Guided Fault Finding mode.
- Press the Go to button, select the option "Function/component selection" and then select the following menu items:
 - ◆ Running gear (Rep. gr. 01; 40-49)
 - ◆ Steering (Rep. Gr. 44)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 44 - Power steering (electromechanical)
 - ◆ 44 - Power steering, functions
 - ◆ 44 - Basic setting, steering angle sender -G85-
- Follow instructions on screen.

2.7 Removing and installing power steering control unit - J500-

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-

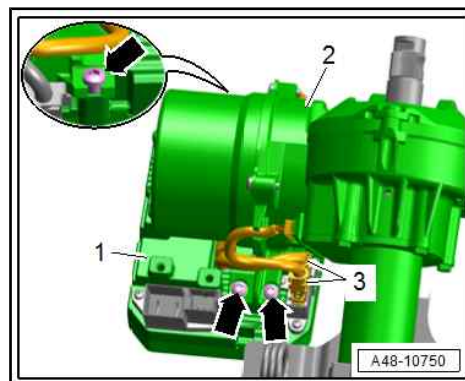
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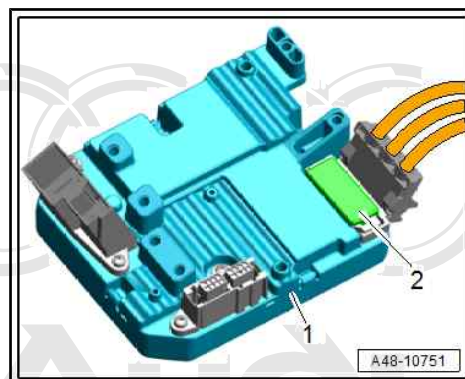
Removing

- When renewing power steering control unit - J500- , select "Replace control unit" function.
- Vehicle diagnostic tester is connected.
- Select Guided Fault Finding mode.
- Press the Go to button, select the option "Function/component selection" and then select the following menu items:
 - ◆ Running gear (Rep. gr. 01; 40-49)
 - ◆ Steering (Rep. Gr. 44)

- ◆ 01 - Self-diagnosis compatible systems
- ◆ 44 - Power steering (electromechanical)
- ◆ 44 - Power steering, functions
- ◆ 44 - Replace power steering control unit
- Follow instructions on screen.
- Remove steering column ⇒ [page 329](#) .
- Remove bolts -arrows- and detach power steering control unit - J500- -item 1- from steering column.
- Unplug electrical connectors -3-.



- Pry cover -2- off power steering control unit - J500- -item 1-.



- Remove bolts -1-.
- Release catches -arrows A- and detach wiring harness -3- from power steering control unit - J500- -item 2- -arrow B-

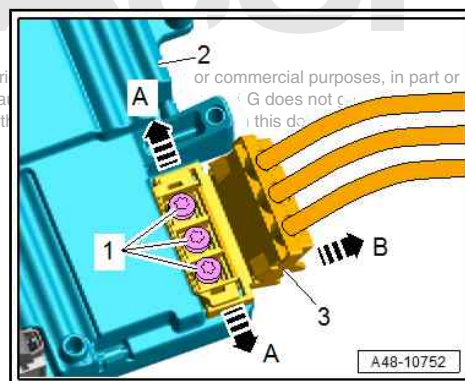
Installing

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

- Install steering column ⇒ [page 329](#) .

Tightening torques

- ◆ ⇒ “2.1.2 Exploded view - steering column, vehicles from model year 2015 onwards”, [page 321](#)



3 Steering rack

⇒ [“3.1 Exploded view - steering rack”, page 337](#)

⇒ [“3.2 Removing and installing steering rack”, page 342](#)

⇒ [“3.3 Removing and installing boot”, page 347](#)

⇒ [“3.4 Removing and installing track rod”, page 351](#)

⇒ [“3.5 Removing and installing track rod ball joint”, page 354](#)

3.1 Exploded view - steering rack

⇒ [“3.1.1 Exploded view - steering rack with track rods, vehicles up to and including model year 2014”, page 337](#)

⇒ [“3.1.2 Exploded view - steering rack, vehicles up to and including model year 2014”, page 339](#)

⇒ [“3.1.3 Exploded view - steering rack with track rods, vehicles from model year 2015 onwards”, page 340](#)

⇒ [“3.1.4 Exploded view - steering rack, vehicles from model year 2015 onwards”, page 341](#)

3.1.1 Exploded view - steering rack with track rods, vehicles up to and including model year 2014

1 - Bolt

- ☐ 6 Nm

2 - Heat shield

- ☐ Not fitted on all engine versions
- ☐ For correct version refer to ⇒ Electronic parts catalogue “ETKA”

3 - Nut

- ☐ 20 Nm + 90°
- ☐ Always renew if removed

4 - Wheel bearing housing

5 - Seal

- ☐ Always renew if removed

6 - Banjo bolt

- ☐ 40 Nm

7 - Pressure line

8 - Return hose

9 - Union screw

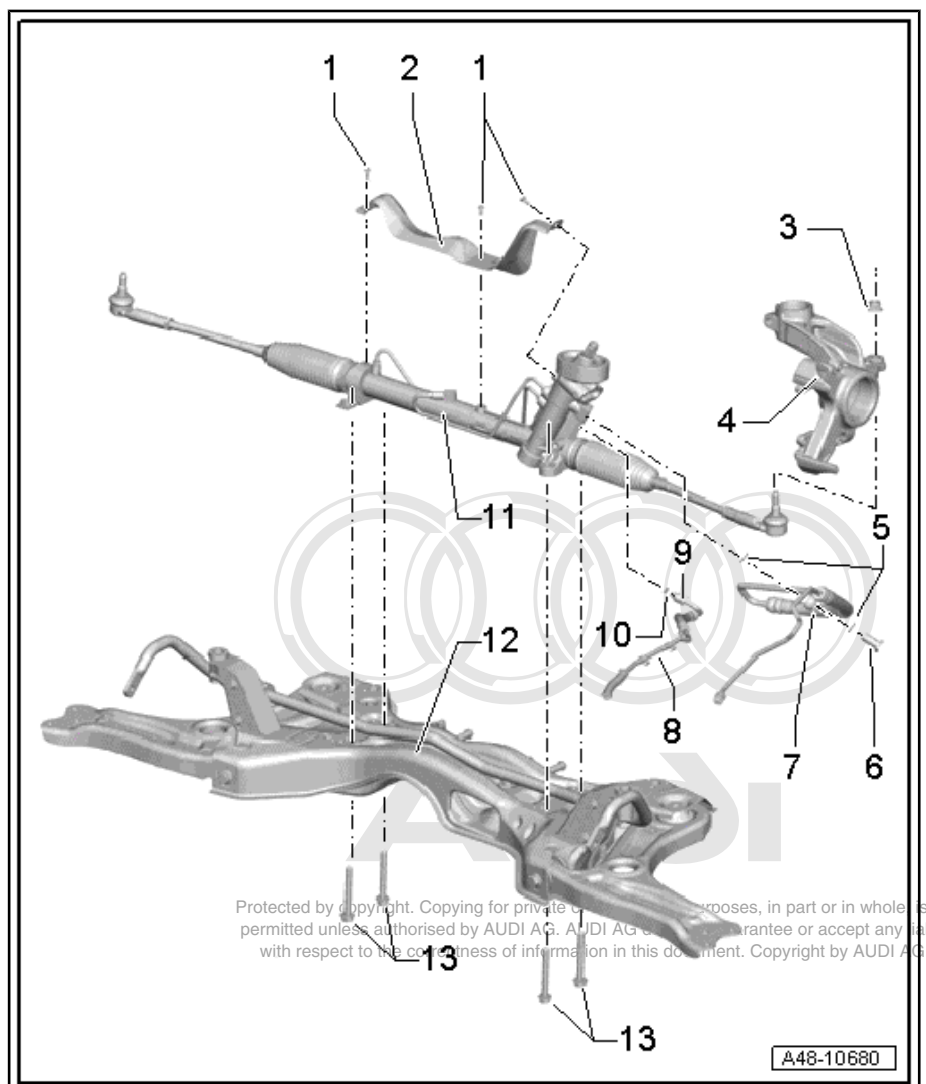
- ☐ 30 Nm

10 - Seal

- ☐ Always renew if removed

11 - Steering rack

- ☐ Removing and installing
⇒ [page 342](#)





12 - Subframe

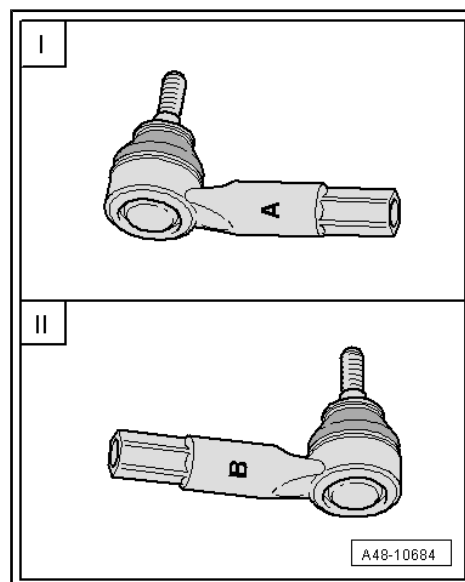
13 - Bolt

- ☐ 50 Nm + 90°
- ☐ Always renew if removed

Identification of track rod ball joints

I - Track rod ball joint on left side of vehicle is marked -A-.

II - Track rod ball joint on right side of vehicle is marked -B-.



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3.1.2 Exploded view - steering rack, vehicles up to and including model year 2014

1 - Track rod ball joint (right-side)

- ☐ Marked "B"
- ☐ Pressing off steering arm ⇒ [page 27](#)
- ☐ Installation position ⇒ [page 338](#)

2 - Nut

- ☐ 70 Nm

3 - Clamp

4 - Boot

- ☐ Must not be twisted after adjusting toe setting
- ☐ To renew, first remove steering rack

5 - Hose clip

- ☐ Always renew if removed
- ☐ Tightening ⇒ [page 352](#)

6 - Bolt

- ☐ 8 Nm

7 - Heat shield

- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"

8 - Clamp with nuts

- ☐ Renew if thread is damaged

9 - Rubber bush

10 - Track rod (right-side)

- ☐ 80 Nm
- ☐ Removing and installing ⇒ [page 351](#)
- ☐ Replacement part is already pre-adjusted

11 - Power steering rack

- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Removing and installing ⇒ [page 342](#)

12 - Seal

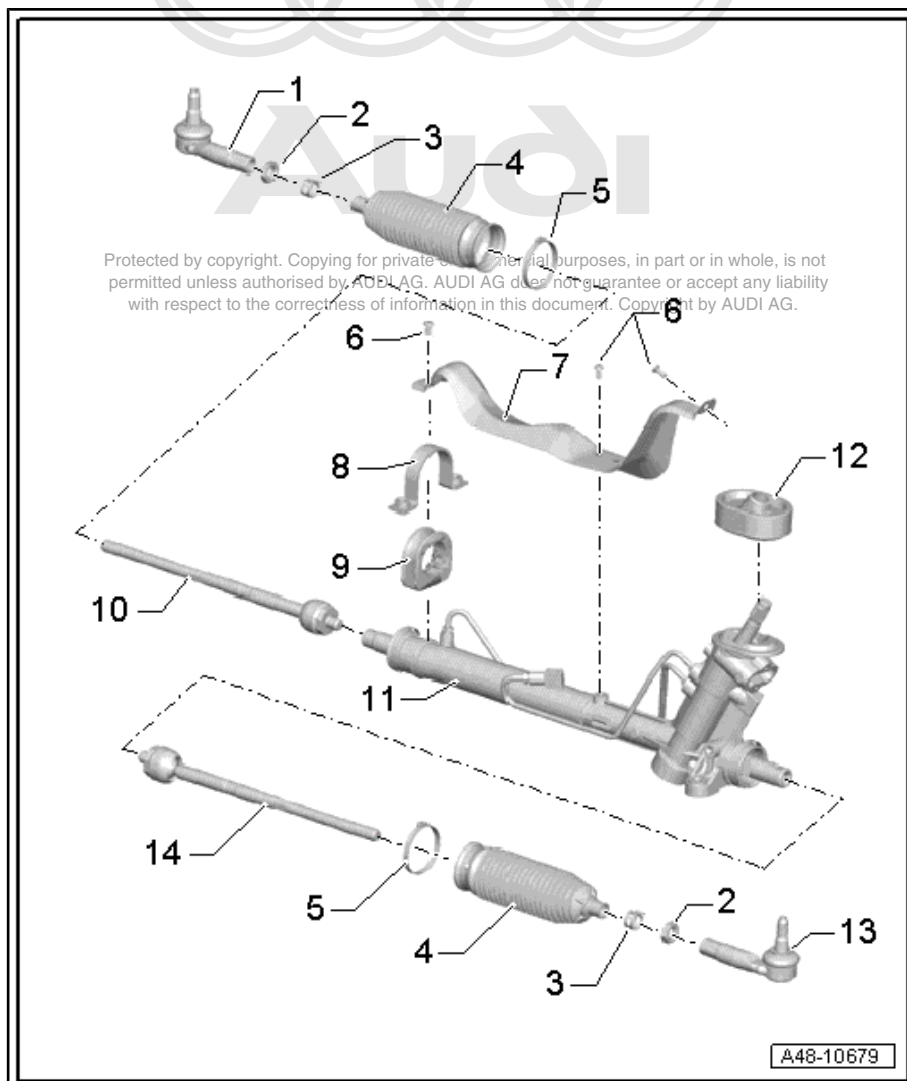
- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"

13 - Track rod ball joint (left-side)

- ☐ Marked "A"
- ☐ Pressing off steering arm ⇒ [page 27](#)

14 - Track rod (left-side)

- ☐ Removing and installing ⇒ [page 351](#)
- ☐ Replacement part is already pre-adjusted
- ☐ Checking length and adjusting ⇒ [page 352](#)
- ☐ 80 Nm



3.1.3 Exploded view - steering rack with track rods, vehicles from model year 2015 onwards

1 - Bolt

- ☐ Renew after removing
- ☐ 50 Nm + 180°

2 - Subframe

3 - Steering rack

- ☐ Removing and installing
⇒ [page 344](#)

4 - Heat shield

5 - Bolt

- ☐ 5.5 Nm

6 - Seal

- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Renew if damaged

7 - Intermediate steering shaft

- ☐ Removing and installing
⇒ [page 332](#)

8 - Bolt

- ☐ Tightening torque
⇒ [Item 12 \(page 321\)](#)

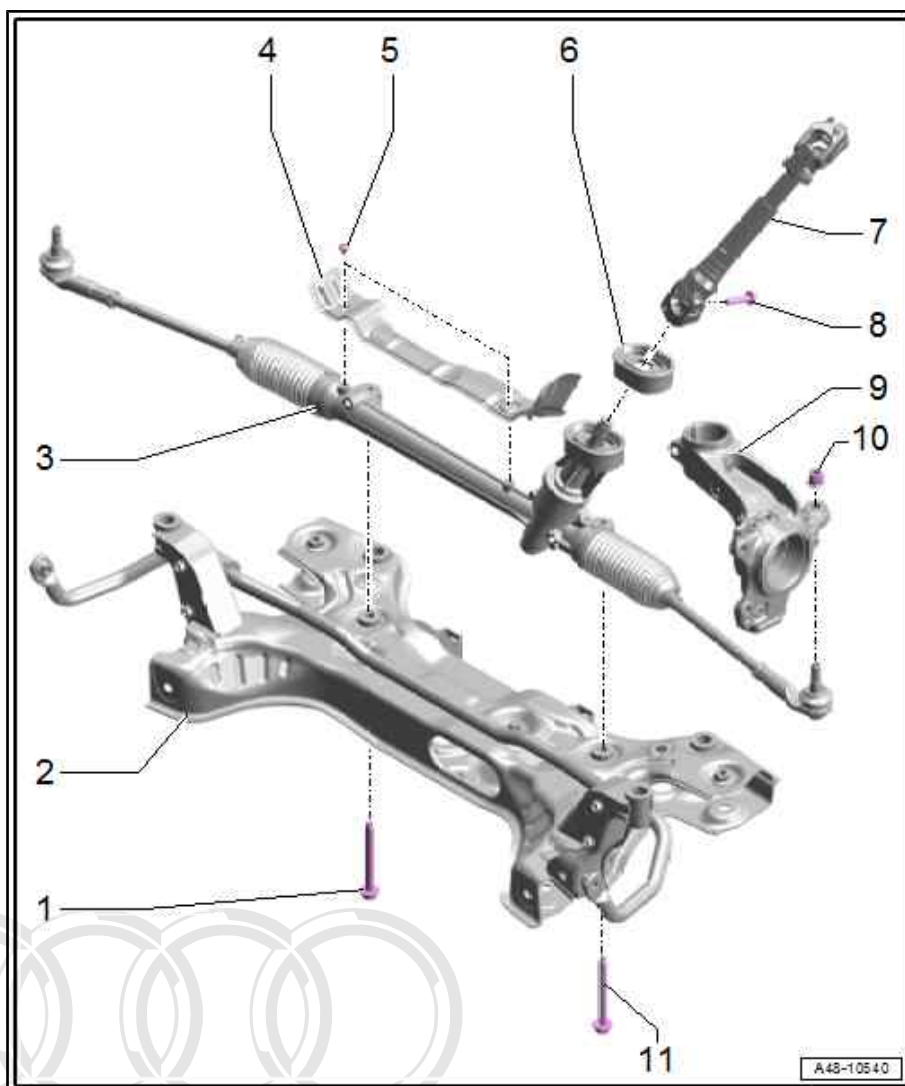
9 - Wheel bearing housing

10 - Nut

- ☐ Renew after removing
- ☐ 20 Nm +90°

11 - Bolt

- ☐ Renew after removing
- ☐ 50 Nm + 180°



Identification of track rod ball joints

I - Track rod ball joint on left side of vehicle is marked -D-.

II - Track rod ball joint on right side of vehicle is marked -C-.

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I



II



A48-10331

3.1.4 Exploded view - steering rack, vehicles from model year 2015 onwards

1 - Track rod ball joint (right-side)

- ☐ Marked "A"
- ☐ Removing and installing ⇒ [page 354](#)
- ☐ Installation position ⇒ [page 340](#)

2 - Nut

- ☐ 50 Nm

3 - Spring-type clip

4 - Boot

- ☐ Must not be twisted after adjusting toe setting
- ☐ To renew, first remove steering rack

5 - Hose clip

- ☐ Renew
- ☐ Tightening ⇒ [page 352](#)

6 - Seal

- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"

7 - Track rod (right-side)

- ☐ Removing and installing ⇒ [page 351](#)
- ☐ Replacement part is already pre-adjusted
- ☐ 80 Nm

8 - Steering rack

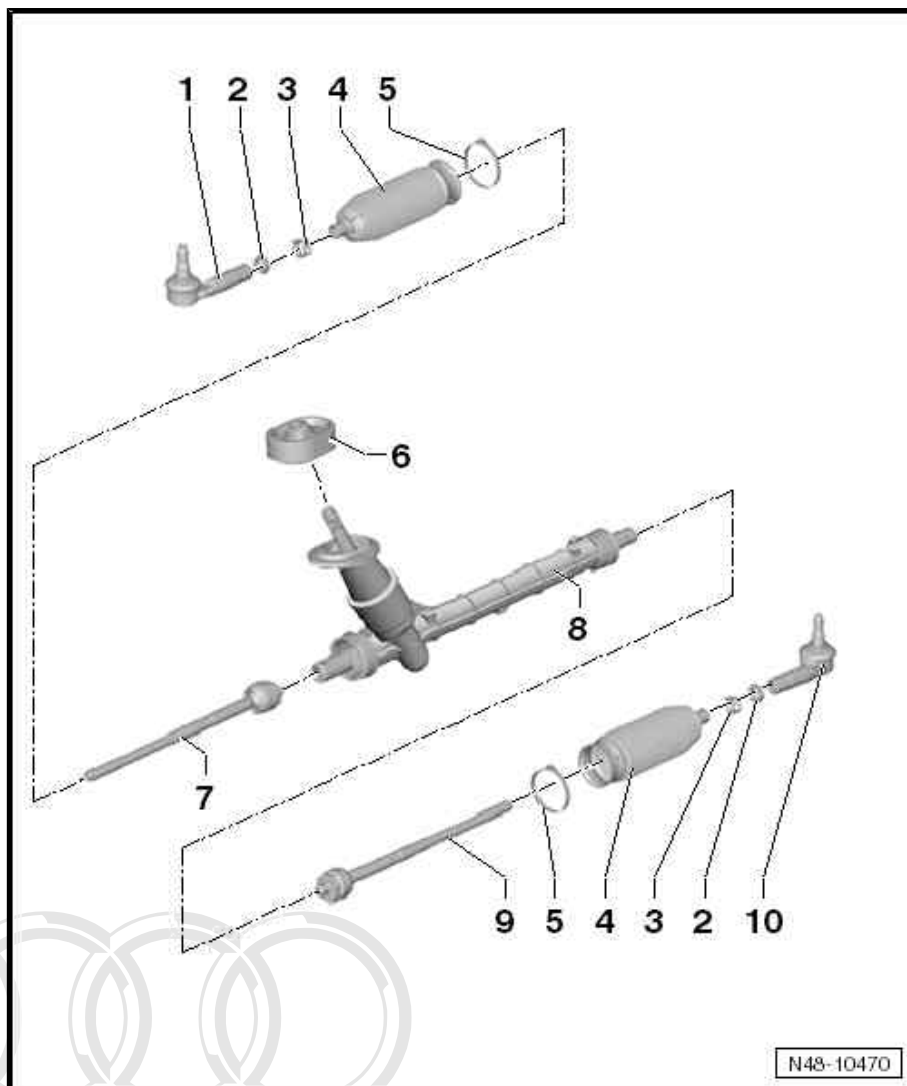
- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Removing and installing ⇒ [page 344](#)

9 - Track rod (left-side)

- ☐ Removing and installing ⇒ [page 351](#)
- ☐ Replacement part is already pre-adjusted
- ☐ 80 Nm

10 - Track rod ball joint (left-side)

- ☐ Marked "B"
- ☐ Removing and installing ⇒ [page 354](#)
- ☐ Installation position ⇒ [page 340](#)



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3.2 Removing and installing steering rack

⇒ [“3.2.1 Removing and installing steering rack - vehicles up to and including model year 2014”, page 342](#)

⇒ [“3.2.2 Removing and installing steering rack - vehicles from model year 2015 onwards”, page 344](#)

3.2.1 Removing and installing steering rack - vehicles up to and including model year 2014

- ◆ There is no provision for repairing the steering rack. Install a new steering rack in the event of malfunction.
- ◆ To lubricate the steering rack, use only steering rack grease. However, do not apply too much grease to the steering rack. The breather holes must remain free; otherwise the boot can be damaged.
- ◆ Fluid type: hydraulic fluid
- ◆ Quantity of fluid in system: approx. 0.8 ltr.

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

- ◆ Slotted ring spanner insert, 17 mm - V.A.G 1331/10-

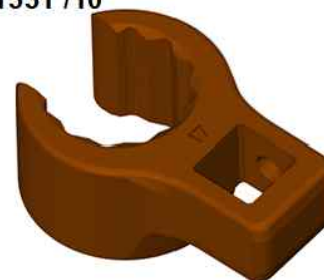
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V.A.G 1331



W00-11166

VAG 1331 /10



W00-11531

- ◆ Torque wrench - V.A.G 1332-

V.A.G 1332



W00-11165

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Removing

- Remove subframe with steering rack ⇒ [page 25](#) .
- Remove steering rack bolts -arrows- from subframe.
- Remove steering rack.

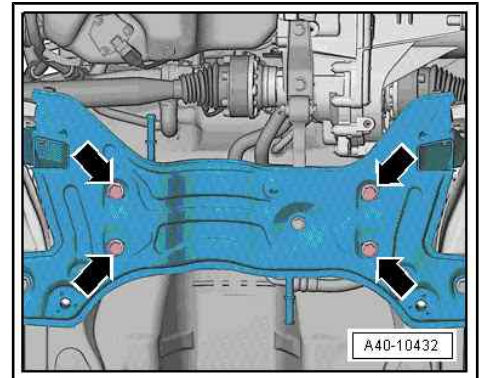
Installing

Install in reverse sequence, paying attention to the following:

- ◆ Use new seals for hose/line connections.
- ◆ Coat seal on steering rack with suitable lubricant, e.g. soft soap, before installing steering rack.
- ◆ After fitting the steering rack to the jointed shaft make sure that the seal on the steering rack lies against the assembly plate without kinks. The opening to the footwell must seal correctly. Otherwise, this can result in water leaks and/or noise.
- ◆ Make sure sealing surfaces are clean.
- ◆ When renewing the power steering rack also install new boots on the track rods.

Before inserting bolts for subframe, position power steering rack on subframe and insert power steering rack bolts.

- Install subframe ⇒ [page 25](#) .



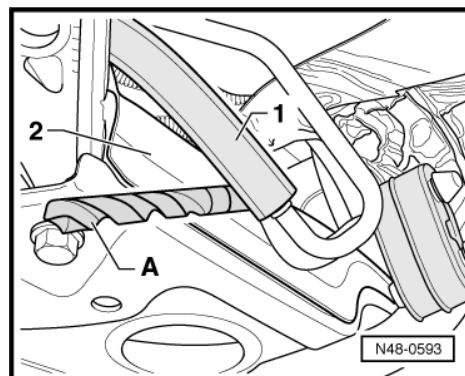
A40-10432

- If pressure line protrudes above subframe, adjust distance between pressure line and subframe.
- Distance between pressure line -1- and subframe -2- must be 10 mm.
- This can be checked by inserting a 10 mm dia. drill bit -A- or similar between the pressure line -1- and the subframe -2-.
- Then tighten banjo bolt for pressure line.



Note

Make sure that pressure line does not make contact with body or subframe.



- Fill up with fresh hydraulic fluid using hose (approx. 400 ... 500 mm) and funnel.
- For hydraulic fluid refer to ⇒ Electronic parts catalogue “ET-KA” .
- Bleed steering system ⇒ [page 360](#) .
- Check hydraulic fluid level ⇒ [page 359](#) .

After installation, check position of steering wheel by test-driving vehicle.

If the steering wheel is not horizontal or if a new steering rack has been installed, the front axle toe setting must be checked and if necessary adjusted.

- Check toe setting ⇒ [page 310](#) .

Tightening torques

- ♦ ⇒ [“3.1.1 Exploded view - steering rack with track rods, vehicles up to and including model year 2014”, page 337](#)

3.2.2 Removing and installing steering rack - vehicles from model year 2015 onwards

Special tools and workshop equipment required

- ♦ Torque wrench - V.A.G 1331-



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◆ Torque wrench - V.A.G 1332-



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Removing

- Remove subframe with steering rack ⇒ [page 25](#) .
- Remove bolts -arrows-.
- Detach steering rack from subframe.

Installing

Installation is carried out in reverse sequence. Note the following points:

Threaded sleeves of steering rack must be located in subframe holes.



Note

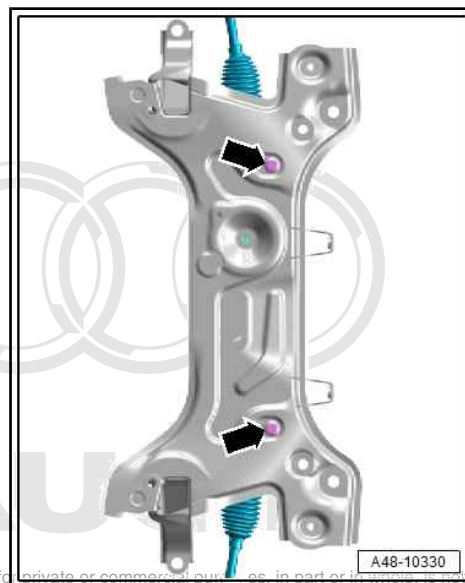
- ◆ Coat seal on steering rack with suitable lubricant, e.g. soft soap, before installing steering rack.
- ◆ After positioning steering rack in relation to steering column shaft, ensure seal on steering rack makes snug contact with base plate, without kinks, and properly seals off opening to footwell. Otherwise, this can result in water leaks and/or noise.
- ◆ Make sure sealing surfaces are clean.
- Before inserting subframe bolts, position steering rack on subframe and insert bolts for steering rack.
- Install subframe with steering rack ⇒ [page 25](#) .



Note

Ensure sealing boot is not damaged or twisted.

- If the steering rack has been removed and re-installed or if a new steering rack has been installed, perform basic setting for steering angle sender - G85- .
- Vehicle diagnostic tester is connected.
- Select **Guided Fault Finding** mode.
- Press the **Go to** button, select the option “Function/component selection” and then select the following menu items:
 - ◆ Running gear (Rep. gr. 01; 40-49)
 - ◆ Steering (Rep. Gr. 44)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 44 - Power steering (electromechanical)
 - ◆ 44 - Power steering, functions
 - ◆ 44 - Basic setting, steering angle sender -G85-
- Follow instructions on screen.
- If a new steering rack has been installed, the power steering control unit - J500- must be adapted.
- Vehicle diagnostic tester is connected.
- Select **Guided Fault Finding** mode.
- Press the **Go to** button, select the option “Function/component selection” and then select the following menu items:
 - ◆ Running gear (Rep. gr. 01; 40-49)



- ◆ Steering (Rep. Gr. 44)
- ◆ 01 - Self-diagnosis compatible systems
- ◆ 44 - Power steering (electromechanical)
- ◆ 44 - Power steering, functions
- ◆ 44 - Adapt end stops
- Follow instructions on screen.
- On vehicles with vehicle level sender, carry out basic adjustment of headlights ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .
- If steering rack has been removed and re-installed, check position of steering wheel by road-testing vehicle. Wheel alignment must be checked and adjusted if steering wheel is not in central position ⇒ [page 310](#) .
- Perform wheel alignment after installing a new steering rack ⇒ [page 310](#) .

Tightening torques

- ◆ ⇒ [“3.1.3 Exploded view - steering rack with track rods, vehicles from model year 2015 onwards”](#), [page 340](#)

3.3 Removing and installing boot



Note

- ◆ *This procedure relates to the manual steering rack.*
- ◆ *Moisture and dirt will enter the steering rack if the rubber boot is defective. It should be possible to feel a film of lubricant on and around the teeth of the steering rack. Renew steering rack if no film of lubricant can be felt. Also renew steering rack unit if the teeth show signs of corrosion, damage or wear.*

Special tools and workshop equipment required

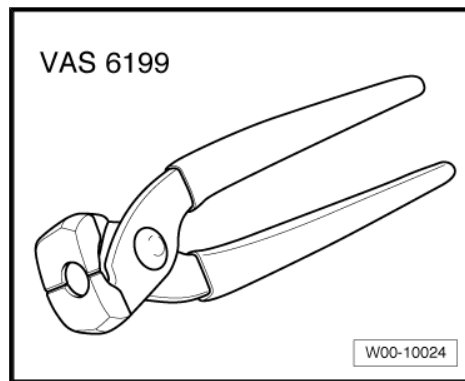
- ◆ Torque wrench - V.A.G 1332-

V.A.G 1332



W00-11165

◆ Locking pliers for Phaeton steering rack - VAS 6199-

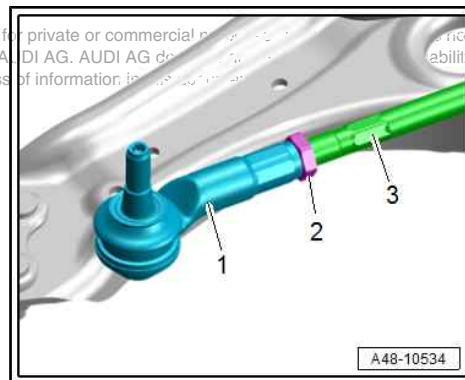


◆ Hose clip pliers - VAS 6362-



Removing

- Remove subframe with steering rack ⇒ [page 25](#)
- Mark position of nut -2- on track rod.
- Loosen nut (counterhold track rod ball joint -1-).
- Unscrew track rod ball joint -1- and nut -2- from track rod.
- Clean outside of steering rack in area of rubber boot.
- No dirt must be allowed to enter the steering rack through a defective rubber boot during this operation.



- Detach spring-type clip -1- and O-type clip -3-.
- Remove rubber boot -2-.

 Note

- ◆ *Renew the complete steering rack unit if there are signs of corrosion, damage, wear or dirt on the rack.*
- ◆ *The complete steering rack unit must also be renewed if there is no visible lubricating film on the rack.*

Installing



Caution

Do not grease rack.

 Note

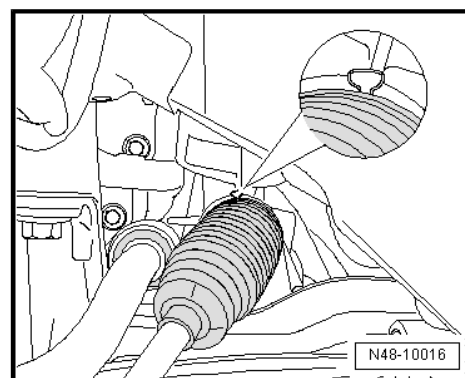
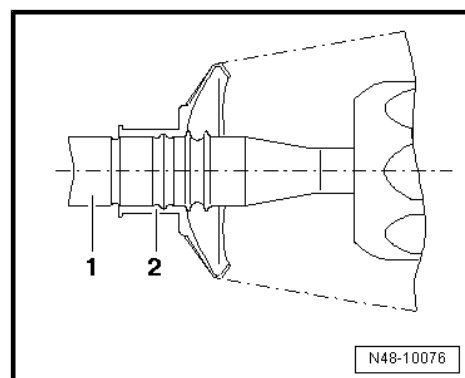
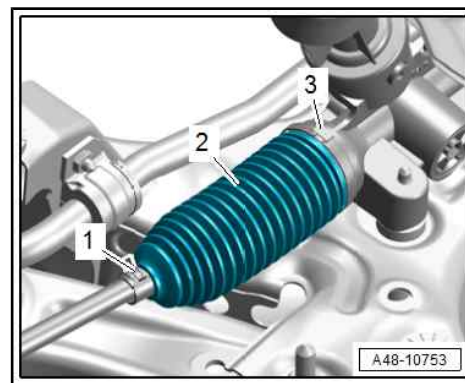
Check boot for wear (slits, tears) and check sealing surfaces for dirt.

- Turn steering wheel to straight-ahead position.
- Fit new clamps and rubber boot onto track rod.

– **Push rubber boot -2- onto track rod -1- as shown in illustration.**
Protection of Audi AG and its subsidiaries is permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the accuracy of the information.

- **The boot must not be twisted during installation.**
- Secure spring-type hose clip onto rubber boot using hose clip pliers - VAS 6362- .

- Lightly grease sealing point between rubber boot and steering rack housing with grease from repair kit.
- Push rubber boot onto steering rack housing.
- Secure new O-type hose clip using locking pliers for Phaeton steering rack - VAS 6199- .



- Turn nut -2- until it reaches marking (made before removing nut) on track rod -3-.
- Turn track rod ball joint -1- until it reaches nut -2- and tighten against nut.
- Install subframe with steering rack ⇒ [page 25](#) .

The remaining installation steps are carried out in the reverse sequence.

- Check wheel alignment ⇒ [page 310](#) .

Vehicles from model year 2015 onwards:

- Perform basic setting of steering angle sender - G85- .
- Vehicle diagnostic tester is connected.
- Select **Guided Fault Finding** mode.
- Press the **Go to** button, select the option “Function/component selection” and then select the following menu items:

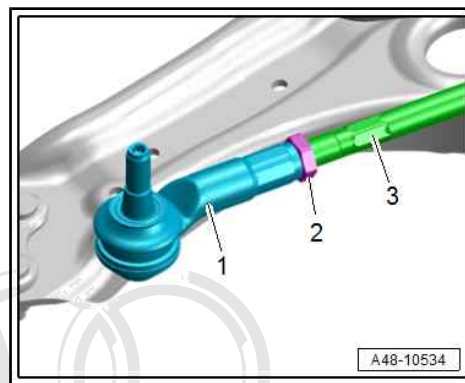
- ◆ Running gear (Rep. gr. 01; 40-49)
- ◆ Steering (Rep. Gr. 44)
- ◆ 01 - Self-diagnosis compatible systems
- ◆ 44 - Power steering (electromechanical)
- ◆ 44 - Power steering, functions
- ◆ 44 - Basic setting, steering angle sender -G85-
- Follow instructions on screen.

Continued for all vehicles:

- Perform basic setting of steering.
- Vehicle diagnostic tester is connected.
- Select **Guided Fault Finding** mode.
- Press the **Go to** button, select the option “Function/component selection” and then select the following menu items:
- ◆ Running gear (Rep. gr. 01; 40-49)
- ◆ Steering (Rep. Gr. 44)
- ◆ 01 - Self-diagnosis compatible systems
- ◆ 44 - Power steering (electromechanical)
- ◆ 44 - Power steering, functions
- ◆ 44 - Adapt end stops
- Follow instructions on screen.

Tightening torques

- ◆ ⇒ [“3.1.3 Exploded view - steering rack with track rods, vehicles from model year 2015 onwards”, page 340](#)



3.4 Removing and installing track rod

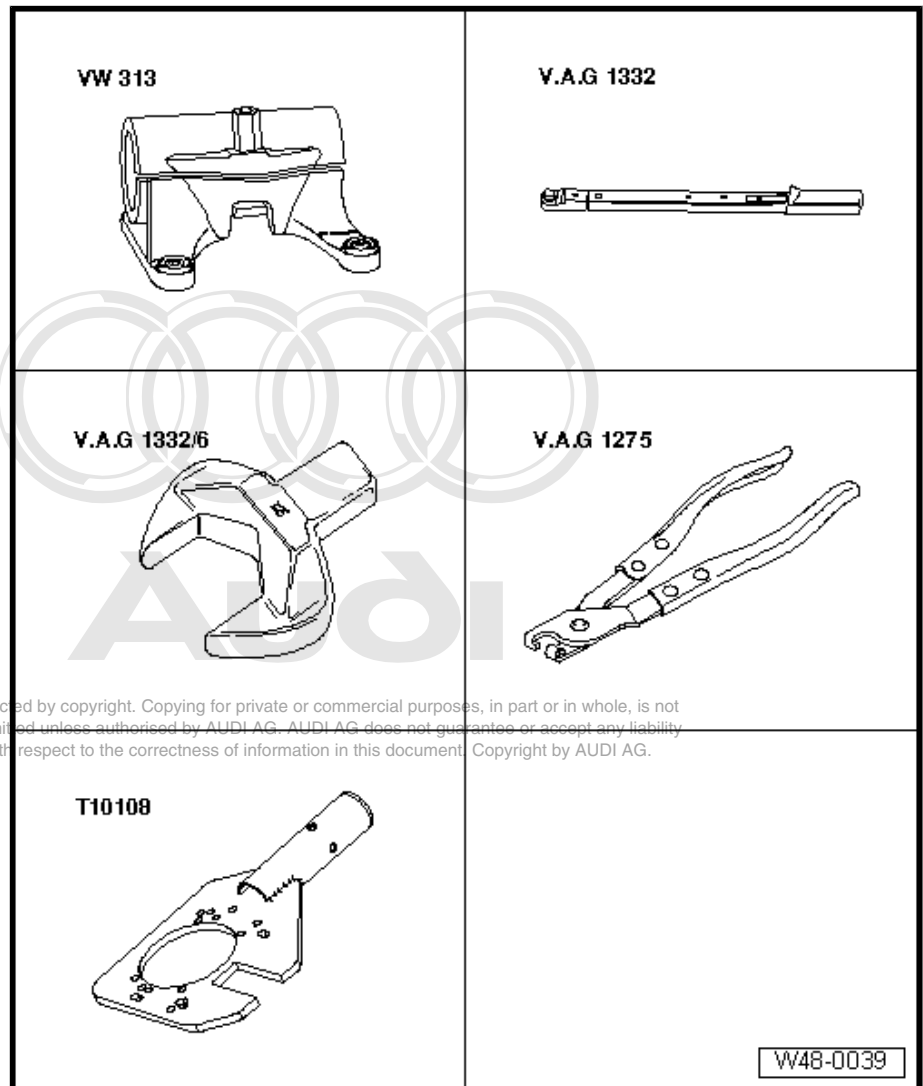
⇒ ["3.4.1 Removing and installing track rod - vehicles up to and including model year 2014", page 351](#)

⇒ ["3.4.2 Checking and adjusting length of track rod \(left-side\), vehicles up to and including model year 2014", page 352](#)

⇒ ["3.4.3 Removing and installing track rod - vehicles from model year 2015 onwards", page 353](#)

3.4.1 Removing and installing track rod - vehicles up to and including model year 2014

Special tools and workshop equipment required



- ◆ Support clamp - VW 313-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Open-end spanner insert (32 mm) - V.A.G 1332/6-
- ◆ Hose clip pliers - V.A.G 1275-
- ◆ Gearbox support - T10108-

Removing

The track rods can only be removed/installed with the steering rack removed.

- Seal line connections on power steering rack if not already done.
- Clean outside of power steering rack in vicinity of boot.

To remove the right track rod, the large O-type hose clip and the small hose clip on the left boot must be opened and boot must be pushed back. Counterhold at left end of rack to release right track rod.

- Open large O-type hose clip and small hose clip and slide boot back.
- Clamp steering rack unit to gearbox support - T10108- and unscrew track rod -1- from rack -2-.

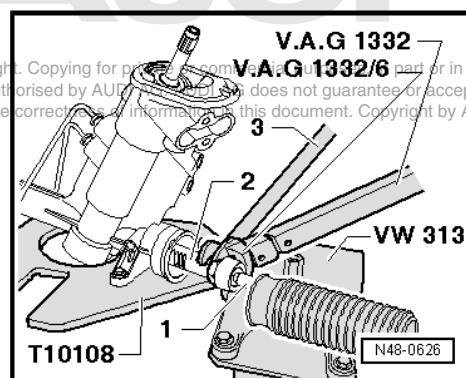
To mount steering rack, use bore "5" and matching opposite bore on gearbox support.

Installing

Install in reverse sequence, paying attention to the following:

Tightening torques

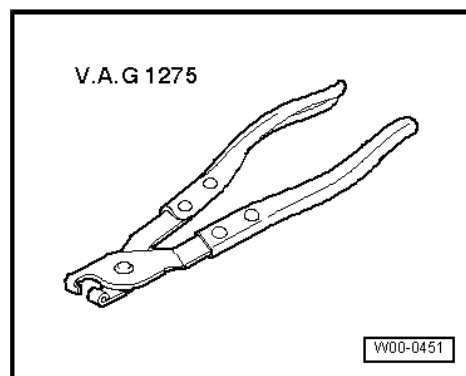
- ♦ ⇒ ["3.1.2 Exploded view - steering rack, vehicles up to and including model year 2014", page 339](#)



3.4.2 Checking and adjusting length of track rod (left-side), vehicles up to and including model year 2014

Special tools and workshop equipment required

- ♦ Hose clip pliers - V.A.G 1275-



- Check dimension "a" on left track rod and adjust as required.

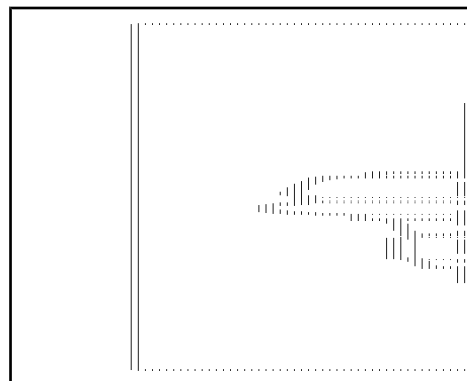
Dimension -a- = 365 ± 5 mm

On a new track rod, check dimension "a" before installing and adjust as required.

Then check total toe setting on wheel alignment unit and adjust as required; ⇒ [page 310](#) , checking wheel alignment.

Installing boot

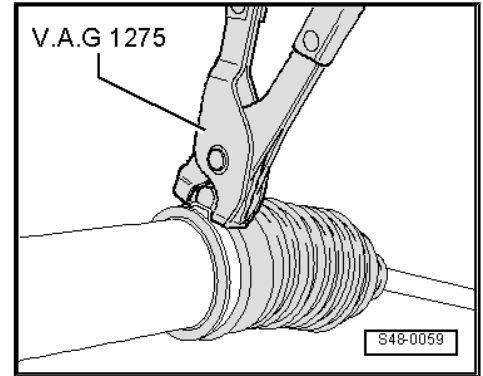
- Check boot for wear (slits, tears) and check sealing surfaces for dirt.



- Install boot. First turn track rod so that joint pin of track rod ball joint is in installation position.
- Tighten hose clip with hose clip pliers - V.A.G 1275- .

Only use genuine clips (same as original equipment).

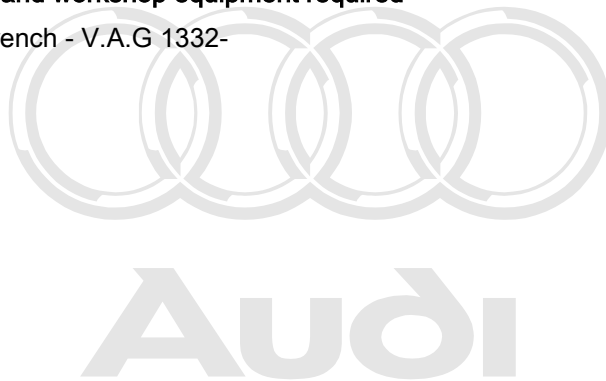
The boot must not be twisted during installation.



3.4.3 Removing and installing track rod - vehicles from model year 2015 onwards

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



- ◆ Open-end spanner attachment - V.A.G 1923-

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Removing

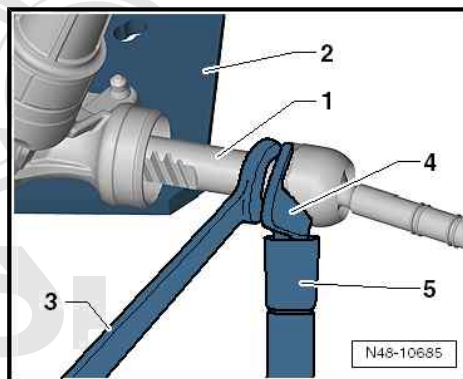
- Remove rubber boot ⇒ [page 347](#) .
- Unscrew track rod from rack -1- (counterhold at flats on rack with open-end spanner).
- 3 - Open-end spanner (21 mm)
- 4 - Open-end spanner insert (32 mm) - V.A.G 1332/6-
- 5 - Torque wrench - V.A.G 1332-



Note

Disregard -item 2-.

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Installing

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

- Install rubber boot ⇒ [page 347](#) .

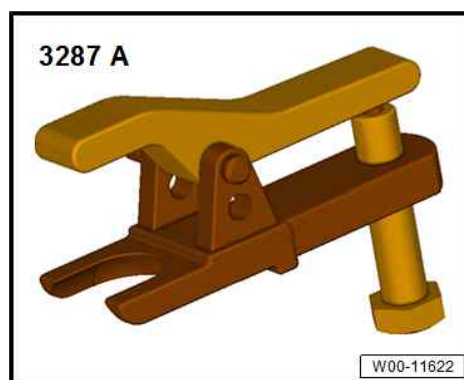
Tightening torques

- ◆ ⇒ [“3.1.4 Exploded view - steering rack, vehicles from model year 2015 onwards”, page 341](#)

3.5 Removing and installing track rod ball joint

Special tools and workshop equipment required

- ◆ Ball joint puller - 3287 A-



- ◆ Torque wrench - V.A.G 1332-



Removing

- Turn steering wheel to straight-ahead position.
- Remove wheel ⇒ [page 303](#) .

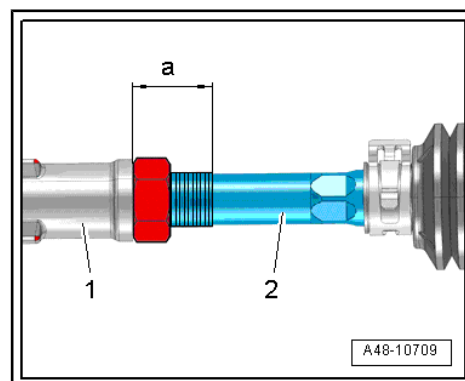
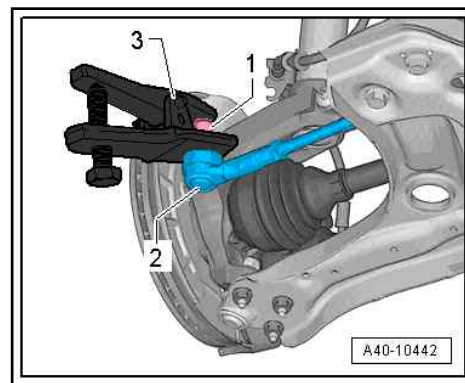
- Unscrew nut -1- on joint pin -2- of track rod ball joint until it is flush with end of thread. Counterhold if necessary when loosening.



Note

Leave nut screwed on a few turns to protect threads on joint pin.

- Press track rod ball joint off wheel bearing housing using ball joint puller - 3287 A- -item 3-. Then remove nut.
- Measure and note down dimension -a- between track rod ball joint -1- and track rod -2- on both sides. Dimension -a- should be the same on both sides after installation.
- If necessary, shorten the “longer” track rod ball joint (by screwing it further onto the track rod).



- Just slacken nut -2- but do not remove. Counterhold at track rod ball joint -1-.
- Unscrew track rod ball joint.

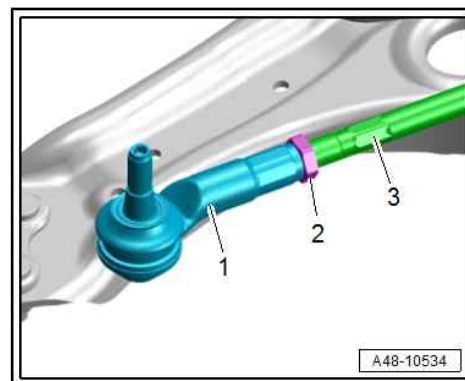
Installing

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

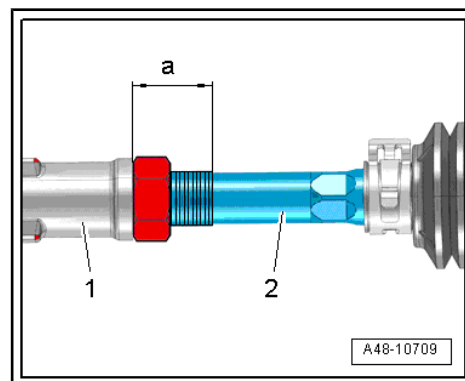


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Identification of track rod ball joints ⇒ [page 340](#)



- Screw track rod ball joint -1- onto track rod -2- until dimension -a- measured on removal is obtained.
- Align track rod so that pin of track rod ball joint is in installation position.
- Insert track rod ball joint in wheel bearing housing and tighten.

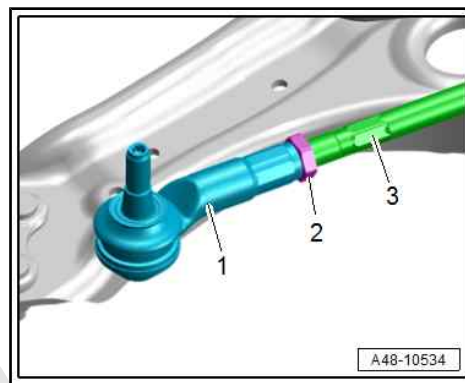




- Tighten nut -2-. While tightening, counterhold at track rod ball joint -1- if necessary.
- Check wheel alignment ⇒ [page 310](#) .

Tightening torques

- ◆ ⇒ [“3.1.4 Exploded view - steering rack, vehicles from model year 2015 onwards”, page 341](#)
- ◆ ⇒ [“1 Wheels, tyres”, page 303](#)



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4 Hydraulic power steering

⇒ [“4.1 Exploded view - motor/pump unit”, page 357](#)

⇒ [“4.2 Checking fluid level in power steering system”, page 359](#)

⇒ [“4.3 Bleeding steering system after repairs”, page 360](#)

⇒ [“4.4 Checking steering system for leaks”, page 361](#)

⇒ [“4.5 Checking delivery pressure of motor/pump unit”,
page 361](#)

⇒ [“4.6 Removing and installing motor/pump unit”, page 364](#)

⇒ [“4.7 Removing and installing reservoir on motor/pump unit”,
page 367](#)

4.1 Exploded view - motor/pump unit

- ◆ There is no provision for repairing the motor/pump unit.
- ◆ If problems are reported, determine the cause by means of a pressure test and a leakage test.
- ◆ Always check the steering system for leaks if the hydraulic fluid level in the reservoir is low.
- ◆ In the event of any leaks near line connections, re-tighten connections and wipe dry.
- ◆ Do not re-use hydraulic fluid which has been drained off.
- ◆ Always renew seals.
- ◆ Quantity of fluid in system: approx. 0.8 ltr.

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1 - Cap with dipstick

- ☐ Checking hydraulic fluid level ⇒ [page 359](#)

2 - Seal

3 - Reservoir

- ☐ Removing and installing ⇒ ["4.7 Removing and installing reservoir on motor/pump unit"](#), [page 367](#)

4 - Clamp

- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ 3 Nm

5 - Seal

- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"
- ☐ Always renew if removed

6 - Motor/pump unit

- ☐ With power steering control unit - J500-
- ☐ No provision for repair
- ☐ Only the fluid reservoir ⇒ [Item 3 \(page 358\)](#), clamp ⇒ [Item 4 \(page 358\)](#) and seal ⇒ [Item 5 \(page 358\)](#) can be renewed.
- ☐ Removing and installing ⇒ [page 364](#)
- ☐ Checking delivery pressure ⇒ [page 361](#)

7 - Mounting

- ☐ Check for damage, such as cracks in rubber, separation of metal plate from rubber etc. and renew as required
- ☐ 7 Nm

8 - Nut

- ☐ When tightening, counterhold at mounting ⇒ [Item 7 \(page 358\)](#)
- ☐ 7 Nm

9 - Bolt

- ☐ Always renew if removed
- ☐ 20 Nm +90°

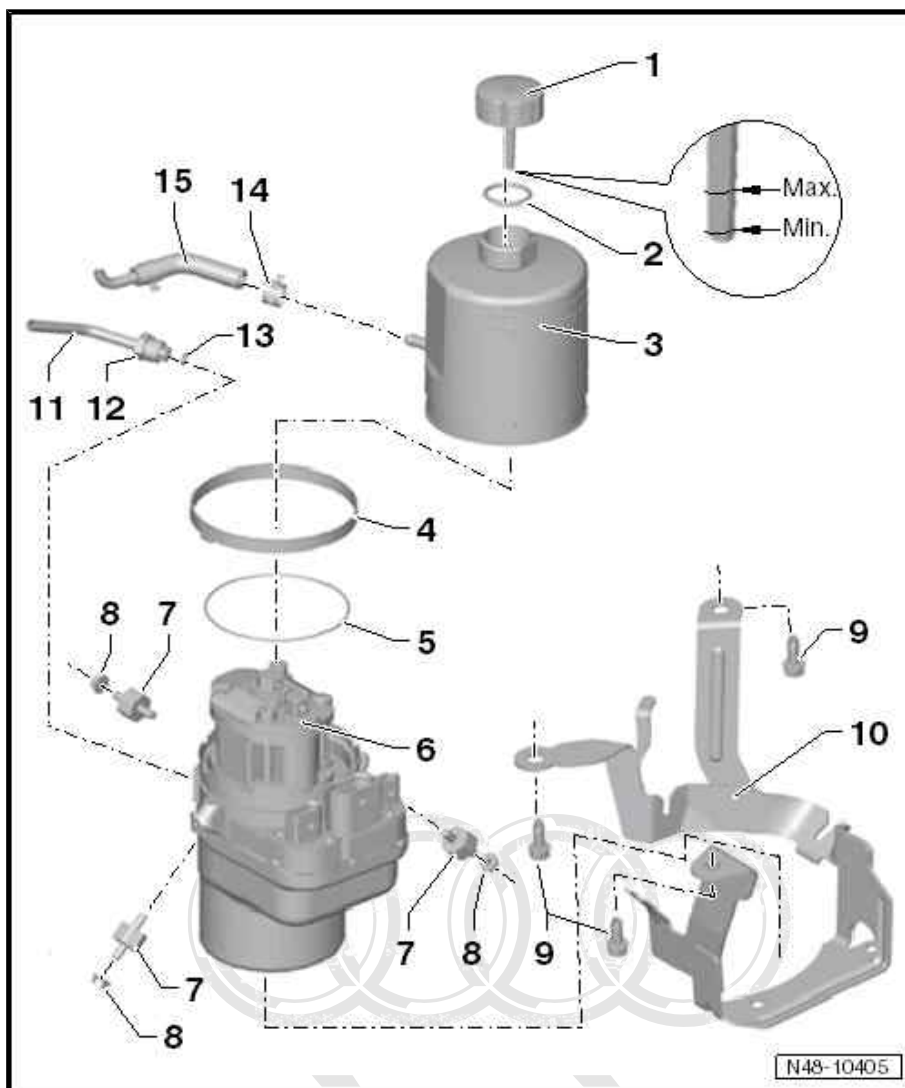
10 - Bracket

- ☐ For motor/pump unit
- ☐ Different versions available
- ☐ For correct version refer to ⇒ Electronic parts catalogue "ETKA"

11 - Pressure line

12 - Union screw

- ☐ 30 Nm



13 - Seal

- ☐ Always renew if removed

14 - Spring-type clip

15 - Return line

4.2 Checking fluid level in power steering system

- Engine switched off
- Raise vehicle until front wheels can move freely.
- Turn front wheels to full left lock.
- Open service flap in left wheel housing liner.

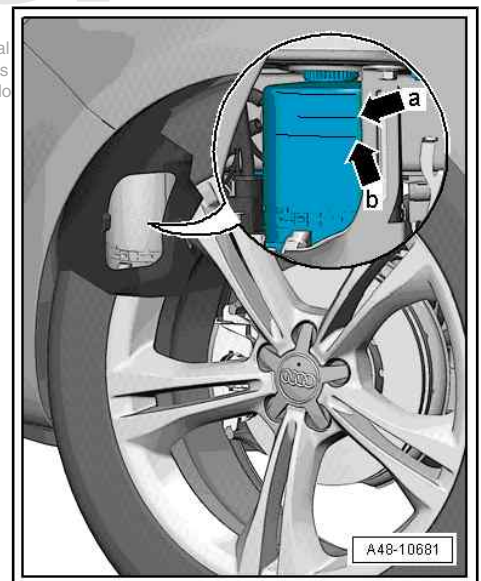
Fluid level must be between -arrow a- 15 mm (max) and -arrow b- 25 mm (min) below upper edge of reservoir.

- Excess fluid must be drained off if the level is above the range specified above.
- If the fluid is below the specified level, the hydraulic system should be checked for leaks [⇒ page 361](#). It is then not sufficient to merely top up the fluid.



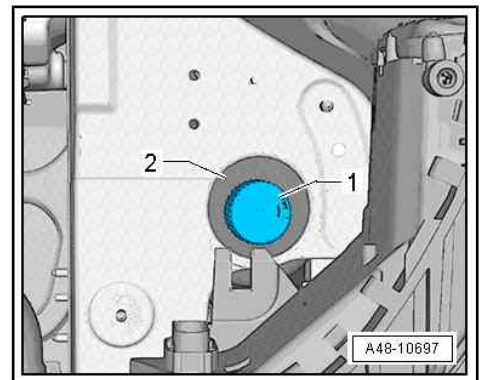
Note

*Top up hydraulic fluid if there is no leak in the hydraulic system.
Do not re-use hydraulic fluid which has been extracted.*

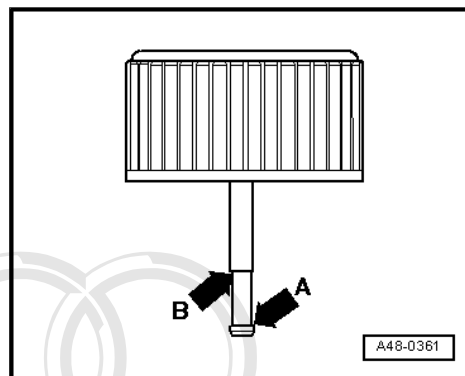


Topping up hydraulic fluid

- On vehicles with battery in engine compartment: remove headlight (left-side) $\Rightarrow$ Electrical system; Rep. gr. 94 ; Headlights; Removing and installing headlights .
- Unscrew filler cap -1- from motor/pump unit -2-.
- Clean dipstick with a clean cloth.
- Screw cap on hand tight, unscrew again and check fluid level.
- The cap must first be fully screwed on in order to obtain an accurate fluid level reading.



Fluid level must be between bottom marking -arrow A- and top marking -arrow B- on dipstick.

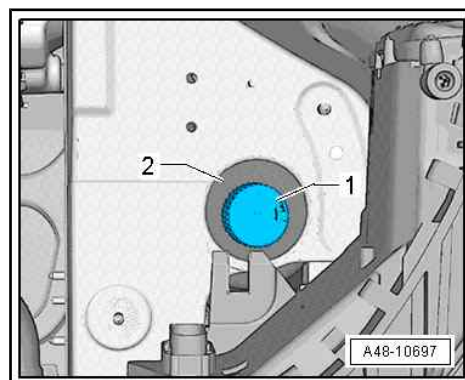
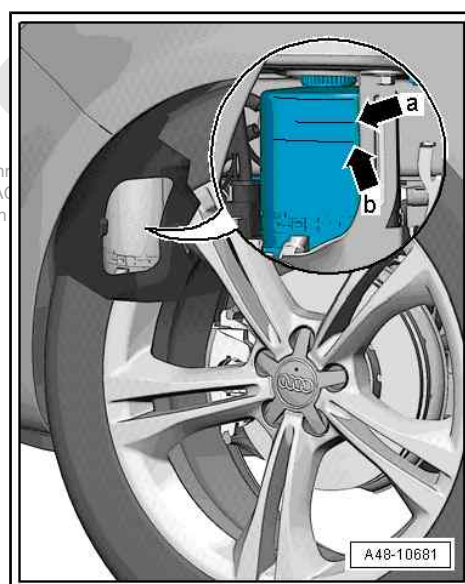


4.3 Bleeding steering system after repairs

- Raise vehicle until front wheels can move freely.
- Open service flap in left wheel housing liner.
- Check hydraulic fluid level and top up if necessary
⇒ [page 359](#).
- Start engine and run at idle for about 5 seconds.
- Switch off engine and check hydraulic fluid level.
- Repeat this procedure once.
- Start engine again and with engine idling, turn steering wheel from lock to lock three times.
- Switch engine off and check hydraulic fluid level; top up if necessary.
- Repeat this procedure twice.
- Leave engine switched off for 2 to 3 minutes to allow air bubbles to escape from hydraulic fluid.
- Lower vehicle.
- Start engine.
- Turn steering wheel 5 times from lock to lock.

The system is bled when no more air bubbles rise in the hydraulic fluid reservoir.

- Switch off engine and check hydraulic fluid level.
- After completing bleeding procedure, screw filler cap -1- hand-tight onto reservoir of motor/pump unit.



4.4 Checking steering system for leaks

The power steering system must be checked for leaks after assembly operations and in the case of hydraulic fluid losses in the reservoir.

- Remove front left wheel (if not already done).
- Remove noise insulation (if not already done) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove front wheel housing liner (left-side) (if not already done) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Start engine; run at idling speed.
- Turn steering wheel to full lock in both directions and hold for a maximum of 5 ... 10 seconds. This builds up the maximum possible pressure.
- Check pressure line and return line for leaks.
- Check all line and hose connections for firm seating and for leaks. In the event of leaks, re-tighten line or hose connection to specified torque or renew seal/line.
- Check motor/pump unit for leaks. Renew motor/pump unit if leaks are found.
- Check hydraulic fluid reservoir for leaks. Renew reservoir if leaks are found.
- Check hydraulic fluid level and top up if necessary
⇒ [page 359](#) .

If the hydraulic fluid level drops in reservoir even though all hose and/or pressure line connections are absolutely tight, then the power steering rack may be the cause of the loss of hydraulic fluid. In this case check the power steering rack while removed.

- Remove power steering rack ⇒ [page 342](#) .

Check the following components for leaks with the steering rack removed:

- ◆ Pinion seal on steering rack valve housing
- ◆ All line connections on steering rack
 - Push back boots for next test step:
- Open hose clips on boots.
- Push back the boot. If hydraulic fluid is visible in steering rack housing or in boot, steering rack must be renewed.
- Install power steering rack ⇒ [page 342](#) .

Tightening torques

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- ◆ ⇒ [1 Wheels, tyres; page 303](#)

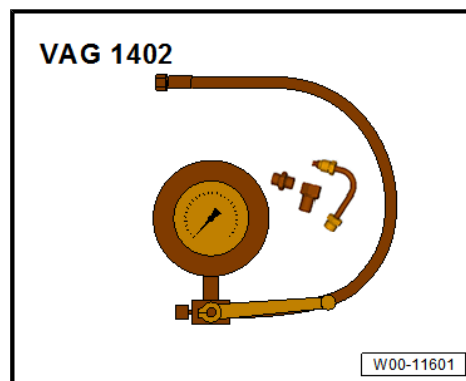
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

4.5 Checking delivery pressure of motor/pump unit

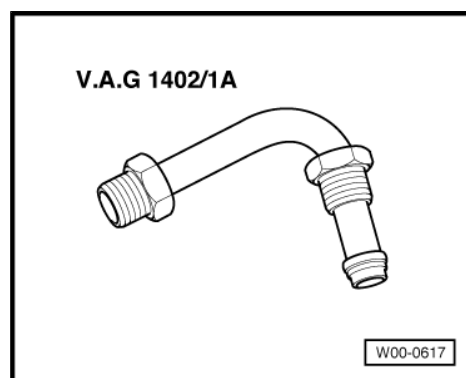
Special tools and workshop equipment required



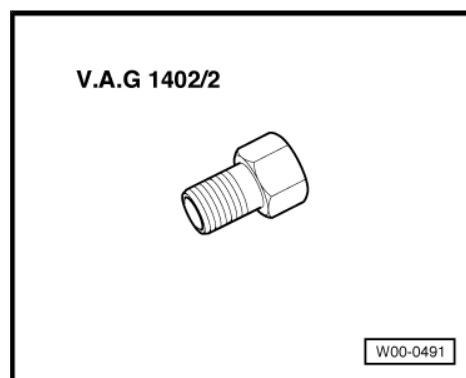
◆ Power steering tester - V.A.G 1402-



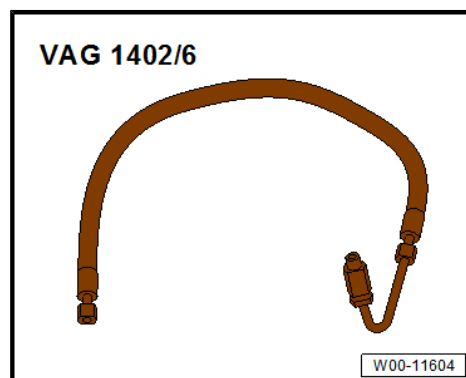
◆ Adapter - V.A.G 1402/1A-



◆ Adapter - V.A.G 1402/2-



◆ Hose from adapter set - V.A.G 1402/6-



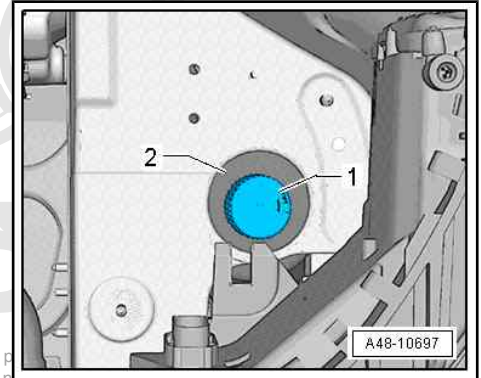
Procedure

Vehicles with battery on left side of engine compartment

- Remove battery and battery tray ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery tray .

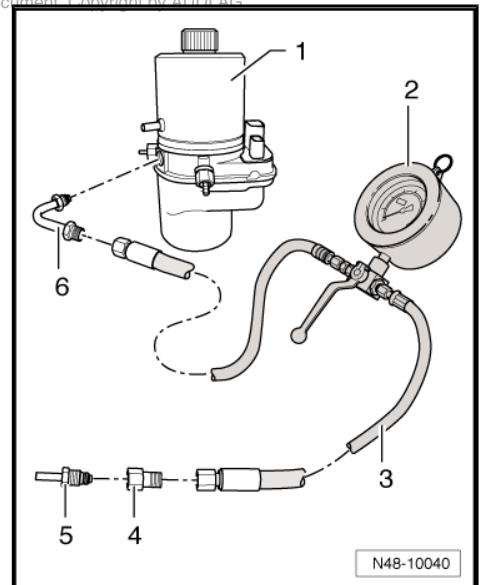
All vehicles (continued):

- Unscrew filler cap -1- from motor/pump unit -2-.
- Draw off as much hydraulic fluid as possible from motor/pump unit using an extractor bottle.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Disconnect pressure line on motor/pump unit.



- Fit adapters as shown.

- 1 - Motor/pump unit
- 2 - Power steering tester - V.A.G 1402-
- 3 - Hose from adapter set - V.A.G 1402/6-
- 4 - Adapter - V.A.G 1402/2-
- 5 - Pressure line
- 6 - Adapter - V.A.G 1402/1A-

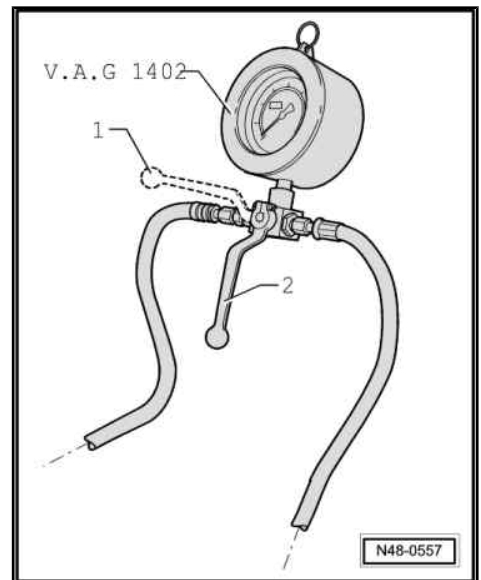


Make sure lever on pressure gauge is at position -2-.

- Fill up with hydraulic fluid ⇒ [page 359](#) .
- Bleed steering system ⇒ [page 360](#) .
- Check hydraulic fluid level ⇒ [page 359](#) .
- Then check delivery pressure.

Test requirement:

- No leaks in system
- Hoses and lines not kinked or constricted
- Start engine.



- With engine idling, close shut-off valve (position -1-) for no longer than 5 seconds and note pressure.

Delivery pressure specification:

90...105 bar

If specification is not obtained, renew motor/pump unit

⇒ [page 364](#) .

Turn steering wheel to full lock and hold in that position (shut-off valve in position -2-) – read off pressure.

If the reading is significantly lower than the first measured value then there is a leak in or on the steering rack.

- Remove pressure gauge and adapter.
- Attach pressure line to motor/pump unit.
- Fill up with hydraulic fluid and check fluid level ⇒ [page 359](#) .
- Bleed steering system ⇒ [page 360](#) .
- Check hydraulic fluid level and top up if necessary ⇒ [page 359](#) .
- Check steering system for leaks ⇒ [page 361](#) .

Tightening torques

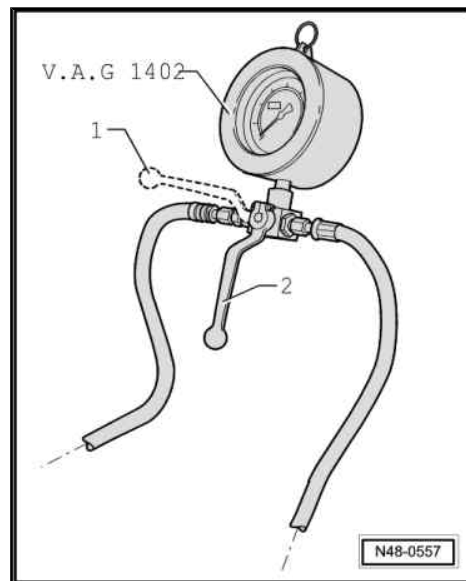
- ◆ ⇒ Electrical system; Rep. gr. 27 ; Battery; Exploded view - battery
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

4.6 Removing and installing motor/pump unit

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- ◆ Repairs must not be performed on the motor/pump unit
- ◆ If problems are reported, determine the cause by means of a function test, pressure test, leakage test and "Guided Fault Finding".
- ◆ If a fault is found, the motor/pump unit must be renewed ⇒ Vehicle diagnostic tester.
- ◆ Residual quantities of hydraulic fluid will remain in the motor/pump unit and in the return line and pressure line after the fluid has been drawn off.
- ◆ Do not re-use hydraulic fluid which has been drained off.
- ◆ The pressure line and return line must not be clamped off with hose clamps, e.g. -3094- , or other tools. Applying a clamp to these lines can cause damage.
- ◆ When bending or repositioning the pressure line or return line, make sure that the bending radius is not less than 100 mm to prevent damage to the lines.

Special tools and workshop equipment required



◆ Torque wrench - V.A.G 1331-

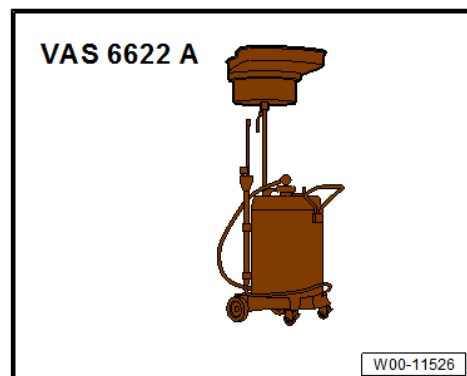


◆ Torque wrench - V.A.G 1332

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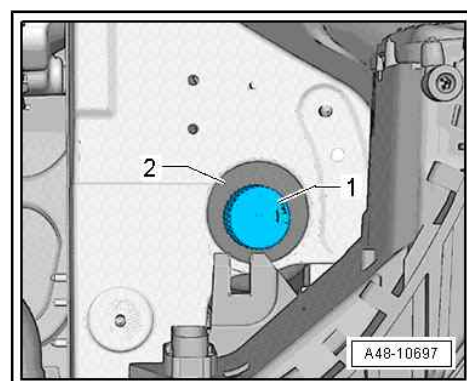


◆ Used oil collection and extraction unit - VAS 6622A-

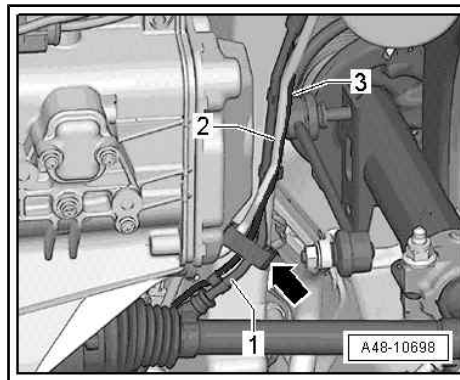


Removing

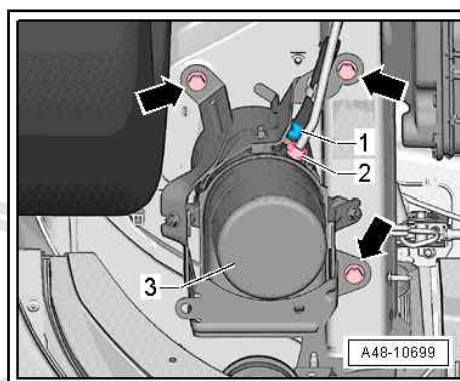
- Switch off ignition.
- On vehicles with battery in engine compartment: remove headlight (left-side) ⇒ Electrical system; Rep. gr. 94 ; Headlights; Removing and installing headlights .
- Unscrew filler cap -1- from motor/pump unit -2-.
- Draw off as much hydraulic fluid as possible from motor/pump unit using used oil collection and extraction unit - VAS 6622A- .
- Remove front left wheel ⇒ [page 303](#) .
- Remove front wheel housing liner (left-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



- Move clear pressure line -1- and return line -2- with electrical wire -3- at bracket -arrow-.



- Place used oil collection and extraction unit - VAS 6622A- under connection.
- Open spring-type clip on return line -1- and pull return line off connecting piece on motor/pump unit.
- Unscrew pressure line -2- from motor/pump unit -3-.
- Close off threaded hole on motor/pump unit with plastic sealing plug or similar.
- Seal off pressure line, return line and connecting piece on motor/pump unit with a plastic bag and adhesive tape.
- Remove bolts -arrows- and slightly lower motor/pump unit with bracket.



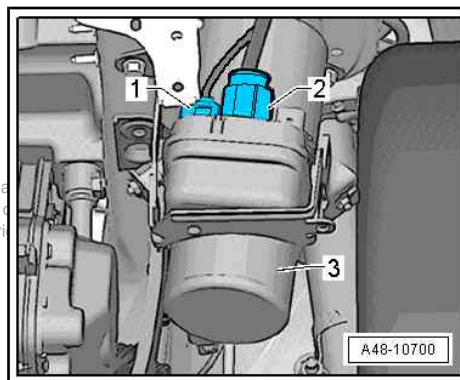
- Unplug connectors -1- and -2- from motor/pump unit -3-.
- Take out motor/pump unit with bracket.

Installing

- ◆ Use new seals for hose/line connections.
- ◆ Make sure sealing surfaces are clean.

Install in reverse sequence, paying attention to the following:

- Fill up with fresh hydraulic fluid using hose (approx. 400 ... 500 mm) and funnel.
- Use only hydraulic fluid as listed in ⇒ Electronic parts catalogue "ETKA".
- Bleed steering system ⇒ [page 360](#).
- Check hydraulic fluid level ⇒ [page 359](#).
- On vehicles with battery in engine compartment: install headlight (left-side) ⇒ Electrical system; Rep. gr. 94 ; Headlights; Removing and installing headlights.



Tightening torques

- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation
- ◆ ⇒ ["1 Wheels, tyres", page 303](#)

4.7 Removing and installing reservoir on motor/pump unit



Note

- ◆ Observe rules for cleanliness ⇒ [page 8](#).
- ◆ Before separating connections, thoroughly clean entire circumference between return line connection on reservoir and pressure line connection on motor/pump unit. Do not use aggressive cleaning agents such as brake cleaner, petrol, thinner or the like.
- ◆ The contact surface between the reservoir and motor/pump unit must not come into contact with sealants.

Special tools and workshop equipment required

- ◆ Hot air blower , e.g. -V.A.G 1416-



- ◆ Protective gloves (commercially available)
- ◆ Rubber head hammer (commercially available)

Removing reservoir

- Remove motor/pump unit ⇒ [page 364](#).

Residual amounts of fluid will remain in the motor/pump unit after the hydraulic fluid is extracted.

- Seal off threaded union for pressure line on motor/pump unit.
- Remove bracket from motor/pump unit.

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- Open clamp -1- and remove upwards.



WARNING

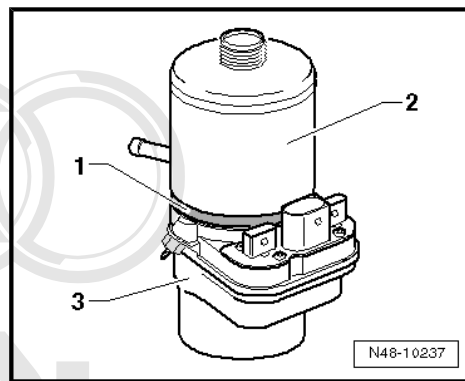
Wear protective gloves when heating and pulling off the reservoir.

- Heat all round bottom part of reservoir -2- evenly using hot air blower e.g. -V.A.G 1416- .



Caution

The reservoir may only be heated to a maximum of 80 °C.



- Pull reservoir -2- off motor/pump unit -3-!

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Installing reservoir



Note

- ◆ *Make sure that contact surfaces for seal and reservoir on motor/pump unit are clean and free of oil and grease.*
- ◆ *No slip agent or lubricant may be used when fitting the reservoir on the motor/pump unit.*
- ◆ *The contact surface between the reservoir and motor/pump unit must not come into contact with sealants.*
- Fit new seal ⇒ Electronic parts catalogue “ETKA” into sealing surface of motor/pump unit.
- Ensure that seal is seated correctly.



WARNING

Wear protective gloves when heating and installing reservoir.

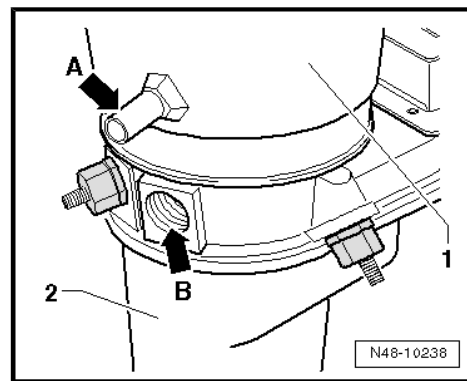
- Heat all around bottom part of new reservoir evenly using hot air blower e.g. -V.A.G 1416- .



Caution

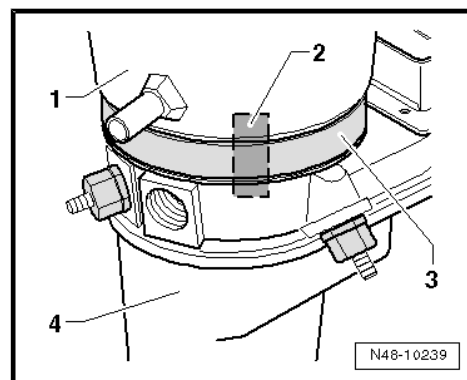
The reservoir may only be heated to a maximum of 80 °C.

- Locate reservoir -1- on motor/pump unit -2-.
- Position reservoir so that connecting piece for return line -arrow A- is vertically above threaded connection for pressure line -arrow B-.
- Install reservoir -1- onto motor/pump unit -2- as far as stop.
- Use rubber head hammer to tap evenly all round reservoir -1-; do NOT apply hammer blows to filler neck.
- Make sure that reservoir is kept straight.
- Secure reservoir to motor/pump unit with new clamp $\Rightarrow$ Electronic parts catalogue "ETKA" .
- Tighten bolt on clamp to specified torque.
- Seal off connecting piece for return line on reservoir.
- Fill reservoir approx $\frac{1}{4}$ full with hydraulic fluid and check for leaks at joint between reservoir and motor/pump unit.
- Re-tighten clamp if leaks are found.
- Drain reservoir.



The replacement of the reservoir must be marked for warranty purposes.

- Mark an area of approx 15 x 30 mm with a permanent coloured marking -2- (e.g. anti-tamper paint) at the position illustrated.
- The marking must cover the reservoir -1-, the clamp -3- and the motor/pump unit -4-.
- Attach bracket to motor/pump unit.
- Open connections for return line on reservoir and pressure line on motor/pump unit.
- Install motor/pump unit $\Rightarrow$ [page 364](#) .



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