

Workshop Manual

Audi 100 1991 ➤

Audi A6 1995 ➤

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

Edition 11.2008



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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 Technical data	1
1.1 Running gear	1
1.2 Steering	1
2 General	2
2.1 General information	2
2.2 Contact corrosion	2
2.3 Repairing thread in longitudinal member	3
3 Proper disposal of oil and gas-filled components	4
3.1 Releasing gas from shock absorbers	4
3.2 Draining steering damper	5
3.3 Draining power-assisted steering box	5
4 Checking shock absorbers	6
4.1 Shock absorber leakage	6
4.2 Shock absorber noise	6
4.3 Checking shock absorber following removal	6
4.4 Checking shock absorbers on shock tester	7
40 - Front suspension	9
1 Front suspension	9
1.1 Exploded view of front suspension	9
1.2 Exploded view of subframe	13
1.3 Removing and installing subframe	15
2 Front suspension strut	19
2.1 Exploded view of front suspension strut	19
2.2 Removing and installing suspension strut	20
2.3 Exploded view of shock absorber, coil spring and wheel bearing housing	21
2.4 Removing and installing wheel bearing with suspension strut removed	27
2.5 Removing and installing coil spring	29
2.6 Removing and installing shock absorber	31
3 Front drive shaft	32
3.1 General	32
3.2 Exploded view of drive shaft	32
3.3 Removing and installing drive shafts	36
3.4 Exploded view of drive shaft with constant velocity joint	36
3.5 Quantities and type of grease	39
3.6 Plastic boot (Hytrel)	40
3.7 Exploded view of drive shaft with triple roller joint	40
3.8 Quantities and type of grease	43
42 - Rear suspension	44
1 Rear suspension - Front-wheel drive vehicles	44
1.1 General	44
1.2 Exploded view of rear suspension	44
1.3 Exploded view of rear axle beam	45
1.4 Removing and installing rear axle	47
2 Rear suspension strut - Front-wheel drive vehicles	51
2.1 Removing and installing suspension strut	51
2.2 Exploded view of suspension strut	55
2.3 Dismantling and assembling suspension strut	57
3 Rear wheel bearings - Front-wheel drive vehicles	61
3.1 General	61



3.2	Exploded view of wheel bearings - Vehicles with drum brakes	61
3.3	Exploded view of wheel bearings - Vehicles with disc brakes	65
4	Rear suspension - Four-wheel drive vehicles	71
4.1	General	71
4.2	Exploded view of rear subframe	71
4.3	Exploded view of rear suspension	75
4.4	Exploded view of trapezium link	80
4.5	Removing and installing trapezium link	84
4.6	Exploded view of support for trapezium link with bonded rubber bush	85
4.7	Replacing bonded rubber bush for trapezium link support	87
4.8	Removing and installing transverse link	89
4.9	Exploded view of connecting link	90
4.10	Exploded view of anti-roll bar	91
4.11	Removing and installing anti-roll bar	91
5	Rear suspension strut - Four-wheel drive vehicles	92
5.1	Removing and installing suspension strut	92
5.2	Exploded view of suspension strut	95
5.3	Dismantling and assembling suspension strut	97
5.4	Exploded view of suspension strut with self-levelling suspension	102
5.5	Dismantling and assembling suspension strut with self-levelling suspension	104
6	Rear wheel bearing - Four-wheel drive vehicles	110
6.1	Exploded view of wheel bearing	110
6.2	Removing and installing wheel bearing housing	114
7	Rear drive shaft - Four-wheel drive vehicles	116
7.1	General	116
7.2	Exploded view of drive shaft	116
7.3	Removing and installing drive shaft	119
7.4	Quantities and type of grease	120
43	Self-levelling suspension	122
1	Self-levelling suspension - Front-wheel drive vehicles	122
1.1	General	122
1.2	Exploded view of self-levelling suspension	122
1.3	Checking operation of control valve	129
1.4	Checking control valve for leaks	129
1.5	Checking pressure container	130
1.6	Adjusting self-levelling suspension	132
2	Self-levelling suspension - Four-wheel drive vehicles	134
2.1	General	134
2.2	Exploded view of self-levelling suspension	134
2.3	Checking operation of control valve	139
2.4	Checking control valve for leaks	139
2.5	Checking pressure container	140
2.6	Adjusting self-levelling suspension	142
44	Wheels, tyres, vehicle geometry	144
1	Wheels and tyres	144
1.1	General	144
1.2	Exploded view of steel disc wheel	144
1.3	Exploded view of light alloy wheel	146
1.4	Balancing wheels on vehicle	147
2	Wheel alignment	148
2.1	General	148
2.2	Test prerequisites for wheel alignment	148
2.3	Wheel alignment specifications - Front-wheel drive vehicles	149

2.4	Wheel alignment specifications - Four-wheel drive vehicles except Audi S6 Plus	149
2.5	Wheel alignment specifications - Audi S6 Plus	150
2.6	Adjusting front axle camber	150
2.7	Adjusting front axle toe	151
2.8	Checking rear axle camber - Front-wheel drive vehicles	152
2.9	Adjusting rear axle camber - Four-wheel drive vehicles	152
2.10	Adjusting rear axle toe - Four-wheel drive vehicles	152
48	Steering	154
1	Power-assisted steering	154
1.1	General	154
1.2	Exploded view of power-assisted steering	154
1.3	Exploded view of track rods	157
1.4	Removing and installing power-assisted steering box	159
2	Power-assisted steering - Audi S4/S6	165
2.1	General	165
2.2	Exploded view of power-assisted steering	165
2.3	Exploded view of track rods	169
2.4	Removing and installing power-assisted steering box	170
3	Power-assisted steering box	177
3.1	General	177
3.2	Exploded view of power-assisted steering box	177
3.3	Adjusting steering box	179
4	Servotronic	180
4.1	General	180
4.2	Exploded view of Servotronic	180
4.3	Checking power supply for Servotronic - Vehicles up to Model Year 1993	182
4.4	Checking power supply for Servotronic - Vehicles as of Model Year 1994	183
4.5	Checking Servotronic solenoid valve N119 - Vehicles up to Model Year 1993	183
4.6	Checking Servotronic solenoid valve N119 - Vehicles as of Model Year 1994	184
4.7	Checking vehicle speed signal - Vehicles as of Model Year 1994	185
4.8	Checking wiring between Servotronic control unit J236 and connector point "1" - Vehicles up to Model Year 1993	186
4.9	Checking wiring between Servotronic solenoid valve N119 and connector point "1" - Vehicles up to Model Year 1993	187
4.10	Checking valve wiring for short to voltage	188
4.11	Checking valve wiring for short to earth	189
5	Steering wheels	191
5.1	Safety precautions when working on airbag	191
5.2	Exploded view of steering wheel with airbag	191
5.3	Removing and installing steering wheel with airbag	192
5.4	Exploded view of steering wheel without airbag	193
5.5	Removing and installing steering wheel	194
5.6	Removing and installing steering column switch	195
5.7	Exploded view of steering column switch for adjustable steering column	195
5.8	Removing and installing steering column switch for adjustable steering column	196
6	Steering column with column tube	198
6.1	Exploded view of steering column with column tube	198
6.2	Removing and installing column tube with steering column	199
7	Adjustable steering column with column tube up to Model Year 1994	202
7.1	General	202
7.2	Exploded view of adjustable steering column with column tube	202
7.3	Removing and installing column tube with adjustable steering column	205
7.4	Replacing steering column adjustment cable	208
7.5	Adjusting steering column adjustment cable	210



8	Adjustable steering column - Vehicles as of Model Year 1995	211
8.1	General	211
8.2	Exploded view of adjustable steering column	211
8.3	Replacing steering column adjustment cable	213
8.4	Adjusting steering column adjustment cable	214
9	Hydraulic pipes, reservoir	215
9.1	General	215
9.2	Exploded view of hydraulic fluid circuit for power-assisted steering	215
9.3	Exploded view of reservoir	217
10	Vane pump	218
10.1	General	218
10.2	Exploded view of vane pump - Vehicles with 4-cyl. engine	218
10.3	Exploded view of vane pump - Vehicles with 5-cyl. engine	221
10.4	Exploded view of vane pump - Vehicles with 6-cyl. 2V engine	222
10.5	Removing and installing vane pump - Vehicles with 6-cyl. 2V engine	224
10.6	Exploded view of vane pump - Vehicles with 6-cyl. 5V engine	226
10.7	Removing and installing vane pump - Vehicles with 6-cyl. 5V engine	227
11	Vane pump delivery pressure	231
11.1	Checking delivery pressure of vane pump - Vehicles with 4-cyl. engine	231
11.2	Checking delivery pressure of vane pump - Vehicles with 5-cyl. engine	233
11.3	Checking delivery pressure of vane pump - Vehicles with 6-cyl. 2V engine	235
11.4	Checking delivery pressure of vane pump - Vehicles with 6-cyl. 5V engine	237
11.5	Checking delivery pressure of vane pump - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine	239
12	Tandem pump	242
12.1	General	242
12.2	Exploded view - Vehicles with 4-cyl. engine	242
12.3	Exploded view - Vehicles with 5-cyl. engine	245
12.4	Exploded view - Audi S4/S6 with 5-cyl. turbo engine	247
12.5	Exploded view - Vehicles with 6-cyl. engines	249
12.6	Removing and installing tandem pump - Vehicles with 6-cyl. engines	251
12.7	Exploded view - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine	253
13	Plunger pump delivery	255
13.1	Checking delivery of plunger pump - Vehicles with 4-cyl. engine	255
13.2	Checking delivery of plunger pump - Vehicles with 5-cyl. engine	256
13.3	Checking delivery of plunger pump - Vehicles with 6-cyl. 2V and 5V engine	257
13.4	Checking delivery of plunger pump - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine	259
14	Removing and installing tandem pump	262
14.1	General	262
14.2	Removing and installing tandem pump - Audi S4/S6 with 5-cyl. turbo engine	262
14.3	Removing and installing tandem pump - Audi S4/S6 with 8-cyl. engine	266
14.4	Checking and adjusting poly V-belt alignment - Audi S4/S6 with 5-cyl. and 8-cyl. engine	270
14.5	Removing and installing tandem pump - Audi S6 Plus with 8-cyl. engine	271
14.6	Checking and adjusting poly V-belt alignment - Audi S6 Plus with 8-cyl. engine	274
15	Checking fluid level, bleeding steering system, checking for leaks	276
15.1	Checking power steering fluid level	276
15.2	Bleeding steering system	276
15.3	Checking steering system for leaks	277

00 – Technical data

1 Technical data

⇒ [“1.1 Running gear”, page 1](#)

⇒ [“1.2 Steering”, page 1](#)

1.1 Running gear

Determine the running gear version from the vehicle data sticker.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorized by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Note

The vehicle data sticker can be found in the spare wheel recess at the rear and in the service schedule.

- ◆ 1BA = Standard running gear
- ◆ 1BE = Sports running gear
- ◆ 1BG = Standard running gear with self-levelling suspension at rear

Front and four-wheel drive				
	Standard running gear (1BA) Self-levelling suspension (1BG)		Sports running gear (1BE)	
	Front-wheel drive	Four-wheel drive	Front-wheel drive	Four-wheel drive
Wheelbase ¹⁾ in mm	2687	2692	2687	2692
Front track ¹⁾ in mm	1520	1520	1526	1526 S-models: 1563
Rear track ¹⁾ in mm	1524	1524	1524	1528
• ¹⁾ at kerb weight				

1.2 Steering

Front and four-wheel drive	
Steering box	Power-assisted steering box
Maximum steering angle	40°
Turning circle diameter	approx. 11.4 m

2 General

⇒ [“2.1 General information”, page 2](#)

⇒ [“2.2 Contact corrosion”, page 2](#)

⇒ [“2.3 Repairing thread in longitudinal member”, page 3](#)

2.1 General information

- ◆ Welding and straightening operations are not permitted on loadbearing or suspension components.
- ◆ Always replace self-locking bolts and nuts.
- ◆ Always replace corroded bolts/nuts.
- ◆ The tightening torques stated apply to non-lubricated bolts and nuts.
- ◆ The contact surfaces must be cleaned when fitting waxed components. Contact surfaces must be free from wax and grease.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Drive shafts

Do not attempt to move a vehicle without the drive shaft fitted as this would result in wheel bearing damage. If a vehicle has to be moved, always heed the following:

- Fit an outer joint instead of the drive shaft.
- Tighten the outer joint to 50 Nm.

Coil springs

- ◆ Always take care to avoid the following in conjunction with coil springs: Hammer blows, weld spatter, subsequent application of coloured marks
- ◆ Never perform welding or grinding (separating) operations in the area of the coil spring or suspension struts. Cover the coil spring or suspension struts if appropriate.

Bonded rubber bushes

- ◆ Bonded rubber bushes can only be turned to a limited extent. The bolted joints at the suspension links are therefore not to be tightened until the vehicle is in the kerb weight or reference position.
- ◆ If wheel alignment is subsequently to be performed, the bolts and nuts unfastened for adjustment work are only tightened to torque. These bolts and nuts are then to be finish-tightened by the specified extra turn on completion of wheel alignment/adjustment.



WARNING

All bolts and nuts must be properly tightened on vehicles being driven on public roads.

2.2 Contact corrosion

Contact corrosion can occur if use is made of unsuitable connecting elements (bolts, nuts, washers ...).

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

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

In cases of doubt about suitability, always use new parts ⇒ Electronic parts catalogue .

Important:

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

2.3 Repairing thread in longitudinal member

Given certain conditions it is possible to repair the thread in the weld nuts in the longitudinal member.

- ◆ Each thread is only to be repaired once.
- ◆ If a second repair is needed, the weld nut must be replaced.



WARNING

Always wear safety goggles when drilling.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Have the thread repair checked by the foreman or immediate superior.
- ◆ The threaded insert must be of the same length as the thread in the body.
- ◆ Eliminate any damage to the underseal; refer to ⇒ General information; Body repairs, General body repairs.

3 Proper disposal of oil and gas-filled components

⇒ [“3.1 Releasing gas from shock absorbers”, page 4](#)

⇒ [“3.2 Draining steering damper”, page 5](#)

⇒ [“3.3 Draining power-assisted steering box”, page 5](#)

3.1 Releasing gas from shock absorbers

A - Drilling open

- Clamp the gas-filled shock absorber vertically in a vice with the piston rod facing downwards.



WARNING

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Wear safety goggles whilst drilling.

- Drill a Ø 3 mm hole -arrow A- through the outer tube of the damper.



Note

Gas escapes whilst doing so.

- Keep drilling until the inner tube is fully penetrated (approx. 25 mm deep).
- Drill a second Ø 6 mm hole -arrow B- through the outer and inner tube of the damper.
- Hold the damper over a drip tray and execute a full piston rod stroke several times until no further oil emerges.

B - Opening with chain pipe cutter -VAS 6254-



WARNING

Wear safety goggles whilst drilling and sawing.

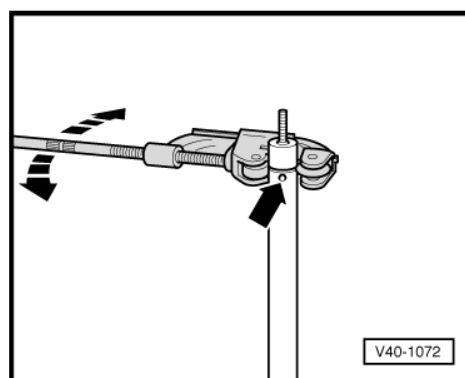
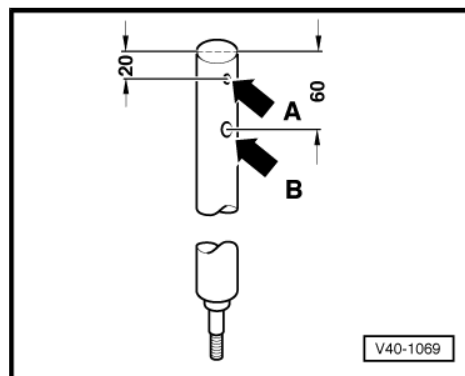
- Drill a Ø 3 mm hole -arrow- through the outer tube of the damper/saw through the tube wall.



Note

Gas escapes whilst drilling/sawing.

- Apply the chain pipe cutter -VAS 6254- as shown and cut through the outer tube.
- Pull the piston rod upwards. At the same time hold the inner tube securely with pliers and press it downwards, so that it remains in the outer tube on slowly pulling up the piston rod.
- Detach the piston rod from the inner tube.
- Drain the shock absorber tube.



3.2 Draining steering damper

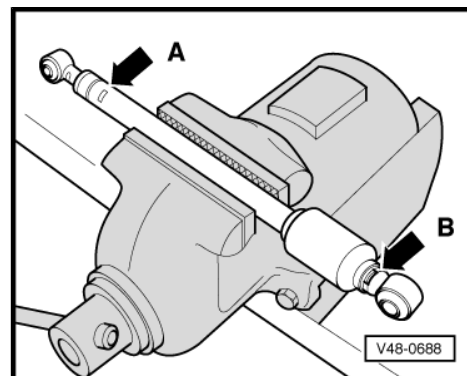
- Clamp the steering damper horizontally in a vice.



WARNING

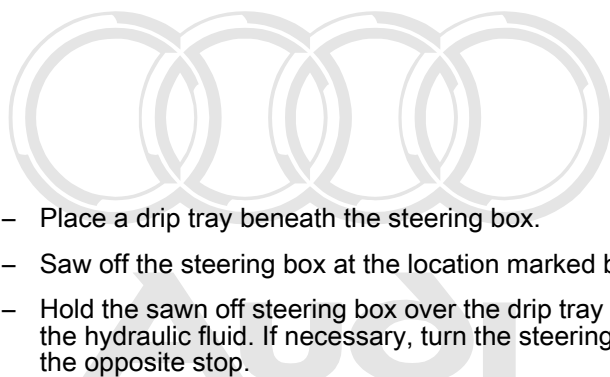
Wear safety goggles whilst sawing.

- Make a saw cut in the steering damper at the locations marked.
- ◆ -Arrow A- = 30 mm from end of tube
- ◆ -Arrow B- = 10 mm from end of tube
- Hold the damper over a drip tray and execute a full piston rod stroke several times until no further oil emerges.

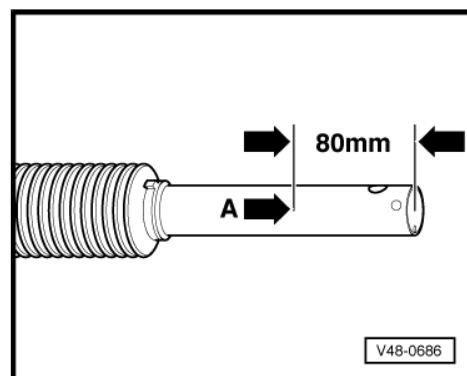
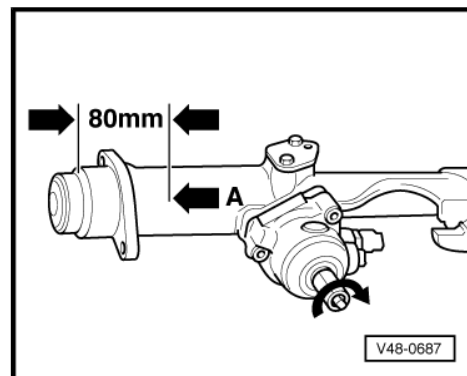


3.3 Draining power-assisted steering box

- The ambient temperature should be at least 20 °C when draining the steering box.
- Turn the steering pinion as far as it will go in -arrow direction-.
- Clamp the steering box horizontally in a vice.



- Place a drip tray beneath the steering box.
- Saw off the steering box at the location marked by -arrow A-.
- Hold the sawn off steering box over the drip tray and drain off the hydraulic fluid. If necessary, turn the steering pinion onto the opposite stop.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4 Checking shock absorbers

⇒ "4.1 Shock absorber leakage", page 6

⇒ "4.2 Shock absorber noise", page 6

⇒ "4.3 Checking shock absorber following removal", page 6

⇒ "4.4 Checking shock absorbers on shock tester", page 7

4.1 Shock absorber leakage

Complaints are often received about leaking shock absorbers which are then replaced. Inspections on a test bench and in the vehicle have shown that - in the majority of cases - such replacement is not justified.

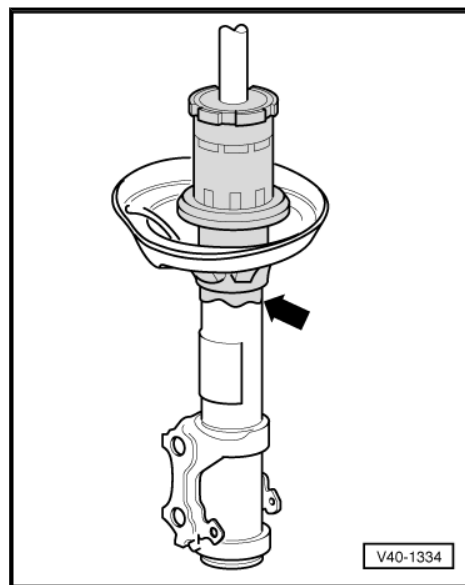
Slight discharge of oil ("sweating") at the piston rod seal is not a reason for shock absorber replacement. Shock absorbers with a slight discharge of oil are OK under the following conditions:

- ◆ Emergence of oil (hatched area in illustration) visible, but dull, matt and possibly dust dry.
- ◆ Emergence of oil does not extend beyond upper shock absorber seal (piston rod oil seal) and lower spring plate -arrow-.



Note

A slight discharge of oil is beneficial, as it lubricates the piston rod seal and thus extends the service life. This applies to both front and rear shock absorbers.



4.2 Shock absorber noise

Complaints are often received about rattling shock absorbers which are then replaced. Inspections on a test bench and in the vehicle have shown that in roughly 70 % of cases the shock absorbers are not defective and such replacement is not justified. Proceed as follows in the event of complaints which are interpreted as rattling or clicking noise:

- Perform a test drive with the customer - if at all possible on a dry uneven road surface - to establish where, when and how the noise becomes apparent.



Note

The shock absorber is hardly ever the cause of the noise. Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4.3 Checking shock absorber following removal

Defective shock absorbers become apparent whilst driving on account of loud rattling noises - as a result of wheel jumping - particularly on uneven surfaces. A further visible sign is severe oil loss.

 Note

Shock absorbers are maintenance-free; the shock absorber oil cannot be replenished.

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

- Squeeze the shock absorber by hand.
- The piston rod should move smoothly over the entire stroke with uniform resistance and without jolts.
- Release the piston rod.
- Gas-filled dampers: Given adequate shock absorber gas pressure, the piston rod returns automatically to its initial position.

 Note

- ◆ *If this is not the case, it is not absolutely essential to replace the shock absorber. Provided there has been no major loss of oil, the mode of operation corresponds to that of a conventional shock absorber.*
- ◆ *The damping effect is fully maintained even without gas pressure provided there has been no major loss of oil. The noise level may however increase.*

4.4 Checking shock absorbers on shock tester

The shock tester (shock absorber tester) permits in situ checking of shock absorbers. The damping effect can be assessed on the basis of the pointer deflection or the printout.

Special tools and workshop equipment required

- ◆ Boge shock tester or
- ◆ Sachs shock tester -V.A.G 1975-
- ◆ Running gear tester -VAS 1990S-

Test requirements

- Temperature +10 ... +40 °C
- Driver in vehicle
- Correct inflation pressure
- Vehicle positioned centrally and straight on contact patches
- Front wheels in straight ahead position
- Handbrake not applied, foot brake not pressed

Limit values

The shock absorber condition can only be assessed as follows:

- ◆ Adequate damping effect or
- ◆ Inadequate damping effect



Note

- ◆ *Intermediate readings for reduced damping action are not possible.*
- ◆ *Service life forecasts are not permissible.*
- ◆ *Measured values obtained with the action of the spring travel end stops are biased.*



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1. Front suspension 9



- ☐ A modified bush was fitted as of vehicle ident no. NN 107 874 or PN 000 433
- ☐ Only the modified bush is available as replacement part, the installation specifications as per [⇒ page 12](#) thus no longer apply

12 - Washer

13 - Self-locking nut

- ☐ Always replace after removing
- ☐ 120 Nm + further 90° turn

14 - Outer bush for wishbone

15 - Wishbone

- ☐ Different on left and right; for assignment refer to ⇒ [Electronic parts catalogue](#)
- ☐ On removal and installation remove the sleeve ⇒ [Item 10 \(page 9\)](#) and unscrew the anti-roll bar clamps [⇒ Item 17 \(page 10\)](#)



Note

*On vehicles with 6-cyl. engine, remove the entire subframe
[⇒ page 15](#).*

16 - Rubber bush

- ☐ Pay attention to anti-roll bar diameter; for assignment refer to ⇒ [Electronic parts catalogue](#)

17 - Anti-roll bar clamp

18 - Self-locking nut, 100 Nm

- ☐ Always replace after removing

19 - Anti-roll bar

- ☐ Removing and installing
 - Vehicle standing on its wheels.
 - Unscrew the anti-roll bar clamps [⇒ Item 17 \(page 10\)](#).
 - Unscrew the nuts [⇒ Item 13 \(page 10\)](#).
 - The anti-roll bar is pulled out/inserted on extending and compressing the suspension.



Note

*On vehicles with 6-cyl. engine, remove the entire subframe
[⇒ page 15](#).*

- ☐ Different diameters; for assignment refer to ⇒ [Electronic parts catalogue](#)

20 - Washer

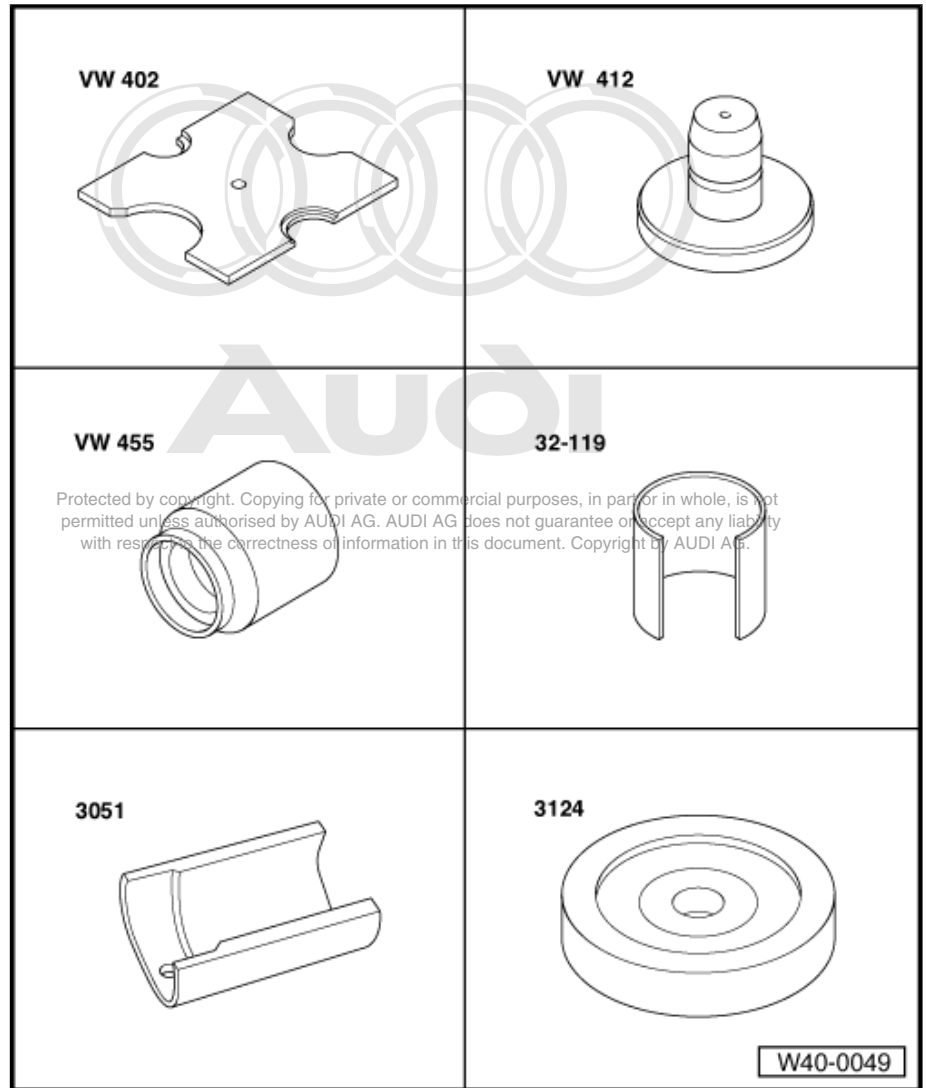
- ☐ Always replace after removing
- ☐ Fit with ribbed side facing upwards

21 - Bolt

- ☐ Always replace after removing
- ☐ 110 Nm + further 90° turn

Special tools and workshop equipment required

- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 412-
- ◆ Pressing-on sleeve -VW 455-
- ◆ Pipe -32 - 119-
- ◆ Thrust pad -3051-
- ◆ Thrust pad -3124-

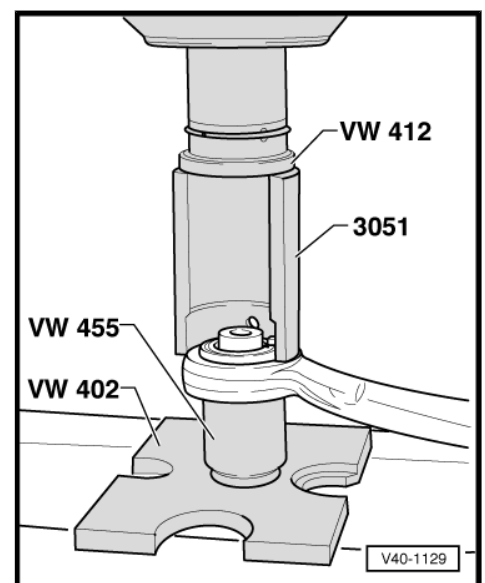


Pressing out/pressing in inner bush for wishbone



Note

- ◆ On pressing in, the side of the wishbone eye with the greater chamfer faces the wishbone bush.
- ◆ Align the bush ⇒ [page 12](#) and press in.



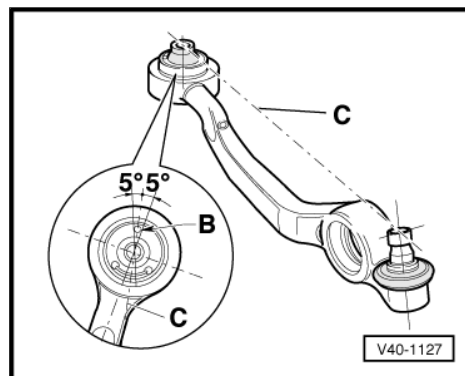
Installation position of inner bush in wishbone



Note

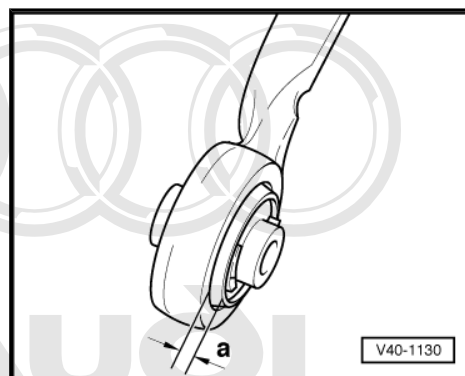
The marking -B- on the wishbone bush may deviate from the centre line -C- by $\pm 5^\circ$.

The previously applicable installation specifications can be ignored when fitting a modified bush as of vehicle ident. no. NN 107 874 or PN 000 433.



Wishbone bush/wishbone projection

- a- = 4.5 mm $\pm$ 0.8 mm.



Extracting bonded rubber bush from subframe

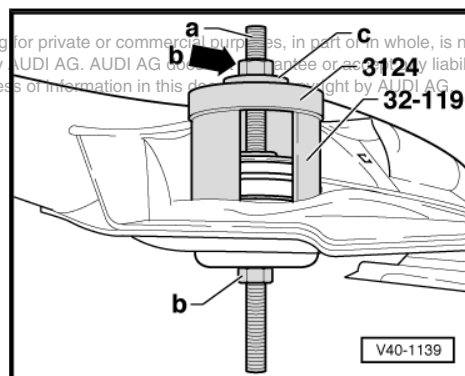
- a - Threaded spindle M10, approx. 200 mm
- b - Nut M10
- c - Packing plate with 12 mm inside diameter
- Keep tightening the nut -arrow B- until the bush is extracted from the subframe.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



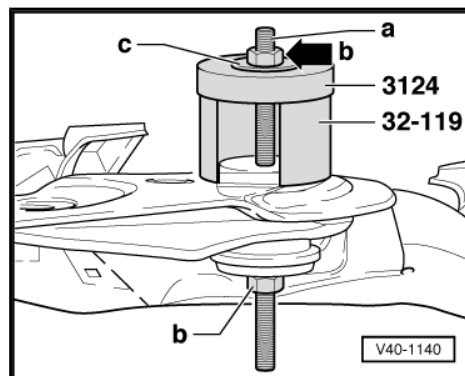
Note

The pipe -32 - 119- must not rest on the collar of the bush.



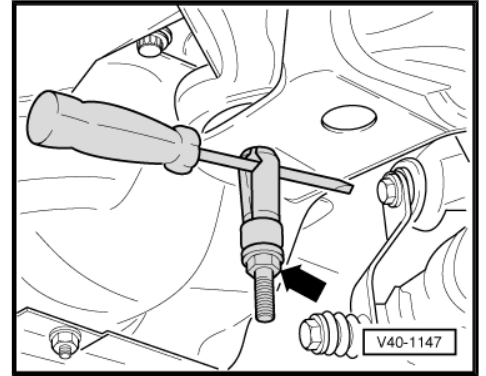
Fitting bonded rubber bush in subframe

- Moisten the bush with assembly lubricant; for assembly lubricant refer to ➤ Electronic parts catalogue .
- Fit the bonded rubber bush by turning the nut -arrow B-.



Inserting extractor in sleeve

- Screw out the subframe bolt.
- Insert the extractor e.g. -Kukko 21/2- .
- Tighten the nut until the two jaws of the puller are spread apart in the sleeve.
- Insert a suitable screwdriver in the extractor to provide support.



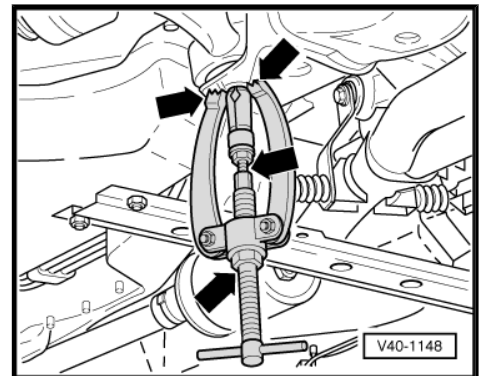
Extracting sleeve



Note

The vehicle must be standing on its wheels for extracting the sleeve.

- Screw a puller, e.g. -Kukko 22/1- onto the thread of the extractor until the two jaws are resting on the subframe.
- Screw the nut onto the spindle of the puller until the sleeve is extracted.



1.2 Exploded view of subframe



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Subframe

- ☐ Removing and installing
⇒ [page 15](#)
- ☐ Wheel alignment is only necessary if the bonded rubber bushes for the subframe at the rear have been unfastened or removed
⇒ [Item 11 \(page 14\)](#)

2 - Washer

- ☐ Always replace after removing
- ☐ Fit with ribbed side facing upwards

3 - Bolt

- ☐ Always replace after removing
- ☐ 110 Nm + further 90° turn
- ☐ If internal thread is damaged or bolts have broken off, refer to
⇒ [page 3](#)

4 - Washer

- ☐ Always replace after removing
- ☐ Lug of washer engages in recess at subframe

5 - Bolt

- ☐ Always replace after removing
- ☐ 110 Nm + further 90° turn

6 - Self-locking nut, 40 Nm

- ☐ Always replace after removing

7 - Bonded rubber bush

8 - Longitudinal member

9 - Self-locking nut, 65 Nm

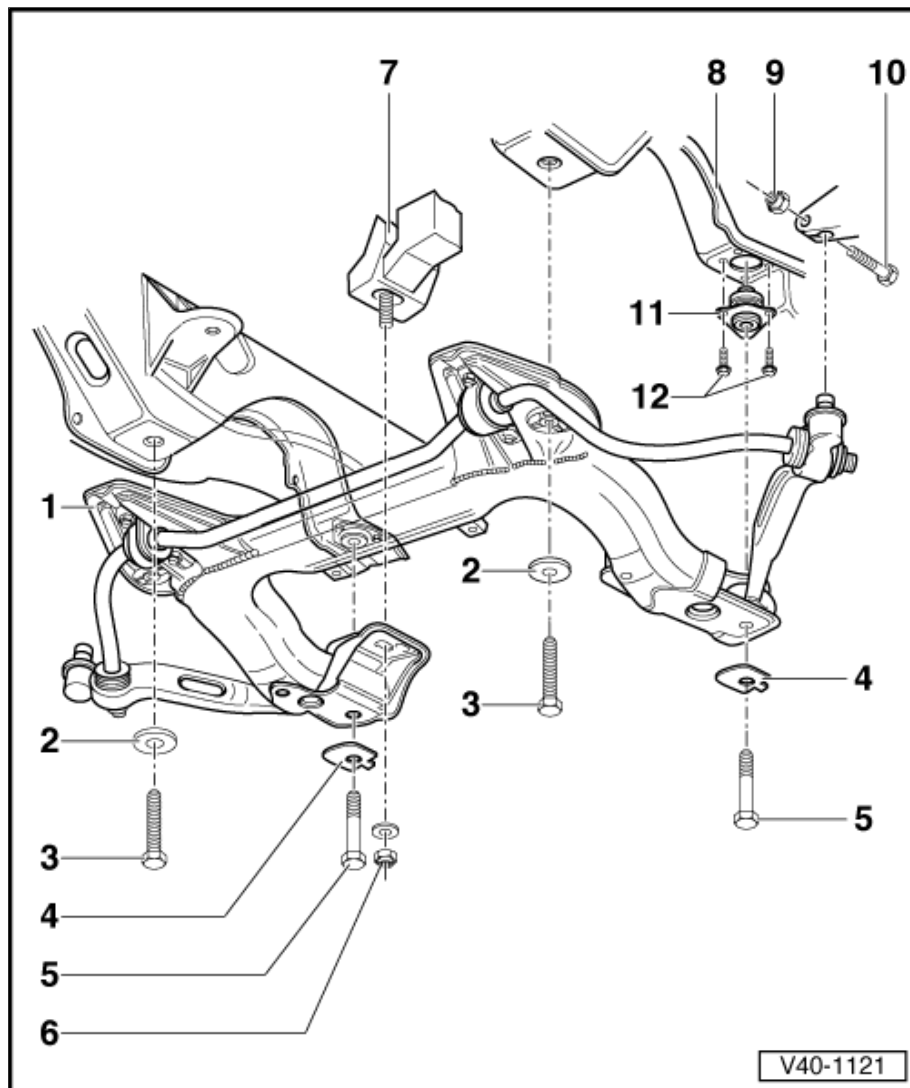
- ☐ Always replace after removing

10 - Bolt

- ☐ Always replace after removing
- ☐ Installation position: Bolt head facing rear axle

11 - Bonded rubber bush

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Front axle wheel alignment must be performed after removal and installation
- ☐ Before tightening the bolts ⇒ [Item 12 \(page 15\)](#), centrally align the subframe:
 - Loosely screw in both bonded rubber bushes with the bolts ⇒ [Item 12 \(page 15\)](#) .
 - Loosely screw in the subframe with the bolts ⇒ [Item 3 \(page 14\)](#) and ⇒ [Item 5 \(page 14\)](#) .
 - Centrally align the subframe with respect to the bolts ⇒ [Item 12 \(page 15\)](#) by moving it sideways in the elongated holes of the bonded rubber bushes.
 - Tighten all the bolts to torque.



- Perform wheel alignment.

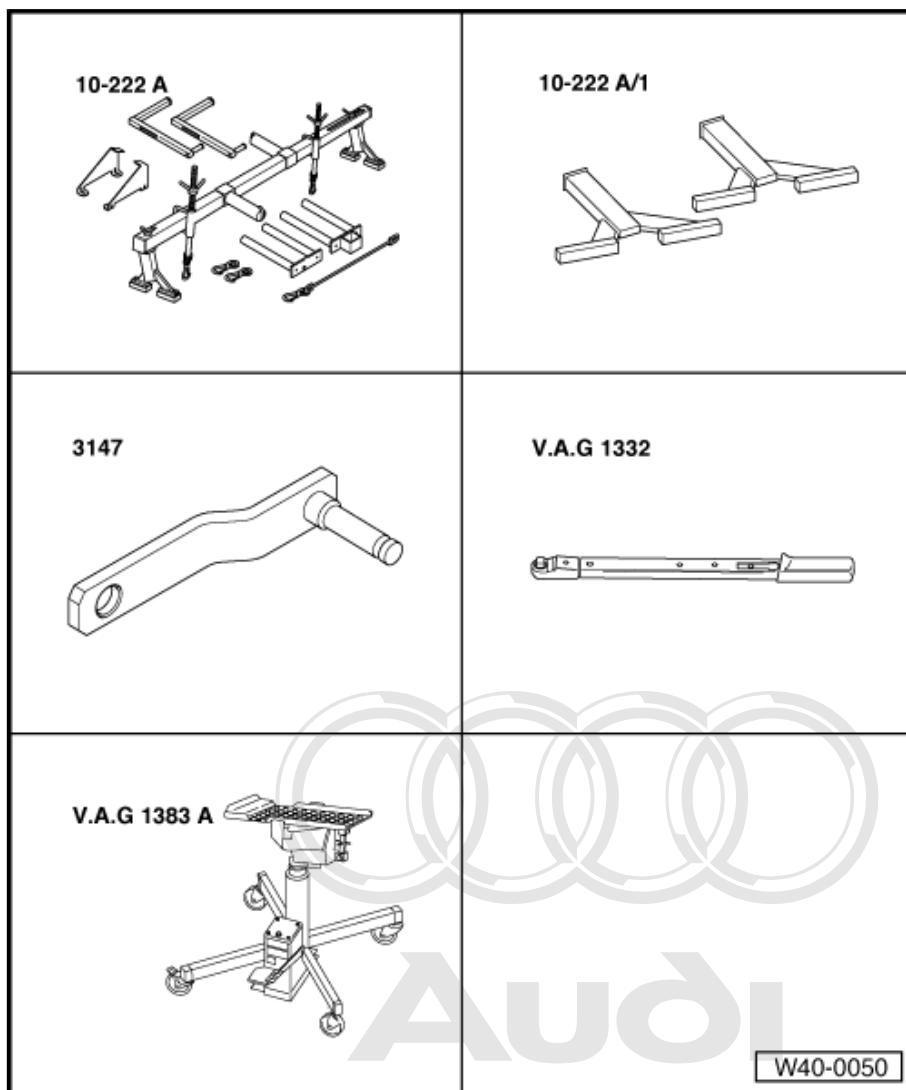
12 - Bolt

- ☐ Always replace after removing
- ☐ 40 Nm + further 90° turn

1.3 Removing and installing subframe

Special tools and workshop equipment required

- ◆ Support bar -10 - 222 A-
- ◆ Frame -10 - 222 A /1-
- ◆ Gearbox support -3147-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Engine and gearbox lifter - V.A.G 1383 A-

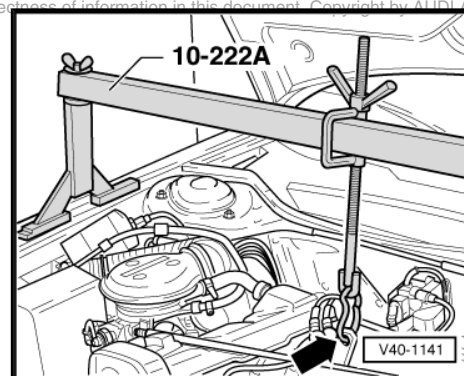


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Removing

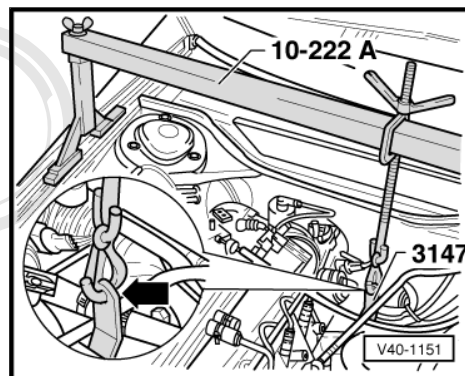
Vehicles with 4-cyl. engine:

- Fit the support bar -10 - 222 A- with the frame -10 - 222 A /1- .



Vehicles with 5-cyl. engine:

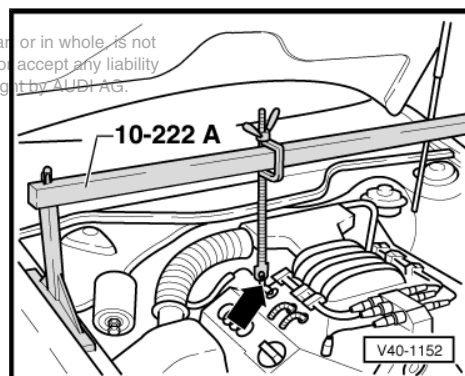
- Detach the distributor cap.
- Remove the engine/gearbox connecting bolt at the top left.
- Fit the support bar -10 - 222 A- with the frame -10 - 222 A /1- and the gearbox support -3147- .



Vehicles with 6-cyl. engine:

- Fit the support bar -10 - 222 A- with the frame -10 - 222 A /1-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the express authorisation of Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG.



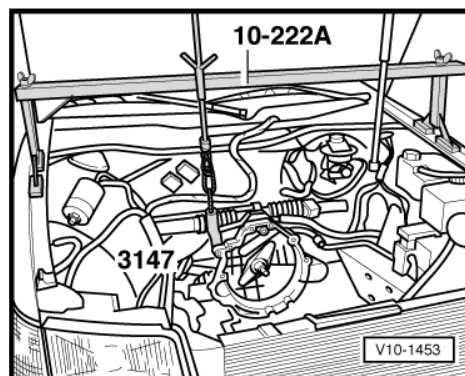
Vehicles with 8-cyl. engine:

- Completely remove the anti-roll bar, air pipes and air cleaner housing ⇒ [page 159](#) .
- Fit the support bar -10 - 222 A- with the frame -10 - 222 A /1- and the gearbox support -3147- .



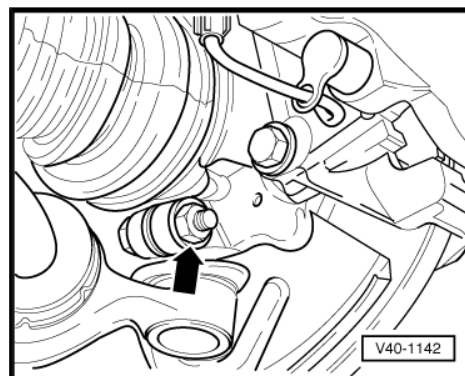
Note

The illustration shows the support bar with the engine removed for greater clarity.

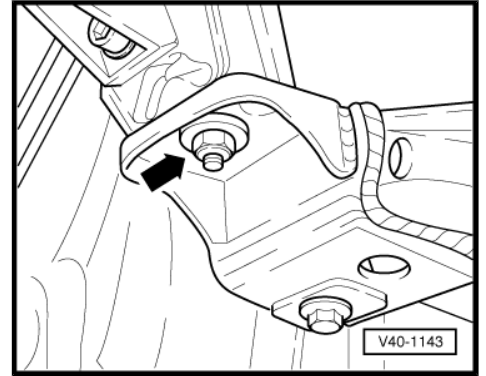


All vehicles (continued):

- Slightly pre-tension the engine/gearbox assembly by way of the spindles.
- Remove the wheels.
- Remove the noise insulation.
- Screw out the joint pin bolts.



- Unscrew the gearbox mounting nut -arrow-.



Vehicles with 4 and 5-cyl. engine:

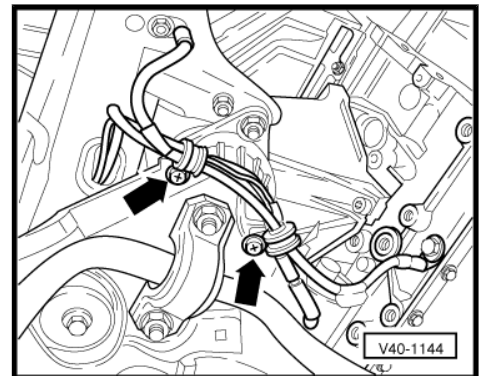
- Unscrew the wires from the subframe.

Vehicles with 5-cyl. engine:

- Unscrew the protective conduit for the alternator wire at the subframe.

All vehicles (continued):

- Position the engine and gearbox lifter -V.A.G 1383 A- under the subframe.
- Screw out the subframe bolts.
- Lower the subframe with the engine and gearbox lifter -V.A.G 1383 A- .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Installing

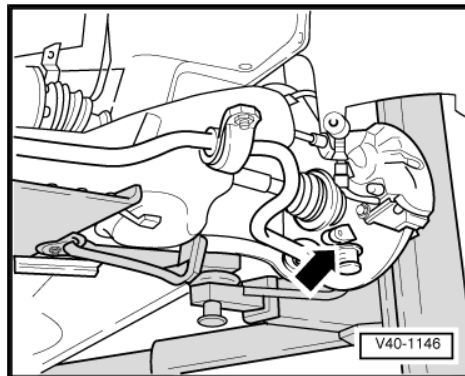
- Align the pins of the ball joints with respect to the wheel bearing housings on both sides such that the two joint pins can be inserted in the wheel bearing housing -arrow-.



Note

Take care not to damage the bellows of the wishbones on inserting the joint pins.

- Insert new joint pin clamping bolts on both sides.
- Bolt head faces rear axle.
- Fit new subframe bolts and packing plates at the rear.



Note

The locating lug of the subframe bushes at the rear must engage in the recess of the subframe.

- Raise the subframe further until both nuts for securing the gearbox mountings can be inserted.



Note

The locating lug of the gearbox carrier bushes at the rear must engage in the recess of the subframe.

- Fit new subframe bolts and packing plates at the front.



Note

The ribs of the packing plates face the subframe.

- Lower the gearbox lifter.
- Tighten the subframe, gearbox carrier bushes and ball joint clamping bolts to torque.
- Screw the wires to the subframe.
- Fit the noise insulation.
- Fit the wheels: Steel disc wheel ➔ [page 144](#) , light alloy wheel ➔ [page 146](#) .
- Remove the support bar -10 - 222 A- .

2 Front suspension strut

- ⇒ [“2.1 Exploded view of front suspension strut”, page 19](#)
- ⇒ [“2.2 Removing and installing suspension strut”, page 20](#)
- ⇒ [“2.3 Exploded view of shock absorber, coil spring and wheel bearing housing”, page 21](#)
- ⇒ [“2.4 Removing and installing wheel bearing with suspension strut removed”, page 27](#)
- ⇒ [“2.5 Removing and installing coil spring”, page 29](#)
- ⇒ [“2.6 Removing and installing shock absorber”, page 31](#)

2.1 Exploded view of front suspension strut

1 - Trim cap

- ☐ Arrow faces wheel

2 - Self-locking nut, 30 Nm

3 - Washer

4 - Suspension strut dome

5 - Track rod

6 - Self-locking nut, 50 Nm

- ☐ Always replace after removing

7 - Drive shaft

- ☐ Need not be removed to take out the suspension strut

8 - Self-locking nut, 65 Nm

- ☐ Always replace after removing

9 - Suspension strut

- ☐ Removing and installing
⇒ [page 20](#)
- ☐ Exploded view
⇒ [page 21](#)

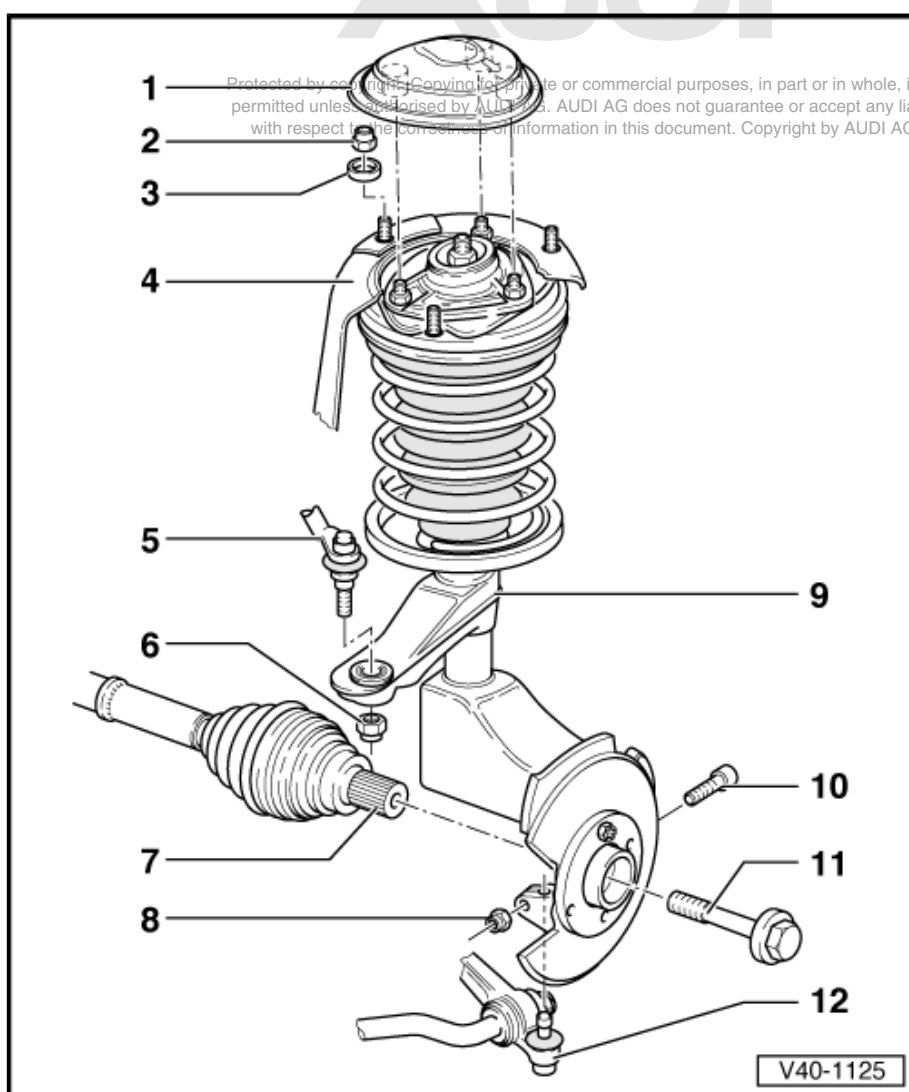
10 - Bolt

- ☐ Always replace after removing

11 - Bolt

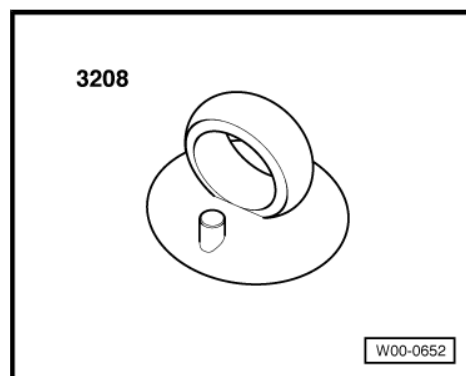
- ☐ Always replace after removing
- ☐ 190 Nm + further 180° turn
- ☐ The vehicle must be standing on its wheels when slackening off and tightening - risk of accident
- ☐ Switched from hexagon head to hexagon socket. Combined fitting is permissible

12 - Wishbone



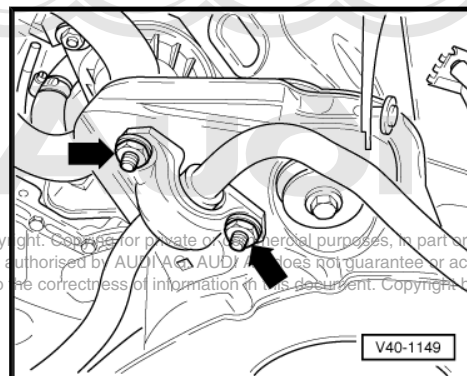
2.2 Removing and installing suspension strut

◆ Suction grip -3208-

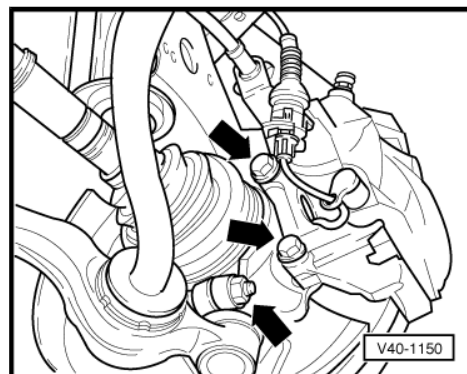


Removing

- Detach the wheel trim. Use the suction grip -3208- to remove the trim cap on vehicles with light alloy wheels.
- Screw out the drive shaft bolt (only slacken off with vehicle standing on its wheels - risk of accident).
- Remove the wheel.
- Vehicles with ABS: Pull out the speed sensor.
- Remove the noise insulation.
- Remove the bearing shell -arrows-.
- Vehicles with 6-cyl. engine: Remove the entire subframe ⇒ [page 15](#) .



- Screw both bolts -top arrows- out of the brake caliper and take out.
- Detach the brake caliper housing and set down such that the weight of the brake caliper does not strain or damage the brake hose.
- Detach the brake disc.
- Remove the clamping bolt -bottom arrow-.



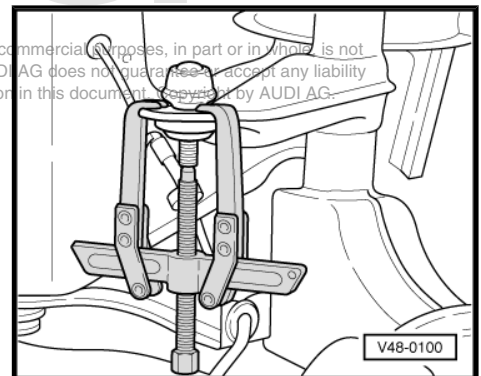
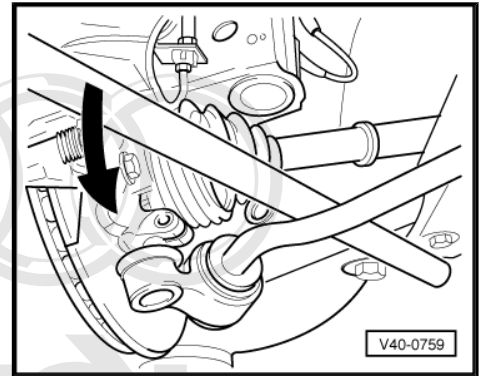
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Press out the joint pin.



Take care not to damage the boot of the guide joint when pressing out the joint pin.

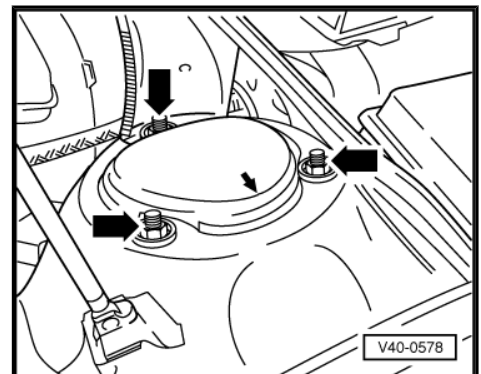
- Use a tubular section (approx. 1.5 m long) if the joint pin is very firm.
- The slots in the wheel bearing housing are never to be enlarged using a chisel or similar.
- Unscrew the nut from the track rod joint.
- Press the track rod off the steering arm.
- Detach the cap.



- Unscrew the suspension strut at the top -arrows-. Hold at the bottom whilst doing so and then detach from the drive shaft.

Installing

Install in reverse order.



2.3 Exploded view of shock absorber, coil spring and wheel bearing housing

1 - End cap

2 - Buffer stop

- ☐ For assignment, refer to
⇒ Electronic parts catalogue

3 - Cap 240 Nm

- ☐ Screwing on and unscrewing ⇒ [page 31](#)

4 - Piston rod

- ☐ Support with Allen key when unfastening/tightening nut
⇒ [Item 10 \(page 23\)](#)

5 - Shock absorber

- ☐ For assignment, refer to
⇒ Electronic parts catalogue
- ☐ Vehicles with sports running gear are fitted with gas-filled dampers
- ☐ Checking ⇒ [page 6](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ⇒ [page 1](#)
- ☐ Disposal ⇒ [page 4](#)

6 - Wheel bearing housing

- ☐ A modified wheel bearing housing with an approx. 10 mm lower steering arm was fitted as of vehicle ident no. PN 001 984

- ☐ Do not widen the slots in the wheel bearing housing to press out the joint pin
- ☐ The Audi S4 is provided with a three-point brake caliper mount (internal caliper disc brake)
- ☐ The Audi S4/S6 4.2 is provided with a two-point brake caliper mount (dual-piston brake caliper).

7 - Wheel bearing

- ☐ Can also be replaced using -V.A.G 1459 B- and -V.A.G 1459 B/2- with the suspension strut fitted
- ☐ Stepped inside diameter
- ☐ Installation position: Large inside diameter of wheel bearing facing wheel hub

With suspension strut removed:

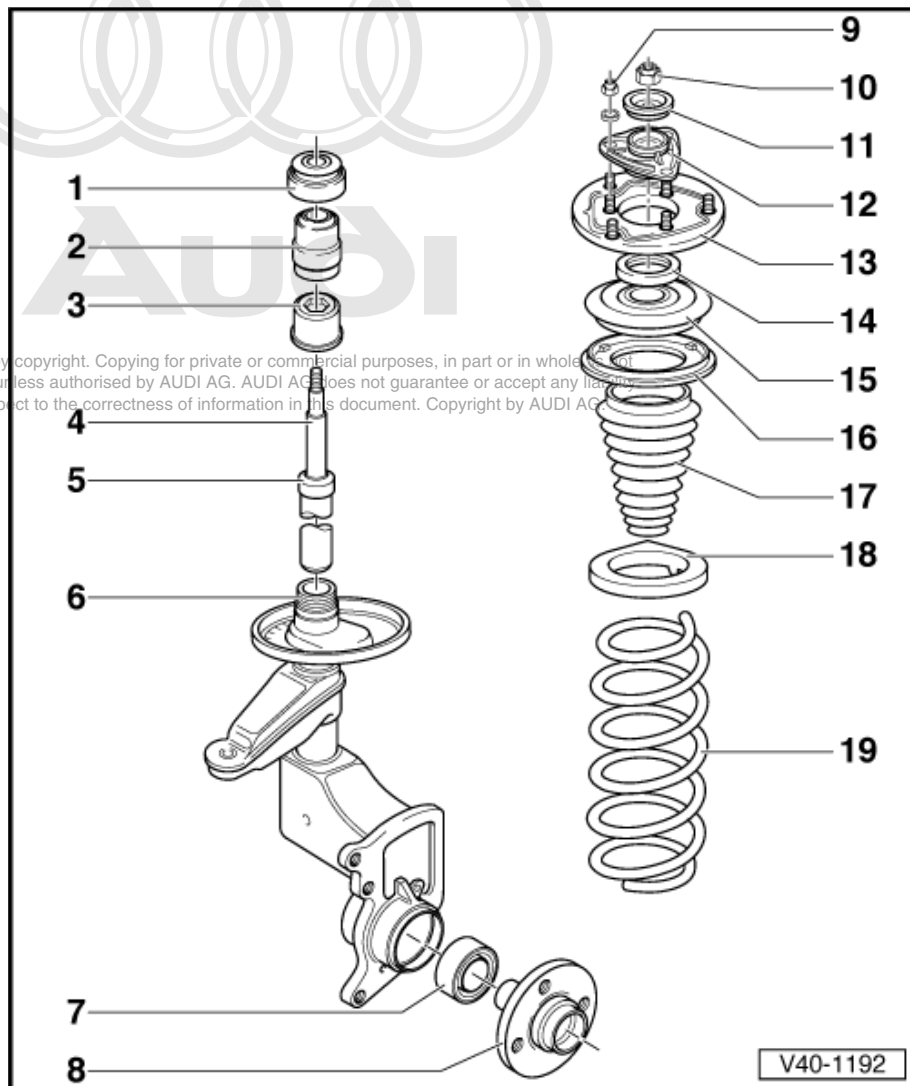
- ☐ Pressing out ⇒ [page 28](#)
- ☐ Pressing in ⇒ [page 28](#)

8 - Wheel hub

- ☐ Can also be replaced using -V.A.G 1459 B- and -V.A.G 1459 B/2- with the suspension strut fitted
- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Stepped

With suspension strut removed:

- ☐ Pressing out ⇒ [page 27](#)
- ☐ Detaching bearing inner race ⇒ [page 27](#)
- ☐ Pressing in ⇒ [page 28](#)



9 - Self-locking nut, 55 Nm

- ☐ Always replace after removing

10 - Self-locking nut, 60 Nm

- ☐ Always replace after removing
- ☐ Tightening ⇒ [page 31](#)

11 - Stop

- ☐ Different versions ⇒ Electronic parts catalogue

12 - Suspension strut mount

- ☐ Mark installation position

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without prior authorisation by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

13 - Support plate

14 - Axial deep groove ball bearing

15 - Spring plate

16 - Protective collar

17 - Protective sleeve

- ☐ Fit lower end on screw cap ⇒ [Item 3 \(page 22\)](#) , upper end on spring plate ⇒ [Item 15 \(page 23\)](#)

18 - Packing ring

- ☐ Insert in spring plate ⇒ [Item 15 \(page 23\)](#)
- ☐ Different thicknesses
- ☐ Can be identified by the studs on the underside

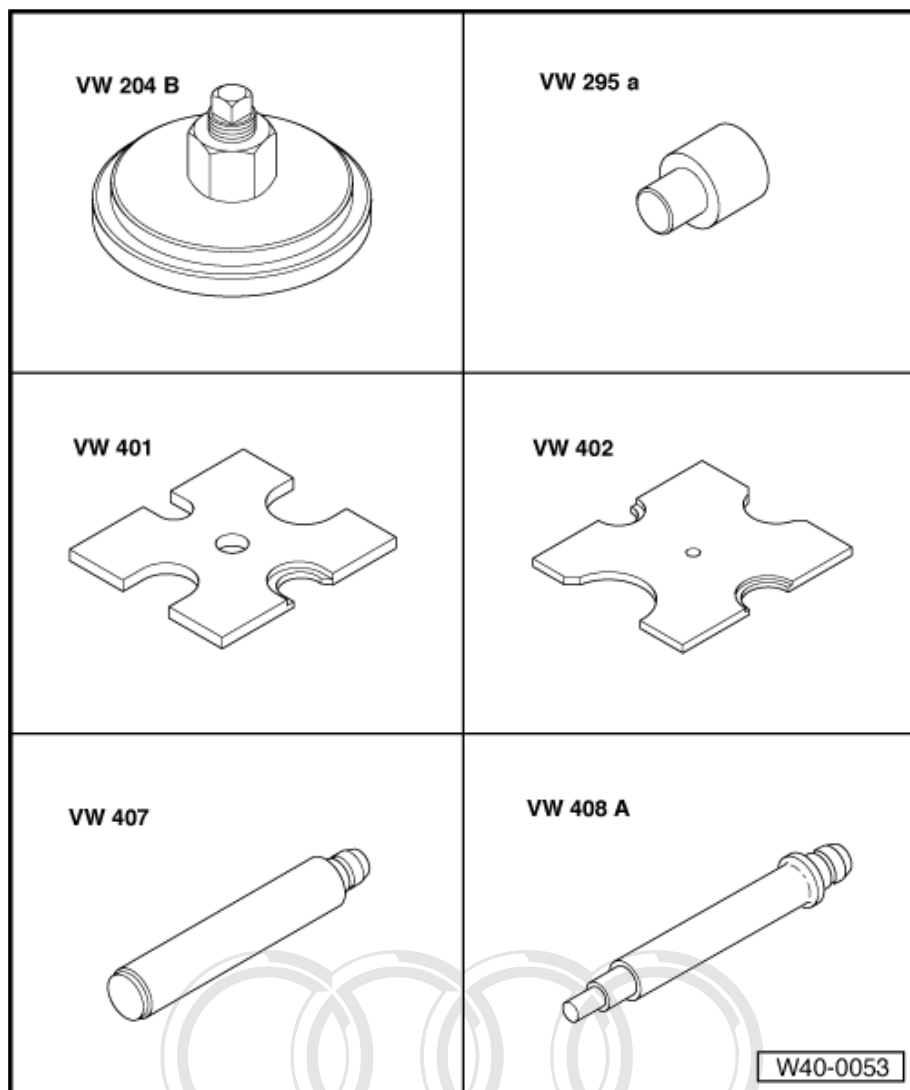
19 - Coil spring

- ☐ Surface of spring winding must not be damaged
- ☐ Pay attention to coloured mark, faces downwards; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ⇒ [page 1](#)
- ☐ Removing ⇒ [page 29](#)
- ☐ Installing ⇒ [page 30](#)



Special tools and workshop equipment required

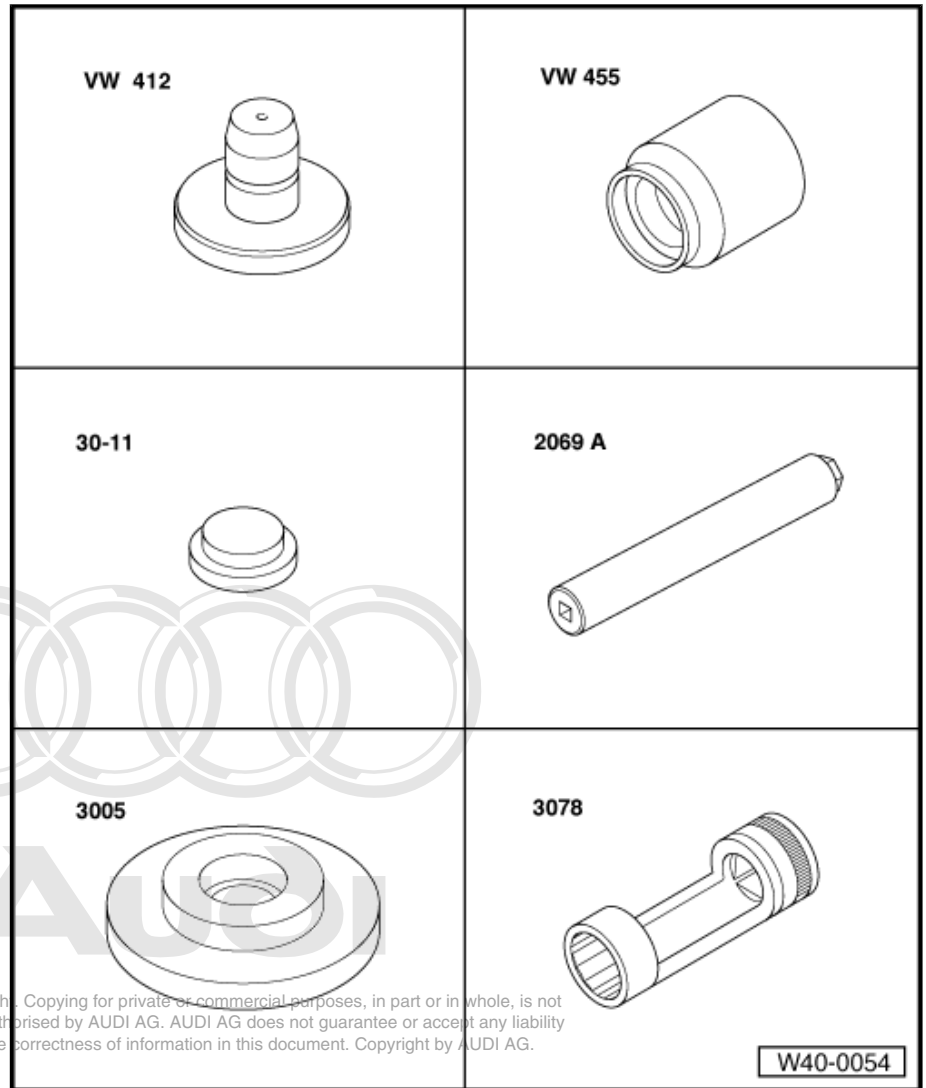
- ◆ Fitting tool for crankshaft seal -VW 204 B-
- ◆ Adapter -VW 295 A-
- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 407-
- ◆ Press tool -VW 408 A-



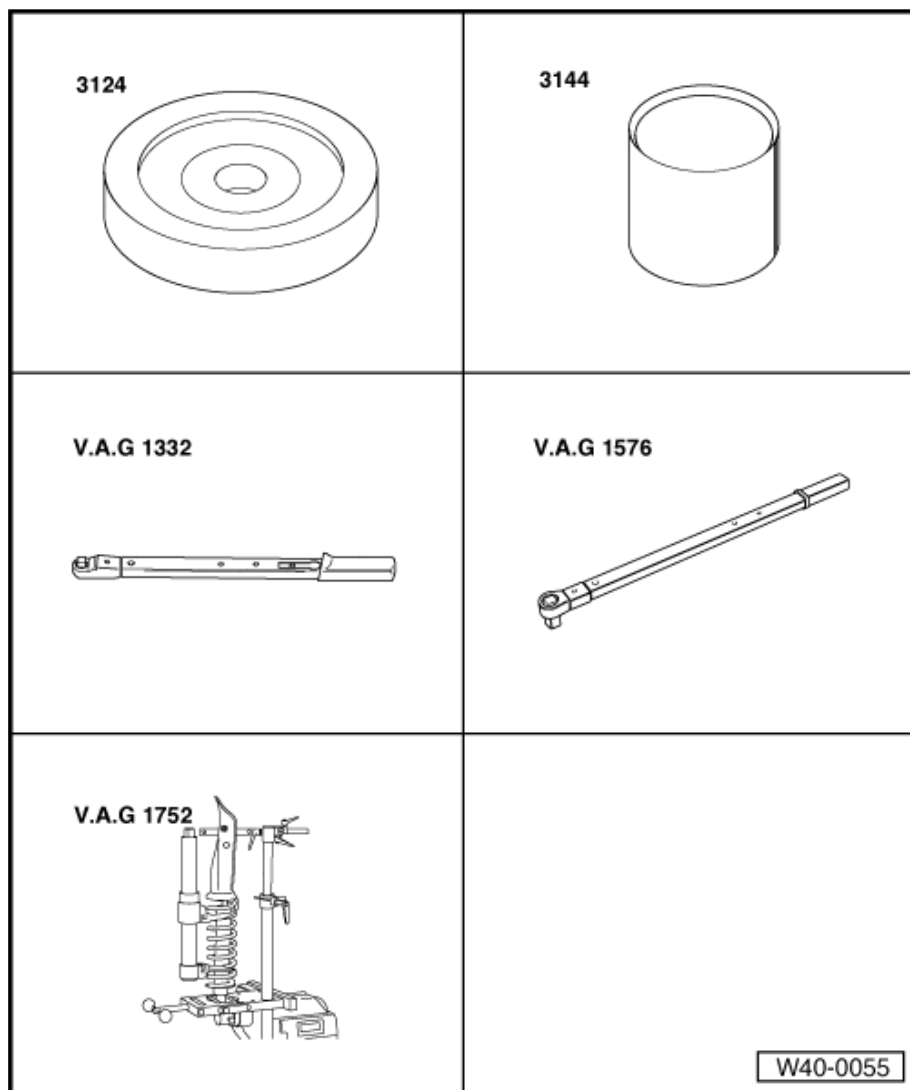
Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

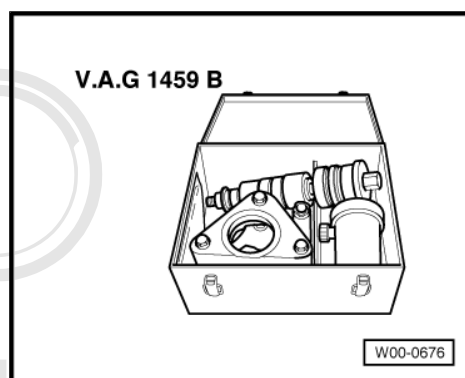
- ◆ Press tool -VW 412-
- ◆ Pressing-on sleeve -VW 455-
- ◆ Thrust plate -30 - 11-
- ◆ Pipe wrench for damper cartridge -2069 A-
- ◆ Thrust plate -3005-
- ◆ 22 mm socket attachment -3078-



- ◆ Thrust piece -3124-
- ◆ Sleeve -3144-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Torque wrench -V.A.G 1576-
- ◆ Suspension strut tensioner -V.A.G 1752-

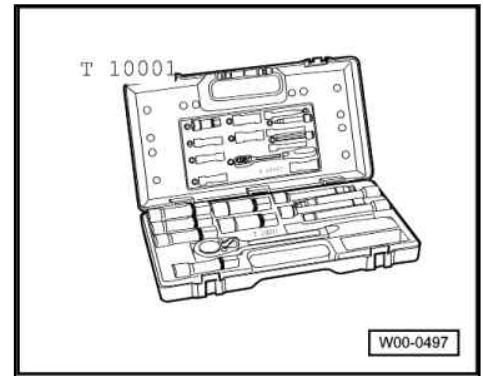


- ◆ Hydraulic removal and installation tool -V.A.G 1459B- with supplementary set -V.A.G 1459B/2-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

◆ Shock absorber set -T10001-

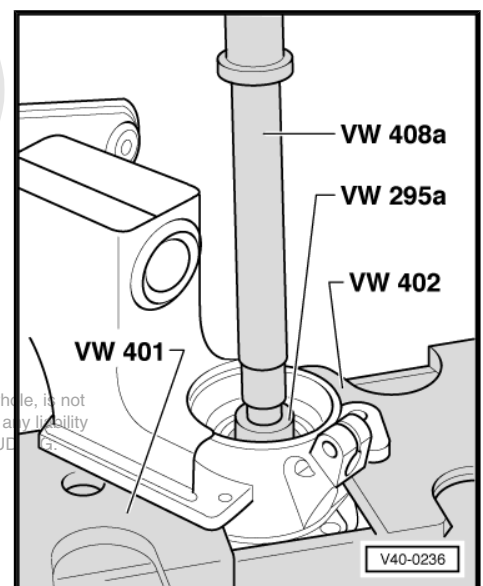


2.4 Removing and installing wheel bearing with suspension strut removed

Removing

- Remove the suspension strut ➔ [page 20](#) .
- Press the wheel hub out of the wheel bearing housing.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

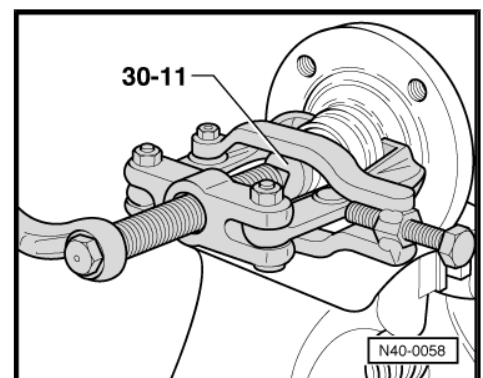


- Detach the bearing inner race from the wheel hub.

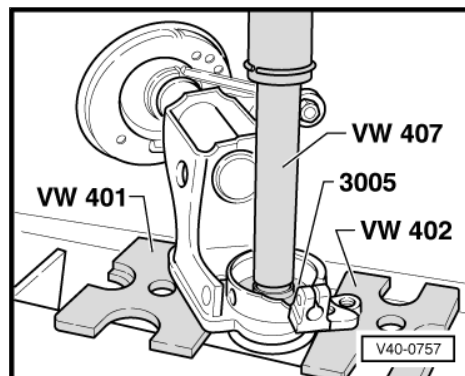


Note

Always use a puller with tensioner e.g. -Kukko 204-2- .



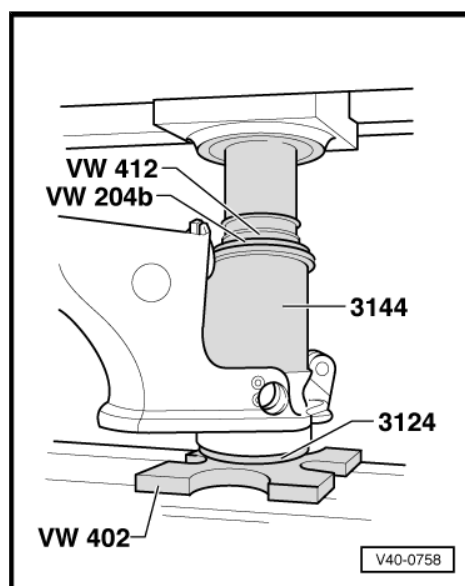
- Press the wheel bearing out of the wheel bearing housing.



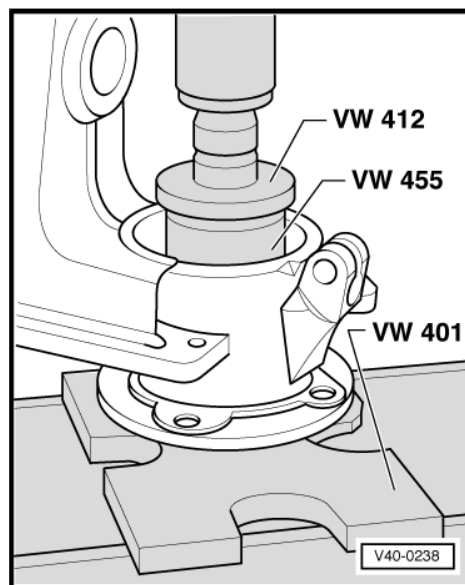
Installing

Install in reverse order, paying attention to the following:

- Press the wheel bearing into the wheel bearing housing.
- Large inside diameter of wheel bearing faces wheel hub.
- The wheel bearing housing is not to be greased before pressing in the wheel bearing.
- The chamfered side of the sleeve -3144- faces the fitting tool for crankshaft seal -VW 204 B- .



- Press the wheel hub into the wheel bearing.
- When pressing in, only allow the pressing-on sleeve -VW 455- to rest on the bearing inner race.



2.5 Removing and installing coil spring

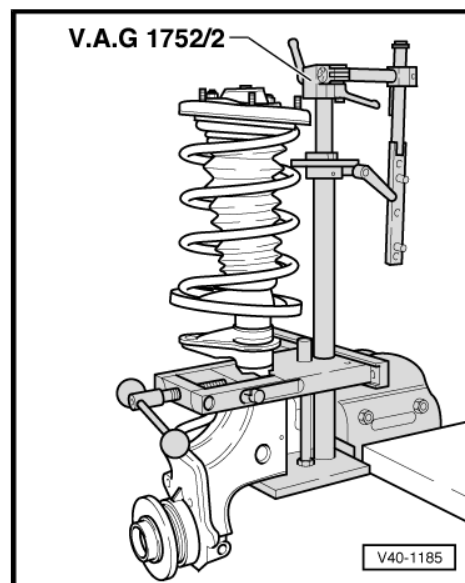


Note

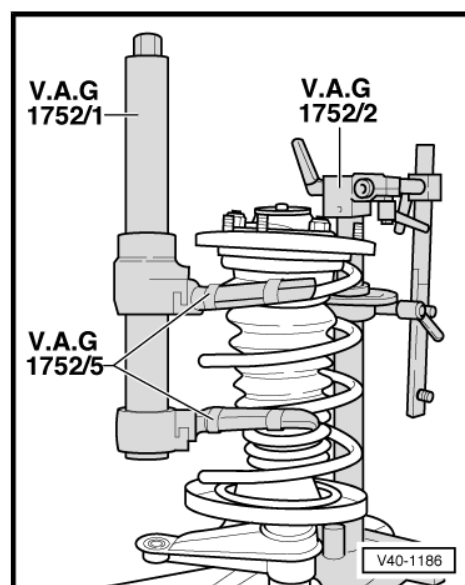
Note the different versions of the components for the "Standard, sports and heavy-duty models".

Removing

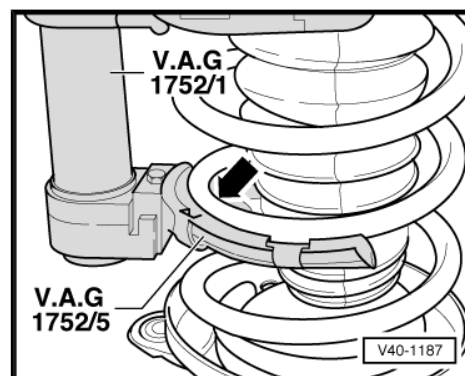
- Remove the suspension strut [→ page 20](#)
- Clamp the suspension strut holder -V.A.G 1752/2- in the vice.
- Insert the suspension strut in the suspension strut holder - V.A.G 1752/2- .



- Pre-tension the coil spring with the spring tensioner -V.A.G 1752/1- until the upper spring plate is free.



- Make sure the coil spring is positioned correctly in the spring holder -V.A.G 1752/7- -arrow-.



- Unscrew the nut from the piston rod whilst providing support with an Allen key.
- Detach the individual components of the suspension strut and coil spring with the spring tensioner -V.A.G 1752/1- .

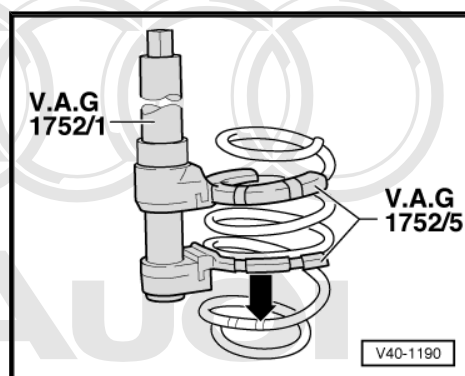
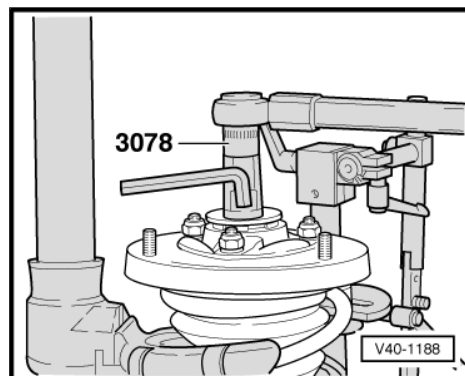


Note

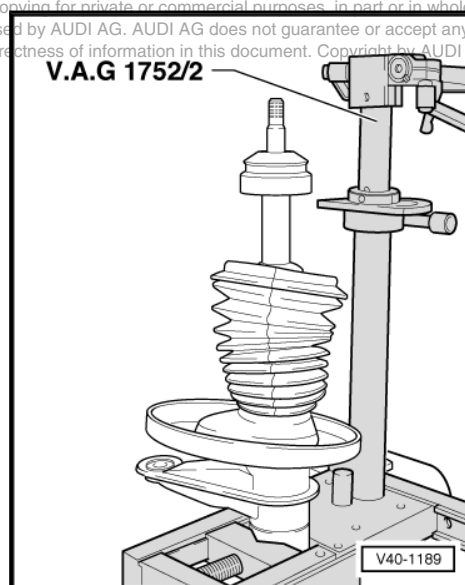
Instead of the 22 mm socket attachment -3078-, use can be made of the shock absorber set -T10001- .

Installing

- Tension the new spring, paying attention to the coloured marking -arrow-.



- Pull the piston rod as far as it will go out of the shock absorber.
- Position the coil spring with the spring tensioner -V.A.G 1752/1- on the spring seat.
- Fit the spring plate with packing plate on the coil spring.
- The end of the spring must make contact with the stop of the spring seat.



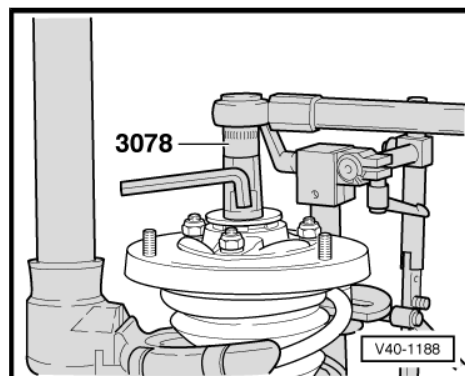
- Tighten the nut of the shock absorber piston rod to 60 Nm.



Note

Instead of the 22 mm socket attachment -3078-, use can be made of the shock absorber set -T10001- .

- Slacken off the coil spring.
- Detach the spring tensioner.
- Insert the protective sleeve in the spring plate.



2.6 Removing and installing shock absorber

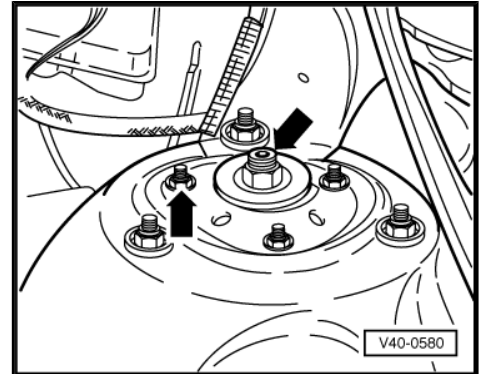
Removing



Note

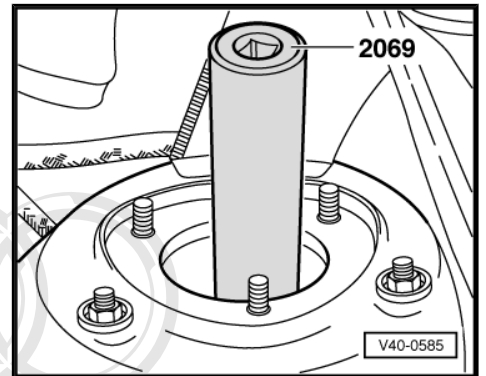
Replace the shock absorber with the suspension strut fitted (vehicle standing on its wheels).

- Detach the cap.
- Unscrew the nut for the upper damper mount.
- Mark the installation position of the suspension strut mount (camber adjustment).
- Remove the suspension strut mount.
- Turn the steering wheel such that the piston rod can be centrally aligned with the support plate (jam wooden block between spring and wheel housing).
- Detach the washer and buffer stop from the piston rod.
- Detach the protective sleeve from the cap.
- Unscrew the cap using a pipe wrench for damper cartridge -2069 A- or -2069- .
- Take out the shock absorber.



Installing

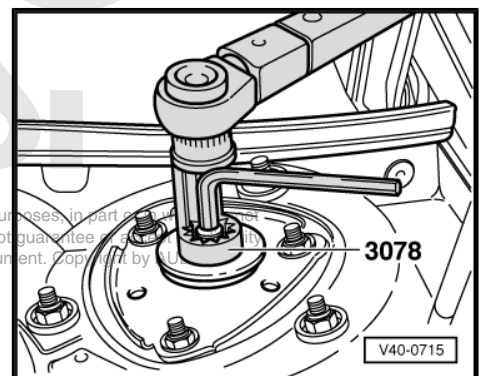
- Fit the shock absorber.
- Tighten the cap to 240 Nm using a pipe wrench for damper cartridge -2069 A- or -2069- .
- Fit the protective sleeve on the cap.
- Tighten the nut of the shock absorber piston rod to 60 Nm.



Note

Instead of the 22 mm socket attachment -3078-, use can be made of the shock absorber set -T10001- .

Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy and reliability with respect to the correctness of information in this document. Copyright by AUDI AG.





3 Front drive shaft

⇒ [“3.1 General ”, page 32](#)

⇒ [“3.2 Exploded view of drive shaft”, page 32](#)

⇒ [“3.3 Removing and installing drive shafts”, page 36](#)

⇒ [“3.4 Exploded view of drive shaft with constant velocity joint”, page 36](#)

⇒ [“3.5 Quantities and type of grease”, page 39](#)

⇒ [“3.6 Plastic boot \(Hytrel\) ”, page 40](#)

⇒ [“3.7 Exploded view of drive shaft with triple roller joint”, page 40](#)

⇒ [“3.8 Quantities and type of grease”, page 43](#)

3.1 General



Note

Heed the general information ⇒ [page 2](#) .

3.2 Exploded view of drive shaft



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Gearbox

2 - Seal

- ☐ Vehicles with constant velocity shaft only
- ☐ Replace

3 - Drive shaft with constant velocity joint

- ☐ For vehicles with manual gearbox
- ☐ Removing and installing
⇒ [page 36](#)
- ☐ Exploded view
⇒ [page 36](#)

4 - Packing plate

5 - Bolt

- ☐ M8: 40 Nm
- ☐ M10: 77 Nm

6 - Bolt, 77 Nm

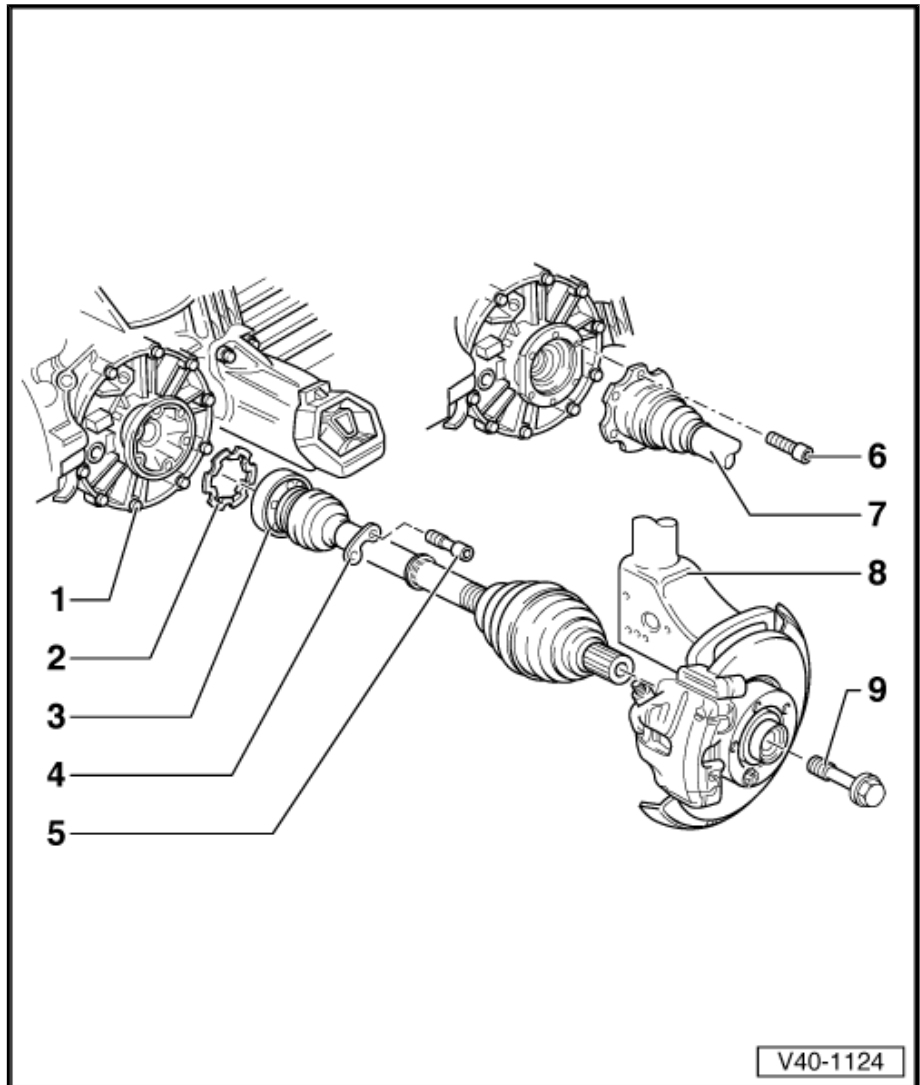
7 - Drive shaft with triple roller joint

- ☐ Removing and installing
⇒ [page 36](#)
- ☐ Exploded view
⇒ [page 40](#)

8 - Suspension strut

9 - Bolt

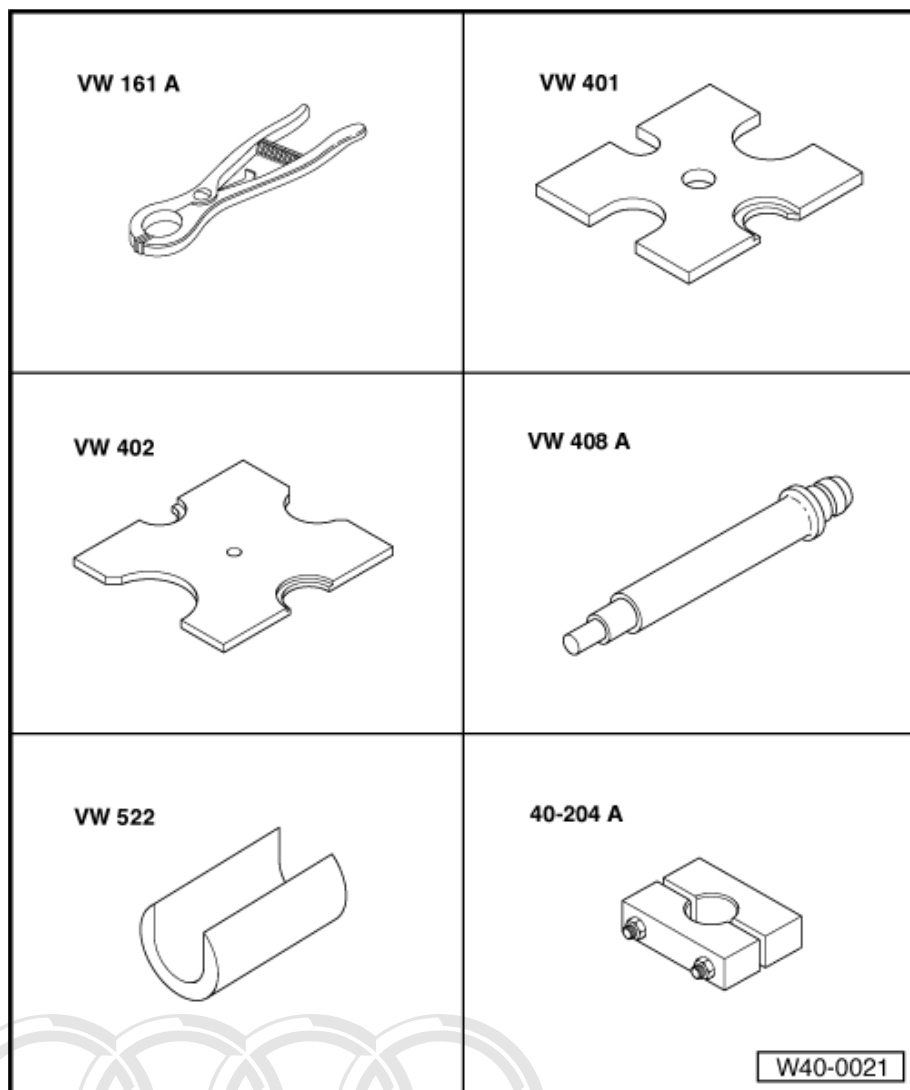
- ☐ Always replace after removing
- ☐ 190 Nm + further 180° turn
- ☐ The vehicle must be standing on its wheels when slackening off and tightening - risk of accident
- ☐ Switched from hexagon head to hexagon socket. Combined fitting is permissible



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Special tools and workshop equipment required

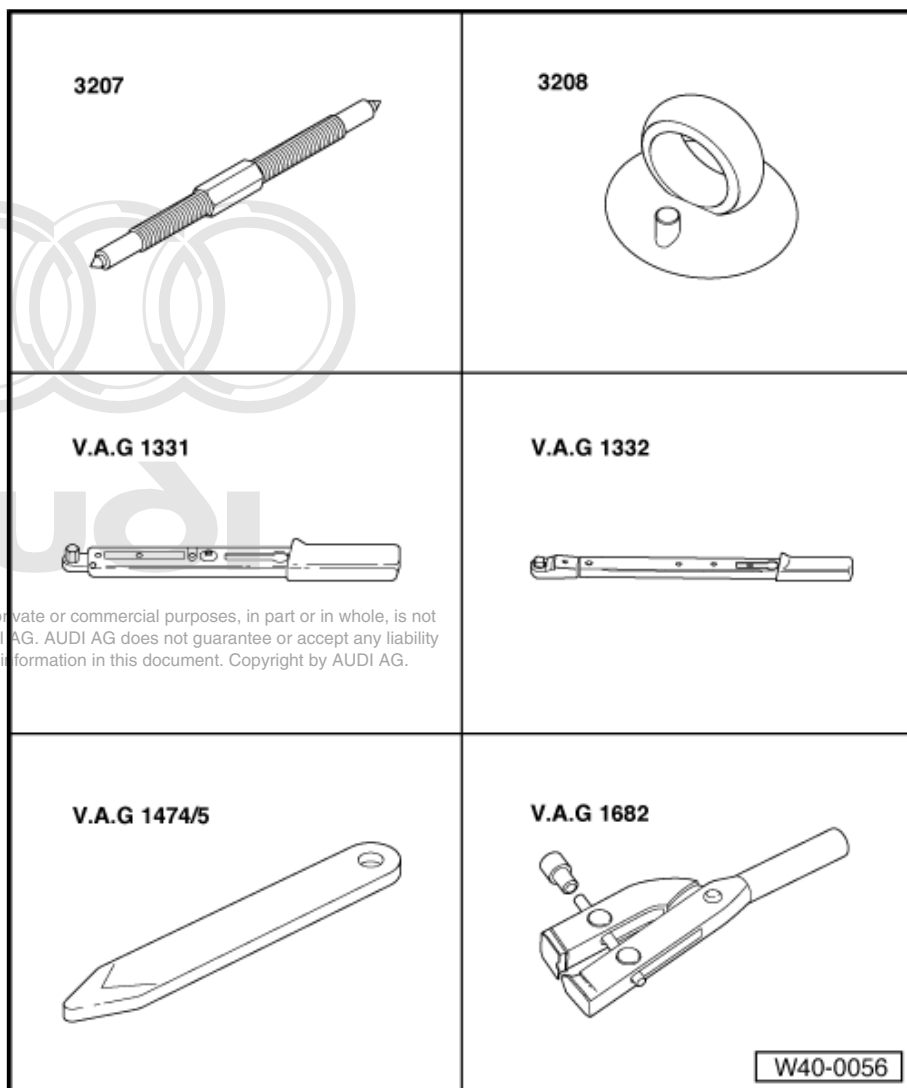
- ◆ Circlip pliers -VW 161 A-
- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 408 A-
- ◆ Support sleeve -VW 522-
- ◆ Tensioner -40 - 204 A-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Pressure screw -3207-
- ◆ Suction grip -3208-
- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Wedges -V.A.G 1474/5-
from parting tool for bonded
windows -V.A.G 1474B-
- ◆ Tensioning tool -V.A.G 1682-

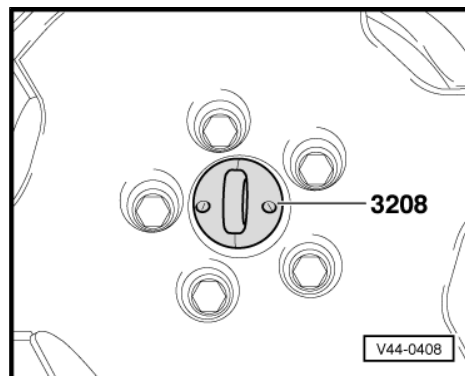
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



3.3 Removing and installing drive shafts

Removing

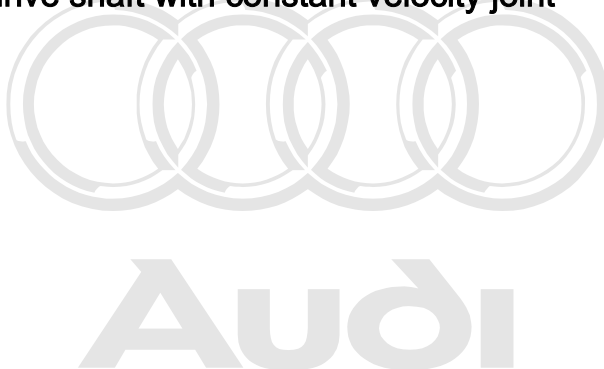
- Detach the wheel trim. Use the suction grip -3208- to remove the trim cap on vehicles with light alloy wheels.
- Screw out the drive shaft/wheel hub bolt (only slacken off with vehicle standing on its wheels - risk of accident).
- Remove the wheel.
- Vehicles with ABS: Pull the speed sensor slightly out of the wheel bearing housing.
- Unscrew the drive shaft from the flange shaft/gearbox.
- Turn the steering wheel accordingly and take out the drive shaft.



Installing

- Replace the seal on drive shafts with an inner constant velocity joint.
- Insert the drive shaft in the wheel bearing housing and bolt to the flange shaft.
- Vehicles with ABS: Press home the speed sensor in the wheel bearing housing.
- Fit the wheel: Steel disc wheel ➔ [page 144](#) , light alloy wheel ➔ [page 146](#) .
- Tighten the drive shaft bolt. The vehicle must be standing on its wheels - risk of accident.

3.4 Exploded view of drive shaft with constant velocity joint



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Circlip

- ☐ Replace
- ☐ Remove and install using circlip pliers -VW 161 A-

2 - Seal

- ☐ Replace
- ☐ Detach the backing and bond into the joint

3 - Inner constant velocity joint

- ☐ Different outside diameters; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Replace as a complete unit
- ☐ Pressing off
⇒ [page 38](#)
- ☐ Pressing on
⇒ [page 38](#)

4 - Inner constant velocity joint boot

- ☐ With vent hole
- ☐ Check for cracks and abrasion
- ☐ Drive off with mandrel
- ☐ Before attaching to constant velocity joint, apply sealant to sealing surface; for sealant refer to ⇒ Electronic parts catalogue

5 - Drive shaft

- ☐ Different lengths on left and right and different joint versions; for assignment refer to ⇒ Electronic parts catalogue

6 - Clamp

- ☐ Replace

7 - Boot

- ☐ Check for cracks and abrasion
- ☐ Before tensioning the clamp, briefly lift the boot to permit pressure equalisation ⇒ [page 39](#)
- ☐ Plastic version (Hytrel) ⇒ [page 40](#)

8 - Clamp

- ☐ Replace
- ☐ Tensioning ⇒ [page 39](#)

9 - Dished washer

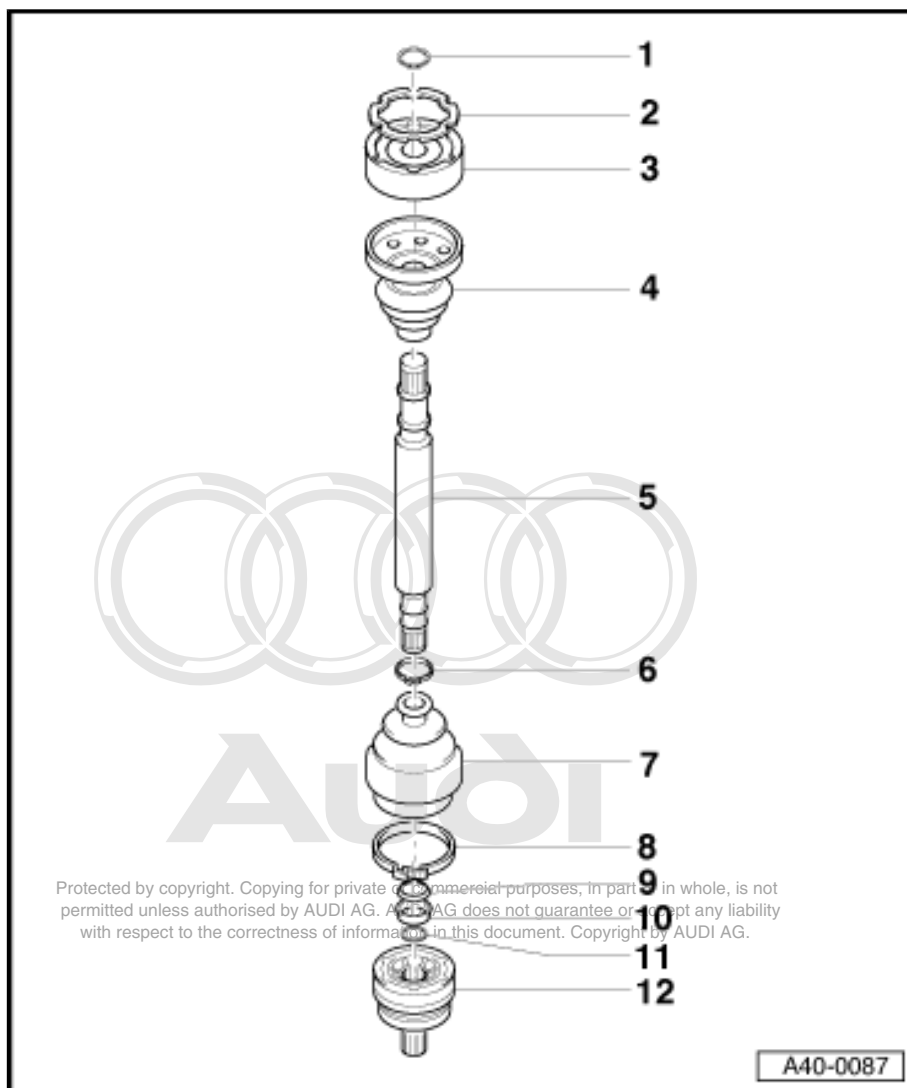
- ☐ Large Ø (concave side) makes contact with thrust washer
- ☐ Installation position ⇒ [page 38](#)

10 - Thrust washer

- ☐ Installation position ⇒ [page 38](#)

11 - Circlip

- ☐ Replace
- ☐ Insert in shaft groove

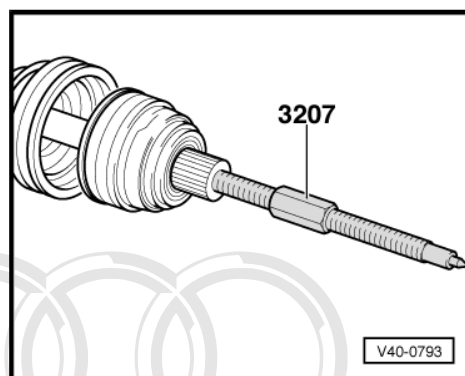


12 - Outer constant velocity joint

- ❑ Different outside diameters; for assignment refer to ➔ Electronic parts catalogue
- ❑ Replace as a complete unit
- ❑ Removing ➔ [page 38](#)
- ❑ Installing: Drive onto the shaft with a plastic-headed hammer until the circlip engages

Pressing off outer constant velocity joint

- Clamp the drive shaft in a vice with soft jaws.
- Detach the large clamp and fold back the boot.
- Screw the special tool into the joint pin until the constant velocity joint can be detached.

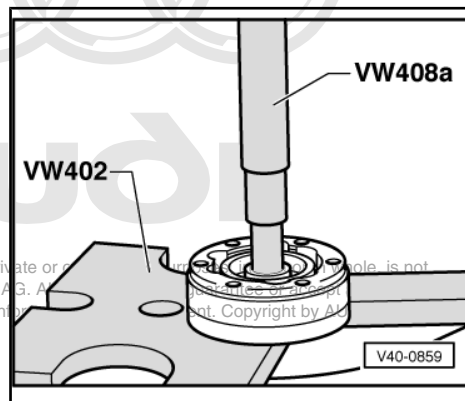


Pressing off inner constant velocity joint



Note

- ◆ Use a mandrel to drive off the boot beforehand.
- ◆ Support the ball hub.



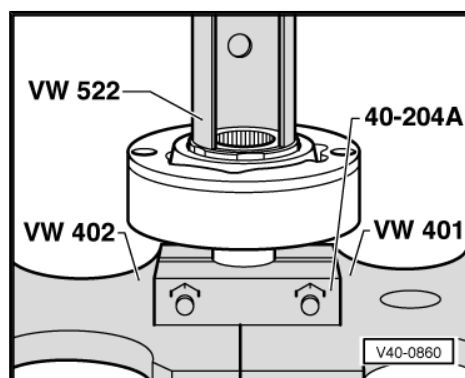
Pressing on inner constant velocity joint



Note

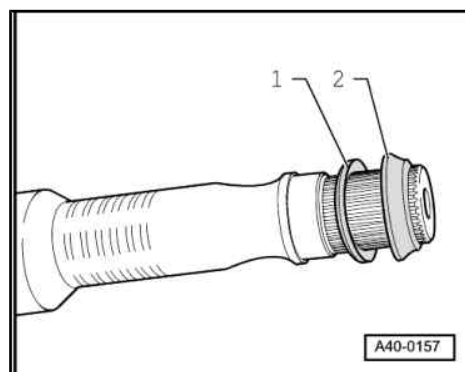
The chamfer at the inside diameter of the ball hub (splines) must face the contact collar of the drive shaft.

- Press home the joint.
- Fit the circlip.



Installation position of spacer and dished washer (at wheel)

- 1 - Dished washer
- 2 - Spacer (plastic)

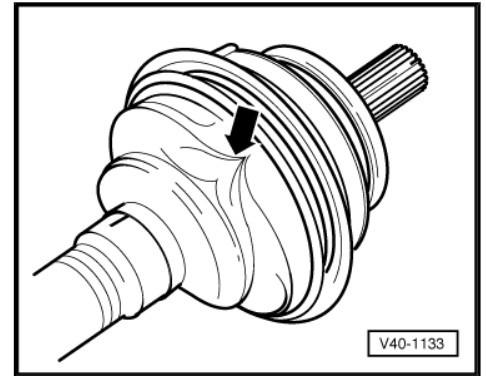


Venting boot



Only applies to rubber boots.

The boot is often squashed when fitting it on the joint body. This produces a vacuum in the boot, which causes a fold to form whilst driving -arrow-. After fitting, the boot must therefore be vented briefly at the small diameter to provide pressure equalisation.

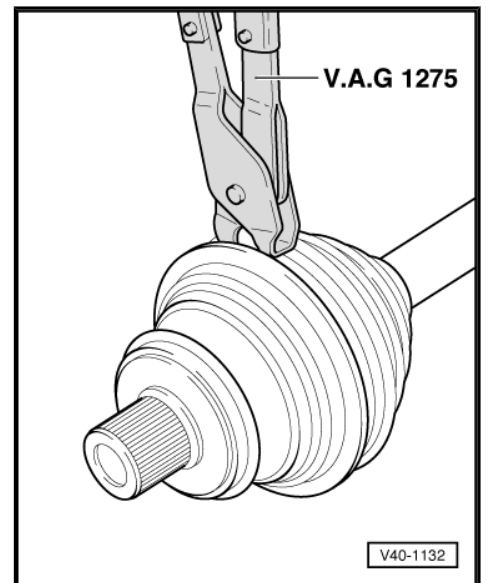


Tensioning clamp



Only applies to rubber boots.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



3.5 Quantities and type of grease

Joint			Grease fill of constant velocity joints; Grease ⇒ Electronic parts catalogue		
			Total quantity g	Joint g	Bellows g
Outer joint	Ø mm	89	90	40	50
		98	120	80	40
Inner joint	Ø mm	100	80	30	50
		108	120	35	85



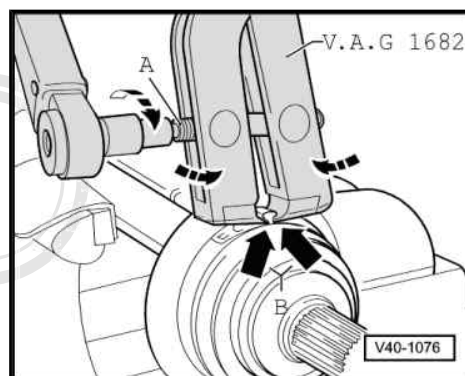
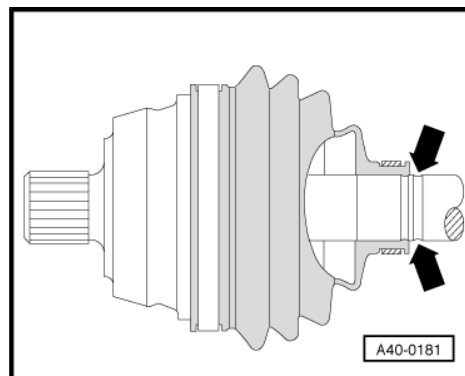
Re-grease the joint if necessary on replacing the boot.

3.6 Plastic boot (Hytrel)

- ◆ A plastic boot is used for the 89 mm outer joint (wheel end) on the Audi A6 front axle.
- ◆ It can be identified from the harder material (compared to rubber).
- ◆ Stainless steel clamps are needed for securing the boot on account of the greater pre-tension required.
- ◆ It is not possible to fit older drive shafts with plastic boots on account of the fitting grooves -arrows- required on the drive shaft.

Tensioning stainless steel clamp

- ◆ Due to the hard boot material (compared to rubber) and the stainless steel clamp thus required, the clamp can only be tensioned with the tensioning tool -V.A.G 1682- .
- ◆ Use a torque wrench with 5...50 Nm adjustment range (e.g. - V.A.G 1331-).
- ◆ Make sure the thread of the spindle of the tensioning tool - V.A.G 1682- is not seized. Lubricate with MoS₂ grease if necessary.
- ◆ Stiffness, e.g. dirt on the thread, prevents attainment of the required clamp tensioning force at the specified torque.
- Apply the tensioning tool -V.A.G 1682- as shown. Ensure that the jaws of the tool make contact with the corners -arrows B- of the clamp.
- Tension the clamp to 20 Nm by turning the spindle -arrow A- with a torque wrench (take care to keep the tool straight).



3.7 Exploded view of drive shaft with triple roller joint

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Drive shaft with triple roller joint

- ☐ Replacement parts are supplied with boot and grease fill

2 - Clamp

- ☐ Replace
- ☐ Tensioning
⇒ [page 43](#)

3 - Inner boot

- ☐ Check for cracks and abrasion
- ☐ Replace the inner boot (only possible on shafts up to Ø 32 mm)
- ☐ To replace, press off the outer constant velocity joint
- ☐ Fold the boot over the bead of the profile shaft
⇒ [page 42](#)

4 - Clamp

- ☐ Replace
- ☐ Tensioning
⇒ [page 43](#)

5 - Outer constant velocity joint boot

- ☐ Check for cracks and abrasion
- ☐ Before tensioning the clamp, briefly lift the boot to permit pressure equalisation
⇒ [page 42](#)

- ☐ Plastic version (Hytrel) ⇒ [page 40](#)

6 - Clamp

- ☐ Replace
- ☐ Tensioning ⇒ [page 43](#)

7 - Dished washer

- ☐ Installation position ⇒ [page 42](#)

8 - Spacer (plastic)

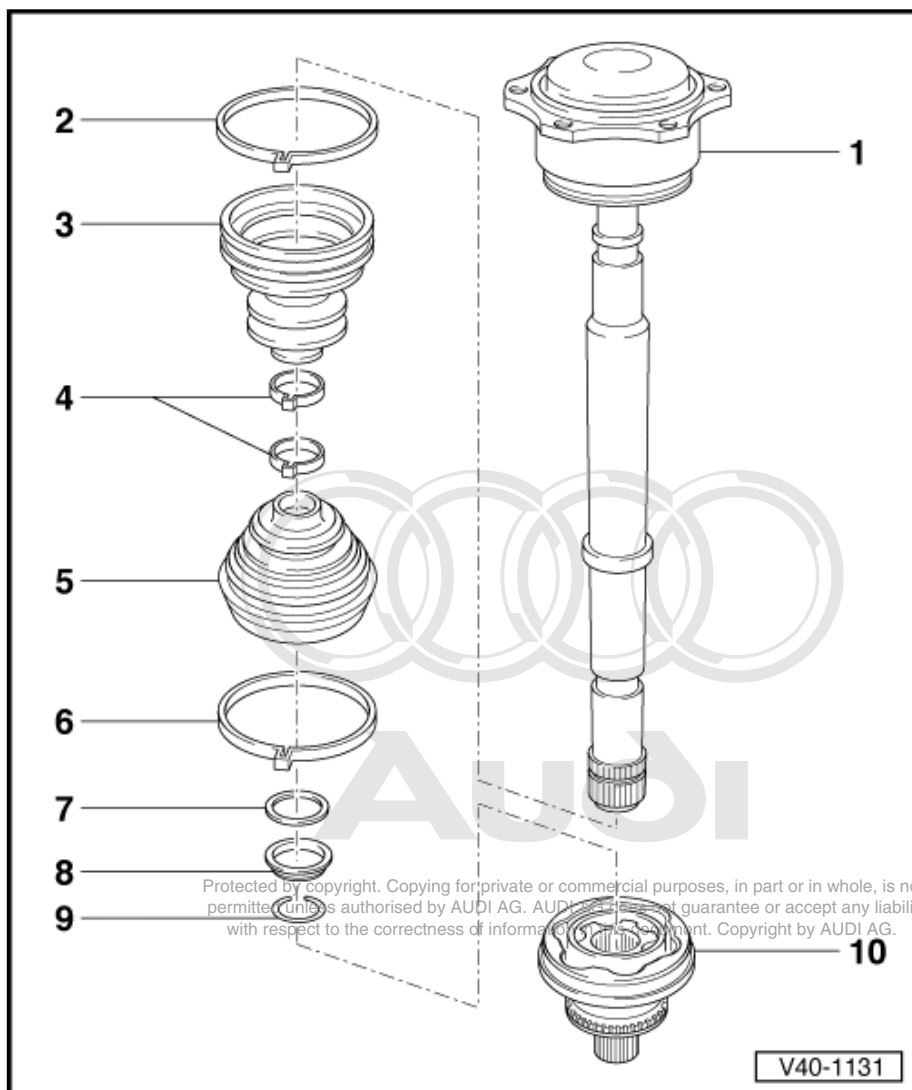
- ☐ Installation position ⇒ [page 42](#)

9 - Circlip

- ☐ Replace
- ☐ Insert prior to assembly in annular groove of shaft (not visible with joint fitted)

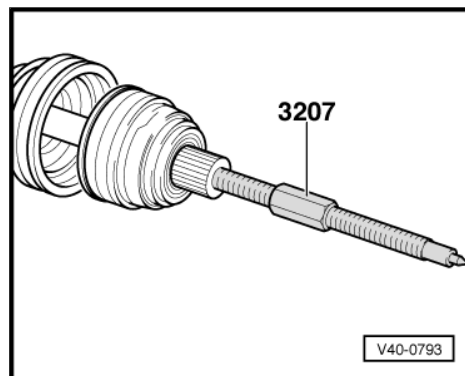
10 - Outer constant velocity joint

- ☐ Different outside diameters; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Replace as a complete unit
- ☐ Pressing off ⇒ [page 42](#)
- ☐ Installing: Drive onto the shaft with a plastic-headed hammer until the circlip engages



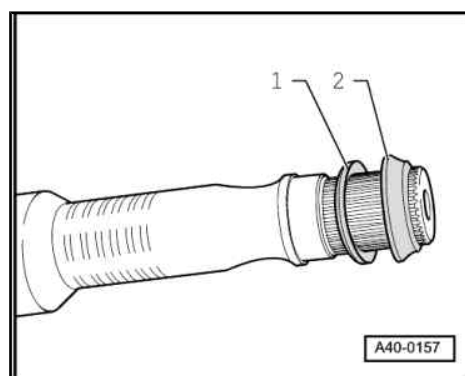
Pressing off outer constant velocity joint

- Clamp the drive shaft in a vice with soft jaws.
- Detach the large clamp and fold back the boot.
- Screw the special tool into the joint pin until the constant velocity joint can be detached.



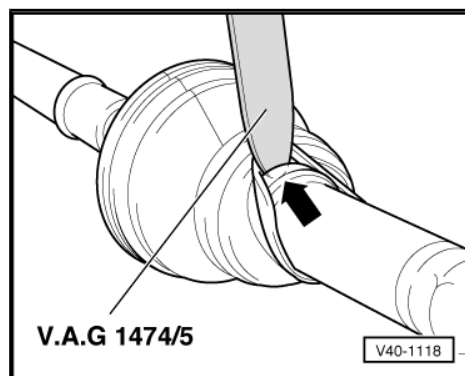
Installation position of spacer and dished washer (at wheel)

- 1 - Dished washer
- 2 - Spacer (plastic)



Folding boot over bead of profile shaft

- When fitting on the profile shaft, grease the bead on the profile shaft slightly and carefully fold the boot over with a wedge - V.A.G 1474/5 -.



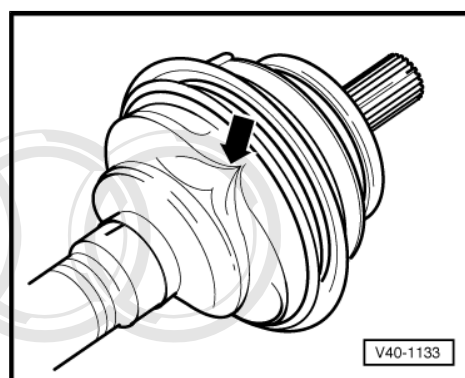
Venting boot



Note

Only applies to rubber boots.

The boot is often squashed when fitting it on the joint body. This produces a vacuum in the boot, which causes a fold to form whilst driving -arrow-. After fitting, the boot must therefore be vented briefly at the small diameter to provide pressure equalisation.

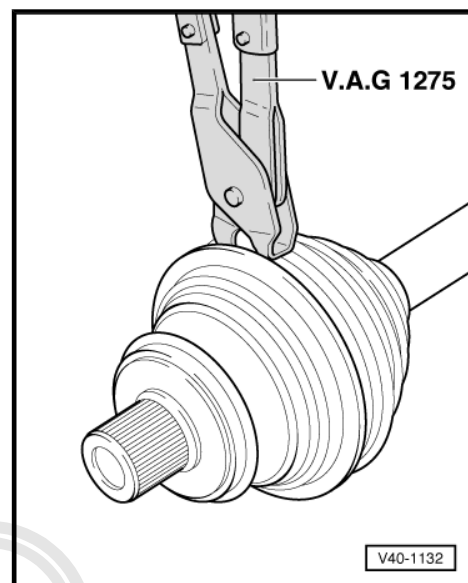


Tensioning clamp



Note

Only applies to rubber boots.



3.8 Quantities and type of grease

Joint			Grease fill of outer constant velocity joints; Grease ➔ Electronic parts catalogue		
			Total quantity g	Joint g	Bellows g
Outer joint	Ø mm	89	90	40	50
		98	120	80	40

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Note

Re-grease the joint if necessary on replacing the boot.

42 – Rear suspension

1 Rear suspension - Front-wheel drive vehicles

⇒ "1.1 General", page 44

⇒ "1.2 Exploded view of rear suspension", page 44

⇒ "1.3 Exploded view of rear axle beam", page 45

⇒ "1.4 Removing and installing rear axle", page 47

1.1 General



Note

Heed the general information ⇒ [page 2](#).

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1.2 Exploded view of rear suspension

1 - Bolt, 110 Nm

- ☐ The vehicle must be standing on its wheels when tightening

2 - Handbrake cable

3 - Suspension strut

4 - Brake drum

5 - Spring for brake pressure regulator

- ☐ The brake pressure regulator was discontinued on introduction of ABS "Bosch 5.0" as of Model Year 1995

6 - Bolt

7 - Washer

8 - Panhard rod

9 - Washer

10 - Self-locking nut, 100 Nm

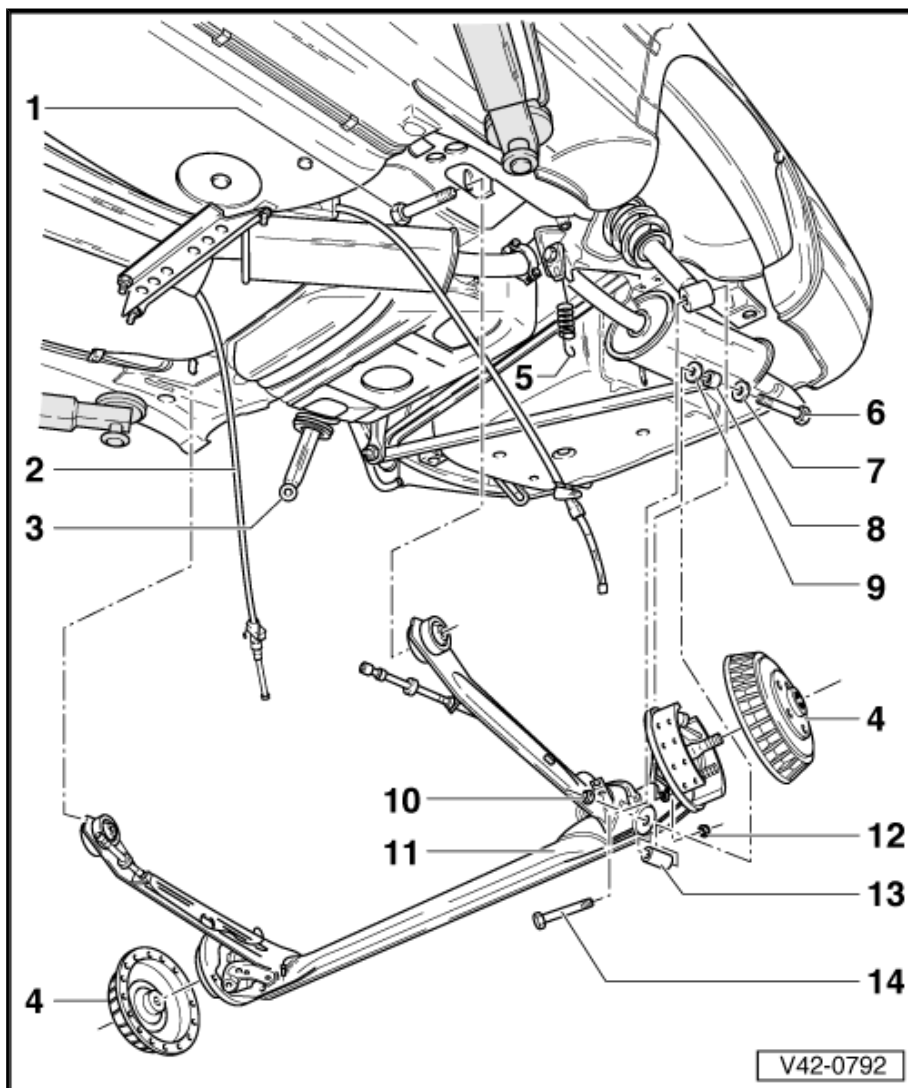
- ☐ Always replace after removing

11 - Rear axle beam

- ☐ Removing and installing ⇒ [page 47](#)
- ☐ As of Model Year 1997 brake pressure regulators were fitted at the rear axle beam to reduce the brake pressure ⇒ [page 45](#)

12 - Self-locking nut, 95 Nm

- ☐ Always replace after removing



V42-0792

- ☐ The vehicle must be standing on its wheels when tightening

13 - Bushing

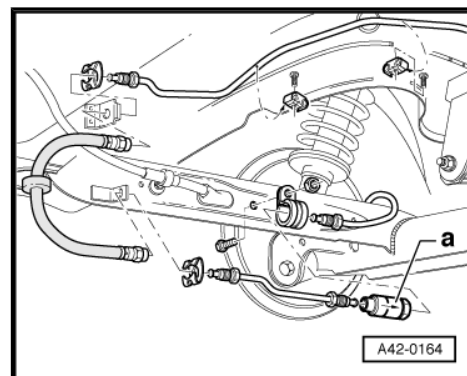
- ☐ Only on vehicles with 4-cyl. engine

14 - Bolt

Rear wheel brake pressure regulators as of Model Year 1997

As of Model Year 1997 brake pressure regulators -a- were fitted at the rear wheels to reduce the brake pressure.

Replacement parts are only available as a set ⇒ Electronic parts catalogue .



1.3 Exploded view of rear axle beam

1 - Self-locking nut, 100 Nm

- ☐ Always replace after removing
- ☐ The vehicle must be standing on its wheels when tightening

2 - Bolt



Note

-Items 2, 4, 5, 6, 7- were discontinued on introduction of ABS "Bosch 5.0" as of Model Year 1995.

3 - Bonded rubber bush

- ☐ Replacing ⇒ [page 47](#) and ⇒ [page 47](#)
- ☐ Installation position ⇒ [page 47](#)

4 - Self-locking nut, 20 Nm

- ☐ Always replace after removing

5 - Spacer sleeve

6 - Mount

7 - Spring for brake pressure regulator

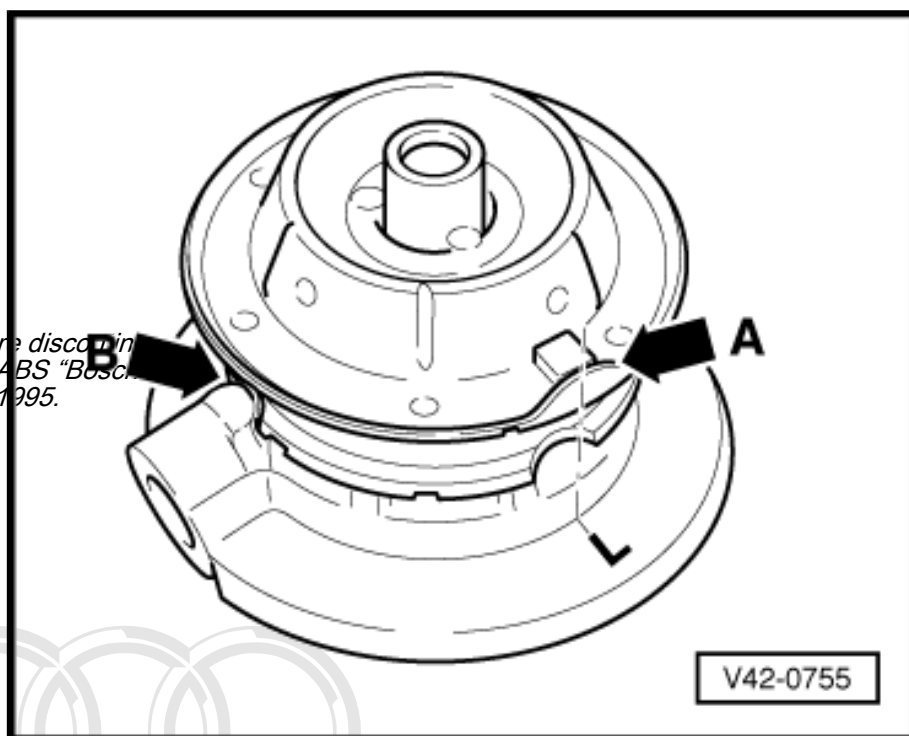
8 - Bolt

9 - Bolt

10 - Washer

11 - Rubber bush

- ☐ Replacing ⇒ [page 47](#)
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



12 - Panhard rod

13 - Bushing

- ☐ Only on vehicles with 4-cyl. engine

14 - Anti-roll bar

15 - Self-locking nut, 80 Nm

- ☐ Always replace after removing
- ☐ The vehicle must be standing on its wheels when tightening

16 - Bolt

17 - Axle beam

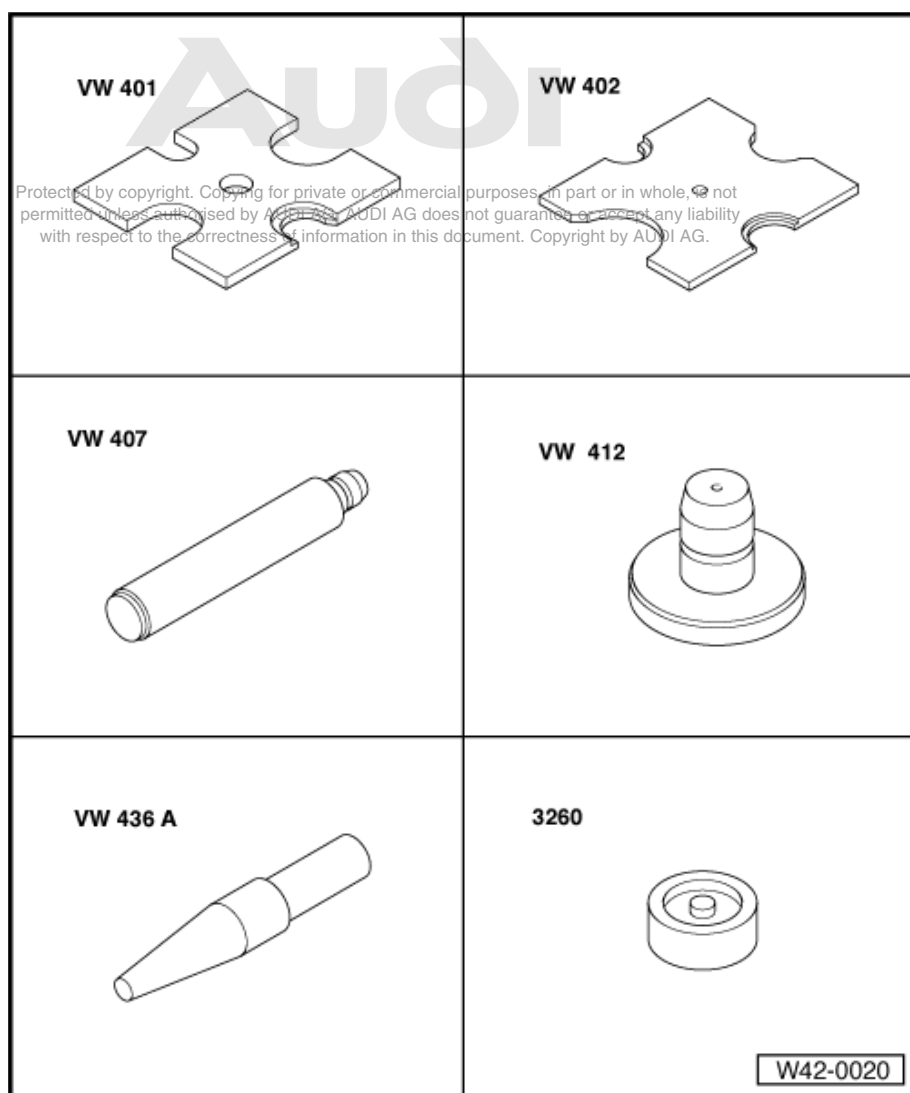
- ☐ Different version for drum and disc brakes
- ☐ Axle beams for vehicles with disc brakes are provided with a bushing for mounting the speed sensors.
- ☐ The two bushings are to be driven out for use on vehicles without ABS

18 - Self-locking nut, 100 Nm

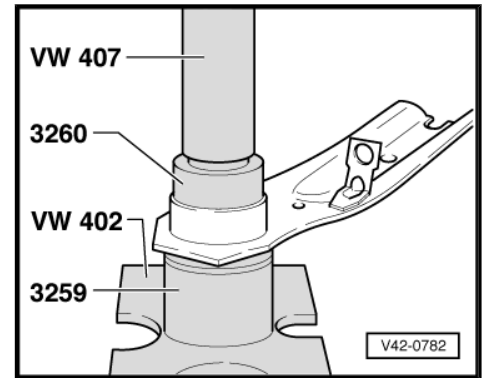
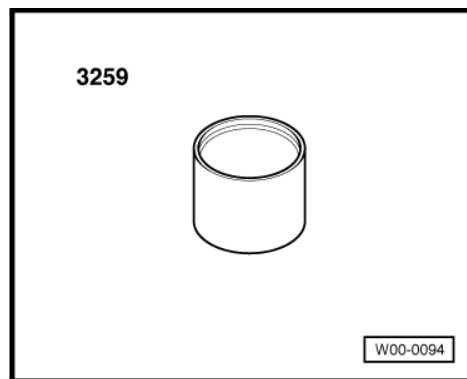
- ☐ Always replace after removing
- ☐ The vehicle must be standing on its wheels when tightening

Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 407-
- ◆ Press tool -VW 412-
- ◆ Guide piece -VW 436 A-
- ◆ Collar -3260-



◆ Pipe -3259-



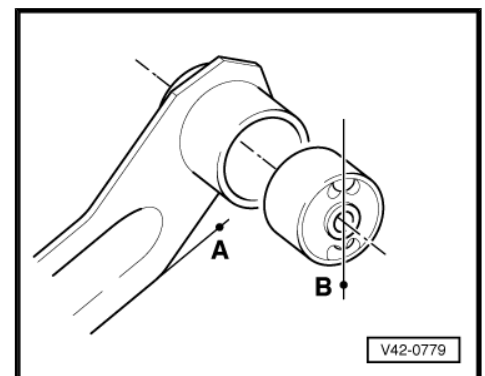
Pressing out bonded rubber bush

Installation position

- Press in bush such that it is flush.
- Line -A- must be at an angle of 90° with respect to line -B-.

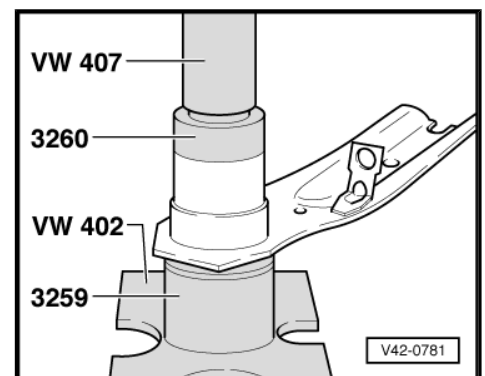


Line -B- may deviate by $\pm 4^\circ$ from the kidney-shaped recesses in the bush.

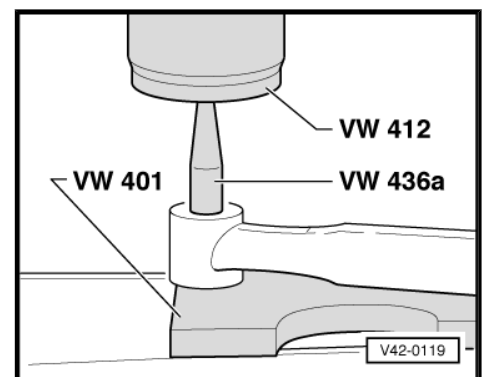


Fitting bonded rubber bush

Protected by Audi AG. Copyright for Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG.



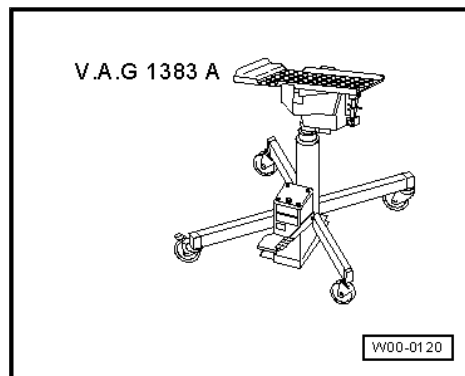
Pressing out and pressing in bonded rubber bush



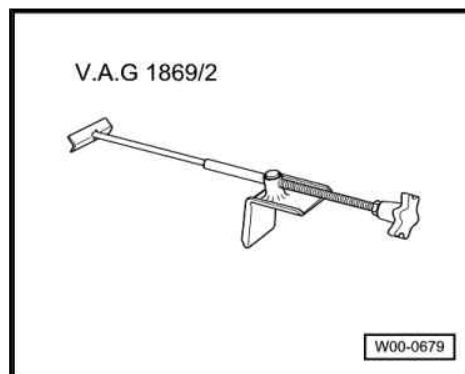
1.4 Removing and installing rear axle

Special tools and workshop equipment required

◆ Engine and gearbox lifter -V.A.G 1383 A-

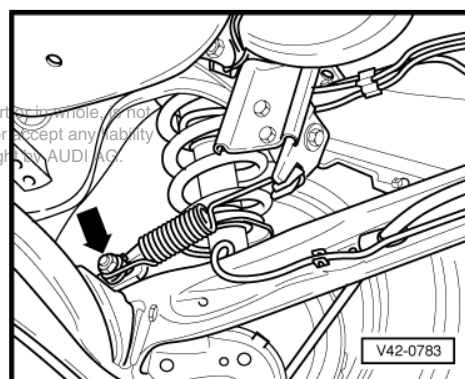


◆ Brake pedal depressor -V.A.G 1869/2-

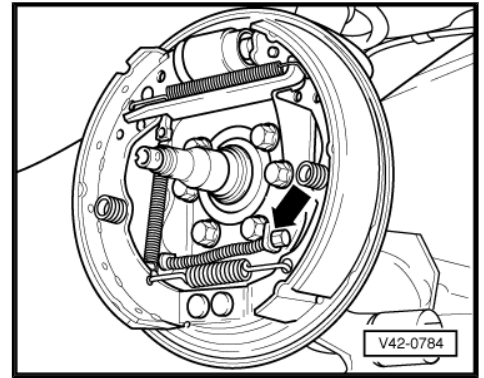
**Removing**

- Vehicle standing on its wheels over a lifting platform
- Detach the wheel trim.
- Raise the vehicle.
- Draw off the brake fluid.
- Remove the wheels.
- Vehicles with 5 and 6-cyl. engine: Remove the guard under the tank.
- Vehicles with load-sensitive brake pressure regulator: Unfasten the brake pressure regulator nut -arrow-.

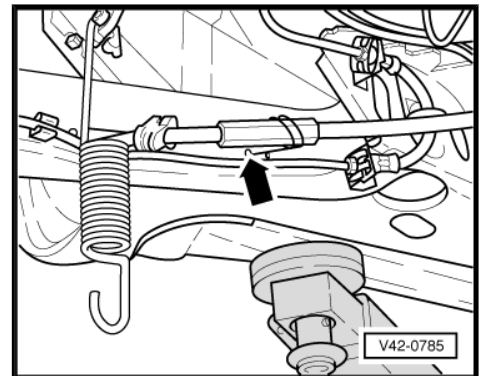
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright © AUDI AG.



- Remove the brake drum ⇒ Rep. Gr. 46 .
- Disengage the handbrake cable -arrow-.
- Take the rubber grommet out of the trailing link.



- Take the wire loop out of the trailing link -arrow-.
- Pull the handbrake cable out of the brake carrier and trailing link.

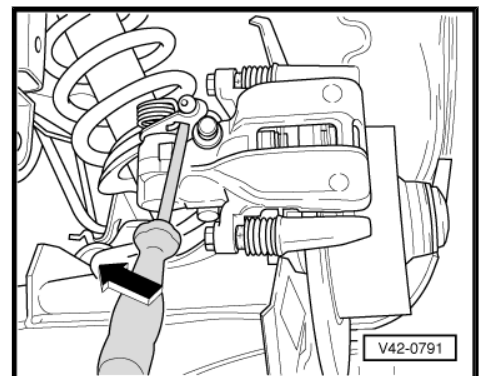


- Vehicles with disc brakes: Disengage the handbrake cable -arrow-.
- Insert the brake pedal depressor -V.A.G 1869/2- .
- Press the brake pedal down by at least 60 mm with the brake pedal depressor.

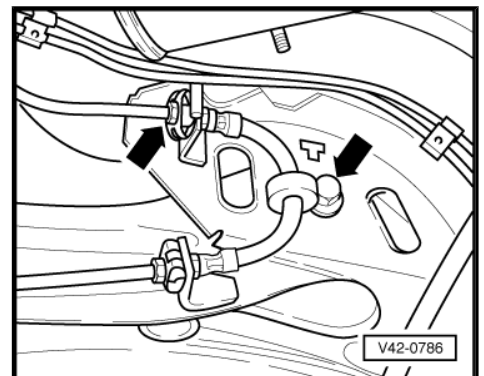


Note

Use of the brake pedal depressor stops the brake fluid reservoir running empty.

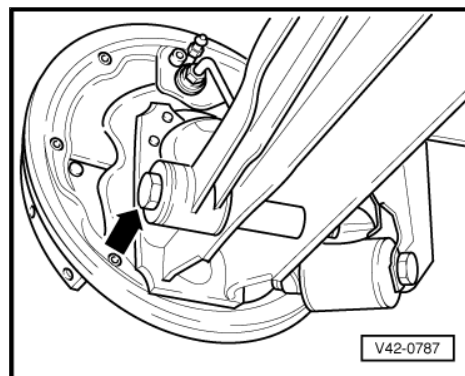


- Unscrew the brake pipes -left arrow- at both sides of the rear axle.
- Unscrew the trailing link bolts but do not as yet completely unfasten the left bolt.

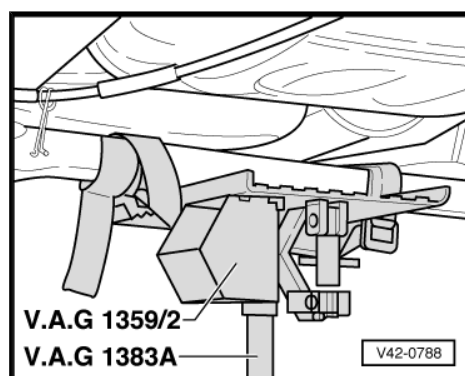


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Remove the Panhard rod bolt -arrow-.



- Position the engine and gearbox lifter -V.A.G 1383 A- under the rear axle.
- Use the tensioning straps provided to secure the rear axle beam.

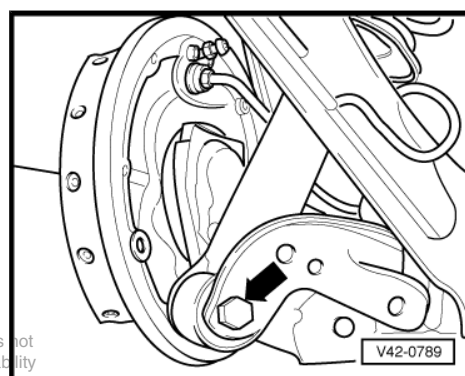


- Unscrew the suspension strut bolt -arrow- on both sides of the rear axle.
- Screw out the left trailing link bolt.
- Lower the rear axle.

Installing

Install in reverse order, paying attention to the following:

- Insert the wire loop for the handbrake cables in the trailing links.
- Install the brake drums ⇒ Rep. Gr. 46
- Adjust the brake pressure regulator ⇒ Rep. Gr. 47 .
- Bleed the brake system ⇒ Rep. Gr. 47 .



2 Rear suspension strut - Front-wheel drive vehicles

⇒ [“2.1 Removing and installing suspension strut”, page 51](#)

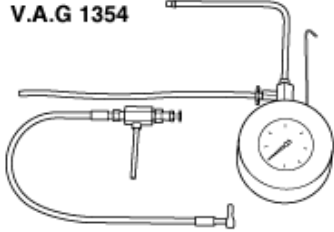
⇒ [“2.2 Exploded view of suspension strut”, page 55](#)

⇒ [“2.3 Dismantling and assembling suspension strut”, page 57](#)

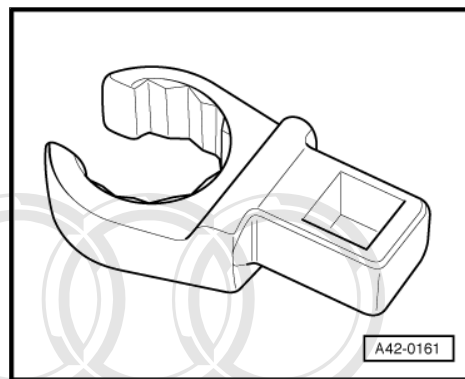
2.1 Removing and installing suspension strut

Special tools and workshop equipment required

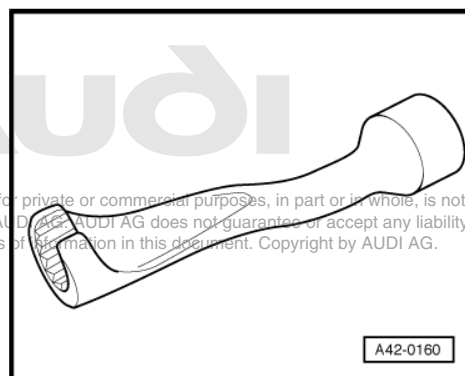
- ◆ 14 mm socket wrench -3150-
- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Self-levelling suspension system tester -V.A.G 1354-
- ◆ Engine and gearbox lifter - V.A.G 1383 A-

3150 	V.A.G 1331 
V.A.G 1332 	V.A.G 1354 
V.A.G 1383 A 	W42-0021

- ◆ 17 mm Crow ring spanner (e.g. from Stahlwille) or



- ◆ 17 mm open twelve-point socket attachment (e.g. from Hazet)



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Suspension strut

Removing

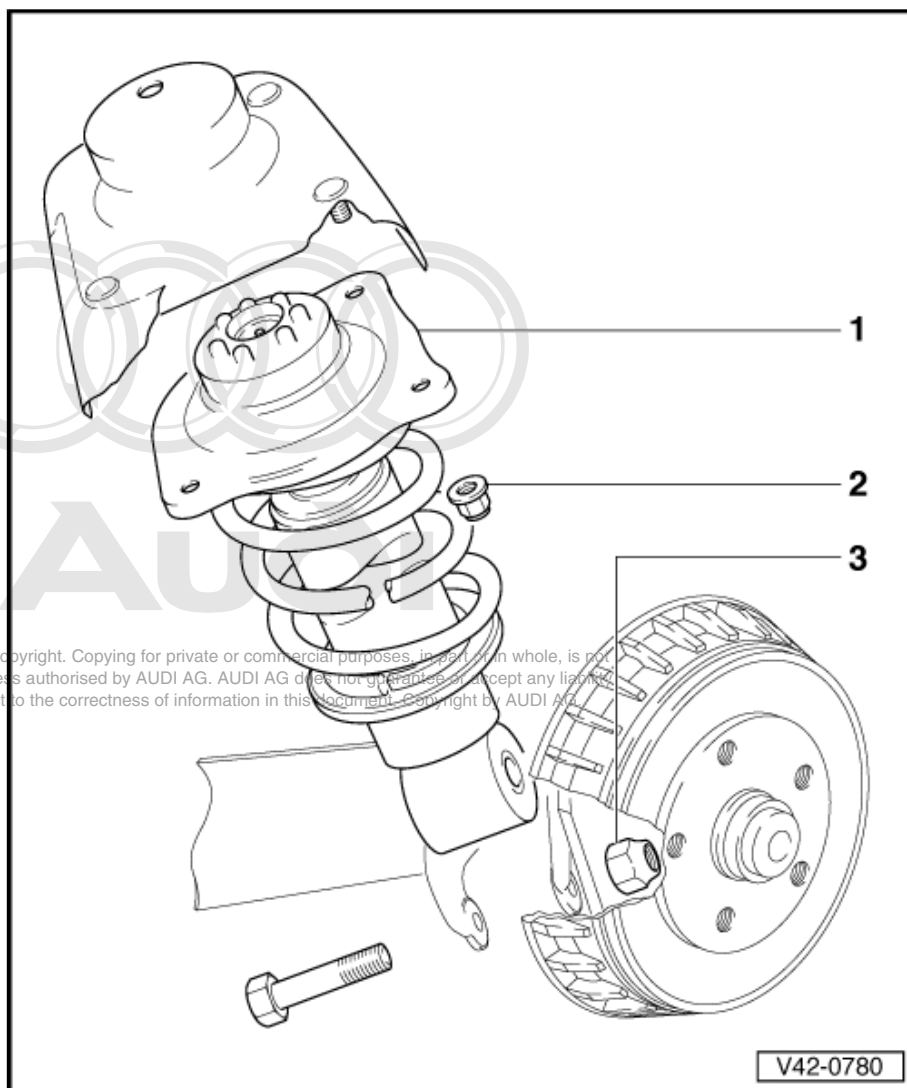
- Remove the wheel.

Vehicles with self-levelling suspension:

- Detach the dust cap from the bleed screw of the connector.
- Attach the bleed hose of the self-levelling suspension system tester - V.A.G 1354- to the bleed screw
⇒ [page 54](#) .
- Open the bleed screw and collect the hydraulic fluid.
- Close the bleed screw, detach the bleed hose and attach the dust cap.
- Unscrew the hydraulic pipe ⇒ [page 54](#) .

All vehicles (continued):

- Screw out the bolt for the suspension strut at the bottom.
- Unscrew the nuts
⇒ [Item 2 \(page 53\)](#) .
- Take out the suspension strut.



Installing

- Insert the suspension strut.
- Insert the bolt for the suspension strut at the bottom.
- Raise the rear axle with the engine and gearbox lifter -V.A.G 1383 A- until all the nuts
⇒ [Item 2 \(page 53\)](#) can be inserted ⇒ [page 54](#) .
- Tighten the nuts ⇒ [Item 2 \(page 53\)](#) to torque.

Vehicles with self-levelling suspension:

- Screw on the hydraulic pipe ⇒ [page 54](#) .

All vehicles (continued):

- Lower the rear axle.
- Fit the wheel: Steel disc wheel ⇒ [page 144](#) , light alloy wheel ⇒ [page 146](#) .
- Set down the vehicle on its wheels and tighten the bolt for the suspension strut at the bottom to torque.

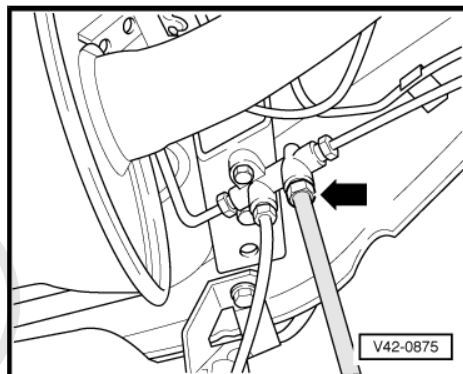
2 - Self-locking nut, 25 Nm

- ❑ Always replace after removing

3 - Self-locking nut, 95 Nm

- Always replace after removing

Attaching bleed hose of self-levelling suspension system tester - V.A.G 1354-



Unscrewing and screwing on hydraulic pipe

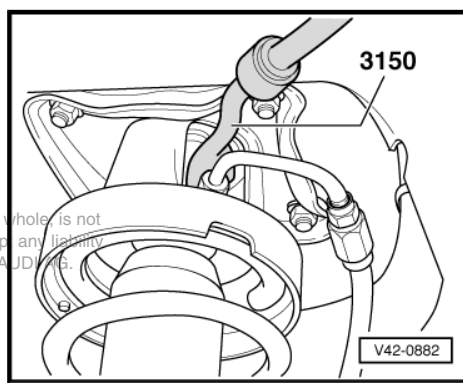
- ◆ For standard hydraulic pipe: 14 mm socket wrench -3150- .
- ◆ For heavy-duty hydraulic pipe: 17 mm Crow ring spanner (e.g. from Stahlwille) or 17 mm open twelve-point socket attachment (e.g. from Hazet).



Note

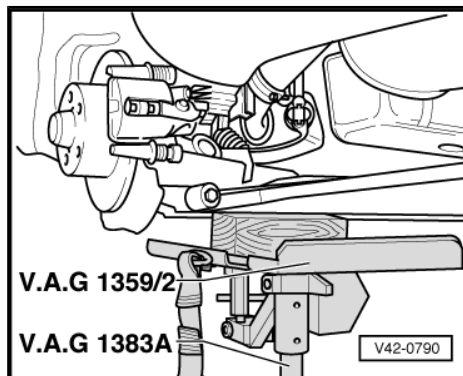
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Conversion to the heavy-duty pressure pipe also involves replacing the connection piece ⇒ [Item 5 \(page 56\)](#) .
- ◆ The suspension strut has to be removed ⇒ [page 51](#) and dismantled ⇒ [page 57](#) for this purpose.



Tightening torque for union nuts: 40 Nm.

Supporting rear axle



2.2 Exploded view of suspension strut

Standard and sports running gear

1 - Self-locking nut, 30 Nm

- ☐ Always replace after removing

2 - Rubber bush

- ☐ Apply talc before fitting

3 - Upper spring plate

4 - Damping ring

- ☐ Apply talc before fitting

- ☐ Different thicknesses; for assignment refer to [Electronic parts catalogue](#)

5 - Buffer stop

- ☐ Insert in protective sleeve
⇒ [Item 6 \(page 55\)](#)
and fit jointly in damping ring ⇒ [Item 4 \(page 55\)](#)

6 - Protective sleeve

7 - Coil spring

- ☐ Surface of spring winding must not be damaged
- ☐ Pay attention to colour code; for assignment refer to ⇒ [Electronic parts catalogue](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ⇒ [page 1](#)

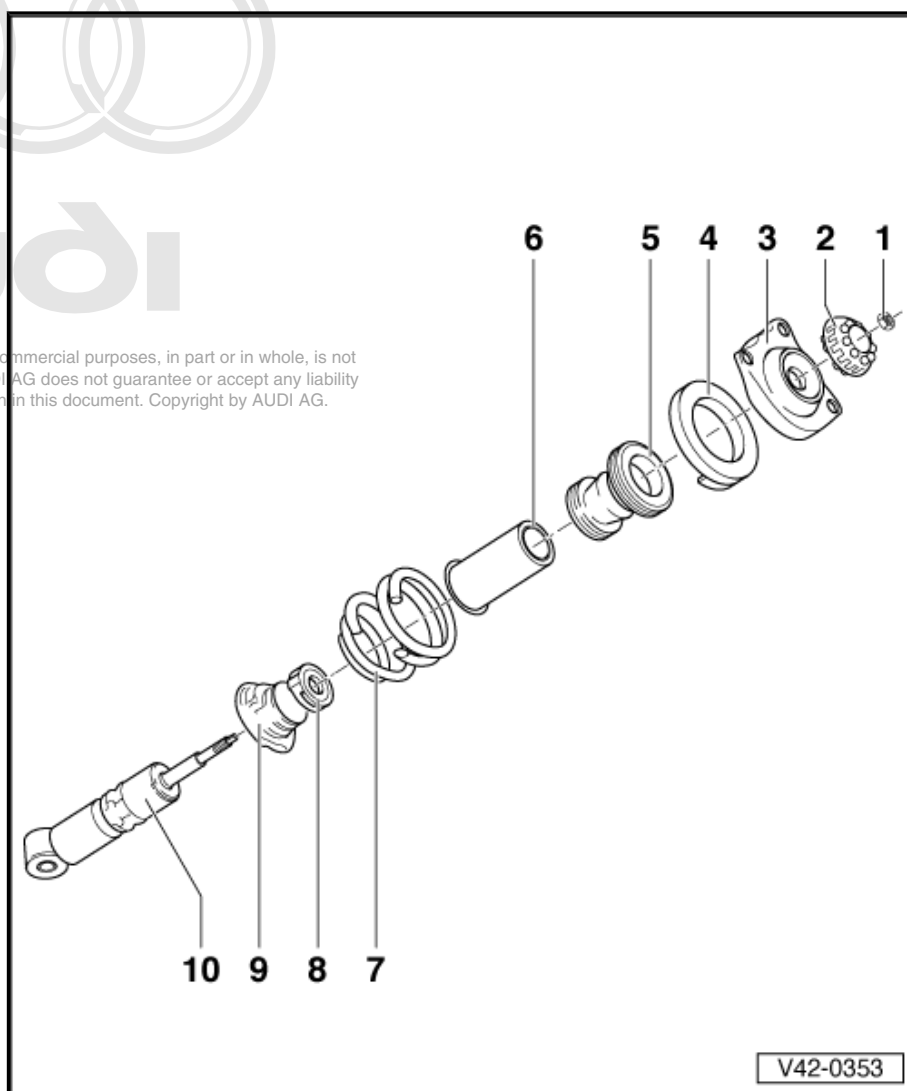
8 - Protective cap

9 - Lower spring plate

- ☐ With stop for coil spring

10 - Shock absorber

- ☐ Can be replaced separately
- ☐ For assignment, refer to ⇒ [Electronic parts catalogue](#)
- ☐ Vehicles with sports running gear are fitted with gas-filled dampers
- ☐ Checking ⇒ [page 6](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ⇒ [page 1](#)
- ☐ Disposal ⇒ [page 4](#)



Standard running gear with self-levelling suspension at rear

1 - Self-locking nut, 30 Nm

- ☐ Always replace after removing

2 - Rubber bush

- ☐ Apply talc before fitting

3 - Upper spring plate

4 - Damping ring

- ☐ Apply talc before fitting
- ☐ Different thicknesses; for assignment refer to ➔ Electronic parts catalogue

5 - Connection piece with spacer

- ☐ M14x1.5
- ☐ On replacing the pressure pipes, the connection piece must also be renewed as only heavy-duty M16x1.5 pressure pipes are now available
- ☐ Installation position of pressure pipes: Saloon ➔ [page 57](#) , Avant ➔ [page 57](#)
- ☐ Attach to piston rod
- ☐ Take care not to twist connection piece when tightening self-locking nut

6 - O-ring

- ☐ Coat with silicone grease; for silicone grease refer to ➔ Electronic parts catalogue
- ☐ Insert in annular grooves of piston rod

7 - Washer

8 - Buffer stop

9 - Coil spring

- ☐ Surface of spring winding must not be damaged
- ☐ Pay attention to colour code; for assignment refer to ➔ Electronic parts catalogue
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ➔ [page 1](#)
- ☐ Installation position ➔ [page 60](#)

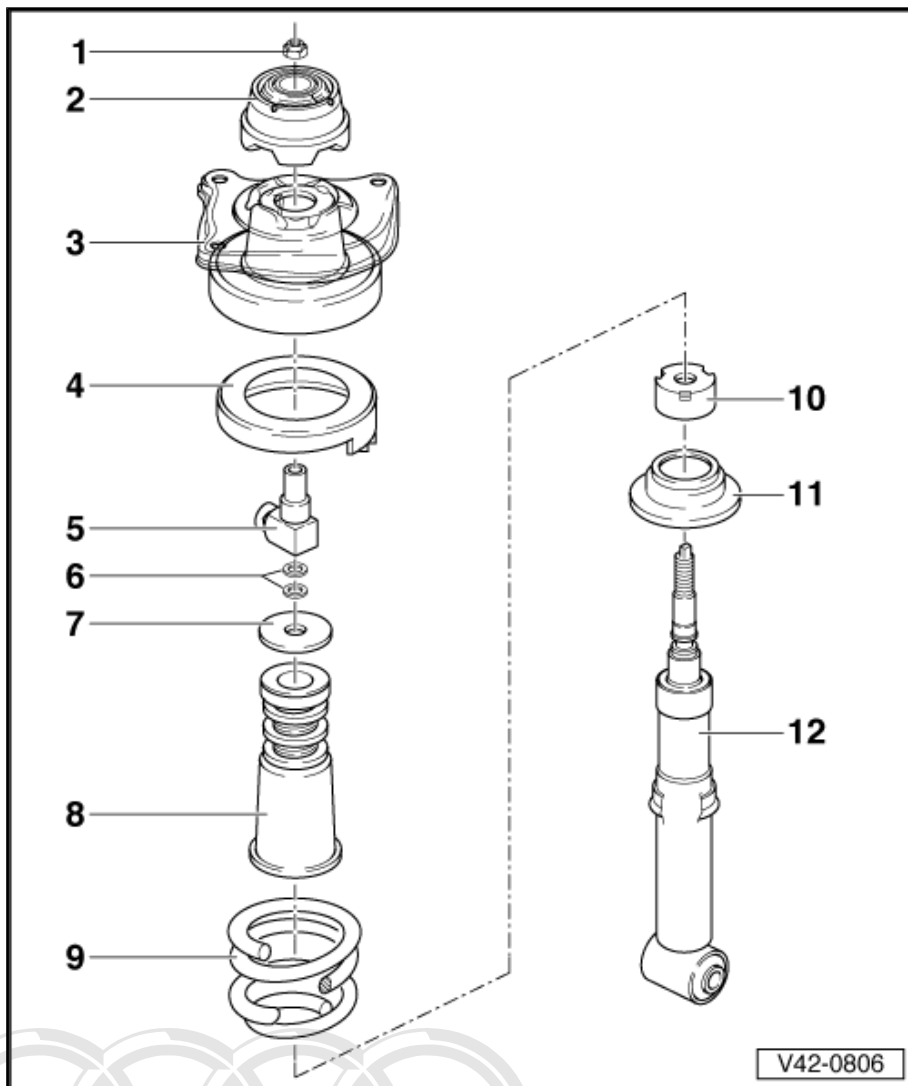
10 - Protective cap

11 - Lower spring plate

- ☐ With stop for coil spring
- ☐ Installation position ➔ [page 59](#)

12 - Shock absorber

- ☐ For assignment, refer to ➔ Electronic parts catalogue
- ☐ Checking ➔ [page 6](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ➔ [page 1](#)
- ☐ Disposal ➔ [page 4](#)



Installation position of pressure pipes for self-levelling suspension - Saloon

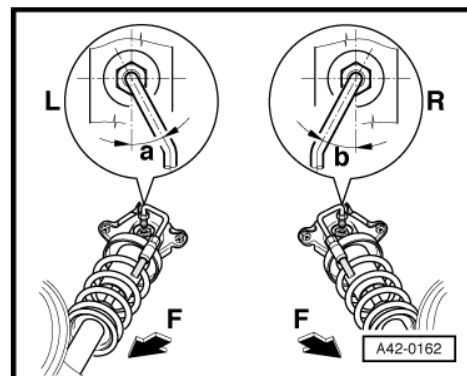
a - Installation angle of pressure pipe on left side of vehicle approx. 30°

b - Installation angle of pressure pipe on right side of vehicle approx. 20°

L - Left side of vehicle

R - Right side of vehicle

F - Direction of travel



Installation position of pressure pipes for self-levelling suspension - Avant

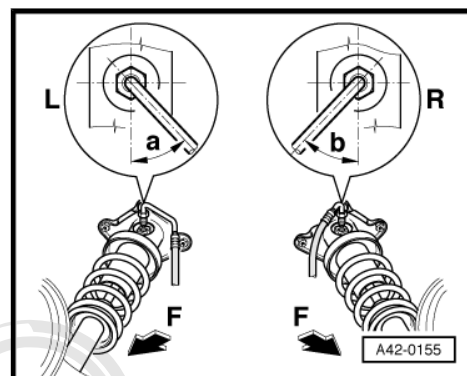
a - Installation angle of pressure pipe on left side of vehicle approx. 80°

b - Installation angle of pressure pipe on right side of vehicle approx. 65°

L - Left side of vehicle

R - Right side of vehicle

F - Direction of travel

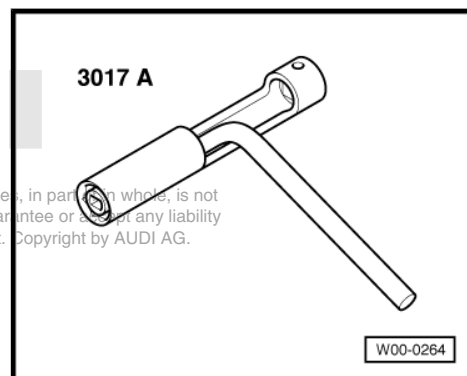


2.3 Dismantling and assembling suspension strut

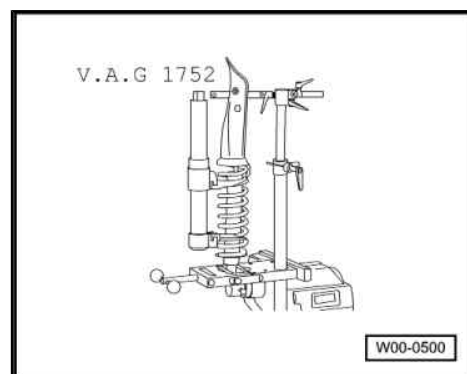
Special tools and workshop equipment required

- ◆ Shock absorber wrench -3017 A-

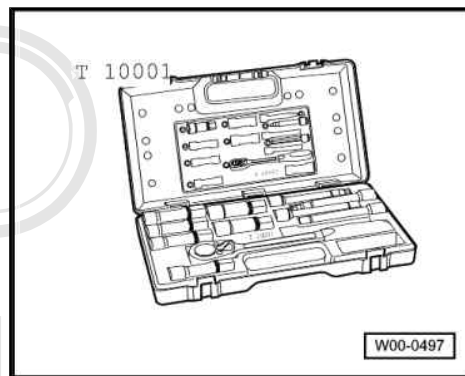
Protected by copyright. Copying for private or commercial purposes, in particular whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- ◆ Suspension strut tensioner -V.A.G 1752-



♦ Shock absorber set -T10001-



Dismantling



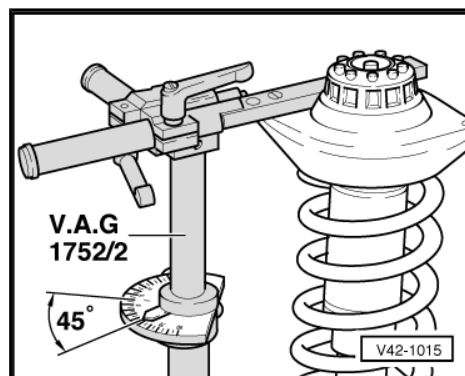
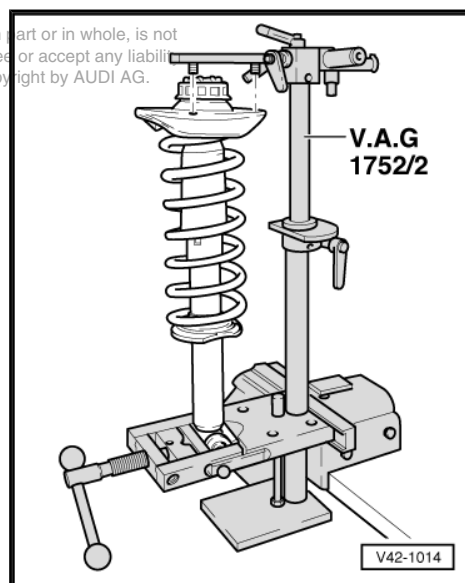
Note

Note the different versions of the components for standard and sports running gear ➔ Electronic parts catalogue .

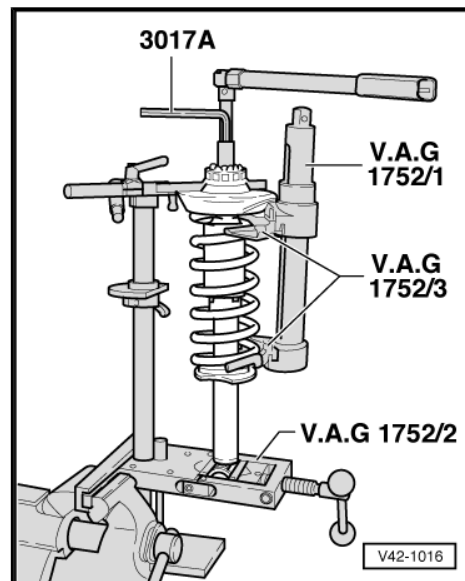
- Clamp the suspension strut holder -V.A.G 1752/2- in the vice.
- Insert the suspension strut in the suspension strut holder - V.A.G 1752/2- .
- Insert the studs in the holes in the upper spring plate, screw to the spring plate and fix in this position by way of the clamping levers.

- Pay attention to the exact position of the pointer for angle adjustment.
- The pointer position must be observed on assembly.

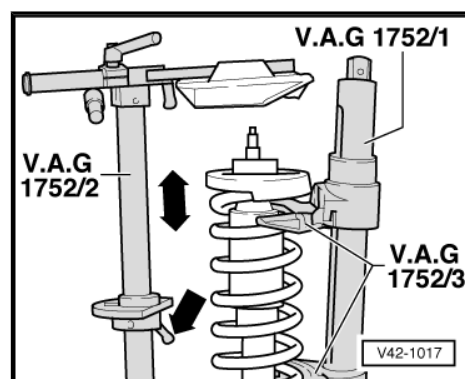
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Pre-tension the coil spring with the spring tensioner -V.A.G 1752/1- until the upper spring plate is free.
- Make sure the coil spring is positioned correctly in the spring holder -V.A.G 1752/3A- .
- Unscrew the nut from the piston rod using the shock absorber set -T10001- or a shock absorber wrench -3017 A- .
- Detach the rubber bush.

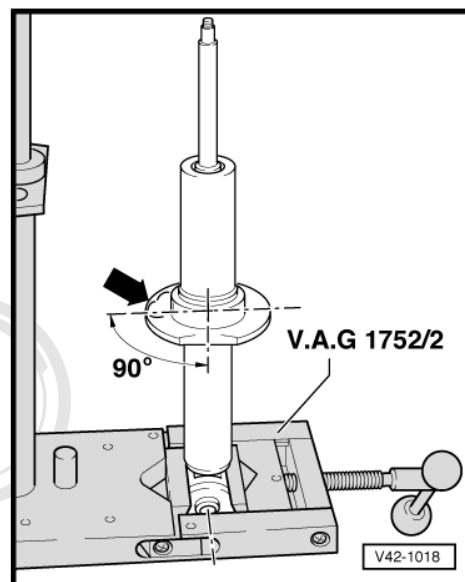


- Release the clamping lever -bottom arrow-, push up the height adjuster and swivel aside.
- Detach the corresponding components.

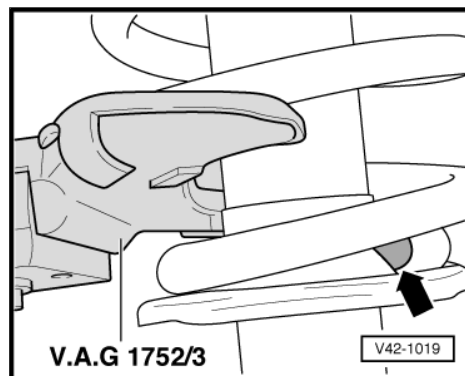


Assembly

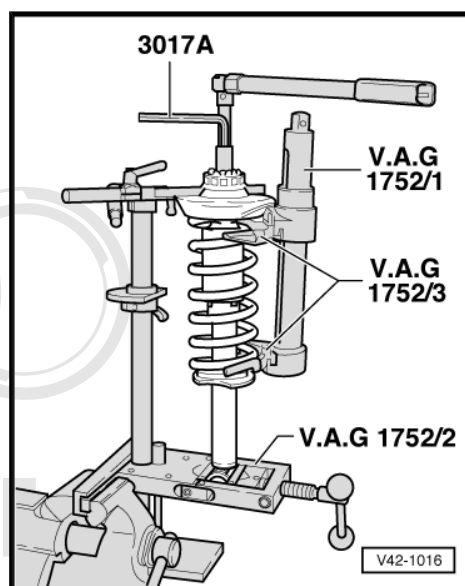
- Pull the piston rod as far as it will go out of the shock absorber.
- Position the lower spring plate on the shock absorber.
- Installation position: Turn the stop of the spring plate -arrow- through 90° with respect to the axis of the shock absorber eye.
- Position the coil spring with the spring tensioner -V.A.G 1752/1- on the shock absorber.
- The coloured mark on the coil spring must face the lower spring plate.
- Fit all components with the exception of the upper spring plate and rubber bush.
- Set the height adjuster together with the spring plate to 45°, position over the suspension strut, lower and secure.
- Fit the rubber bush and screw on the nut.



- Make sure the ends of the springs are in contact with the stops of the spring support and the spring seat.
- The end of the spring winding must make contact with the stop -arrow-.



- Tighten the nut to 30 Nm using the shock absorber set - T10001- or a shock absorber wrench -3017 A- .
- Carefully slacken off the coil spring, paying attention to correct positioning of the coil spring and the upper and lower spring plates.
- As soon as the spring tensioner -V.A.G 1752/1- is free, stop slackening off and detach the spring tensioner.
- Take the suspension strut out of the suspension strut holder - V.A.G 1752/2- .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Rear wheel bearings - Front-wheel drive vehicles

⇒ [“3.1 General”, page 61](#)

⇒ [“3.2 Exploded view of wheel bearings - Vehicles with drum brakes”, page 61](#)

⇒ [“3.3 Exploded view of wheel bearings - Vehicles with disc brakes”, page 65](#)

3.1 General



Note

Heed the general information ⇒ [page 2](#).

- ◆ Careful sealing, cleanliness and proper adjustment are crucial to a long wheel bearing service life. Attention is therefore to be paid to the following:
- ◆ Fit the seal and grease cap as shown.
- ◆ Only re-install clean bearings; never wash out bearings.
- ◆ Ensure careful wheel bearing clearance adjustment.

3.2 Exploded view of wheel bearings - Vehicles with drum brakes



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Stub axle

- ☐ Straightening work is not permissible.

2 - Brake carrier

- ☐ Bolt with stub axle to rear axle

3 - Seal

- ☐ Fill with multi-purpose grease between sealing lips; for multi-purpose grease refer to ➤ Electronic parts catalogue

4 - Bolt, 30 Nm

5 - Inner wheel bearing

- ☐ Drive out outer race with copper mandrel
- ☐ Pressing in ➤ [page 65](#)

6 - Brake drum

- ☐ Before removing, reset brake shoes through wheel bolt tapped hole ➤ [page 64](#)
- ☐ When detaching brake drum, secure outer wheel bearing to stop it dropping out
- ☐ Before installing, fill hub with multi-purpose grease; for multi-purpose grease refer to ➤ Electronic parts catalogue

7 - Outer wheel bearing

- ☐ Drive out outer race with copper mandrel
- ☐ Pressing in ➤ [page 65](#)

8 - Nut

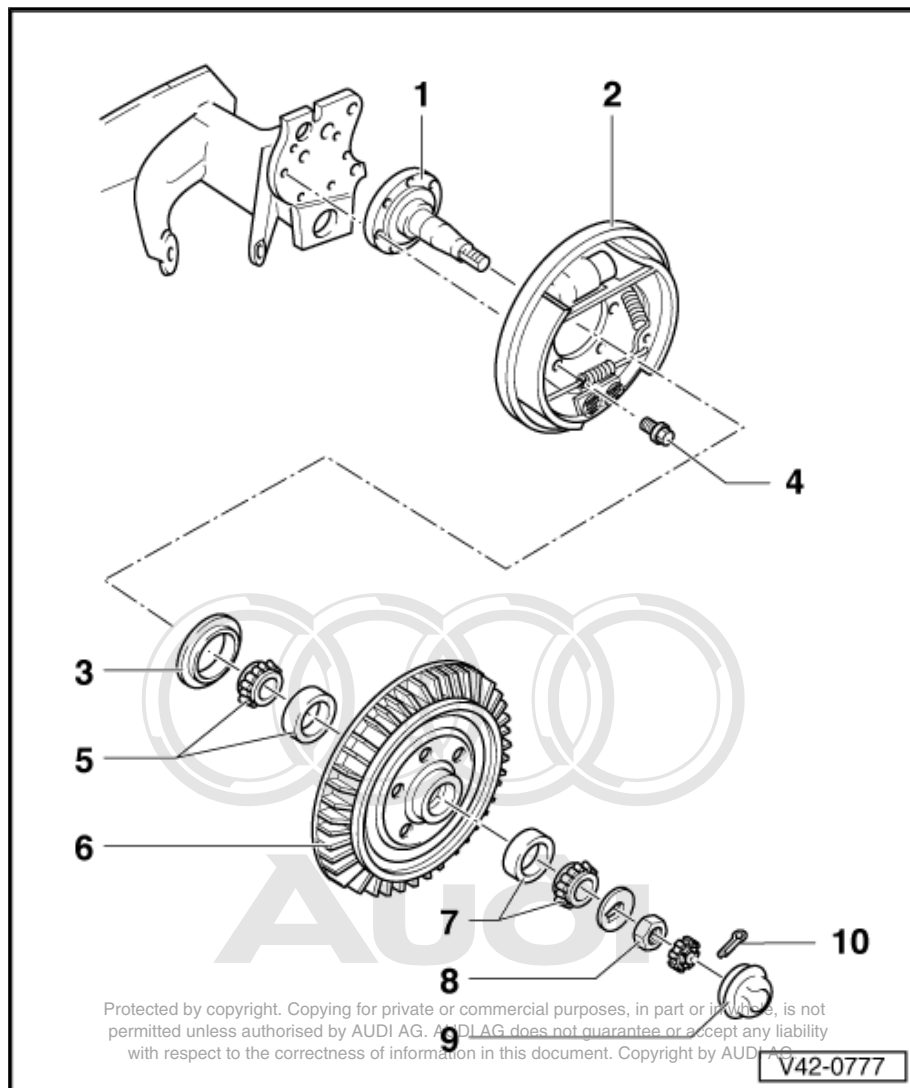
- ☐ Adjusting wheel bearing clearance ➤ [page 64](#)

9 - Grease cap

- ☐ Pressing off ➤ [page 63](#) and ➤ [page 64](#)
- ☐ Driving in ➤ [page 64](#)

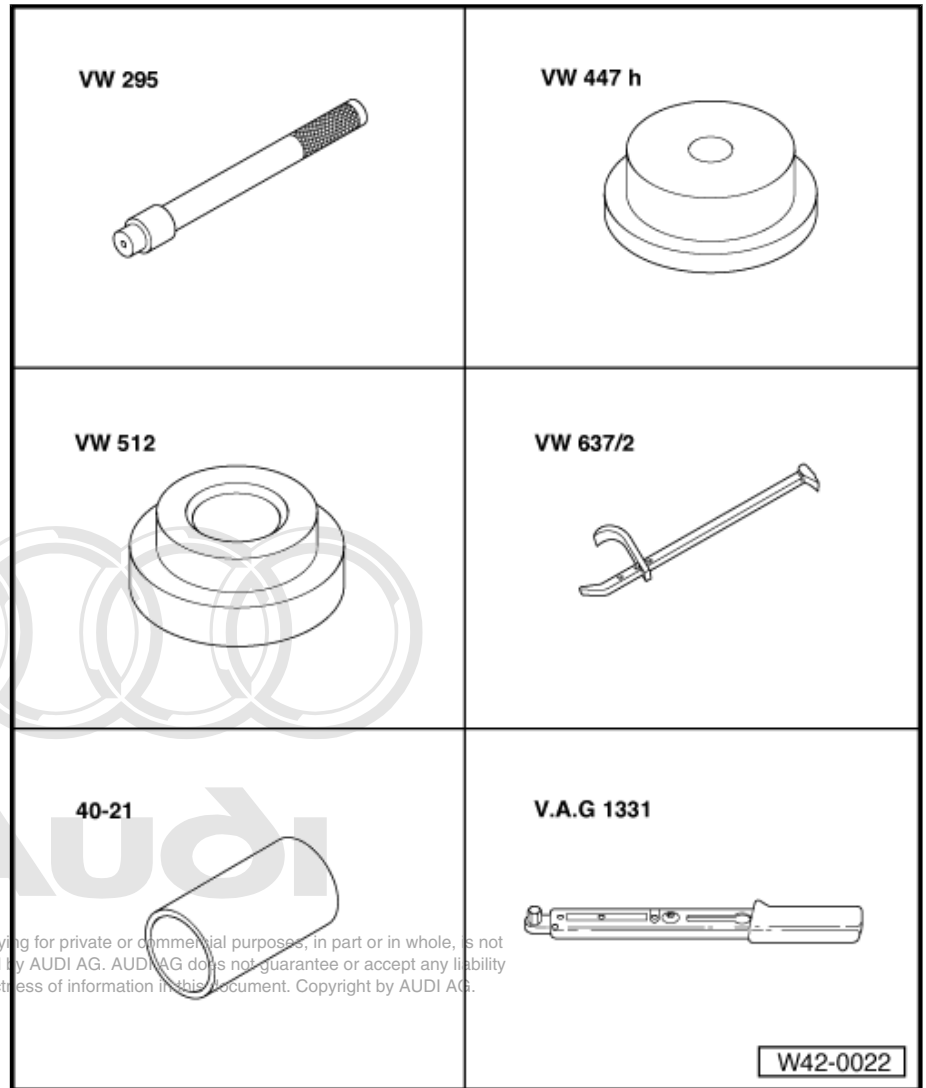
10 - Split pin

- ☐ Replace



Special tools and workshop equipment required

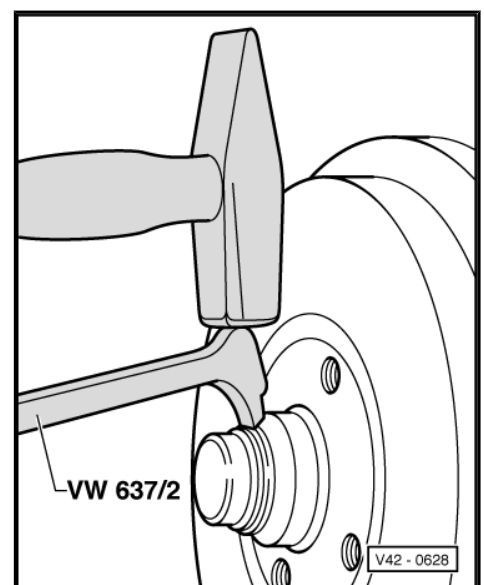
- ◆ Mandrel -VW 295-
- ◆ Thrust pad -VW 447 H-
- ◆ Thrust pad -VW 512-
- ◆ Hub cap puller -VW 637/2-
- ◆ Fitting sleeve -40 - 21-
- ◆ Torque wrench -V.A.G 1331-



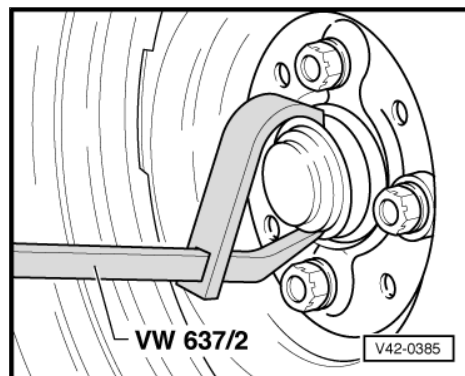
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Pressing off grease cap

Tap gently on the claw to release the grease cap from its seat.



Pressing off grease cap

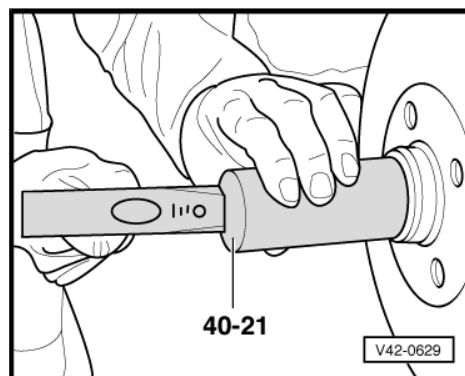


Driving in grease cap



Note

- ◆ Always replace damaged grease caps.
- ◆ Damaged grease caps permit the ingress of moisture. It is therefore essential to use the tool shown.



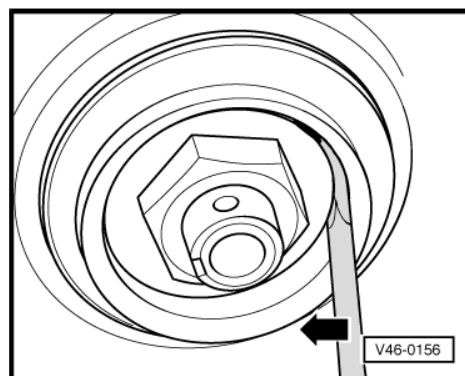
Adjusting wheel bearing clearance



Note

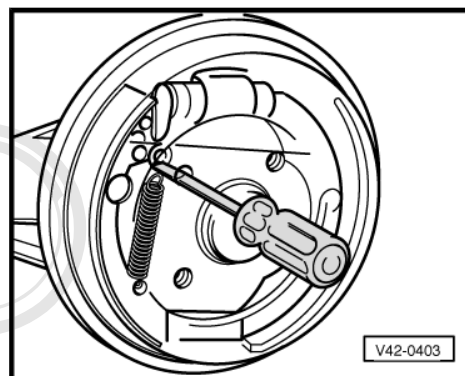
It must be possible to move the thrust washer with a screwdriver by pressing with a finger and without exerting leverage -arrow-.

- Secure with a locking ring and a new split pin.

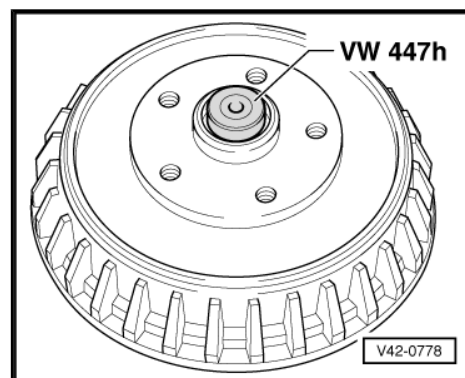


Resetting brake

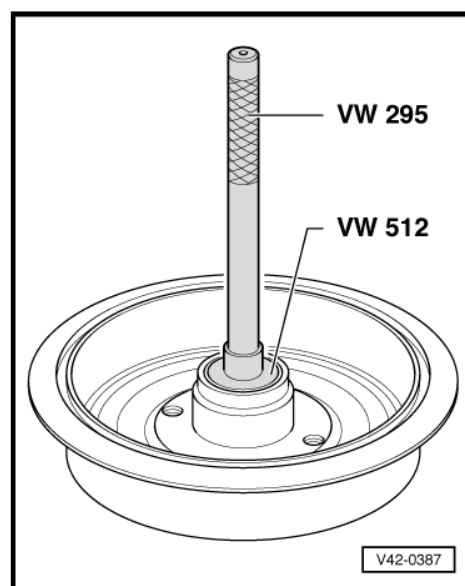
- To do so, press the adjuster upwards with a screwdriver through a hole in the brake drum.



Pressing in outer race for outer wheel bearing



Pressing in outer race for inner bearing



3.3 Exploded view of wheel bearings - Vehicles with disc brakes



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Stub axle

- ☐ Straightening work is not permissible.

2 - Splash plate

3 - Seal

- ☐ Fill with multi-purpose grease between sealing lips; for multi-purpose grease refer to ➤ Electronic parts catalogue

4 - Inner wheel bearing

- ☐ Drive out outer race with copper mandrel
- ☐ Pressing in ➤ [page 70](#)

5 - Rotor for speed sensor

- ☐ Vehicles with ABS only
- ☐ Pressing in ➤ [page 70](#)

6 - Stub axle for vehicles with ABS

- ☐ Straightening work is not permissible.

7 - Bolt, 30 Nm

8 - Wheel hub

- ☐ Before installing, fill hub with multi-purpose grease; for multi-purpose grease refer to ➤ Electronic parts catalogue

9 - Outer wheel bearing

- ☐ Drive out outer race with copper mandrel
- ☐ Pressing in ➤ [page 69](#)

10 - Nut

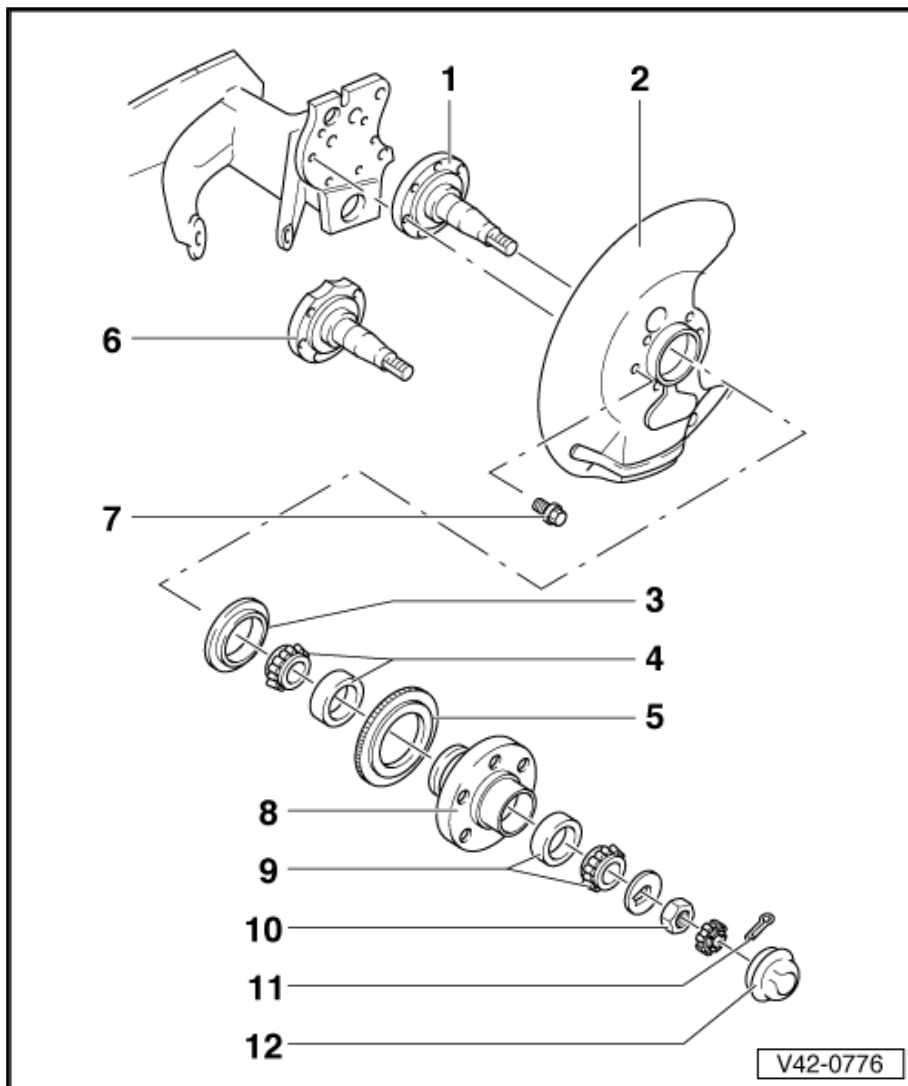
- ☐ Adjusting wheel bearing clearance ➤ [page 69](#)

11 - Split pin

- ☐ Replace

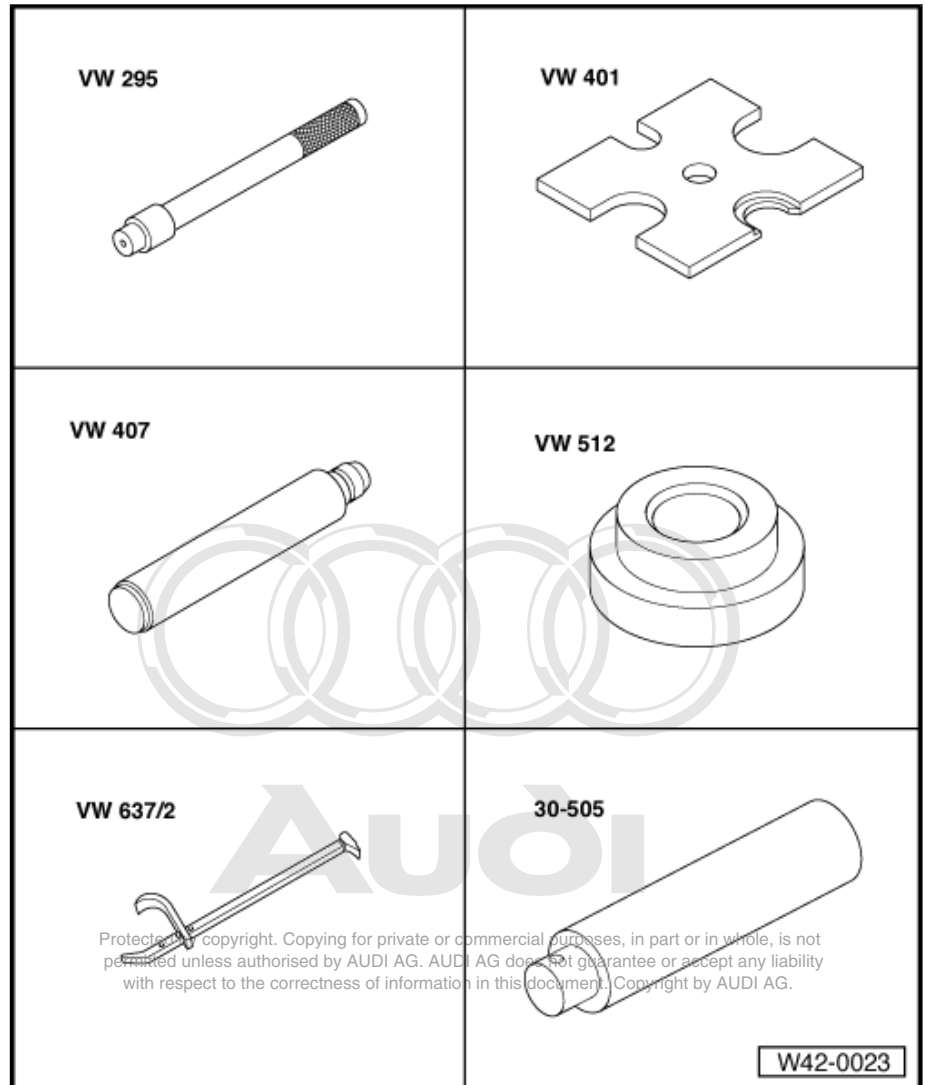
12 - Grease cap

- ☐ Pressing off ➤ [page 68](#) and ➤ [page 69](#)
- ☐ Driving in ➤ [page 64](#)

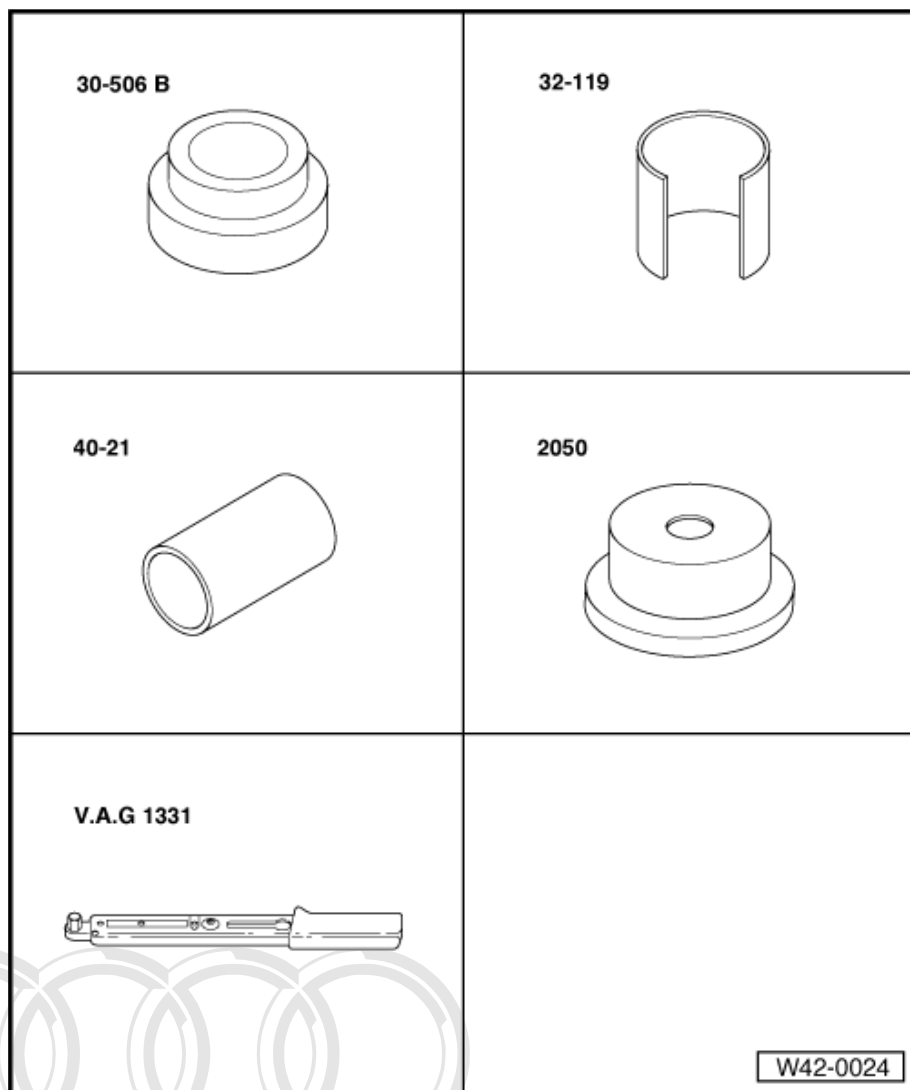


Special tools and workshop equipment required

- ◆ Mandrel -VW 295-
- ◆ Thrust plate -VW 401-
- ◆ Press tool -VW 407-
- ◆ Thrust pad -VW 512-
- ◆ Hub cap puller -VW 637/2-
- ◆ Fitting mandrel -30 - 505-



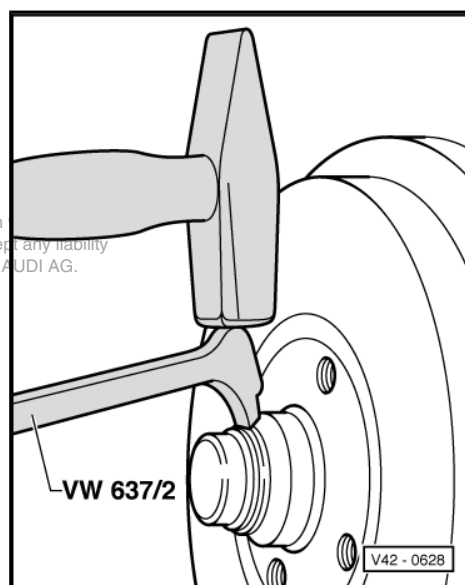
- ◆ Pressing-in tool -30 - 506 B-
- ◆ Pipe -32 - 119-
- ◆ Fitting sleeve -40 - 21-
- ◆ Thrust pad -2050-
- ◆ Torque wrench -V.A.G 1331-



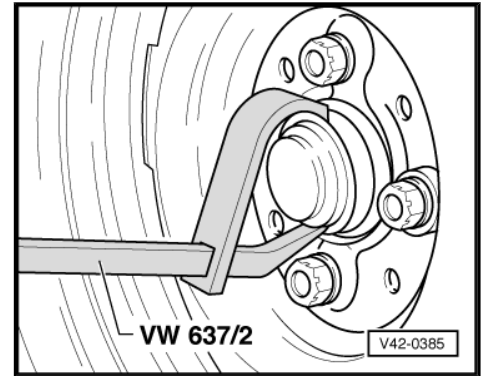
Pressing off grease cap

- Tap gently on the claw to release the grease cap from its seat.

Protected by copyright. Copying for private or commercial purposes, in part or in full, is prohibited without the written permission of AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



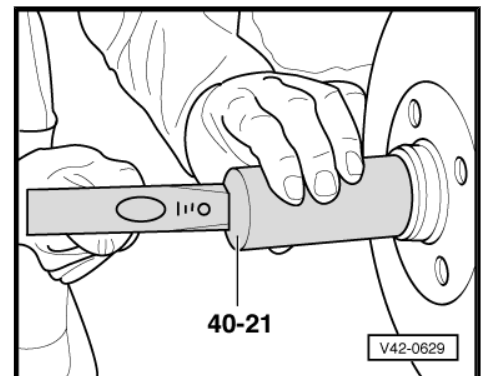
Pressing off grease cap



Driving in grease cap

Note

- ◆ Always replace damaged grease caps.
- ◆ Damaged grease caps permit the ingress of moisture. It is therefore essential to use the tool shown.

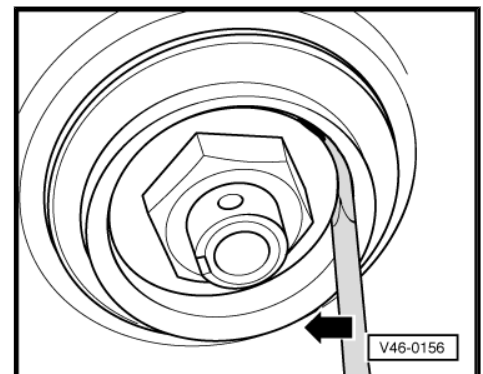


Adjusting wheel bearing clearance

Note

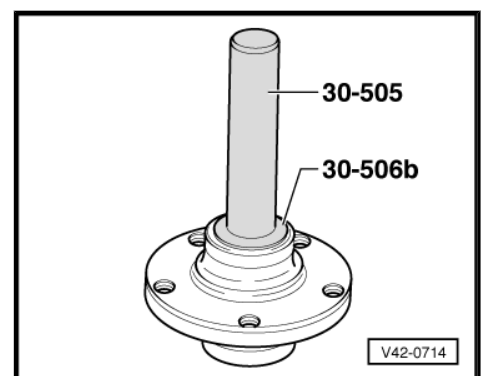
It must be possible to move the thrust washer with a screwdriver by pressing with a finger and without exerting leverage -arrow-.

- Secure with a locking ring and a new split pin.



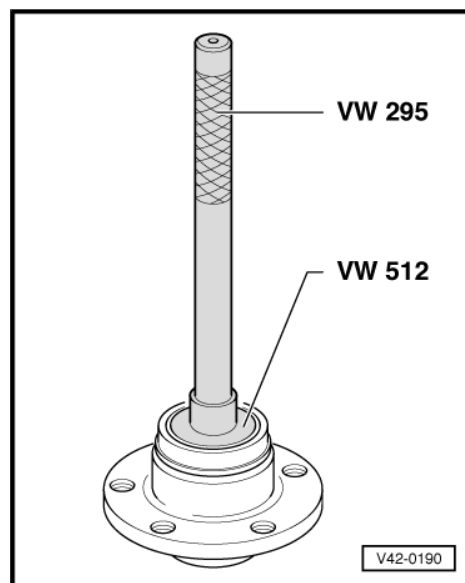
Pressing in outer race for outer wheel bearing

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

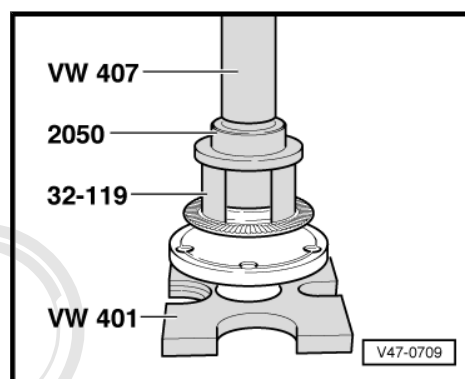




Pressing in outer race for inner wheel bearing



Pressing in rotor



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4 Rear suspension - Four-wheel drive vehicles

⇒ [“4.1 General”, page 71](#)

⇒ [“4.2 Exploded view of rear subframe”, page 71](#)

⇒ [“4.3 Exploded view of rear suspension”, page 75](#)

⇒ [“4.4 Exploded view of trapezium link”, page 80](#)

⇒ [“4.5 Removing and installing trapezium link”, page 84](#)

⇒ [“4.6 Exploded view of support for trapezium link with bonded rubber bush”, page 85](#)

⇒ [“4.7 Replacing bonded rubber bush for trapezium link support”, page 87](#)

⇒ [“4.8 Removing and installing transverse link”, page 89](#)

⇒ [“4.9 Exploded view of connecting link”, page 90](#)

⇒ [“4.10 Exploded view of anti-roll bar”, page 91](#)

⇒ [“4.11 Removing and installing anti-roll bar”, page 91](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4.1 General



Note

Heed the general information ⇒ [page 2](#).

4.2 Exploded view of rear subframe

1 - Bracket

- ☐ Different versions; for assignment refer to ➤ Electronic parts catalogue

2 - Seal

- ☐ Replace

3 - Rear subframe

- ☐ Different versions; for assignment refer to ➤ Electronic parts catalogue
- ☐ Continuous offset edge faces in direction of travel

4 - Bonded rubber bush

- ☐ Pressing out and pressing in ➤ [page 74](#)

5 - Self-locking nut 60 Nm

- ☐ Always replace after removing

6 - Propshaft

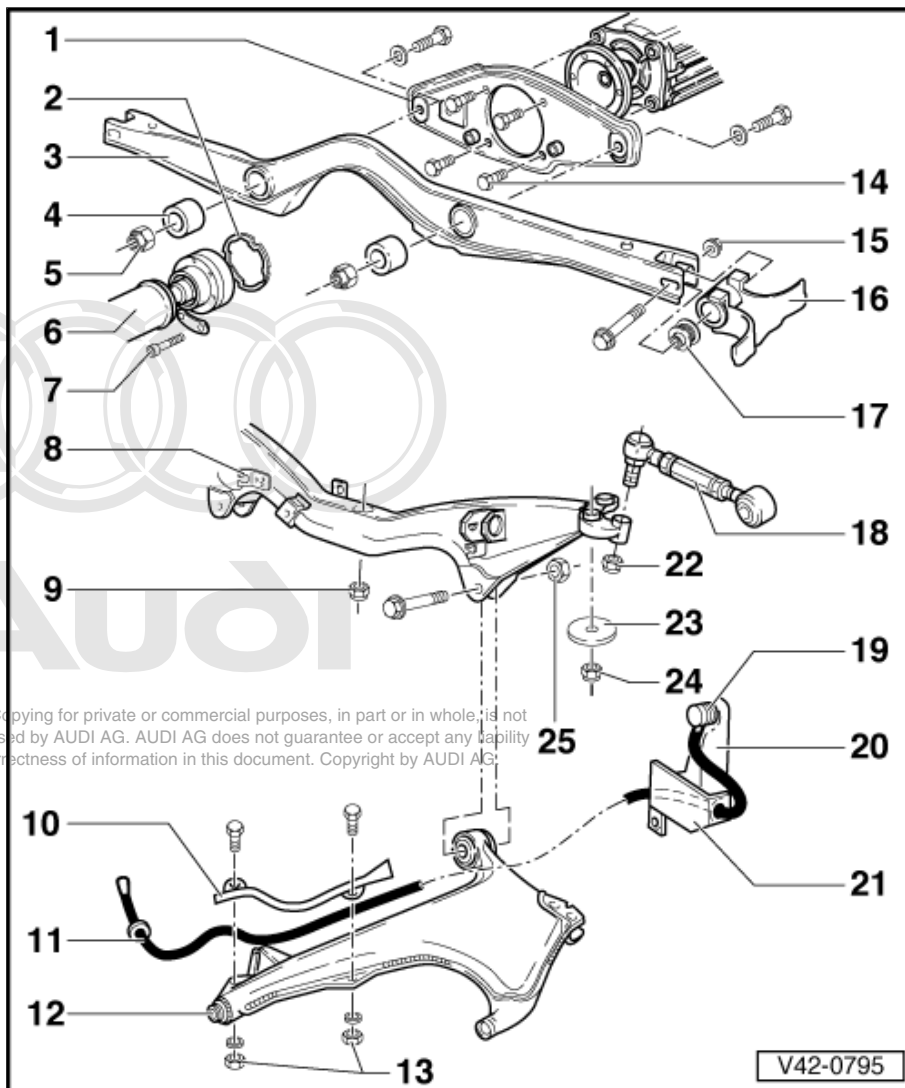
- ☐ Mark installation position for re-installation

7 - Bolt, 55 Nm

- ☐ Always replace after removing

8 - Cross piece

- ☐ Different versions; for assignment refer to ➤ Electronic parts catalogue



V42-0795



Note

- ◆ When securing, make sure the four holes in the cross piece are aligned as centrally as possible.
- ◆ Perform rear axle wheel alignment after repair work.

9 - Self-locking nut, 60 Nm

- ☐ Always replace after removing

10 - Wire holder

- ☐ Bolt to link

11 - Wire for speed sensor

12 - Trapezium link

- ☐ Removing and installing ➤ [page 84](#)
- ☐ Exploded view ➤ [page 80](#)

13 - Nut, 10 Nm

14 - Bolt, 45 Nm

15 - Self-locking nut, 45 Nm

- ☐ Always replace after removing

16 - Bracket

17 - Bonded rubber bush

- ☐ Moisten with assembly lubricant and press in by hand; for assembly lubricant refer to ⇒ Electronic parts catalogue

18 - Transverse link

- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 89](#)
- ☐ Check camber following replacement

19 - Speed sensor

- ☐ Press home in wheel bearing housing

20 - Wheel bearing housing

21 - Holder for speed sensor wire

22 - Self-locking nut, 40 Nm

- ☐ Always replace after removing

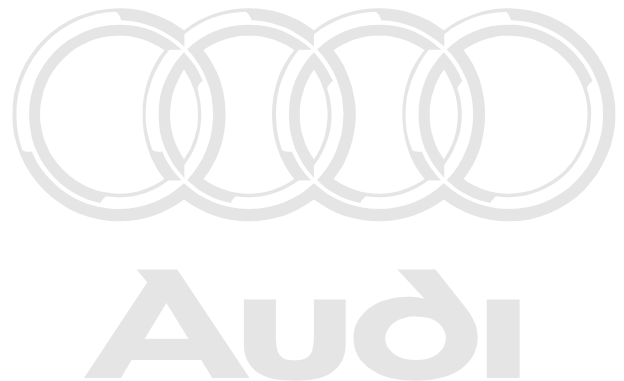
23 - Washer

24 - Self-locking nut, 45 Nm

- ☐ Always replace after removing

25 - Self-locking nut, 85 Nm

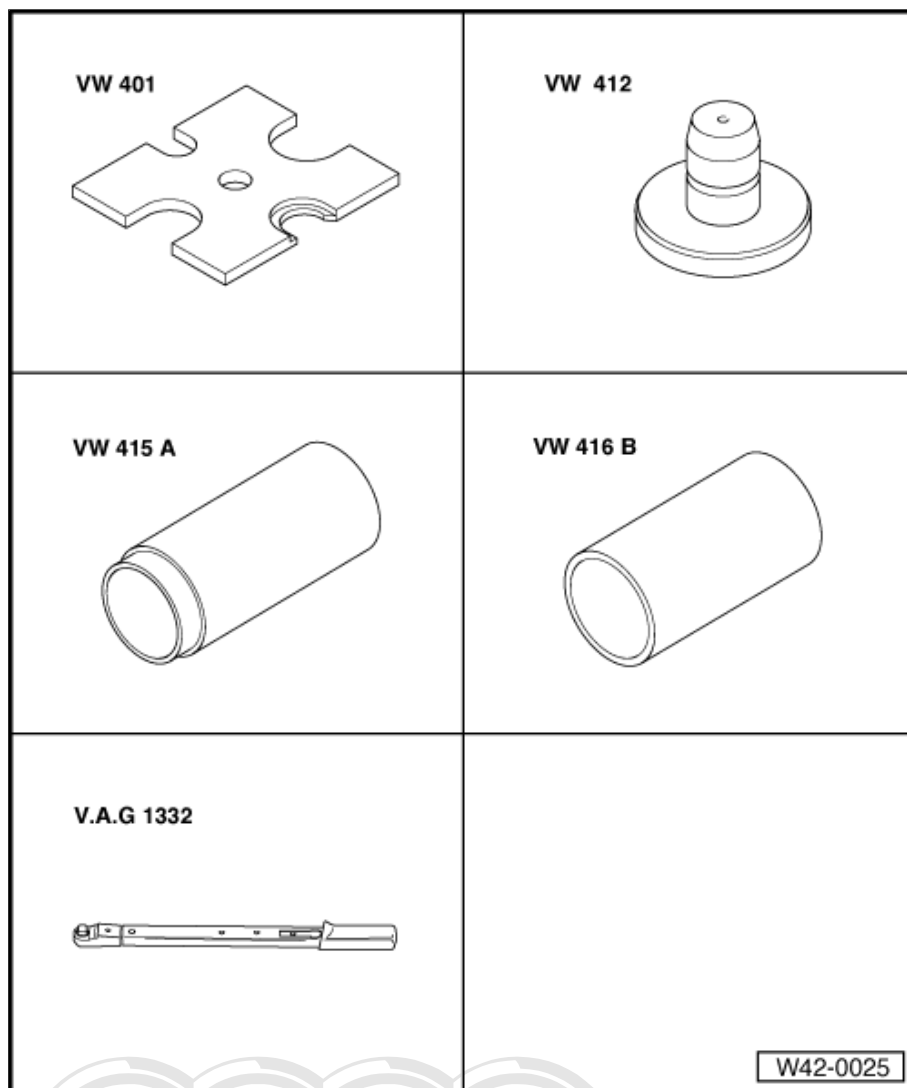
- ☐ Always replace after removing
- ☐ The vehicle must be standing on its wheels when tightening



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Press tool -VW 412-
- ◆ Tubular section -VW 415 A-
- ◆ Tubular section -VW 416 B-
- ◆ Torque wrench -V.A.G 1331-



Pressing out and pressing in bonded rubber bush at rear sub-frame

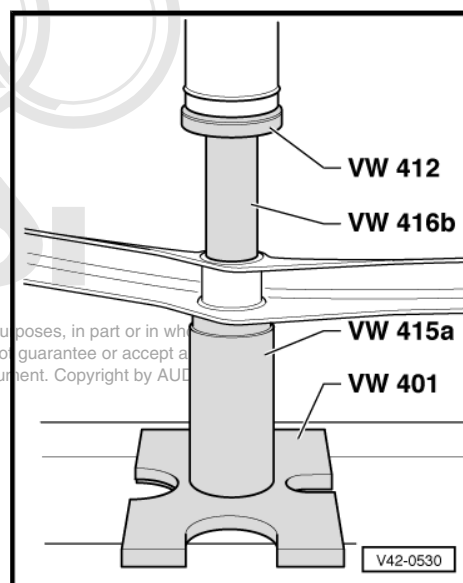
- Installation position: The kidney-shaped recesses of the bush must be positioned vertically in the subframe.



Note

Viewed in the direction of travel, the bush must be pressed in until the outer race is flush at the rear with the welded-in bushing.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



4.3 Exploded view of rear suspension

Vehicles with no anti-roll bar

1 - Seal

- ☐ Replace
- ☐ Not on vehicles with 4-cyl. engine

2 - Bolt

- ☐ M8: 40 Nm
- ☐ M10: 77 Nm

3 - Drive shaft

- ☐ Removing and installing
⇒ [page 116](#)
- ☐ Exploded view
⇒ [page 116](#)

4 - Suspension strut

- ☐ Removing and installing
⇒ [page 92](#)

5 - Self-locking nut, 25 Nm

- ☐ Always replace after removing

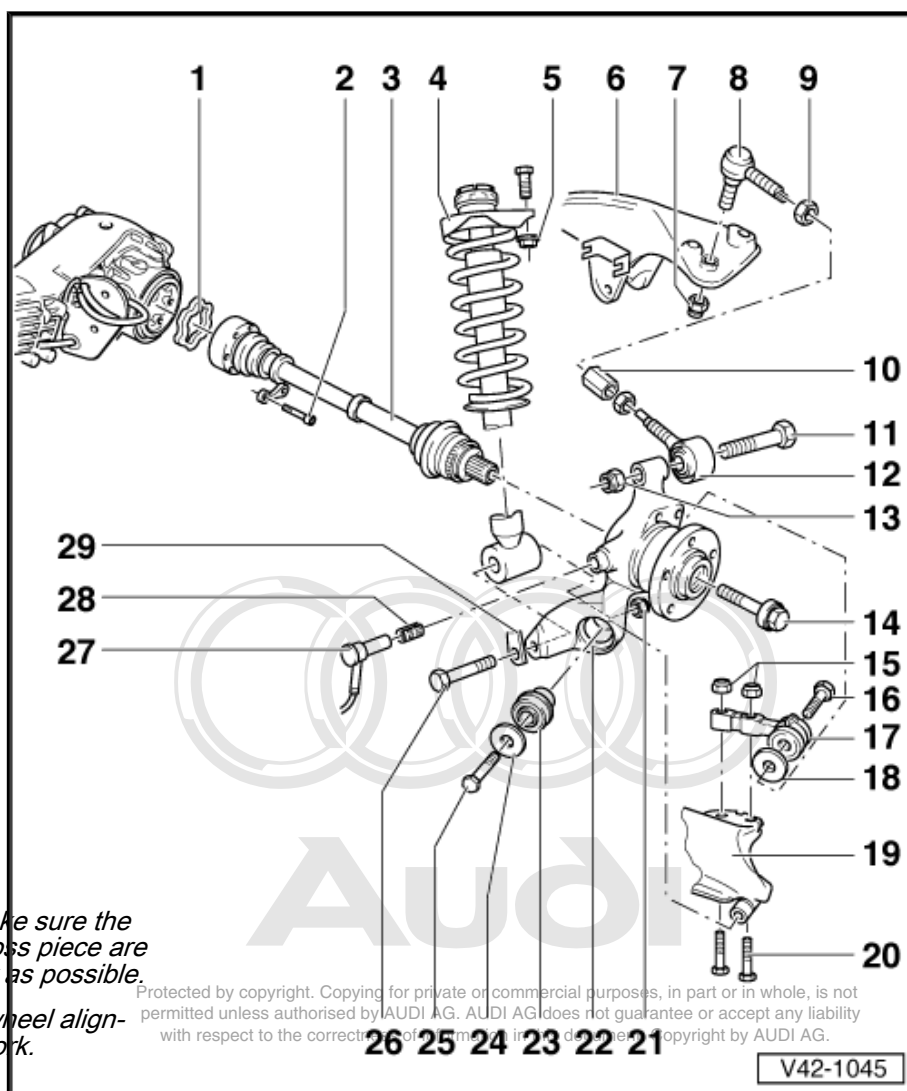
6 - Cross piece

- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue



Note

- ◆ *When securing, make sure the four holes in the cross piece are aligned as centrally as possible.*
- ◆ *Perform rear axle wheel alignment after repair work.*



7 - Self-locking nut, 40 Nm

- ☐ Always replace after removing

8 - Ball head

- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Note angular position at joint
- ☐ Pay attention to uniform screwing-in depth

9 - Nut, 60 Nm

10 - Transverse link

- ☐ Removing and installing ⇒ [page 89](#)
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Note angular position at joint

11 - Bolt

12 - Ball joint

- ☐ Pay attention to uniform screwing-in depth

13 - Self-locking nut, 200 Nm

- ☐ Always replace after removing



14 - Bolt

- ☐ Always replace after removing
- ☐ 190 Nm + further 180° turn
- ☐ The vehicle must be standing on its wheels when slackening off and tightening - risk of accident
- ☐ Switched from hexagon head to hexagon socket. Combined fitting is permissible

15 - Nut, 110 Nm

- ☐ Always replace after removing

16 - Self-locking bolt

- ☐ Always replace after removing
- ☐ 170 Nm + further 135° turn
- ☐ Use a M14x1.5 tap to remove residual adhesive from the thread in the wheel bearing housing
- ☐ The vehicle must be standing on its wheels when tightening

17 - Mounting bracket

- ☐ Cross faces upwards when fitted
- ☐ Check toe and camber following removal and installation

18 - Washer

19 - Trapezium link

- ☐ Removing and installing ⇒ [page 84](#)
- ☐ Servicing ⇒ [page 80](#)
- ☐ Check toe and camber following removal and installation

20 - Bolt

21 - Self-locking nut, 90 Nm

- ☐ Always replace after removing
- ☐ The vehicle must be standing on its wheels when tightening

22 - Wheel bearing housing

- ☐ Removing and installing ⇒ [page 114](#)

23 - Bonded rubber bush

- ☐ Pressing out ⇒ [page 79](#)
- ☐ Pressing in ⇒ [page 79](#)

24 - Washer

25 - Self-locking bolt

- ☐ Always replace after removing
- ☐ 170 Nm + further 135° turn
- ☐ Use a M14x1.5 tap to remove residual adhesive from the thread in the wheel bearing housing
- ☐ The vehicle must be standing on its wheels when tightening

26 - Bolt

27 - Speed sensor

- ☐ Pull out to remove
- ☐ On installation, grease all round with brake cylinder paste and press home by hand

28 - Clamping sleeve

- ☐ Grease all round with brake cylinder paste before inserting in wheel bearing housing
- ☐ Press home in wheel bearing housing

29 - Holder for speed sensor wire

Vehicles with anti-roll bar

1 - Seal

- ☐ Replace
- ☐ Not on vehicles with 4-cyl. engine

2 - Bolt

- ☐ M8: 40 Nm
- ☐ M10: 77 Nm

3 - Drive shaft

- ☐ Removing and installing
⇒ [page 116](#)
- ☐ Exploded view
⇒ [page 119](#)

4 - Suspension strut

- ☐ Removing and installing
⇒ [page 92](#)

5 - Self-locking nut, 25 Nm

- ☐ Always replace after removing

6 - Clip

7 - Mount

8 - Cross piece

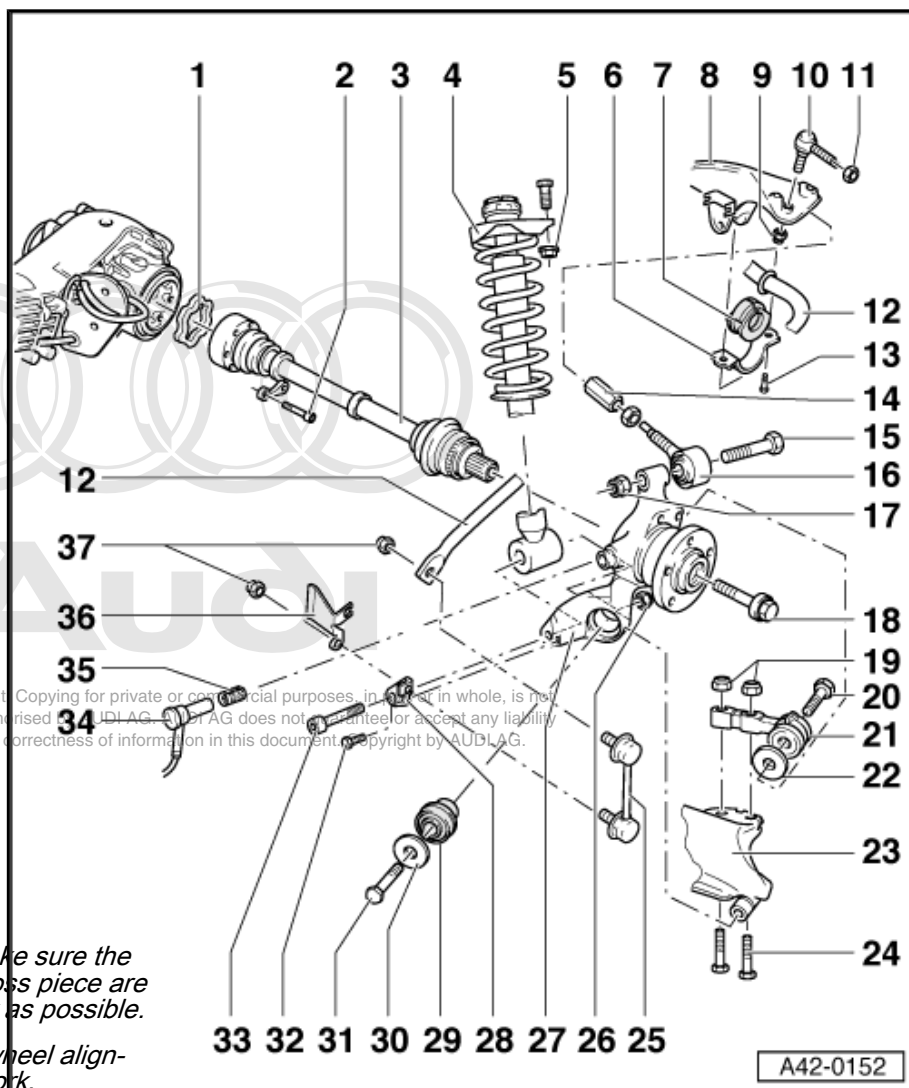
- ☐ Pay attention to different versions



Note

- ◆ When securing, make sure the four holes in the cross piece are aligned as centrally as possible.
- ◆ Perform rear axle wheel alignment after repair work.

Protected by copyright. Copying for private or commercial purposes, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



9 - Self-locking nut, 40 Nm

- ☐ Always replace after removing

10 - Ball head

- ☐ Pay attention to different versions
- ☐ Note angular position at joint
- ☐ Pay attention to uniform screwing-in depth

11 - Nut, 60 Nm

12 - Anti-roll bar

- ☐ Removing and installing ⇒ [page 91](#)

13 - Bolt, 25 Nm

14 - Transverse link

- ☐ Removing and installing ⇒ [page 89](#)
- ☐ Pay attention to different versions
- ☐ Note angular position at joint

15 - Bolt

16 - Ball joint

- ☐ Pay attention to uniform screwing-in depth



17 - Self-locking nut, 200 Nm

- ☐ Always replace after removing

18 - Bolt

- ☐ Always replace after removing
- ☐ 190 Nm + further 180° turn
- ☐ The vehicle must be standing on its wheels when slackening off and tightening - risk of accident
- ☐ Switched from hexagon head to hexagon socket. Combined fitting is permissible

19 - Nut, 110 Nm

- ☐ Always replace after removing

20 - Self-locking bolt

- ☐ Always replace after removing
- ☐ 170 Nm + further 135° turn
- ☐ Use a M14x1.5 tap to remove residual adhesive from the thread in the wheel bearing housing
- ☐ The vehicle must be standing on its wheels when tightening

21 - Mounting bracket

- ☐ Cross faces upwards when fitted
- ☐ Check toe and camber following removal and installation

22 - Washer

23 - Trapezium link

- ☐ Removing and installing ⇒ [page 84](#)
- ☐ Servicing ⇒ [page 80](#)
- ☐ Check toe and camber following removal and installation

24 - Bolt

25 - Connecting link

- ☐ Connects anti-roll bar to wheel bearing housing
- ☐ Removing and installing ⇒ [page 90](#)

26 - Self-locking nut, 90 Nm

- ☐ Always replace after removing
- ☐ The vehicle must be standing on its wheels when tightening

27 - Wheel bearing housing

- ☐ Removing and installing ⇒ [page 114](#)

28 - Holder

29 - Bonded rubber bush

- ☐ Pressing out ⇒ [page 79](#)
- ☐ Pressing in ⇒ [page 79](#)

30 - Washer

31 - Self-locking bolt

- ☐ Always replace after removing
- ☐ 170 Nm + further 135° turn
- ☐ Use a M14x1.5 tap to remove residual adhesive from the thread in the wheel bearing housing
- ☐ The vehicle must be standing on its wheels when tightening

32 - Bolt, 20 Nm

33 - Bolt

34 - Speed sensor

- ☐ Pull out to remove
- ☐ On installation, grease all round with brake cylinder paste and press home by hand

35 - Clamping sleeve

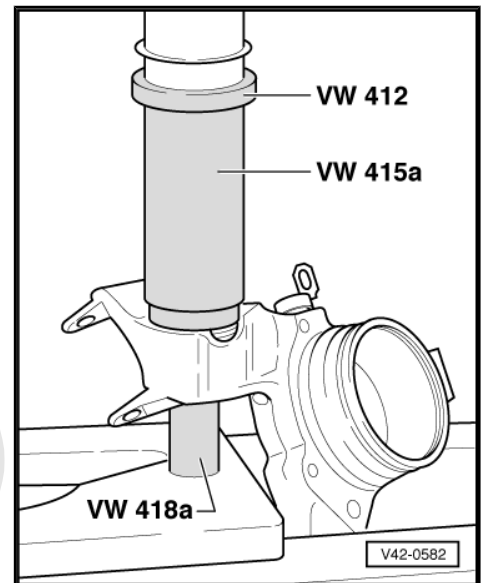
- ❑ On installation, grease all round with brake cylinder paste and press home in wheel bearing housing

36 - Holder for speed sensor wire

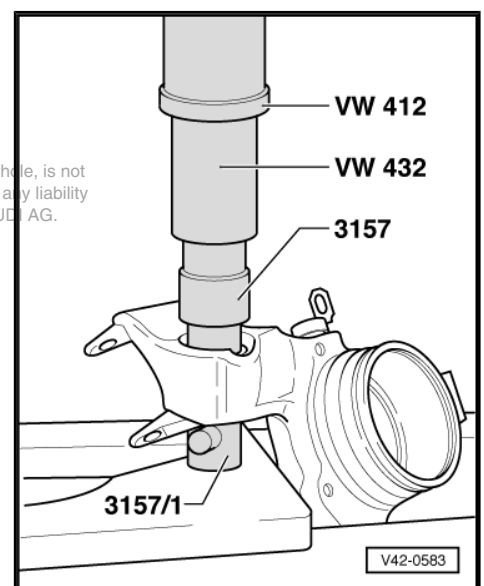
37 - Self-locking nut, 25 Nm

- ❑ Always replace after removing

Pressing bonded rubber bush out of wheel bearing housing



Pressing bonded rubber bush into wheel bearing housing



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4.4 Exploded view of trapezium link

1 - Self-locking bolt

- ☐ Always replace after removing
- ☐ 170 Nm + further 180° turn
- ☐ Use a M14x1.5 tap to remove residual adhesive from the thread in the wheel bearing housing
- ☐ The vehicle must be standing on its wheels when tightening

2 - Washer

- ☐ Thickness 3 mm
- ☐ Modified design as of Model Year 1992
⇒ [page 85](#)

3 - Stud, body

4 - Trapezium link

- ☐ Pay attention to different versions
- ☐ Removing and installing
⇒ [page 84](#)
- ☐ Check toe and camber following removal and installation

5 - Bonded rubber bush

- ☐ New rubber blend (25 % harder) as of Model Year 1997
- ☐ Combination with old bushes not permissible
- ☐ Pressing out and pressing in ⇒ [page 82](#)
- ☐ Pay attention to installation position ⇒ [page 83](#)



Note

As there is no obvious distinction between old and new bushes, bushes are only to be replaced in pairs.

6 - Nut, 110 Nm

- ☐ Always replace after removing

7 - Mounting bracket

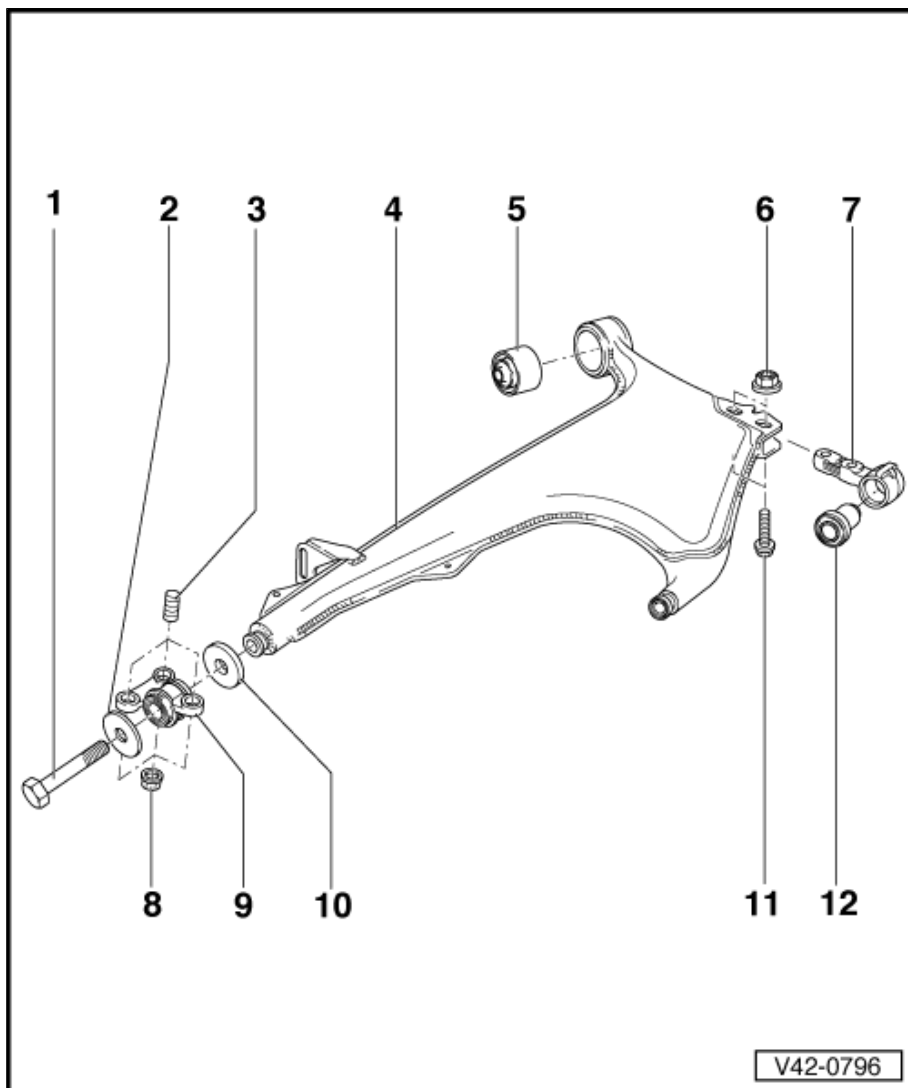
- ☐ Cross faces upwards when fitted
- ☐ Check toe and camber following removal and installation

8 - Ribbed nut, 135 Nm

- ☐ Always replace after removing

9 - Support for trapezium link

- ☐ Replacement part supplied with bonded rubber bush for Model Year 1991
- ☐ Modified design as of Model Year 1992 ⇒ [page 85](#)



10 - Washer

- ☐ Thickness 6 mm
- ☐ Modified design as of Model Year 1992 ➤ [page 85](#)

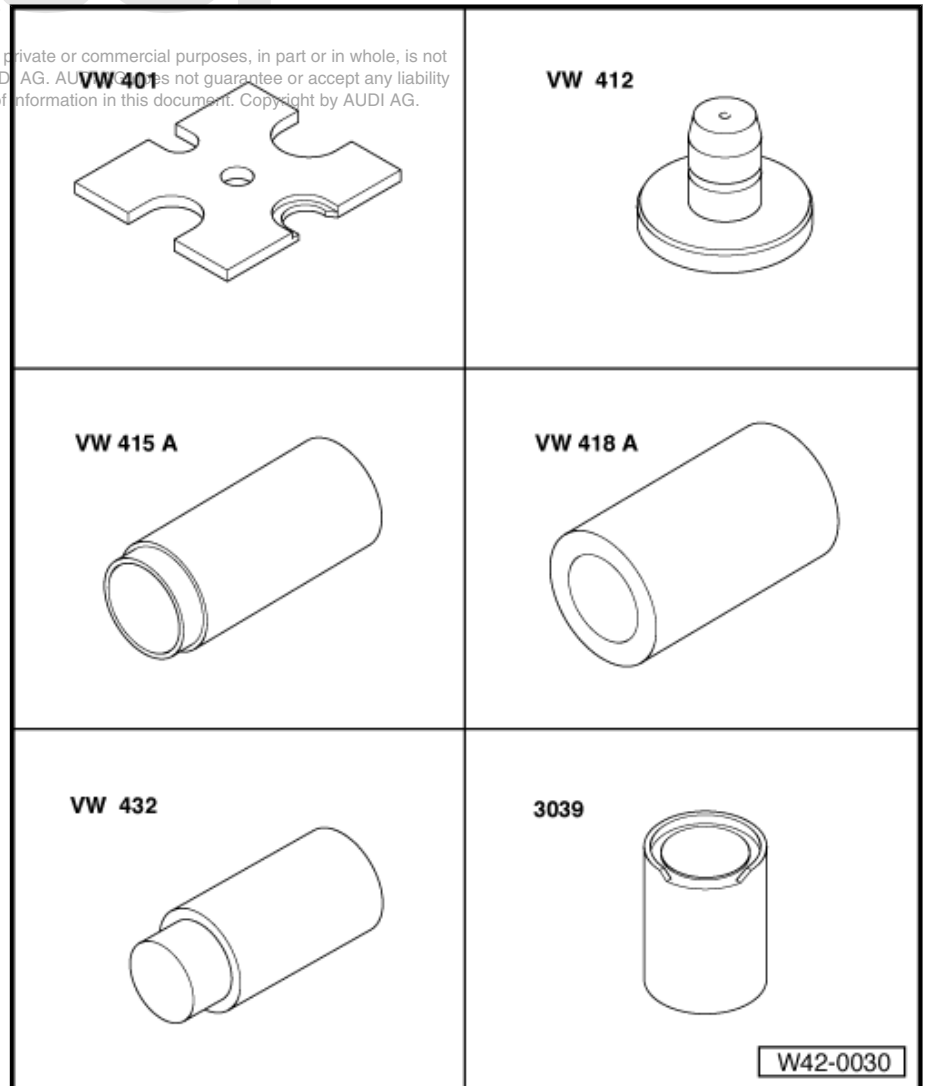
11 - Bolt

12 - Bonded rubber bush

- ☐ Pressing out ➤ [page 83](#)
- ☐ Pressing in ➤ [page 83](#) and ➤ [page 84](#)

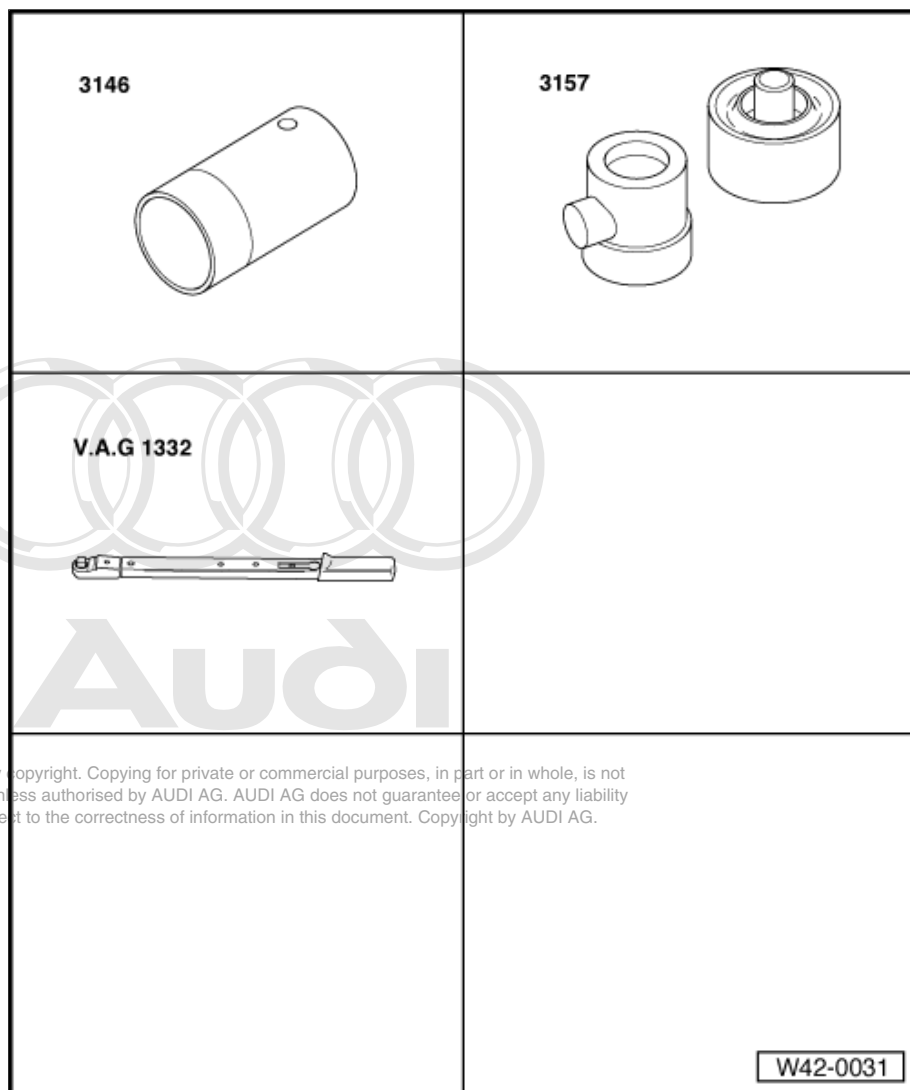
Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Press tool -VW 412-
- ◆ Tubular section -VW 415 A-
- ◆ Tubular section -VW 418 A-
- ◆ Thrust pad -VW 432-
- ◆ Guide sleeve -3039-





- ◆ Tubular section -3146-
- ◆ Pressing tool -3157-
- ◆ Torque wrench -V.A.G 1332-

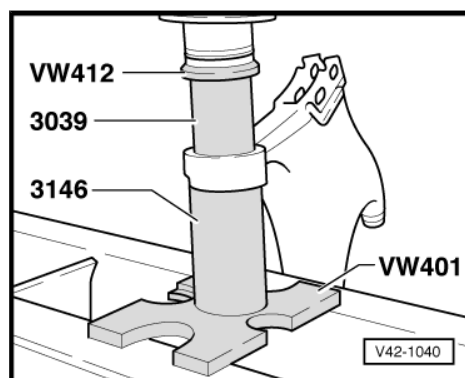


Pressing out and pressing in bonded rubber bush



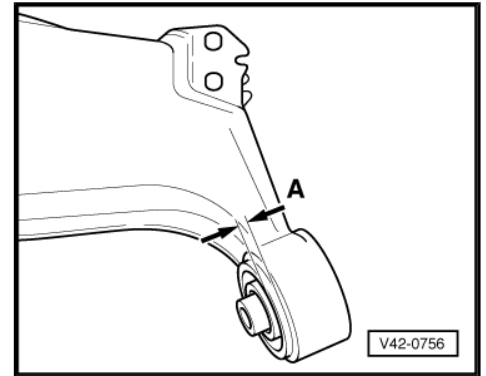
Note

Press in the bonded rubber bush such that the projection viewed in the direction of travel is 3 mm ➔ [page 83](#) .

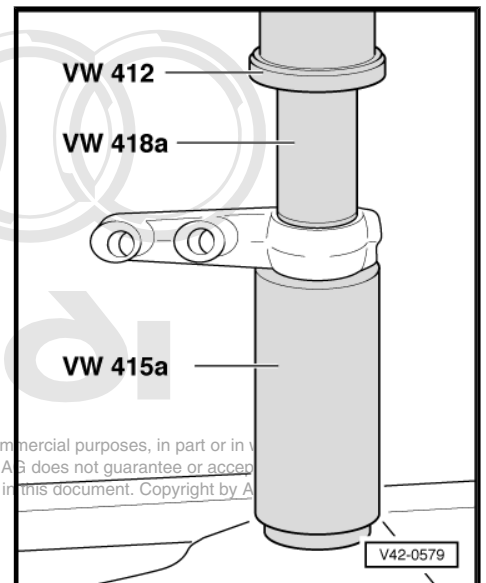


Installation position of bonded rubber bush

- Dimension -a- = 3 ± 1 mm



Pressing out bonded rubber bush

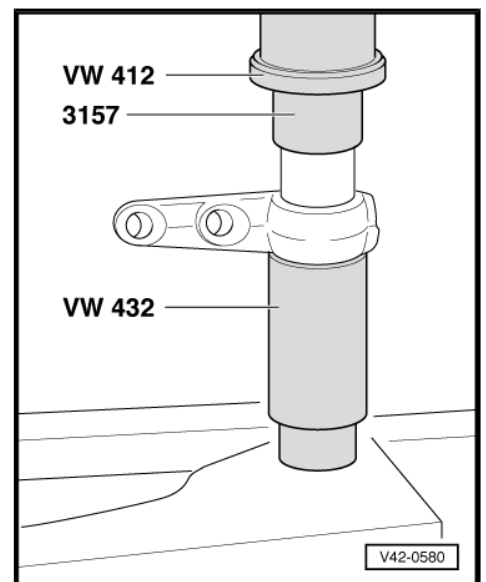


Pressing bonded rubber bush roughly 20 mm into mounting bracket

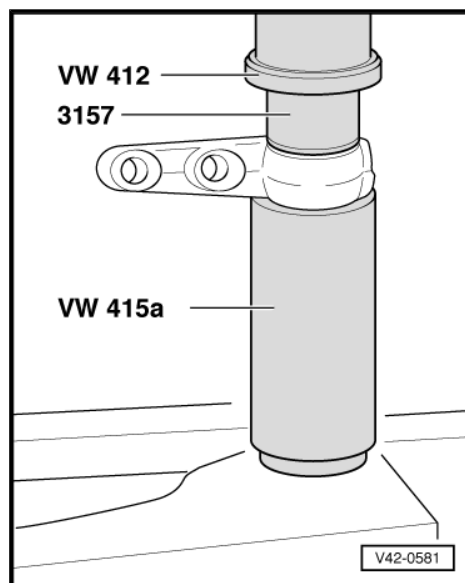


Note

Before pressing the bonded rubber bush into the mounting bracket, make sure the collar of the bonded rubber bush is facing in the direction of travel.



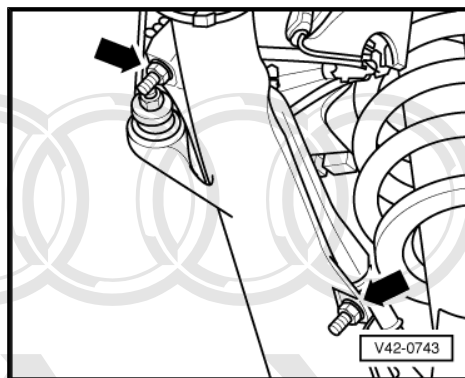
Pressing bonded rubber bush into mounting bracket



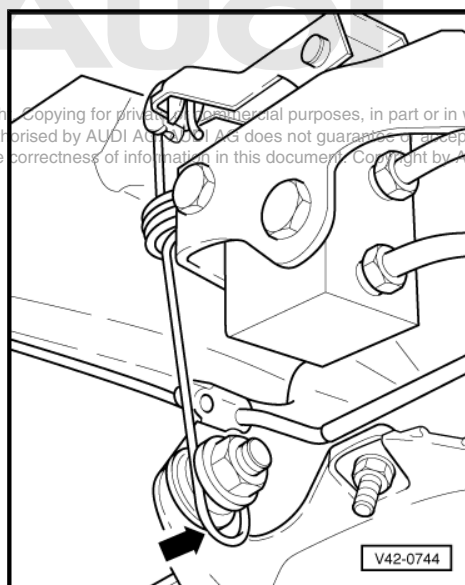
4.5 Removing and installing trapezium link

Removing

- Remove the wheel.
- Vehicles with ABS: Detach the speed sensor wire -arrows-.

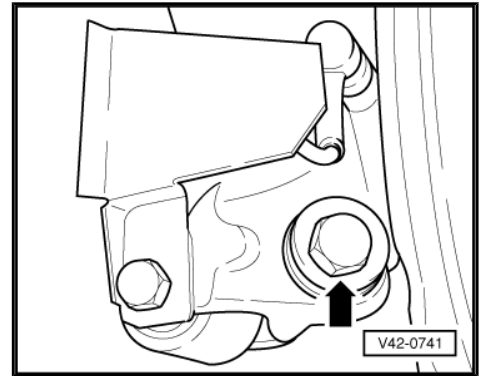


- If fitted, disengage the brake pressure regulator spring -arrow-.

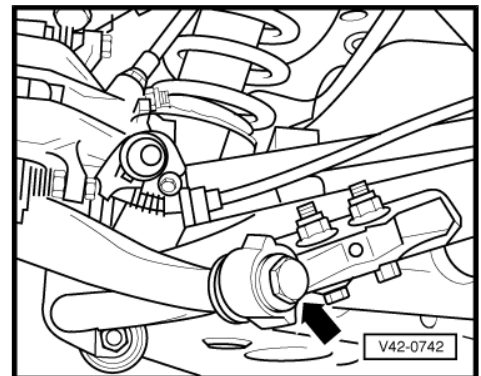


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

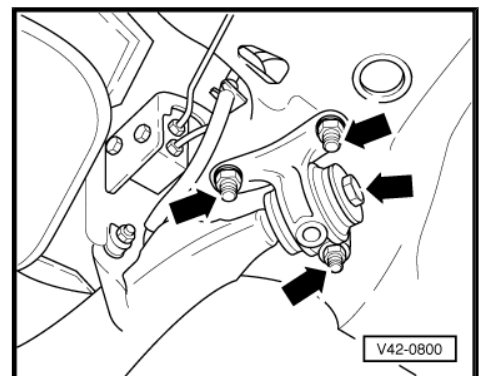
- Slacken off the trapezium link bolt at the wheel bearing housing -arrow-.



- Slacken off the mounting bracket bolt at the trapezium link -arrow-.
- Slacken off the trapezium link bolt at the cross piece.



- Slacken off the support bolt at the trapezium link -centre right arrow-.
- Unscrew the support from the floor panel.
- Screw out all the bolts previously slackened off and detach the trapezium link.



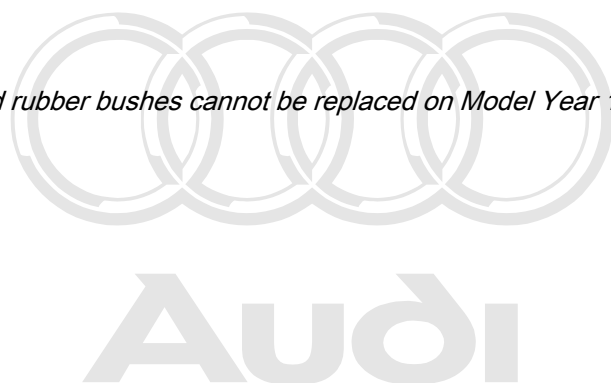
Installing

Install in reverse order.

4.6 Exploded view of support for trapezium link with bonded rubber bush



The bonded rubber bushes cannot be replaced on Model Year 1991 vehicles.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Stud, body

2 - Self-locking bolt

- ☐ Always replace after removing
- ☐ 170 Nm + further 180° turn
- ☐ Use a M14x1.5 tap to remove residual adhesive from the thread in the wheel bearing housing
- ☐ The vehicle must be standing on its wheels when tightening

3 - Washer



Note

- ◆ As of Model Year 1992 only dished washers have been fitted.
- ◆ When installing new supports in Model Year 1991 vehicles, always fit dished washers ⇒ Electronic parts catalogue.

4 - Front bonded rubber bush

- ☐ Replacing ⇒ [page 87](#)

5 - Ribbed nut, 135 Nm

- ☐ Always replace after removing

6 - Support for trapezium link

- ☐ Pay attention to different versions
- ☐ Replacement part also available with bush

7 - Rear bonded rubber bush

- ☐ Provided with 8 studs on end face for identification
- ☐ Replacing ⇒ [page 87](#)

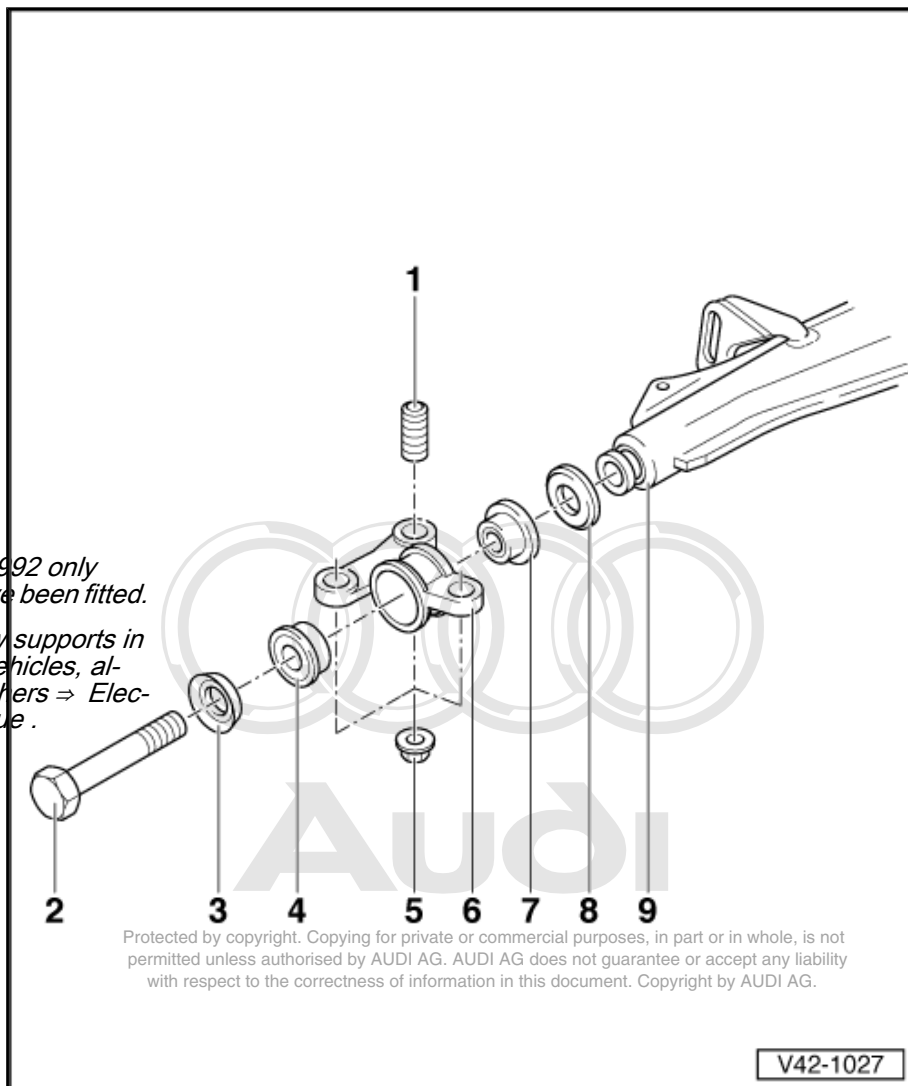
8 - Washer



Note

- ◆ As of Model Year 1992 only dished washers have been fitted.
- ◆ When installing new supports in Model Year 1991 vehicles, always fit dished washers ⇒ Electronic parts catalogue.

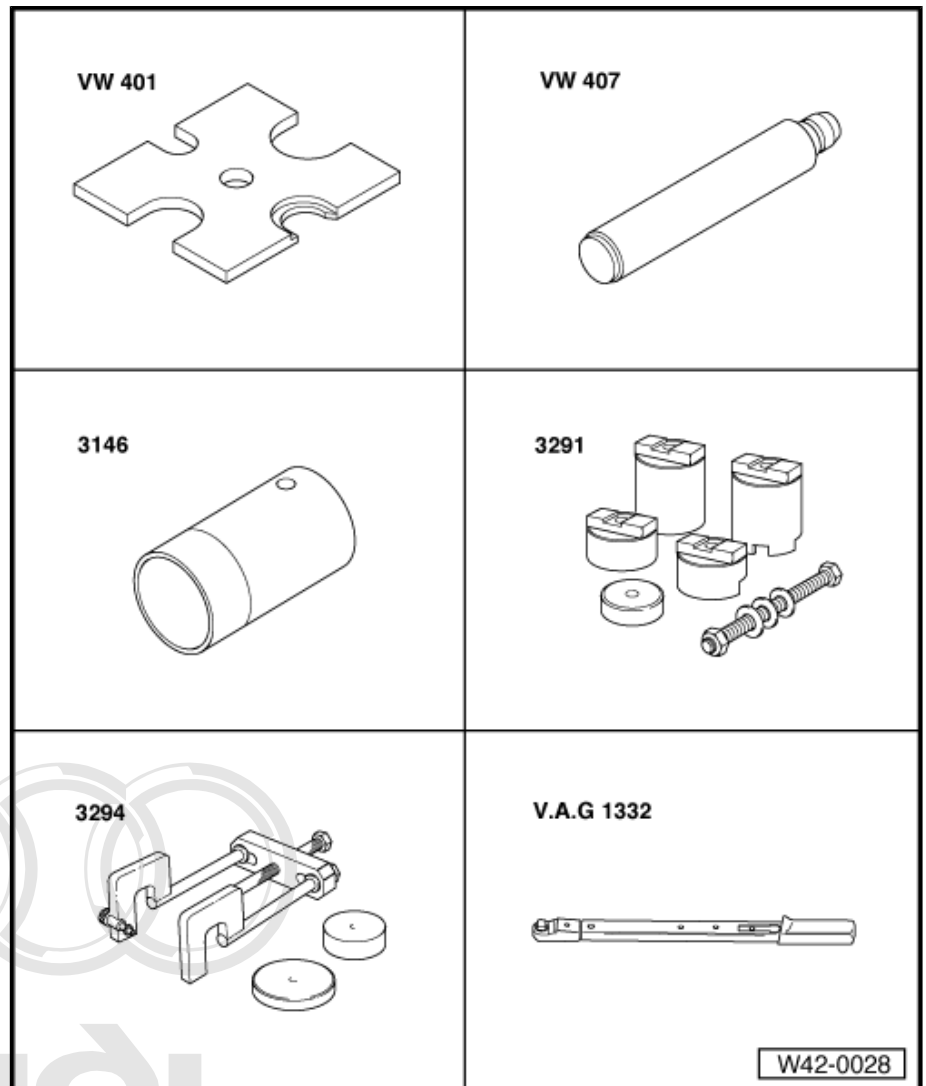
9 - Trapezium link



4.7 Replacing bonded rubber bush for trapezium link support

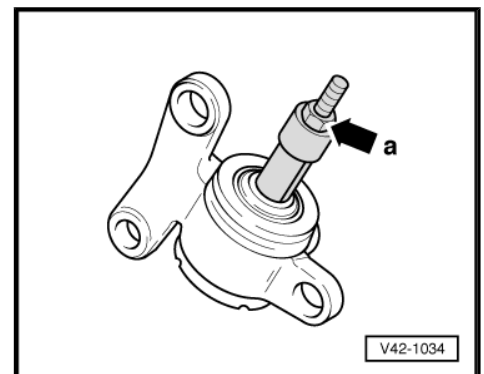
Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Press tool -VW 407-
- ◆ Tubular section -3146-
- ◆ Assembly tool -3291-
- ◆ Assembly tool -3294-
- ◆ Torque wrench -V.A.G 1332-

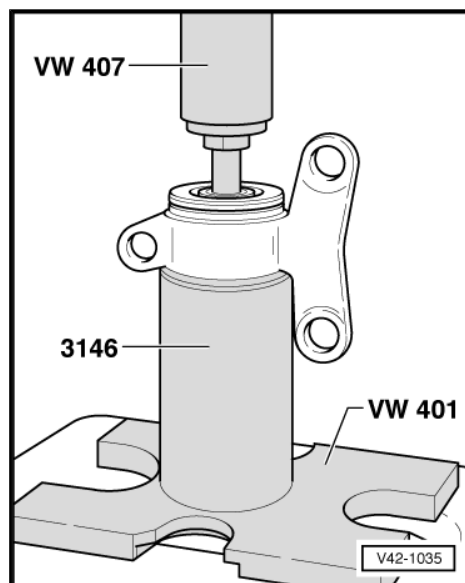


Sequence of operations

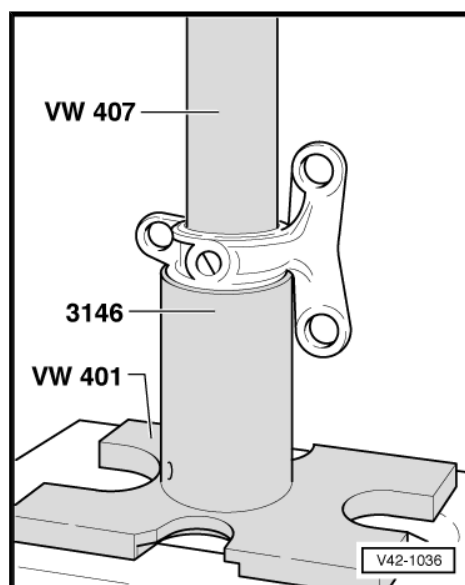
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- Insert an internal puller e.g. -Kukko 21/2- in the bonded rubber bush and tighten the nut -arrow a-.



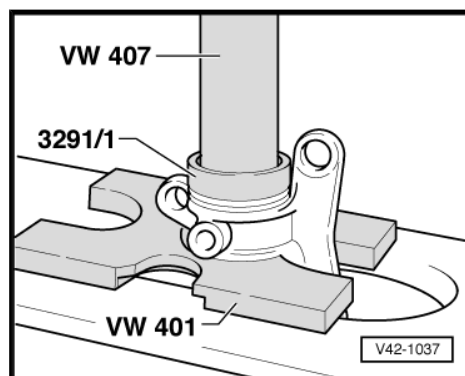
- Insert an approx. 80 mm long M14 bolt in the hole in the bush and press out one half of the bush.



- Press out the second half of the bush.

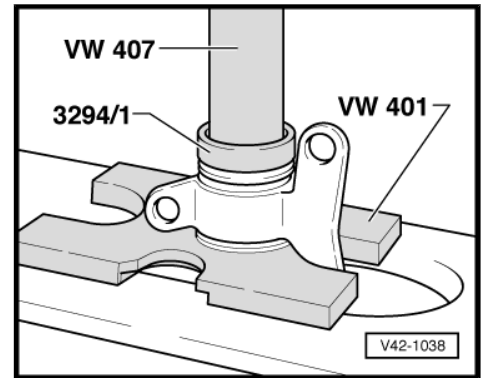


- Press home the rear bush.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Press in the front bush approx. 5 mm.

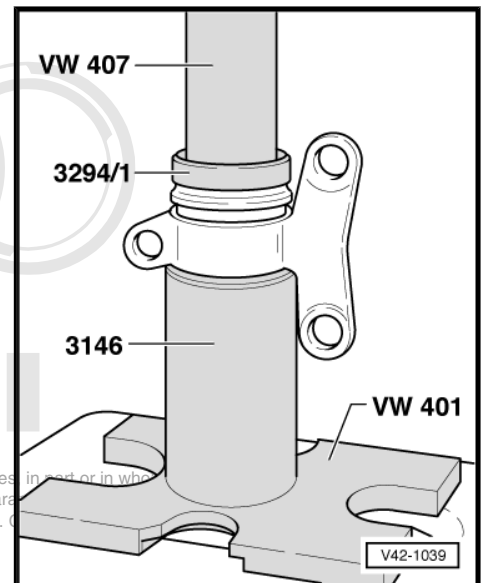


- Press home the bush.



Note

Terminate the pressing-in operation immediately when the bush makes flush all-round contact with the support.

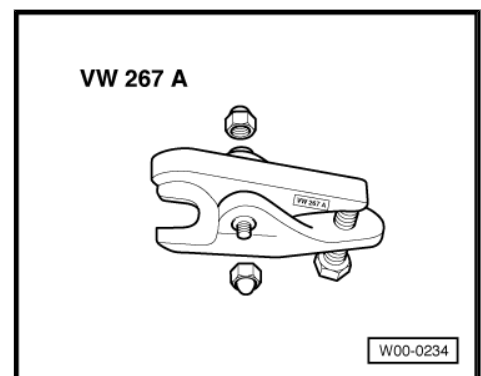


Protected by copyright. Copying for private or commercial purposes in text or in whole is permitted unless authorised by AUDI AG. AUDI AG does not guarantee the correctness of information in this document.

4.8 Removing and installing transverse link

Special tools and workshop equipment required

- ◆ Pressing-out tool for supporting joints -VW 267 A-



Removing



Note

The illustrations show a rear axle with no anti-roll bar.

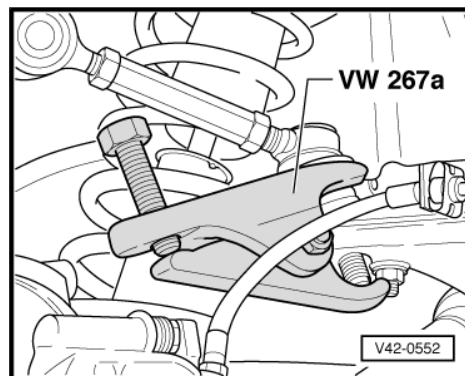
- Remove the wheel.
- Unscrew the transverse link from the wheel bearing housing and the cross piece -arrows-.



- Raise the link, insert the pressing-out tool and press out the joint.

Installing

Install in reverse order.



4.9 Exploded view of connecting link

1 - Anti-roll bar

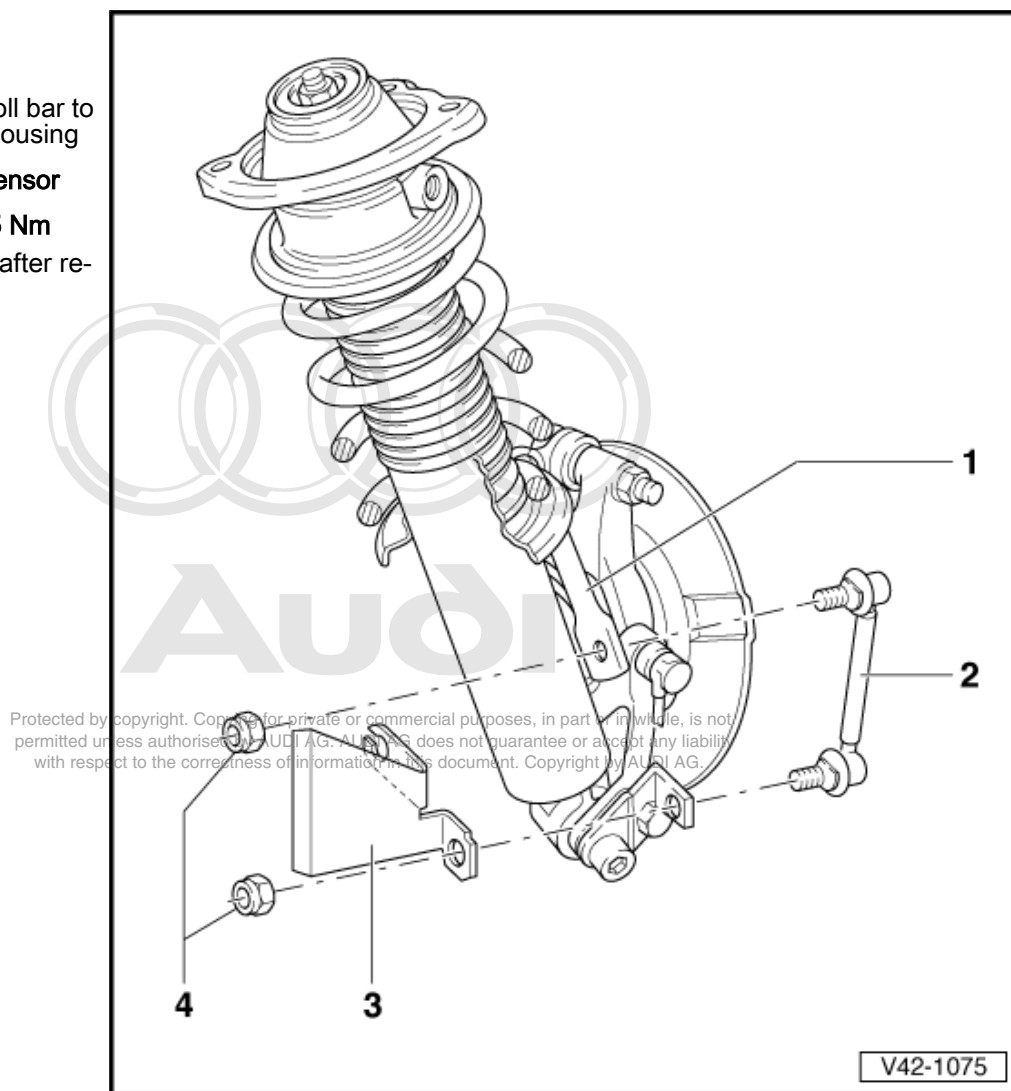
2 - Connecting link

- ❑ Connects anti-roll bar to wheel bearing housing

3 - Holder for speed sensor

4 - Self-locking nut, 45 Nm

- ❑ Always replace after removing



4.10 Exploded view of anti-roll bar

1 - Rear cross piece

- ❑ Pay attention to different versions

2 - Anti-roll bar

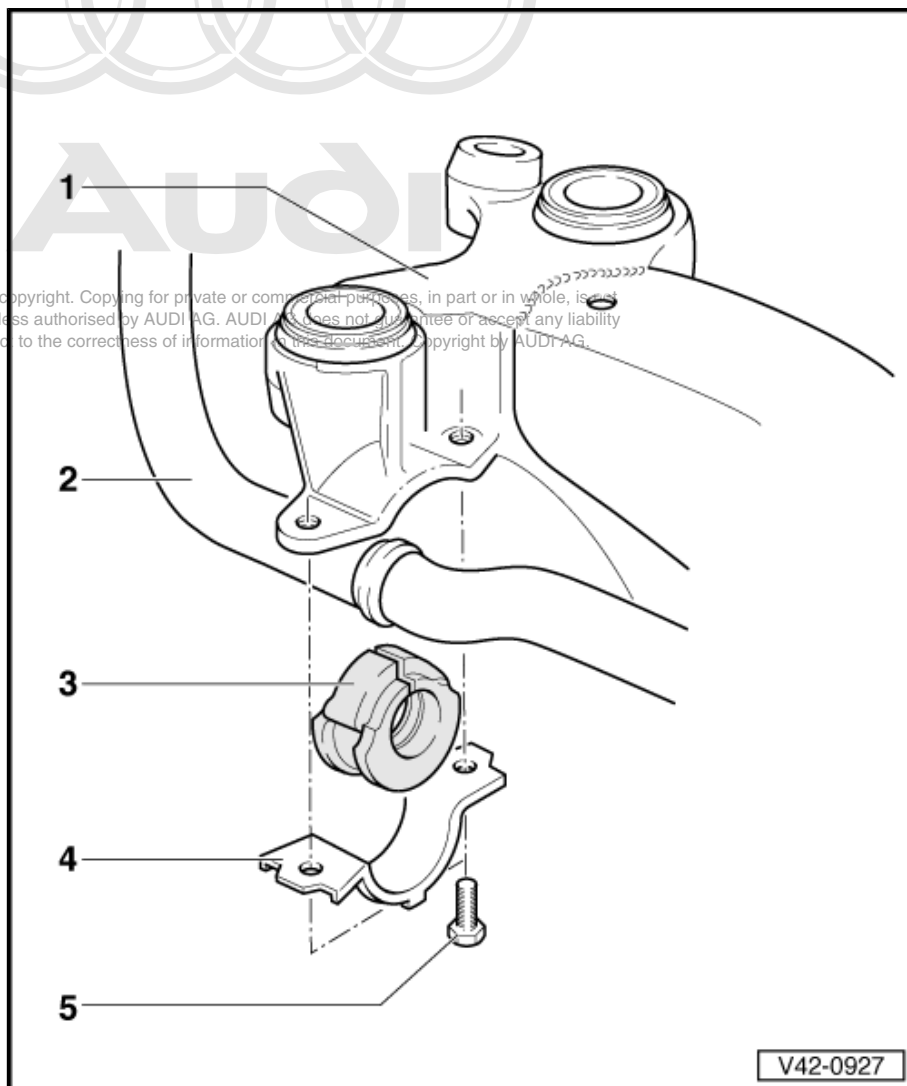
- ❑ Removing and installing
⇒ [page 91](#)

3 - Mount

4 - Clip

5 - Bolt, 25 Nm

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



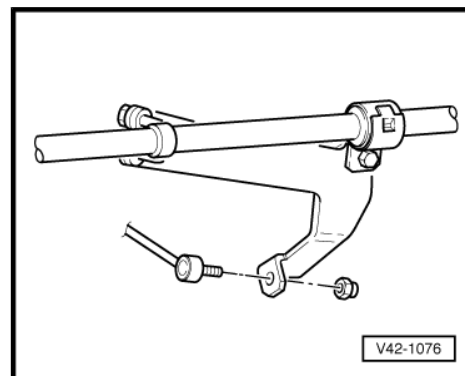
4.11 Removing and installing anti-roll bar

Removing

- Unscrew the anti-roll bar from the connecting links.
- Vehicles with self-levelling suspension: Unscrew the control valve linkage from the lever.
- Unscrew the clip on either side from the rear cross piece.
- Take out the mount and anti-roll bar.

Installing

Install in reverse order.



5 Rear suspension strut - Four-wheel drive vehicles

⇒ [“5.1 Removing and installing suspension strut”, page 92](#)

⇒ [“5.2 Exploded view of suspension strut”, page 95](#)

⇒ [“5.3 Dismantling and assembling suspension strut”, page 97](#)

⇒ [“5.4 Exploded view of suspension strut with self-levelling suspension”, page 102](#)

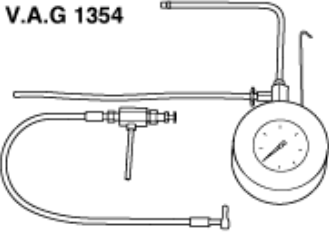
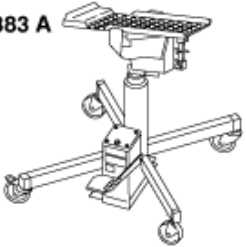
⇒ [“5.5 Dismantling and assembling suspension strut with self-levelling suspension”, page 104](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the prior written consent of Audi AG. Audi AG does not guarantee or accept any liability for the correctness of information in this document. Copyright by AUDI AG.

5.1 Removing and installing suspension strut

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Self-levelling suspension system tester -V.A.G 1354-
- ◆ Engine and gearbox lifter - V.A.G 1383 A-

V.A.G 1331 	V.A.G 1332 
V.A.G 1354 	V.A.G 1383 A 
	W42-0026

Removing

- Vehicle standing on its wheels over a lifting platform
- Detach the wheel trim.
- Raise the vehicle.

- Remove the wheels.

Vehicles with self-levelling suspension:

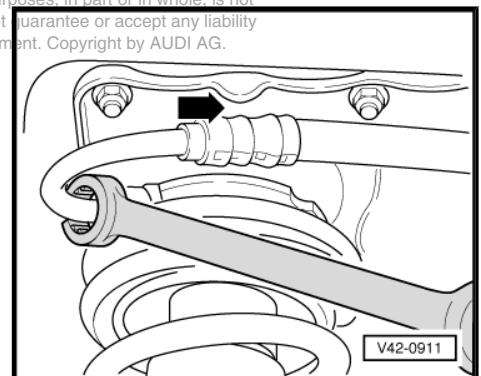
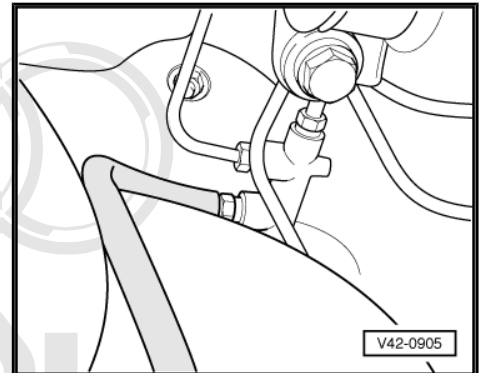
- Detach the dust cap from the bleed screw of the connector.
- Attach the bleed hose of the self-levelling suspension system tester -V.A.G 1354- to the bleed screw.
- Open the bleed screw and collect the hydraulic fluid.



The hydraulic fluid drained off is not to be re-used.

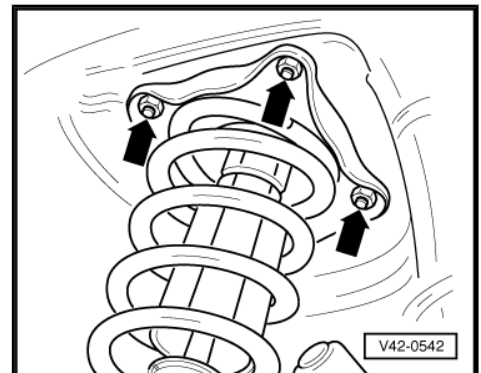
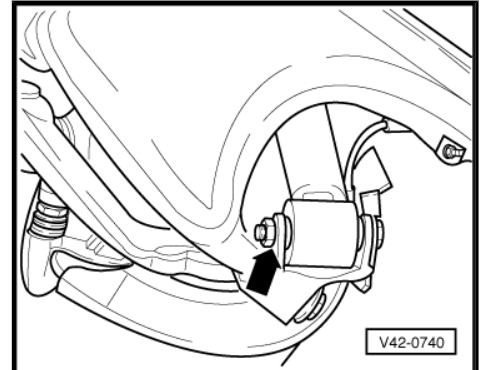
- Close the bleed screw, detach the bleed hose and attach the dust cap.
- Unscrew the hydraulic pipe

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



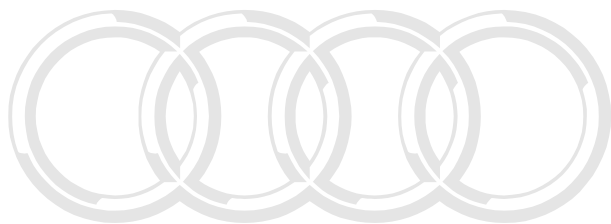
All vehicles (continued):

- Unscrew the suspension strut connection -arrow-.
- Unscrew the nuts -arrows- and take out the suspension strut.



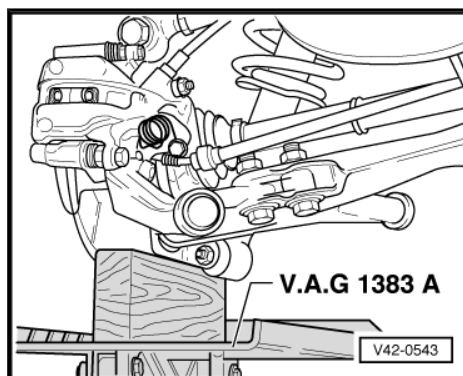
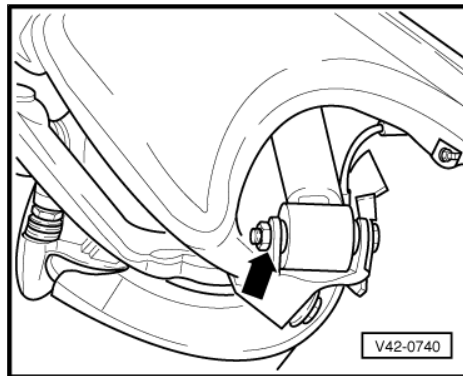
Installing

- Fit the suspension strut connection -arrow-.



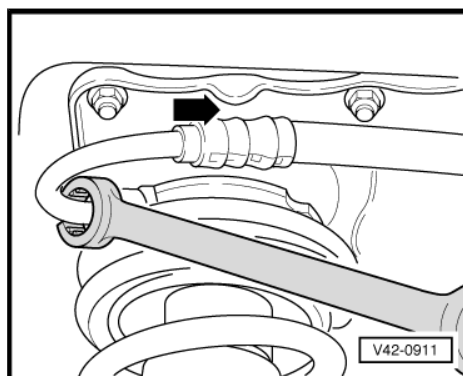
- Raise the rear axle with the engine and gearbox lifter -V.A.G 1383 A- until the suspension strut securing nuts can be inserted.
- Tighten the nuts to 25 Nm.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Vehicles with self-levelling suspension:

- Screw on the hydraulic pipe.
- There must be approx. 15 mm clearance between the marking lug and the hydraulic pipe -arrow-.



Installation position of pressure pipes for self-levelling suspension:

a - Installation angle of pressure pipe on left side of vehicle approx. 110°

b - Installation angle of pressure pipe on right side of vehicle approx. 110°

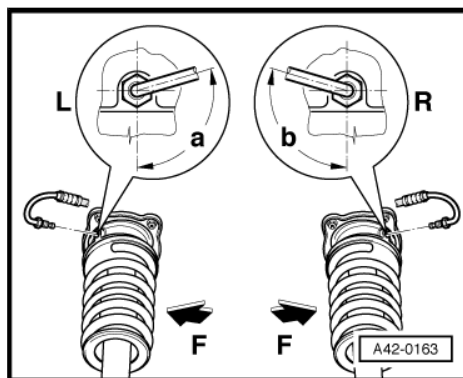
L - Left side of vehicle

R - Right side of vehicle

F - Direction of travel

All vehicles (continued)

- Lower the rear axle.
- Fit the wheels: Steel disc wheel ➔ [page 144](#) , light alloy wheel ➔ [page 146](#) .
- Set down the vehicle on its wheels and tighten the bolt for the suspension strut at the bottom to 90 Nm.



5.2 Exploded view of suspension strut

Standard running gear

1 - Self-locking nut, 30 Nm

- ☐ Always replace after removing

2 - Rubber bush

- ☐ Apply talc before fitting

3 - Upper spring plate

4 - Damping ring

- ☐ Apply talc before fitting
- ☐ Different thicknesses; for assignment refer to ➔ Electronic parts catalogue
- ☐ Installation position ➔ [page 97](#)

5 - Spacer

6 - Washer

7 - Buffer stop

- ☐ Insert in protective sleeve

8 - Protective sleeve

9 - Coil spring

- ☐ Surface of spring winding must not be damaged
- ☐ Pay attention to colour code; for assignment refer to ➔ Electronic parts catalogue
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ➔ [page 1](#)
- ☐ Installation position ➔ [page 101](#)

10 - Protective cap

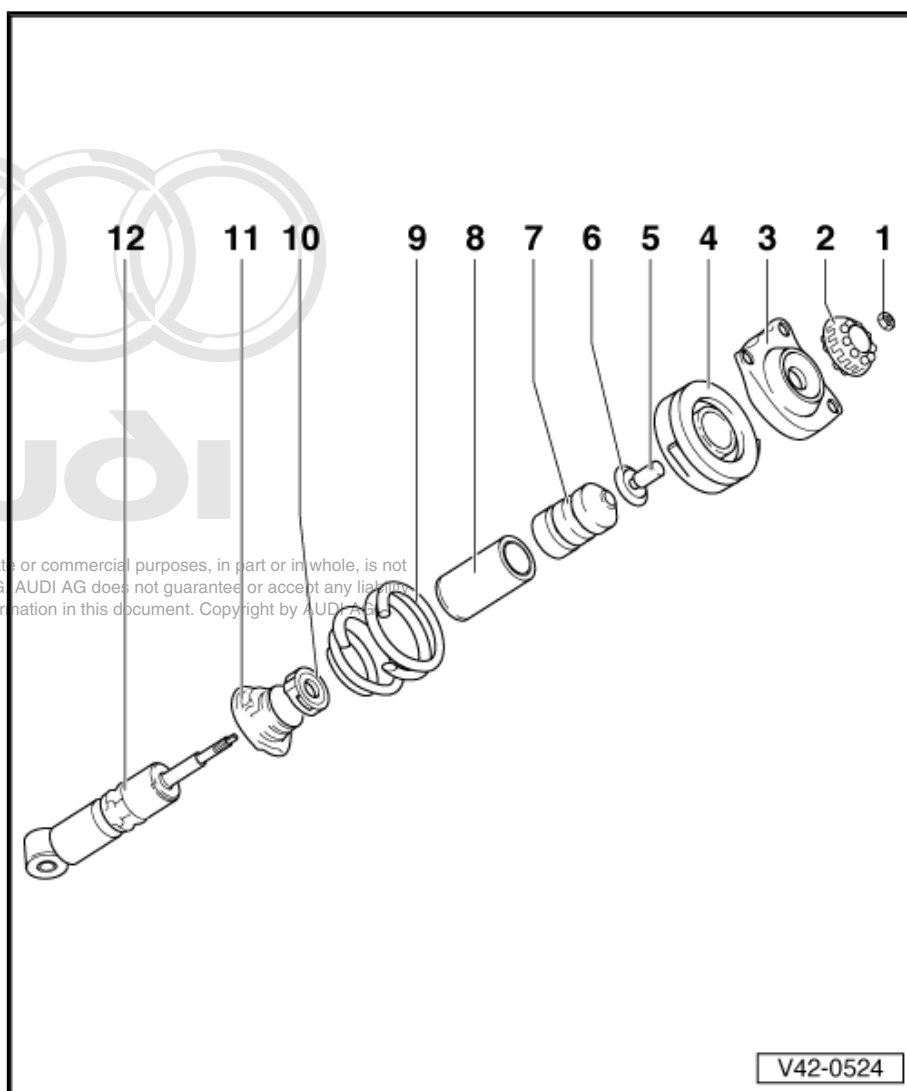
- ☐ Attach to shock absorber

11 - Lower spring plate

- ☐ With stop for coil spring
- ☐ Installation position ➔ [page 97](#)

12 - Shock absorber

- ☐ For assignment, refer to ➔ Electronic parts catalogue
- ☐ Checking ➔ [page 6](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ➔ [page 1](#)
- ☐ Disposal ➔ [page 4](#)



Sports and standard running gear for Audi S4/S6

1 - Self-locking nut, 50 Nm

- ☐ Always replace after re-
moving

2 - Dished washer

3 - Stop ring

4 - Adapter

- ☐ Pay attention to different
versions
- ☐ Marking lug (rounded on
left, square on right)
faces outwards

5 - Bearing ring

- ☐ On assembly, insert po-
sitioning stud in adapter
recess

6 - Upper spring plate

7 - Ring

8 - Damping ring

9 - Buffer stop

- ☐ Pay attention to different
versions

10 - Protective sleeve

11 - Coil spring

- ☐ Can be replaced sepa-
rately
- ☐ Surface of spring wind-
ing must not be dam-
aged
- ☐ Pay attention to colour
code; for assignment re-
fer to ⇒ Electronic parts
catalogue

- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ⇒ [page 1](#)

- ☐ Installation position ⇒ [page 101](#)

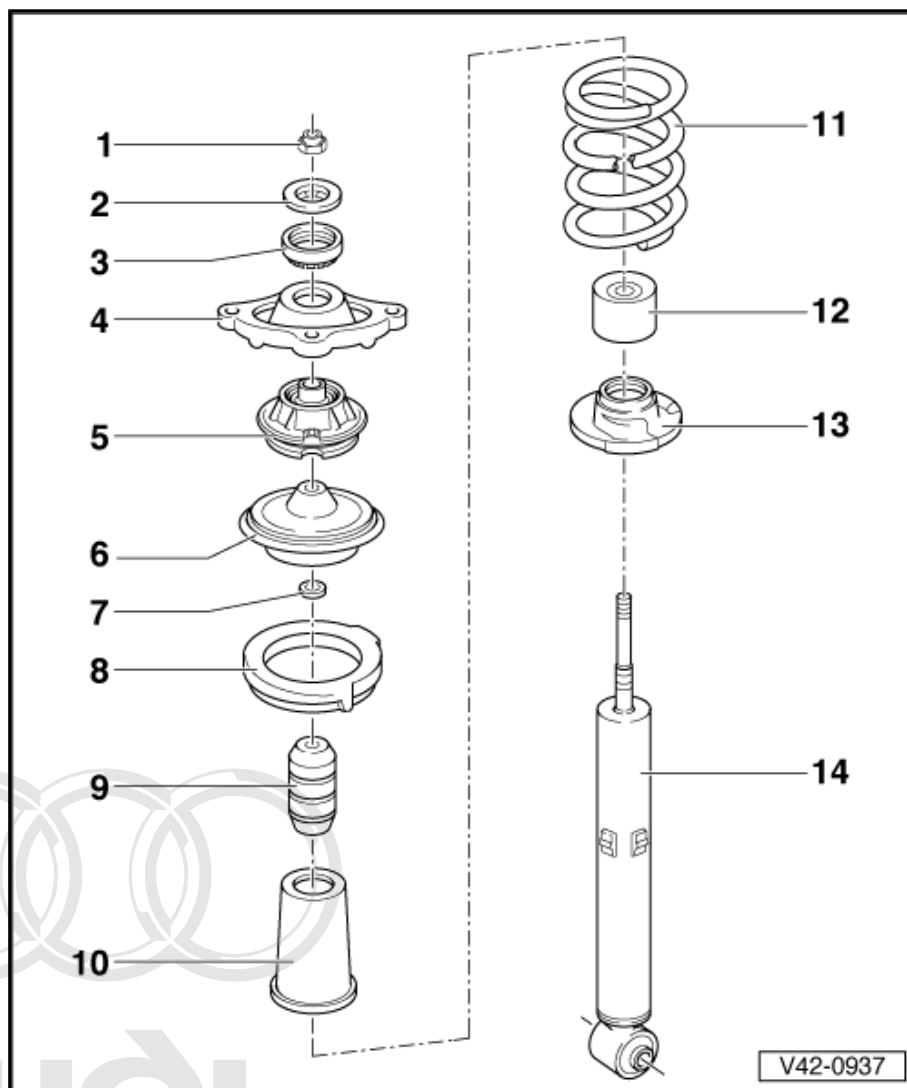
12 - Protective cap

13 - Lower spring plate

- ☐ Installation position ⇒ [page 97](#)

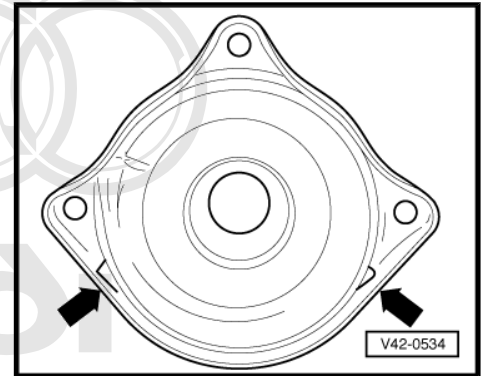
14 - Shock absorber

- ☐ For assignment, refer to ⇒ Electronic parts catalogue
- ☐ Checking ⇒ [page 6](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ⇒ [page 1](#)
- ☐ Disposal ⇒ [page 4](#)



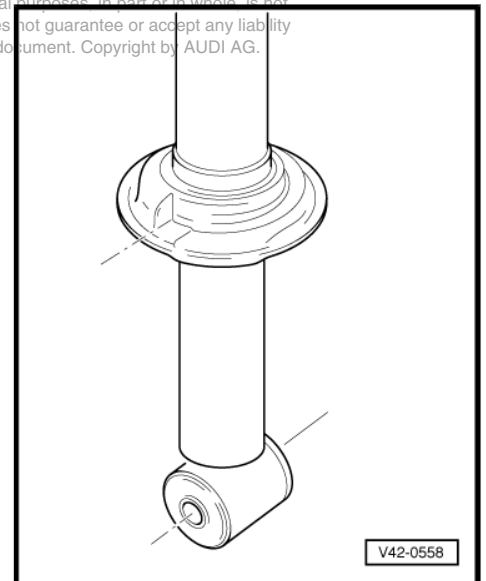
Installation position of damping ring

- Both lugs of the damping ring must be in contact with the spring plate.



Installation position of lower spring plate

- Stop of coil spring faces centre of damper eye.

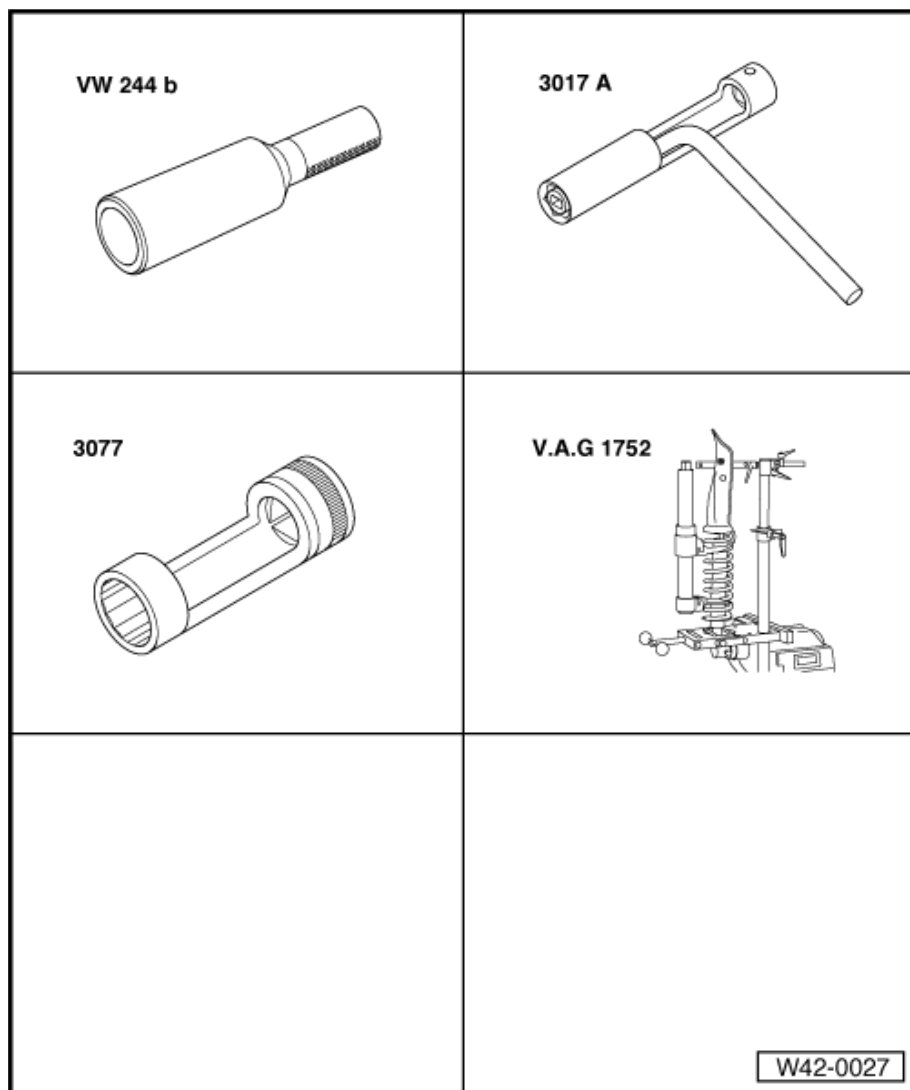


5.3 Dismantling and assembling suspension strut

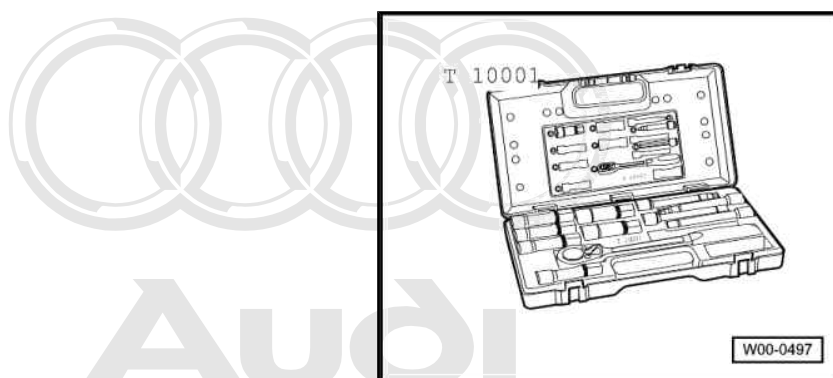


Special tools and workshop equipment required

- ◆ Driving-on sleeve -VW 244 B-
- ◆ Shock absorber wrench -3017 A-
- ◆ 19 mm socket attachment -3077-
- ◆ Suspension strut tensioner -V.A.G 1752-



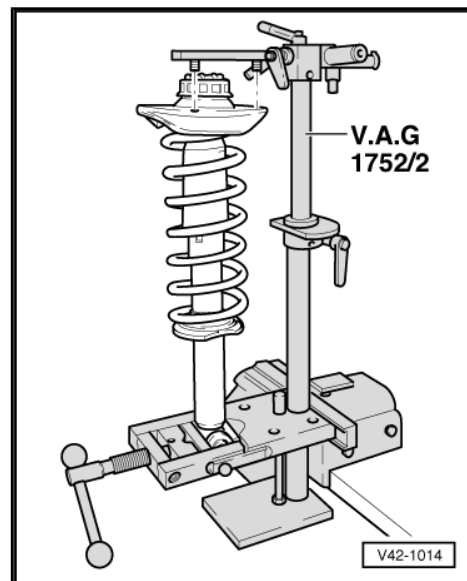
- ◆ Shock absorber set -T10001-



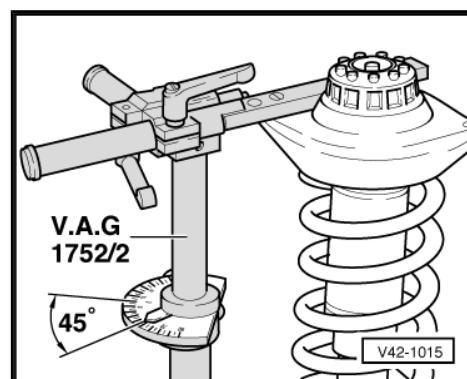
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Dismantling

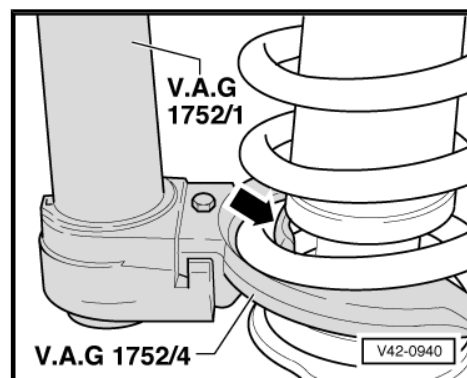
- Clamp the suspension strut holder -V.A.G 1752/2- in the vice.
- Insert the suspension strut in the suspension strut holder - V.A.G 1752/2- .
- Insert the studs in the holes in the upper spring plate, screw to the spring plate and fix in this position by way of the clamping levers.



- Pay attention to the exact position of the pointer for angle adjustment.
- The pointer position must be observed on assembly.
- Position the coil spring with the spring tensioner -V.A.G 1752/1- on the spring seat.



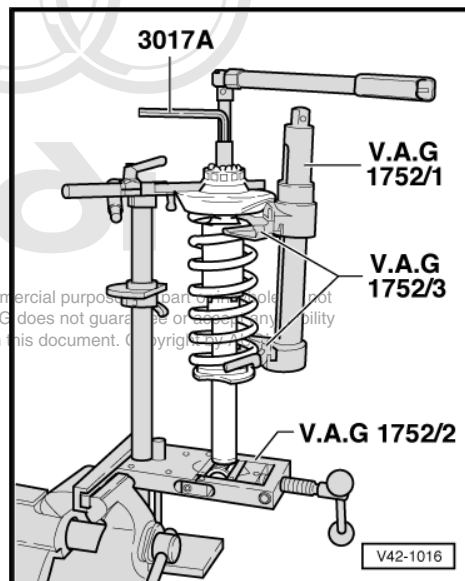
- Make sure the coil spring is positioned correctly in the spring holder -V.A.G 1752/4- .



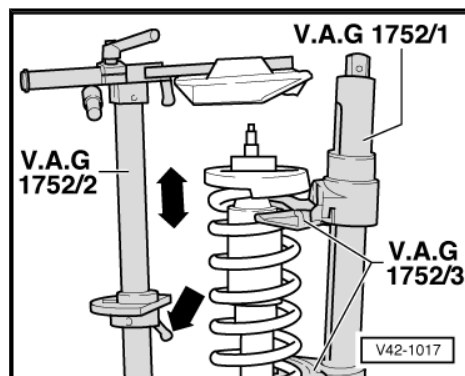
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Pre-tension the coil spring with the spring tensioner -V.A.G 1752/1- until the upper spring plate is free.
- Use the shock absorber wrench -3017 A- to unscrew the nut from the piston rod.
- On versions with M12 piston rod thread, use the shock absorber set -T10001- or a 19 mm socket attachment -3077- and provide support with an Allen key.
- Detach the rubber bush.

Protected by copyright. Copying for private or commercial purposes without the express written permission of Audi AG is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy or completeness of the information in this document. Copyright 2008 Audi AG.

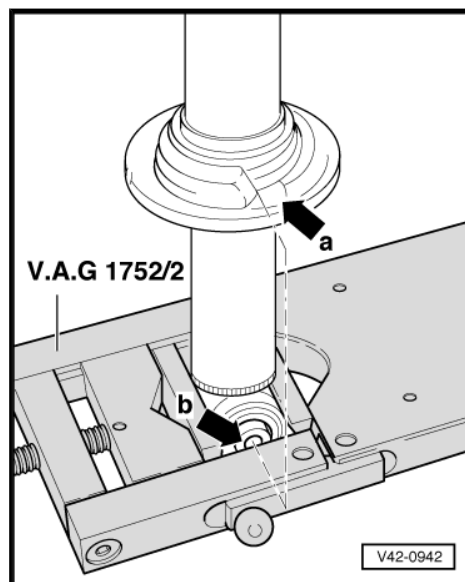


- Release the clamping lever -bottom arrow-, push up the height adjuster and swivel aside.
- Detach the corresponding components.

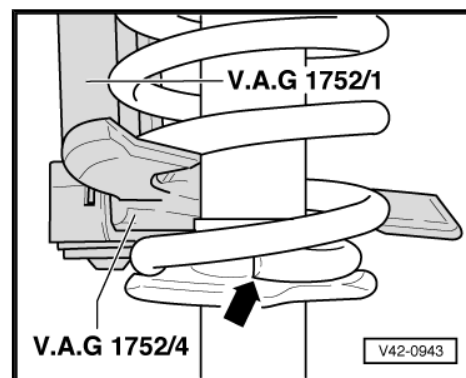


Assembly

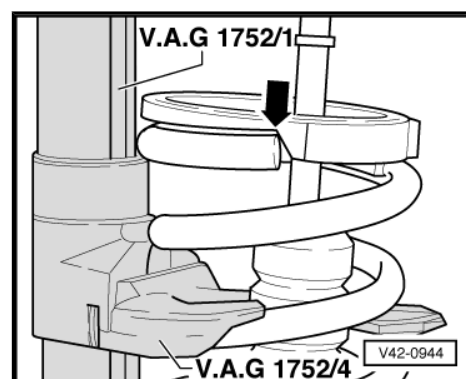
- Pull the piston rod as far as it will go out of the shock absorber.
- Position the lower spring plate on the shock absorber, paying attention to the position of the spring winding stop -arrow a- with respect to the damper eye -arrow b-.
- Installation position: The stop of the spring plate faces to the front at the right suspension strut and to the rear at the left suspension strut.
- Press home the protective cap on the shock absorber.



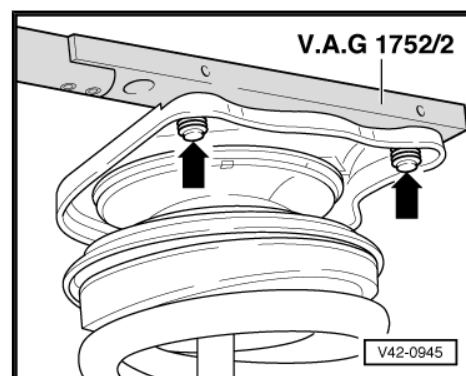
- Position the coil spring with the spring tensioner -V.A.G 1752/1- on the shock absorber.
- The coloured mark on the coil spring must face the lower spring plate.
- Make sure the ends of the springs are in contact with the stops of the spring support and the spring seat -arrow-.



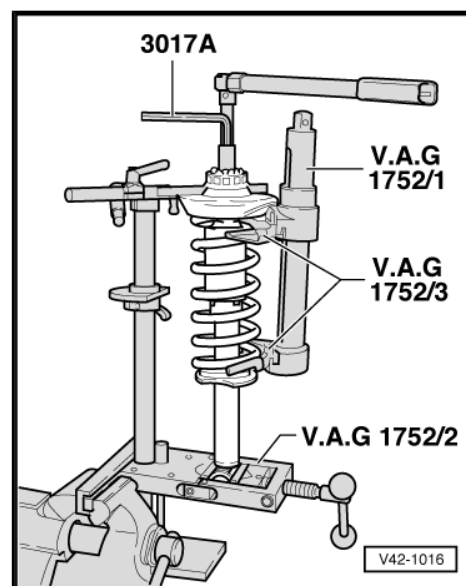
- Position the damping ring on the coil spring.
- The stop of the damping ring must make contact with the end of the spring winding.
- Fit the buffer stop.
- Fit the components corresponding to the running gear version.
- Screw on the nut.



- Set up the locking tool.
- Tighten all the clamping levers of the locking tool.
- Set the height adjuster together with the spring plate to 45°, position over the suspension strut, lower and secure.



- Tighten the nut to 30 Nm using the shock absorber wrench -3017 A- .
- Carefully slacken off the coil spring, paying attention to correct positioning of the coil spring and the upper and lower spring plates.
- As soon as the spring tensioner -V.A.G 1752/1- is free, stop slackening off and detach the spring tensioner.
- Take the suspension strut out of the suspension strut holder - V.A.G 1752/2- .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

5.4 Exploded view of suspension strut with self-levelling suspension



Note

For installation position of pressure pipes, refer to [⇒ page 103](#).

1 - Self-locking nut, 50 Nm

- ☐ Always replace after removing

2 - Dished washer

3 - Stop ring

4 - Adapter

- ☐ Different versions; for assignment refer to [⇒ Electronic parts catalogue](#)
- ☐ Marking lug (rounded on left, square on right) faces outwards

5 - Bearing with positioning stud

- ☐ On assembly, insert positioning stud in adapter recess
- ☐ Installation position [⇒ page 104](#) and [⇒ page 104](#)

6 - Upper spring plate

- ☐ Installation position [⇒ page 104](#)

7 - Buffer stop

- ☐ Pay attention to different versions

8 - Damping ring

- ☐ Installation position [⇒ page 103](#)

9 - Coil spring

- ☐ Can be replaced separately
- ☐ Surface of spring winding must not be damaged
- ☐ Pay attention to colour code; for assignment refer to [⇒ Electronic parts catalogue](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement [⇒ page 1](#)
- ☐ Installation position [⇒ page 108](#)

10 - Protective cap

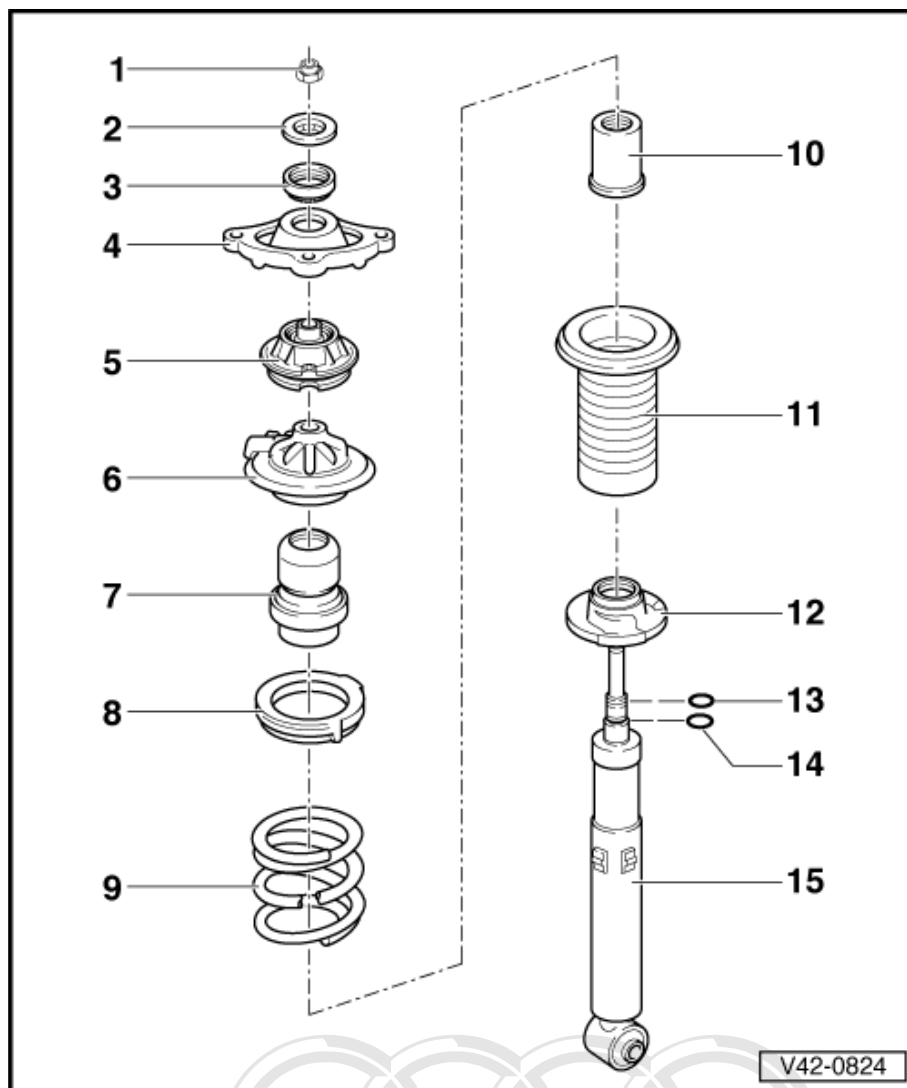
- ☐ Prising off shock absorber [⇒ page 103](#)
- ☐ Always replace after removing
- ☐ Installation position [⇒ page 103](#)

11 - Bellows

- ☐ Installation position [⇒ page 103](#)

12 - Lower spring plate

- ☐ Installation position [⇒ page 104](#)



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

13 - O-ring

- ☐ Coat with silicone grease; for silicone grease refer to ➔ Electronic parts catalogue
- ☐ Insert in annular grooves of piston rod

14 - O-ring

- ☐ Coat with silicone grease; for silicone grease refer to ➔ Electronic parts catalogue
- ☐ Insert in annular grooves of piston rod

15 - Shock absorber

- ☐ For assignment, refer to ➔ Electronic parts catalogue
- ☐ Checking ➔ [page 6](#)
- ☐ Heed PR no. (factory code) on vehicle data sticker prior to replacement ➔ [page 1](#)
- ☐ Disposal ➔ [page 4](#)

Installation position of pressure pipes for self-levelling suspension

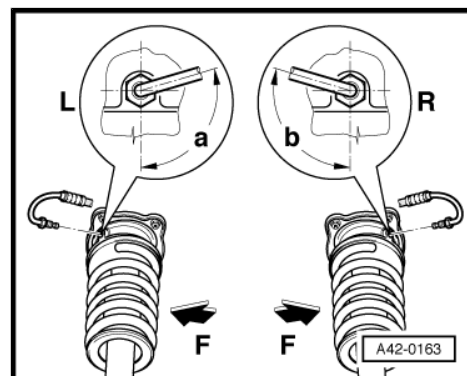
a - Installation angle of pressure pipe on left side of vehicle approx. 110°

b - Installation angle of pressure pipe on right side of vehicle approx. 110°

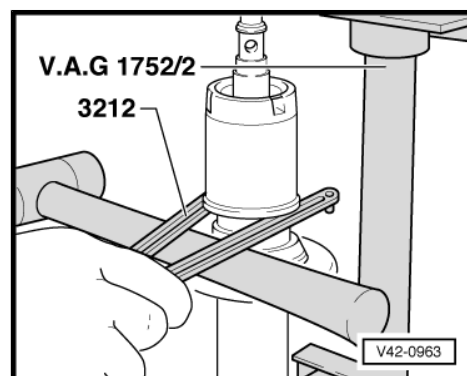
L - Left side of vehicle

R - Right side of vehicle

F - Direction of travel



Prising protective cap off shock absorber

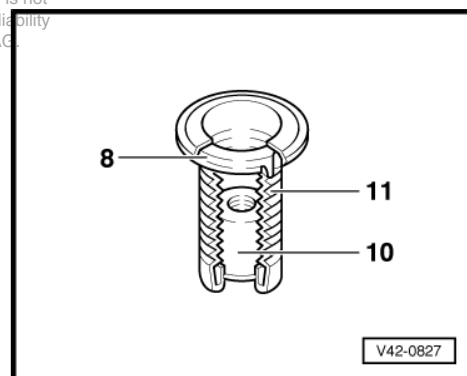


Installation position of damping ring, protective cap and bellows

8 - Damping ring

10 - Protective cap

11 - Bellows



Installation position of lower spring plate

- Stop of coil spring faces centre of damper eye.



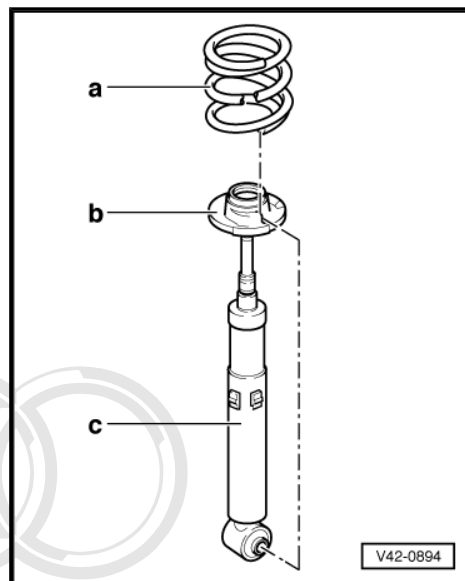
Note

The illustration shows the right suspension strut; at the left suspension strut the stop faces to the rear.

a - Coil spring

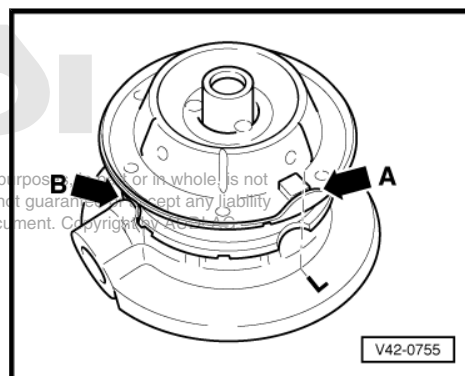
b - Lower spring plate

c - Damper



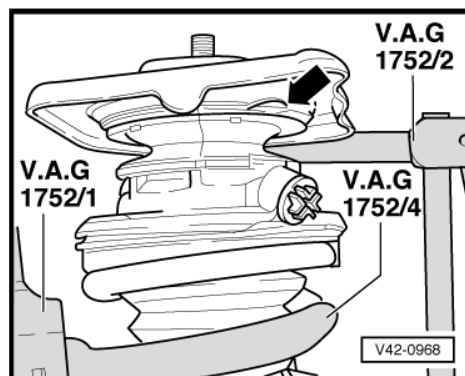
Installation position of bearing ring with respect to upper spring plate

- The recess -arrow B- points towards the connection of the hydraulic pipe at the spring plate.
- Left suspension strut: The positioning stud -arrow A- points towards "L" at the upper spring plate.
- Right suspension strut: The positioning stud -arrow A- points towards "R" at the upper spring plate.



Installation position of bearing with positioning stud

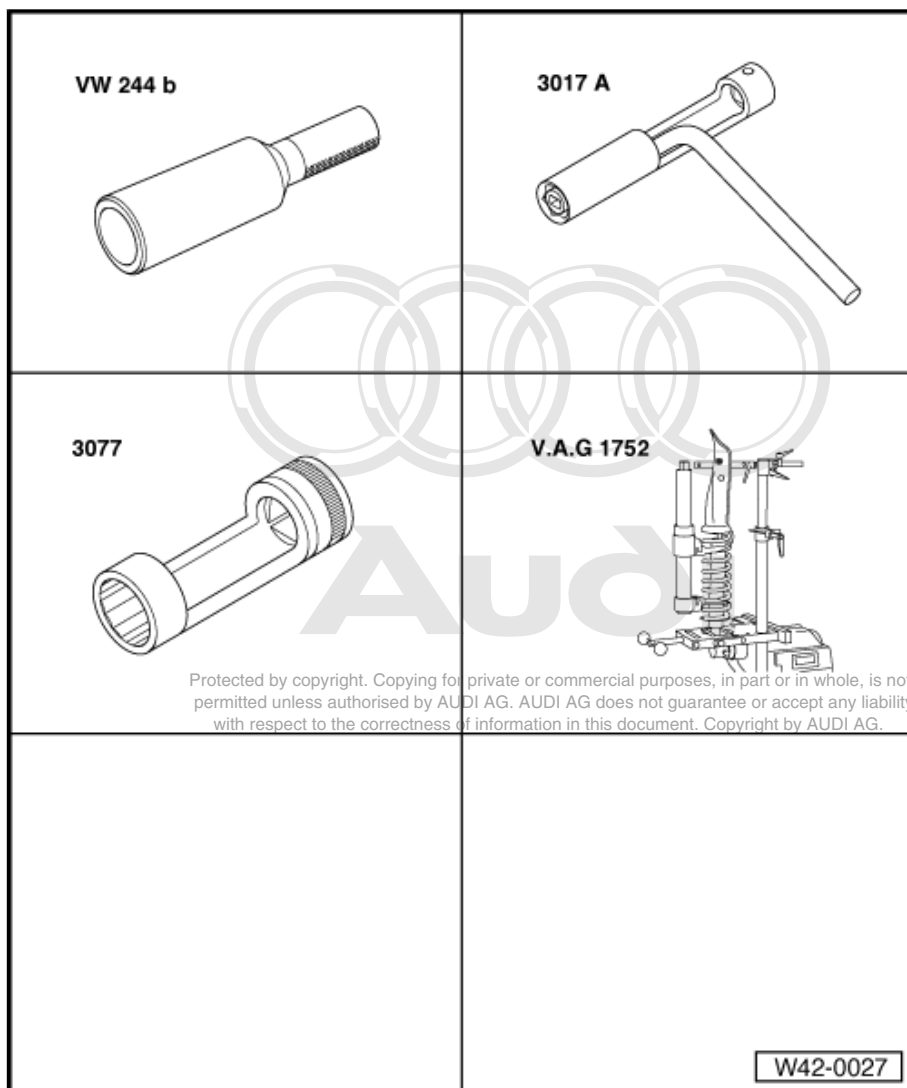
- Attach the bearing such that the positioning stud engages in the recess of the suspension strut adapter -arrow-.



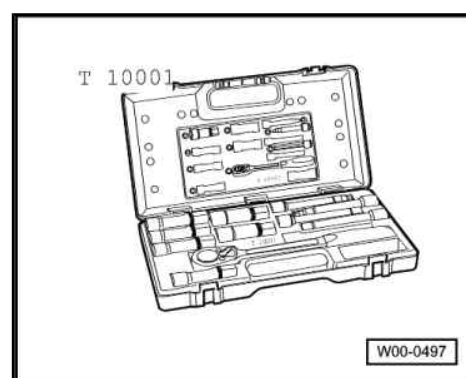
5.5 Dismantling and assembling suspension strut with self-levelling suspension

Special tools and workshop equipment required

- ◆ Driving-on sleeve -VW 244 B-
- ◆ Shock absorber wrench -3017 A-
- ◆ 19 mm socket attachment -3077-
- ◆ Suspension strut tensioner -V.A.G 1752-

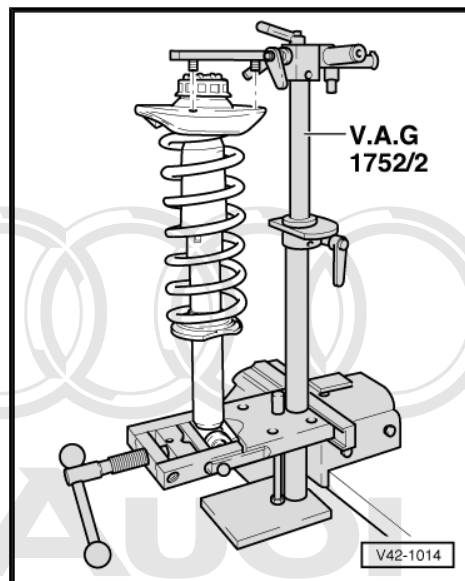


- ◆ Shock absorber set -T10001-

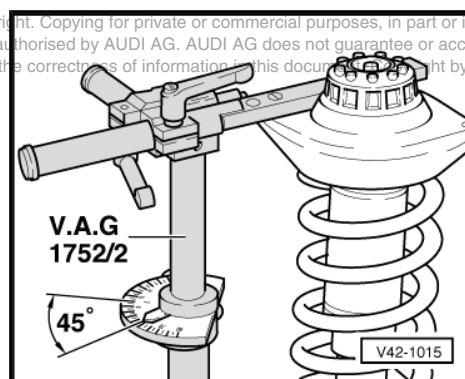


Dismantling

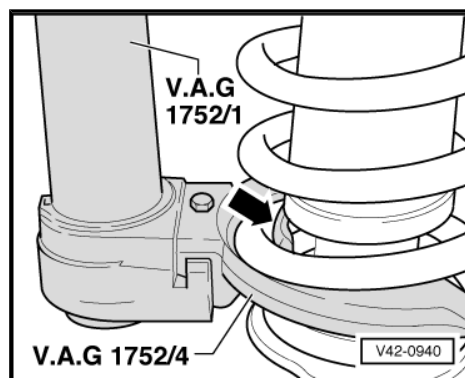
- Clamp the suspension strut holder -V.A.G 1752/2- in the vice.
- Insert the suspension strut in the suspension strut holder - V.A.G 1752/2- .
- Insert the studs in the holes in the upper spring plate, screw to the spring plate and fix in this position by way of the clamping levers.



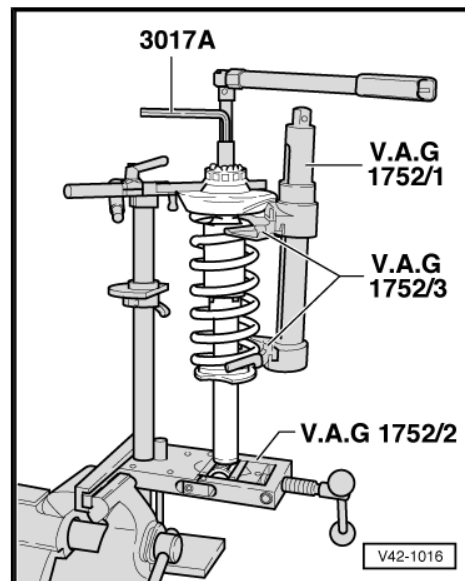
- Pay attention to the exact position of the pointer for angle adjustment.
- The pointer position must be observed on assembly.
- Position the coil spring with the spring tensioner -V.A.G 1752/1- on the spring seat.



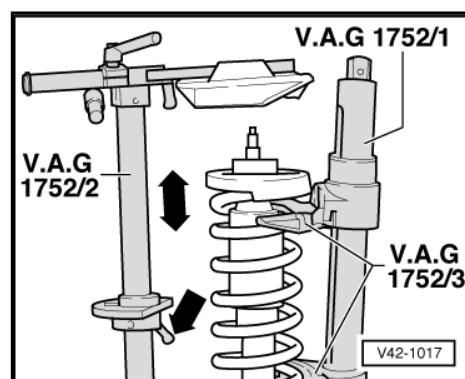
- Make sure the coil spring is positioned correctly in the spring holder -V.A.G 1752/4- .



- Pre-tension the coil spring with the spring tensioner -V.A.G 1752/1- until the upper spring plate is free.
- Use the shock absorber wrench -3017 A- to unscrew the nut from the piston rod.
- On versions with M12 piston rod thread, use the shock absorber set -T10001- or a 19 mm socket attachment -3077- and provide support with an Allen key.
- Detach the rubber bush.

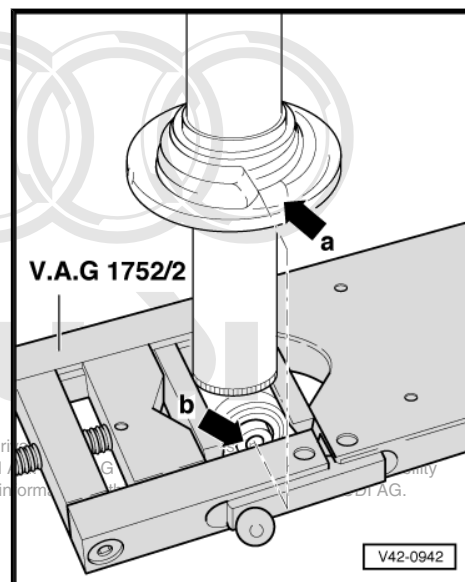


- Release the clamping lever -bottom arrow-, push up the height adjuster and swivel aside.
- Detach the corresponding components.



Assembly

- Pull the piston rod as far as it will go out of the shock absorber.
- Position the lower spring plate on the shock absorber, paying attention to the position of the spring winding stop -arrow a- with respect to the damper eye -arrow b-.
- Installation position: The stop of the spring plate faces to the rear at the right suspension strut and to the front at the left suspension strut.
- Pre-assemble the protective cap in the bellows ➔ [page 102](#).



Protected by copyright. Copying for private use is permitted unless authorised by AUDI AG. In all other cases, permission must be obtained from AUDI AG.

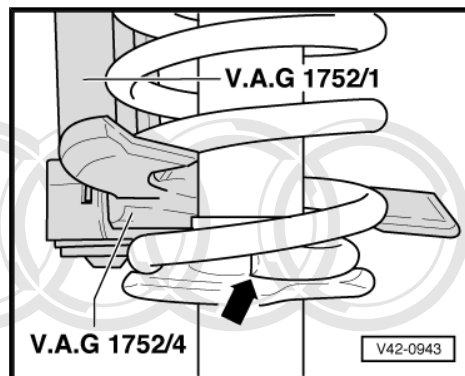
- Position the coil spring with the spring tensioner -V.A.G 1752/1- on the shock absorber.



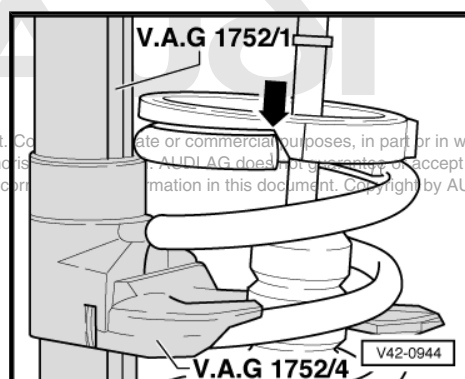
Note

The coloured mark on the coil spring must face the lower spring plate.

- Make sure the ends of the springs are in contact with the stops of the spring support and the spring seat -arrow-.

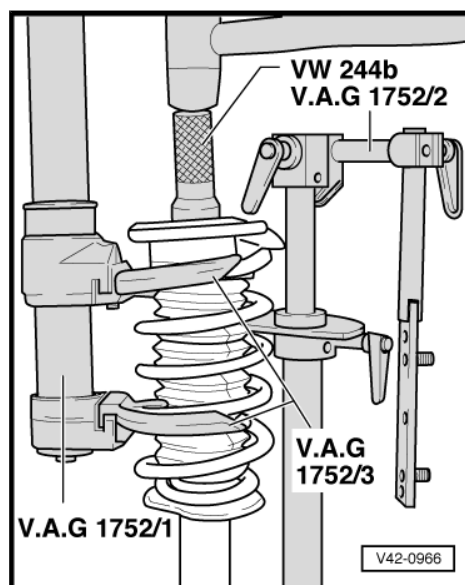


- Position the damping ring on the coil spring.
- The stop of the damping ring must make contact with the end of the spring winding.

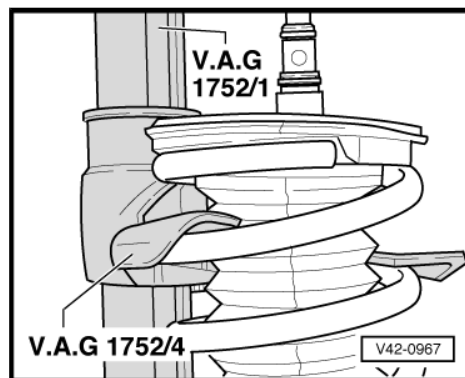


Protected by copyright. Copying or reproduction for private or commercial purposes, in part or in whole, is not permitted unless authorized by Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of the information in this document. Copyright by Audi AG.

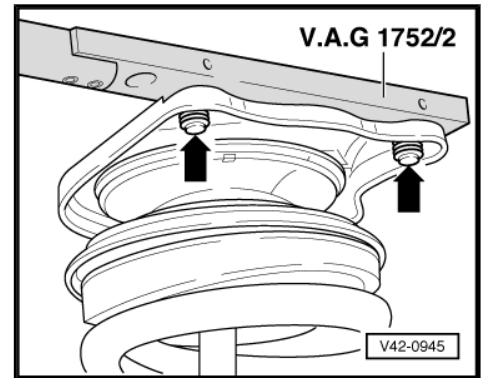
- Use the driving-on sleeve -VW 244 B- to drive home the protective cap with bellows on the damper.
- Fit the buffer stop.



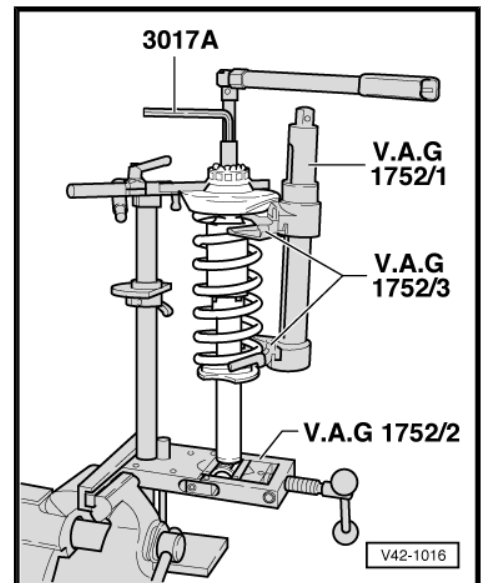
- Fold the bellows over the damping ring.
- The bellows must not be twisted when fitted.
- Fit the components corresponding to the running gear version.
- Screw on the nut.



- Set up the locking tool.
- Tighten all the clamping levers of the locking tool.
- Set the height adjuster together with the spring plate to 45°, position over the suspension strut, lower and secure.



- Tighten the nut to 30 Nm using the shock absorber wrench -3017 A- .
- Carefully slacken off the coil spring, paying attention to correct positioning of the coil spring and the upper and lower spring plates.
- As soon as the spring tensioner -V.A.G 1752/1- is free, stop slackening off and detach the spring tensioner.
- Take the suspension strut out of the suspension strut holder - V.A.G 1752/2- .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

6 Rear wheel bearing - Four-wheel drive vehicles

⇒ [“6.1 Exploded view of wheel bearing”, page 110](#)

⇒ [“6.2 Removing and installing wheel bearing housing”, page 114](#)

6.1 Exploded view of wheel bearing

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Circlip

- ☐ Ensure correct positioning
- ☐ Joint faces downwards

2 - Wheel bearing housing

- ☐ Removing and installing
⇒ [page 114](#)

3 - Wheel bearing

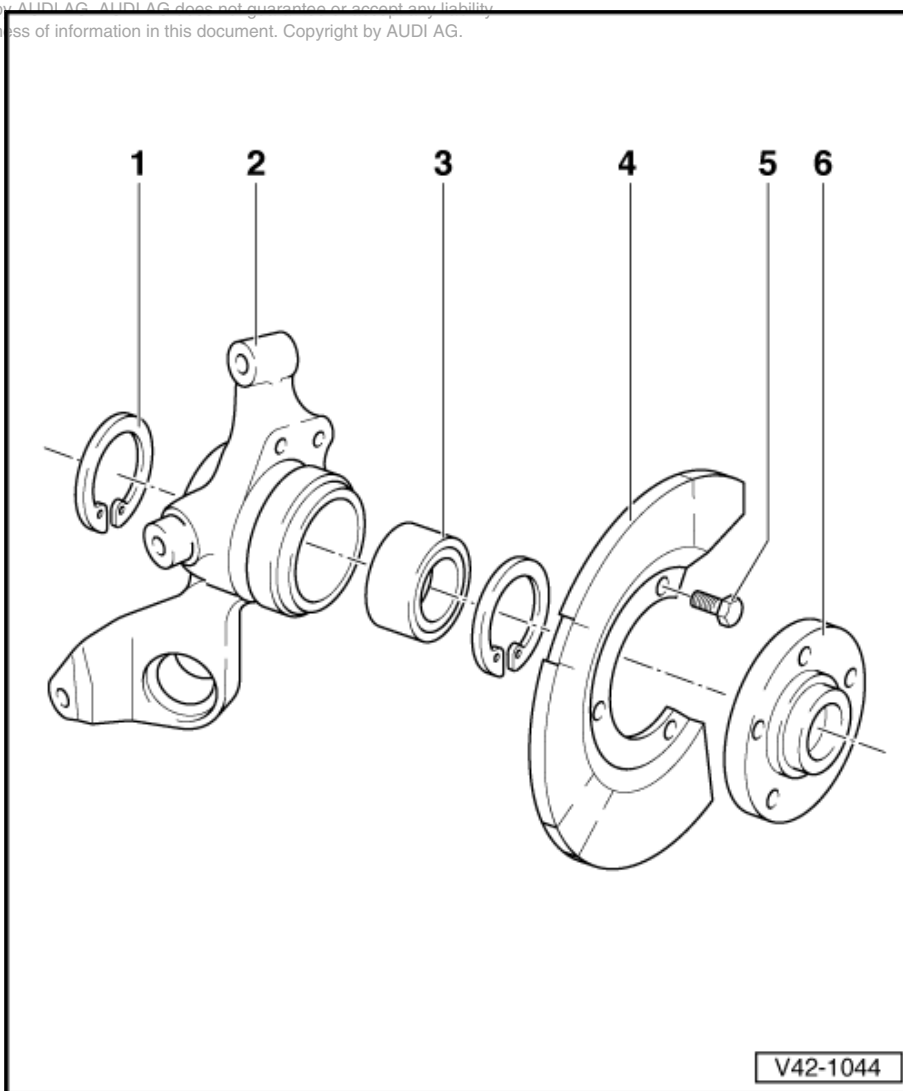
- ☐ Can also be replaced using -V.A.G 1459B- and -V.A.G 1459B/2- with the wheel bearing housing fitted
- ☐ Stepped inside diameter
- ☐ Installation position: Large inside diameter of wheel bearing facing wheel hub
- ☐ Pressing out
⇒ [page 113](#)
- ☐ Pressing in
⇒ [page 114](#)
- ☐ Detaching bearing inner race ⇒ [page 113](#)

4 - Splash plate

5 - Bolt, 10 Nm

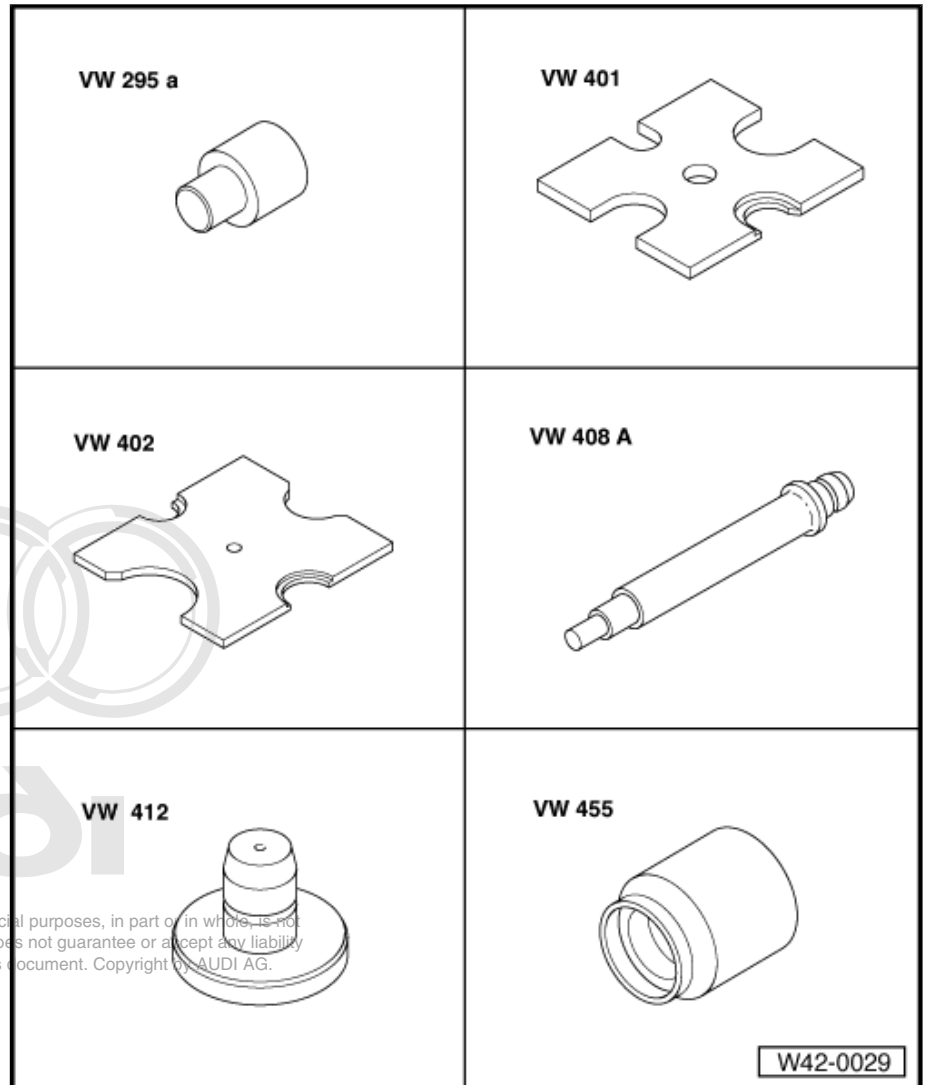
6 - Wheel hub

- ☐ Can also be replaced using -V.A.G 1459B- and -V.A.G 1459B/2- with the wheel bearing housing fitted
- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Pressing out ⇒ [page 112](#)
- ☐ Pressing in ⇒ [page 113](#)



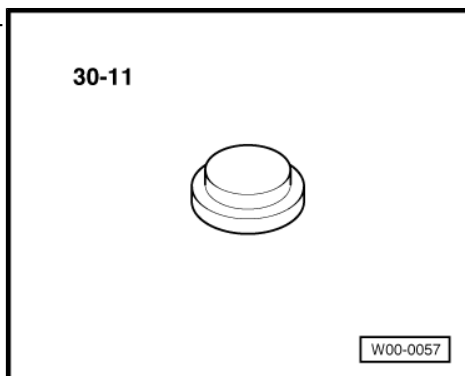
Special tools and workshop equipment required

- ◆ Adapter -VW 295 A-
- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 408 A-
- ◆ Press tool -VW 412-
- ◆ Pressing-on sleeve -VW 455-

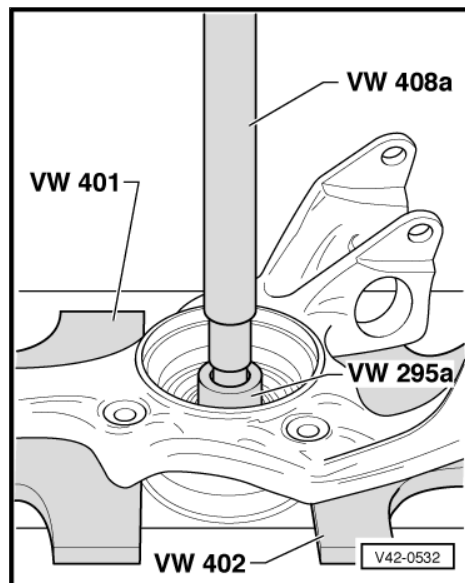
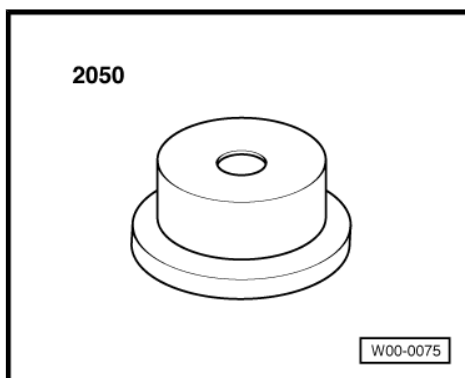


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

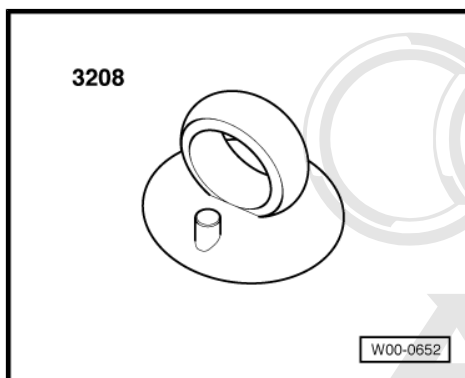
◆ Thrust plate -30 - 11-



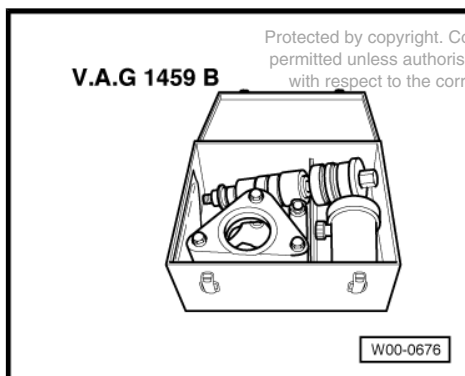
◆ Thrust pad -2050-



◆ Suction grip -3208-



◆ Hydraulic removal and installation tool - V.A.G 1459B- with supplementary set - V.A.G 1459B/2-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Pressing out wheel hub

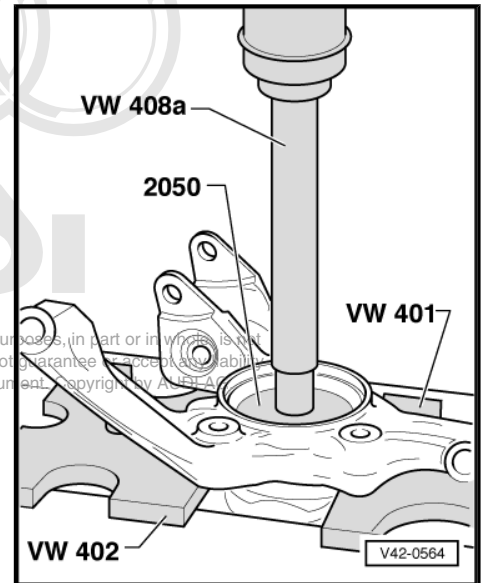
Pressing wheel bearing out of wheel bearing housing



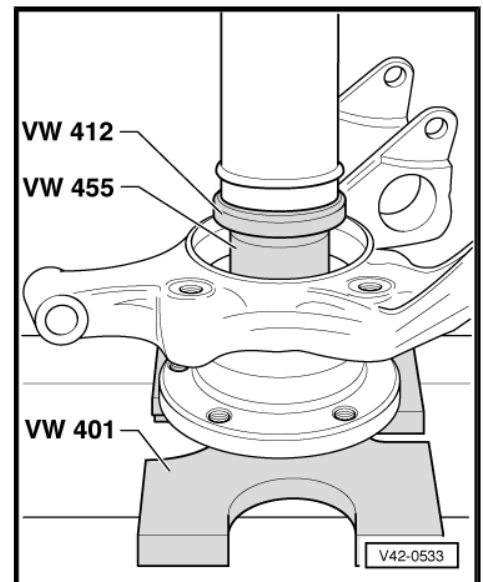
Note

Start by removing the circlip.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy or availability with respect to the correctness of information in this document. Copyright © 2008 Audi AG

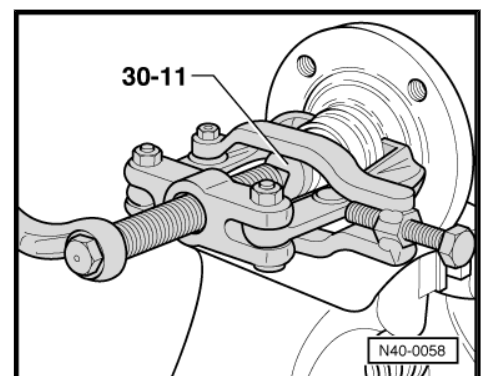


Pressing wheel hub into wheel bearing



Detaching bearing inner race from wheel hub

Always use a puller with tensioner e.g. -Kukko 204-2- .

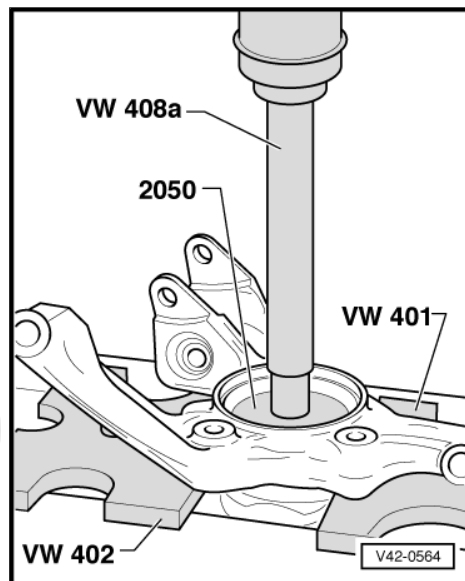


Pressing wheel bearing into wheel bearing housing



Note

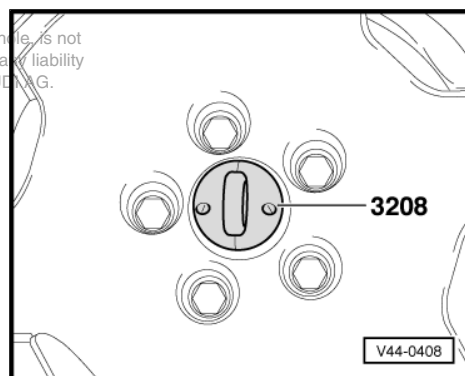
Insert circlip.



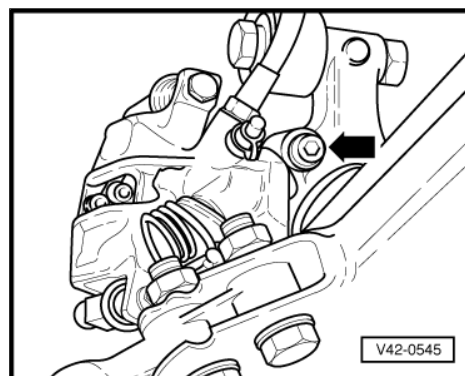
6.2 Removing and installing wheel bearing housing

Removing

- Detach the wheel trim. Use the suction grip -3208- to remove the trim cap on vehicles with light alloy disc wheels.
- Screw out the drive shaft bolt (only slacken off with vehicle standing on its wheels - risk of accident).
- Remove the wheels.



- Unscrew the brake caliper and secure with a piece of wire such that the weight of the brake caliper does not strain or damage the brake hose.
- Detach the brake disc.

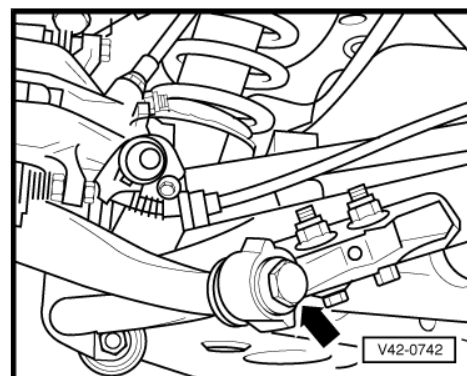
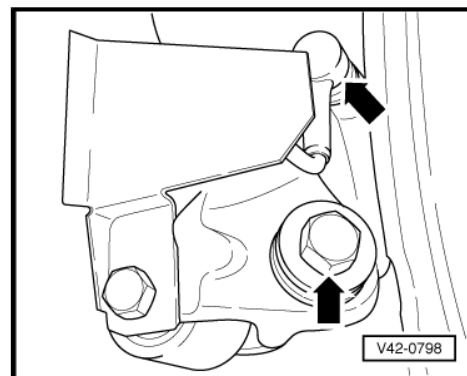


- Remove the wheel bearing housing/trapezium link connection -lower arrow-.
- Pull the ABS speed sensor out of the wheel bearing housing.

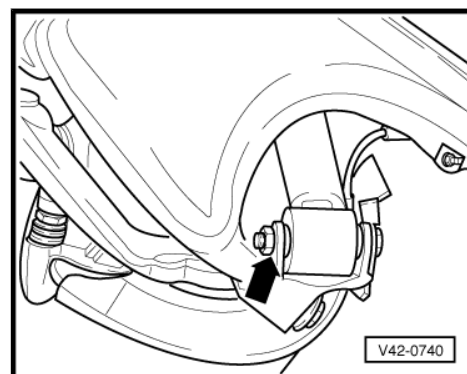
Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Unscrew the wheel bearing housing from the mounting bracket.



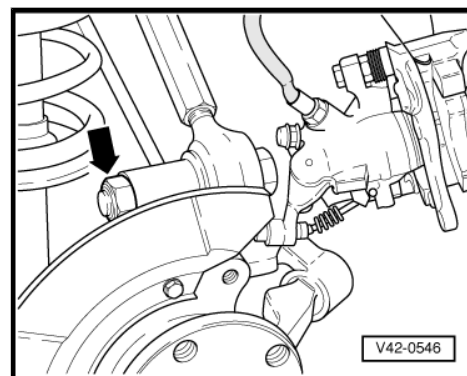
- Remove the suspension strut connection -arrow-.
- Unscrew the connecting link holder on vehicles with an anti-roll bar at the rear.



- Unscrew the transverse link from the wheel bearing housing.
- Detach the wheel bearing housing from the drive shaft.

Installing

- Secure the drive shaft to the wheel hub with a new bolt, tighten to 190 Nm and give a further 180° turn.



WARNING

Risk of accident.

- ◆ *The vehicle must be standing on its wheels when slackening off and tightening.*

7 Rear drive shaft - Four-wheel drive vehicles

⇒ "7.1 General", page 116

⇒ "7.2 Exploded view of drive shaft", page 116

⇒ "7.3 Removing and installing drive shaft", page 119

⇒ "7.4 Quantities and type of grease", page 120

7.1 General



Note

Heed the general information ⇒ [page 2](#).

7.2 Exploded view of drive shaft

1 - Circlip

- ☐ Use commercially available circlip pliers for removing and installing

2 - Seal

- ☐ Replace
- ☐ Detach the backing and bond into the joint
- ☐ Not on vehicles with 4-cyl. engine

3 - Inner constant velocity joint

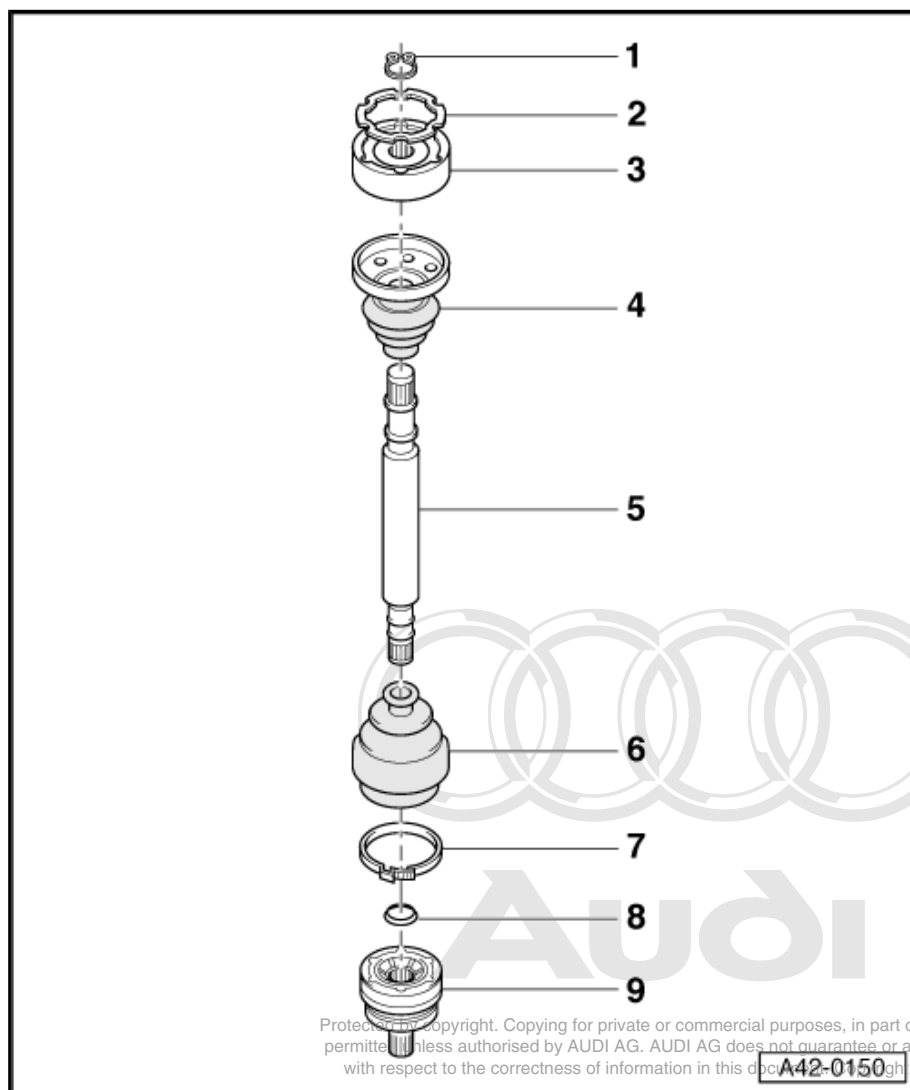
- ☐ Different outside diameters ⇒ Electronic parts catalogue
- ☐ Replace as a complete unit
- ☐ Pressing off
⇒ [page 118](#)
- ☐ Pressing on
⇒ [page 118](#)

4 - Inner constant velocity joint boot

- ☐ With vent hole for joint diameters 100 and 108 mm
- ☐ Check for cracks and abrasion
- ☐ Drive off with mandrel
- ☐ Before attaching to constant velocity joint, apply sealant to sealing surface; for sealant refer to ⇒ Electronic parts catalogue

5 - Profile shaft

- ☐ Same length on left and right



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. A42-0150

6 - Boot

- ☐ Check for cracks and abrasion

7 - Clamp

- ☐ Replace
- ☐ Tensioning ⇒ [page 119](#)

8 - Circlip

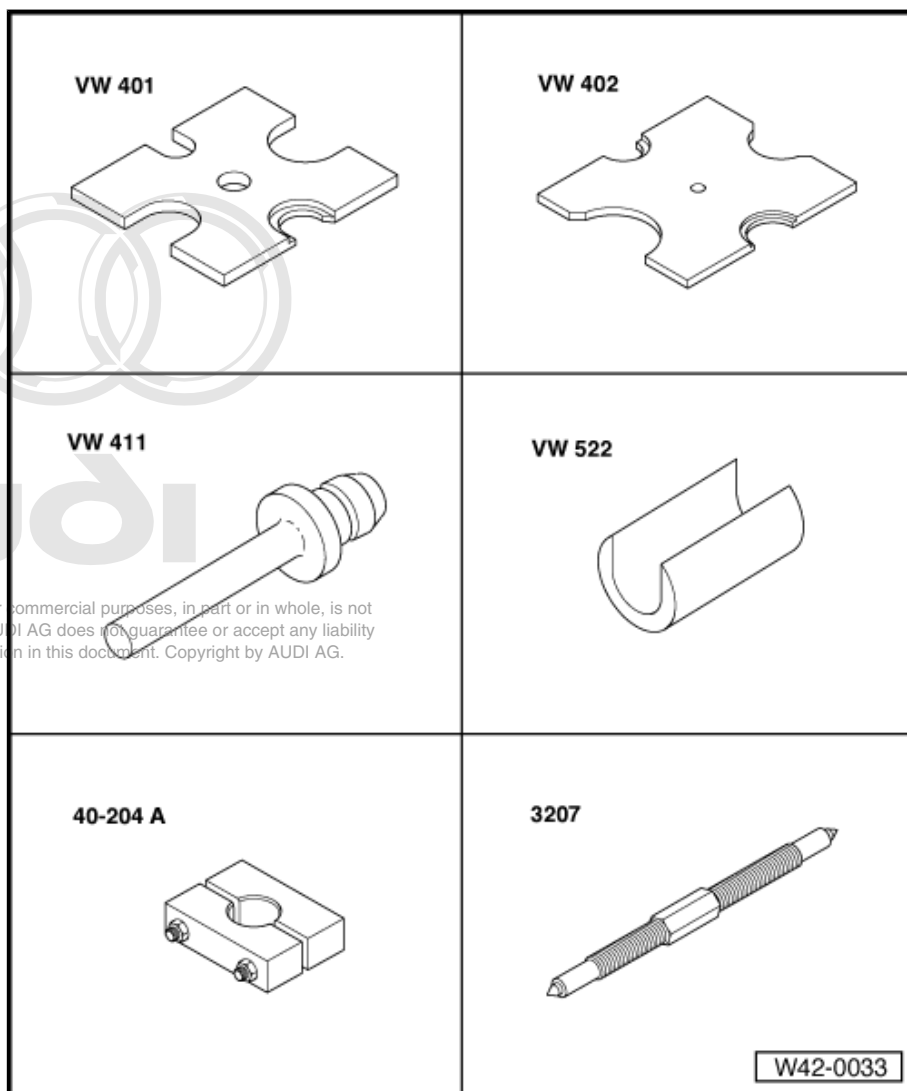
- ☐ Always replace after removing
- ☐ Insert in shaft groove

9 - Outer constant velocity joint

- ☐ Different outside diameters ⇒ Electronic parts catalogue
- ☐ Replace as a complete unit
- ☐ Pressing off ⇒ [page 119](#)
- ☐ Installing: Drive onto the shaft with a plastic-headed hammer until the circlip engages

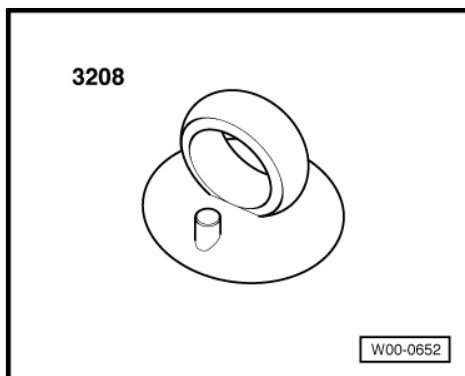
Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 411-
- ◆ Support sleeve -VW 522-
- ◆ Tensioner -40 - 204 A-
- ◆ Pressure screw -3207-

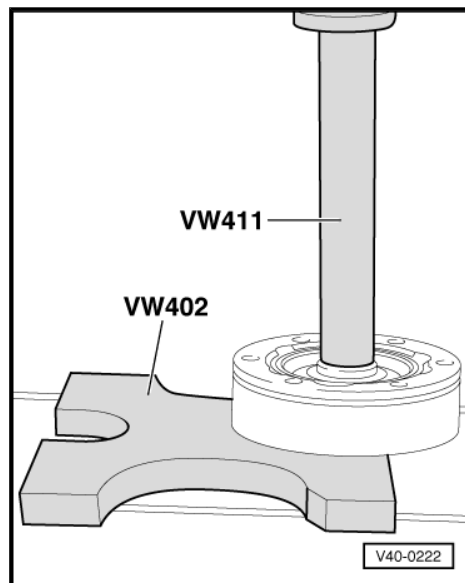
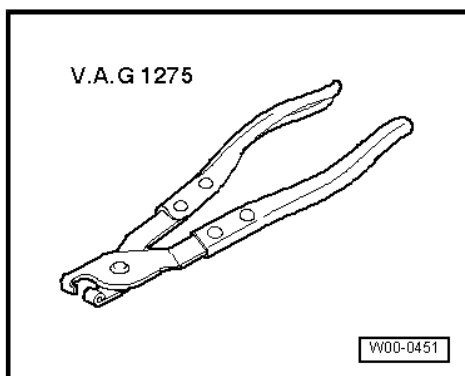


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

◆ Suction grip -3208-



◆ Hose clamp pliers - V.A.G 1275-



Pressing off inner constant velocity joint



Note

- ◆ *Use a mandrel to drive off the boot beforehand.*
- ◆ *Support the ball hub.*

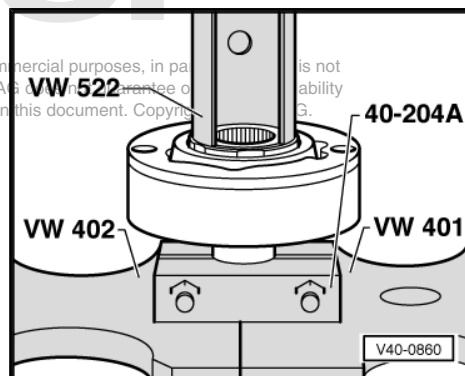
Pressing on inner constant velocity joint



Note

The chamfer at the inside diameter of the ball hub (splines) must face the contact collar of the drive shaft.

- Press home the joint.
- Insert the circlip.

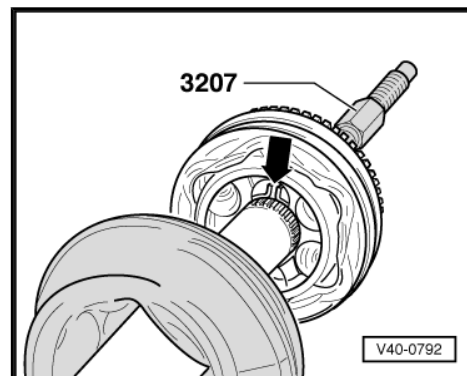


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. Copyright

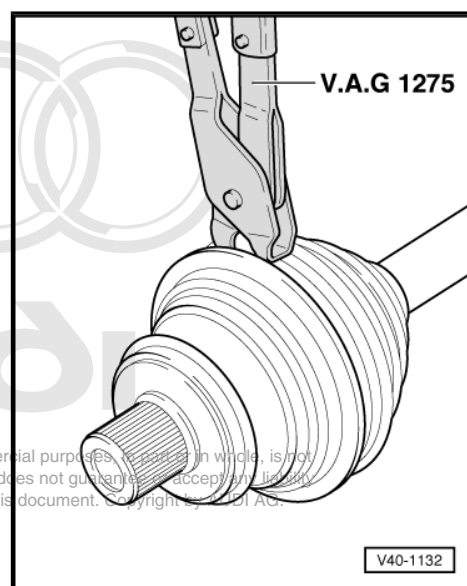
is not liability G.

Pressing off outer constant velocity joint

- Clamp the drive shaft in a vice with soft jaws.
- Detach the large clamp and fold back the boot.
- Spread the circlip -arrow- and at the same time screw in the M16 threaded end of the pressure screw -3207- until the constant velocity joint is pressed off the profile shaft.



Tensioning clamp

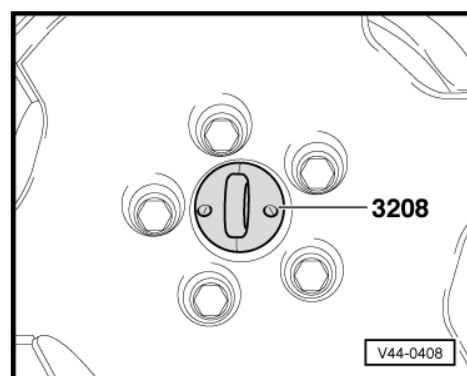


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

7.3 Removing and installing drive shaft

Removing

- Detach the wheel trim. Use the suction grip -3208- to remove the trim cap on vehicles with light alloy disc wheels.
- Screw out the drive shaft bolt (only slacken off with vehicle standing on its wheels - risk of accident).
- Raise the vehicle.
- Remove the wheels.

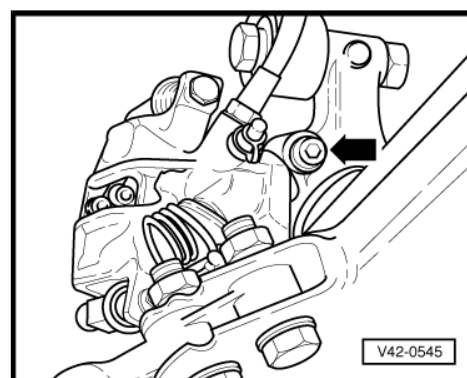


- Unscrew the brake caliper and secure with a piece of wire such that the weight of the brake caliper does not strain or damage the brake hose.
- Detach the brake disc.

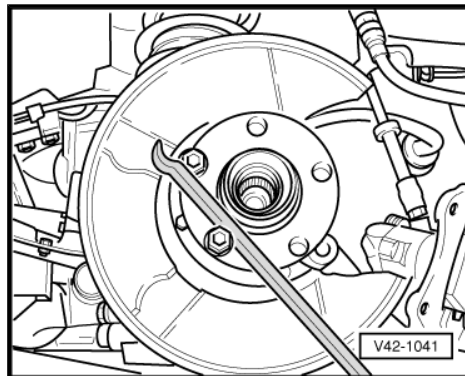


Note

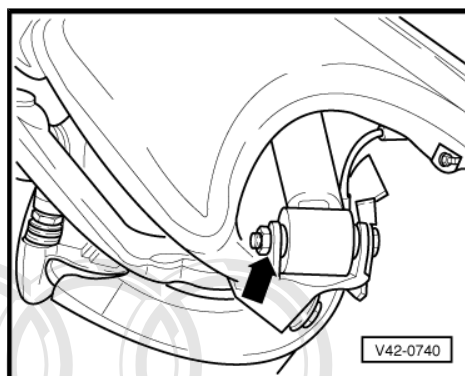
- ◆ Remove the heat shield for the inner joint when taking out the left drive shaft.
- ◆ Remove the cover plate for the fuel tank when taking out the right drive shaft.



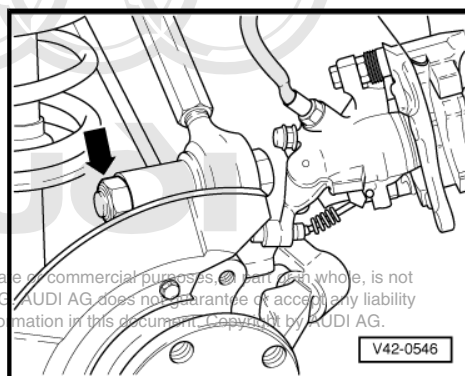
- Screw the wheel bolts into the wheel hub and secure the wheel hub with a tyre lever to prevent it turning.
- Unscrew the drive shaft from the drive flange.
- Pull the ABS speed sensor slightly out of the axle support.



- Remove the suspension strut connection -arrow-.



- Unscrew the transverse link from the wheel bearing housing.
- Swivel aside the wheel bearing housing downwards.
- If necessary, use a plastic-headed hammer to knock the drive shaft out of the wheel hub.
- Take out the drive shaft.



Installing

- Secure the drive shaft to the wheel hub with a new bolt, tighten to 190 Nm and give a further 180° turn.

This document is not to be reproduced, stored in a retrieval system or used for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



WARNING

Risk of accident.

- ♦ *The vehicle must be standing on its wheels when slackening off and tightening.*

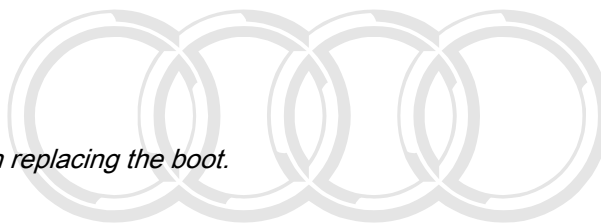
7.4 Quantities and type of grease

Joint			Grease fill of constant velocity joints; Grease ⇒ Electronic parts catalogue		
			Total quantity g	Joint g	Bellows g
Outer joint	Ø mm	89	90	40	50
		98	120	80	40
Inner joint	Ø mm	100	80	30	50
		108	120	35	85



Note

Re-grease the joint if necessary on replacing the boot.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

43 – Self-levelling suspension

1 Self-levelling suspension - Front-wheel drive vehicles

⇒ [“1.1 General”, page 122](#)

⇒ [“1.2 Exploded view of self-levelling suspension”, page 122](#)

⇒ [“1.3 Checking operation of control valve”, page 129](#)

⇒ [“1.4 Checking control valve for leaks”, page 129](#)

⇒ [“1.5 Checking pressure container”, page 130](#)

⇒ [“1.6 Adjusting self-levelling suspension”, page 132](#)

1.1 General

- ◆ The self-levelling suspension is set by way of an adjustable-length connecting link between the self-levelling control valve and a lever attached to the anti-roll bar of the rear axle
⇒ [page 142](#).

- ◆ Provide support for the corresponding components when tightening pipe unions.

- ◆ When the fluid circuit has been opened, always:

- Check all unions for leaks, start the engine and perform a visual inspection.
- Check the hydraulic fluid level with the vehicle unladen and top up if necessary ⇒ [page 276](#).

- ◆ The system is vented automatically whilst driving.

1.2 Exploded view of self-levelling suspension

Reservoir, suction hose, return pipe, connector



Note

Items -1 ... 9- apply to all vehicles.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Clamp

2 - Return hose

- ☐ Between rotary slide valve housing and connector

3 - Connector

4 - Return pipe

- ☐ Between self-levelling control valve and connector

5 - Return pipe

- ☐ Between connector and reservoir

6 - Reservoir

- ☐ Fresh fill with hydraulic fluid, capacity 2.5 l; for hydraulic fluid refer to ➔ Electronic parts catalogue
- ☐ Checking hydraulic fluid level with vehicle unladen ➔ [page 276](#)

7 - Coolant hose

8 - Suction hose

- ☐ Between reservoir and tandem pump

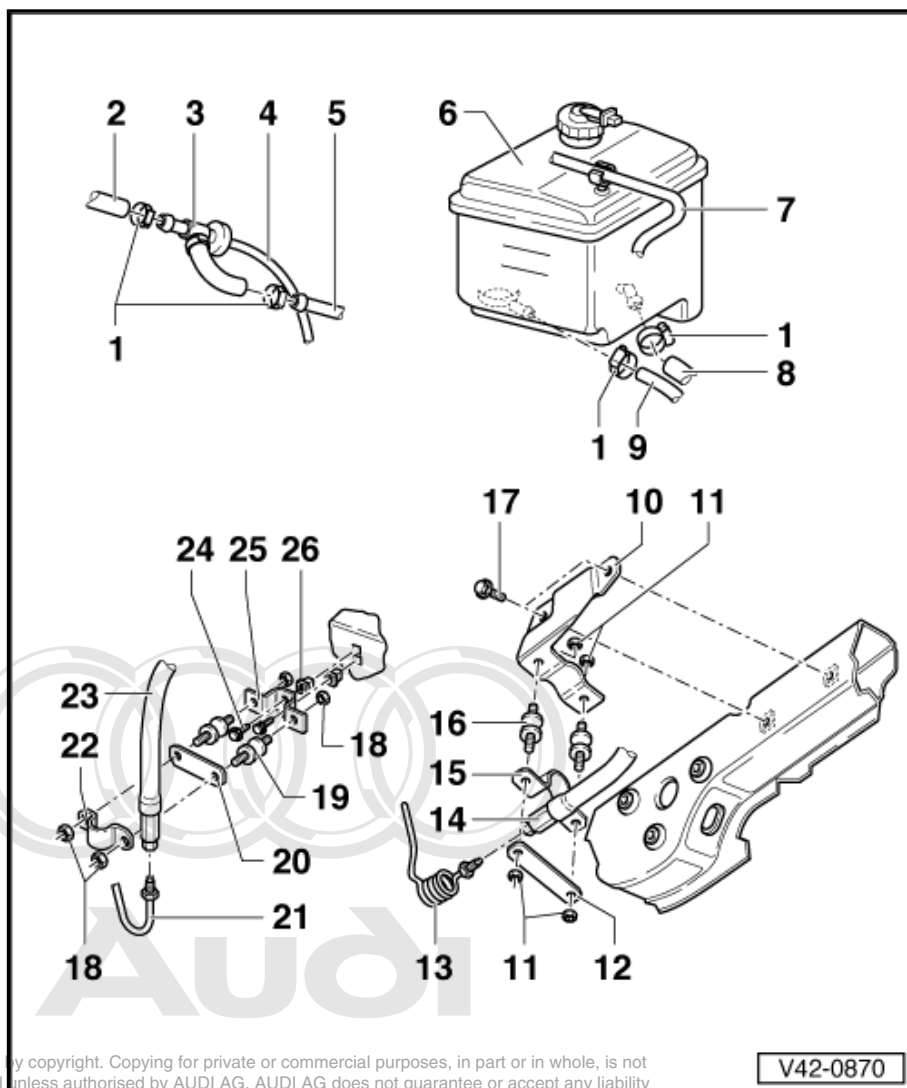
9 - Return pipe

- ☐ Between connector and reservoir



Note

Items -10 ... 17- only apply to vehicles with 6-cyl. engine.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

10 - Holder

11 - Nut, 10 Nm

12 - Retaining plate

13 - Pipe

- ☐ Between expansion hose and control valve

14 - Expansion hose

- ☐ Between pump and clip at longitudinal member

15 - Clip

16 - Buffer

17 - Combi bolt, 35 Nm



Note

Items -18 ... 26- only apply to vehicles with 4 and 5-cyl. engines.

18 - Nut, 10 Nm

19 - Buffer

20 - Retaining plate

21 - Pipe

- ☐ Between expansion hose and control valve

22 - Clip

23 - Expansion hose

- ☐ Between pump and clip at longitudinal member

24 - Self-tapping screw, 8 Nm

25 - Holder

26 - Clip

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Right pressure container, pressure pipe, self-levelling control valve

27 - Direction of travel

28 - Nut, 20 Nm

29 - Right suspension strut

- ☐ Exploded view
⇒ [page 19](#)

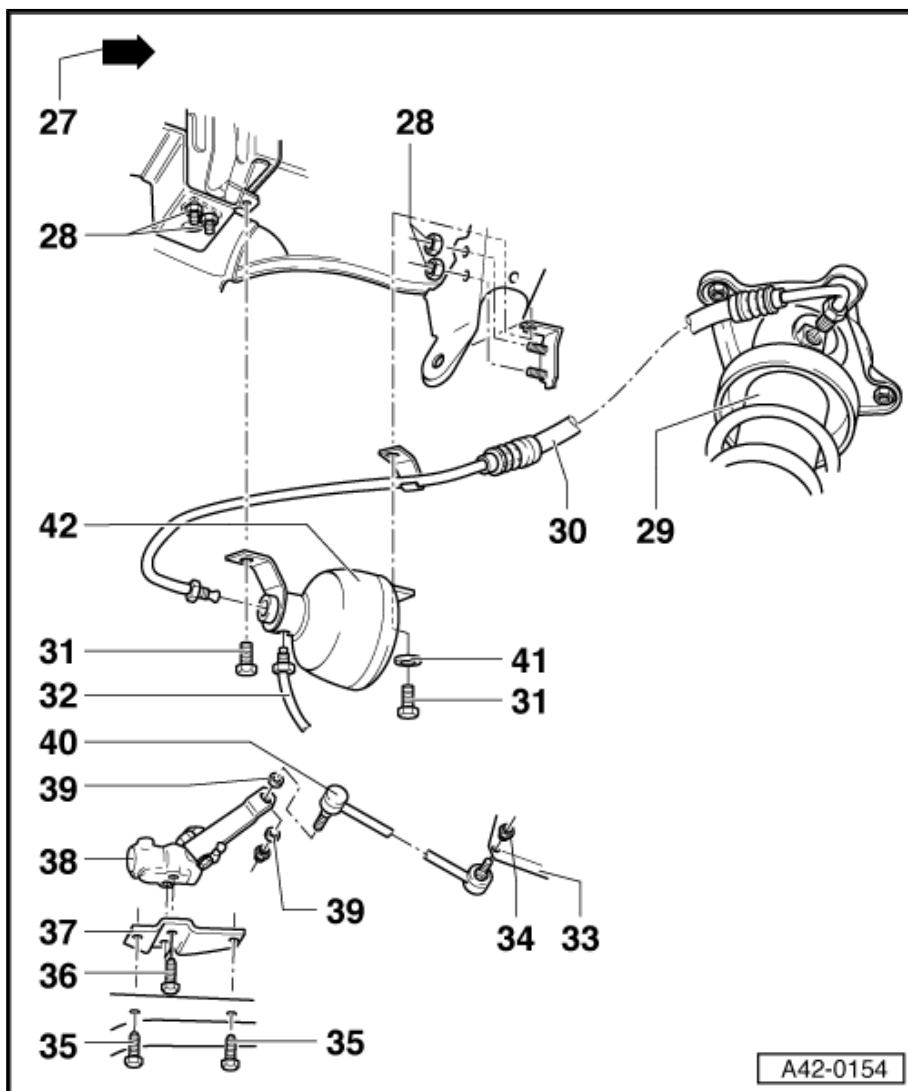
30 - Pressure pipe

- ☐ Between right suspension strut and right pressure container
- ☐ Replacement part of heavy-duty design ⇒ Electronic parts catalogue
- ☐ On replacing the pressure pipes, the connection piece
⇒ [Item 5 \(page 56\)](#) must also be renewed as only heavy-duty M16x1.5 pressure pipes are now available
- ☐ Installation position of pressure pipes: Saloon
⇒ [page 128](#) , Avant
⇒ [page 128](#)
- ☐ Tightening torque for union nuts: 40 Nm
- ☐ Unscrewing
⇒ [page 128](#)

31 - Bolt, 20 Nm

32 - Pipe

- ☐ Between pressure container and self-levelling



A42-0154

control valve

33 - Rear axle

34 - Self-locking nut, 5 Nm

35 - Bolt, 20 Nm

36 - Combi bolt, 10 Nm

37 - Holder

38 - Self-levelling control valve

- ☐ Pipe connections ➔ [page 127](#)
- ☐ Checking operation ➔ [page 129](#)
- ☐ Checking for leaks ➔ [page 129](#)

39 - Washer

40 - Connecting link

- ☐ Self-levelling control valve - rear axle

41 - Washer

42 - Right pressure container

- ☐ As-new charge pressure at 20 °C: 24 ... 25 bar
- ☐ Minimum charge pressure at 20 °C: 15 bar
- ☐ Checking pressure container ➔ [page 130](#)
- ☐ Disposal ➔ [page 4](#)
- ☐ Different installation position ➔ [page 128](#)

**Left pressure container, brake pressure regulator, pressure pipe,
connector**

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

43 - Direction of travel

44 - Pipe

- ☐ Connector - self-leveling control valve

45 - Connector

- ☐ On introduction of ABS "Bosch 5.0" as of Model Year 1995, the pipe
⇒ [Item 47 \(page 126\)](#)
was replaced by an additional vent valve
⇒ [Item 48 \(page 126\)](#)

46 - Brake pressure regulator

- ☐ Cannot be adjusted
- ☐ Discontinued on introduction of ABS "Bosch 5.0" as of Model Year 1995

47 - Pipe

- ☐ Between connector and brake pressure regulator
- ☐ Discontinued on introduction of ABS "Bosch 5.0" as of Model Year 1995

48 - Vent valve, 15 Nm

- ☐ Unfasten to dissipate pressure

49 - Washer

50 - Bolt, 20 Nm

51 - Bolt, 10 Nm

52 - Pipe

- ☐ Connector - left pressure container

53 - Left pressure container

- ☐ As-new charge pressure at 20 °C: 24 ... 25 bar
- ☐ Minimum charge pressure at 20 °C: 15 bar
- ☐ Checking pressure container ⇒ [page 130](#)
- ☐ Disposal ⇒ [page 4](#)

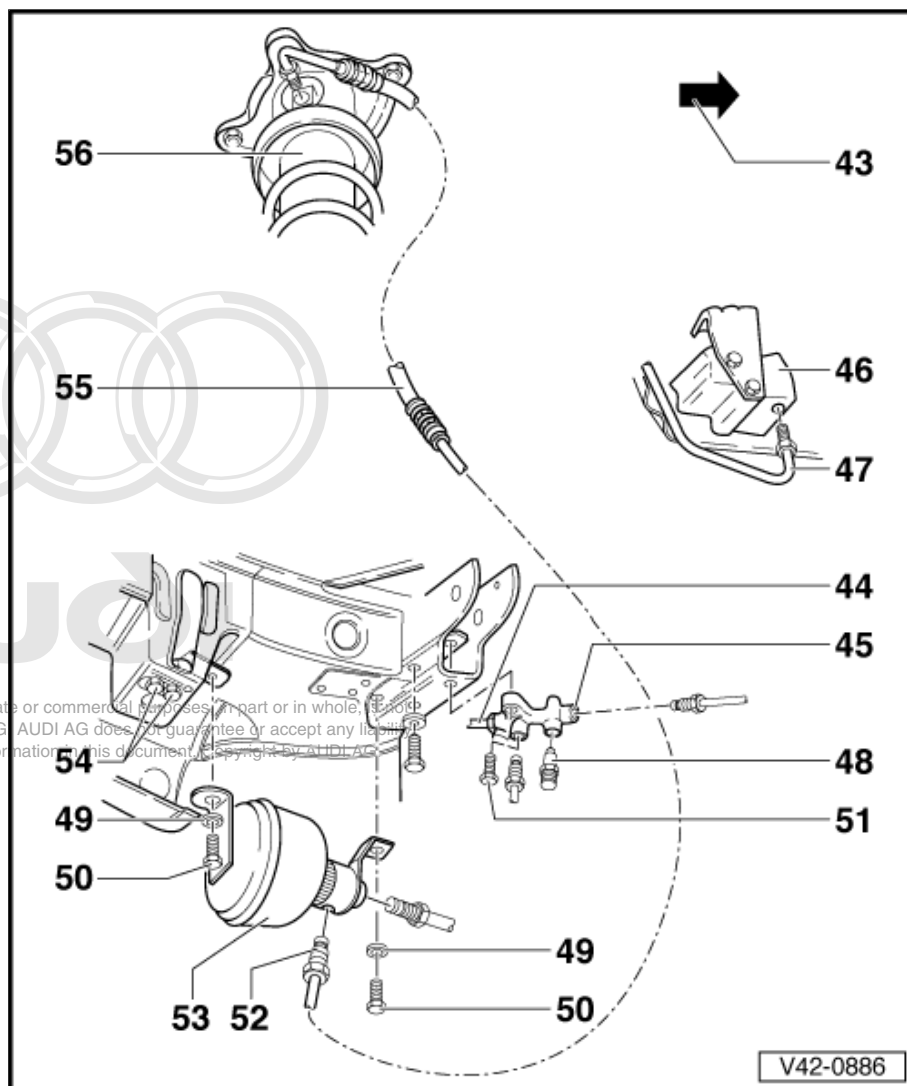
54 - Nut, 20 Nm

55 - Pressure pipe

- ☐ Between left suspension strut and left pressure container
- ☐ Replacement part of heavy-duty design ⇒ Electronic parts catalogue
- ☐ On replacing the pressure pipes, the connection piece ⇒ [Item 5 \(page 56\)](#) must also be renewed as only heavy-duty M16x1.5 pressure pipes are now available
- ☐ Installation position of pressure pipes: Saloon ⇒ [page 128](#) , Avant ⇒ [page 128](#)
- ☐ Tightening torque for union nuts: 40 Nm
- ☐ Unscrewing ⇒ [page 128](#)

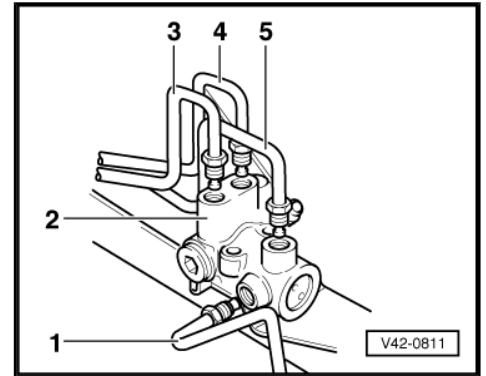
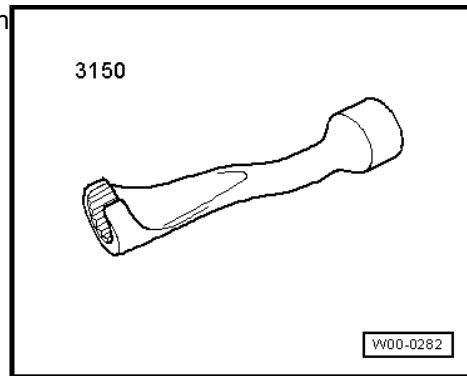
56 - Right suspension strut

- ☐ Exploded view ⇒ [page 19](#)

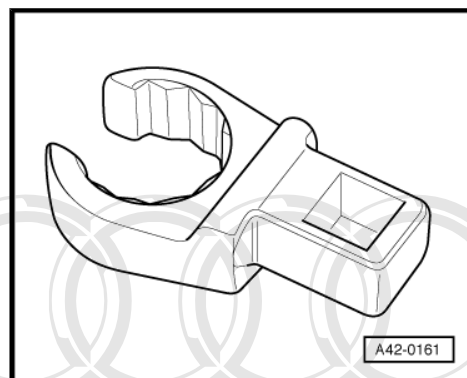


Special tools and workshop equipment required

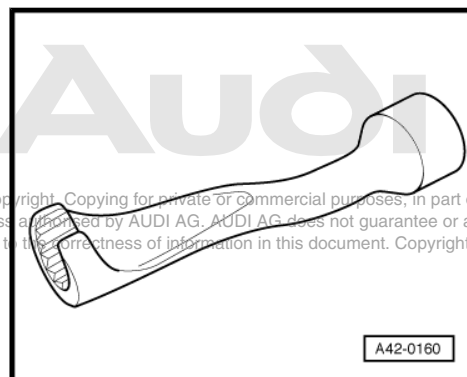
- ◆ 14 mm socket wrench -3150-



- ◆ 17 mm Crow ring spanner (e.g. from Stahlwille) or



- ◆ 17 mm open twelve-point socket attachment (e.g. from Hazet)



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Self-levelling control valve pipe connections

- 1 - Pipe: Control valve - right pressure container
- 2 - Self-levelling control valve
- 3 - Pressure pipe: Tandem pump - self-levelling control valve
- 4 - Return pipe: Self-levelling control valve - manifold in engine compartment

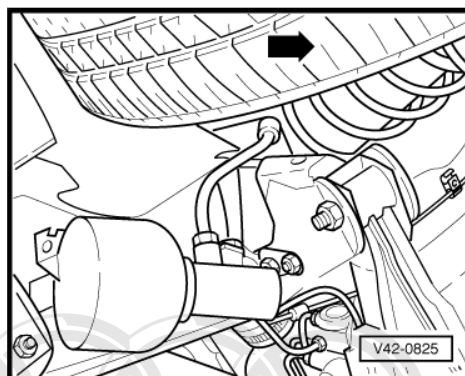
- 5 - Pipe: Self-levelling control valve - connector

Installation position of right pressure container on Avant



Note

The -arrow- points in the direction of travel.



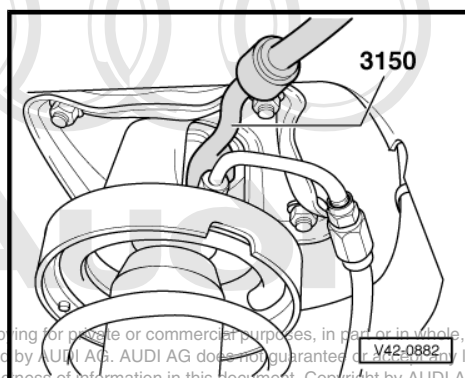
Unscrewing and screwing on hydraulic pipe

- ◆ For standard hydraulic pipe: 14 mm socket wrench -3150- .
- ◆ For heavy-duty hydraulic pipe: 17 mm Crow ring spanner (e.g. from Stahlville) or 17 mm open twelve-point socket attachment (e.g. from Hazet).



Note

- ◆ Conversion to the heavy-duty pressure pipe also involves replacing the connection piece ⇒ [Item 5 \(page 56\)](#).
- ◆ The suspension strut has to be removed ⇒ [page 51](#) and dismantled ⇒ [page 57](#) for this purpose.



Tightening torque for union nuts: 40 Nm.

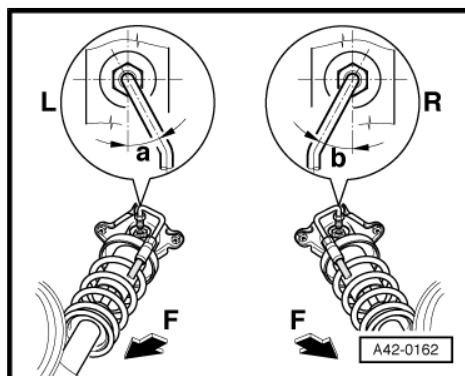
Installation position of pressure pipes for self-levelling suspension - Saloon

- a - Installation angle of pressure pipe on left side of vehicle approx. 30°
b - Installation angle of pressure pipe on right side of vehicle approx. 20°

L - Left side of vehicle

R - Right side of vehicle

F - Direction of travel



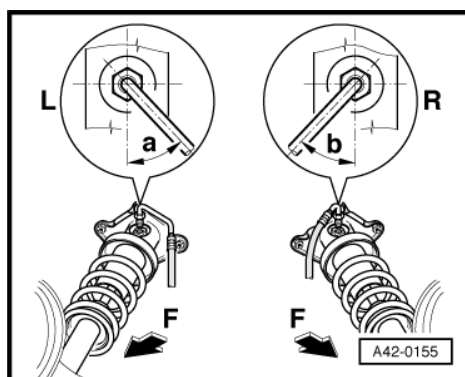
Installation position of pressure pipes for self-levelling suspension - Avant

- a - Installation angle of pressure pipe on left side of vehicle approx. 80°
b - Installation angle of pressure pipe on right side of vehicle approx. 65°

L - Left side of vehicle

R - Right side of vehicle

F - Direction of travel



1.3 Checking operation of control valve

Sequence of operations

- Leave the engine idling. The vehicle must be standing on its wheels.

Checking raising function

- Load the luggage compartment with approx. 100 kg (2 people).
- The rear of the vehicle must be raised (time required: up to approx. 2 minutes).

Checking lowering function

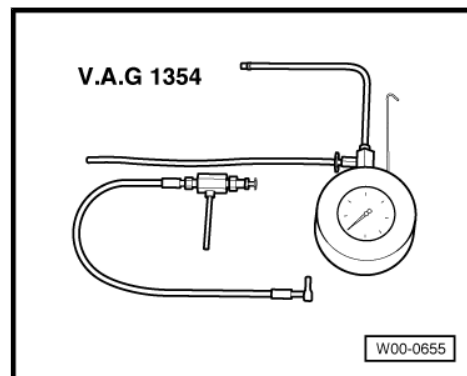
- Remove the load from the luggage compartment.
- The vehicle must be lowered again after extension of the suspension.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for errors or omissions in this document. Copyright by AUDI AG.

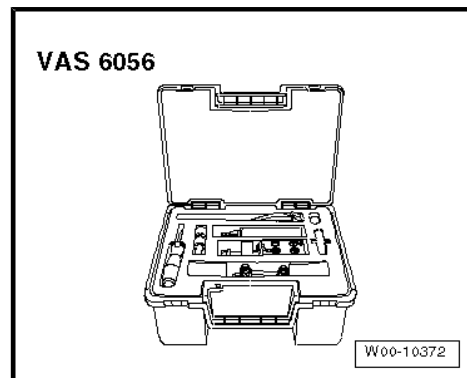
1.4 Checking control valve for leaks

Special tools and workshop equipment required

- ◆ Self-levelling suspension system tester -V.A.G 1354-

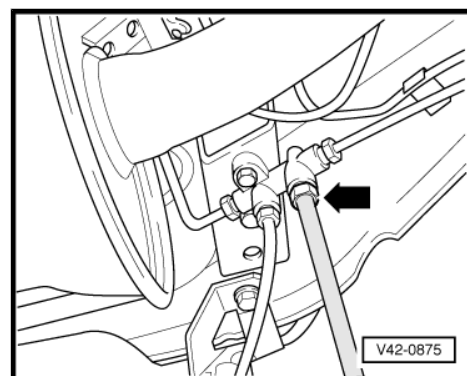


- ◆ Flanging device for brake pipes -VAS 6056-



Sequence of operations

- Detach the dust cap from the bleed screw.
- Attach the bleed hose of the self-levelling suspension system tester -V.A.G 1354- to the bleed screw.
- Open the bleed screw and collect the hydraulic fluid emerging with a suitable vessel.
- Close the bleed screw at the connector.
- Detach the bleed hose from the bleed screw of the connector and attach to the bleed screw of the pressure tester.



- Unscrew the pressure pipe at the brake pressure regulator -arrow-.

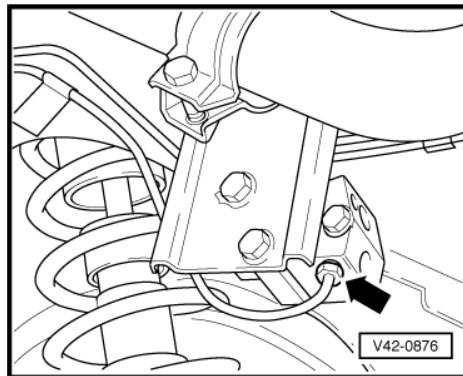
Vehicles with no brake pressure regulator:



Note

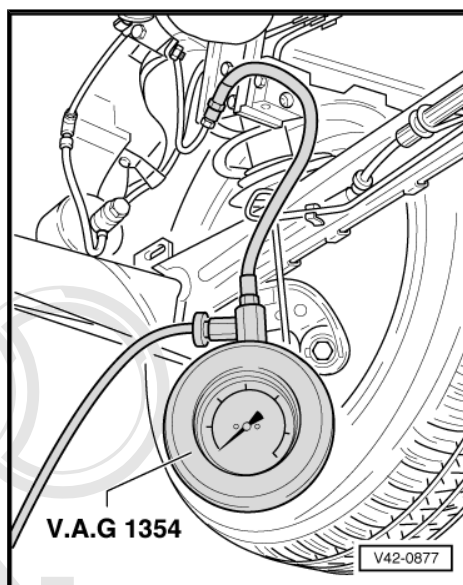
The load-sensitive brake pressure regulator was discontinued on introduction of ABS "Bosch 5.0" as of Model Year 1995. A further bleed screw is thus fitted in place of the pressure pipe.

- Connection of the self-levelling suspension system tester - V.A.G 1354- requires a further brake pipe as adapter between the connector and the pressure tester.
- This pipe should be produced using the flanging tool from the flanging device for brake pipes -VAS 6056- .



All vehicles (continued):

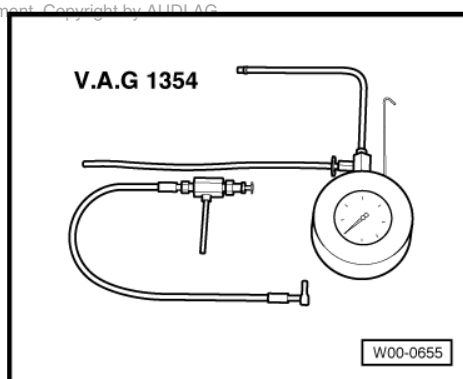
- Connect the self-levelling suspension system tester -V.A.G 1354- to the pressure pipe.
- Load the luggage compartment with approx. 100 kg.
- Start the engine and let it idle.
- Observe the reading on the pressure gauge and switch off the ignition at approx. 50 bar. Note down the gauge pressure.
- Leave the vehicle for roughly 3 hours.
- Check the reading on the pressure gauge: Max. pressure drop 5 bar.
- If the drop in pressure is more than 5 bar, the control valve is leaking and should be replaced.
- Remove the self-levelling suspension system tester -V.A.G 1354- .
- Check the hydraulic fluid level in the reservoir and replenish the fluid if necessary.



1.5 Checking pressure container

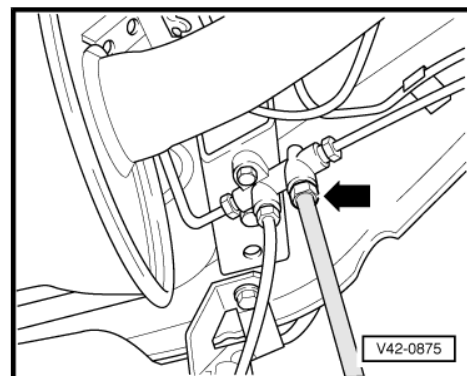
Special tools and workshop equipment required

- ♦ Self-levelling suspension system tester -V.A.G 1354-



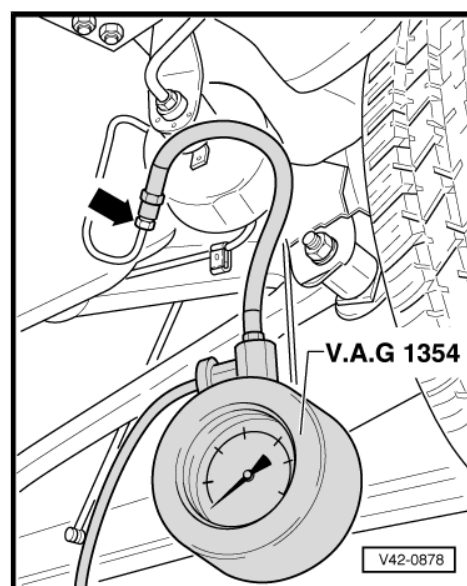
Sequence of operations

- Detach the dust cap from the bleed screw.
- Attach the bleed hose of the self-levelling suspension system tester -V.A.G 1354- to the bleed screw.
- Open the bleed screw and collect the hydraulic fluid emerging with a suitable vessel.
- Close the bleed screw at the connector.
- Detach the bleed hose from the bleed screw of the connector and attach to the bleed screw of the pressure tester.

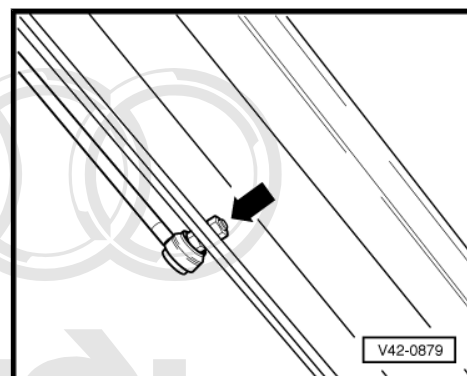


Checking left pressure container:

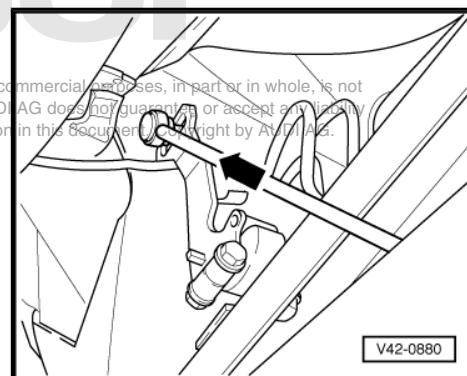
- Unscrew the pipe at the right pressure container and connect up the self-levelling suspension system tester -V.A.G 1354- .



- Adjust the linkage in the direction of travel.



- Move the linkage upwards as far as it will go.
- Leave the engine idling.
- Observe the reading on the pressure gauge and switch off the ignition at approx. 30 bar.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorized by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Carefully open the bleed screw of the self-levelling suspension system tester -V.A.G 1354- until the pressure gauge pointer slowly drops.
- Use a suitable vessel to collect the hydraulic fluid emerging.

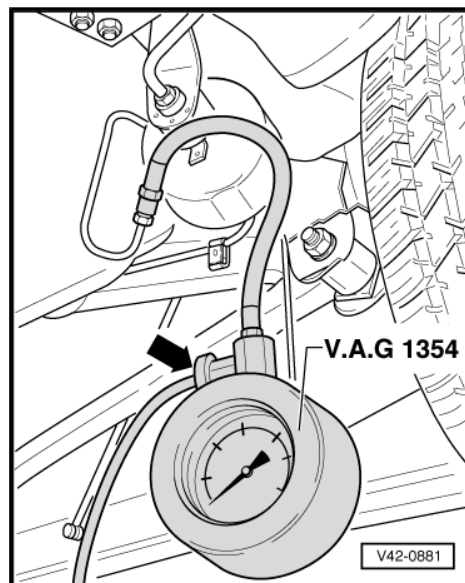


Note

- ◆ *The pressure at which the pointer stops dropping slowly and drops abruptly to 0 bar is the charge pressure of the pressure container.*
- ◆ *Specification: 15 ... 25 bar*

Checking right pressure container:

- Unscrew the pipe at the left pressure container and connect up the self-levelling suspension system tester -V.A.G 1354- .
- Further testing is the same as for the left pressure container.
- Conclude by attaching the dust cap to the bleed screw at the connector and checking the hydraulic fluid level with the vehicle unladen; top up if necessary ➔ [page 276](#) .



Note

If the charge pressure is close to the minimum pressure (15 bar), e.g. left pressure container 15 bar and right pressure container 16.5 bar, it is advisable to replace both pressure containers.

1.6 Adjusting self-levelling suspension

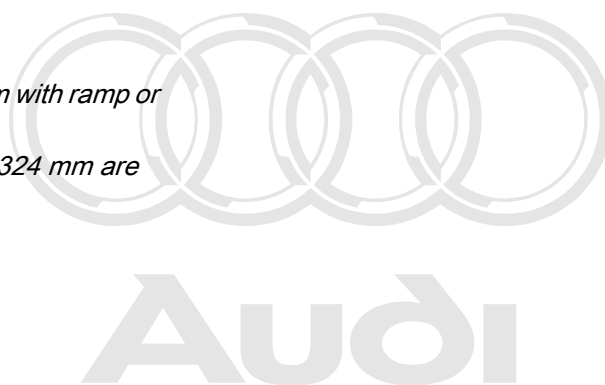
Special tools and workshop equipment required

- ◆ Ø 4 mm bit



Note

- ◆ *Adjustment is best performed on a lifting platform with ramp or over a pit.*
- ◆ *Two wooden adjusting blocks of size 50 x 50 x 324 mm are required.*



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Sequence of operations

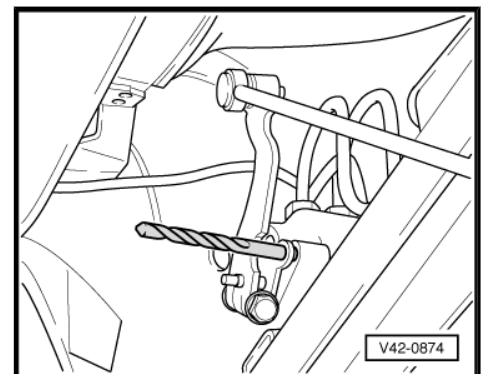
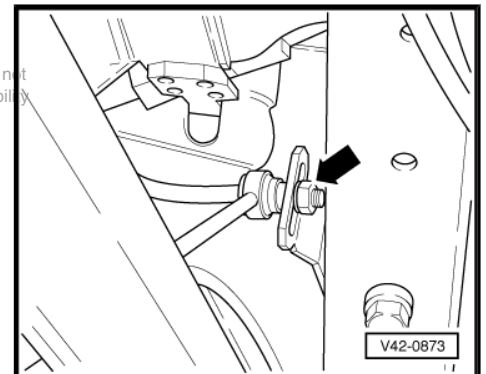
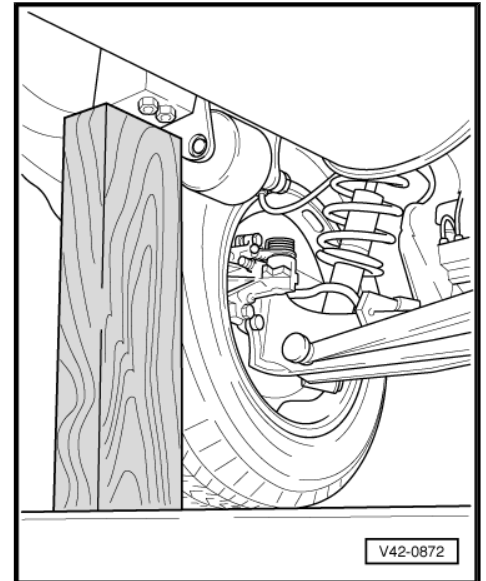
- Fit the adjusting blocks on the left and right at the measurement points shown (dimension “b”).
- Just load the luggage compartment to the extent required for the adjusting blocks to make contact with the measurement points (approx. 100 kg).



- Unfasten the nut -arrow-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Fix the lever in position at the self-levelling control valve housing with a $\varnothing 4$ mm bit.
- Tighten the nut.
- Remove the bit.



2 Self-levelling suspension - Four-wheel drive vehicles

⇒ [“2.1 General”, page 134](#)

⇒ [“2.2 Exploded view of self-levelling suspension”, page 134](#)

⇒ [“2.3 Checking operation of control valve”, page 139](#)

⇒ [“2.4 Checking control valve for leaks”, page 139](#)

⇒ [“2.5 Checking pressure container”, page 140](#)

⇒ [“2.6 Adjusting self-levelling suspension”, page 142](#)

2.1 General

- ◆ The self-levelling suspension is set by way of an adjustable-length connecting link between the self-levelling control valve and a lever attached to the anti-roll bar of the rear axle
⇒ [page 142](#).
- ◆ Provide support for the corresponding components when tightening pipe unions.
- ◆ When the fluid circuit has been opened, always:
 - Check all unions for leaks, start the engine and perform a visual inspection.
 - Check the hydraulic fluid level with the vehicle unladen and top up if necessary ⇒ [page 276](#).
- ◆ The system is vented automatically whilst driving.

2.2 Exploded view of self-levelling suspension

Reservoir, suction hose, return pipe, connector



Note

Items -1 ... 9- apply to all vehicles.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Clamp

2 - Return hose

- ☐ Between rotary slide valve housing and connector

3 - Connector

4 - Return pipe

- ☐ Between self-levelling control valve and connector

5 - Return pipe

- ☐ Between connector and reservoir

6 - Reservoir

- ☐ Fresh fill with hydraulic fluid, capacity 2.5 l; for hydraulic fluid refer to ⇒ Electronic parts catalogue
- ☐ Checking hydraulic fluid level with vehicle unladen ⇒ [page 276](#)

7 - Coolant hose

8 - Suction hose

- ☐ Between reservoir and vane pump

9 - Return pipe

- ☐ Between connector and reservoir



Note

Items -10 ... 17- only apply to vehicles with 6-cyl. engine.

10 - Holder

11 - Nut, 10 Nm

12 - Retaining plate

13 - Pipe

- ☐ Between expansion hose and control valve

14 - Expansion hose

- ☐ Between pump and clip at longitudinal member

15 - Clip

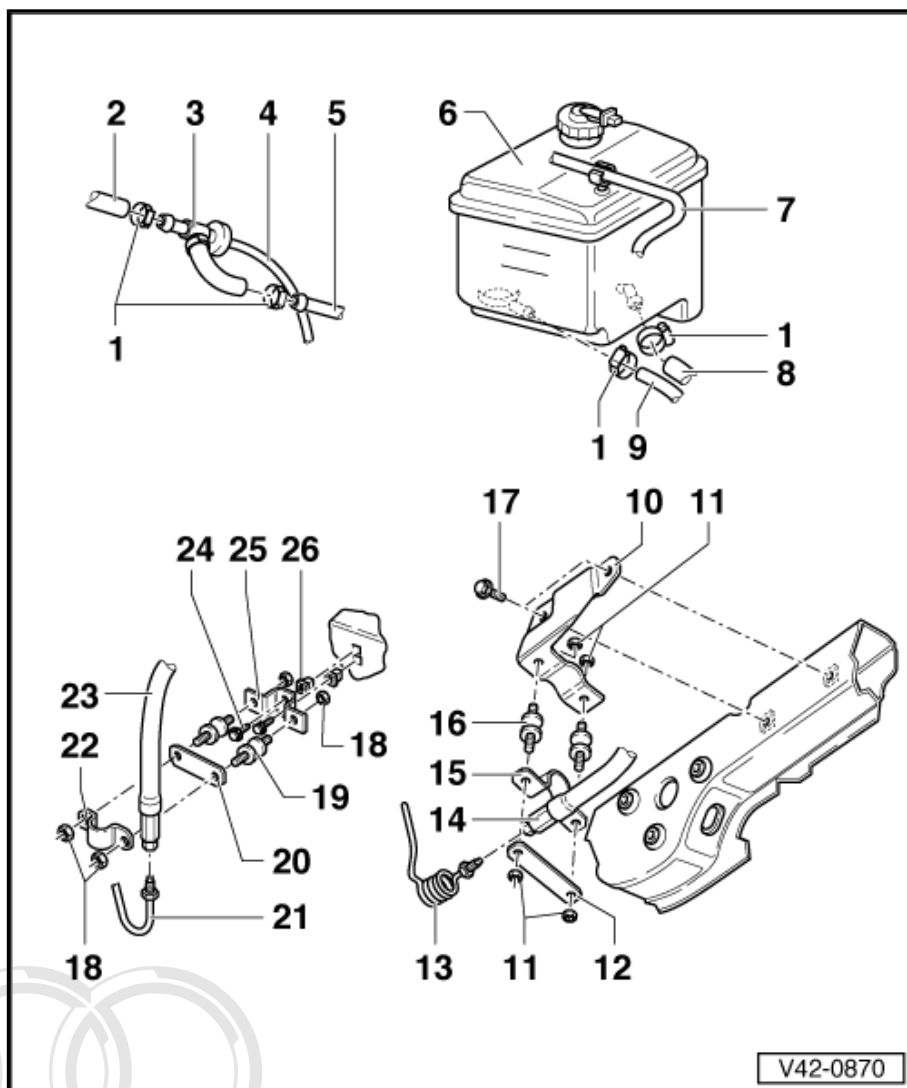
16 - Buffer

17 - Combi bolt, 35 Nm



Note

Items -18 ... 26- only apply to vehicles with 4 and 5-cyl. engines.



⇒ [page 139](#)

- ☐ Checking operation ⇒ [page 139](#)
- ☐ Checking for leaks ⇒ [page 139](#)

46 - Bolt, 10 Nm

47 - Cross piece

48 - Right pressure container

- ☐ As-new charge pressure at 20 °C: 24 ... 25 bar
- ☐ Minimum charge pressure at 20 °C: 15 bar
- ☐ Checking pressure container ⇒ [page 140](#)
- ☐ Disposal ⇒ [page 4](#)

49 - Pipe

- ☐ Between right pressure container and control valve

50 - Holder

51 - Pressure pipe

- ☐ Between right suspension strut and right pressure container
- ☐ Installation position of pressure pipes on all four-wheel drive vehicles ⇒ [page 139](#) .

52 - Direction of travel

Left pressure container, brake pressure regulator, pressure pipe,
connector

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

53 - Direction of travel

54 - Pressure pipe

- ❑ Between left suspension strut and left pressure container
- ❑ Installation position of pressure pipes on all four-wheel drive vehicles ⇒ **page 139** .

55 - Holder

56 - Bolt, 20 Nm

57 - Washer

58 - Left pressure container

- ☐ As-new charge pressure at 20 °C: 24 ... 25 bar
- ☐ Minimum charge pressure at 20 °C: 15 bar
- ☐ Checking pressure container → [page 140](#)
- ☐ Disposal → [page 4](#)

59 - Nut, 20 Nm

60 - Holder

61 - Brake pressure regulator

- ❑ Discontinued on introduction of ABS "Bosch 5.0" as of Model Year 1995

62 - Pipe

- Between connector and left pressure container

63 - Pipe

- ☐ Between connector and brake pressure regulator
- ☐ Control pressure for brake pressure regulator

64 - Connector

65 - Washer

66 - Nut, 10 Nm

67 - Vent valve, 15 Nm

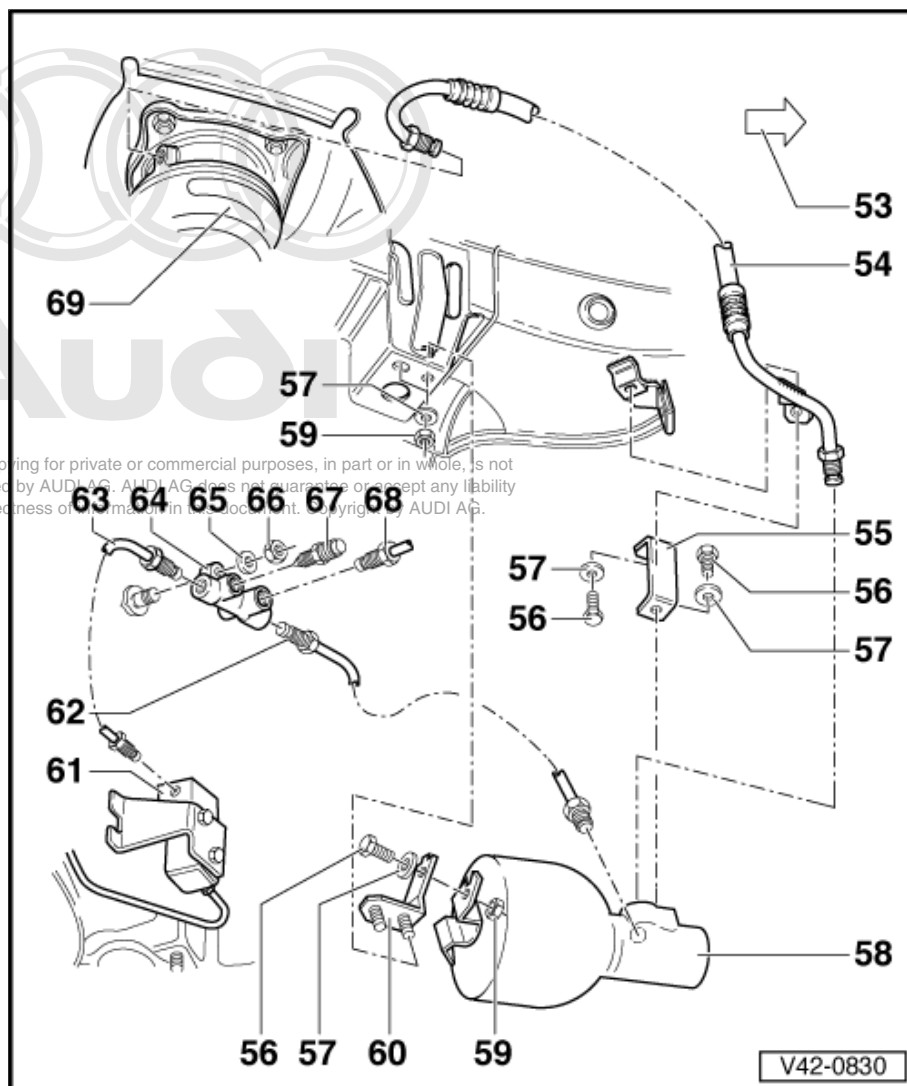
- ❑ Unfasten to dissipate pressure

68 - Pipe

- ❑ Connector - self-levelling control valve

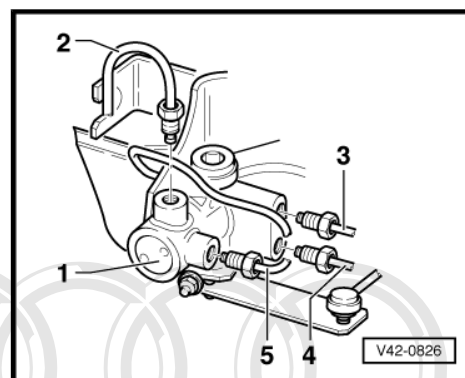
69 - Left suspension strut

- Exploded view ⇒ page 19



Control valve pipe connections

- 1 - Control valve
- 2 - Pipe: Control valve - right pressure container
- 3 - Pressure pipe: Tandem pump - control valve
- 4 - Return pipe: Control valve - manifold in engine compartment
- 5 - Pipe: Control valve - connector



Installation position of pressure pipes for self-levelling suspension on all four-wheel drive vehicles

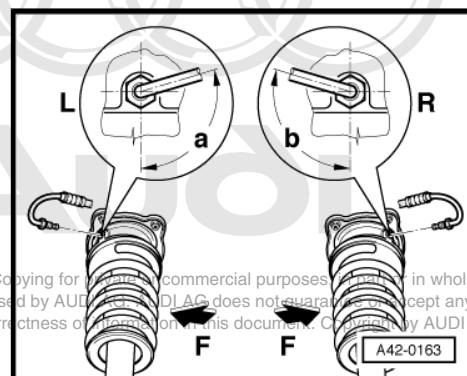
a - Installation angle of pressure pipe on left side of vehicle approx. 110°

b - Installation angle of pressure pipe on right side of vehicle approx. 110°

L - Left side of vehicle

R - Right side of vehicle

F - Direction of travel



Protected by copyright. Copying for non-commercial purposes is permitted in whole or in part, provided that the source is acknowledged. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG.

2.3 Checking operation of control valve

Sequence of operations

- Leave the engine idling. The vehicle must be standing on its wheels.

Checking raising function:

- Load the luggage compartment with approx. 100 kg (2 people).
- The rear of the vehicle must be raised (time required: up to approx. 2 minutes).

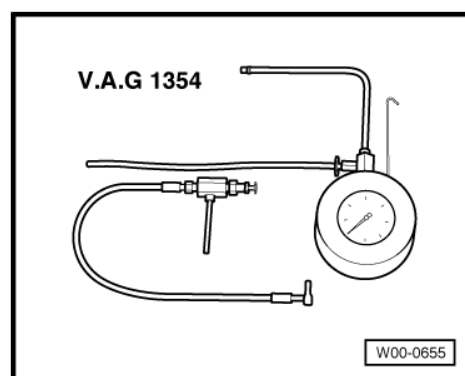
Checking lowering function:

- Remove the load from the luggage compartment.
- The vehicle must be lowered again after extension of the suspension.

2.4 Checking control valve for leaks

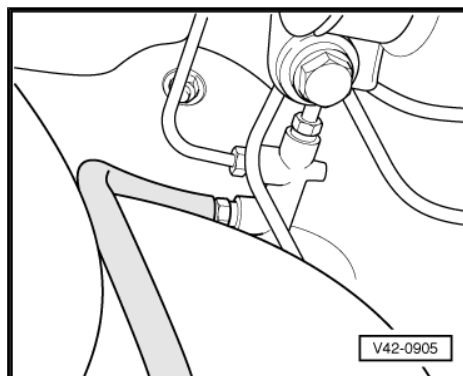
Special tools and workshop equipment required

- ♦ Self-levelling suspension system tester -V.A.G 1354-

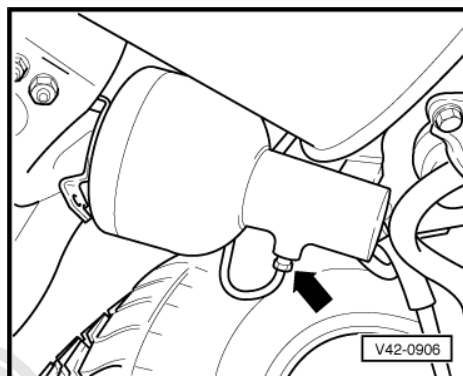


Sequence of operations

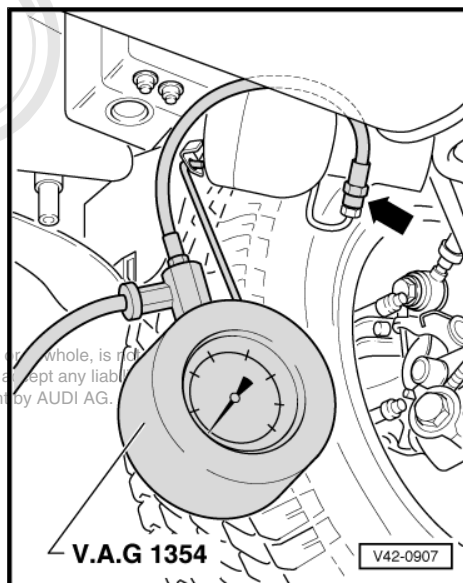
- Detach the dust cap from the bleed screw.
- Attach the bleed hose of the self-levelling suspension system tester -V.A.G 1354- to the bleed screw.
- Open the bleed screw and collect the hydraulic fluid emerging with a suitable vessel.
- Close the bleed screw at the connector.
- Detach the bleed hose from the bleed screw of the connector and attach to the bleed screw of the pressure tester.



- Unscrew the pressure pipe at the left or right pressure container.



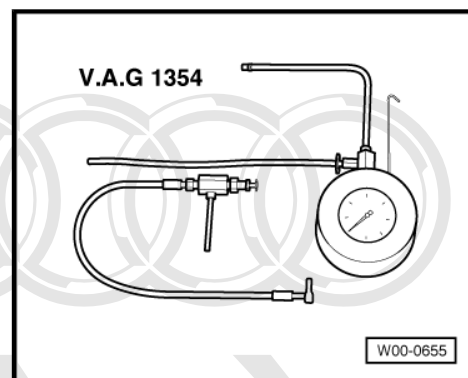
- Connect the self-levelling suspension system tester -V.A.G 1354- to the pressure pipe.
- Load the luggage compartment with approx. 100 kg.
- Start the engine and let it idle.
- Observe the reading on the pressure gauge and switch off the ignition at approx. 50 bar. Note down the gauge pressure.
- Leave the vehicle for roughly 3 hours.
- Check the reading on the pressure gauge: Max. pressure drop 5 bar.
- If the drop in pressure is more than 5 bar, the control valve is leaking and should be replaced.
- Remove the self-levelling suspension system tester -V.A.G 1354- .
- Check the hydraulic fluid level in the reservoir and replenish the fluid if necessary.



2.5 Checking pressure container

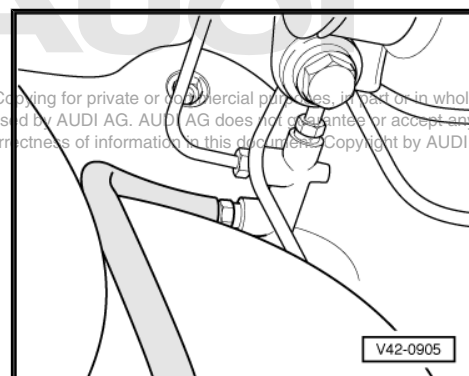
Special tools and workshop equipment required

◆ Self-levelling suspension system tester -V.A.G 1354-



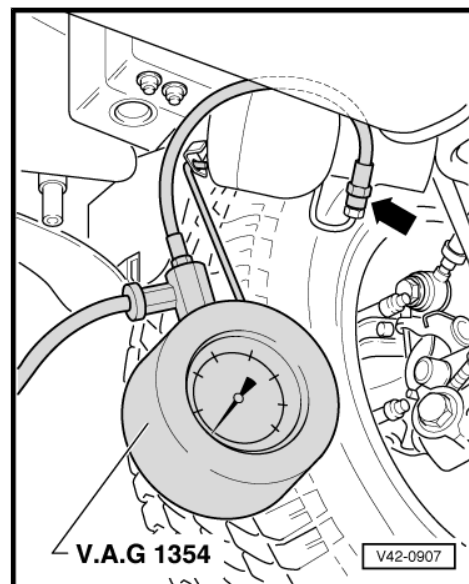
Sequence of operations

- Detach the dust cap from the bleed screw.
- Attach the bleed hose of the self-levelling suspension system tester -V.A.G 1354- to the bleed screw.
- Open the bleed screw and collect the hydraulic fluid emerging with a suitable vessel.
- Close the bleed screw at the connector.
- Detach the bleed hose from the bleed screw of the connector and attach to the bleed screw of the pressure tester.

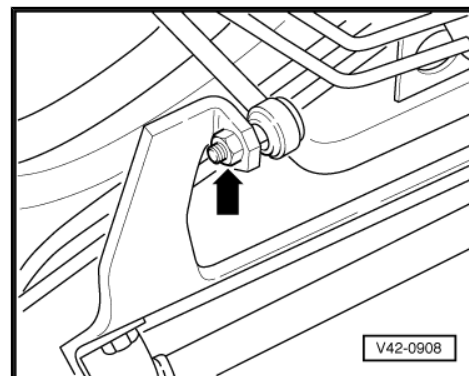


Checking right pressure container:

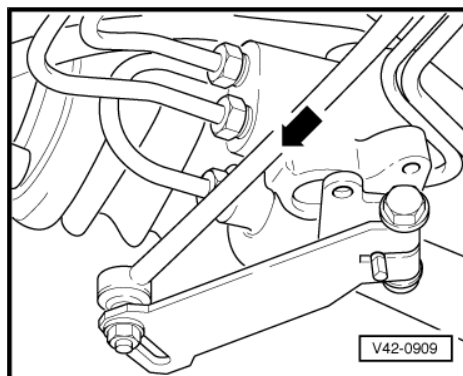
- Unscrew the pipe at the left pressure container and connect up the self-levelling suspension system tester -V.A.G 1354- .



- Unscrew the linkage of the control valve at the rear axle -arrow-.



- Move the linkage in the direction of travel until it is horizontal.
- Leave the engine idling.
- Observe the reading on the pressure gauge and switch off the ignition at approx. 30 bar.



- Carefully open the bleed screw of the self-levelling suspension system tester -V.A.G 1354- until the pressure gauge pointer slowly drops.
- Use a suitable vessel to collect the hydraulic fluid emerging.

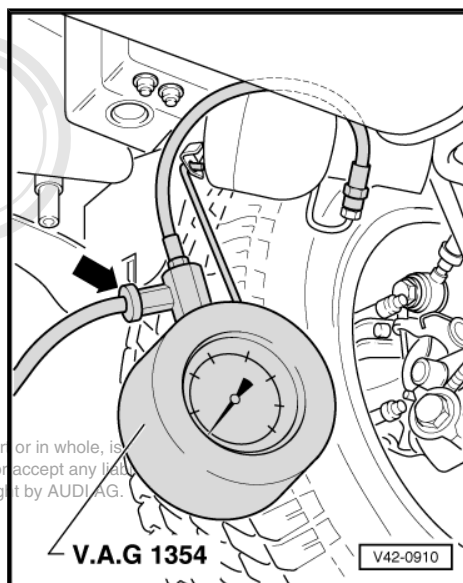


Note

- ♦ *The pressure at which the pointer stops dropping slowly and drops abruptly to 0 bar is the charge pressure of the pressure container.*
- ♦ *Specification: 15 ... 25 bar*

Checking left pressure container:

- Unscrew the pipe at the right pressure container and connect up the self-levelling suspension system tester -V.A.G 1354-.
- Further testing is the same as for the right pressure container.
- Conclude by attaching the dust cap to the bleed screw at the connector and checking the hydraulic fluid level with the vehicle unladen; top up if necessary ➔ [page 276](#).



Note

If the charge pressure is close to the minimum pressure (15 bar), e.g. left pressure container 15 bar and right pressure container 16.5 bar, it is advisable to replace both spring cylinders.

2.6 Adjusting self-levelling suspension

Special tools and workshop equipment required

- ♦ Ø 4 mm bit

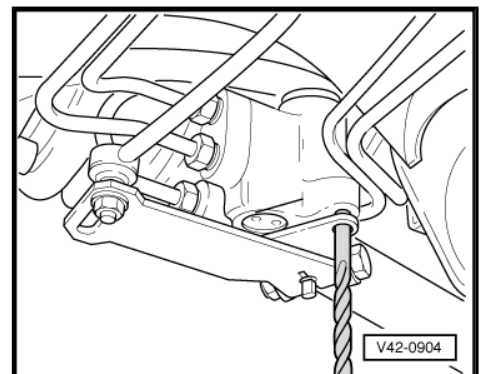
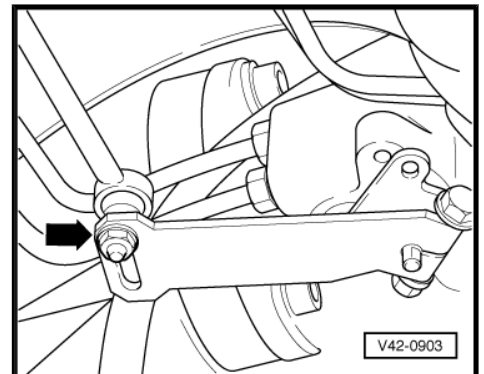
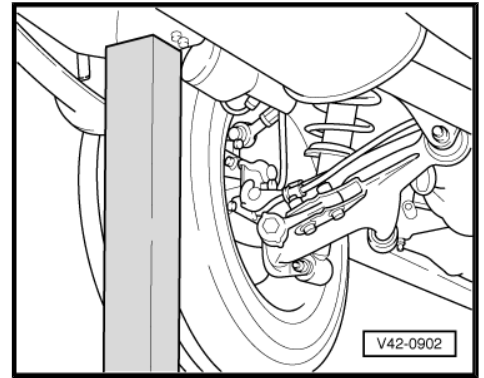


Note

- ♦ *Adjustment is best performed on a lifting platform with ramp or over a pit.*
- ♦ *Two wooden adjusting blocks of size 50 x 50 x 342 mm are required.*

Sequence of operations

- Fit the adjusting blocks on the left and right at the measurement points shown (dimension “b”).
- Just load the luggage compartment to the extent required for the adjusting blocks to make contact with the measurement points (approx. 100 kg).
- Unfasten the nut -arrow- at the self-levelling control valve lever.
- Fix the lever in position at the self-levelling control valve housing with a $\varnothing$ 4 mm bit.
- Tighten the nut at the self-levelling control valve lever.
- Remove the bit.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

44 – Wheels, tyres, vehicle geometry

1 Wheels and tyres

⇒ [“1.1 General”, page 144](#)

⇒ [“1.2 Exploded view of steel disc wheel”, page 144](#)

⇒ [“1.3 Exploded view of light alloy wheel”, page 146](#)

⇒ [“1.4 Balancing wheels on vehicle”, page 147](#)

1.1 General

To ensure vehicle safety, tyres are not to be replaced individually but rather at least on an axle basis.

The tyres with the deeper tread should always be fitted on the front wheels.

It is advisable to use tyres of the same make, design and tread type on all wheels.

Always replace the rubber valve when renewing a disc wheel or the tyre.

A wheel/tyre combination for the right side of the vehicle must be fitted as spare wheel in the case of tyres with directional tread pattern.

1.2 Exploded view of steel disc wheel



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Tyre

2 - Valve

- ☐ Always replace
- ☐ For assignment, refer to
⇒ Electronic parts catalogue

3 - Rim

4 - Wheel bolt/lockable wheel bolt, 120 Nm

- ☐ Anti-theft wheel bolt
⇒ [page 147](#)
- ☐ M14x1.5x27.5 mm

5 - Lock cylinder

- ☐ Attach to the corresponding wheel bolt and lock

6 - Trim cap

- ☐ Attach to lock cylinder

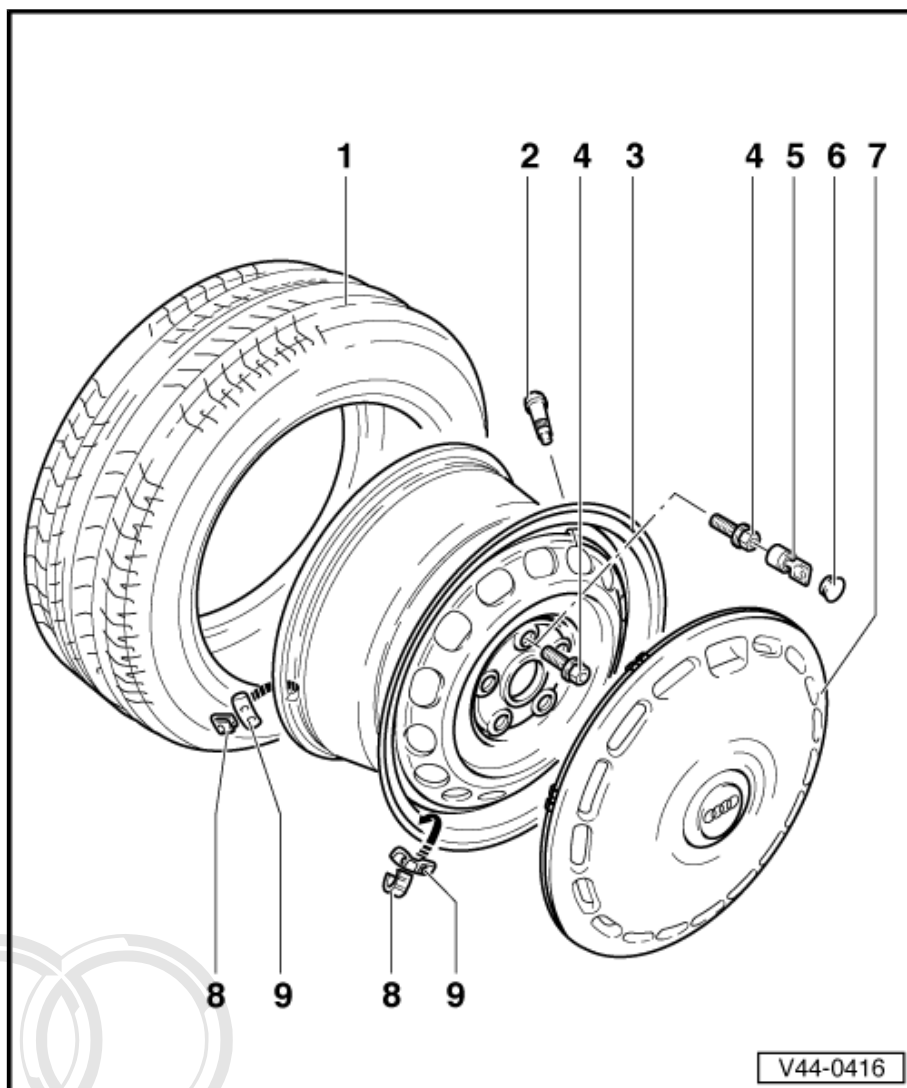
7 - Wheel trim cap

- ☐ Place large opening (marked on back with tyre valve symbol) over valve and then press on to disc wheel to ensure proper fit

8 - Retaining spring for balancing weights

9 - Balancing weights

- ☐ Max. 60 g per rim flange permissible



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1.3 Exploded view of light alloy wheel

1 - Tyre

2 - Rim

3 - Valve

- ☐ Always replace
- ☐ For assignment, refer to
⇒ Electronic parts catalogue

4 - Wheel bolt/lockable wheel bolt, 120 Nm

- ☐ M14×1.5x27.5 mm
- ☐ Anti-theft wheel bolt
⇒ [page 147](#)

5 - Lock cylinder

- ☐ Attach to the corresponding wheel bolt and lock

6 - Trim cap

- ☐ Attach to lock cylinder

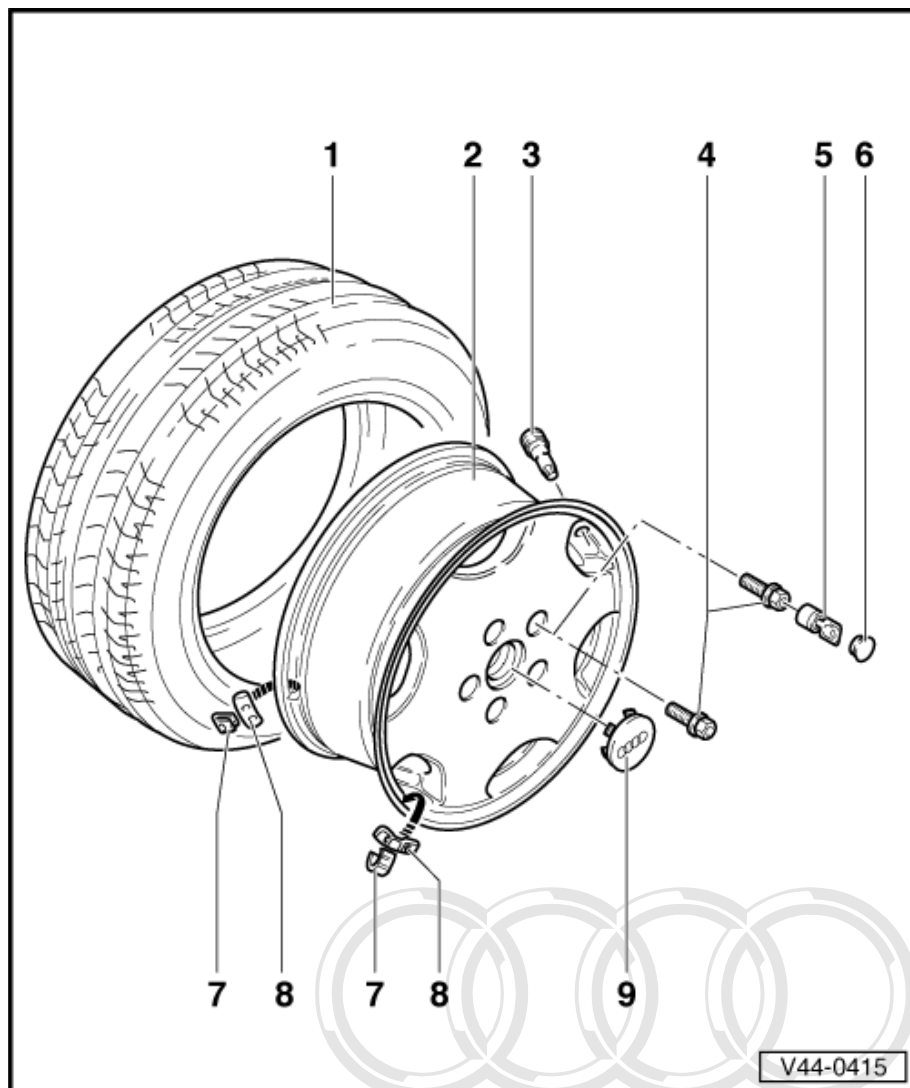
7 - Retaining spring for balancing weight

8 - Balancing weight

- ☐ Max. 60 g per rim flange permissible

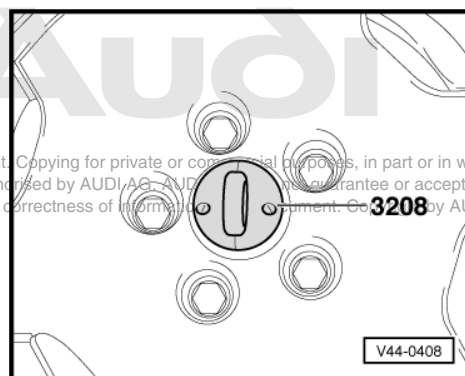
9 - Wheel trim cap

- ☐ Detaching ⇒ [page 146](#)



Detaching wheel trim cap

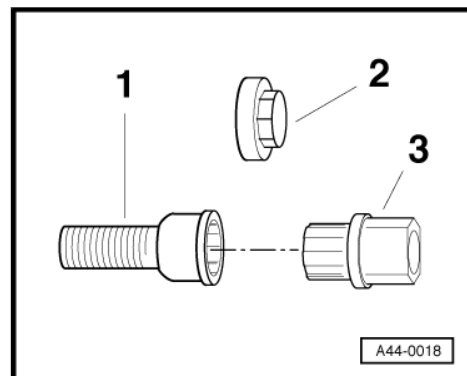
- Clean the trim cap with a moist sponge.
- Attach the suction grip -3208- to the trim cap and press on.
- Detach the trim cap.
- Release the suction grip from the trim cap by moving it sideways.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorized by AUDI AG. AUDI AG does not warrant or accept any liability for the correctness of information. Copyright © 2008 AUDI AG.

Anti-theft wheel bolt

- 1 - Anti-theft wheel bolt
- 2 - Trim cap
- 3 - Adapter for wheel bolt



1.4 Balancing wheels on vehicle

Establish whether the vehicle is fitted with a traction control system (ASR).

On such vehicles the traction control system must be deactivated before performing balancing work.



Note

- ◆ *Wheel imbalance causes front end judder and steering wheel vibration.*
- ◆ *During the balancing procedure, position the vehicle on the sensor platforms (both axles for four-wheel drive, front axle for front-wheel drive).*
- ◆ *Heed the operating instructions of the balancing equipment manufacturer.*



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2 Wheel alignment

⇒ [“2.1 General”, page 148](#)

⇒ [“2.2 Test prerequisites for wheel alignment”, page 148](#)

⇒ [“2.3 Wheel alignment specifications - Front-wheel drive vehicles”, page 149](#)

⇒ [“2.4 Wheel alignment specifications - Four-wheel drive vehicles except Audi S6 Plus”, page 149](#)

⇒ [“2.5 Wheel alignment specifications - Audi S6 Plus”, page 150](#)

⇒ [“2.6 Adjusting front axle camber”, page 150](#)

⇒ [“2.7 Adjusting front axle toe”, page 151](#)

⇒ [“2.8 Checking rear axle camber - Front-wheel drive vehicles”, page 152](#)

⇒ [“2.9 Adjusting rear axle camber - Four-wheel drive vehicles”, page 152](#)

⇒ [“2.10 Adjusting rear axle toe - Four-wheel drive vehicles”, page 152](#)

This document is a technical document. It is not intended to be used for legal purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2.1 General

- ◆ Wheel alignment is only to be performed using wheel alignment equipment approved by AUDI.
- ◆ Alignment always includes both the front and rear axles.
- ◆ Proper vehicle performance cannot otherwise be ensured.



Note

- ◆ *Wheel alignment should not be checked before the vehicle has completed 1000 ... 2000 km to allow the coil springs to fully settle.*
- ◆ *When performing adjustment work, always attempt to adhere as closely as possible to the relevant specifications.*

2.2 Test prerequisites for wheel alignment

Determine the running gear version from the vehicle data sticker.



Note

The vehicle data sticker can be found in the spare wheel recess at the rear and in the service schedule.

- ◆ 1BA = Standard running gear
- ◆ 1BE = Sports running gear
- ◆ 1BG = Standard running gear with self-levelling suspension at rear
- Proper attachment and adjustment of sensors; heed operating instructions of equipment manufacturer
- Tread depth difference of no more than 2 mm on one axle
- Specified tyre inflation pressure

- When performing wheel alignment, make sure that no sliding base or turntable is on the end stop.
- Vehicle kerb weight ¹⁾.
- Vehicle properly aligned, bounced several times and allowed to settle
- Suspension, steering and steering linkage checked for impermissible play and damage

¹⁾ Kerb weight means: Weight of vehicle ready for operation (fuel tank full, spare wheel, vehicle tool kit, vehicle jack)

2.3 Wheel alignment specifications - Front-wheel drive vehicles

Applicable to all engines

Front axle	Standard running gear (1BA) Self-levelling suspension (1BG)	Sports running gear (1BE)
Toe per wheel (no pressure)	+7' ± 5'	+7' ± 5'
Overall toe (no pressure)	+15' ± 10'	+15' ± 10'
Camber	-40' +35' / -25'	-50' +25' / -35'
Camber (vehicles with 6-cyl. engine)	-50' +35' / -25'	-50' +35' / -25'
Max. perm. difference between the two sides	max. 30'	max. 30'
Toe-out on turns at 20 degrees	-1° 40' ± 30'	-1° 40' ± 30'
Caster (not adjustable)	-1° 10' ± 40'	-1° 10' ± 40'
Max. perm. difference between the two sides	max. 1°	max. 1°

Rear axle	Standard running gear (1BA) Self-levelling suspension (1BG) Sports running gear (1BE)
Camber	-50' ± 30'
Max. perm. difference between the two sides	max. 30'
Overall toe	+5' + 25'
Max. perm. misalignment with respect to longitudinal axis of vehicle	max. 20'

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless a written request has been submitted to Audi AG.

2.4 Wheel alignment specifications - Four-wheel drive vehicles except Audi S6 Plus

Front axle	Standard running gear (1BA) Self-levelling suspension (1BG)	Sports running gear (1BE)
Toe per wheel (no pressure)	+7' ± 5'	+7' ± 5'
Overall toe (no pressure)	+15' ± 10'	+15' ± 10'
Camber	-40' +35' / -25'	-50' +35' / -25'
Camber (vehicles with 98 kW 5-cyl. engine and 103 kW 4-cyl./16V engine)		-50' +25' / -35'
Camber (vehicles as of 169 kW Audi S4, S6, S4 4.2 and S6 4.2)		-50' +20' / -40'
Max. perm. difference between the two sides	max. 30'	max. 30'

Front axle	Standard running gear (1BA) Self-levelling suspension (1BG)	Sports running gear (1BE)
Toe-out on turns at 20 degrees	$-1^{\circ} 10' \pm 30'$	$-1^{\circ} 10' \pm 30'$
Caster (not adjustable)	$+55' \pm 40'$	$+55' \pm 40'$
Max. perm. difference between the two sides	max. 1°	max. 1°

Rear axle	Standard running gear (1BA) Self-levelling suspension (1BG) Sports running gear (1BE)
Camber	$-15' \pm 15'$
Max. perm. difference between the two sides	max. $30'$
Toe per wheel with specified camber	$+5' + 5'$
Overall toe with specified camber	$+10' \pm 10'$

2.5 Wheel alignment specifications - Audi S6 Plus

Front axle	Sports running gear 1BE
Overall toe (no pressure)	$-15' \pm 10'$
Camber	$-50' +20' / -40'$
Max. perm. difference between the two sides	max. $30'$
Toe-out on turns at 20 degrees	$-1^{\circ} 10' \pm 30'$
Caster (not adjustable)	$+55' \pm 40'$
Max. perm. difference between the two sides	max. 1°

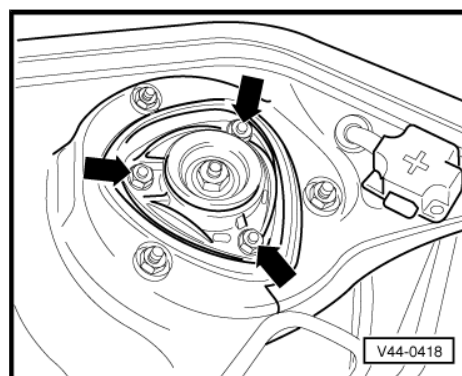
Rear axle	Sports running gear 1BE
Camber	$-30' \pm 15'$
Max. perm. difference between the two sides	max. $30'$
Toe per wheel with specified camber	$+5' + 5'$
Overall toe with specified camber	$+10' \pm 10'$

2.6 Adjusting front axle camber

The camber is to be adjusted by moving the suspension strut in the elongated holes of the suspension strut mount with the vehicle standing on its wheels.

Sequence of operations

- Detach the trim cap.
- Unfasten the nuts -arrows-.
- Move the suspension strut in the elongated holes.
- Tighten the nuts and check the camber (correct if necessary).
- Check and if necessary adjust the toe.

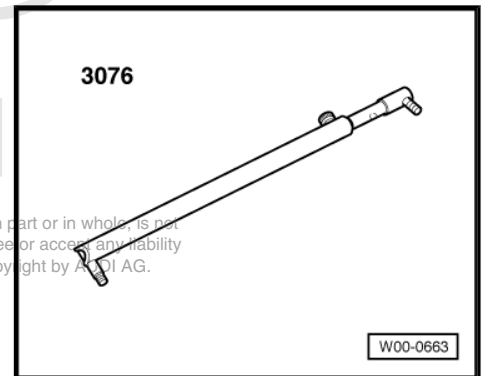


2.7 Adjusting front axle toe

Special tools and workshop equipment required

- ◆ Steering centring tool -3076-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

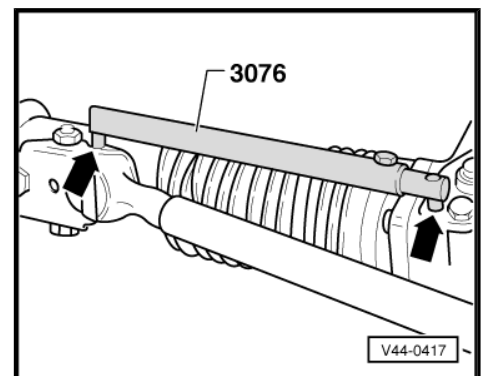


Note

The toe is always to be adjusted at both track rods and only with optical wheel alignment equipment using the steering centring tool -3076-.

Sequence of operations

- Wheel alignment specifications ➔ [page 149](#)
- Move the wheels to the straight-ahead position.
- Insert the steering centring tool -3076- in the steering box.
- Check whether the steering wheel spoke is horizontal; if necessary re-position the steering wheel and set it straight.
- Halve the total specified value, set this value at the left and right track rod and secure the track rods.
- Remove the steering centring tool -3076-.
- Perform a test drive.



Note

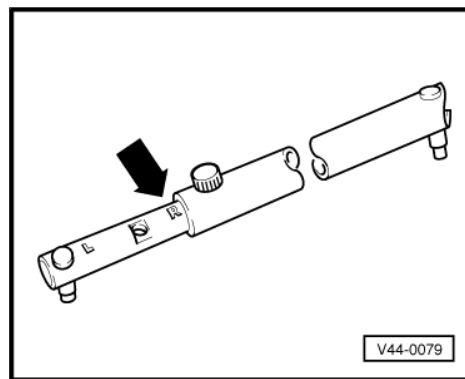
If slight steering wheel skew is found after the test drive, this is to be corrected by way of even adjustment of the track rods on both sides.

Example:

If the steering wheel spoke hangs slightly to the right, lengthen the right track rod slightly and shorten the left track rod by the same amount. Check the toe again if necessary.

For right-hand drive vehicles:

- When using the steering centring tool -3076- on right-hand drive vehicles, set the gauge to "R" -arrow-.



2.8 Checking rear axle camber - Front-wheel drive vehicles

- Wheel alignment specifications ➔ [page 149](#)

On front-wheel drive vehicles, the camber can be checked but not adjusted.



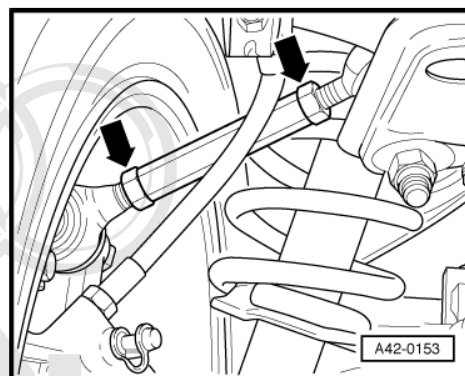
Note

If the measured values are outside the permitted tolerance, check the axle beam for damage and replace if necessary.

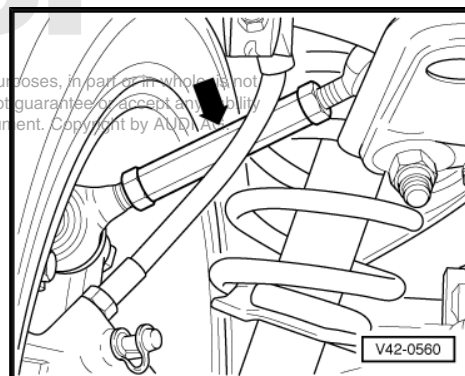
2.9 Adjusting rear axle camber - Four-wheel drive vehicles

Sequence of operations

- Wheel alignment specifications ➔ [page 149](#)
- Unfasten the lock nuts -arrows-.



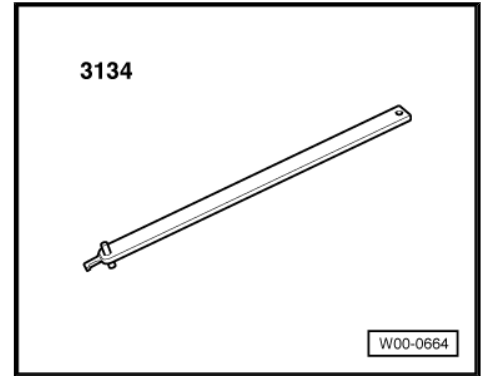
- Turn the threaded sleeve -arrow- accordingly.
- Tighten the nut, check the camber value again and correct if necessary.



2.10 Adjusting rear axle toe - Four-wheel drive vehicles

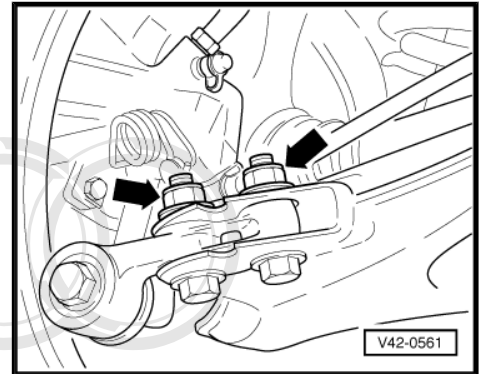
Special tools and workshop equipment required

◆ Toe adjusting lever -3134-

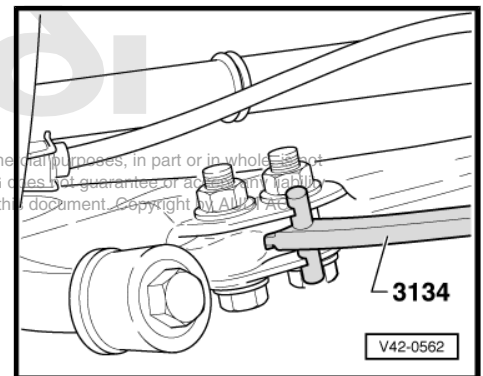


Sequence of operations

- Wheel alignment specifications ⇒ [page 149](#)
- Before adjusting the toe, always check and if necessary adjust the camber setting ⇒ [page 152](#) .
- Unfasten the nuts -arrows-.



- Insert the toe adjusting lever -3134- .
- Move the mounting bracket in the trapezium link accordingly.
- Tighten the nuts, check the camber value again and correct if necessary.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

48 – Steering

1 Power-assisted steering

⇒ [“1.1 General”, page 154](#)

⇒ [“1.2 Exploded view of power-assisted steering”, page 154](#)

⇒ [“1.3 Exploded view of track rods”, page 157](#)

⇒ [“1.4 Removing and installing power-assisted steering box”, page 159](#)

1.1 General



Note

- ◆ Heed the general information ⇒ [page 2](#).
- ◆ Heed the safety precautions for vehicles with airbags ⇒ [page 191](#).
- ◆ If the power-assisted steering box has been removed and installed, centring of the corrugated tube must be checked before securing the universal joint on the steering pinion. Procedure for centring corrugated tube ⇒ [page 207](#).

Rules for cleanliness

- ◆ Absolute cleanliness is essential when working on the power-assisted steering.
- ◆ Thoroughly clean joints and surrounding areas prior to disconnection.
- ◆ Place parts removed on a clean surface and cover over if repair work is not to be performed immediately.
- ◆ Only use lint-free cloths.
- ◆ Do not remove replacement parts from their wrapping until immediately prior to installation.
- ◆ Always use genuine wrapped parts.
- ◆ The hydraulic fluid drained off is not to be re-used.

1.2 Exploded view of power-assisted steering



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



17 - Bolt, 50 Nm

18 - Bolt, 50 Nm

19 - Left wheel housing

20 - Left track rod

- ☐ Exploded view ⇒ [page 157](#)

21 - Threaded section

- ☐ Adjusting toe at both track rods ⇒ [page 151](#)

22 - Left track rod end

- ☐ Exploded view ⇒ [page 157](#)
- ☐ Pressing off ⇒ [page 157](#)

23 - Self-locking nut, 50 Nm

- ☐ Always replace after removing

24 - Lock nut, 50 Nm

25 - Holder

- ☐ Pay attention to correct positioning in bellows
- ☐ Turn through 180° for fitting on right-hand drive vehicles (centring hole faces to right)

26 - Locking plate

- ☐ Always replace after removing

27 - Bolt

28 - Bolt, 80 Nm

- ☐ The vehicle must be standing on its wheels when tightening

29 - Right track rod

- ☐ Exploded view ⇒ [page 157](#)

30 - Nut, 40 Nm

31 - Self-locking nut, 50 Nm

- ☐ Always replace after removing

32 - Right track rod end

- ☐ Exploded view ⇒ [page 157](#)
- ☐ Pressing off ⇒ [page 157](#)

33 - Self-locking nut, 25 Nm

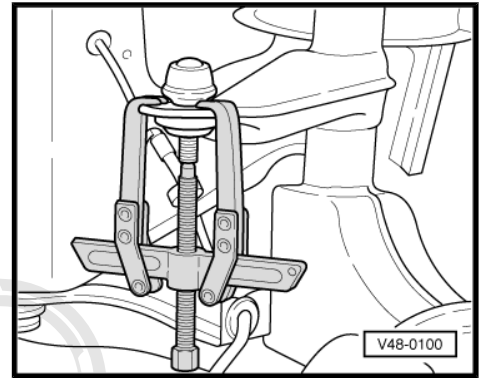
- ☐ Always replace after removing
- ☐ As of vehicle ident. no. PN 050 668, higher grade bolted joint of strength class 10.9 (can be seen from label 10.9 on bolt head of ⇒ [Item 3 \(page 155\)](#))
- ☐ New tightening torque: 35 Nm
- ☐ Tightening torque for M10 bolted joint: 55 Nm
- ☐ If a new steering box (10 mm hole) is fitted in old bodywork, a spring pin for the M8 bolted joint must be driven into the steering box ⇒ [page 157](#) and ⇒ [page 157](#)

34 - Washer



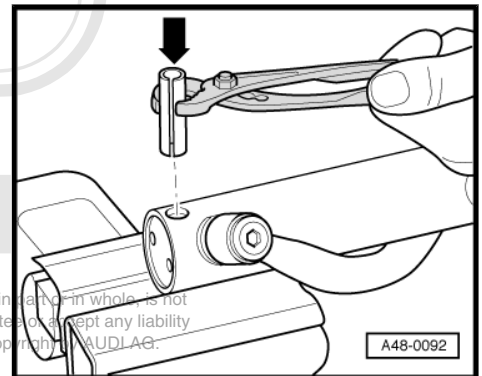
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Pressing off track rod end



Driving in spring pin

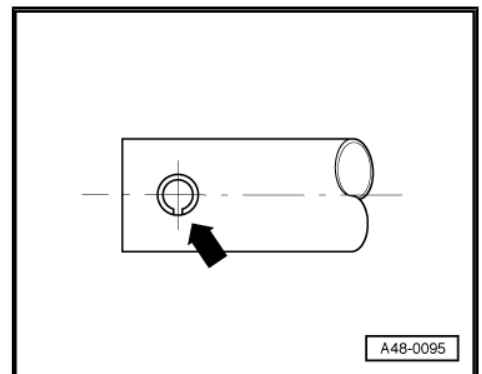
- Insert soft jaws in the vice, mount the steering box and use a hammer to carefully drive in the spring pin (2nd mechanic required).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright © AUDI AG.

Installation position of spring pin

- The slot of the spring pin must be perpendicular to the steering axis -arrow-.



1.3 Exploded view of track rods

1 - Eye of track rod arm

- Offset faces in direction of travel ➔ [page 158](#)

2 - Track rod

- Different versions; for assignment refer to ➔ Electronic parts catalogue
- Offset track rod: Offset faces road surface ➔ [page 159](#)

3 - Right track rod end

- Offset faces in direction of travel ➔ [page 158](#)

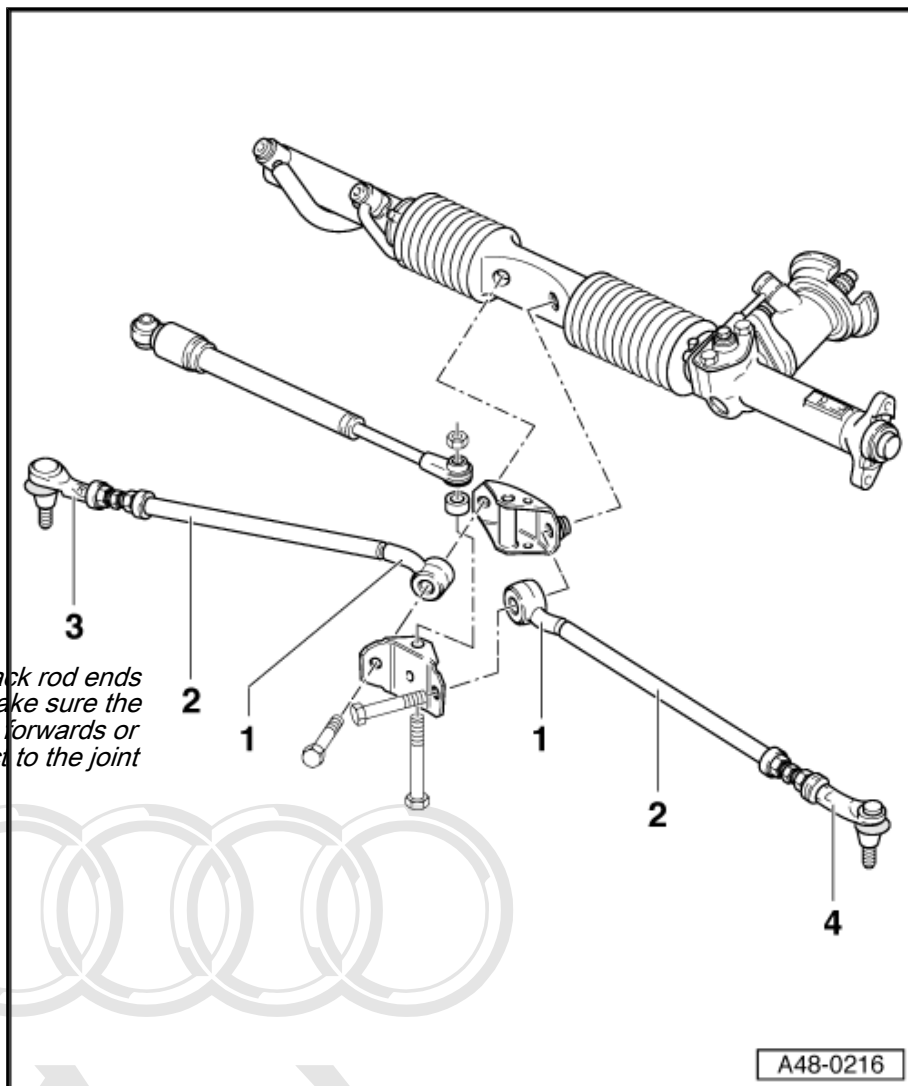
4 - Left track rod end

- Offset faces in direction of travel ➔ [page 158](#)



Note

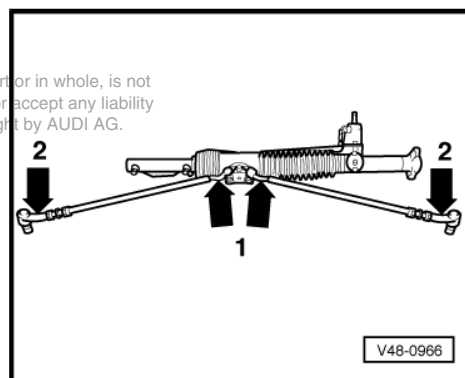
When fitting the two track rod ends or adjusting the toe, make sure the two joints are not tilted forwards or backwards with respect to the joint pins.



Attaching track rods to steering box

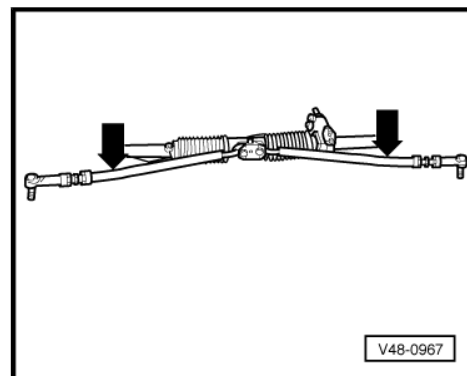
Note the position of the offset at the eyes of the track rod arms

-arrow 1- and at the track rod ends -arrow 2-.



Offset track rods

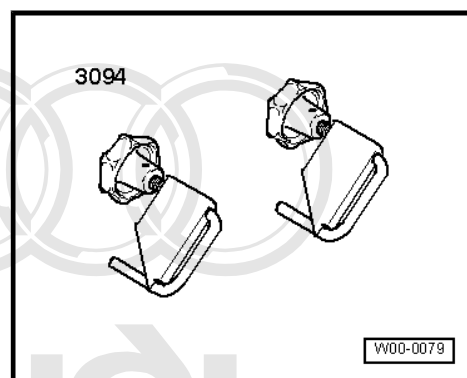
The offsets -arrows- face downwards towards the road surface.



1.4 Removing and installing power-assisted steering box

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-



Removing

If the power-assisted steering box has been removed and installed, centring of the corrugated tube must be checked before securing the universal joint on the steering pinion. Procedure for centring corrugated tube ⇒ [page 207](#).



Note

Removal and installation are described on the basis of a vehicle with 6-cyl. engine, air conditioner and ABS.

Vehicles with airbag:

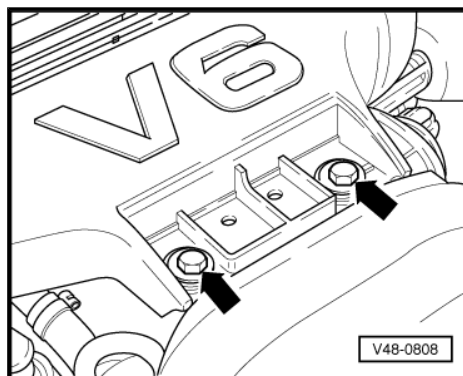


WARNING

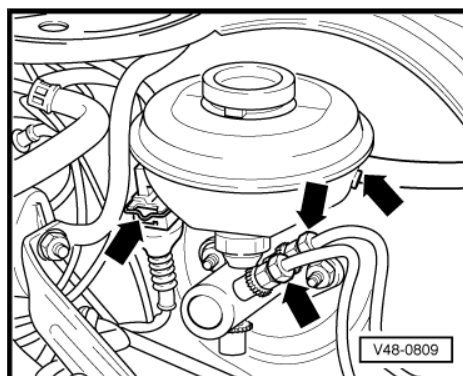
Move the steering wheel to the centre position and do not turn during repair work, as this could damage the coil connector of the airbag unit.

- Disconnect the battery ⇒ Rep. Gr. 27 .

- Prise the cover off the noise insulation.
- Unscrew the nuts -arrows-.
- Unscrew the crankcase breather hoses at the valve covers and detach.
- Press the noise insulation to the rear and at the same lift it up.
- Detach the vacuum hose from the noise insulation and take out the noise insulation.



- Use an extraction bottle to draw off as much brake fluid as possible from the brake fluid reservoir.
- Detach the supply hose for the clutch master cylinder -right arrow-.
- Pull out the vacuum pipe of the brake servo.
- Unscrew the brake pipes at the brake master cylinder -centre arrows-.
- Unplug the connector for the brake fluid indicator -left arrow-.



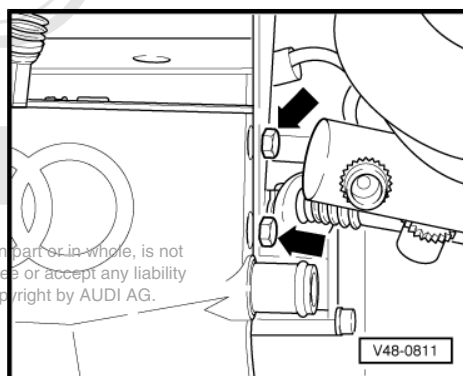
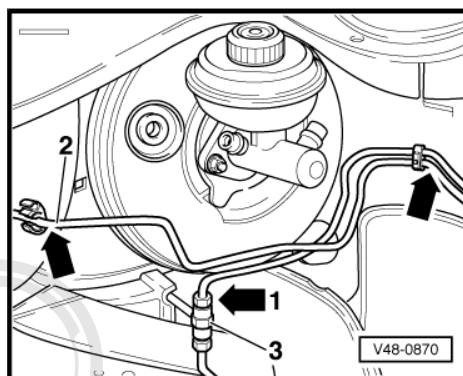
- Remove the brake pipe -arrow 1- between the hydraulic unit and the adapter -3-.



Note

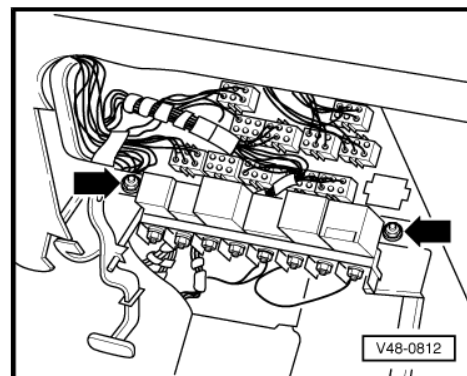
After removing the brake pipes, seal all holes with plugs from the repair set -1H0 698 311 A-.

- Unclip the brake pipe -2- from the mounts at the wheel housing and bulkhead -arrows-.
- Carefully press the brake pipe in the direction of travel until it does not impede removal of the brake servo.
- Unscrew the holder for the vacuum unit from the left valve cover and lay aside.
- Remove the bottom left storage compartment ⇒ Rep. Gr. 70 .
- Take out the air vent in the footwell on the left.

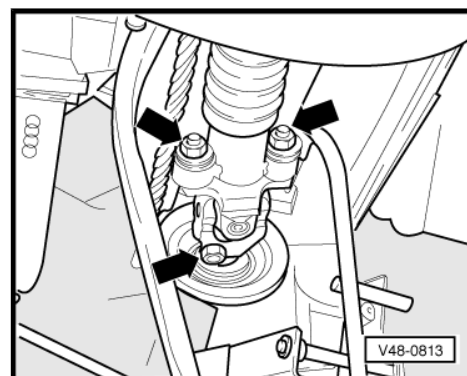


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

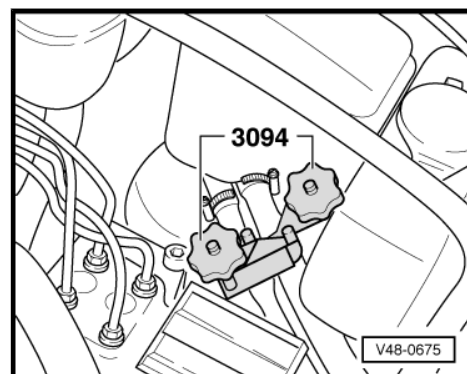
- Unscrew and lay aside the relay carrier -arrows-.
- Take out the cover for the relay carrier.
- Take the pin out of the clevis for the brake servo.
- Carefully fold back the soundproofing mat around the pedal bracket such that the pedal bracket nuts can be unscrewed.
- Unclip the fuel pipe on the left of the bulkhead from the mount and press slightly in direction of travel.
- Take out the brake servo with brake master cylinder to the front.



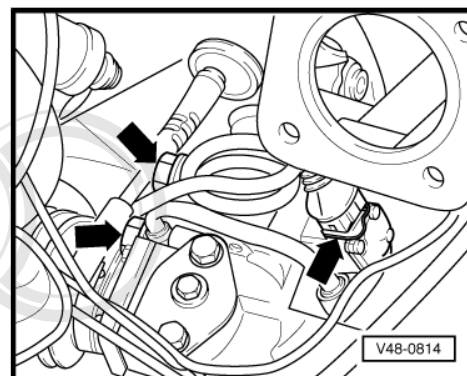
- Screw out the bolts of the universal joint -arrows-.
- Detach the universal joint from the steering box.
- Take out the bulkhead collar.



- Pinch off the suction and return pipes with hose clamps -3094- .

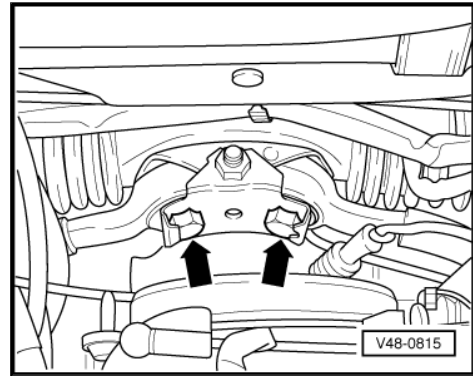


- Unscrew the expansion hose and return hose from the rotary slide valve housing.
- Route the expansion hose upwards to the plenum chamber.
- Vehicles with Servotronic: Unplug the connector at the Servotronic valve.





- Bend open the tabs of the locking plate and unscrew the track rods -arrows-.
- Cut off the cable tie securing the wiring harness at the right wheel housing.
- Screw out the right steering box bolt.



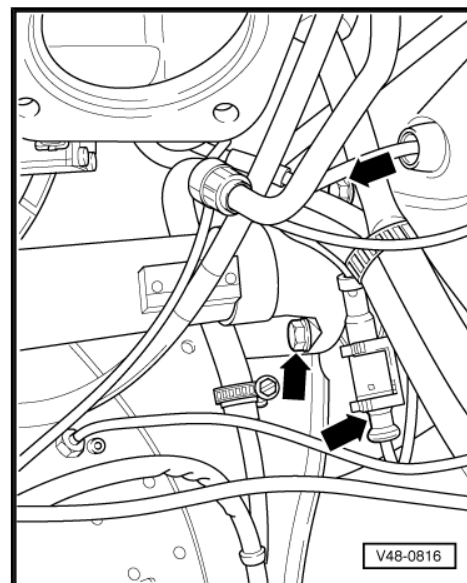
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Unclip the connector of the speed sensor wire on the left from the holder.
- Unscrew the holder for the speed sensor wire from the wheel housing.
- Unscrew the front wheels.
- Unscrew the steering box bolts on the left side at the wheel housing.
- Slide the steering box to the left into the wheel housing opening until the wiring harness on the right side of the steering box can be pressed to the rear.
- Take out the steering box through the opening in the right wheel housing by turning it accordingly (two mechanics required).



Note

Take care not to damage the bellows when taking out the steering box.



Installing

Install in reverse order, paying attention to the following:

- Insert the locking plate in the bellows of the steering box and fix in position with both bolts.
- Insert the steering box through the opening in the right wheel housing (two mechanics required).
- Pay attention to correct routing of the wiring harness and re-install the cable tie.
- Carefully insert the bulkhead collar.
- Attach the steering box to the left and right wheel housing.
- Screw in the holder for the speed sensor on the left and clip in the speed sensor.
- Screw the left bolt out of the holder for track rod attachment.
- Insert the left track rod in the holder and loosely screw in the bolt.
- Screw the right bolt out of the holder for track rod attachment.
- Insert the right track rod in the holder and loosely screw in the bolt.
- Only tighten the two bolts to torque with the vehicle standing on its wheels.
- Pay attention to correct positioning of the holder in the bellows.
- Attach the return hose and expansion hose to the rotary slide valve housing such that neither makes any contact.
- Detach the hose clamps -3094- from the return hose and suction hose.
- Check for correct positioning of the Procon-ten cable in the support bracket.
- Carefully position insulating mats beneath the pedal cluster.
- Fit the brake pipes in line with the designations on the hydraulic unit.
- Insert the brake pipes and fuel pipe in the holders.



- Bleed the brake system and check for leaks ⇒ Rep. Gr. 47 .
- Check the position of the steering wheel and perform front axle wheel alignment if necessary.
- Connect the battery ⇒ Rep. Gr. 27 .
- Check the hydraulic fluid level and replenish the fluid if necessary.
- Check the return hose and expansion hose at the rotary slide valve housing for leaks.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2 Power-assisted steering - Audi S4/S6

⇒ "2.1 General", page 165

⇒ "2.2 Exploded view of power-assisted steering", page 165

⇒ "2.3 Exploded view of track rods", page 169

⇒ "2.4 Removing and installing power-assisted steering box",
page 170

2.1 General



Note

- ◆ *Heed the general information ⇒ [page 2](#).* Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- ◆ *Heed the safety precautions for vehicles with airbags ⇒ [page 191](#).*
- ◆ *If the power-assisted steering box has been removed and installed, centring of the corrugated tube must be checked before securing the universal joint on the steering pinion. Procedure for centring corrugated tube ⇒ [page 207](#).*

Rules for cleanliness

- ◆ Absolute cleanliness is essential when working on the power-assisted steering.
- ◆ Thoroughly clean joints and surrounding areas prior to disconnection.
- ◆ Place parts removed on a clean surface and cover over if repair work is not to be performed immediately.
- ◆ Only use lint-free cloths.
- ◆ Do not remove replacement parts from their wrapping until immediately prior to installation.
- ◆ Always use genuine wrapped parts.
- ◆ The hydraulic fluid drained off is not to be re-used.

2.2 Exploded view of power-assisted steering



Note

The illustration corresponds to the Audi S4 4.2.

1 - Power-assisted steering box

- ☐ Removing and installing ⇒ [page 170](#)
- ☐ Adjusting ⇒ [page 179](#)
- ☐ Disposal ⇒ [page 5](#)
- ☐ If the power-assisted steering box has been removed and installed, centring of the corrugated tube must be checked before securing the universal joint on the steering pinion. Procedure for centring corrugated tube ⇒ [page 207](#).

2 - Bolt

3 - Washer

- ☐ 3 mm thick

4 - Right wheel housing

5 - Self-locking nut, 35 Nm

- ☐ Always replace after removing
- ☐ Tightening torque for M10 bolted joint: 55 Nm
- ☐ If a new steering box (10 mm hole) is fitted in old bodywork, a spring pin for the M8 bolted joint must be driven into the steering box ⇒ [page 168](#) and ⇒ [page 168](#)

6 - Bolt, 40 Nm

7 - Steering damper

- ☐ Can be replaced with steering box in position
- ☐ Disposal ⇒ [page 5](#)
- ☐ For checking, unscrew from the bracket at the right wheel housing
- ☐ Checking operation: Squeeze the steering damper by hand; when doing so, it must be possible to slide in the piston rod smoothly and with uniform force over the entire distance.
- ☐ Given proper functioning, slight traces of shock absorber oil are not grounds for replacement

8 - Bushing

9 - Holder

10 - Right track rod end

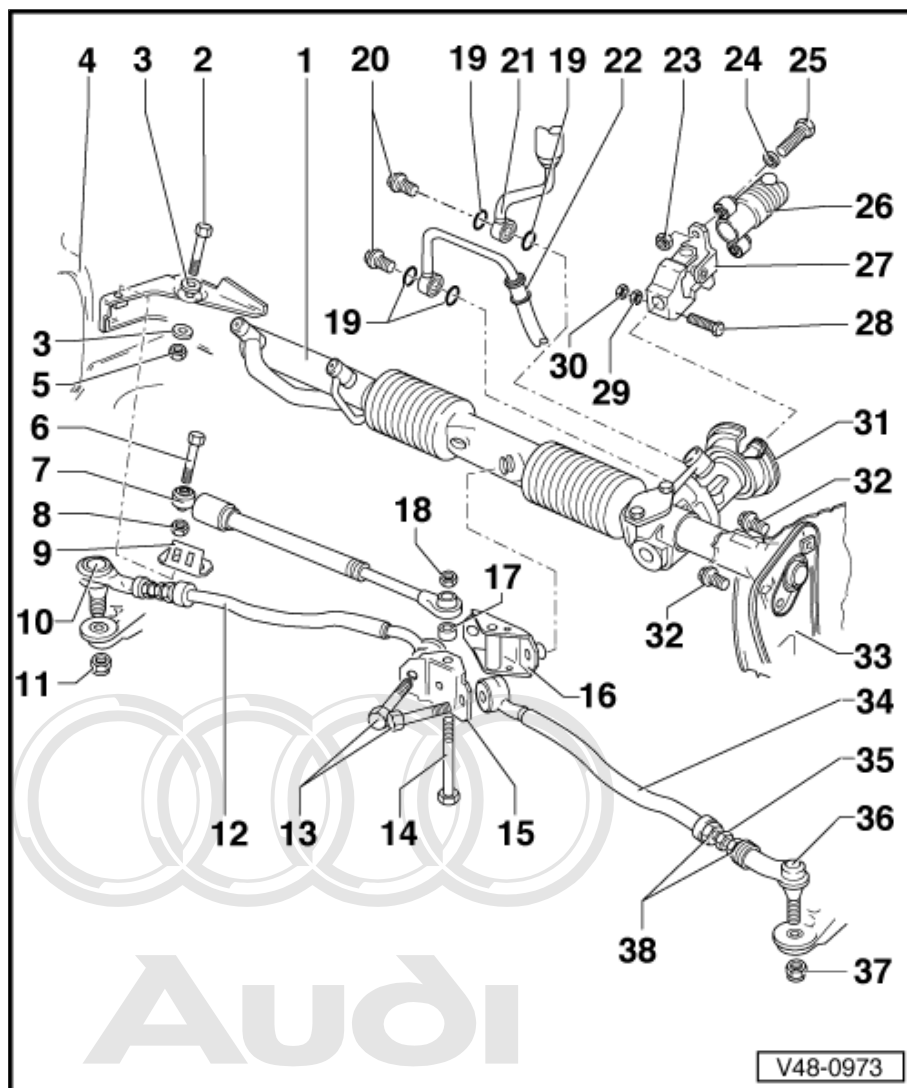
- ☐ Exploded view ⇒ [page 169](#)
- ☐ Pressing off ⇒ [page 168](#)

11 - Self-locking nut, 50 Nm

- ☐ Always replace after removing

12 - Right track rod

- ☐ Exploded view ⇒ [page 169](#)
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

V48-0973

13 - Bolt, 80 Nm

- ☐ The vehicle must be standing on its wheels when tightening

14 - Bolt

15 - Locking plate

- ☐ Always replace after removing

16 - Holder

- ☐ Pay attention to correct positioning in bellows
- ☐ Turn through 180° for fitting on right-hand drive vehicles (centring hole faces to right)

17 - Bushing

18 - Nut, 40 Nm

19 - Seals

- ☐ Always replace after removing

20 - Banjo bolt, 40 Nm

- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

21 - Expansion hose

- ☐ Bolt to rotary slide valve housing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

22 - Return hose

- ☐ Bolt to rotary slide valve housing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

23 - Self-locking nut, 25 Nm

- ☐ Always replace after removing

24 - Washer

25 - Bolt

26 - Steering column

27 - Universal joint

- ☐ Take out to remove steering box
- ☐ Attach to steering pinion and secure with bolt ⇒ [Item 28 \(page 167\)](#)

28 - Bolt

29 - Washer

30 - Self-locking nut, 25 Nm

- ☐ Always replace after removing

31 - Seal

- ☐ Take out before removing steering box
- ☐ Pay attention to correct positioning in bulkhead

32 - Bolt, 50 Nm

33 - Left wheel housing

34 - Left track rod

- ☐ Note on assembly ⇒ [page 169](#)

35 - Threaded section

- ☐ Adjusting toe at both track rods ⇒ [page 151](#)

36 - Left track rod end

- ☐ Exploded view ⇒ [page 169](#)
- ☐ Pressing off ⇒ [page 157](#)

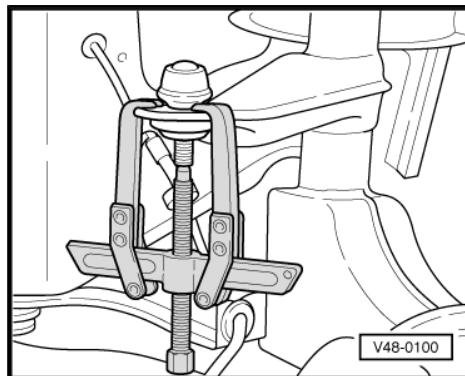
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

37 - Self-locking nut, 50 Nm

- Always replace after removing

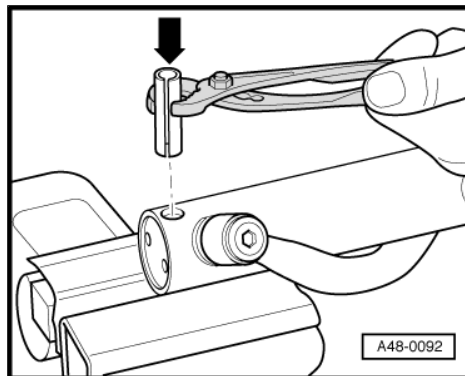
38 - Lock nut, 50 Nm

Pressing off track rod end



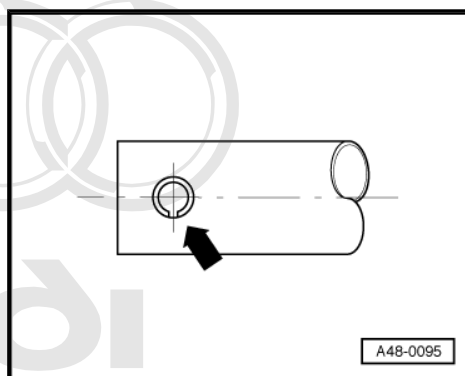
Driving in spring pin

- Insert soft jaws in the vice.
- Mount the steering box and use a hammer to carefully drive in the spring pin (two mechanics required).



Installation position of spring pin

- The slot of the spring pin must be perpendicular to the steering axis -arrow-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2.3 Exploded view of track rods

1 - Eye of track rod arm

- ❑ Offset faces in direction of travel ⇒ [page 169](#)

2 - Track rod

- ❑ Different versions; for assignment refer to ⇒ Electronic parts catalogue
- ❑ Offset track rod: Offset faces road surface ⇒ [page 170](#)

3 - Right track rod end

- ❑ Offset faces in direction of travel ⇒ [page 169](#)

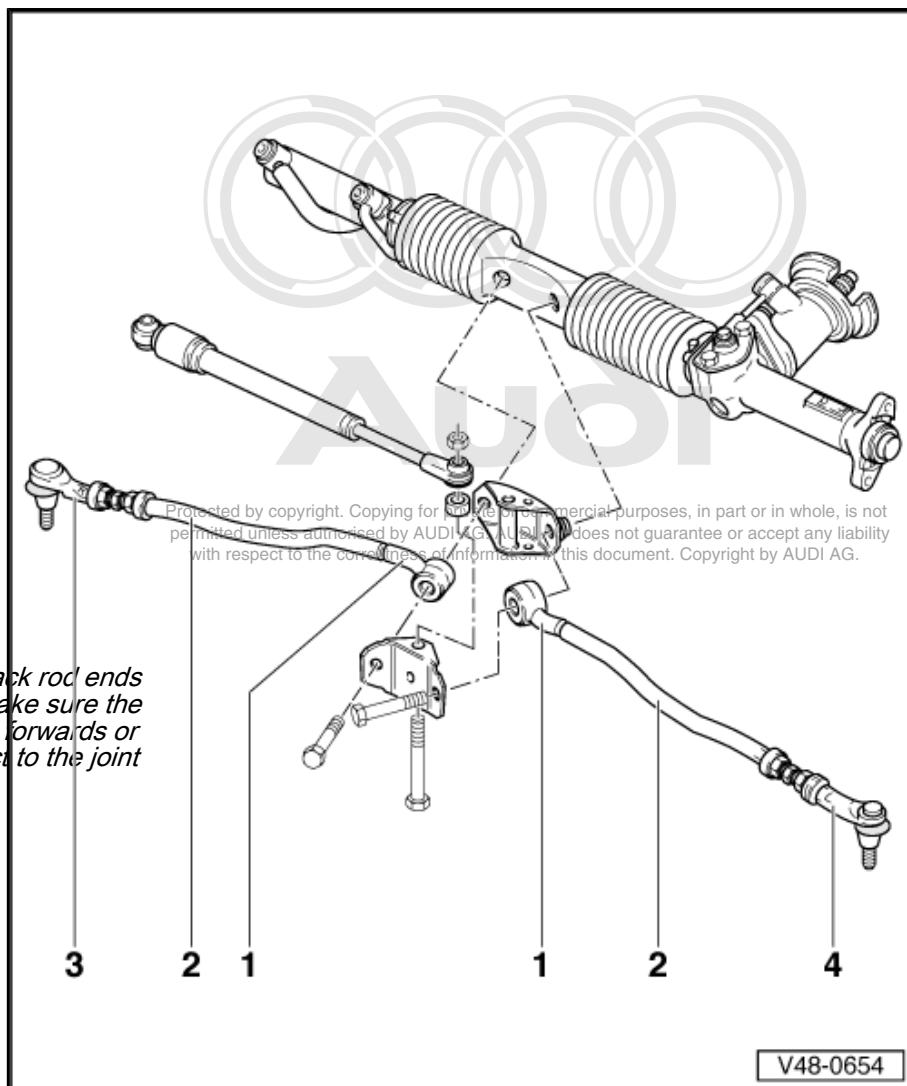
4 - Left track rod end

- ❑ Offset faces in direction of travel ⇒ [page 169](#)



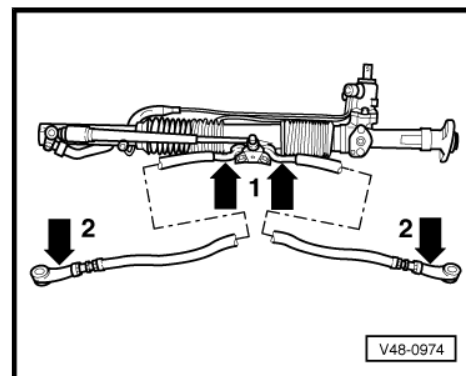
Note

When fitting the two track rod ends or adjusting the toe, make sure the two joints are not tilted forwards or backwards with respect to the joint pins.



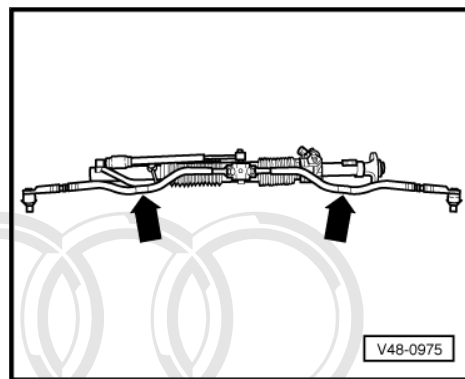
Attaching track rods to steering box

- Note the position of the offset at the eyes of the track rod arms -arrow 1- and at the track rod ends -arrow 2-.



Offset track rods

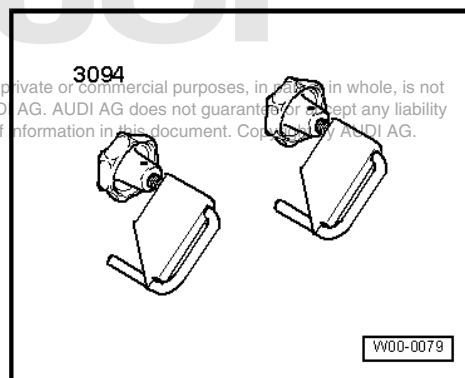
The offsets -arrows- face downwards towards the road surface.



2.4 Removing and installing power-assisted steering box

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-



Removing

If the power-assisted steering box has been removed and installed, centring of the corrugated tube must be checked before securing the universal joint on the steering pinion. Procedure for centring corrugated tube ➔ [page 207](#) .



Note

Removal and installation are described on the basis of an Audi S4 4.2.

Vehicles with airbag:

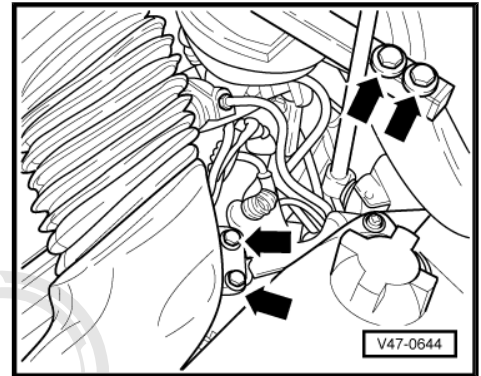


WARNING

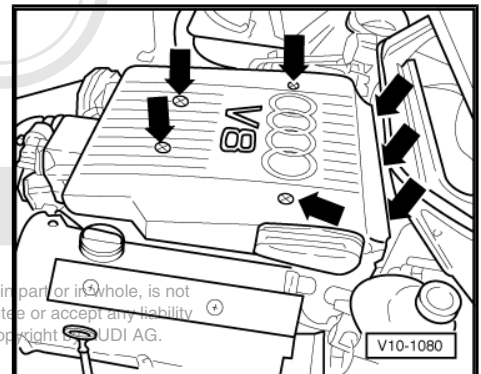
Move the steering wheel to the centre position and do not turn during repair work, as this could damage the coil connector of the airbag unit.

- Disconnect the battery ➔ Rep. Gr. 27 .
- Unscrew the front wheels.

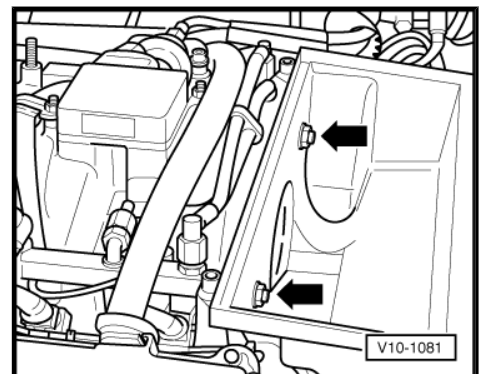
- Remove the anti-roll bar -right arrows-.
- Unscrew the air pipe holders on the right and left -left arrows-.
- Detach the air pipes.



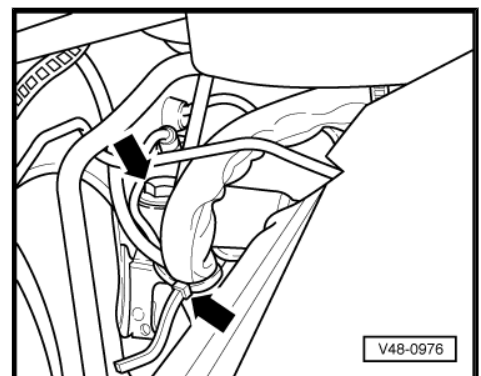
- Remove the top part of the air cleaner.



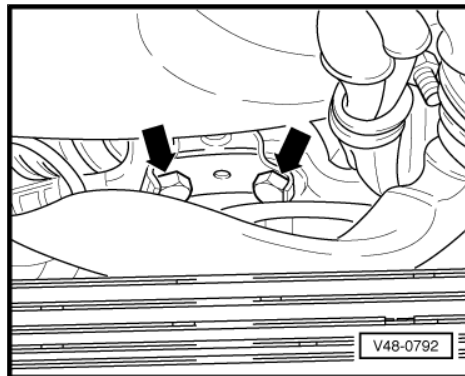
- Unscrew the bottom part of the air cleaner -arrows-, press to the rear and lift out.
- Remove the right and left distributor cap.



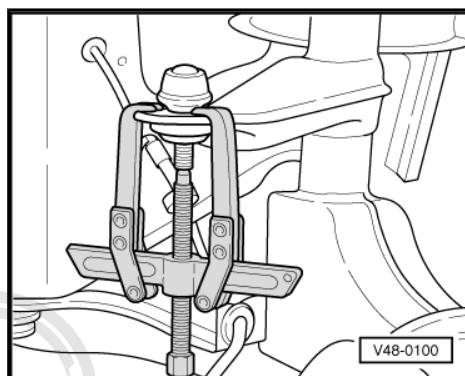
- Unfasten the cable tie -bottom arrow-, remove the steering damper -top arrow- and lift out.



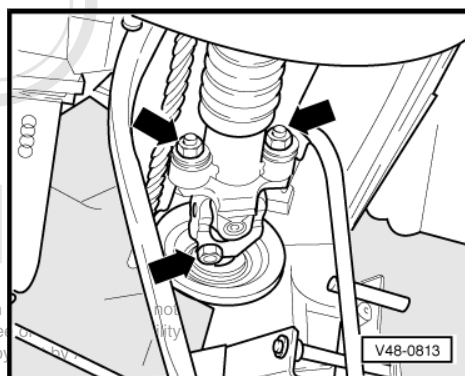
- Bend open the tabs of the locking plate and unscrew the track rods -arrows-.
- Unscrew the nuts from the track rod ends.



- Press the track rods off the steering arm.
- Prise both track rods out of the holder and the locking plate.
- Take out the track rods through the opening in the corresponding wheel housing.
- Take out the locking plate with holder.
- Remove the bottom left storage compartment.
- Take out the air vent in the footwell on the left.

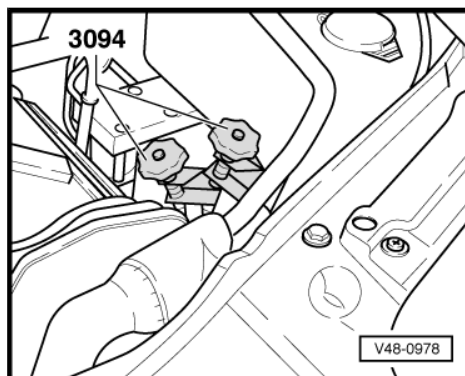


- Screw out the bolts of the universal joint -arrows-.
- Detach the universal joint from the steering box.
- Take out the bulkhead collar.

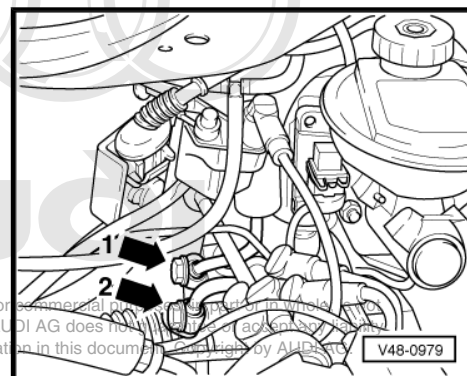


Protected by copyright. Copying for private or commercial purposes, in permitted unless authorised by AUDI AG. AUDI AG does not guarantee with respect to the correctness of information in this document. Copy

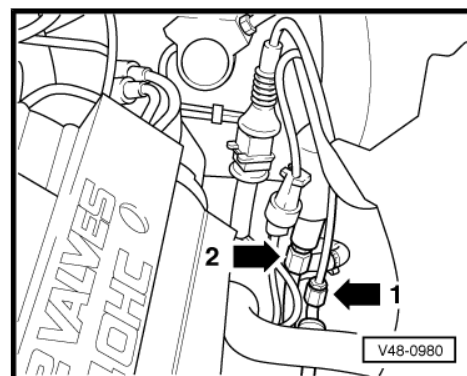
- Pinch off the suction and return pipes with hose clamps -3094- .



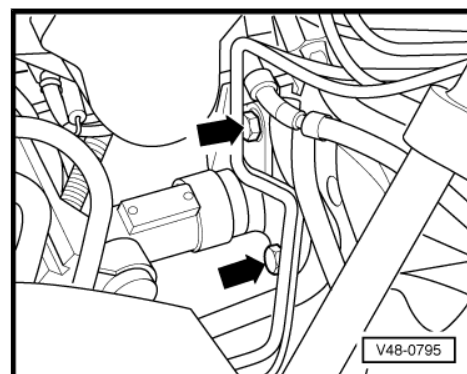
- Unscrew the expansion hose -1- and return hose -2- from the rotary slide valve housing.
- Vehicles with Servotronic: Unplug the connector at the Servotronic valve.



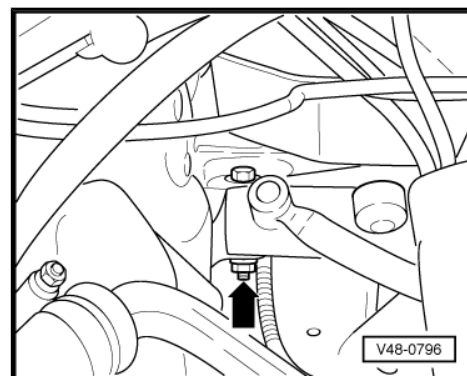
- Whilst providing support at the T-piece, unscrew the return pipe of the brake servo -1- from the T-piece.
- Unscrew the expansion hose -2- from the pressure pipe.
- Seal the T-piece and pressure pipe with a dummy plug.
- Push the expansion hose aside.



- Unscrew both bolts of the steering box in the left wheel housing -arrows-.



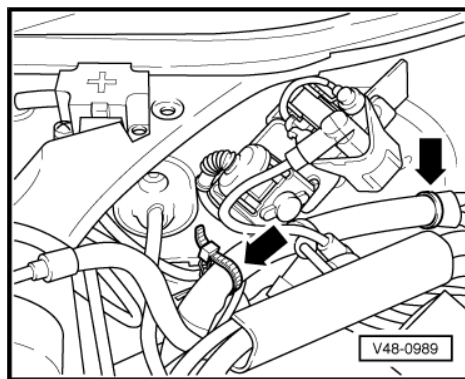
- Screw out the right steering box bolt -arrow-.
- Screw out the bolts of the Procon-ten mounting bracket on the right side and press aside the mounting bracket downwards.



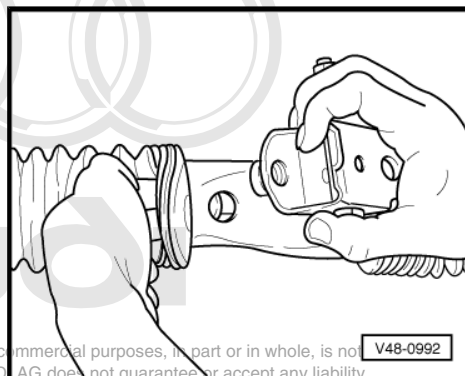
- Unfasten the cable tie for attaching the wiring harness from the bulkhead.
- Take the steering box out of the mounting bracket and guide the wiring harness round the steering box to the rear.
- Take out the steering box to the right through the wheel housing (two mechanics required).


Note

Take care not to damage the bellows of the steering box, the steering pinion splines and the refrigerant pipes of the air conditioner.

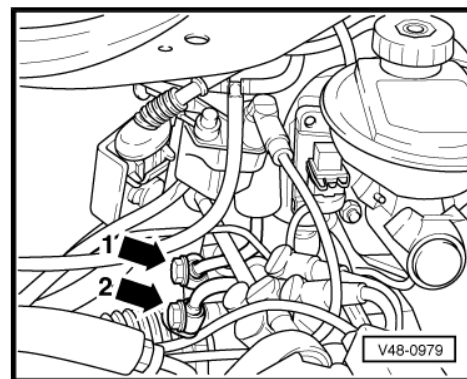

Installing

- Insert the steering box, paying attention to correct positioning of the wiring harnesses.
- Carefully re-insert the bulkhead collar.
- Fasten the holder into the bellows.
- Screw both bolts for track rod attachment loosely into the holder.
- Plug in the connector for the Servotronic valve.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Provide the annular nipples for the expansion hose -1- and the return hose -2- with new seals and screw the banjo bolts loosely into the rotary slide valve housing.
- Insert the steering box in the bulkhead collar and the bracket on the right.
- Insert the right steering box bolt.
- Insert and tighten the left steering box bolts.
- Tighten the right bolt.
- Screw the expansion hose to the pressure pipe whilst providing support at the hexagon of the expansion hose.
- Whilst providing support at the T-piece, screw the return pipe of the brake servo into the T-piece and secure.
- Attach the return hose and expansion hose to the rotary slide valve housing such that neither makes any contact.
- Detach the hose clamps -3094- from the return hose and suction hose.
- Fit the Procon-ten mounting bracket (insert the lower bolt first and then the upper bolt).
- Tighten the lower and then the upper bolt to 75 Nm.



Note

Make sure the cables are correctly positioned.

- Screw the left bolt out of the holder for track rod attachment.
- Insert the left track rod in the holder and loosely screw in the bolt.
- Screw the right bolt out of the holder for track rod attachment.
- Insert the right track rod in the holder and loosely screw in the bolt.
- Only tighten the two bolts to torque with the vehicle standing on its wheels.
- Pay attention to correct positioning of the holder in the bellows.
- Install the steering damper:
 - ◆ Pay attention to the different lengths of the spacer sleeves. The shorter sleeve is installed between the holder and the steering damper.
 - ◆ Press down the bolt in the holder slightly to insert the steering damper.
- Attach the wiring harnesses with cable ties to the bulkhead and cable holders.
- Fit and secure the right and left distributor cap.
- Slip the universal joint onto the steering pinion.
- Insert and tighten the steering column/universal joint bolts.
- Insert and tighten the new universal joint/steering pinion clamping bolt.
- Screw on the front wheels.
- Lower the vehicle and tighten the wheel nuts to 120 Nm.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the correctness of the information in this document. Copyright by AUDI AG.



- Tighten the bolts, track rods and steering box to the specified torque and secure.
- Connect the battery ⇒ Rep. Gr. 27 .
- Check the hydraulic fluid level and replenish the fluid if necessary.
- Bleed the brake system and check for leaks ⇒ Rep. Gr. 47 .
- Fit the air cleaner.
- Fit the anti-roll bar.
- Check the position of the steering wheel and perform front axle wheel alignment if necessary.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Power-assisted steering box

⇒ [“3.1 General”, page 177](#)

⇒ [“3.2 Exploded view of power-assisted steering box”, page 177](#)

⇒ [“3.3 Adjusting steering box”, page 179](#)

3.1 General



Note

- ◆ *Heed the general information ⇒ [page 2](#).*
- ◆ *Moisten all sealing elements with hydraulic fluid before installing.*
- ◆ *The hydraulic fluid drained off is not to be re-used.*
- ◆ *If the power-assisted steering box has been removed and installed, centring of the corrugated tube must be checked before securing the universal joint on the steering pinion. Procedure for centring corrugated tube ⇒ [page 207](#).*

3.2 Exploded view of power-assisted steering box



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Banjo bolt, 20 Nm

2 - Seals

- ❑ Always replace after removing

3 - Banjo bolt, 20 Nm

4 - Holder

- ❑ Insert between the pipes

5 - Pipe

6 - Pipe with vibration damper

7 - Adjusting screw

- ❑ Adjusting ➔ [page 179](#)

8 - Bolt, 20 Nm

9 - Seal

- ❑ Always replace after removing

10 - Cover

- ❑ Installation position:
The two adjacent holes face in the direction of travel

11 - Seal

- ❑ Always replace after removing

12 - Compression spring

13 - Washer

14 - Spring pin

- ❑ Slotted side faces in longitudinal direction of rack

15 - Thrust pieces

16 - Steering box

- ❑ Lubricate the rack with steering box grease; for steering box grease, refer to ➔ Electronic parts catalogue
- ❑ Replace the steering box in the event of piston rod seal leakage
- ❑ If the power-assisted steering box has been removed and installed, centring of the corrugated tube must be checked before securing the universal joint on the steering pinion. Procedure for centring corrugated tube ➔ [page 207](#).

17 - Clamp

- ❑ Always replace after removing
- ❑ Tensioning ➔ [page 179](#)

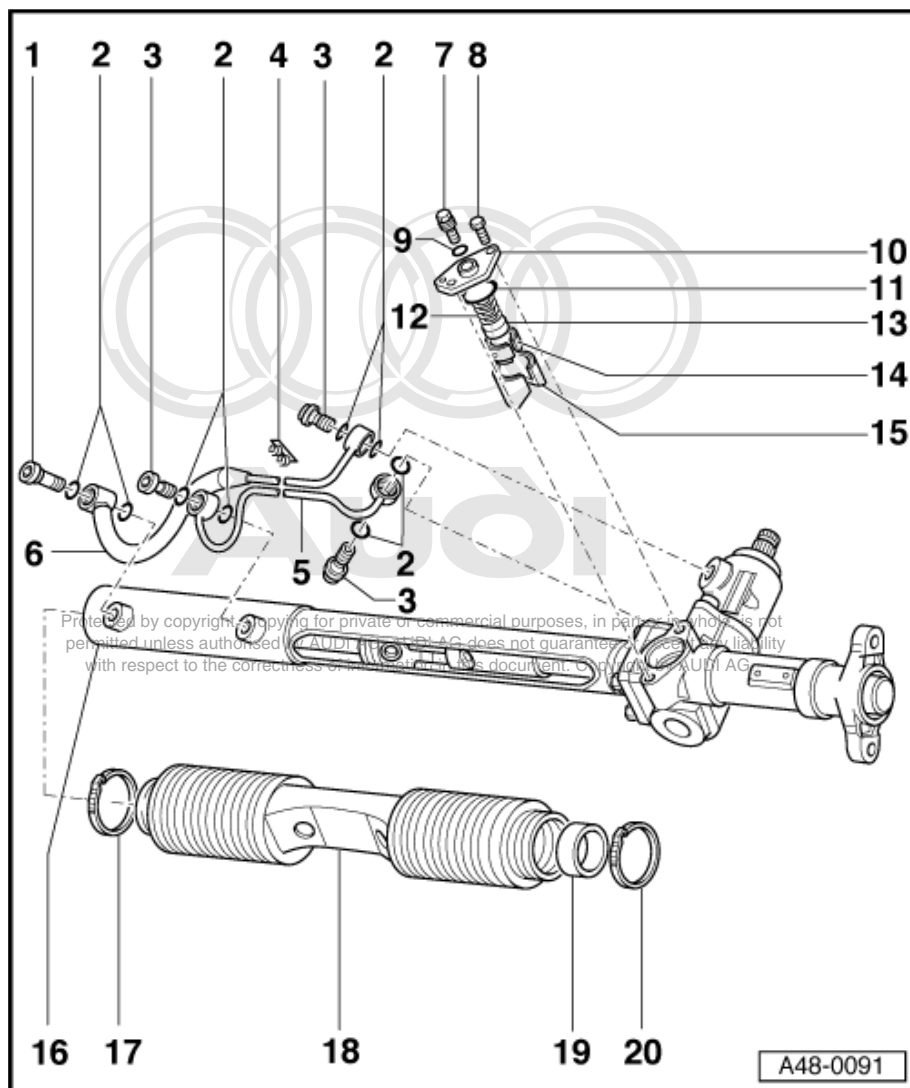
18 - Bellows

- ❑ Replacement involves removing the steering box
- ❑ Lubricate the rack with steering box grease -A0F 063 000 04-
- ❑ Installation position ➔ [page 179](#)

19 - Spacer sleeve

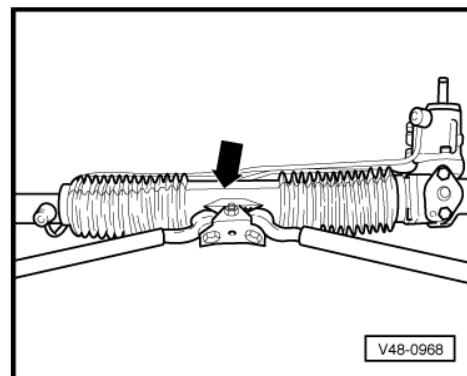
20 - Clamp

- ❑ Always replace after removing



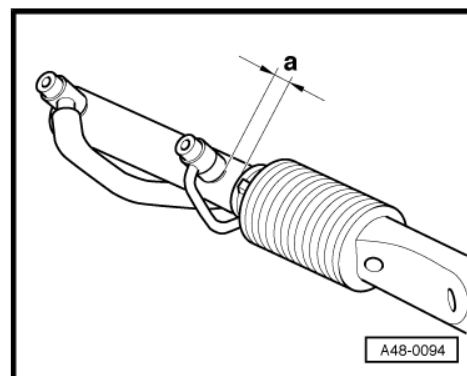
Installation position of bellows

- Take care not to twist the bellows on installation.
- The manufacturing mark/coloured identification line must run in parallel with the steering box.



Tensioning clamp

- Dimension -a- = 15 ± 2 mm



3.3 Adjusting steering box

Protected by copyright. Copying, storing, or commercial use in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

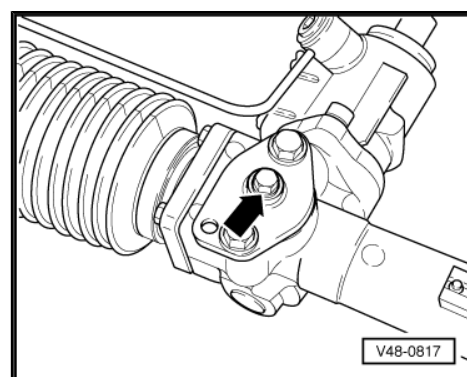


Note

Two mechanics are required to perform adjustment. Adjustment work is to be performed with the engine switched off and the vehicle standing on its wheels.

Sequence of operations

- Wheels in straight-ahead position
- Moving the steering wheel from side to side (roughly 30° around the centre axis) will produce a rattling noise in the event of excessive steering play.
- Have the second mechanic carefully screw the adjusting screw -arrow- into the cover until the rattling noise disappears inside the vehicle.
- The adjusting screw is then to be screwed in by a further approx. 45° (= $\frac{1}{8}$ of a turn).
- Carry out a test drive. In doing so, make sure the steering returns smoothly and automatically to the straight ahead position after manoeuvring or cornering.
- Screw out the adjusting screw by approx. 15° if the steering does not return automatically to the straight ahead position.



4 Servotronic

⇒ [“4.1 General ”, page 180](#)

⇒ [“4.2 Exploded view of Servotronic”, page 180](#)

⇒ [“4.3 Checking power supply for Servotronic - Vehicles up to Model Year 1993”, page 182](#)

⇒ [“4.4 Checking power supply for Servotronic - Vehicles as of Model Year 1994”, page 183](#)

⇒ [“4.5 Checking Servotronic solenoid valve N119 - Vehicles up to Model Year 1993”, page 183](#)

⇒ [“4.6 Checking Servotronic solenoid valve N119 - Vehicles as of Model Year 1994”, page 184](#)

⇒ [“4.7 Checking vehicle speed signal - Vehicles as of Model Year 1994”, page 185](#)

⇒ [“4.8 Checking wiring between Servotronic control unit J236 and connector point 1 - Vehicles up to Model Year 1993”, page 186](#)

⇒ [“4.9 Checking wiring between Servotronic solenoid valve N119 and connector point 1 - Vehicles up to Model Year 1993”, page 187](#)

⇒ [“4.10 Checking valve wiring for short to voltage”, page 188](#)

⇒ [“4.11 Checking valve wiring for short to earth”, page 189](#)

4.1 General

On vehicles with Servotronic, the steering assistance is regulated electronically as a function of vehicle speed.

In the event of failure of the electronics, the steering operates in the same manner as conventional power-assisted steering.

Failure is indicated by:

- ◆ The need for more steering force than usual when manoeuvring the vehicle.
- ◆ Steering unusually light at high vehicle speeds

If the power-assisted steering is heavy on one side, e.g. light steering to right but heavy steering to left, this is an indication of a hydraulic fault.



Note

In such cases the steering box must be replaced.

4.2 Exploded view of Servotronic



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Servotronic control unit - J236-

- ☐ Checking power supply
⇒ [page 182](#)
- ☐ Checking vehicle speed
signal ⇒ [page 185](#)

Fitting location up to Model
Year 1993

- ☐ On passenger's side be-
hind glove box
- ☐ Removing ⇒ [page 182](#)

Fitting location as of Model
Year 1994

- ☐ Relay carrier 1 in ple-
num chamber, position
16

2 - Holder

- ☐ Discontinued as of Mod-
el Year 1994

3 - Self-tapping screw

- ☐ Discontinued as of Mod-
el Year 1994

4 - Speed nut

- ☐ Discontinued as of Mod-
el Year 1994

5 - Connector for Servotronic control unit

- ☐ Discontinued as of Mod-
el Year 1994
- ☐ Checking wiring
⇒ [page 186](#)

6 - Connector point "1"

- ☐ Fitting location up to Model Year 1993: On driver's side beneath dash panel insert ⇒ [page 182](#)
- ☐ No longer of relevance to Servotronic as of Model Year 1994

7 - Connector for Servotronic solenoid valve -N119-

- ☐ Up to Model Year 1993 connected to dash panel wiring harness at connector point "1" ⇒ [page 182](#)
- ☐ Checking wiring ⇒ [page 186](#)
- ☐ As of Model Year 1994 connected to relay carrier 1 in plenum chamber

8 - Strainer

9 - Seal

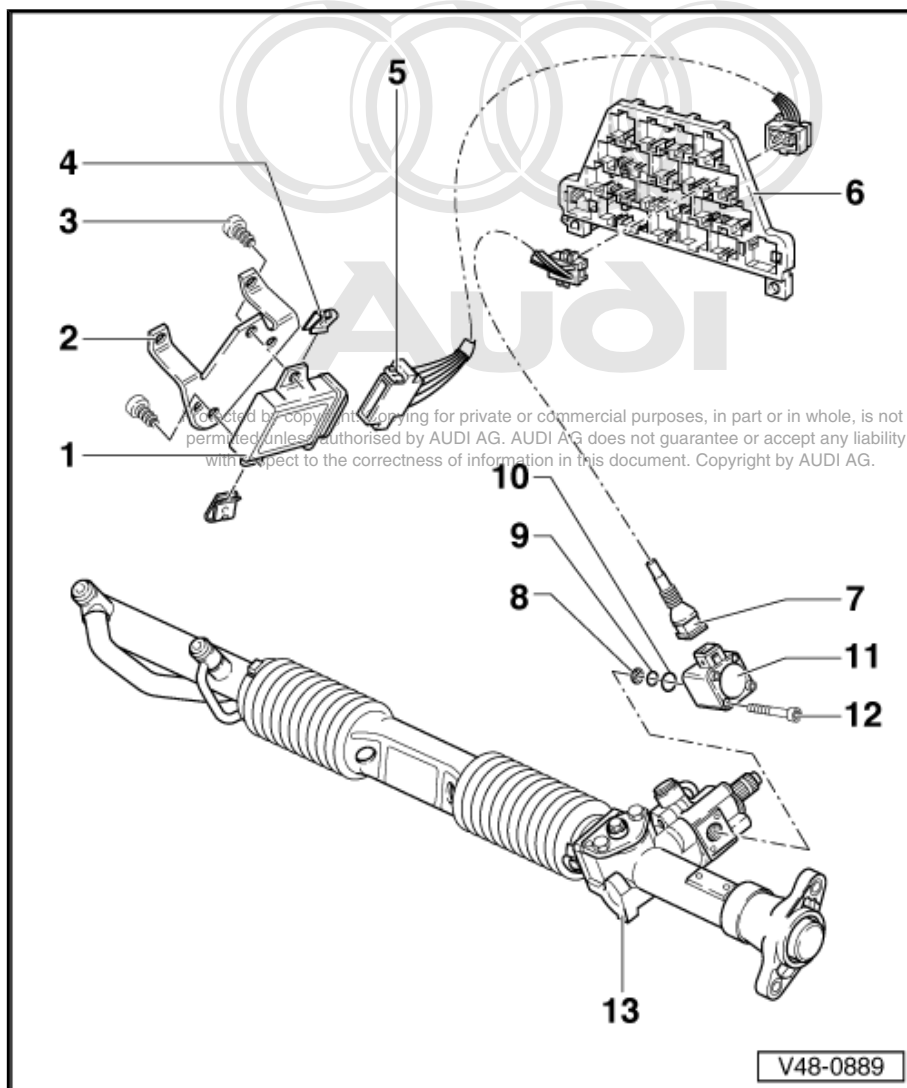
- ☐ Always replace

10 - Seal

- ☐ Always replace

11 - Servotronic solenoid valve -N119-

- ☐ Remove vacuum brake servo to clean or replace ⇒ Rep. Gr. 47
- ☐ On vehicles with hydraulic brake servo this does not have to be removed
- ☐ Checking up to Model Year 1993 ⇒ [page 183](#)
- ☐ Checking as of Model Year 1994 ⇒ [page 184](#)



12 - Bolt, 3 Nm

13 - Steering box

- ❑ Audi 100/A6 exploded view ➔ [page 154](#)
- ❑ Audi S4/S6 exploded view ➔ [page 165](#)

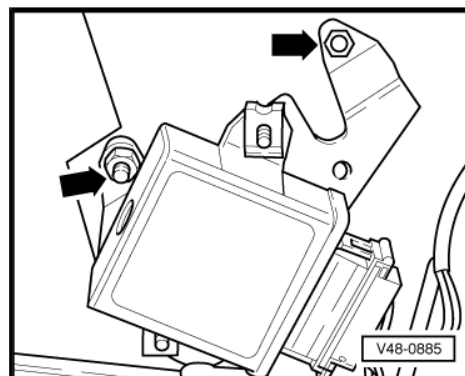
Removing Servotronic control unit -J236- - vehicles up to Model Year 1993

- Remove the glove box ➔ Rep. Gr. 70 .
- Remove the holder with the Servotronic control unit -arrows-.
- Unplug the connector from the Servotronic control unit.
- Detach the Servotronic control unit from the holder.



Note

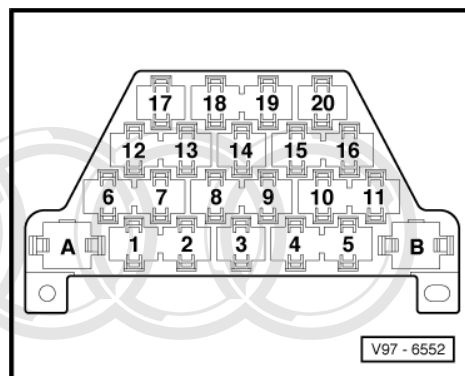
On vehicles with cruise control, the cruise control unit is attached to the same holder as the Servotronic control unit.



Connector point "1" - vehicles up to Model Year 1993

Fitting location: Driver's side, beneath dash panel.

9 - Orange connector for Servotronic and ambient temperature



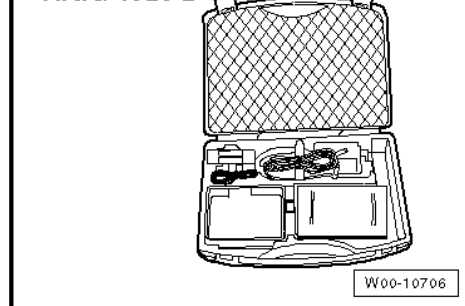
4.3 Checking power supply for Servotronic - Vehicles up to Model Year 1993

Special tools and workshop equipment required

- ◆ Portable multimeter -V.A.G 1526D-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

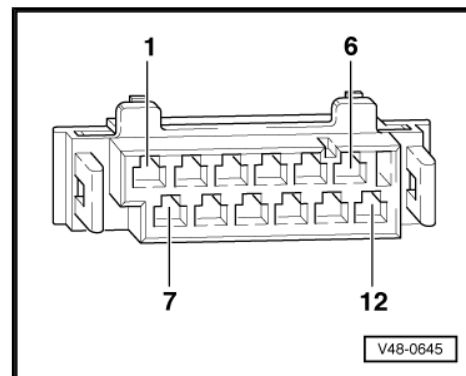
V.A.G 1526 D



Sequence of operations

- Remove the glove box ➔ Rep. Gr. 70 .
- Unplug the connector from the Servotronic control unit -J236- .
- Switch on ignition.
- Set the portable multimeter to the up to 20 V measuring range.

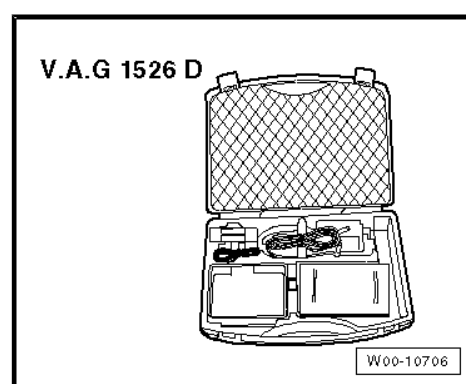
- Take the measurement at the relay connector between contacts “2” and “7”.
- Specification: approx. 12 V
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



4.4 Checking power supply for Servotronic - Vehicles as of Model Year 1994

Special tools and workshop equipment required

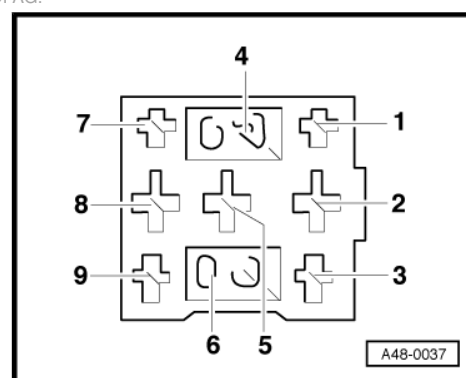
- ◆ Portable multimeter -V.A.G 1526D-



Sequence of operations

- Open the box in the passenger's footwell.
- Disconnect the Servotronic control unit -J236- relay from relay carrier 1, position 16.
- Switch on ignition
- Set the portable multimeter to the up to 20 V measuring range.
- Take the measurement at the relay connector between contacts “6” and “8”.
- Specification: approx. 12 V
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



4.5 Checking Servotronic solenoid valve - N119- - Vehicles up to Model Year 1993

Special tools and workshop equipment required

◆ Portable multimeter -V.A.G 1526D-



◆ Adapter set -V.A.G 1594C-



Sequence of operations

- Remove the vacuum brake servo ➔ Rep. Gr. 47 .

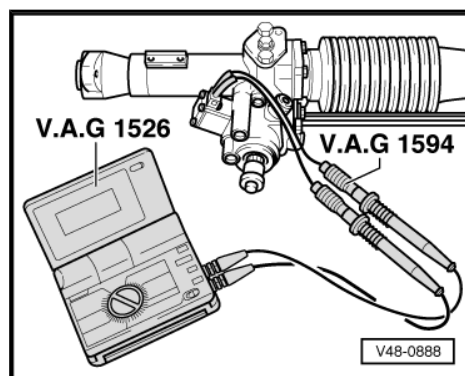


Note

On vehicles with hydraulic brake servo this does not have to be removed.

- Unplug the connector from the Servotronic solenoid valve - N119- .
- Set the portable multimeter to the resistance measuring range up to 200 Ω .
- Take the measurement between the contacts of the Servotronic solenoid valve -N119- .
- Specification: 6 ... 12 Ω .
- If the reading does not match the specification, replace the Servotronic solenoid valve -N119- .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



4.6 Checking Servotronic solenoid valve - N119- - Vehicles as of Model Year 1994

Special tools and workshop equipment required

◆ Portable multimeter -V.A.G 1526D-



◆ Adapter set -V.A.G 1594C-

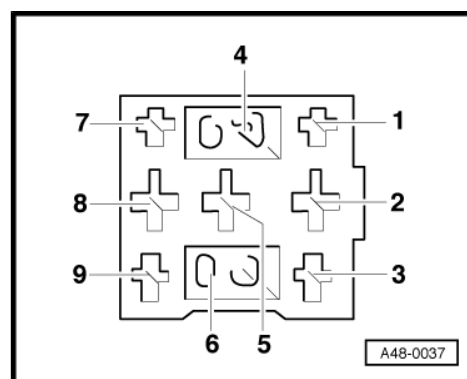


Sequence of operations

- Open the box in the passenger's footwell.
- Disconnect the Servotronic control unit -J236- relay from relay carrier 1, position 16.
- Set the portable multimeter to the resistance measuring range up to 200 Ω .
- Take the measurement at the relay connector between contacts "2" and "5".
- Specification: 6 ... 12 Ω .

If the reading does not match the specification:

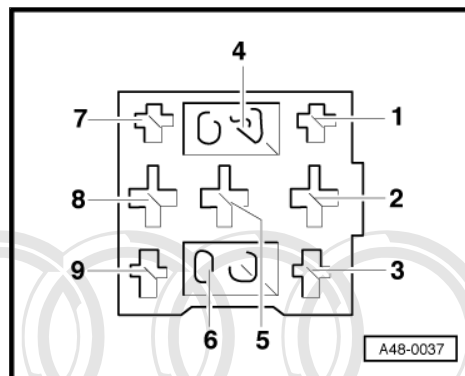
- Unplug the connector from the Servotronic solenoid valve - N119- .
- Check for short circuit and open circuit in the wiring between the relay connector and the connector for the Servotronic valve $\Rightarrow$ Current flow diagrams, Electrical fault finding and Fitting locations.
- If the wiring is OK, replace the Servotronic solenoid valve - N119- .



4.7 Checking vehicle speed signal - Vehicles as of Model Year 1994

Sequence of operations

The vehicle speed signal comes from the dash panel insert.



4.8 Checking wiring between Servotronic control unit -J236- and connector point "1" - Vehicles up to Model Year 1993

Special tools and workshop equipment required

- ◆ Portable multimeter -V.A.G 1526D-

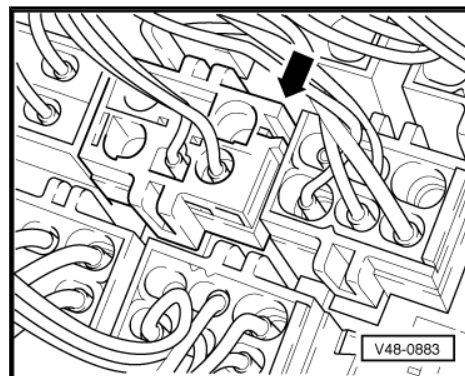


- ◆ Adapter set -V.A.G 1594C-

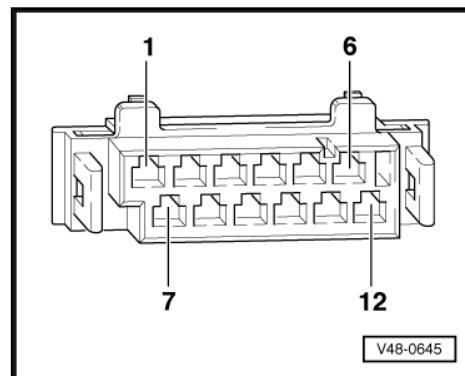


Sequence of operations

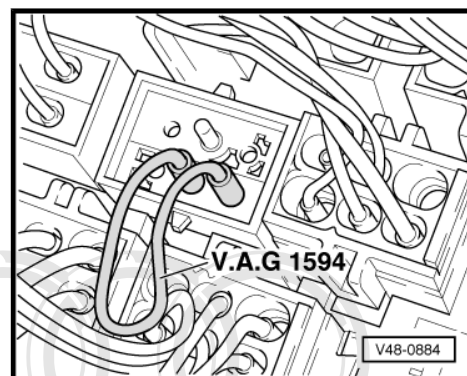
- Remove the glove box and storage compartment on the driver's side ⇒ Rep. Gr. 70 .
- Unplug the connector from the Servotronic control unit -J236- .
- At connector point "1" unplug the orange connector -arrow-.



- Set the portable multimeter to the resistance measuring range.
- Take the measurement between contacts “8” and “11” at the connector of the Servotronic control unit -J236- .
- Specification: $\infty \Omega$.
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



- If the reading matches the specification, use the adapter set to jumper contacts “5” and “6” at the orange connector at connector point “1”.
- Specification: 0Ω .
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

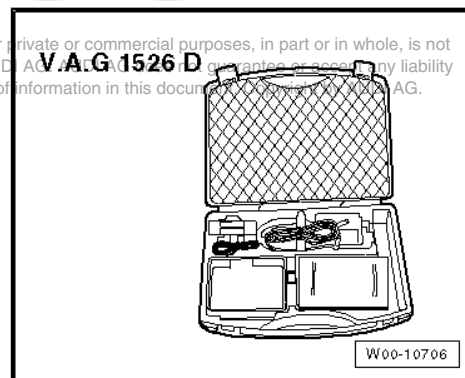


4.9 Checking wiring between Servotronic solenoid valve -N119- and connector point “1” - Vehicles up to Model Year 1993

Special tools and workshop equipment required

- ◆ Portable multimeter -V.A.G 1526D-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. © AUDI AG.



- ◆ Adapter set -V.A.G 1594C-



Sequence of operations

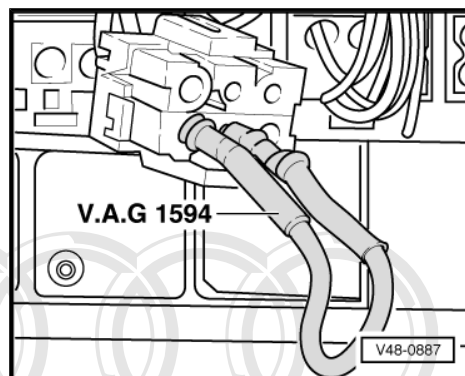
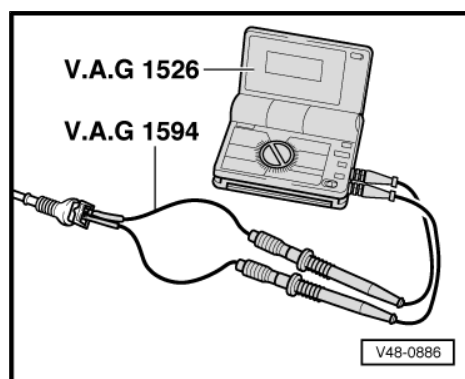
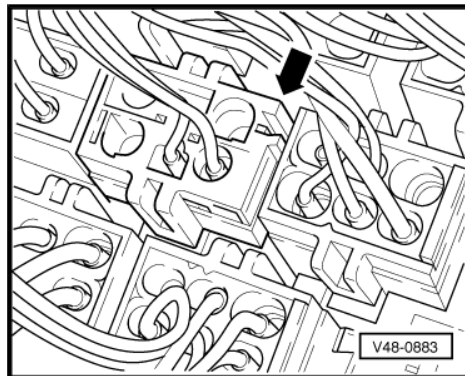
- Remove the driver's storage compartment ⇒ Rep. Gr. 70 .
- At connector point "1" unplug the orange connector -arrow-.
- Remove the vacuum brake servo ⇒ Rep. Gr. 47 .



Note

On vehicles with hydraulic brake servo this does not have to be removed.

- Unplug the connector from the Servotronic solenoid valve - N119- .
- Set the portable multimeter to the resistance measuring range.
- Take the measurement between contacts "1" and "2" at the connector of the Servotronic solenoid valve -N119- .
- Specification: $\infty \Omega$.
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- If the reading matches the specification, use the adapter set to jumper contacts "5" and "6" at the orange connector at connector point "1".
- Specification: 0Ω .
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



4.10 Checking valve wiring for short to voltage

Special tools and workshop equipment required

- ♦ Portable multimeter -V.A.G 1526D-



Protected by copyright. Copying for private or commercial purposes in whole or in part is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this publication. Copyright by AUDI AG.

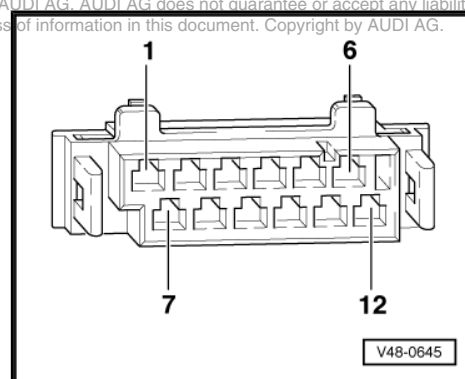
◆ Adapter set -V.A.G 1594C-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Sequence of operations

- Remove the glove box ⇒ Rep. Gr. 70 .
- Unplug the connector from the Servotronic control unit -J236- .
- Set the portable multimeter to the resistance measuring range.
- Take the measurement between contacts “7” and “8” or “7” and “11” at the connector of the Servotronic control unit - J236- .
- Specification: $\infty \Omega$.
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



4.11 Checking valve wiring for short to earth

Special tools and workshop equipment required

◆ Portable multimeter -V.A.G 1526D-

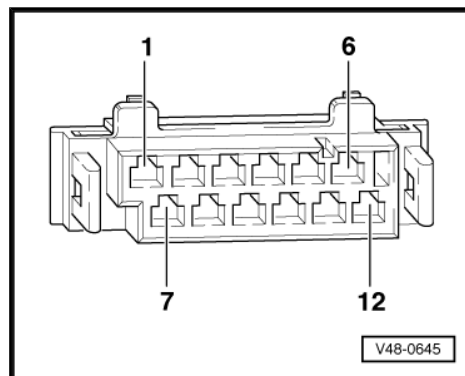


◆ Adapter set -V.A.G 1594C-



Sequence of operations

- Remove the glove box and storage compartment on the driver's side ⇒ Rep. Gr. 70 .
- Unplug the connector from the Servotronic control unit -J236- .
- Set the portable multimeter to the resistance measuring range.
- Take the measurement between contacts "2" and "11", as well as "2" and "8" at the connector of the Servotronic control unit -J236- .
- Specification: $\infty \Omega$.
- If the reading does not match the specification, check the wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

5 Steering wheels

- ⇒ [“5.1 Safety precautions when working on airbag”, page 191](#)
- ⇒ [“5.2 Exploded view of steering wheel with airbag”, page 191](#)
- ⇒ [“5.3 Removing and installing steering wheel with airbag”, page 192](#)
- ⇒ [“5.4 Exploded view of steering wheel without airbag”, page 193](#)
- ⇒ [“5.5 Removing and installing steering wheel”, page 194](#)
- ⇒ [“5.6 Removing and installing steering column switch”, page 195](#)
- ⇒ [“5.7 Exploded view of steering column switch for adjustable steering column”, page 195](#)
- ⇒ [“5.8 Removing and installing steering column switch for adjustable steering column”, page 196](#)

5.1 Safety precautions when working on airbag

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. Responsibility for any damage caused by incorrect use of the information in this document. Copyright by AUDI AG.

◆ **Testing, fitting and servicing work are only to be performed by qualified personnel.**

- ◆ The battery earth strap must be disconnected when working on the airbag system. No waiting time is necessary after disconnecting the battery. Make sure there is no-one in the vehicle when connecting the airbag system to a voltage source.
- ◆ Never perform tests using a test lamp, voltmeter or ohmmeter.
- ◆ The airbag system is only to be checked in situ with the ⇒ Vehicle diagnosis, testing and information system VAS 5051.
- ◆ Airbag units are never to be left unattended.
- ◆ Following removal, airbag units are to be stored with the cushioned side facing upwards.
- ◆ Airbag units which have been dropped onto a hard surface or reveal signs of damage are no longer to be fitted.
- ◆ Non-triggered airbag units are to be marked and returned to the manufacturer for disposal (using airbag unit transportation container).
- ◆ Airbag units must be installed immediately following removal from their transportation containers.
- ◆ The airbag unit must be returned to its transportation container if work has to be interrupted.
- ◆ Airbag components are not to be opened or repaired. Always use new components.
- ◆ Airbag units are not to be treated with grease, cleaning agents or the like.
- ◆ Airbag units are never to be exposed to temperatures in excess of 100° C (even for brief periods).

5.2 Exploded view of steering wheel with airbag

1 - Bolt, 6 Nm

- Torx "T30"

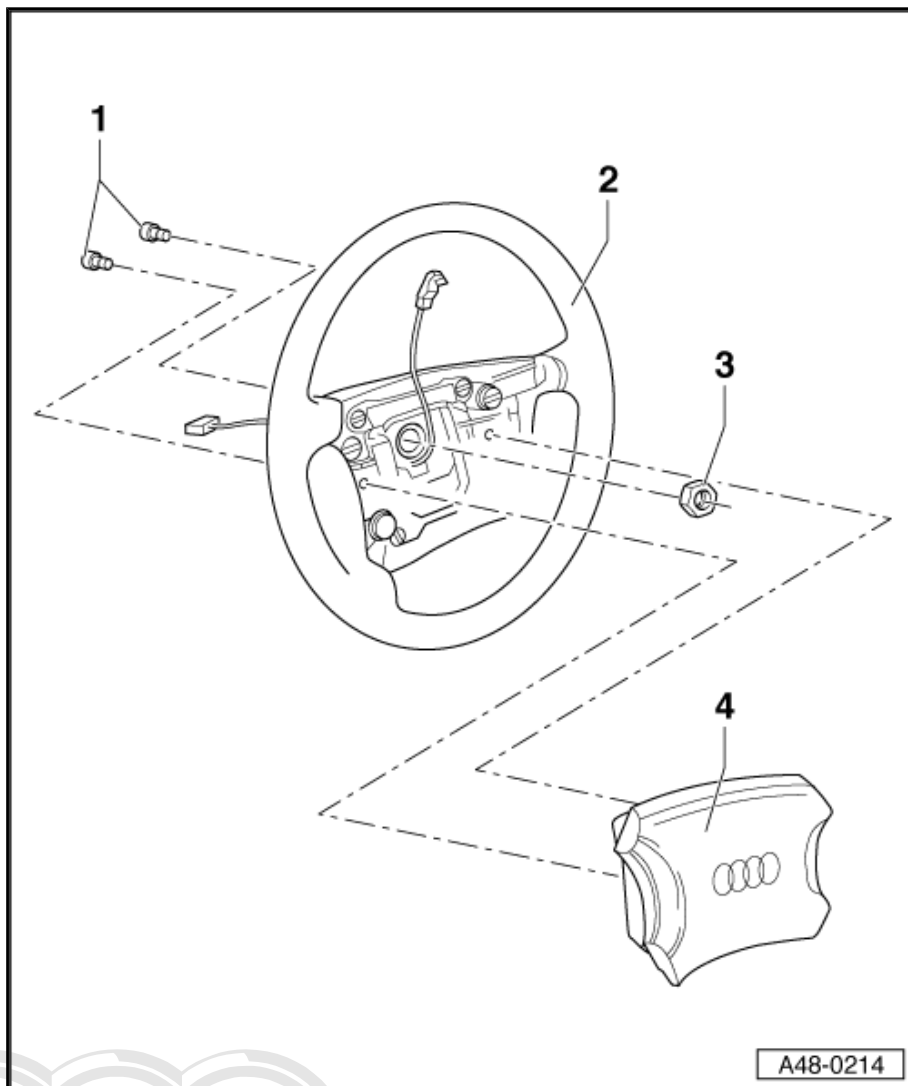
2 - Steering wheel

- Attach in centre position
- Removing and installing
⇒ [page 192](#)

3 - Nut, 40 Nm

4 - Airbag unit

- Heed safety precautions
⇒ [page 191](#)



5.3 Removing and installing steering wheel with airbag

Heed the safety precautions for working on airbags ⇒ [page 191](#) .



WARNING

The following prerequisites must be satisfied before removing the steering wheel:

- ◆ **Disconnect the earth strap from the battery.**
- ◆ **Make sure the wheels are in straight-ahead position.**

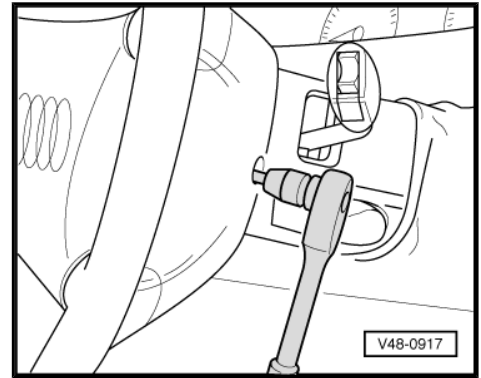
If the steering wheel has been removed, the coil connector in the steering wheel is never to be turned.

Non-compliance with the above could lead to subsequent airbag system failure.

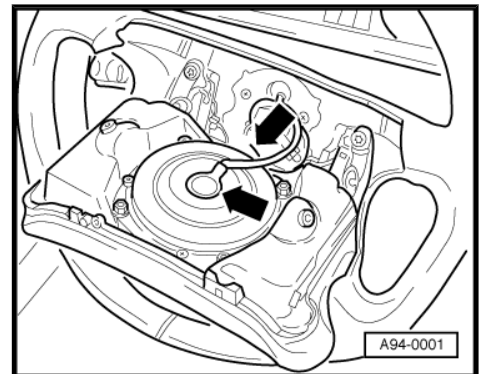
Before fitting the steering wheel, move the turn signal indicator switch to the zero position to ensure that the reset cam of the switch is not damaged.

Removing

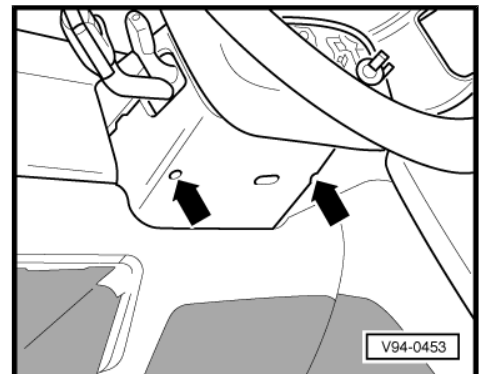
- Disconnect the battery earth strap ⇒ Rep. Gr. 27 .
- Use a Torx insert to unscrew the airbag unit on the left and right of the steering wheel from the rear.



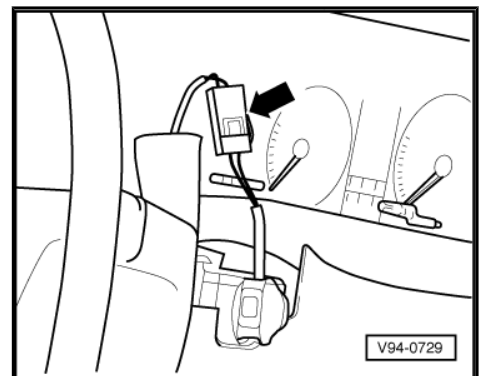
- Fold the airbag unit forwards.
- Disengage the safety catch if fitted.
- Unplug the connector of the airbag unit.
- Detach the airbag unit.



- Unscrew and detach the upper steering column switch trim.



- Unplug the connector -arrow- (if fitted, detach the foam sheath from the connector).
- Unscrew and detach the steering wheel.



Installing

Install in reverse order.



WARNING

Make sure there is no-one in the vehicle when connecting the battery earth strap.

5.4 Exploded view of steering wheel without airbag

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Steering column switch

- ☐ Removing and installing
⇒ [page 195](#)
- ☐ Apply a small quantity of grease to the slip ring

2 - Coil connector with slip ring

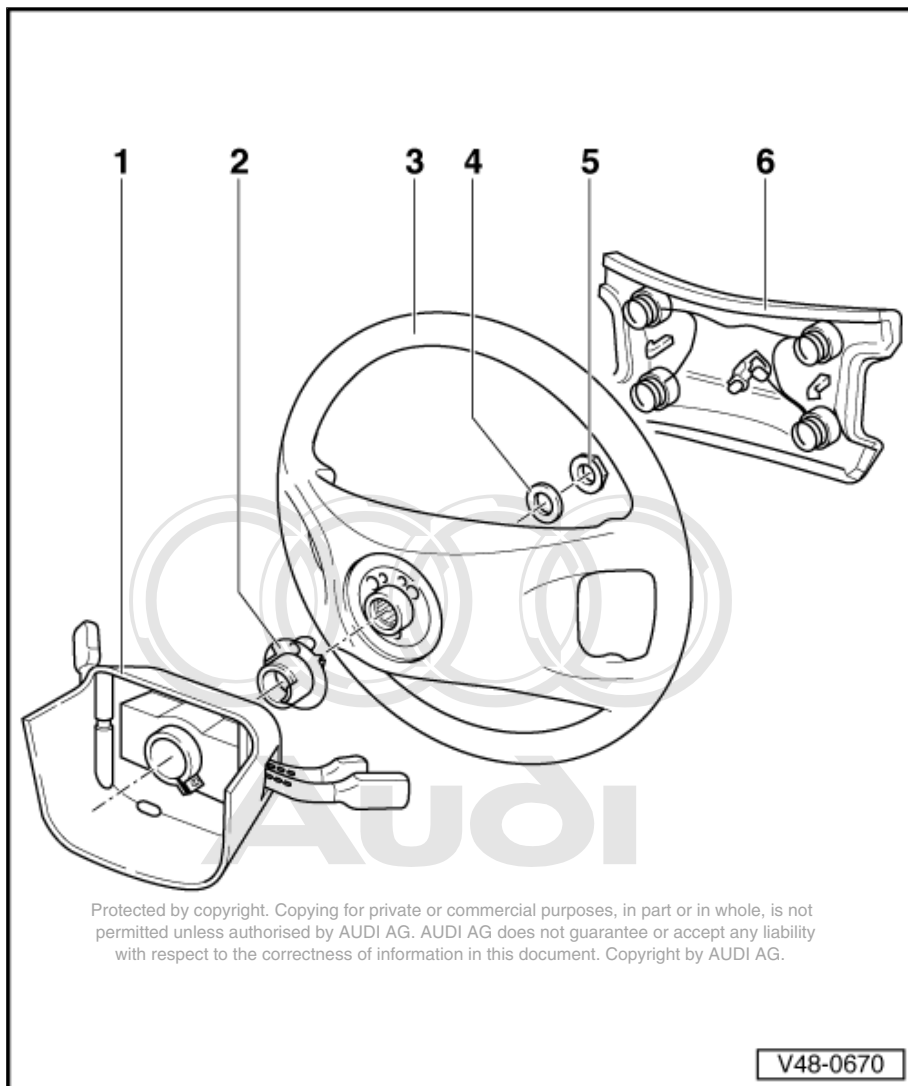
3 - Steering wheel

- ☐ Removing and installing
⇒ [page 194](#)
- ☐ Attach in centre position
- ☐ On attachment, the turn signal indicator stalk must be in the centre position

4 - Spring lock washer

5 - Nut, 40 Nm

6 - Trim cap



5.5 Removing and installing steering wheel

Removing

- Release the trim cap from the attachment points by tugging on the upper and lower half.
- Press the trim cap to one side and detach.



Note

Failure to comply with the above will result in the fasteners breaking off.

- Move the steering wheel to centre position (wheels straight ahead).
- Unscrew and detach the steering wheel.

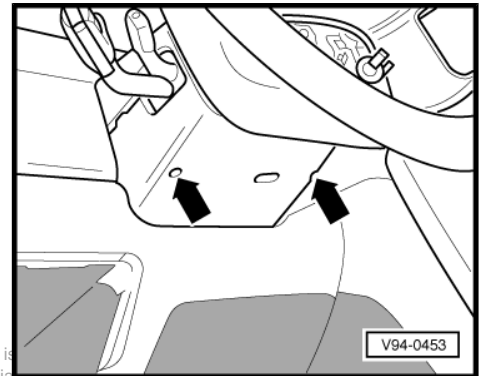
Installing

- Press on the trim cap by hand and let it engage.

5.6 Removing and installing steering column switch

Removing

- Remove the steering wheel: Vehicles without airbag ➤ [page 194](#) , vehicles with airbag ➤ [page 192](#) .
- Unscrew and detach the upper steering column switch trim.



- Unfasten the clamp at the steering column switch.
- Unplug the connectors from the steering column switch and detach the steering column switch with the lower trim.

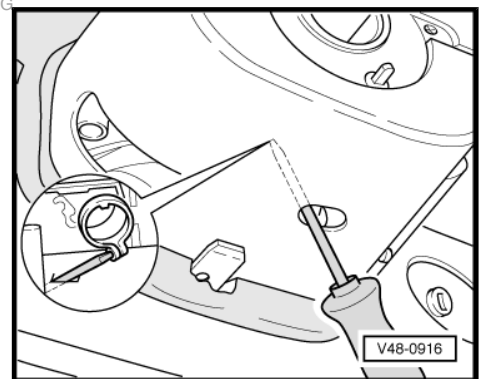
Installing



Note

Make sure the wheels are in straight ahead position before fitting the steering wheel.

- Install the steering wheel: Vehicles without airbag ➤ [page 194](#) , vehicles with airbag ➤ [page 192](#) .



5.7 Exploded view of steering column switch for adjustable steering column

1 - Angle adjustment lever

- ❑ Detach before removing steering column switch

2 - Spring clip

3 - Longitudinal adjustment lever

- ❑ Detach before removing steering column switch
- ❑ Prise out spring clip
⇒ [Item 2 \(page 196\)](#) to detach

4 - Bellows

- ❑ To install, start by inserting upper hooks in dash panel, then engage at bottom

5 - Upper trim

6 - Steering column switch with lower trim

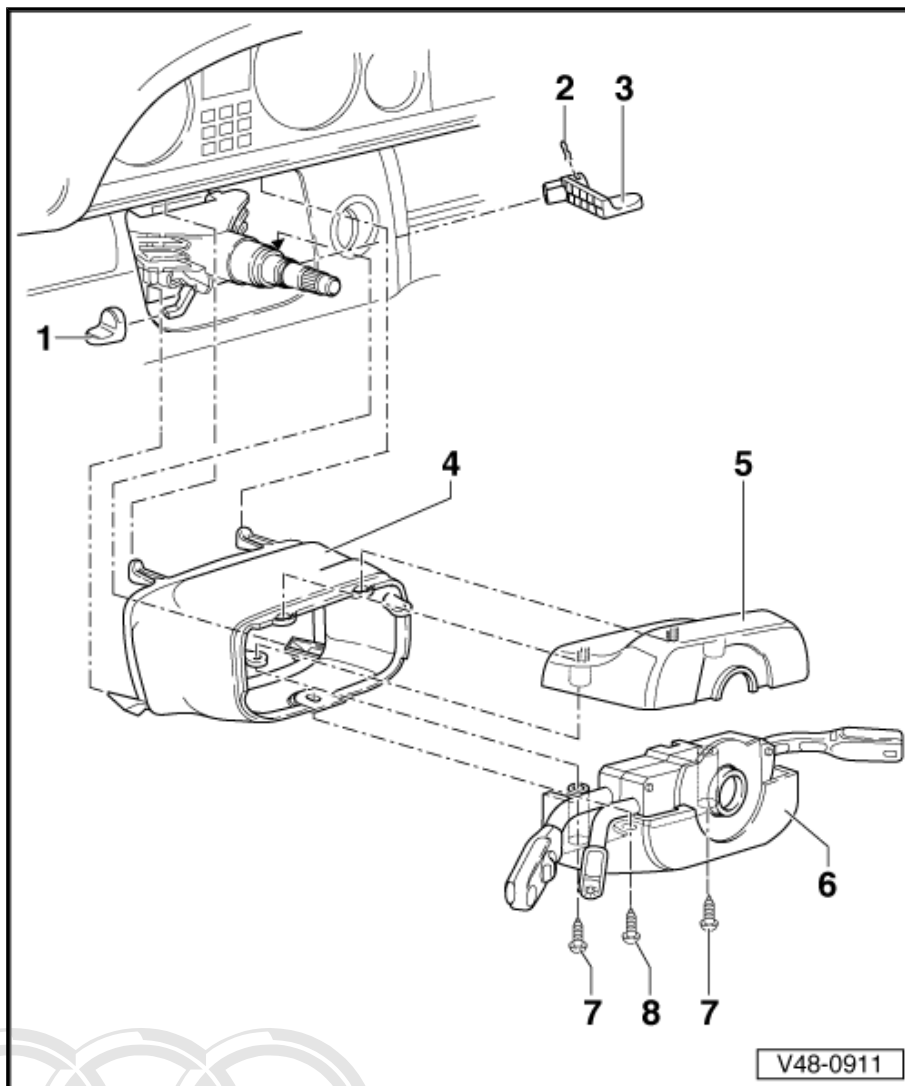
- ❑ Removing and installing
⇒ [page 196](#)

7 - Bolt

- ❑ For attaching upper trim to lower trim

8 - Bolt

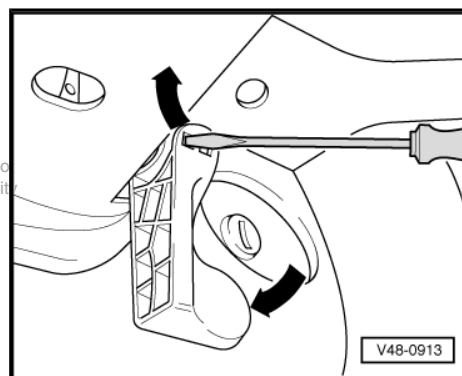
- ❑ For attaching lower trim and bellows



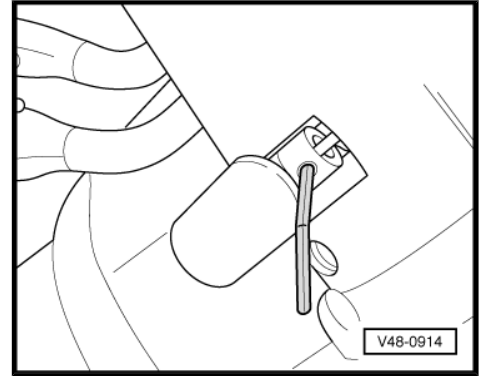
5.8 Removing and installing steering column switch for adjustable steering column

Removing

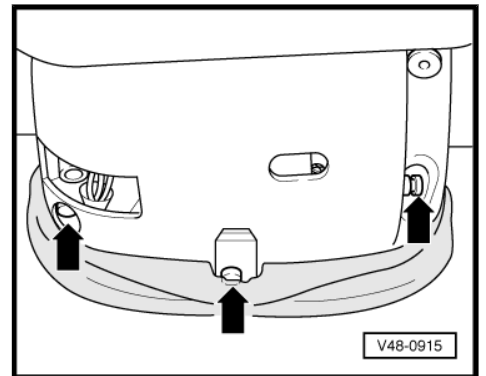
- Remove the steering wheel: Vehicles without airbag
⇒ [page 194](#) , vehicles with airbag ⇒ [page 192](#) .
- Swivel down the longitudinal adjustment lever and prise off the spring clip with a screwdriver
- Detach the longitudinal adjustment lever.



- Slacken off the hexagon socket head bolt and detach the angle adjustment lever.



- Unscrew and detach the upper steering column switch trim.
- Screw out the bolt for the bellows.

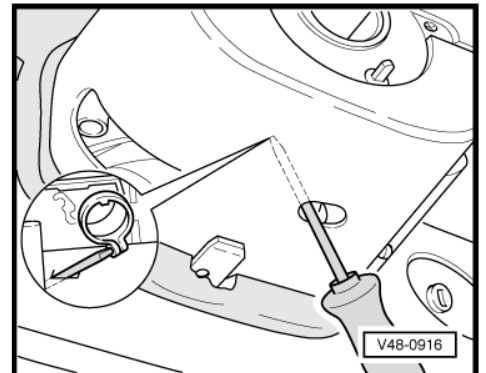


- Unfasten the clamp at the steering column switch.
- Unplug the connectors from the steering column switch -1-.
- Detach the steering column switch with lower trim.
- Disengage the bellows from the dash panel and detach.

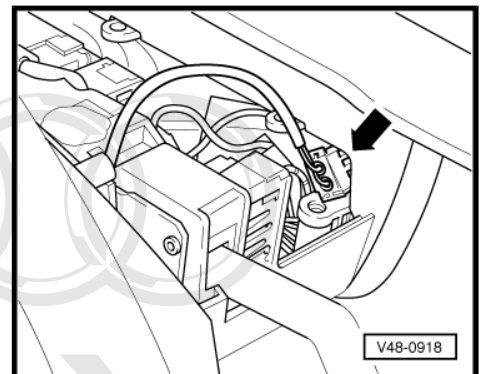
Installing



Make sure the wheels are in straight ahead position before fitting the steering wheel.



- On vehicles with an airbag, engage -arrow- the connector for the airbag at the appropriate location on the bellows before fitting the top part of the steering column switch.
- Install the steering wheel: Vehicles without airbag ⇒ [page 194](#) , vehicles with airbag ⇒ [page 192](#) .



6 Steering column with column tube

⇒ "6.1 Exploded view of steering column with column tube", page 198

⇒ "6.2 Removing and installing column tube with steering column", page 199

6.1 Exploded view of steering column with column tube

1 - Bolt

- ☐ Always replace after removing

2 - Universal joint

3 - Steering column

- ☐ Removing and installing ⇒ page 199

4 - Steering pinion of steering box

5 - Bolt

6 - Washer

7 - Bracket

- ☐ Provided with elongated holes for moving column tube upwards or downwards slightly if required

8 - Washer

9 - Self-locking nut, 35 Nm

- ☐ Always replace after removing

10 - Bolt

11 - Self-locking nut, 25 Nm

- ☐ Always replace after removing

12 - Bushing

- ☐ Insert in steering column

13 - Procon cable

- ☐ Insert in column tube at top
- ☐ Insert with rubber grommet in bulkhead at bottom
- ☐ For further information on cable routing, refer to ⇒ Rep. Gr. 68
- ☐ If the slightest misalignment (accident) is found between the top and bottom parts of the column tube or if the coloured dot has sheared off, the cable is to be replaced

14 - Bushing

- ☐ Insert with collar facing steering wheel

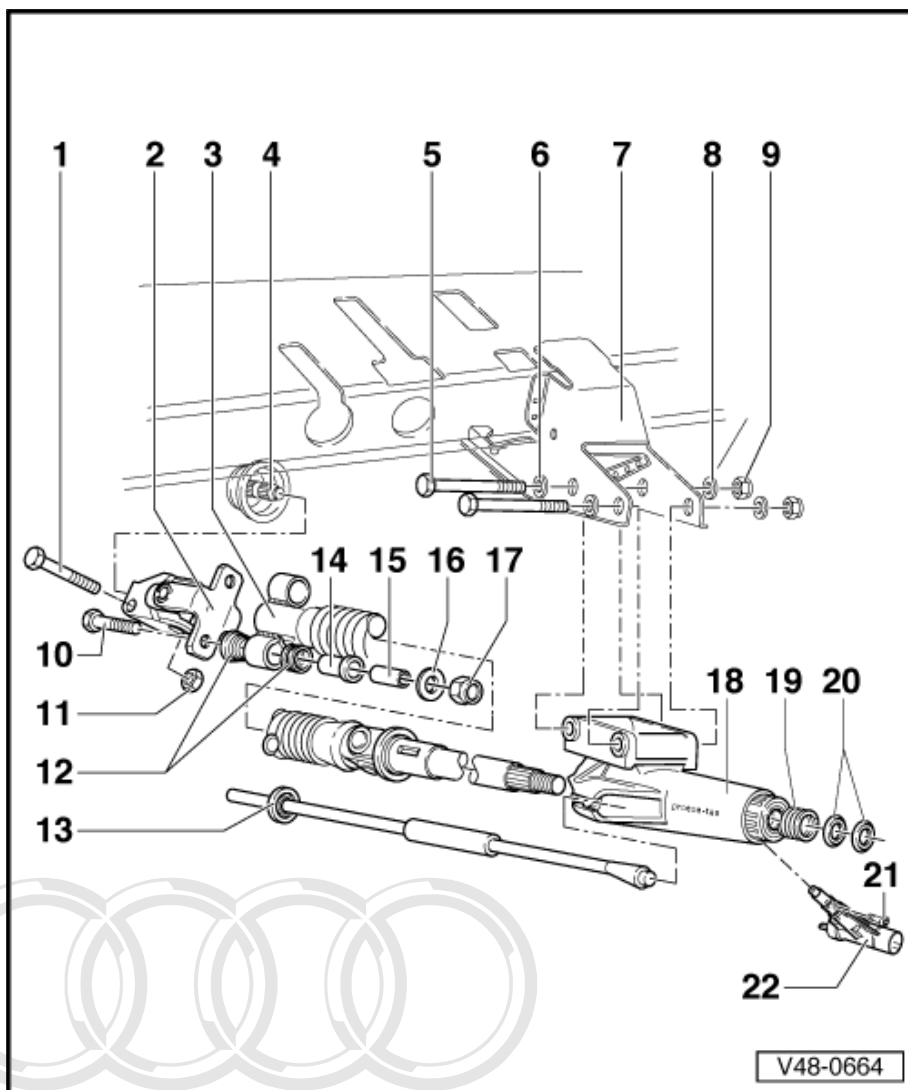
15 - Spacer bush

- ☐ Insert in bushing ⇒ Item 14 (page 198)

16 - Washer

17 - Self-locking nut, 25 Nm

- ☐ Always replace after removing



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the written permission of AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

18 - Column tube

- ☐ Consists of top and bottom part
- ☐ Replacement part is supplied with both mounts
- ☐ Top and bottom parts filled with plastic; never exert force (e.g. hammer blows) in axial or radial direction
- ☐ Avoid temperatures in excess of 100 °C
- ☐ Can be moved slightly in elongated holes of bracket



Note

- ◆ *The top and bottom part of the column tube are provided with a red dot.*
- ◆ *The column tube is to be replaced if this coloured dot has sheared off.*

19 - Spring

- ☐ Attach to steering column

20 - Clamping washer



WARNING

Washers are pre-tensioned.

Copyright by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ☐ Prise off with a screwdriver
- ☐ Pressing on ➔ [page 199](#)

21 - Torx bolt, 7 Nm

- ☐ To screw out, use a Torx insert with a hole in the end face, e.g. Hazet Torx T30H

22 - Steering lock housing

- ☐ Insert in column tube

Attaching clamping washers to steering column

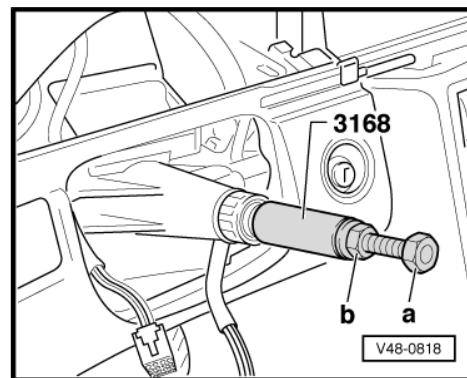
- Attach spring with clamping washer to steering lock housing.
- Screw the tensioning tool -3168- onto the steering column as far as it will go with spindle -a-.
- Provide support for the spindle -a- and tighten the nut -b- until the spring windings are in contact with one another.



Note

The spring is not to be over-compressed as otherwise the mounts could be damaged.

- Unfasten the nut -b-.
- Unscrew the spindle -a- from the steering column.

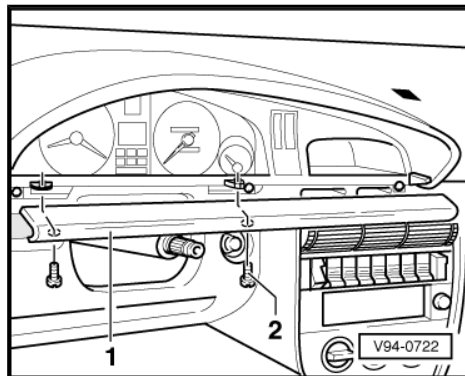


6.2 Removing and installing column tube with steering column

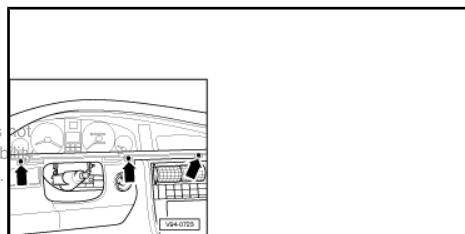
Removing

- Remove the steering wheel: Vehicles without airbag ➔ [page 194](#) , vehicles with airbag ➔ [page 192](#) .

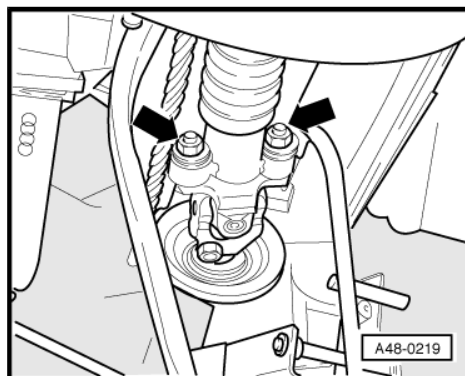
- Remove the steering column switch: Vehicles without adjustable steering column ➔ [page 195](#) , vehicles with adjustable steering column ➔ [page 196](#) .
- Remove the driver's storage compartment ➔ Rep. Gr. 70 .
- Take out the air vent in the footwell on the left.
- Screw out the bolts -2- (2x).
- Detach the trim -1-.



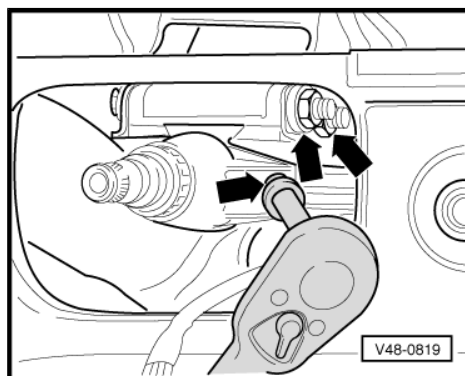
- Screw out the three bolts -arrows-.
- Pull the dash panel insert out of the dash panel.
- Unclip the connector and detach the dash panel insert.
- Detach the connector housing from the ignition/starter switch.



- Screw out the bolts of the universal joint -arrows-.



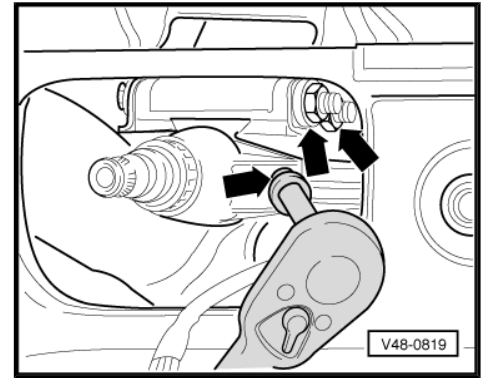
- Screw out the steering lock Torx bolt, e.g. using Hazet T30 H.
- Unscrew the column tube from the bracket and pull out the bolts.
- Push the column tube downwards, turn it slightly to the left, pull the steering lock housing out of the column tube and remove.
- Disengage the cable at the column tube.
- Lift out the column tube with steering column.



Installing

- Insert the column tube with steering column from above in the dash panel.
- Engage the cable in the column tube.
- Insert the steering lock housing in the column tube.
- Insert the column tube in the bracket.

- Insert the bolts in the bracket and column tube.
- Screw in the Torx bolt -left arrow-.
- Insert the ignition key in the steering lock.
- Release the steering lock so that the steering column can be turned as required.
- Attach the universal joint to the steering column.
- By moving it upwards or downwards in the bracket, align the column tube such that the cylinder of the steering lock is centred with the hole in the dash panel.
- Attach the column tube to the bracket.
- Fit the dash panel insert in the dash panel.
- Fit the trim strip for the dash panel insert.
- Fit the air vent in the footwell on the left.
- Attach the connector housing to the ignition/starter switch.
- Install the driver's storage compartment ⇒ Rep. Gr. 70 .
- Fit the dash panel trim strip.
- Install the steering column switch: Vehicles without adjustable steering column ⇒ [page 195](#) , vehicles with adjustable steering column ⇒ [page 196](#) .
- Install the steering wheel: Vehicles without airbag ⇒ [page 194](#) , vehicles with airbag ⇒ [page 192](#) .
- Connect the battery ⇒ Rep. Gr. 27
- Check operation of the steering column switch.



 Note

The steering wheel spoke must be horizontal with the wheels in straight ahead position.

7 Adjustable steering column with column tube up to Model Year 1994

⇒ [“7.1 General”, page 202](#)

⇒ [“7.2 Exploded view of adjustable steering column with column tube”, page 202](#)

⇒ [“7.3 Removing and installing column tube with adjustable steering column”, page 205](#)

⇒ [“7.4 Replacing steering column adjustment cable”, page 208](#)

⇒ [“7.5 Adjusting steering column adjustment cable”, page 210](#)

7.1 General

- ◆ The adjustable steering column is maintenance-free.
- ◆ The replacement part is supplied with pre-tensioned spring for angle adjustment and a pre-adjusted cable.
- ◆ The pre-tension is designed for vehicles with airbag
⇒ [page 205](#) .
- ◆ The spring pre-tension is to be reduced on installation in vehicles with no airbag ⇒ [page 205](#) .
- ◆ Never perform any assembly work other than replacement and adjustment of the cable.
- ◆ The steering column is to be installed using the fitting sleeve
⇒ Electronic parts catalogue . The purpose of this is to centre the corrugated tube.

7.2 Exploded view of adjustable steering column with column tube



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Bolt

- ☐ Always replace after removing

2 - Steering pinion of steering box

3 - Bolt

4 - Washer

5 - Bracket

- ☐ Provided with elongated holes for moving column tube upwards or downwards slightly if required



Note

*If the bracket connection
⇒ [Item 3 \(page 203\)](#) /
⇒ [Item 7 \(page 203\)](#) is unfactured,
use must be made of the centring
tool (fitting sleeve
⇒ [Item 18 \(page 204\)](#)) on re-tight-
ening the connection ⇒ [page 207](#)*

6 - Washer

7 - Self-locking nut, 35 Nm

- ☐ On tightening make use of the centring tool (fitting sleeve
⇒ [Item 18 \(page 204\)](#))
⇒ [page 207](#)

Protected by copyright for private or commercial purposes, in part or in whole, if not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the correctness of information in this document. Copyright by AUDI AG.

8 - Torx bolt, 7 Nm

- ☐ To unscrew, use a Torx insert with a hole in the end face, e.g. Hazet Torx T30H

9 - Steering lock housing

- ☐ Insert in column tube

10 - Nut, 5 Nm

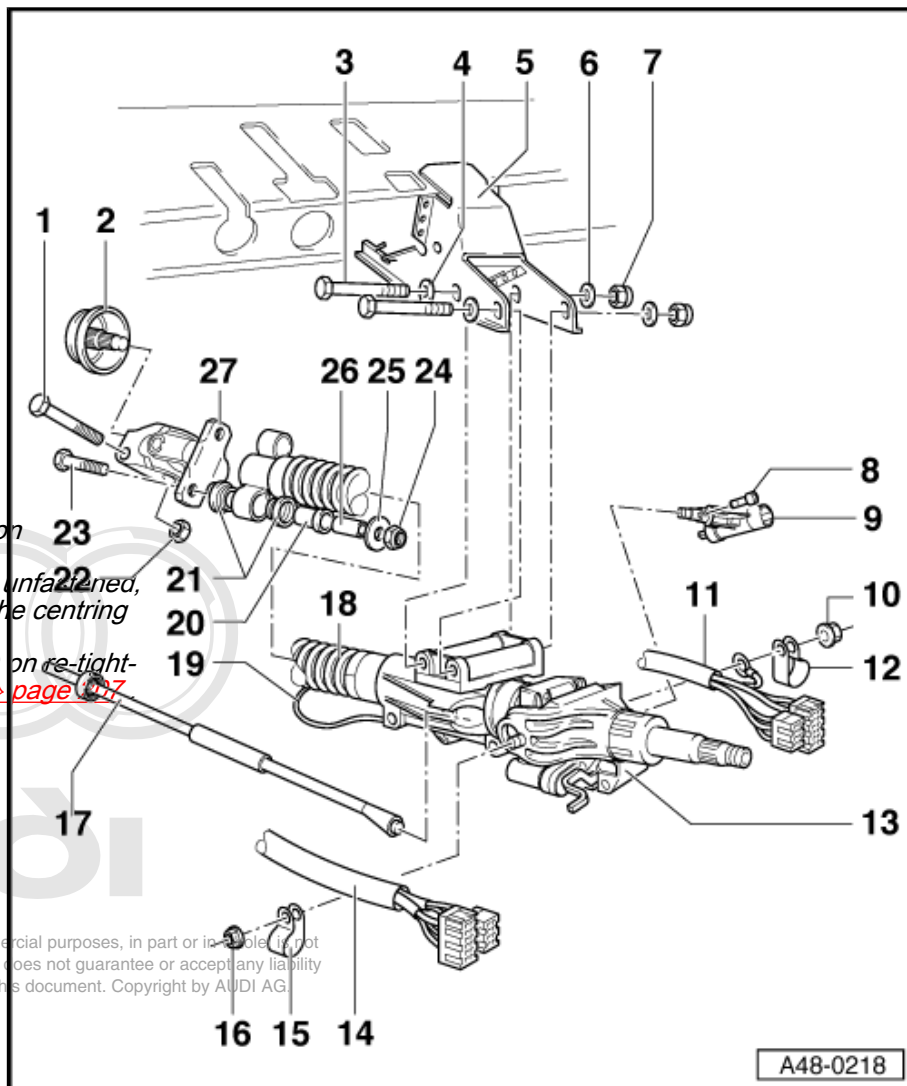
11 - Wiring harness for steering column switch, right

12 - Clip

- ☐ On installation make sure the wiring harness is not crushed by the bolted joint
- ☐ Also secure the earth cable

13 - Steering column

- ☐ Removing and installing ⇒ [page 205](#)
- ☐ Modified spring pre-tension for steering column angle adjustment on vehicles with no airbag
⇒ [page 205](#)
- ☐ Consists of top and bottom part
- ☐ Replacement part is supplied with both mounts
- ☐ Top and bottom parts filled with plastic; never exert force (e.g. hammer blows) in axial or radial direction
- ☐ Avoid temperatures in excess of 100 °C
- ☐ Can be moved slightly in elongated holes of bracket



**Note**

- ◆ *The top and bottom part of the column tube are provided with a red dot.*
- ◆ *The steering column is to be replaced if this coloured dot has sheared off.*

14 - Wiring harness for steering column switch, left**15 - Clip****16 - Nut, 5 Nm****17 - Procon cable**

- ☐ Insert in column tube at top
- ☐ Insert with rubber grommet in bulkhead at bottom
- ☐ For further information on cable routing, refer to ⇒ Rep. Gr. 68

**Note**

If the slightest misalignment (accident) is found between the top and bottom parts of the column tube or if the coloured dot has sheared off, the cable is to be replaced.

18 - Fitting sleeve

- ☐ Available as replacement part ⇒ Electronic parts catalogue
- ☐ Insert prior to re-installation if the steering column has been removed or unfastened
- ☐ Do not remove until the steering column has been installed

19 - Longitudinal adjustment cable

- ☐ Replacing ⇒ [page 208](#)
- ☐ Adjusting ⇒ [page 210](#)

20 - Bushing

- ☐ Insert with collar facing steering wheel

21 - Bushing

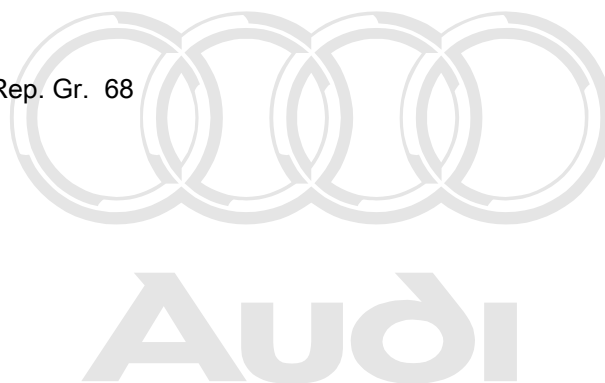
- ☐ Insert in steering column

22 - Self-locking nut, 25 Nm

- ☐ Always replace

23 - Bolt**24 - Self-locking nut, 25 Nm****25 - Washer****26 - Spacer bush**

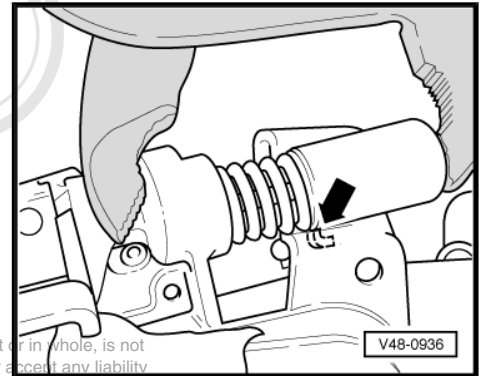
- ☐ Insert in bushing ⇒ [Item 14 \(page 198\)](#)

27 - Universal joint

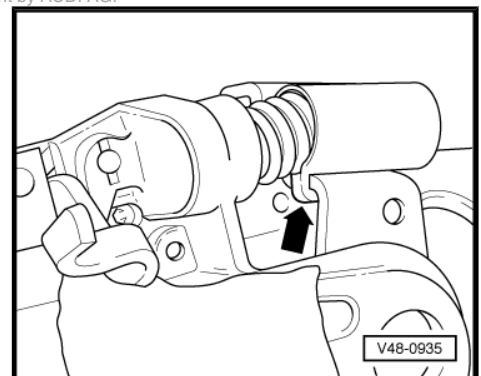
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the written consent of Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Spring pre-tension for steering column angle adjustment on vehicles with no airbag

- Reduce the spring pre-tension by engaging the lug of the sleeve -arrow- in the hole provided.



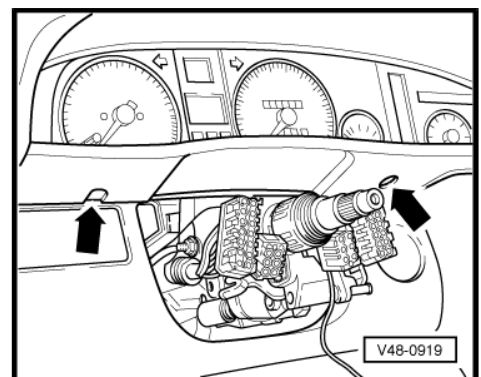
Spring pre-tension for steering column angle adjustment on vehicles with airbag



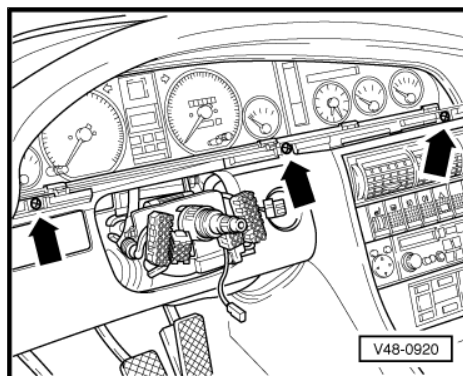
7.3 Removing and installing column tube with adjustable steering column

Removing

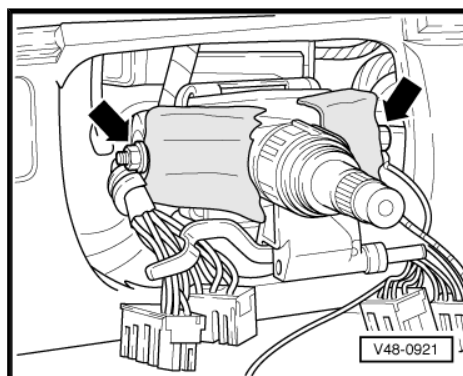
- Remove the steering wheel: Vehicles without airbag ⇒ [page 194](#) , vehicles with airbag ⇒ [page 192](#) .
- Remove the steering column switch: Vehicles without adjustable steering column ⇒ [page 195](#) , vehicles with adjustable steering column ⇒ [page 196](#) .
- Remove the driver's storage compartment ⇒ Rep. Gr. 70 .
- Take out the air vent in the footwell on the left.
- Screw out the bolts -arrows- (2x).
- Detach the trim.



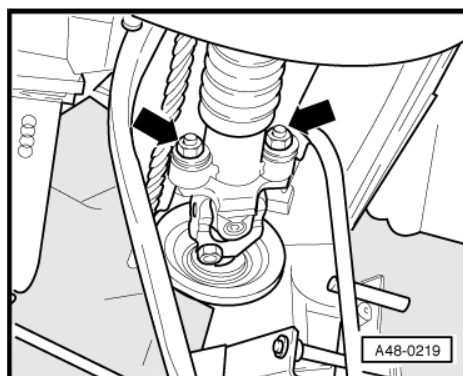
- Screw out the three bolts -arrows-.
- Pull the dash panel insert out of the dash panel.
- Unclip the connector and detach the dash panel insert.
- Detach the connector housing from the ignition/starter switch.



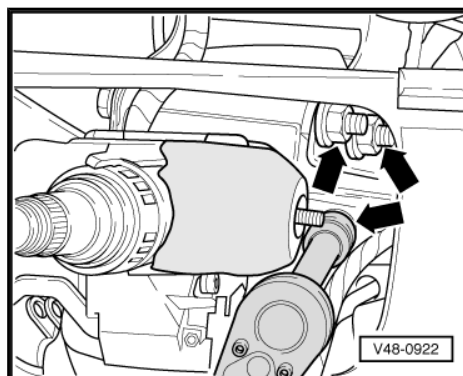
- Unscrew the nuts -arrows-.
- Detach the wiring harness with clip on the left and right from the studs.



- Screw out the bolts of the universal joint -arrows-.

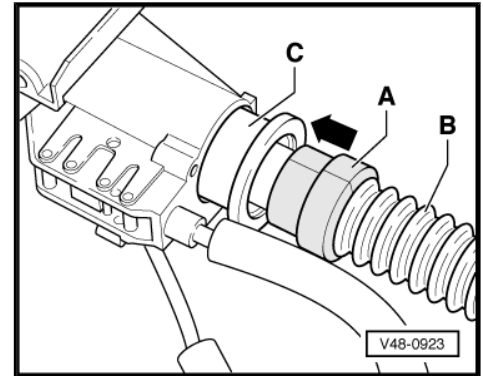


- Screw out the steering lock Torx bolt, e.g. using Hazet T30 H.
- Unscrew the column tube from the bracket and pull out the bolts.
- Push the column tube downwards, turn it slightly to the left, pull the steering lock housing out of the column tube and remove.
- Disengage the cable at the column tube.
- Lift out the column tube with steering column.



Installing

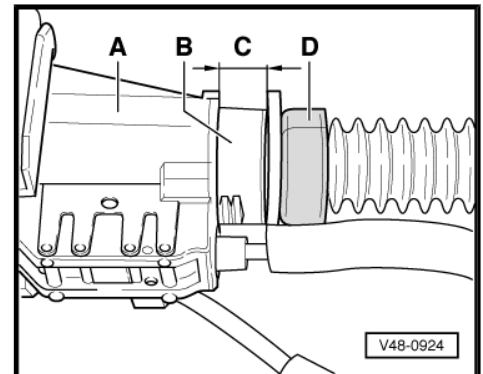
- Before re-installing a removed steering column, slide the fitting sleeve -A- onto the corrugated tube -B- and press home in the steering column -C-.



- Install the steering column before removing the fitting sleeve -D-.
- Move the column tube -A- on the steering column -B- until dimension -C- (approx. 20 mm) is attained.

Dimension -C- is required for inserting the Procon cable.

- Insert the column tube with steering column from above.
- Insert the steering lock housing in the column tube.



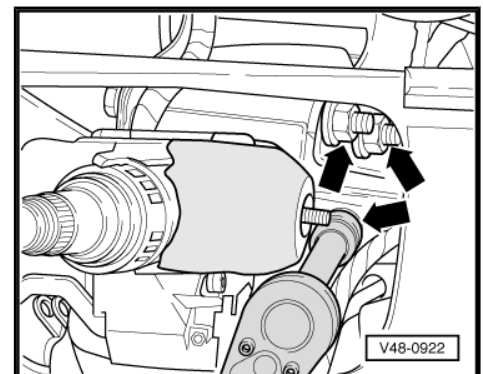
- Screw in the steering lock Torx bolt, e.g. using Hazet T30 H.
- Attach the connector housing to the ignition/starter switch.
- Engage the cable in the column tube.



Note

After inserting the Procon cable, press home the steering column in the direction of travel and lock.

- Insert the column tube in the bracket and initially screw on by hand only.
- Insert the ignition key in the steering lock.
- Release the steering lock so that the steering column can be turned as required.



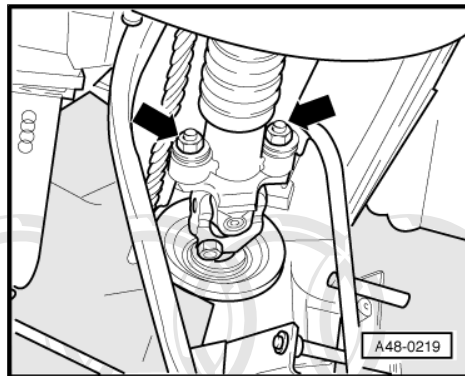
Note

Should it not be possible on installing a new steering column to attach it to the universal joint, slacken off the clamping bolt and move the universal joint on the steering pinion such that stress-free installation of the steering column is possible.

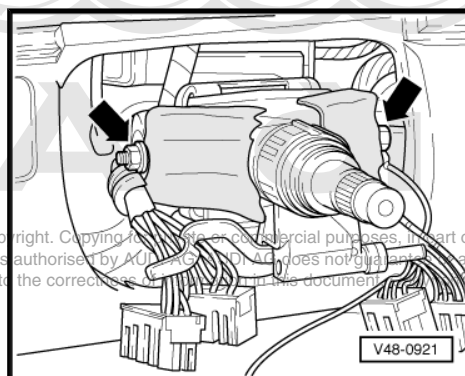
Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Attach the universal joint to the steering column.
- By moving it upwards or downwards in the bracket, align the column tube such that the cylinder of the steering lock is centred with the hole in the dash panel.
- Tighten the column tube/bracket bolted joint.
- Take out the fitting sleeve.
- Fit the dash panel insert in the dash panel.
- Fit the trim strip for the dash panel insert.



- Secure the wiring harness with clips on the left and right (secure the earth wire as well on the right).
- Insert the bellows in the dash panel.
- Install the steering column switch: Vehicles without adjustable steering column ➔ [page 195](#) , vehicles with adjustable steering column ➔ [page 196](#) .
- Install the steering wheel: Vehicles without airbag ➔ [page 194](#) , vehicles with airbag ➔ [page 192](#) .
- Install the driver's storage compartment ➔ Rep. Gr. 70 .
- Connect the battery ➔ Rep. Gr. 27 .
- Check operation of the steering column switch.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of the information in this document. Copyright © 2008 by AUDI AG.



Note

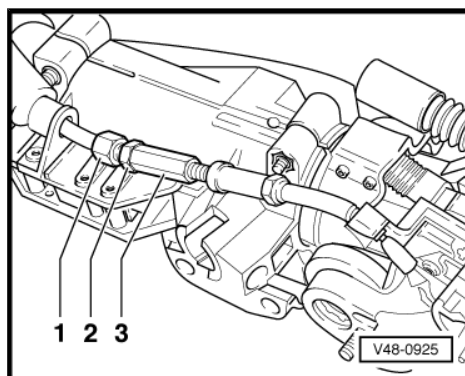
The steering wheel spoke must be horizontal with the wheels in straight ahead position.

- Vehicles with adjustable steering column: Check and if necessary correct the angle and longitudinal adjustment ➔ [page 210](#) .

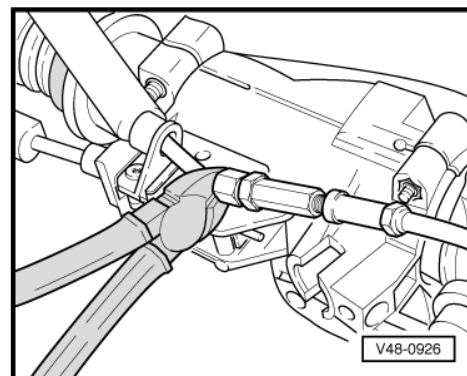
7.4 Replacing steering column adjustment cable

Sequence of operations

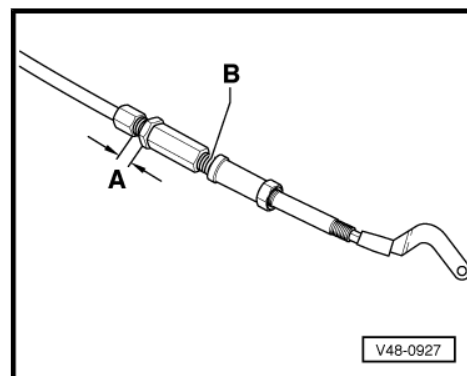
- Remove the steering column with column tube ➔ [page 205](#) .
- After unfastening the lock nut -2-, screw the adjusting screw -1- into the adjusting element -3- to slacken off the cable.



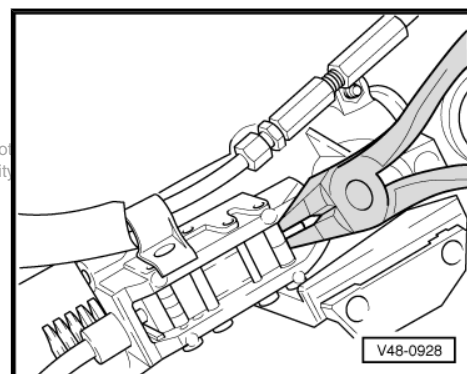
- Sever the cable behind the adjusting screw and detach.



- Check the new cable to establish whether dimension -A- between the adjusting screw and lock nut is set to 8 to 10 mm and correct if necessary.
- Pre-tension the compensating spring -B- (e.g. with insulating tape) until the spring windings make contact with one another.
- Slide the cable through the plastic guide at the column tube.

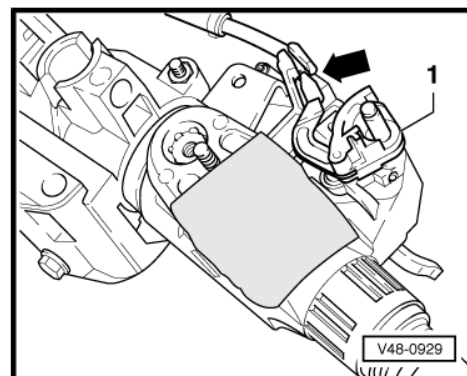


- Push the cable through the adjusting mechanism and crimp (approx. 8 mm) the clamping sleeve at the end of the cable using a commercially available tool.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Attach the eccentric lever -1- of the cable to the pin at the column tube and insert the cable at the support bracket -arrow-.
- Slacken off the compensating spring (remove the insulating tape).
- Adjust the cable ⇒ [page 210](#) .
- Fit the column tube with steering column ⇒ [page 205](#) .
- Check the longitudinal adjustment again and adjust the cable setting if necessary ⇒ [page 210](#) .



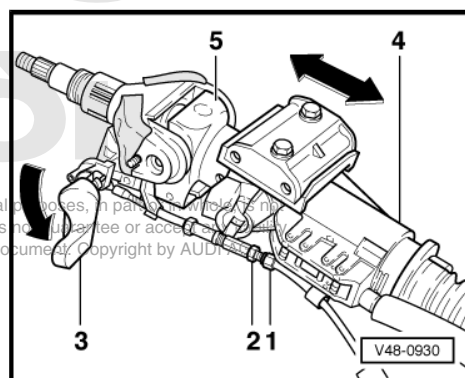
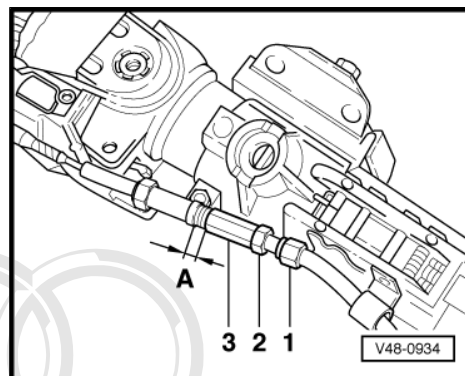
7.5 Adjusting steering column adjustment cable

Sequence of operations



Note

- ◆ For ease of illustration, cable adjustment is shown with the steering column removed.
- ◆ Lock the steering column to adjust gap -A-.
- Remove the driver's storage compartment ⇒ Rep. Gr. 70 .
- Unfasten the lock nut -2-.
- Turn the adjusting screw -1- until the idle travel of the adjusting element -3- in gap -A- is approx. 2 mm.
- Check the longitudinal adjustment.
- Swivel down the longitudinal adjustment lever -3- and push the steering column -5- forwards and backwards in the column tube -4-.
- Correct the setting if the steering column catches slightly in the column tube.
- Lock the adjusting screw -1- with lock nut -2-.
- Install the driver's storage compartment ⇒ Rep. Gr. 70 .



Protected by copyright. Copying for private or commercial purposes, in particular for advertising or promotional purposes, is prohibited without the prior written permission of Audi AG. Audi AG does not assume any liability or accept any responsibility for the correctness of information in this document. Copyright by Audi AG.

8 Adjustable steering column - Vehicles as of Model Year 1995

⇒ ["8.1 General", page 211](#)

⇒ ["8.2 Exploded view of adjustable steering column", page 211](#)

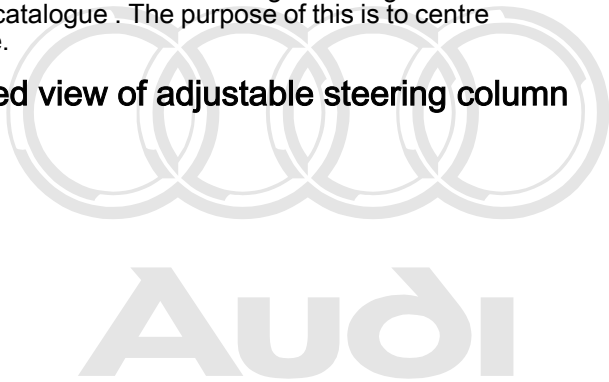
⇒ ["8.3 Replacing steering column adjustment cable", page 213](#)

⇒ ["8.4 Adjusting steering column adjustment cable", page 214](#)

8.1 General

- ◆ As of Model Year 1995 all vehicles are equipped with an airbag and there is thus no Procon cable.
- ◆ The adjustable steering column is maintenance-free.
- ◆ The replacement part is supplied with pre-tensioned spring for angle adjustment and a pre-adjusted cable.
- ◆ Never perform any assembly work other than replacement and adjustment of the cable.
- ◆ The steering column is to be installed using the fitting sleeve
⇒ Electronic parts catalogue . The purpose of this is to centre the corrugated tube.

8.2 Exploded view of adjustable steering column



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Self-locking nut, 20 Nm

- ☐ Always replace after removing

2 - Washer

3 - Bolt

4 - Bolt

5 - Washer

6 - Bracket

- ☐ Provided with elongated holes for moving column tube upwards or downwards slightly if required



Note

If the bracket connection ➔ [Item 4 \(page 212\)](#) / ➔ [Item 7 \(page 212\)](#) is unfastened, use must be made of the centring tool (fitting sleeve ➔ [Item 16 \(page 213\)](#)) on re-tightening the connection ➔ [page 207](#).

7 - Self-locking nut, 30 Nm

- ☐ On tightening make use of the centring tool (fitting sleeve ➔ [Item 16 \(page 213\)](#)) ➔ [page 207](#)

8 - Torx bolt, 7 Nm

- ☐ To unscrew, use a Torx insert with a hole in the end face, e.g. Hazet Torx T30H

9 - Steering lock housing

- ☐ Insert in column tube

10 - Nut, 5 Nm

11 - Wiring harness for steering column switch, right

12 - Clip

- ☐ On installation make sure the wiring harness is not crushed by the bolted joint
- ☐ Also secure the earth cable

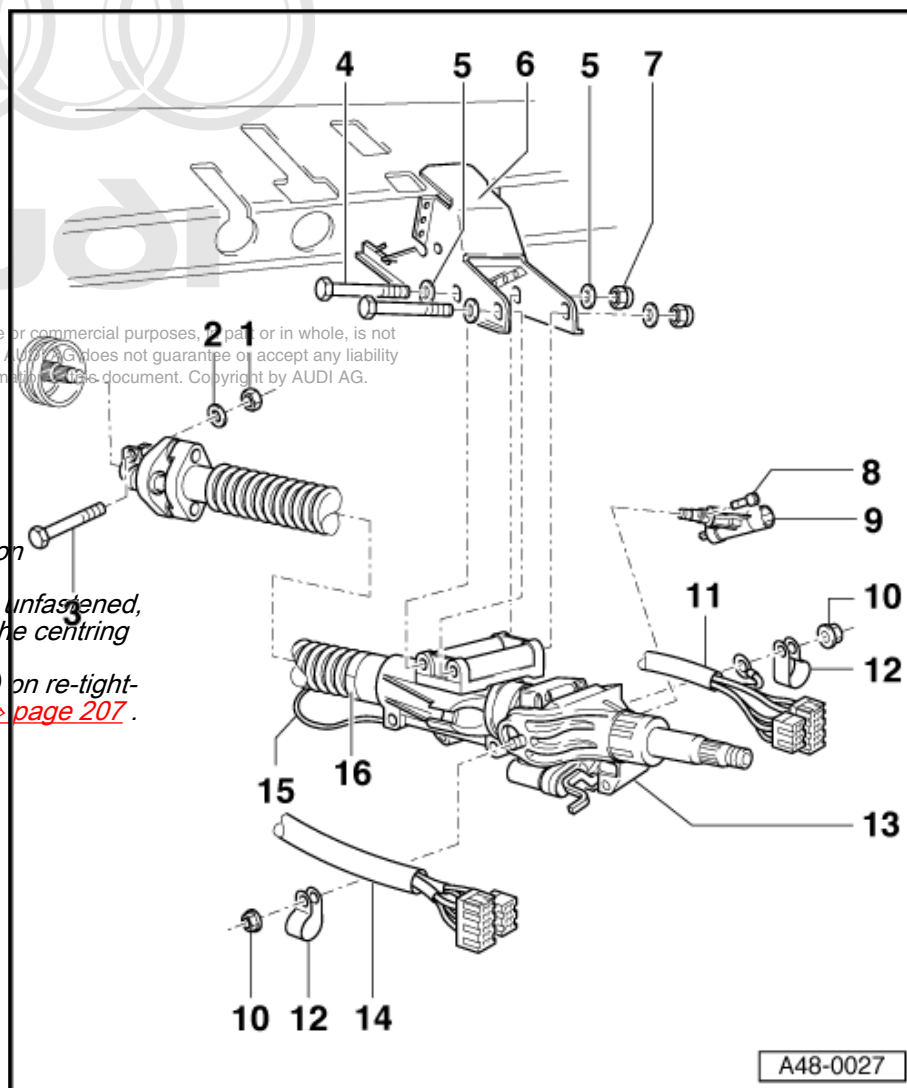
13 - Steering column

- ☐ Removing and installing ➔ [page 205](#)
- ☐ Replacement part is supplied with both mounts
- ☐ Top and bottom parts filled with plastic; never exert force (e.g. hammer blows) in axial or radial direction
- ☐ Avoid temperatures in excess of 100 °C
- ☐ Can be moved slightly in elongated holes of bracket



Note

- ◆ The top and bottom part of the column tube are provided with a red dot.



- ◆ *The steering column is to be re-placed if this coloured dot has sheared off.*

14 - Wiring harness for steering column switch, left

15 - Longitudinal adjustment cable

- ☐ Replacing ➔ [page 213](#)
- ☐ Adjusting ➔ [page 214](#)

16 - Fitting sleeve

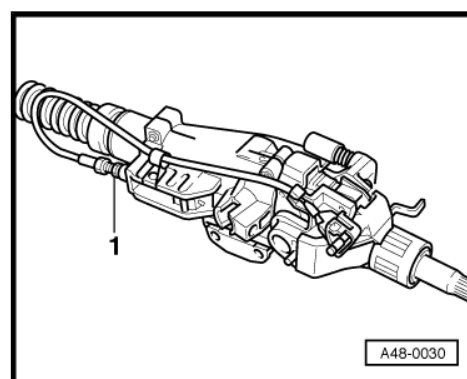
- ☐ Available as replacement part ➔ Electronic parts catalogue
- ☐ Insert prior to re-installation if the steering column has been removed or unfastened
- ☐ Do not remove until the steering column has been installed

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

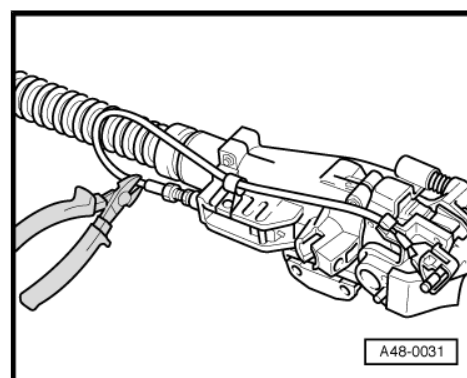
8.3 Replacing steering column adjustment cable

Sequence of operations

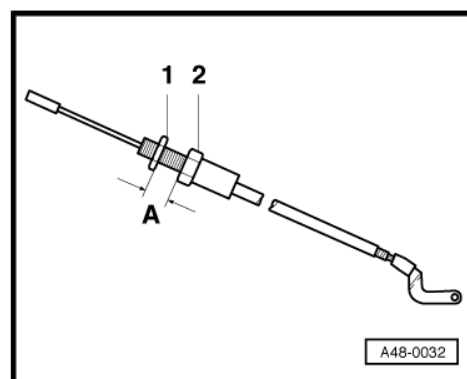
- Remove the steering column with column tube ➔ [page 205](#) .
- Unfasten the adjusting nut -1- to slacken off the cable.



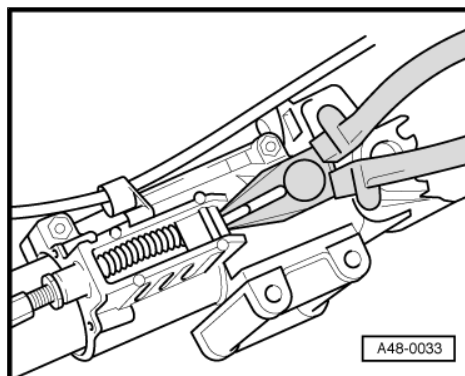
- Sever the cable behind the adjusting nut and detach.



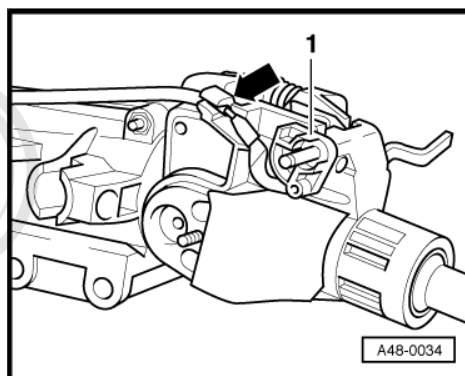
- Check the new cable to establish whether dimension -A- between the adjusting nut -1- and mating piece -2- is set to approx. 15 mm and correct if necessary.



- Push the new cable through the adjusting mechanism and crimp (approx. 8 mm) the clamping sleeve at the end of the cable using a commercially available tool.



- Attach the eccentric lever -1- of the cable to the pin at the column tube and insert the cable at the support bracket -arrow-.
- Adjust the cable ➔ [page 214](#) .
- Insert the column tube with steering column in the vehicle ➔ [page 205](#) .
- Check the longitudinal adjustment again and adjust the cable setting if necessary ➔ [page 214](#) .



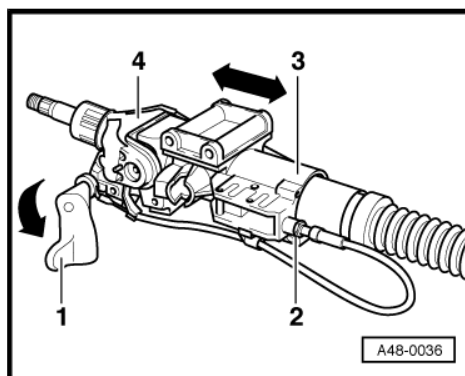
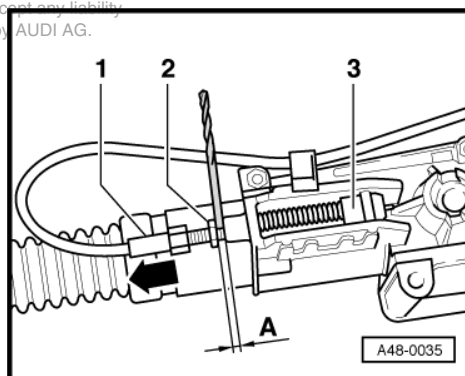
8.4 Adjusting steering column adjustment cable

Sequence of operations



Note

- ♦ For ease of illustration, cable adjustment is shown with the steering column removed.
- ♦ Lock the steering column to adjust gap -A-.
- Remove the driver's storage compartment ➔ Rep. Gr. 70 .
- Pull the cable -1- in -arrow direction- such that there is no movement of the locking mechanism -3-.
- Check dimension -A- (3 to 3.5 mm) and adjust if necessary with the adjusting nut -2-.
- Check the longitudinal adjustment.
- Swivel down the longitudinal adjustment lever -1- and push the steering column -4- forwards and backwards in the column tube -3-.
- Correct the setting if the steering column catches slightly in the column tube.
- Secure the adjusting nut with locking compound to stop it turning.
- Install the driver's storage compartment ➔ Rep. Gr. 70 .



9 Hydraulic pipes, reservoir

⇒ [“9.1 General ”, page 215](#)

⇒ [“9.2 Exploded view of hydraulic fluid circuit for power-assisted steering”, page 215](#)

⇒ [“9.3 Exploded view of reservoir”, page 217](#)

9.1 General

With the exception of extension of the hydraulic pipes from left to right at the steering box, the fluid circuit of right-hand drive vehicles corresponds to that of the left-hand drive version.

- ◆ Always check the steering system for leaks if there is a lack of fluid in the reservoir.
- ◆ If a leak is found in the area of the pipe connections, start by checking the pipes/pipe connections for leaks, re-tighten if necessary and wipe dry.
- ◆ Replacement pumps have no fluid fill. Prior to installation they are therefore to be filled with hydraulic fluid and cranked by hand to avoid the possibility of noise whilst driving or pump damage.
- ◆ Hydraulic fluid ⇒ Electronic parts catalogue

When the fluid circuit has been opened, always:

- ◆ Check all unions for leaks, start the engine and perform a visual inspection.
- ◆ Check the fluid level ⇒ [page 276](#).

9.2 Exploded view of hydraulic fluid circuit for power-assisted steering

1 - Return pipe

- ☐ Rotary slide valve housing - reservoir

2 - Power-assisted steering box

3 - Reservoir

- ☐ Smaller on vehicles without self-levelling suspension
- ☐ Fresh fill capacities:
- ☐ Without self-levelling suspension: approx. 1 l
- ☐ With self-levelling suspension: approx. 2.5 l
- ☐ Hydraulic fluid ⇒ Electronic parts catalogue
- ☐ Checking hydraulic fluid level with vehicle unladen ⇒ [page 276](#)

4 - Coolant hose

5 - Suction hose

- ☐ Reservoir - vane pump/tandem pump

6 - Clamp

- ☐ For attaching return pipe and suction hose to reservoir

7 - Bolt, 20 Nm

8 - Holder

9 - Return hose

- ☐ Only fitted on vehicles with oil cooler and 5, 6 and 8-cyl. engines

10 - Oil cooler

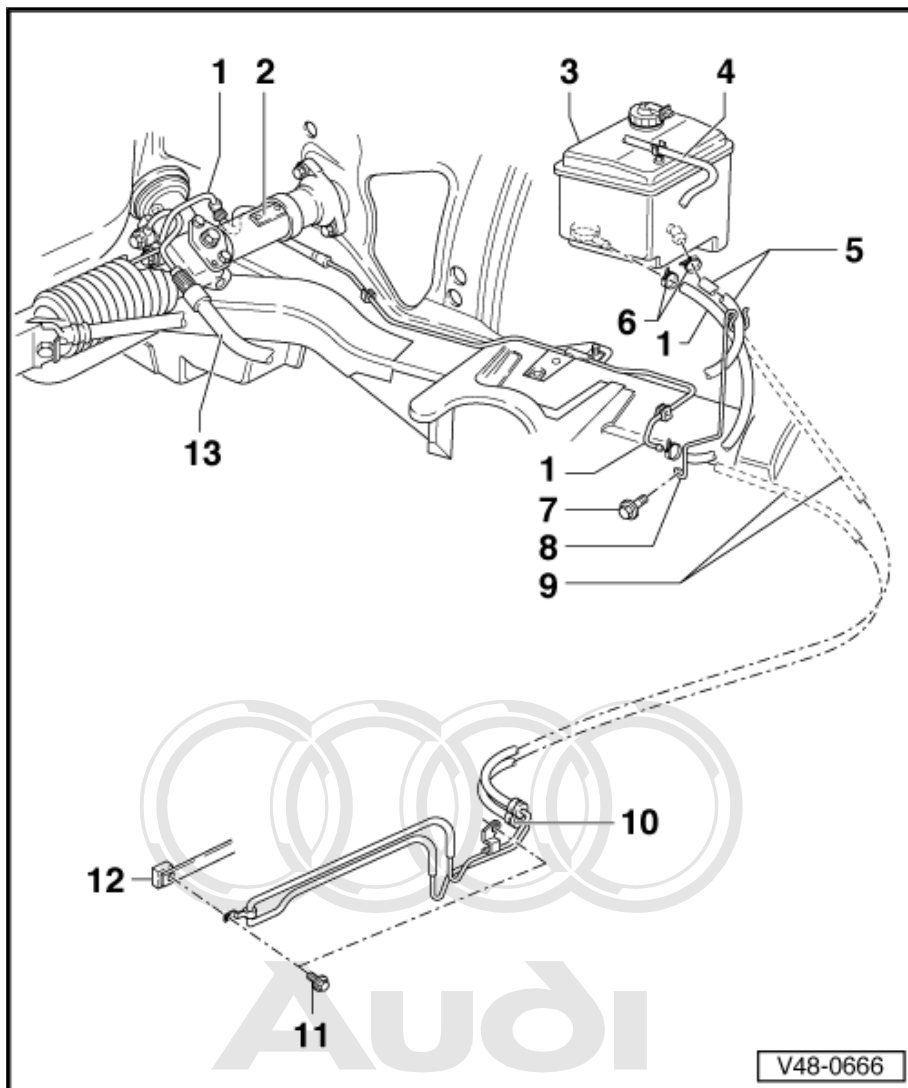
- ☐ Only fitted on vehicles with 5, 6 and 8-cyl. engines

11 - Bolt, 10 Nm

12 - Oil cooler mount

13 - Expansion hose

- ☐ Vane pump - rotary slide valve housing



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

9.3 Exploded view of reservoir

1 - Cap with dipstick

- ☐ Fluid level: Between min. and max. mark

2 - Seal

3 - Compression spring

4 - Dished washer

5 - Strainer

6 - Reservoir

- ☐ Fresh fill capacities:
- ☐ Without self-levelling suspension: approx. 1 l
- ☐ With self-levelling suspension: approx. 2.5 l
- ☐ Hydraulic fluid ⇒ **Electronic parts catalogue**
- ☐ Checking hydraulic fluid level with vehicle unladen ⇒ [page 276](#)

7 - Bolt, 10 Nm

8 - Holder

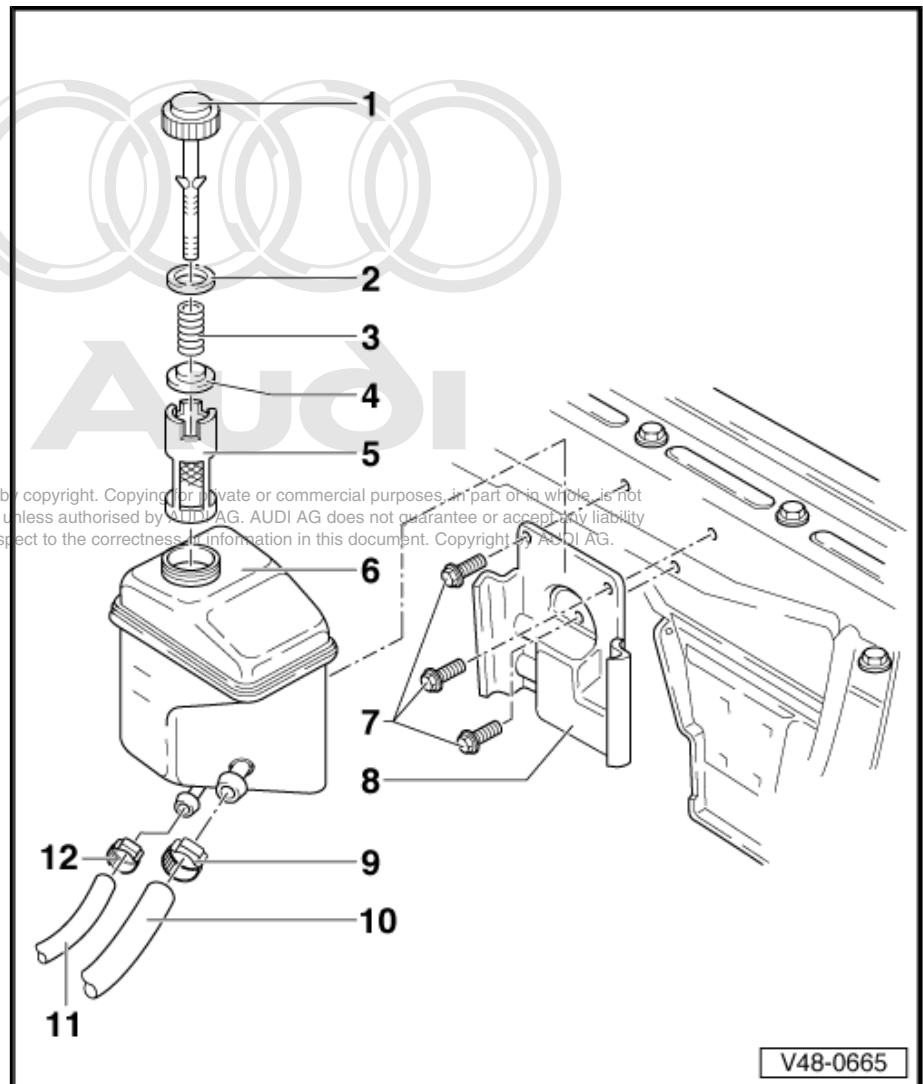
- ☐ Bolt to wheel housing

9 - Clamp

10 - Suction hose

11 - Return hose

12 - Clamp



10 Vane pump

⇒ ["10.1 General", page 218](#)

⇒ ["10.2 Exploded view of vane pump - Vehicles with 4-cyl. engine", page 218](#)

⇒ ["10.3 Exploded view of vane pump - Vehicles with 5-cyl. engine", page 221](#)

⇒ ["10.4 Exploded view of vane pump - Vehicles with 6-cyl. 2V engine", page 222](#)

⇒ ["10.5 Removing and installing vane pump - Vehicles with 6-cyl. 2V engine", page 224](#)

⇒ ["10.6 Exploded view of vane pump - Vehicles with 6-cyl. 5V engine", page 226](#)

⇒ ["10.7 Removing and installing vane pump - Vehicles with 6-cyl. 5V engine", page 227](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

10.1 General

There is no provision for vane pump servicing. In the event of problems, establish the cause by way of a pressure and leak test. Replace the vane pump if a fault is found.

- ◆ Always check the steering system for leaks if there is a lack of fluid in the reservoir.
- ◆ If a leak is found in the area of the pipe connections, start by checking the pipes/pipe connections for leaks, re-tighten if necessary and wipe dry.
- ◆ Replacement pumps have no fluid fill. Prior to installation they are therefore to be filled with hydraulic fluid and cranked by hand to avoid the possibility of noise whilst driving or pump damage.
- ◆ Hydraulic fluid ⇒ Electronic parts catalogue
- ◆ Always replace self-locking bolts and nuts.
- ◆ The hydraulic fluid drained off is not to be re-used.
- ◆ Replace seals.

10.2 Exploded view of vane pump - Vehicles with 4-cyl. engine

1 - Bolt, 20 Nm

2 - Bolt, 20 Nm

3 - Holder

4 - Vane pump

- ☐ Checking delivery pressure ⇒ [page 231](#)
- ☐ Fill with fluid before installing ⇒ [page 218](#)
- ☐ Cannot be serviced
- ☐ Attach hose clamp -3094- to the suction and return hose before unscrewing the suction and expansion hose at the vane pump



Note

Use is made of vane pumps from various manufacturers. Any of these may be fitted on pump replacement; for assignment, refer to ⇒ Electronic parts catalogue .

5 - Front swivel mount

- ☐ Bolt to vane pump

6 - Self-locking nut, 20 Nm

- ☐ Always replace after removing

7 - Bolt, 20 Nm

8 - Bolt, 20 Nm

9 - V-belt

- ☐ Tensioning, replacement ⇒ Maintenance ; Booklet 401

10 - Bolt with tensioning nut

11 - Bolt, 25 Nm

12 - V-belt pulley

- ☐ When installing the V-belt pulley, make sure the V-belt pulleys of the crankshaft and vane pump are in alignment

13 - Bolt, 25 Nm

14 - Washer

- ☐ Thickness 4 mm

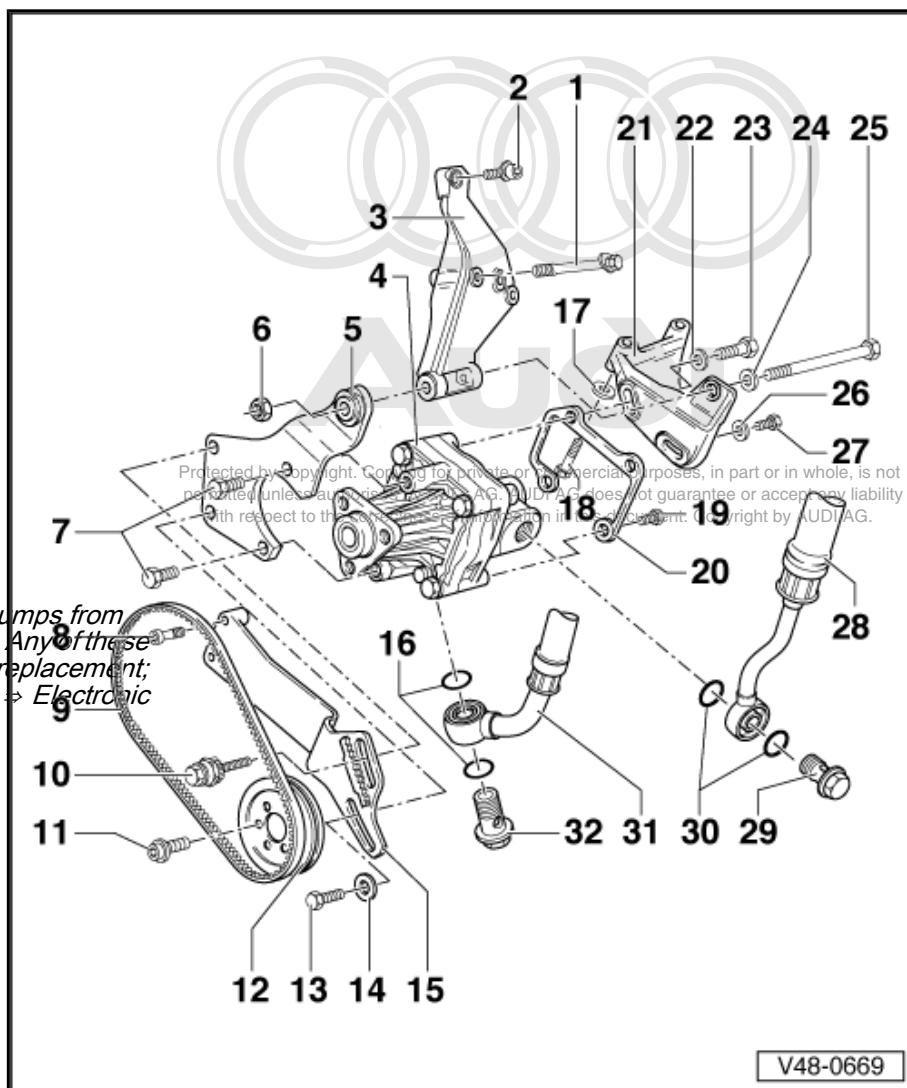
15 - Tensioning bar

16 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

17 - Washer

- ☐ Thickness 2.5 mm



V48-0669



18 - Bolt, 25 Nm

19 - Bolt, 25 Nm

20 - Spacer

- ☐ Only fitted with ZF vane pumps

21 - Rear swivel mount

22 - Washer

- ☐ Thickness 4 mm

23 - Bolt, 25 Nm

24 - Washer

- ☐ Thickness 2.5 mm

25 - Bolt

26 - Washer

- ☐ Thickness 4 mm

27 - Bolt, 25 Nm

28 - Expansion hose

- ☐ Replacement involves removing brake servo
- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

29 - Banjo bolt, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

30 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

31 - Suction hose

- ☐ Different banjo union designs with regard to seals; for assignment refer to ⇒ Electronic parts catalogue
- ☐ If the vane pump is provided with a screw connection, the suction hose is secured by means of a clamp
⇒ [Item 12 \(page 221\)](#) , ⇒ [Item 13 \(page 222\)](#) and ⇒ [Item 14 \(page 222\)](#)

32 - Banjo bolt/screw connection, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

10.3 Exploded view of vane pump - Vehicles with 5-cyl. engine

1 - Expansion hose

- ☐ Replacement involves removing brake servo
- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

2 - Banjo bolt, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

3 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

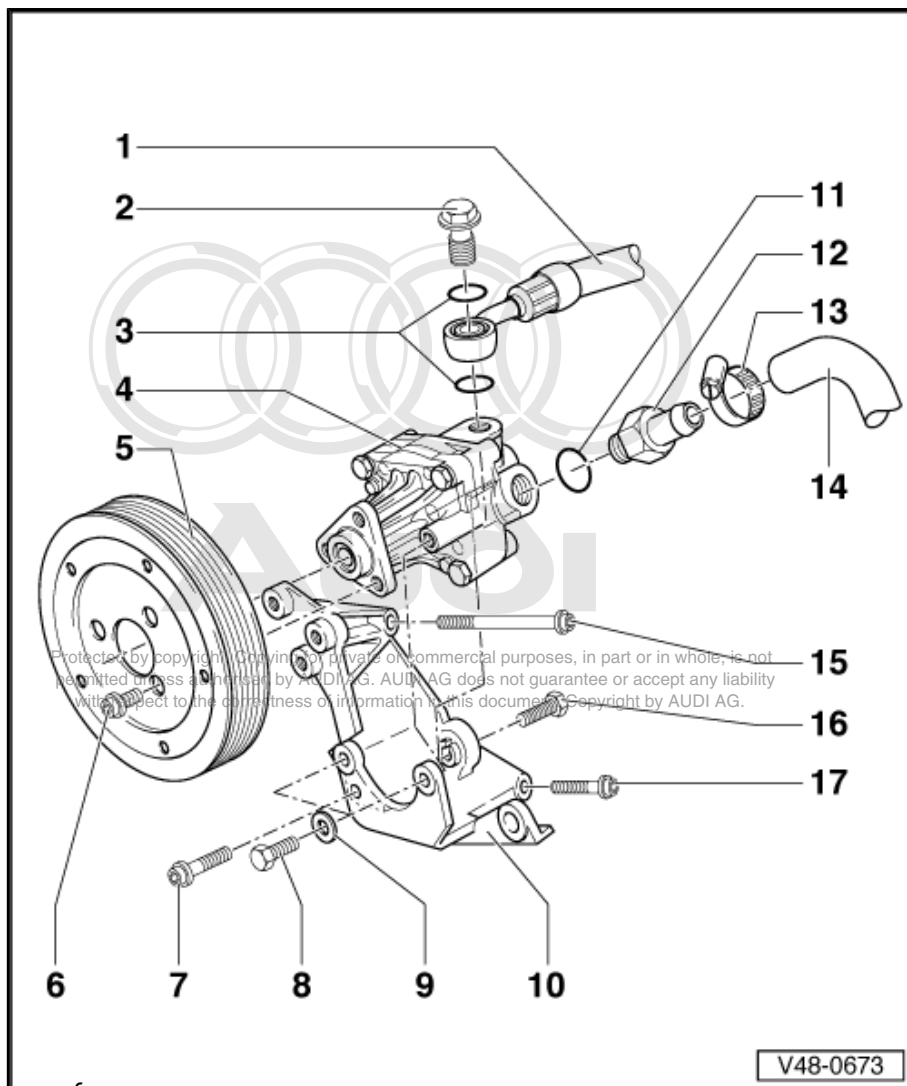
4 - Vane pump

- ☐ Checking delivery pressure ⇒ [page 233](#)
- ☐ Fill with fluid before installing ⇒ [page 218](#)
- ☐ Cannot be serviced
- ☐ Attach hose clamp -3094- to the suction and return hose before unscrewing the suction and expansion hose at the vane pump



Note

Use is made of vane pumps from various manufacturers. Any of these may be fitted on pump replacement; for assignment, refer to ⇒ Electronic parts catalogue.



5 - Pulley

- ☐ Slackening off poly V-belt ⇒ [page 222](#)

6 - Bolt, 25 Nm

- ☐ Slacken off before removing vane pump

7 - Bolt, 25 Nm

8 - Bolt, 25 Nm

9 - Washer

10 - Holder

11 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

12 - Screw connection, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

13 - Clamp

14 - Suction hose

15 - Bolt, 25 Nm

16 - Bolt, 25 Nm

17 - Bolt, 25 Nm

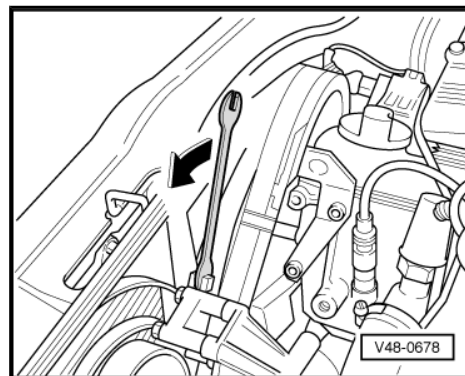
Slackening off poly V-belt



Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- To slacken off the poly V-belt, press the open-ended wrench in -arrow direction-.
- Detach the poly V-belt from the pulley.



10.4 Exploded view of vane pump - Vehicles with 6-cyl. 2V engine

1 - Expansion hose with pipe

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Replacement involves removing brake servo
- ☐ Refer to:
⇒ ["1.4 Removing and installing power-assisted steering box"](#), page 159
Section on "Removing brake servo with brake master cylinder"

2 - Combi bolt, 8 Nm

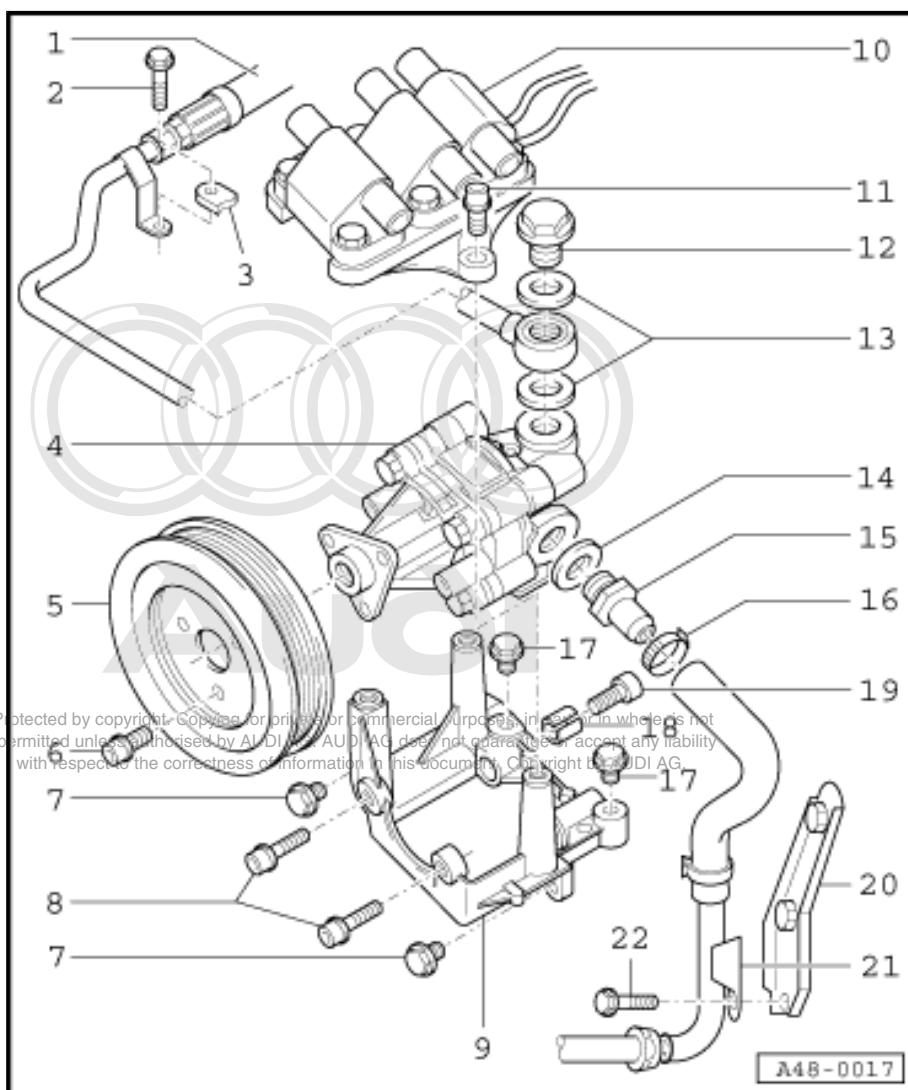
3 - Hole at intake pipe

4 - Vane pump

- ☐ Checking delivery pressure ⇒ [page 235](#)
- ☐ Fill with fluid before installing ⇒ [page 218](#)
- ☐ Cannot be serviced
- ☐ Attach hose clamp -3094- to the suction and return hose before unscrewing the suction and expansion hose at the vane pump
- ☐ Removing and installing ⇒ [page 224](#)

5 - Pulley

- ☐ Slackening off poly V-belt on vehicles up to Model Year 1991



⇒ [page 225](#) , vehicles as of Model Year 1992 ⇒ [page 225](#)

6 - Bolt, 25 Nm

7 - Bolt, 25 Nm

8 - Bolt, 25 Nm

9 - Holder

- ☐ Bushing installed on left in direction of travel with bolt discontinued as of vehicle ident no. PN 009 632

10 - Ignition coils with holder

11 - Bolt, 25 Nm

12 - Banjo bolt, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

13 - Seal

- ☐ Always replace

14 - Seal

- ☐ Always replace

15 - Screw connection, 50 Nm

16 - Clamp

17 - Bolt, 25 Nm

18 - Slotted bushing

19 - Bolt, 25 Nm

20 - Holder

- ☐ Bolted to cylinder head

21 - Suction hose

- ☐ Section with pipe

22 - Combi bolt, 8 Nm

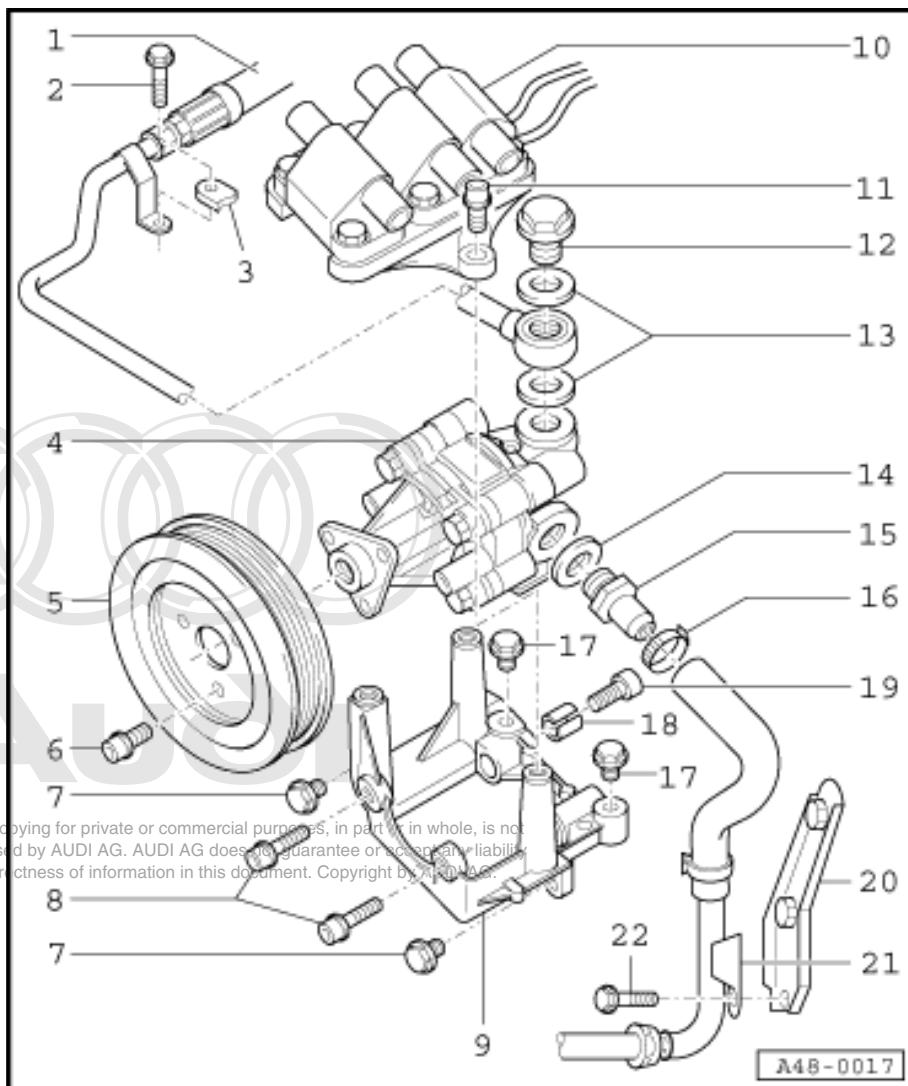
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

10.5 Removing and installing vane pump - Vehicles with 6-cyl. 2V engine

1 - Vane pump

Removing

- Detach the engine top cover ➔ [page 224](#) .
- Detach the poly V-belt cover ➔ [page 225](#) .
- Slacken off the poly V-belt: Up to Model Year 1991 ➔ [page 225](#) , as of Model Year 1992 ➔ [page 225](#) .
- Support the pulley with a water pump wrench - V.A.G 1590- if applicable and unscrew.
- Pull the ignition cables out of the ignition coils -Item 10-.
- Pinch off the suction pipe with hose clamps -3094- .
- Detach the pressure and suction pipe.
- Unscrew the holder -Item 9- and remove together with the vane pump.
- Take out the vane pump with holder.
- Screw the vane pump bolts out of the holder and take out the vane pump.

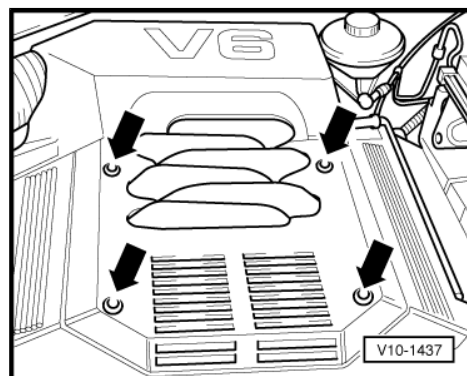


Installing

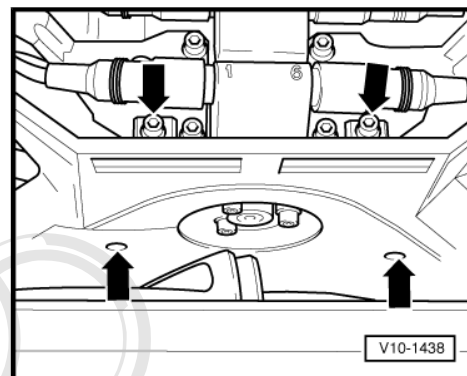
Install in reverse order.

- The ignition cables must be assigned in line with the numbering ➔ [page 225](#)

Unclipping and detaching the engine top cover



Unscrewing poly V-belt cover



Assignment of ignition cables to ignition coils

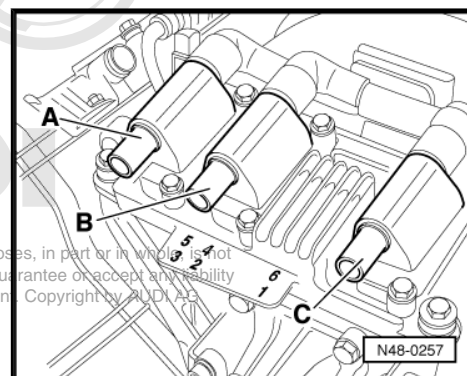
A - Ignition coil for cylinders 5 and 3

B - Ignition coil for cylinders 4 and 2

C - Ignition coil for cylinders 6 and 1

The ignition cables are marked 1 ... 6.

- Assign ignition cables 6 and 1 to ignition coil -C-
- Assign ignition cables 2, 3, 4 and 5 in the same manner.



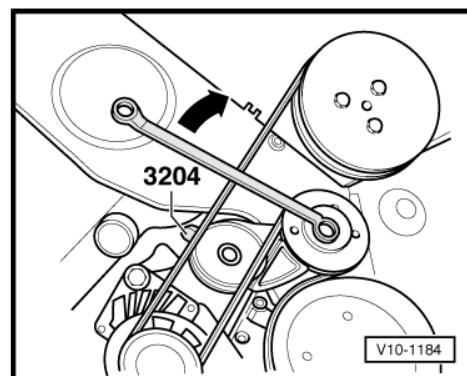
Slackening off poly V-belt - up to Model Year 1991:



Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- Unscrew the ignition coils with holder and remove the upper belt guard.
- To slacken off the poly V-belt, swivel the poly V-belt tensioner in -arrow direction- using a 15 mm ring spanner.
- Insert the mandrel -3204- to secure.
- Detach the poly V-belt from the pulley.



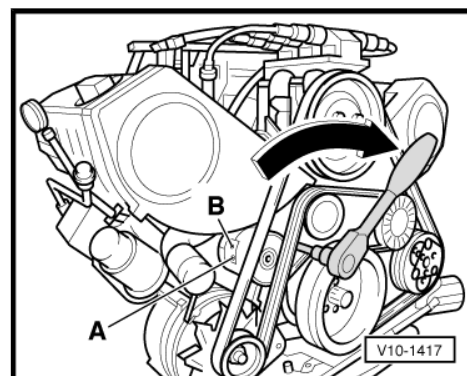
Slackening off poly V-belt - as of Model Year 1992:



Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- To slacken off the poly V-belt, swivel the poly V-belt tensioner in -arrow direction- using a 10 mm Allen key.
- Lock the tensioner in position by inserting the mandrel -3204- in the locating holes -A- and -B-.
- Detach the poly V-belt.



10.6 Exploded view of vane pump - Vehicles with 6-cyl. 5V engine

1 - Expansion hose

- ☐ Part section with pipe, routed to steering box

2 - Bolt, 6 Nm

3 - Bolt, 9 Nm

4 - Ignition coils with holder

5 - Seal

- ☐ Always replace

6 - Screw connection, 50 Nm

7 - Clamp

- ☐ Always replace
- ☐ Tensioning
⇒ [page 227](#)
- ☐ Can also be replaced by screw-type clamp

8 - Suction hose

- ☐ Pay attention to the mark -P- for the pump-end hose connection.

9 - Pipe for suction hose

10 - Bolt, 25 Nm

- ☐ Attachment of vane pump to holder at rear

11 - Slotted bushing

- ☐ For tolerance compensation

12 - Bolt, 25 Nm

- ☐ For attaching vane pump holder to crank-case

13 - Bolt, 25 Nm

- ☐ Attachment of vane pump to holder at front

14 - Holder for vane pump

15 - Bolt, 25 Nm

- ☐ Provide support for pulley with pin wrench -3212- when slackening off and tightening

16 - Pulley

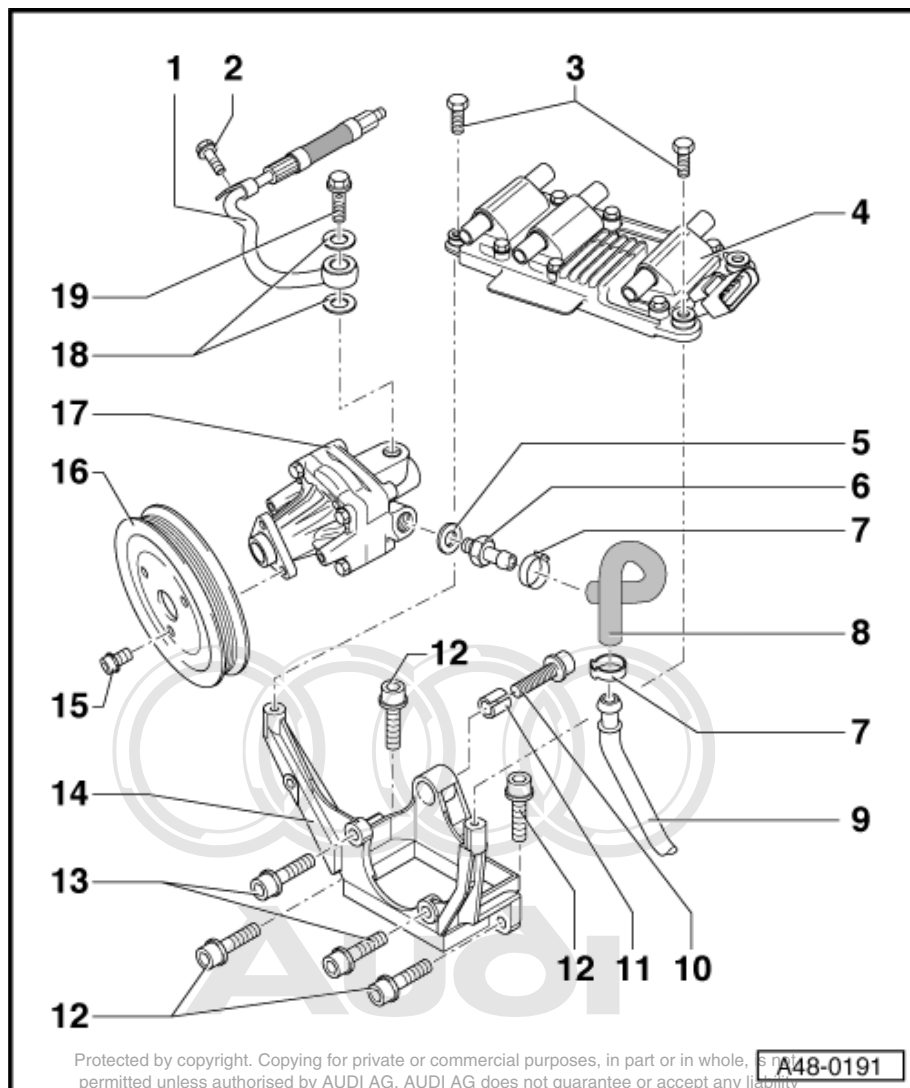
17 - Vane pump

- ☐ Checking delivery pressure ⇒ [page 237](#)
- ☐ Removing and installing ⇒ [page 227](#)
- ☐ Prior to installation, fill with hydraulic fluid on suction end and crank by hand until fluid emerges on delivery end

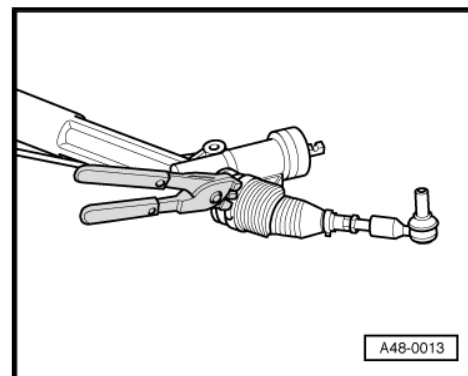
18 - Seal

- ☐ Always replace

19 - Banjo bolt, 50 Nm



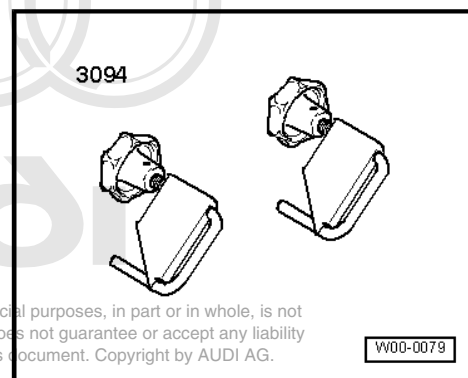
Tensioning clamp with hose clamp pliers -V.A.G 1275-



**10.7 Removing and installing vane pump -
Vehicles with 6-cyl. 5V engine**

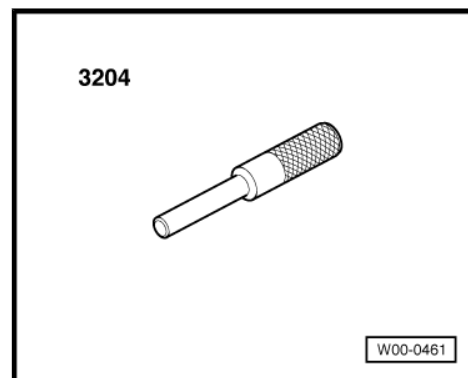
Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-

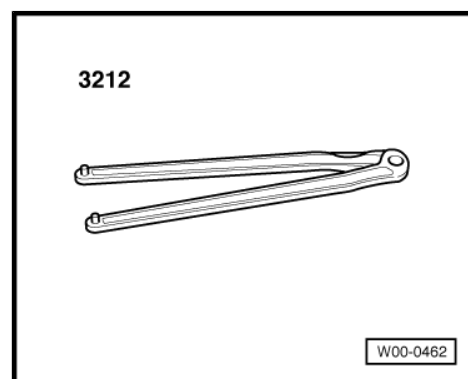


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Locking pin -3204-

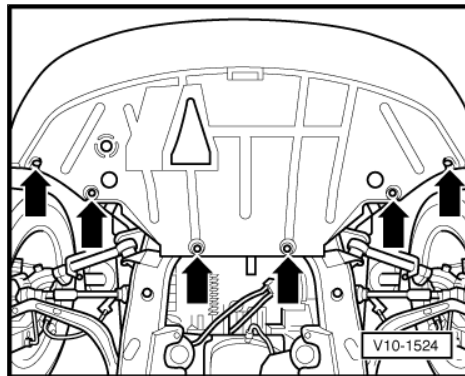


- ◆ Pin wrench -3212-



Removing

- Remove the noise insulation.
- Unclip the engine top cover and detach.

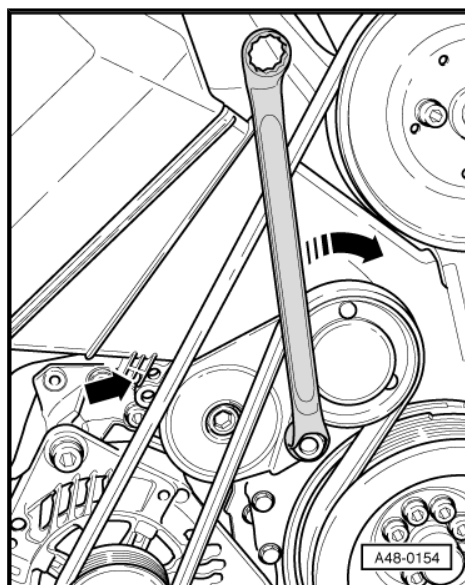


- Slacken off the poly V-belt for the vane pump, viscous fan and alternator.
- Secure with a pin wrench -3212- .

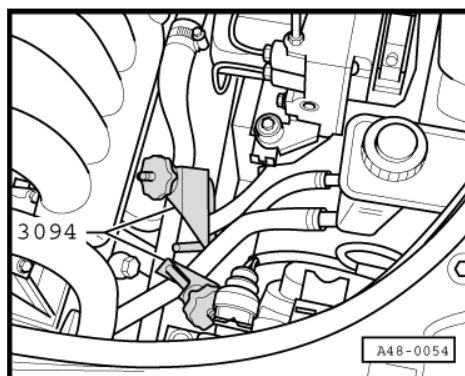


Note

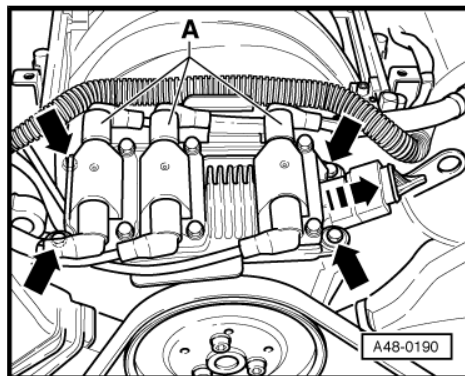
Mark the direction of the poly V-belt prior to removal. Running a used belt in the opposite direction could destroy it. Ensure correct belt positioning in pulleys when fitting.



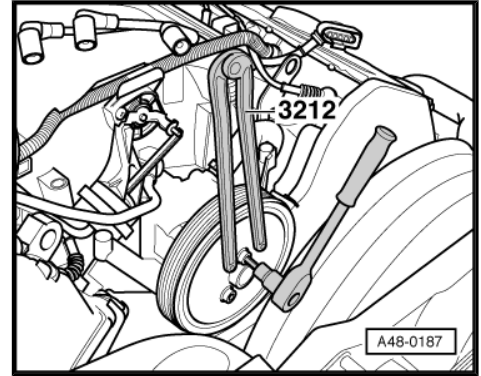
- Detach the poly V-belt from the pulley.



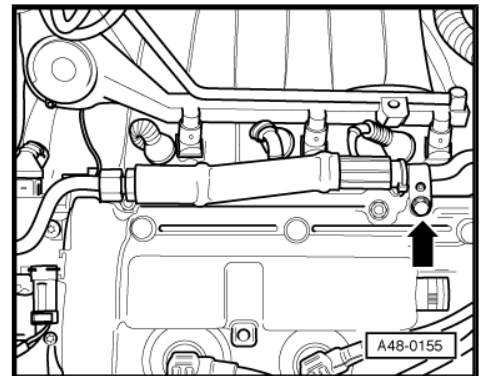
- Unplug the 5-pin connector at the ignition coils.
- Unplug the three rear connectors -A- from the ignition coils.
- Screw out the four bolts.
- Swivel the ignition coil holder to the rear.



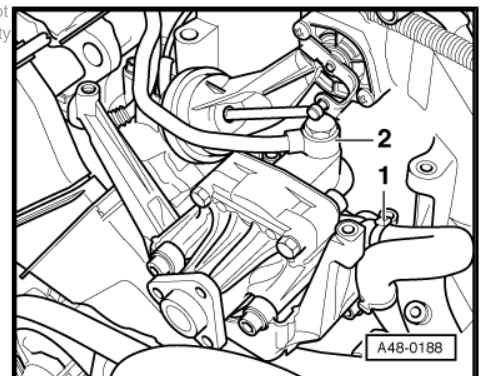
- Provide support with a pin wrench -3212- and unscrew the vane pump pulley.



- Screw out the bolt -arrow-.



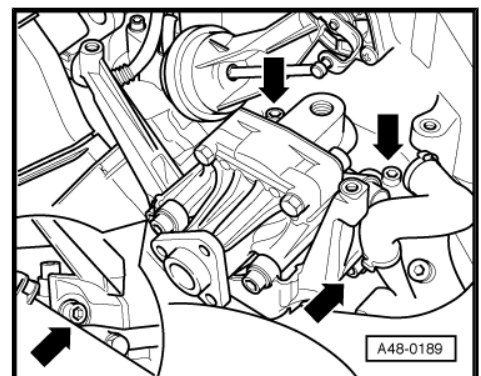
- Unfasten the clamp -1- and detach the suction hose.
- Unscrew the expansion hose -2-.



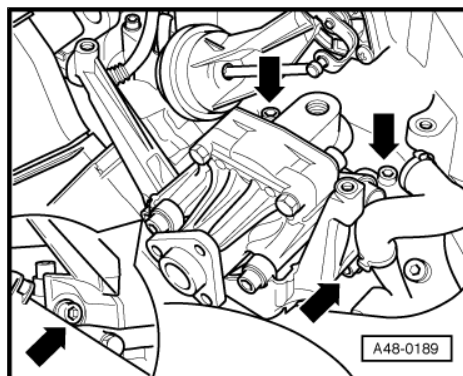
- Unscrew the vane pump holder.
- Take out the holder with pump.
- Then unscrew the vane pump from the holder.

Installing

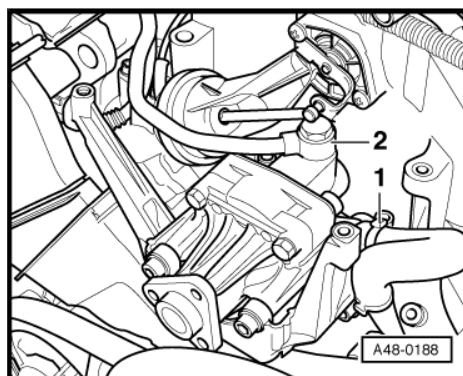
- ◆ Before fitting a new pump, pour in hydraulic fluid on the suction end and crank by hand until fluid emerges on the delivery end.
- ◆ Clean fouled areas in the engine compartment.
- Screw the pump to the holder.



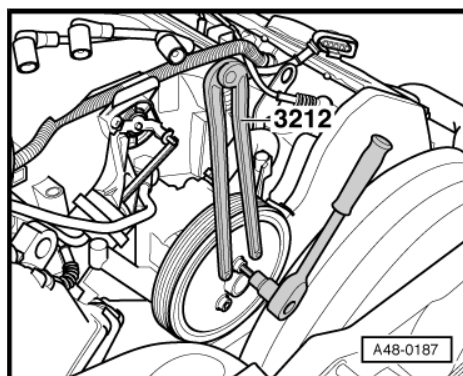
- Insert the pump with holder.
- Fit all bolts, tighten the two at the front and then the two at the rear.
- Attach new seals to the banjo bolt.



- Tighten the banjo bolt for the pressure hose -2-.
- Screw the pipe of the expansion hose to the cylinder head (bolt ➔ [Item 2 \(page 226\)](#)).
- Fit the suction hose -1-.
- Pay attention to the mark -P- for the pump-end hose connection.
- Detach the hose clamps -3094- .



- Tighten the hexagon socket head bolts of the pulleys for the vane pump.
- Fit the poly V-belt ➔ Rep. Gr. 13 .
- Fit the holder for the ignition coils.
- Connect the ignition cables to the ignition coils.
- Check the hydraulic fluid level ➔ [page 276](#) .
- Bleed the steering system ➔ [page 276](#) .
- Check the steering system for leaks ➔ [page 277](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

11 Vane pump delivery pressure

⇒ [“11.1 Checking delivery pressure of vane pump - Vehicles with 4-cyl. engine”, page 231](#)

⇒ [“11.2 Checking delivery pressure of vane pump - Vehicles with 5-cyl. engine”, page 233](#)

⇒ [“11.3 Checking delivery pressure of vane pump - Vehicles with 6-cyl. 2V engine”, page 235](#)

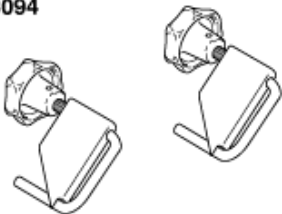
⇒ [“11.4 Checking delivery pressure of vane pump - Vehicles with 6-cyl. 5V engine”, page 237](#)

⇒ [“11.5 Checking delivery pressure of vane pump - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine”, page 239](#)

11.1 Checking delivery pressure of vane pump - Vehicles with 4-cyl. engine

Special tools and workshop equipment required

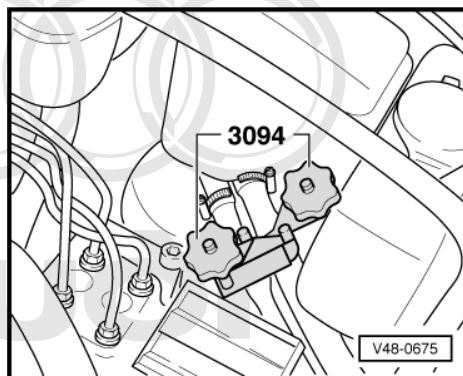
- ◆ Hose clamps up to 25 mm -3094-
- ◆ Power steering tester - V.A.G 1402-
- ◆ Adapter -V.A.G 1402/3-

3094 	V.A.G 1402 
V.A.G 1402/3 	
	W48-0014

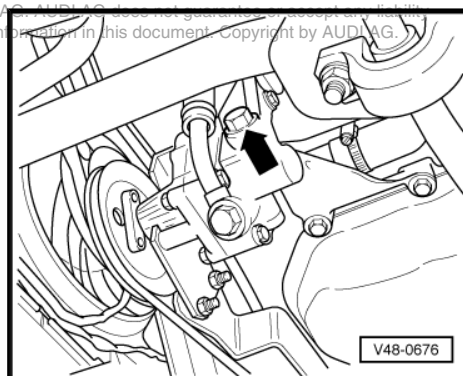
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Sequence of operations

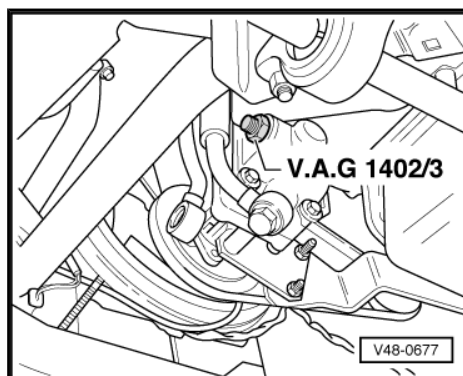
- Pinch off the suction and return pipes with hose clamps -3094- .



- Unscrew the expansion hose from the vane pump.
- Attach seal -N 013 844 4- to adapter -V.A.G 1402/3- .



- Screw the adapter -V.A.G 1402/3- into the vane pump in place of the banjo bolt.



- Screw the hose of the pressure gauge -V.A.G 1402- onto the adapter -V.A.G 1402/3- .
- Close the pressure gauge shutoff valve (lever to left).
- Detach the hose clamp and top up the fluid level in the reservoir if necessary.

Heed the following to avoid damaging the pump:

- ◆ Do not run the engine for more than 10 seconds when performing this check.
- ◆ Start the engine without accelerating and let it idle.
- ◆ Take the pump pressure reading at idle immediately after starting (have a second mechanic take the reading if necessary).
- ◆ The highest pressure displayed is definitive, as the pressure drops in the course of the test.

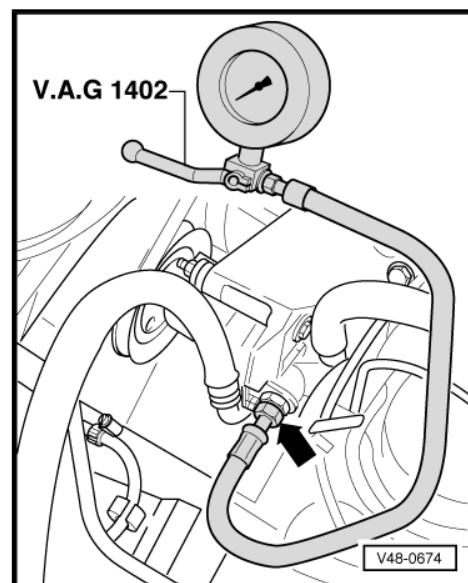
Specifications

To determine the specifications, heed the pump pressure given on the rating plate of the vane pump.

- Stated pump pressure 100 bar: Specification 100 ... 110 bar
- Stated pump pressure 120 bar: Specification 120 ... 130 bar
- Start the engine.

If the reading does not match the specification, replace the vane pump ⇒ [page 218](#) .

- Check the hydraulic fluid level ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .
- Bleed the steering system ⇒ [page 276](#) .



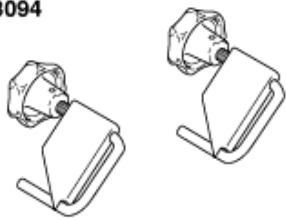
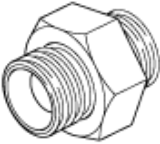
11.2 Checking delivery pressure of vane pump - Vehicles with 5-cyl. engine



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

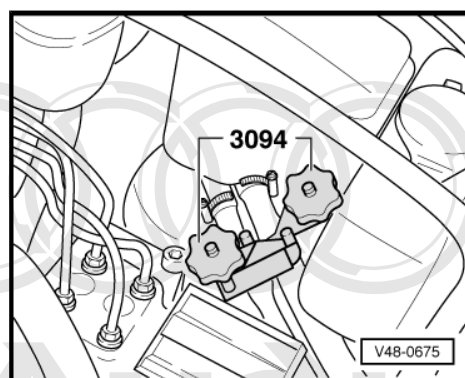
Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-
- ◆ Power steering tester - V.A.G 1402-
- ◆ Adapter -V.A.G 1402/3-

3094 	V.A.G 1402 
V.A.G 1402/3 	
	W48-0014

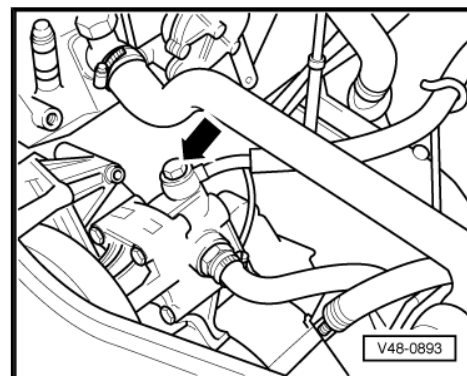
Sequence of operations

- Pinch off the suction and return pipes with hose clamps -3094- .

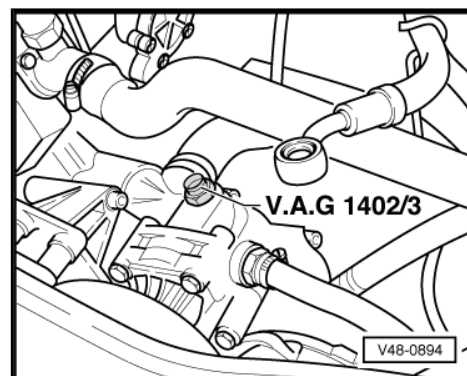


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

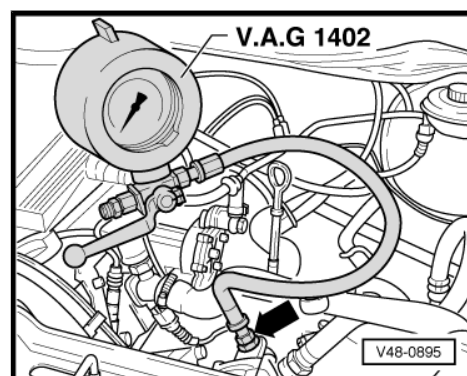
- Unscrew the expansion hose from the vane pump.



- Attach seal -N 013 844 4- to adapter -V.A.G 1402/3- .
- Screw the adapter -V.A.G 1402/3- into the vane pump in place of the banjo bolt.



- Screw the hose of the pressure gauge -V.A.G 1402- onto the adapter -V.A.G 1402/3- .
- Close the pressure gauge shutoff valve (lever to left).
- Detach the hose clamp and top up the fluid level in the reservoir if necessary.



Heed the following to avoid damaging the pump:

- ◆ Do not run the engine for more than 10 seconds when performing this check.
- ◆ Start the engine without accelerating and let it idle.
- ◆ Take the pump pressure reading at idle immediately after starting (have a second mechanic take the reading if necessary).
- ◆ The highest pressure displayed is definitive, as the pressure drops in the course of the test.
- Start the engine.
- Specification: 120 ... 130 bar

If the reading does not match the specification, replace the vane pump ⇒ [page 221](#) .

- Check the hydraulic fluid level ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .
- Bleed the steering system ⇒ [page 276](#) .

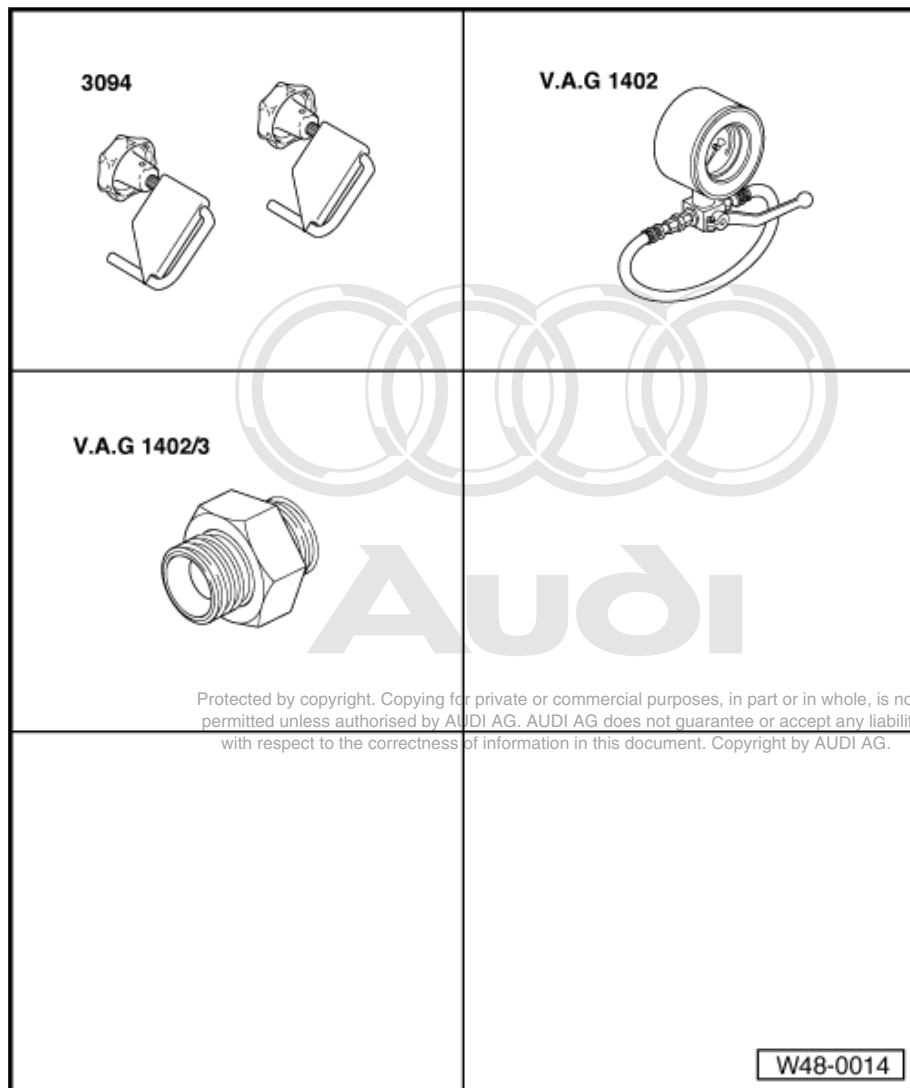
11.3 Checking delivery pressure of vane pump - Vehicles with 6-cyl. 2V engine

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



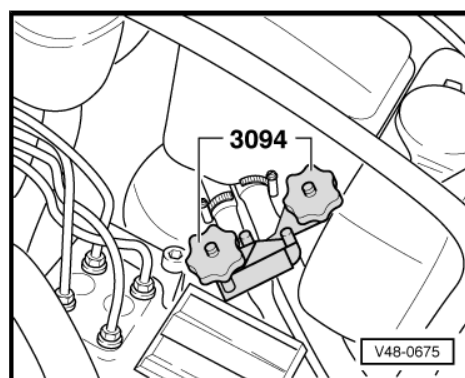
Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-
- ◆ Power steering tester - V.A.G 1402-
- ◆ Adapter -V.A.G 1402/3-

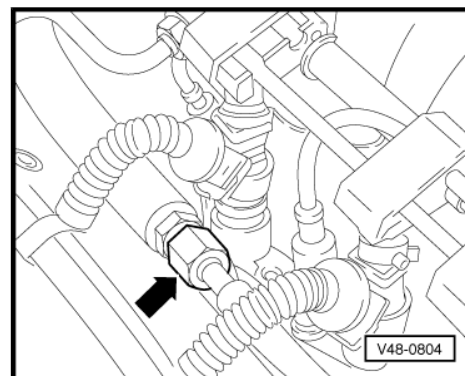


Sequence of operations

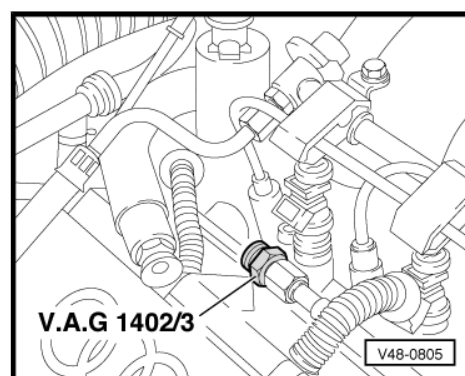
- Pinch off the suction and return pipes with hose clamps -3094- .
- Press the connector spring clip and unplug the connector from the injector.



- Provide support at the hexagon of the pressure hose and unscrew the pipe from the pressure hose -arrow-.



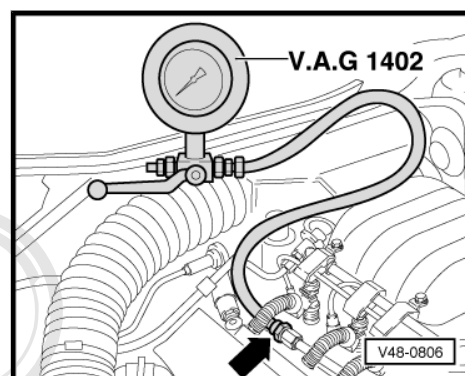
- Screw the adapter -V.A.G 1402/3- into the vane pump in place of the banjo bolt.



- Screw the hose of the pressure gauge -V.A.G 1402- onto the adapter -V.A.G 1402/3-.
- Close the pressure gauge shutoff valve (lever to left).
- Plug in the injector connector.
- Detach the hose clamp and top up the fluid level in the reservoir if necessary.

Heed the following to avoid damaging the pump:

- ◆ Do not run the engine for more than 10 seconds when performing this check.
- ◆ Start the engine without accelerating and let it idle.
- ◆ Take the pump pressure reading at idle immediately after starting (have a second mechanic take the reading if necessary).
- ◆ The highest pressure displayed is definitive, as the pressure drops in the course of the test.



- Start the engine.

- **Specification: 120...130 bar**

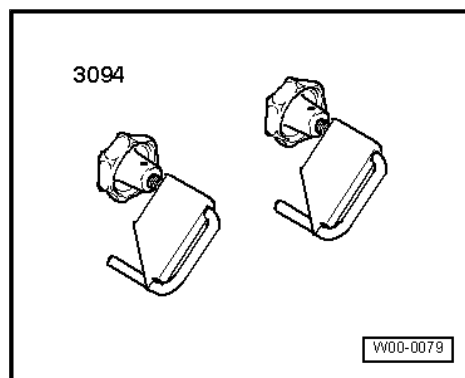
If the reading does not match the specification, replace the vane pump ➔ [page 222](#).

- Check the hydraulic fluid level ➔ [page 276](#).
- Check the steering system for leaks ➔ [page 277](#).
- Bleed the steering system ➔ [page 276](#).

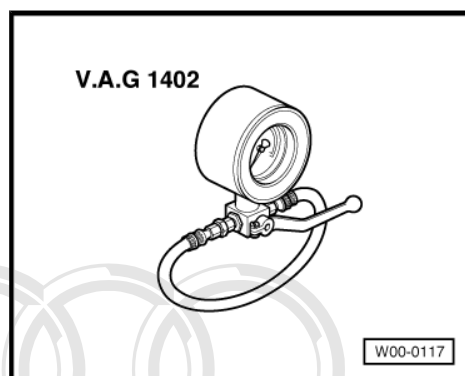
11.4 Checking delivery pressure of vane pump - Vehicles with 6-cyl. 5V engine

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-

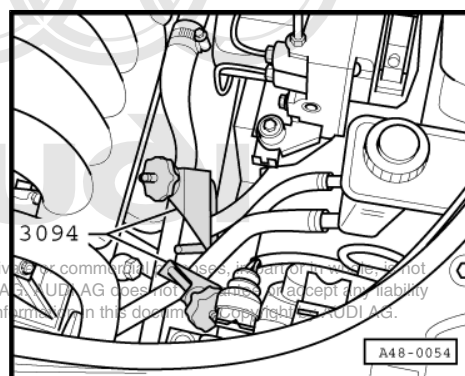


- ◆ Power steering tester -V.A.G 1402-

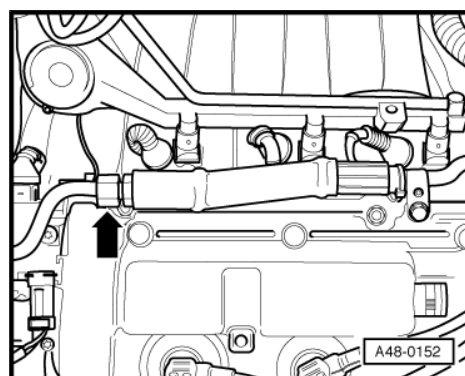


Sequence of operations

- Unclip the engine top cover and detach.
- Pinch off the suction and return pipes with hose clamps -3094- .



- Provide support at the hexagon of the expansion hose and unscrew the pipe from the expansion hose -arrow-.
- Screw the hose of the pressure gauge -V.A.G 1402- to the section of the expansion hose leading to the pump.



Protected by copyright. Copying for private or commercial purposes, in any form, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document, especially AUDI AG.

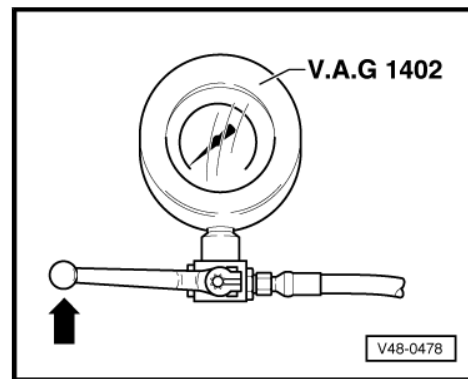
- Close the pressure gauge shutoff valve (lever to left).
- Detach the hose clamps.
- If necessary, top up the fluid in the reservoir.

Heed the following to avoid damaging the pump:

- ◆ Do not run the engine for more than 10 seconds when performing this check.
- ◆ Start the engine without accelerating and let it idle.
- ◆ Take the pump pressure reading at idle immediately after starting (have a second mechanic take the reading if necessary).
- ◆ The highest pressure displayed is definitive, as the pressure drops in the course of the test.
- Start the engine.
- Specification: 120 ... 130 bar

If the reading does not match the specification, replace the vane pump ⇒ [page 227](#) .

- Check the hydraulic fluid level ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .
- Bleed the steering system ⇒ [page 276](#) .



11.5 Checking delivery pressure of vane pump - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine

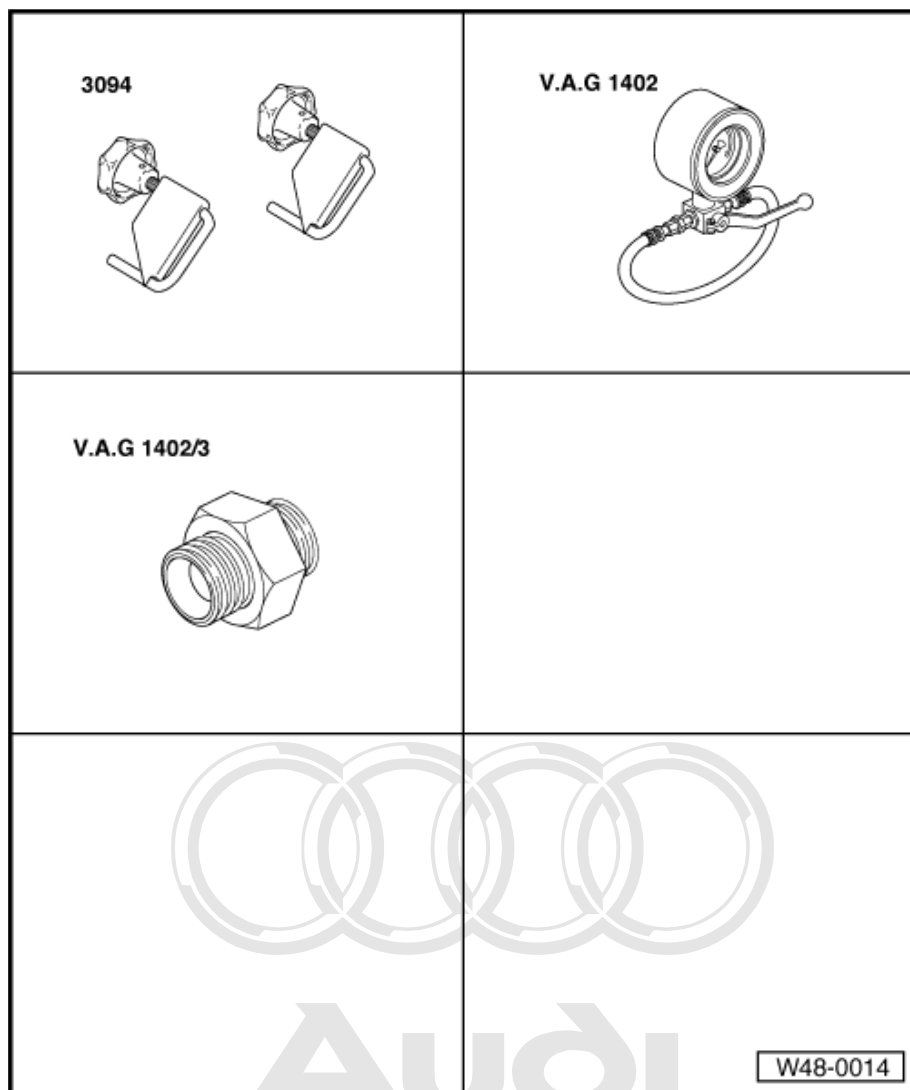


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Special tools and workshop equipment required

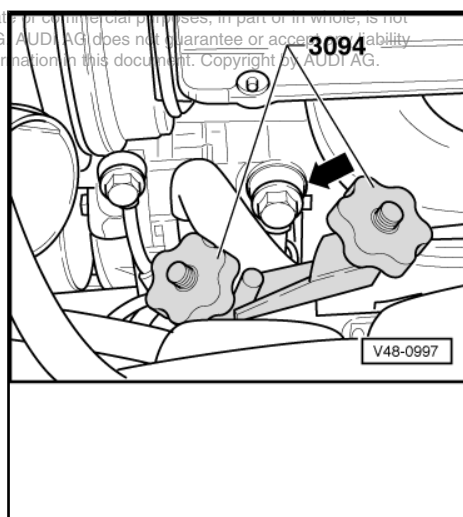
- ◆ Hose clamps up to 25 mm -3094-
- ◆ Power steering tester - V.A.G 1402-
- ◆ Adapter -V.A.G 1402/3-



Sequence of operations

- Pinch off the suction and return pipes with hose clamps -3094- .
- Unscrew the expansion hose -arrow- from the vane pump.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept liability with respect to the correctness of information in this document. Copyright by AUDI AG.

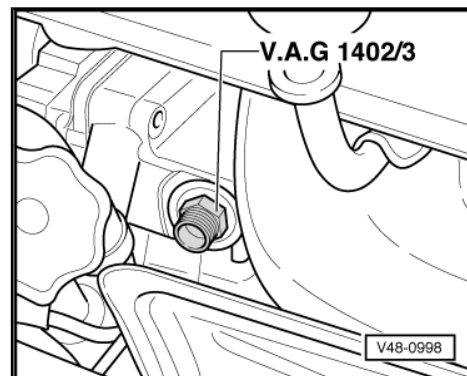


- Attach seal -N 013 844 4- to adapter -V.A.G 1402/3- .
- Screw the adapter -V.A.G 1402/3- into the vane pump in place of the banjo bolt.



Note

On the 8-cyl. engine, this may lead to problems. Use an appropriate banjo union in place of the adapter -V.A.G 1402/3- .



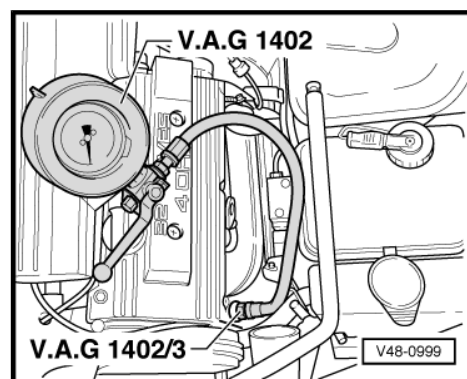
- Screw the hose of the pressure gauge -V.A.G 1402- onto the adapter -V.A.G 1402/3- .
- Close the pressure gauge shutoff valve (lever to left).
- Plug in the injector connector.
- Detach the hose clamp and top up the fluid level in the reservoir if necessary.

Heed the following to avoid damaging the pump:

- ◆ Do not run the engine for more than 10 seconds when performing this check.
- ◆ Start the engine without accelerating and let it idle.
- ◆ Take the pump pressure reading at idle immediately after starting (have a second mechanic take the reading if necessary).
- ◆ The highest pressure displayed is definitive, as the pressure drops in the course of the test.
- Start the engine.
- Specification: 120 ... 130 bar

If the reading does not match the specification, replace the tandem pump: Audi S4/S6 ⇒ [page 266](#) ; Audi S6 Plus ⇒ [page 271](#) .

- Check the hydraulic fluid level ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .
- Bleed the steering system ⇒ [page 276](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

12 Tandem pump

⇒ ["12.1 General ", page 242](#)

⇒ ["12.2 Exploded view - Vehicles with 4-cyl. engine", page 242](#)

⇒ ["12.3 Exploded view - Vehicles with 5-cyl. engine", page 245](#)

⇒ ["12.4 Exploded view - Audi S4/S6 with 5-cyl. turbo engine", page 247](#)

⇒ ["12.5 Exploded view - Vehicles with 6-cyl. engines", page 249](#)

⇒ ["12.6 Removing and installing tandem pump - Vehicles with 6-cyl. engines", page 251](#)

⇒ ["12.7 Exploded view - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine", page 253](#)

12.1 General

There is no provision for tandem pump servicing. In the event of problems, establish the cause by way of a pressure and leak test. Replace the tandem pump if a fault is found.

- ◆ Always check the steering system for leaks if there is a lack of fluid in the reservoir.
- ◆ If a leak is found in the area of the pipe connections, start by checking the pipes/pipe connections for leaks, re-tighten if necessary and wipe dry.
- ◆ Replacement pumps have no fluid fill. Prior to installation they are therefore to be filled with hydraulic fluid G 002 000 and cranked by hand to avoid the possibility of noise whilst driving or pump damage.
- ◆ Hydraulic fluid ⇒ Electronic parts catalogue
- ◆ Always replace self-locking bolts and nuts.
- ◆ The hydraulic fluid drained off is not to be re-used.

12.2 Exploded view - Vehicles with 4-cyl. engine



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Bolt, 20 Nm

2 - Bolt, 20 Nm

3 - Holder

4 - Tandem pump

- ☐ Consists of plunger and vane pump (piston pump for self-levelling suspension, vane pump for power-assisted steering)
- ☐ Checking delivery pressure of vane pump
⇒ [page 231](#)
- ☐ Checking delivery of plunger pump
⇒ [page 255](#)
- ☐ Fill with fluid before installing ⇒ [page 242](#)
- ☐ Cannot be serviced
- ☐ Attach hose clamp -3094- to the suction and return hose before unscrewing the suction and expansion hose at the vane pump

5 - Front swivel mount

- ☐ Bolt to tandem pump

6 - Self-locking nut, 20 Nm

- ☐ Always replace after removing

7 - Bolt, 20 Nm

8 - Bolt, 20 Nm

9 - Poly V-belt

- ☐ Tensioning, replacement ⇒ Maintenance ; Booklet 401

10 - Bolt with tensioning nut

11 - Bolt, 25 Nm

12 - Pulley

- ☐ When installing the pulley, make sure the pulleys of the crankshaft and vane pump are in alignment

13 - Bolt, 25 Nm

14 - Washer

- ☐ Thickness 4 mm

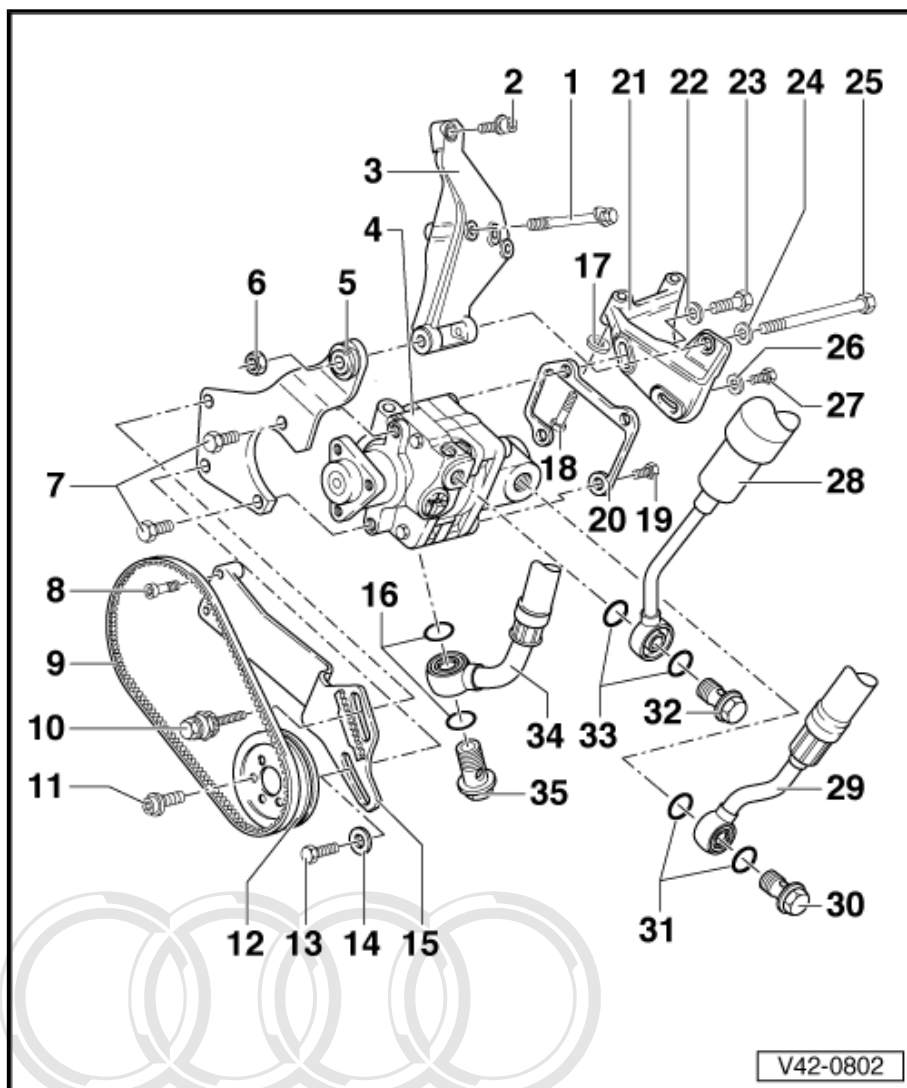
15 - Tensioning bar

16 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

17 - Washer

- ☐ Thickness 2.5 mm



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. The publisher assumes no liability for errors or omissions. The publisher is not responsible for the correctness of information in this document. Copyright by AUDI AG.



18 - Bolt, 25 Nm

19 - Bolt, 25 Nm

20 - Spacer

21 - Rear swivel mount

22 - Washer

- ☐ Thickness 4 mm

23 - Bolt, 25 Nm

24 - Washer

- ☐ Thickness 2.5 mm

25 - Bolt

26 - Washer

- ☐ Thickness 4 mm

27 - Bolt, 25 Nm

28 - High-pressure hose

29 - Expansion hose

- ☐ Replacement involves removing brake servo
- ☐ Different seal versions; for assignment refer to ⇒ [Electronic parts catalogue](#)

30 - Banjo bolt, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ [Electronic parts catalogue](#)

31 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ [Electronic parts catalogue](#)

32 - Banjo bolt, 25 Nm

- ☐ Always replace after removing

33 - Seal

- ☐ Always replace after removing

34 - Suction hose

- ☐ Different banjo union designs with regard to seals; for assignment refer to ⇒ [Electronic parts catalogue](#)
- ☐ If the tandem pump is provided with a screw connection, the suction hose is secured by means of a clamp
⇒ [Item 12 \(page 246\)](#) , ⇒ [Item 13 \(page 246\)](#) and ⇒ [Item 14 \(page 246\)](#)

35 - Banjo bolt/screw connection, 50 Nm

- ☐ Note different seal versions



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

12.3 Exploded view - Vehicles with 5-cyl. engine

1 - Pulley

- ☐ Slackening off poly V-belt ⇒ [page 246](#)

2 - Tandem pump

- ☐ Consists of plunger and vane pump (piston pump for self-levelling suspension, vane pump for power-assisted steering)
- ☐ Checking delivery pressure of vane pump ⇒ [page 233](#)
- ☐ Checking delivery of plunger pump ⇒ [page 256](#)
- ☐ Fill with fluid before installing ⇒ [page 242](#)
- ☐ Cannot be serviced
- ☐ Attach hose clamp -3094- to the suction and return hose before unscrewing the suction and expansion hose at the vane pump
- ☐ Removing and installing, c.f. 5-cyl. turbo engine ⇒ [page 262](#)

3 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

4 - Banjo bolt, 25 Nm

- ☐ Always replace after removing
- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

5 - Expansion hose

- ☐ Replacement involves removing brake servo
- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

6 - Banjo bolt, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

7 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

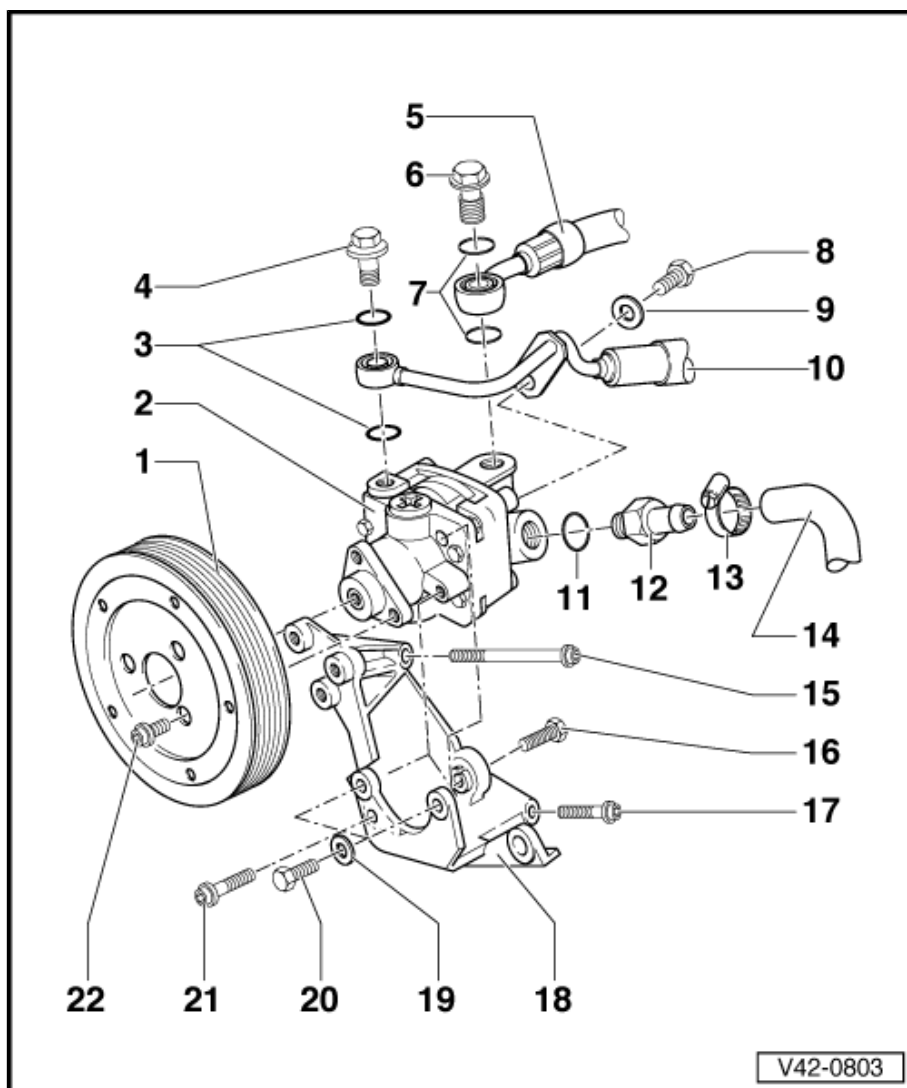
8 - Bolt, 20 Nm

9 - Washer

10 - High-pressure hose

11 - Seal

- ☐ Always replace after removing



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

12 - Screw connection, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

13 - Clamp**14 - Suction hose****15 - Bolt, 25 Nm****16 - Bolt, 25 Nm****17 - Bolt, 25 Nm****18 - Holder****19 - Washer****20 - Bolt, 25 Nm****21 - Bolt, 25 Nm**

- ☐ For attaching holder to engine block

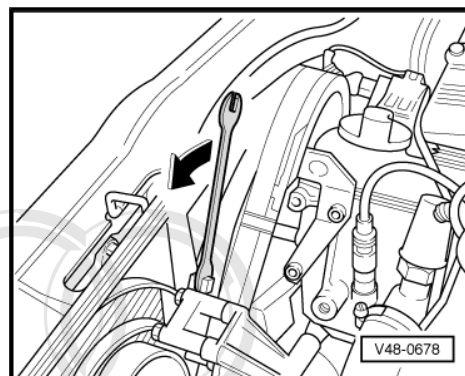
22 - Bolt, 25 Nm

- ☐ Screw out before removing pump

Slackening off poly V-belt**Note**

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- To slacken off the poly V-belt, press the open-ended wrench in -arrow direction-.
- Detach the poly V-belt from the pulley.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

12.4 Exploded view - Audi S4/S6 with 5-cyl. turbo engine

1 - Pulley

- ☐ Unscrew to remove the vane pump; this involves slackening off the poly V-belt
⇒ [page 248](#)

2 - Tandem pump

- ☐ Consists of plunger and vane pump (piston pump for self-levelling suspension and hydraulic brake servo, vane pump for power-assisted steering)
- ☐ Checking delivery of plunger pump
⇒ [page 256](#)
- ☐ Checking delivery pressure of vane pump
⇒ [page 233](#)
- ☐ Fill with fluid before installing ⇒ [page 242](#)
- ☐ Cannot be serviced
- ☐ Attach hose clamp -3094- to the suction and return hose before unscrewing the suction and expansion hose at the vane pump
- ☐ Removing and installing
⇒ [page 262](#)

3 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

4 - Banjo bolt, 25 Nm

- ☐ Always replace after removing

5 - Expansion hose

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

6 - Banjo bolt, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

7 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

8 - Bolt, 20 Nm

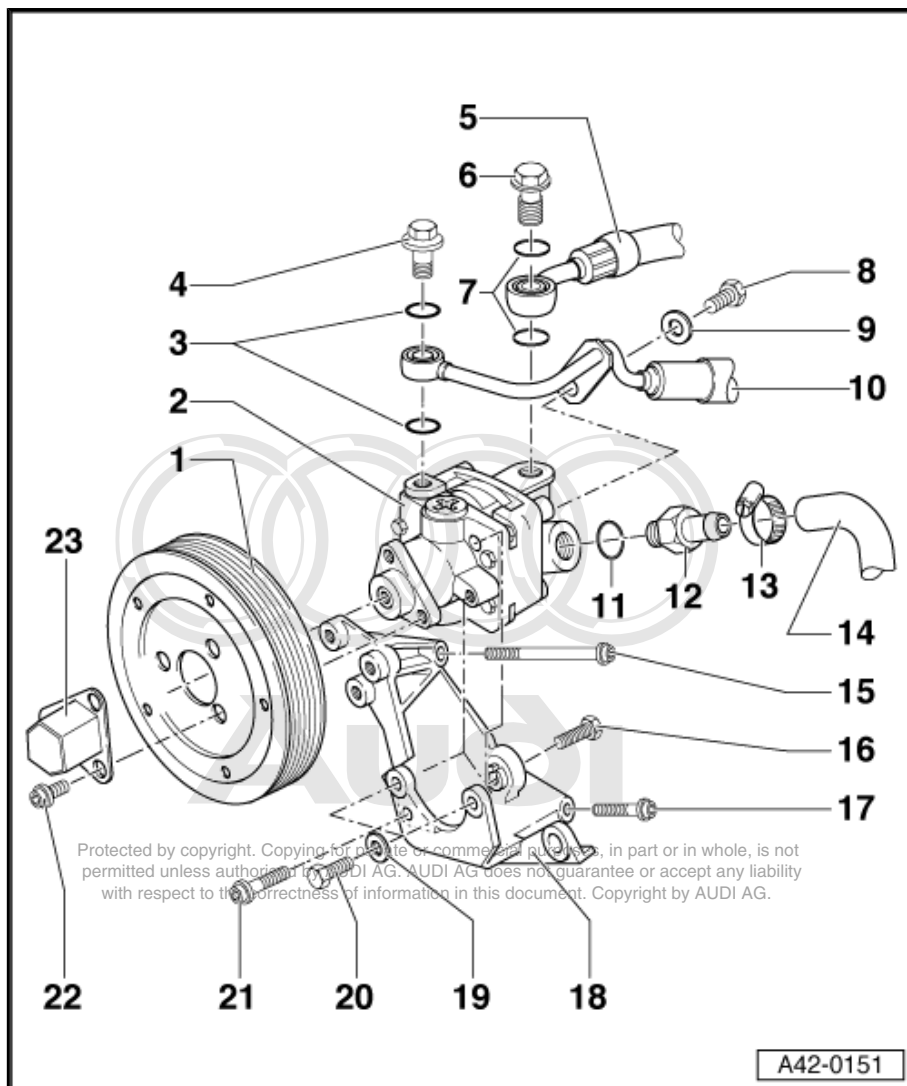
- ☐ For attaching high-pressure hose/tandem pump

9 - Washer

10 - High-pressure hose

11 - Seal

- ☐ Always replace after removing



- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

12 - Screw connection, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

13 - Clamp**14 - Suction hose****15 - Bolt, 25 Nm****16 - Bolt, 25 Nm****17 - Bolt, 25 Nm****18 - Holder****19 - Washer****20 - Bolt, 25 Nm****21 - Bolt, 25 Nm**

- ☐ For attaching holder to engine block

22 - Bolt, 25 Nm

- ☐ Screw out before removing pump

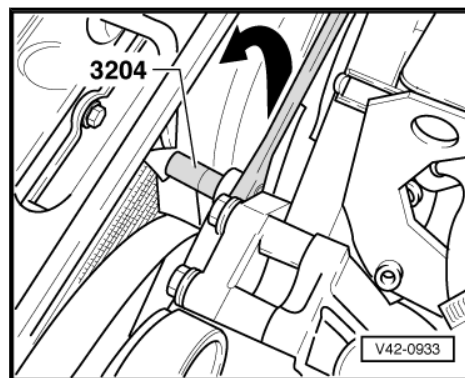
23 - Cap

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Slackening off poly V-belt**Note**

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- Remove the upper belt guard.
- To slacken off the poly V-belt, press the open-ended wrench in -arrow direction-.
- Insert the mandrel -3204- to secure.
- Detach the poly V-belt from the pulley.



12.5 Exploded view - Vehicles with 6-cyl. engines

1 - Expansion hose with pipe

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue
- ☐ Replacement involves removing brake servo
- ☐ Refer to:
⇒ **“1.4 Removing and installing power-assisted steering box”, page 159**
Section on “Removing brake servo with brake master cylinder”

2 - Combi bolt, 8 Nm

3 - Hole at intake pipe

4 - Banjo bolt, 25 Nm

- ☐ Always replace after removing
- ☐ With strainer at end face

5 - Seal

- ☐ Always replace after removing
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

6 - High-pressure hose

- ☐ Screwed with tab to holder
⇒ **Item 25 (page 250)**

7 - Pulley

Up to Model Year 1991

- ☐ Slackening off poly V-belt ⇒ **page 252**

As of Model Year 1992

- ☐ Slackening off poly V-belt ⇒ **page 253**

8 - Bolt, 25 Nm

9 - Bolt, 25 Nm

10 - Bolt, 25 Nm

11 - Bolt, 25 Nm

12 - Holder

- ☐ Bushing installed on left in direction of travel with bolt discontinued as of vehicle ident no. PN 009 632

13 - Ignition coils with holder

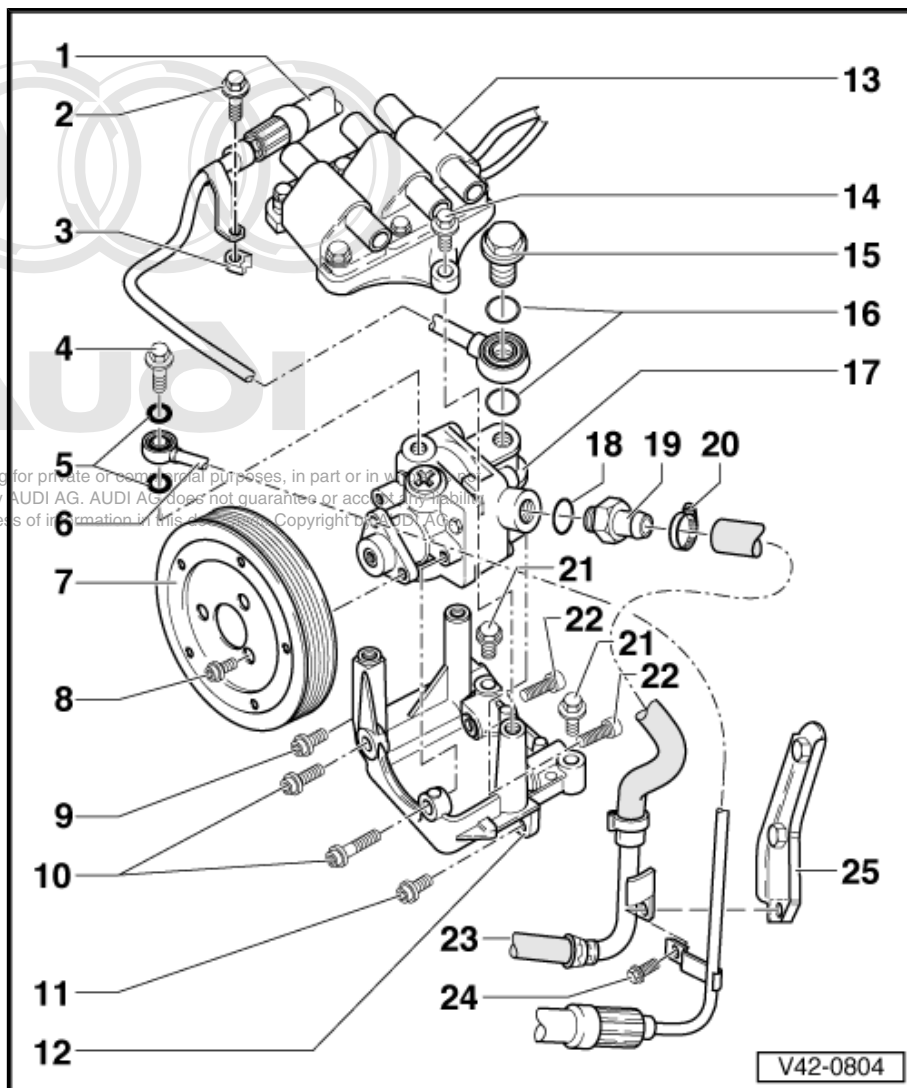
14 - Bolt, 25 Nm

15 - Banjo bolt, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

16 - Seal

- ☐ Always replace after removing





- ☐ Insert seals on both sides in banjo union of expansion hose

17 - Tandem pump

- ☐ Consists of plunger and vane pump (piston pump for self-levelling suspension, vane pump for power-assisted steering)
- ☐ Checking delivery of plunger pump ⇒ [page 257](#)
- ☐ Checking delivery pressure of vane pump ⇒ [page 235](#)
- ☐ Fill with fluid before installing ⇒ [page 242](#)
- ☐ Cannot be serviced
- ☐ Removing and installing ⇒ [page 251](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

18 - Seal

- ☐ Always replace
- ☐ Different versions; for assignment refer to ⇒ Electronic parts catalogue

19 - Screw connection, 50 Nm

- ☐ Different seal versions; for assignment refer to ⇒ Electronic parts catalogue

20 - Clamp

21 - Bolt, 25 Nm

22 - Bolt, 25 Nm

- ☐ Bolt installed on left in direction of travel with bushing discontinued as of vehicle ident no. PN 009 632

23 - Suction hose

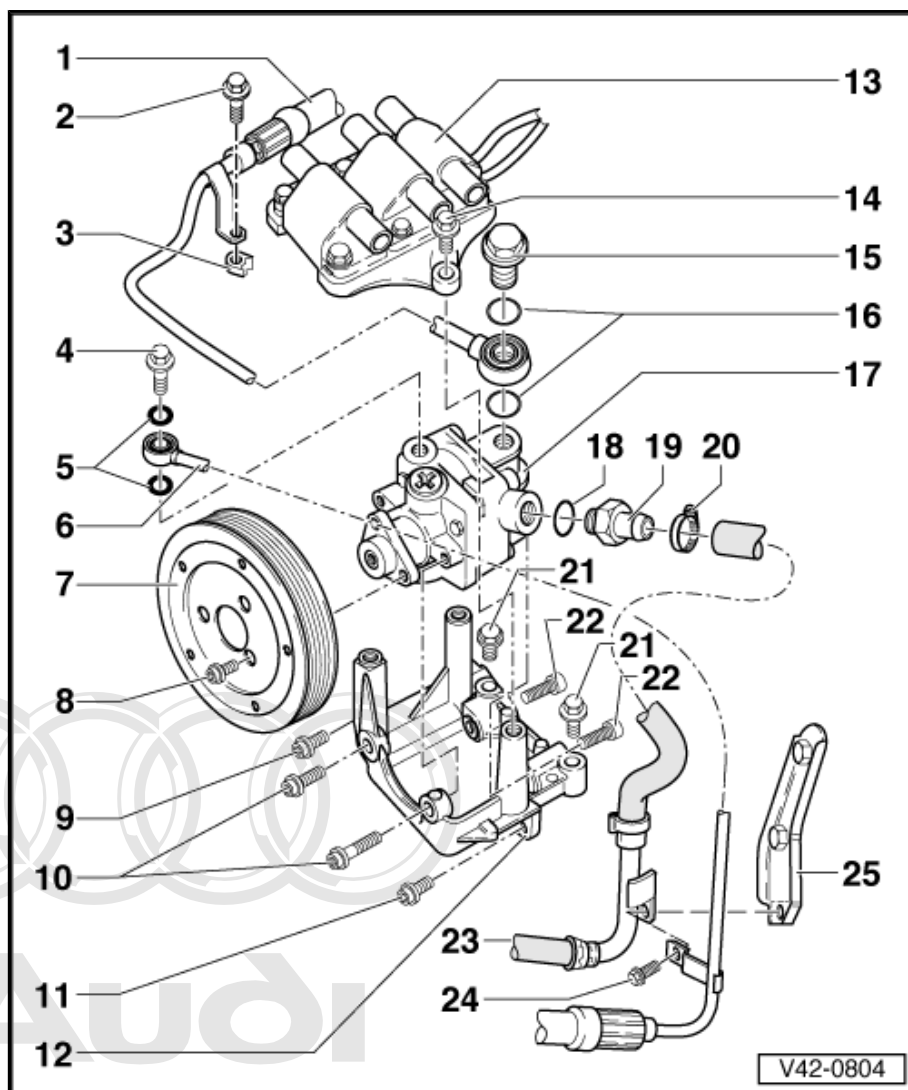
- ☐ Section with pipe
- ☐ Screwed with tab to holder ⇒ [Item 25 \(page 250\)](#)

24 - Combi bolt, 8 Nm

25 - Holder

- ☐ Bolted to cylinder head

12.6 Removing and installing tandem pump - Vehicles with 6-cyl. engines



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Removing

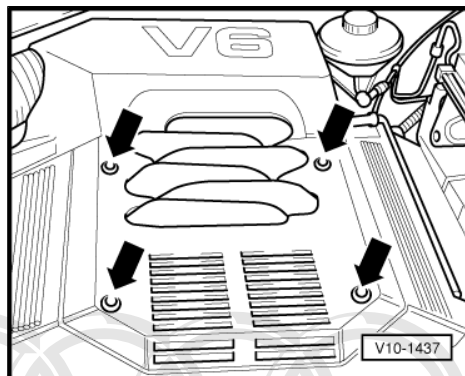
- Detach the engine top cover ➤ [page 252](#) .
- Detach the poly V-belt cover ➤ [page 252](#) .
- Slacken off the poly V-belt: Vehicles up to 1991 ➤ [page 252](#) , vehicles as of 1992 ➤ [page 253](#)
- Support the pulley with a water pump wrench -V.A.G 1590- if applicable and unscrew.
- Pull the ignition cables out of the ignition coils -13-.
- Pinch off the suction pipe with a hose clamp -3094- .
- Detach the pressure and suction pipe.
- Unscrew the holder -12- and remove together with the tandem pump.
- Take out the tandem pump with holder.
- Screw the tandem pump bolts out of the holder and take out the vane pump.

Installing

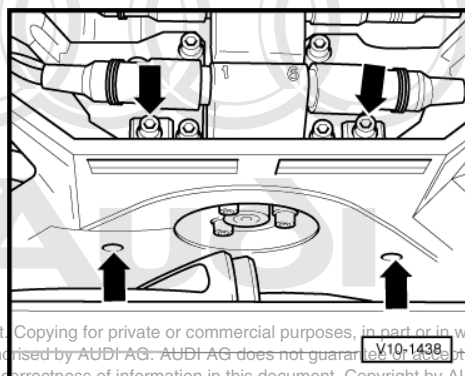
Install in reverse order.

The ignition cables must be assigned in line with the numbering
⇒ [page 252](#) .

Unclipping and detaching the engine top cover



Unscrewing poly V-belt cover



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Assignment of ignition cables to ignition coils

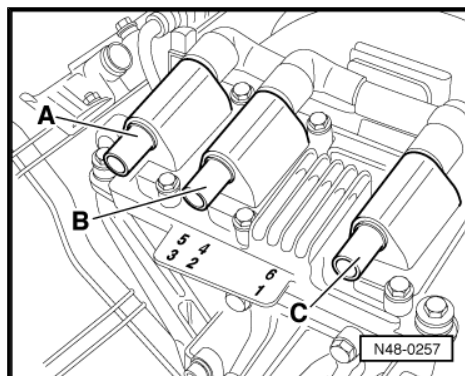
A - Ignition coil for cylinders 5 and 3

B - Ignition coil for cylinders 4 and 2

C - Ignition coil for cylinders 6 and 1

The ignition cables are marked 1 ... 6.

- Assign ignition cables 6 and 1 to ignition coil -C-.
- Assign ignition cables 2, 3, 4, 5 in the same manner.



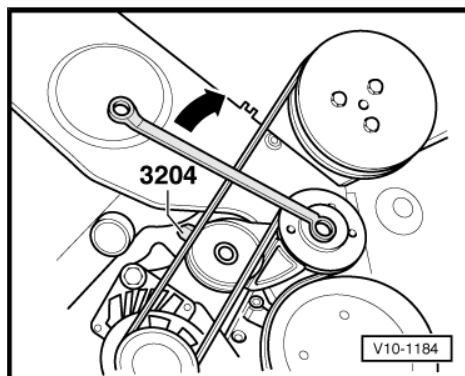
Up to Model Year 1991:



Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- Unscrew the ignition coils with holder and remove the upper belt guard.
- To slacken off the poly V-belt, swivel the poly V-belt tensioner in -arrow direction- using a 15 mm ring spanner.
- Insert the mandrel -3204- to secure.
- Detach the poly V-belt from the pulley.



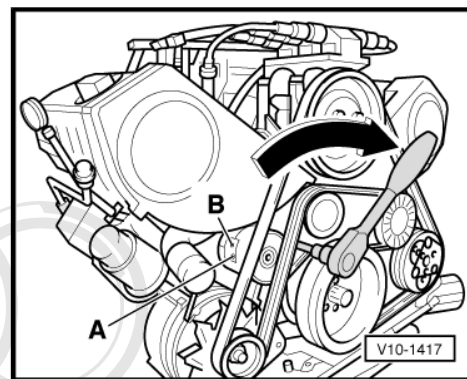
As of Model Year 1992:



Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- To slacken off the poly V-belt, swivel the poly V-belt tensioner in -arrow direction- using a 10 mm Allen key.
- Lock the tensioner in position by inserting the mandrel -3204- in the locating holes -A- and -B-.
- Detach the poly V-belt.



12.7 Exploded view - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine

1 - Tandem pump

- ☐ Consists of plunger and vane pump (piston pump for self-levelling suspension and hydraulic brake servo, vane pump for power-assisted steering)
- ☐ Checking delivery of plunger pump
⇒ [page 259](#)
- ☐ Checking delivery pressure of vane pump
⇒ [page 239](#)
- ☐ Fill with fluid before installing ⇒ [page 242](#)
- ☐ Removing and installing, Audi S4/S6 4.2
⇒ [page 266](#)
- ☐ Removing and installing, Audi S6 Plus
⇒ [page 271](#)

2 - Shims

- ☐ Select such that pulleys of air conditioner compressor and vane pump are mutually aligned
- ☐ Checking and adjusting poly V-belt alignment, Audi S4/S6
⇒ [page 270](#)
- ☐ Checking and adjusting poly V-belt alignment, Audi S6 Plus
⇒ [page 274](#)

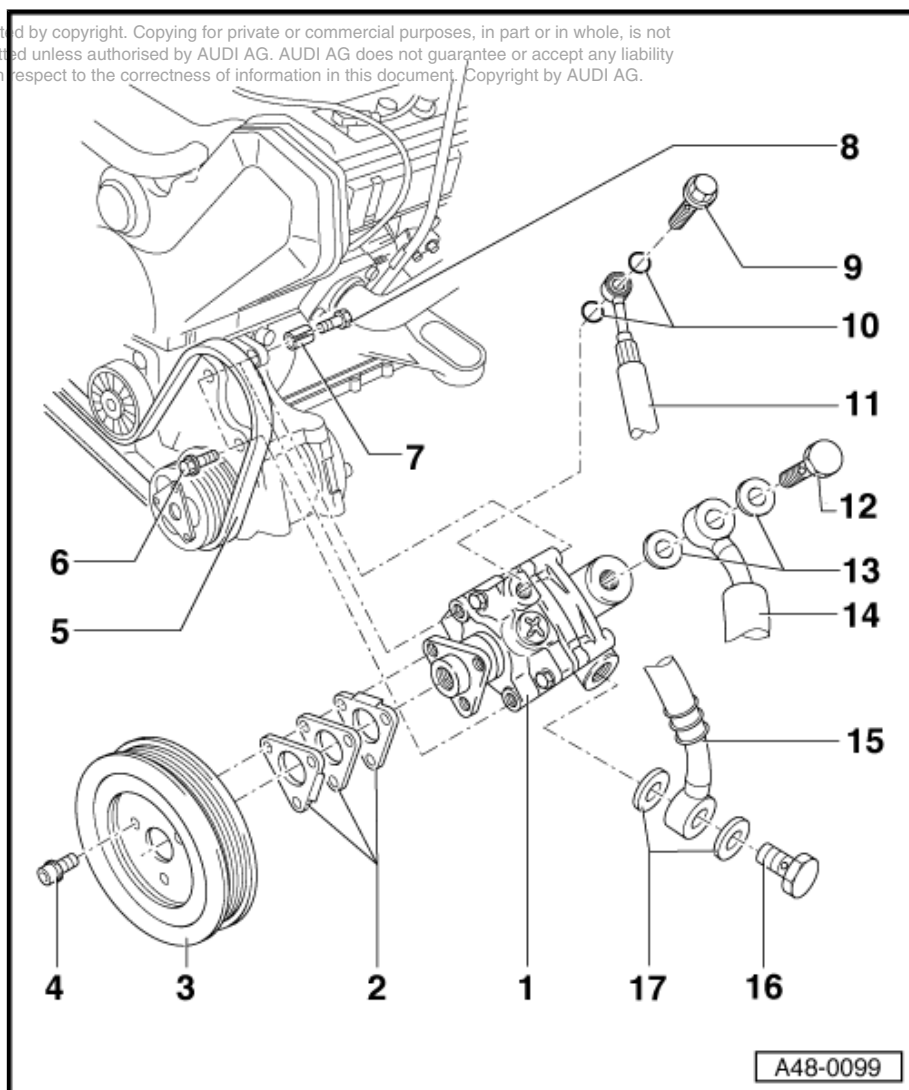
3 - Pulley

4 - Bolt, 25 Nm

5 - Poly V-belt

- ☐ Mark direction of poly V-belt. Running in opposite direction could destroy belt

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.





6 - Bolt, 25 Nm

7 - Slotted bushing

- ☐ For tolerance compensation

8 - Bolt, 25 Nm

9 - Banjo bolt, 25 Nm

- ☐ Always replace after removing
- ☐ With strainer at end face

10 - Seal

- ☐ Always replace after removing

11 - High-pressure hose

- ☐ Plunger pump - pressure container

12 - Banjo bolt, 50 Nm

13 - Seal

- ☐ Always replace after removing

14 - Expansion hose

- ☐ Vane pump - steering box
- ☐ Pay attention to clearance with respect to surrounding components

15 - Suction hose

- ☐ Vane pump - reservoir
- ☐ Pay attention to clearance with respect to surrounding components

16 - Banjo bolt, 50 Nm

17 - Seal

- ☐ Always replace after removing

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not
unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
with respect to the correctness of information in this document. Copyright by AUDI AG.

13 Plunger pump delivery

⇒ [“13.1 Checking delivery of plunger pump - Vehicles with 4-cyl. engine”, page 255](#)

⇒ [“13.2 Checking delivery of plunger pump - Vehicles with 5-cyl. engine”, page 256](#)

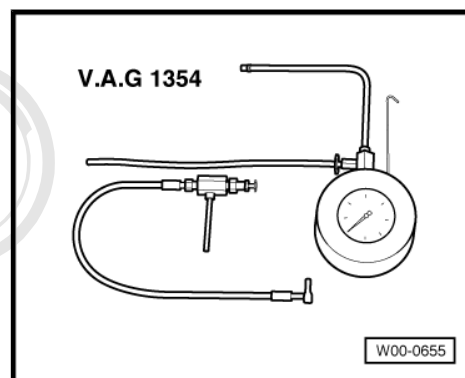
⇒ [“13.3 Checking delivery of plunger pump - Vehicles with 6-cyl. 2V and 5V engine”, page 257](#)

⇒ [“13.4 Checking delivery of plunger pump - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine”, page 259](#)

13.1 Checking delivery of plunger pump - Vehicles with 4-cyl. engine

Special tools and workshop equipment required

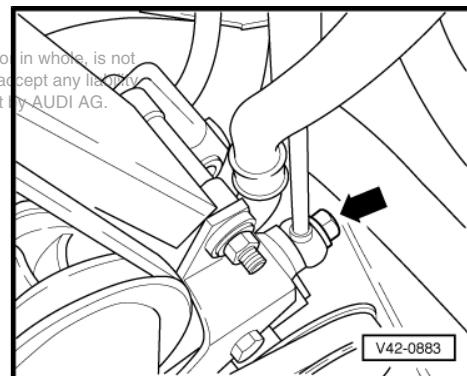
- ◆ Self-levelling suspension system tester -V.A.G 1354-



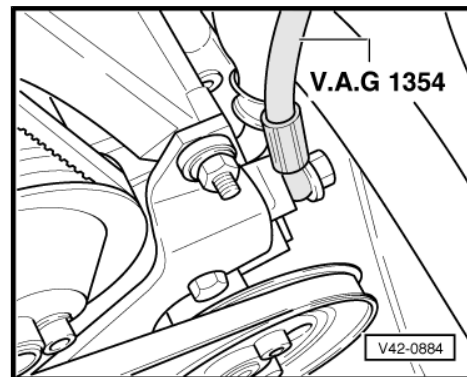
Sequence of operations

- Unscrew the pressure pipe from the pump -arrows- and route it upwards.

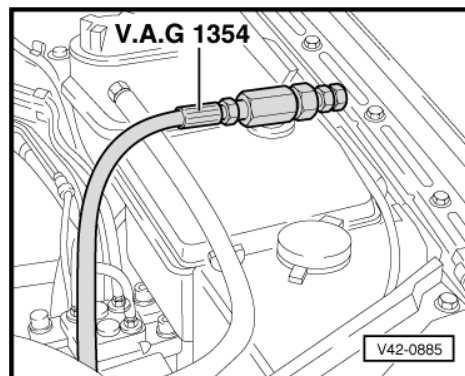
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Screw the hose of the self-levelling suspension system tester -V.A.G 1354- with the genuine banjo bolt and the metal seals -N 013 808 3- to the pump.
- Unscrew the cap from the reservoir.



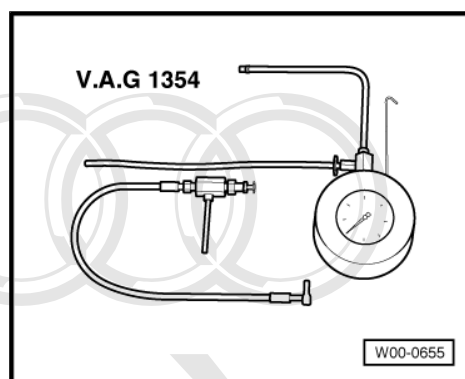
- Insert the end of the pipe of the self-levelling suspension system tester -V.A.G 1354- in the reservoir.
- Leave the engine idling until the pipe has been bled.
- Switch off the ignition and hold the end of the pressure limiter pipe over a graduated beaker.
- Leave the engine idling.
- Delivery specification: at least 0.2 l/min.
- If the reading does not match the specification, replace the tandem pump.
- Check the hydraulic fluid level ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .
- Bleed the steering system ⇒ [page 276](#) .



13.2 Checking delivery of plunger pump - Vehicles with 5-cyl. engine

Special tools and workshop equipment required

- ◆ Self-levelling suspension system tester -V.A.G 1354-



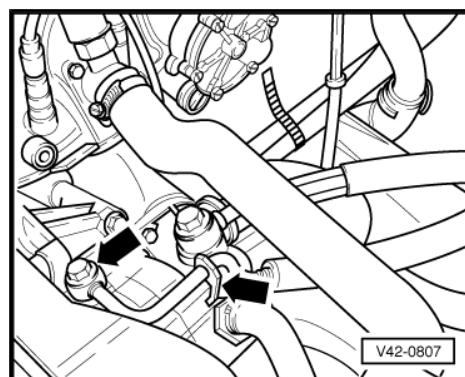
Sequence of operations

Vehicles with hydraulic brake servo:

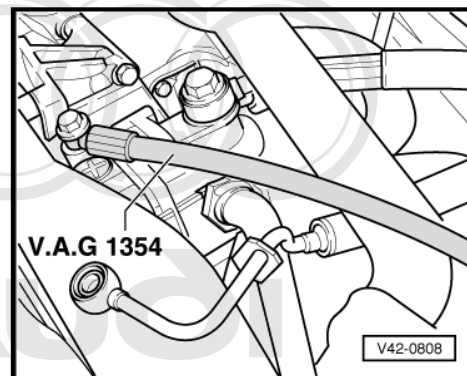
- Dissipate the operating pressure by pressing the brake pedal approx. 20 times with the engine switched off.
- The operating pressure has been dissipated when extremely high back pressure is felt at the brake pedal and the brake pedal travel is noticeably shorter.

All vehicles (continued):

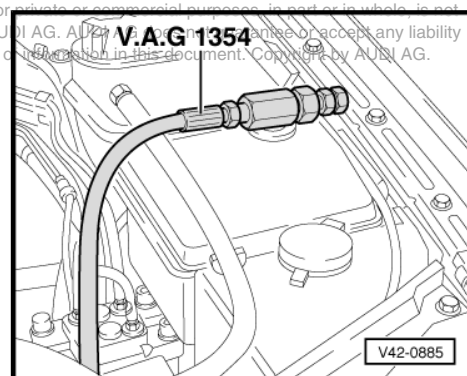
- Unscrew the pressure pipe with holder from the pump -arrows-.



- Screw the hose of the self-levelling suspension system tester -V.A.G 1354- with the genuine banjo bolt and the metal seals -N 013 808 3- to the pump.
- Unscrew the cap from the reservoir.



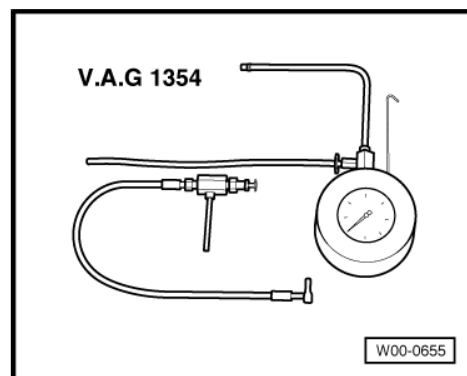
- Insert the end of the pipe of the self-levelling suspension system tester -V.A.G 1354- in the reservoir.
- Leave the engine idling until the pipe has been bled.
- Switch off the ignition and hold the end of the pressure limiter pipe over a graduated beaker.
- Leave the engine idling.
 - Delivery specification: at least 0.2 l/min.
- If the reading does not match the specification, replace the tandem pump.
- Check the hydraulic fluid level ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .
- Bleed the steering system ⇒ [page 276](#) .



13.3 Checking delivery of plunger pump - Vehicles with 6-cyl. 2V and 5V engine

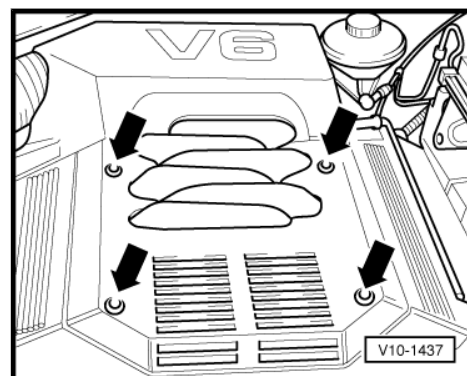
Special tools and workshop equipment required

- ◆ Self-levelling suspension system tester -V.A.G 1354-

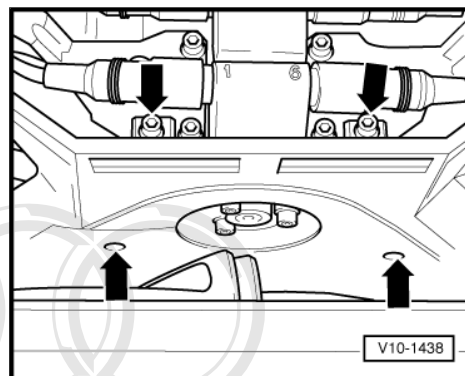


Sequence of operations

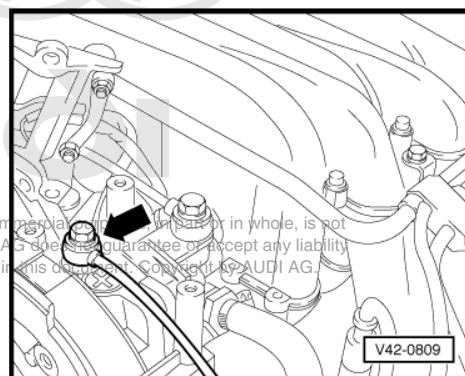
- Unclip the engine top cover and detach.



- 2V engine: Unscrew the poly V-belt cover.
- Detach the ignition coils with holder: 2V engine ➔ [page 222](#) , 5V engine ➔ [page 228](#) .
- Swivel the ignition coil holder to the rear.

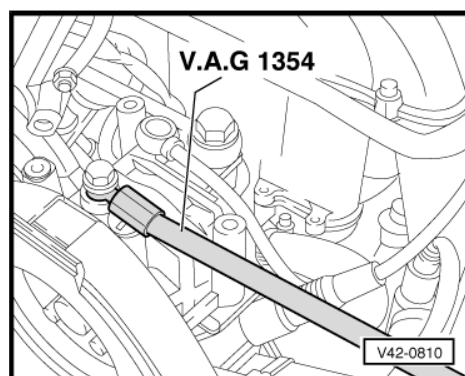


- Unscrew the pressure pipe with holder from the pump -arrows-.

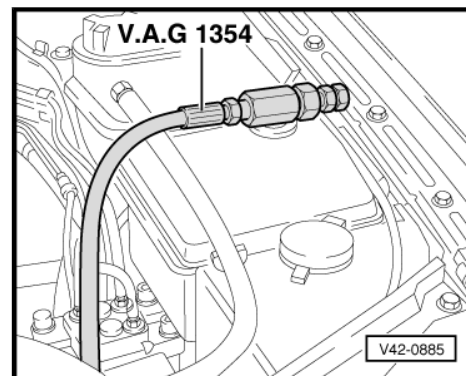


Protected by copyright. Copying for private or commercial use, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Screw the hose of the self-levelling suspension system tester -V.A.G 1354- with the genuine banjo bolt and the metal seals -N 013 808 3- to the pump.
- If applicable, reconnect the ignition cables to the ignition coils.
- Unscrew the cap from the reservoir.



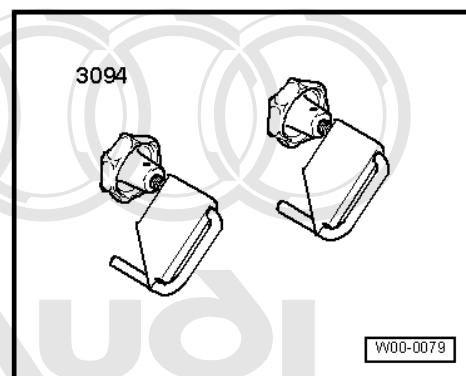
- Insert the end of the pipe of the self-levelling suspension system tester -V.A.G 1354- in the reservoir.
- Leave the engine idling until the pipe has been bled.
- Switch off the ignition and hold the end of the pressure limiter pipe over a graduated beaker.
- Leave the engine idling.
 - Delivery specification: at least 0.2 l/min.
- If the reading does not match the specification, replace the tandem pump: Vehicles with 2V engine ➔ [page 251](#) , vehicles with 5V engine ➔ [page 227](#) .
- Check all unions for leaks, start the engine and perform a visual inspection.
- Fit the ignition coils with holder.
- Fit the engine top cover and the poly V-belt cover.
- Check the hydraulic fluid level ➔ [page 276](#) .
- Check the steering system for leaks ➔ [page 277](#) .
- Bleed the steering system ➔ [page 276](#) .



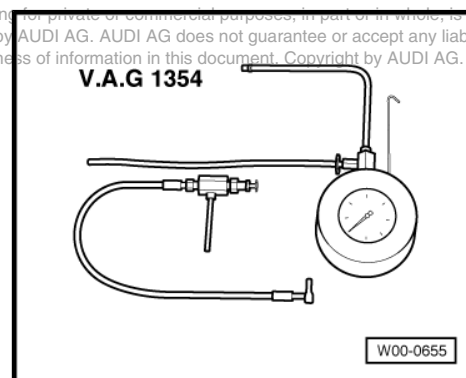
13.4 Checking delivery of plunger pump - Audi S4/S6 and Audi S6 Plus with 8-cyl. engine

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-



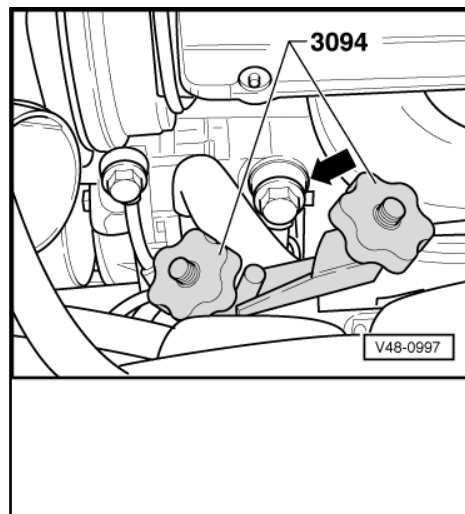
- ◆ Self-levelling suspension system tester -V.A.G 1354-



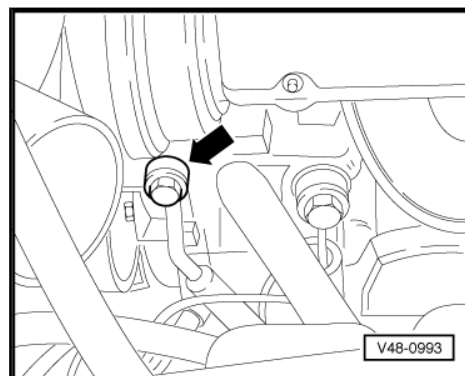
Sequence of operations

- Dissipate the operating pressure by pressing the brake pedal approx. 20 times with the engine switched off.

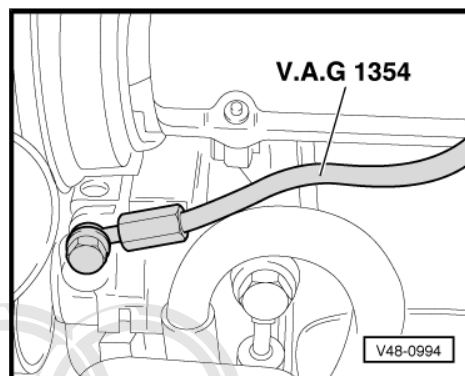
- The operating pressure has been dissipated when extremely high back pressure is felt at the brake pedal and the brake pedal travel is noticeably shorter.
- Pinch off the suction and return pipes with hose clamps -3094- .



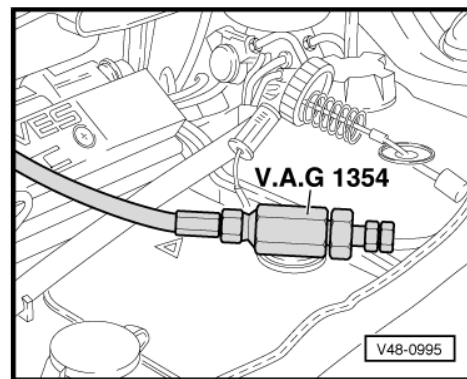
- Unscrew the pressure pipe with holder from the pump -arrow-.



- Screw the hose of the self-levelling suspension system tester -V.A.G 1354- with the genuine banjo bolt and the metal seals -N 013 808 3- to the pump.
- Unscrew the cap from the reservoir.



- Insert the end of the pipe of the self-levelling suspension system tester -V.A.G 1354- in the reservoir.
- Leave the engine idling until the pipe has been bled.
- Switch off the ignition and hold the end of the pressure limiter pipe over a graduated beaker.
- Leave the engine idling.
- Delivery specification: at least 0.2 l/min.
- If the reading does not match the specification, replace the tandem pump: Audi S4/S6 ➤ [page 266](#) ; Audi S6 Plus ➤ [page 271](#) .
- Check the hydraulic fluid level ➤ [page 276](#) .
- Check the steering system for leaks ➤ [page 277](#) .
- Bleed the steering system ➤ [page 276](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

14 Removing and installing tandem pump

⇒ [“14.1 General”, page 262](#)

⇒ [“14.2 Removing and installing tandem pump - Audi S4/S6 with 5-cyl. turbo engine”, page 262](#)

⇒ [“14.3 Removing and installing tandem pump - Audi S4/S6 with 8-cyl. engine”, page 266](#)

⇒ [“14.4 Checking and adjusting poly V-belt alignment - Audi S4/S6 with 5-cyl. and 8-cyl. engine”, page 270](#)

⇒ [“14.5 Removing and installing tandem pump - Audi S6 Plus with 8-cyl. engine”, page 271](#)

14.1 General

There is no provision for tandem pump servicing. In the event of problems, establish the cause by way of a pressure and leak test. Replace the tandem pump if a fault is found.

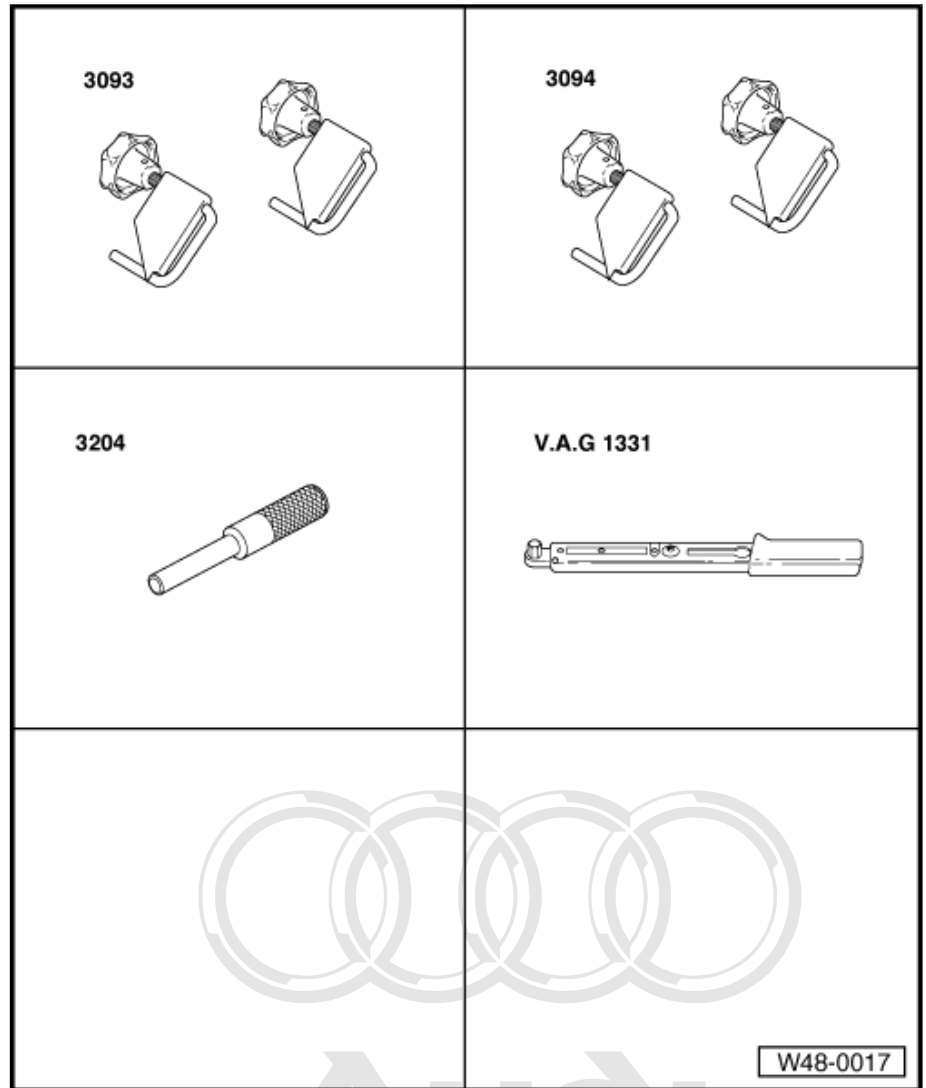
- ◆ Always check the steering system for leaks if there is a lack of fluid in the reservoir.
- ◆ If a leak is found in the area of the pipe connections, start by checking the pipes/pipe connections for leaks, re-tighten if necessary and wipe dry.
- ◆ Replacement pumps have no fluid fill. Prior to installation they are therefore to be filled with hydraulic fluid and cranked by hand to avoid the possibility of noise whilst driving or pump damage.
- ◆ Hydraulic fluid ⇒ Electronic parts catalogue

14.2 Removing and installing tandem pump - Audi S4/S6 with 5-cyl. turbo engine

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

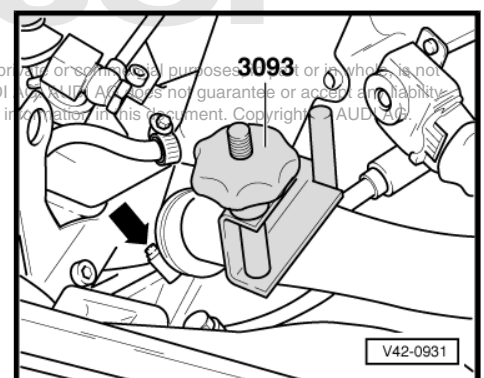
Special tools and workshop equipment required

- ◆ Hose clamps up to 40 mm -3093-
- ◆ Hose clamps up to 25 mm -3094-
- ◆ Mandrel -3204-
- ◆ Torque wrench -V.A.G 1331-

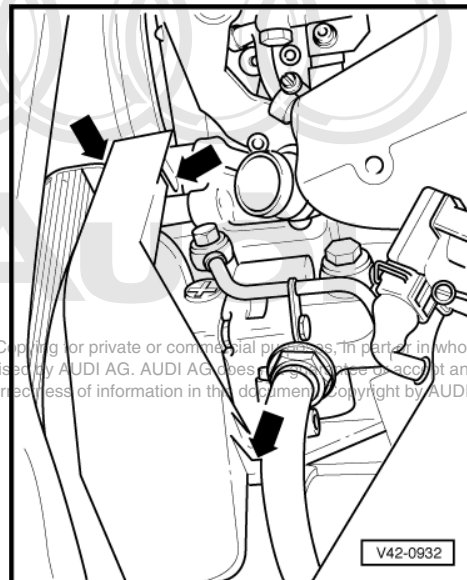


Removing

- Pinch off the coolant hose with a hose clamp **3093** and detach.



- Remove the belt guard.
- Slacken off the pulley bolts; to do so, shorten the Allen key appropriately.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

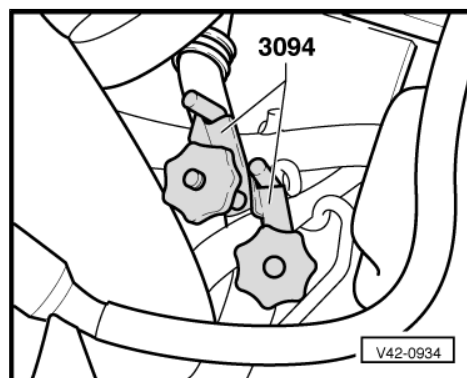
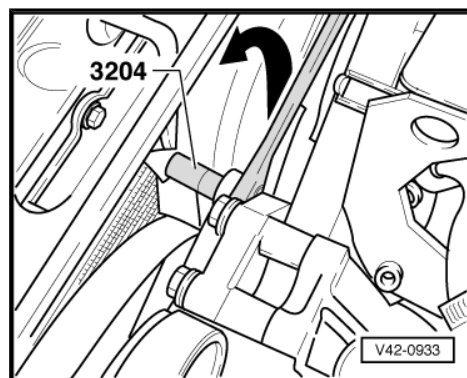
- To slacken off the poly V-belt, press the open-ended wrench in -arrow direction-.
- Insert the mandrel -3204- to secure.



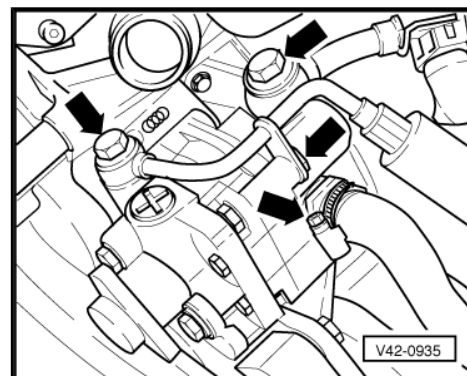
Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- Detach the poly V-belt from the pulley.
- Screw out the hexagon socket head bolts for the pulley and detach the pulley.
- Pinch off the suction and return pipes with hose clamps -3094- .



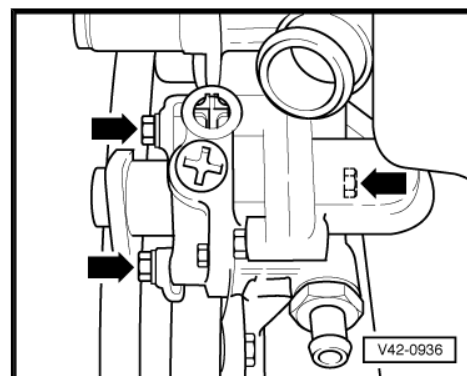
- Unscrew the high-pressure hose and expansion hose from the pump.
- Seal the connecting holes with plugs.
- Unfasten the clamp and detach the suction hose.



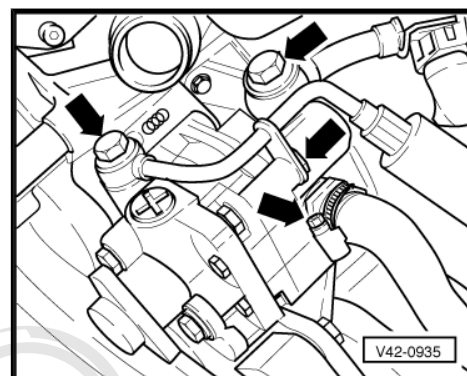
- Screw out the bolts -arrows-.
- Take out the tandem pump.

Installing

- ◆ Before fitting a new pump, pour in hydraulic fluid on the suction end and crank by hand until fluid emerges on the delivery end.
- ◆ Clean fouled areas in the engine compartment.
- Insert the tandem pump in the holder and tighten the bolts to 25 Nm.



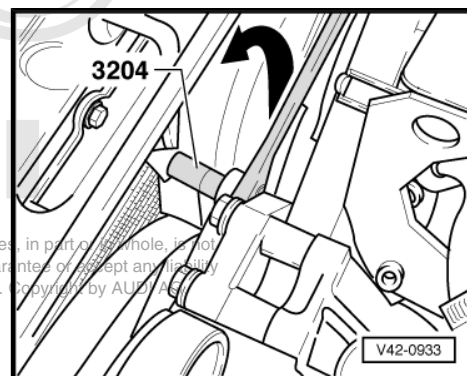
- Screw the high-pressure hose and expansion hose to the pump.
- Attach the suction hose to the screw connection and secure with a clamp.



Note

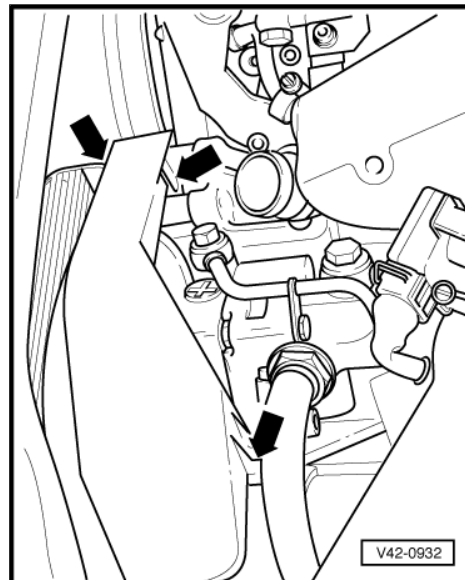
Screw the screw connection for the suction hose out of the defective tandem pump and screw into the new tandem pump (50 Nm).

- Detach the hose clamps -3094- from the suction and return hose.
- Screw in the pulley and flange bolts by hand.
- Carefully position the poly V-belt on the pulley and tension it; to do so, press the tensioner in -arrow direction- and take out the mandrel -3204-.
- Use a shortened Allen key to tighten the pulley bolts.

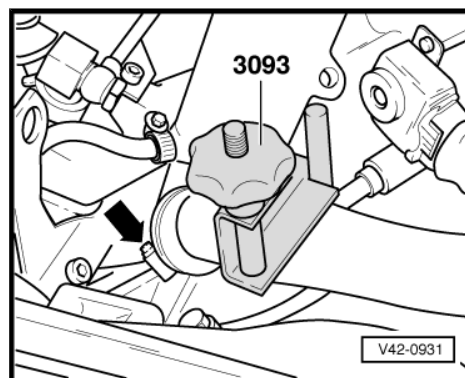


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Carefully install the belt guard to avoid damage caused by the pulley catching.



- Attach the coolant hose to the connection piece at the engine block and secure with a clamp.
- Remove the hose clamp -3093- .
- Check the alignment of the poly V-belt ➔ [page 270](#) .
- Check the coolant level and top up if necessary ➔ Maintenance ; Booklet 401 .



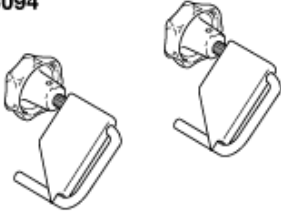
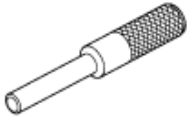
14.3 Removing and installing tandem pump - Audi S4/S6 with 8-cyl. engine



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

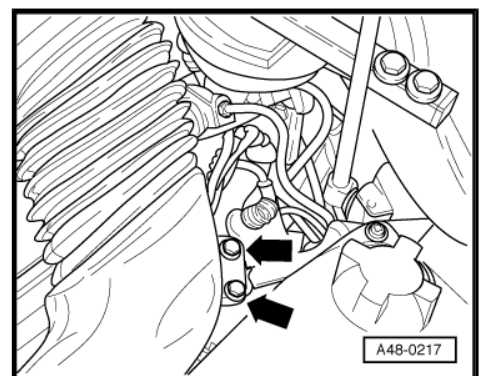
Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-
- ◆ Mandrel -3204-
- ◆ Pin wrench -3212-
- ◆ Torque wrench -V.A.G 1331-

3094 	3204 
3212 	V.A.G 1331 
	W48-0015

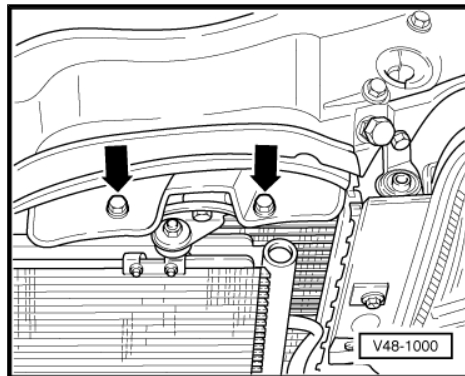
Removing

- Unscrew the air pipe on the left -arrows-.

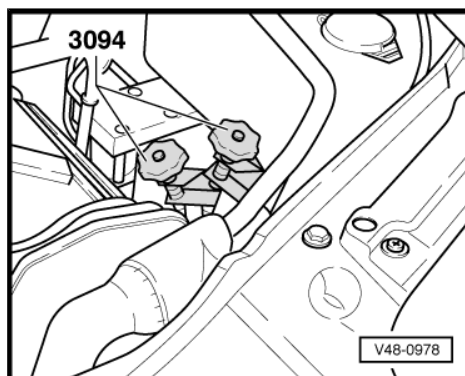


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

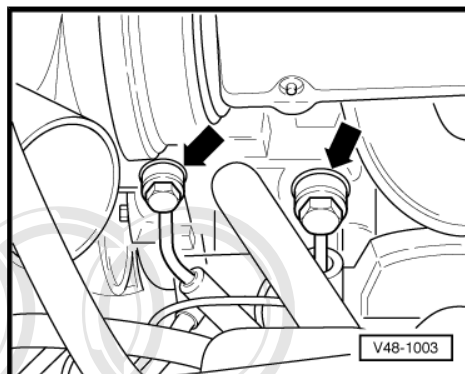
- Unscrew the air duct on the left -arrows-.
- Vehicles with air conditioner: Unfasten the green connection to the air conditioner compressor at the left longitudinal member.



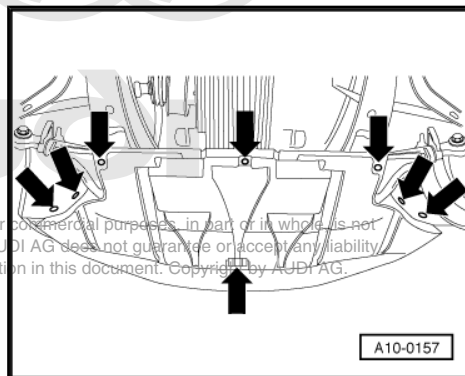
- Pinch off the suction and return pipes with hose clamps -3094- .



- Unscrew the high-pressure hose and expansion hose from the pump.
- Seal the connecting holes with plugs.



- Remove the noise insulation.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

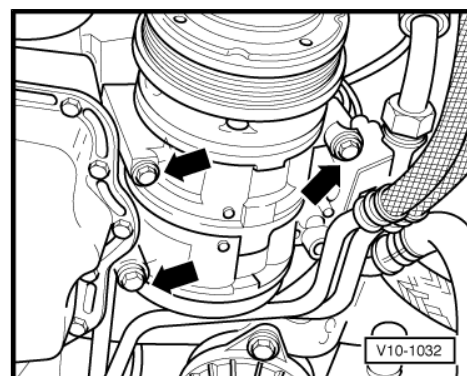
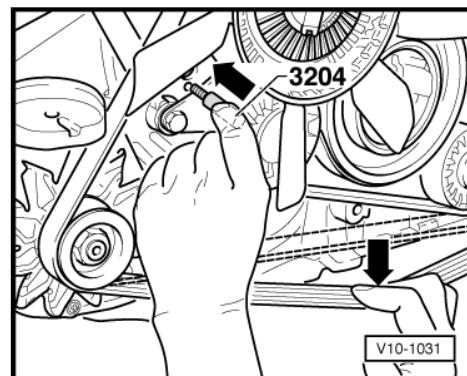
- Pull the poly V-belt firmly downwards.
- Insert the mandrel -3204- to secure.



Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- Detach the poly V-belt from the pulley.
- Vehicles with air conditioner: Screw out the bolts at the air conditioner compressor -arrows-.
- Hang up the air conditioner compressor to one side with a piece of welding wire.
- Vehicles with no air conditioner: Remove the idler wheel with holder.

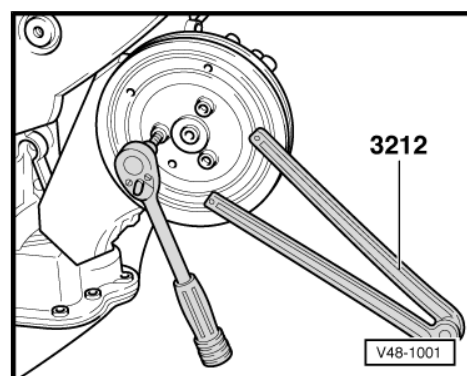


- Unscrew the tandem pump pulley.
- Use a pin wrench -3212- to provide support.



Note

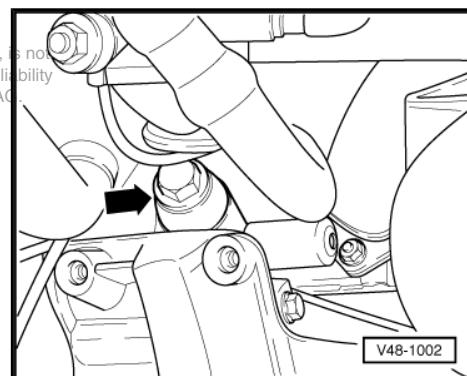
The engine has been removed in the illustration for greater clarity.



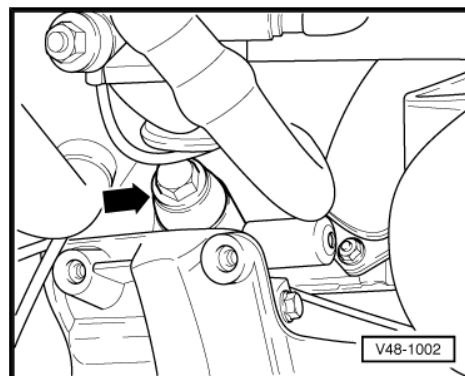
- Detach the suction hose.
- Seal the connecting holes with plugs.
- Take out the tandem pump.

Installing

- ◆ Before fitting a new pump, pour in hydraulic fluid on the suction end and crank by hand until fluid emerges on the delivery end.
- ◆ Clean fouled areas in the engine compartment.
- Insert the tandem pump in the holder and tighten the bolts to 25 Nm.



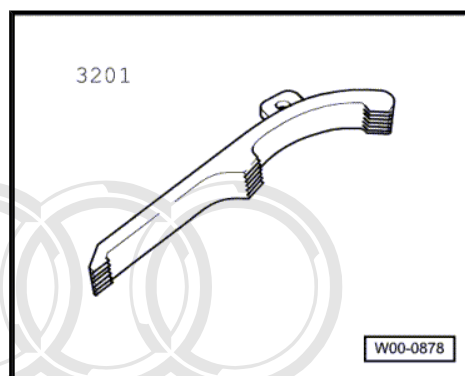
- Screw the suction hose to the pump.
- Position the poly V-belt pulley on the tandem pump and tighten the bolts.
- Vehicles with air conditioner: Fit the air conditioner compressor and tighten the bolts to 20 Nm. In doing so, make sure the wiring of the air conditioner compressor is routed such that it cannot catch on the poly V-belt.
- Check the alignment of the poly V-belt ➔ [page 270](#) .
- Vehicles with no air conditioner: Fit the idler wheel with holder and tighten the bolts to 20 Nm.



14.4 Checking and adjusting poly V-belt alignment - Audi S4/S6 with 5-cyl. and 8-cyl. engine

Special tools and workshop equipment required

- ◆ Alignment gauge -3201-



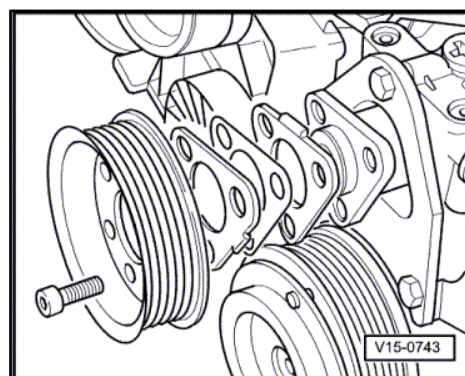
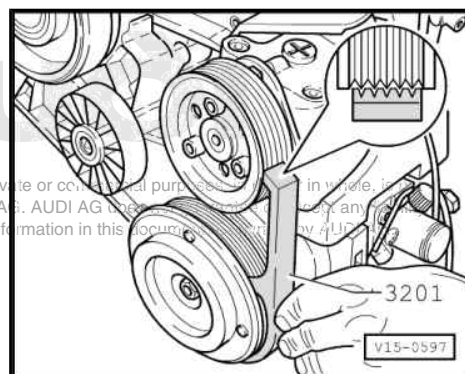
Sequence of operations

- Position the alignment gauge -3201- on the pulley of the air conditioner compressor.
- The pump and air conditioner compressor pulleys must be aligned.

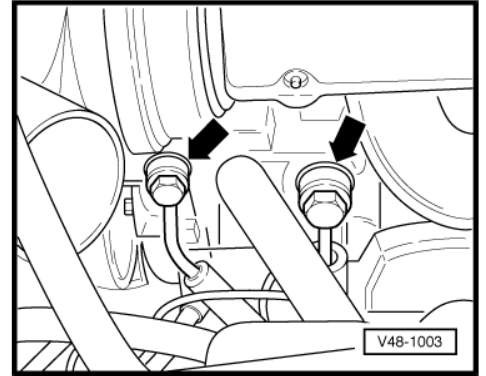
If the two pulleys are not in alignment:

- Unscrew the pump pulley.
- Use the shims available from the replacement parts range to adjust the gap such that the two pulleys are aligned.
- Move the high-pressure hose and expansion hose to assembly position.
- Carefully position the poly V-belt on the pulley and tension it; to do so, press the tensioner against the stop and take out the mandrel -3204- .
- Insert the noise insulation in the fastener and secure.

Protected by copyright. Copying for private or commercial purposes without permission is prohibited. In whole, in part, or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, is prohibited. Audi AG does not accept any liability with respect to the correctness of information in this document.



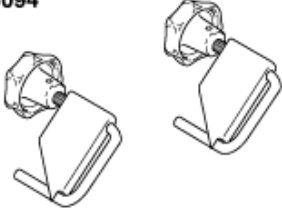
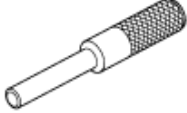
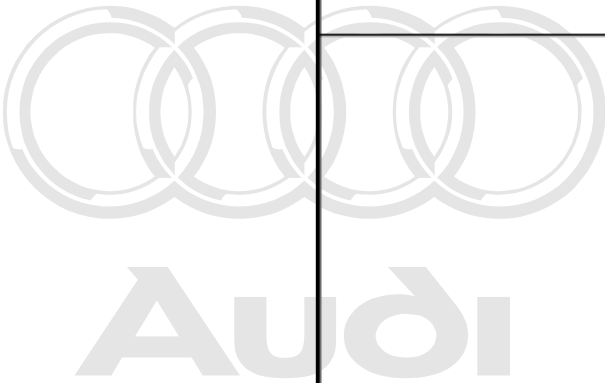
- Screw the high-pressure hose and expansion hose to the pump.
- Detach the hose clamps -3094- from the suction and return hose.
- Vehicles with air conditioner: Make the green connection to the air conditioner compressor at the left longitudinal member.
- Fit the left air duct.
- Fit the left air pipe.
- Check the hydraulic fluid level ⇒ [page 276](#) .
- Bleed the steering system ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .



14.5 Removing and installing tandem pump - Audi S6 Plus with 8-cyl. engine

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm -3094-
- ◆ Mandrel -3204-
- ◆ Pin wrench -3212-
- ◆ Torque wrench -V.A.G 1331-

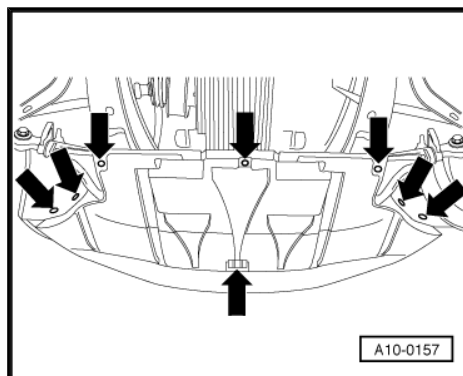
3094 	3204 
3212 	V.A.G 1331 
	

W48-0015

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Removing

- Remove the noise insulation.



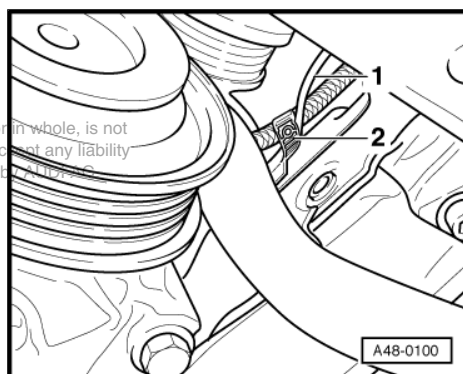
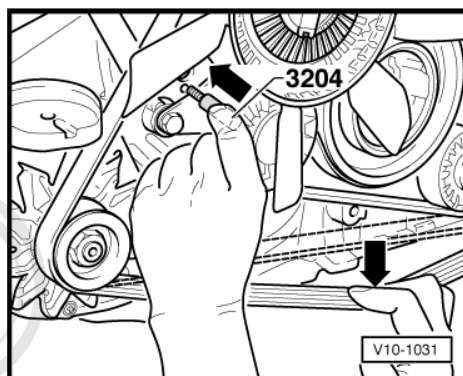
- Pull the poly V-belt firmly downwards.
- Insert the mandrel -3204- to secure.



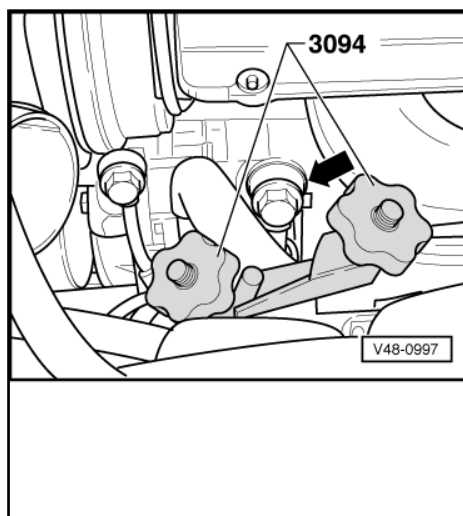
Note

Mark the direction of the poly V-belt with chalk or a felt-tip pen prior to removal. Running a used belt in the opposite direction could destroy it. Pay attention to correct positioning on pulleys when fitting the belt.

- Detach the poly V-belt from the pulley.
- In the course of the following operation, the air conditioner compressor has to be unscrewed and hung up to one side.
- So as not to damage the wire -1- for the magnetic clutch, the cable tie -2- at the left longitudinal member is to be unfastened.

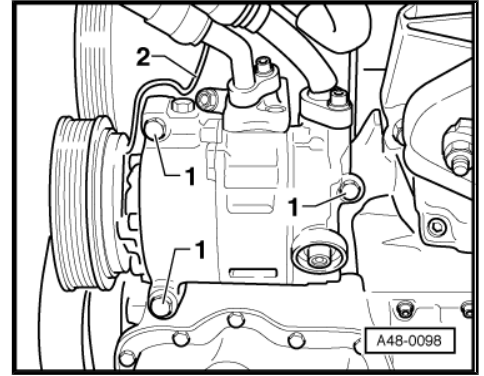


- Pinch off the suction and return pipes with hose clamps -3094- .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

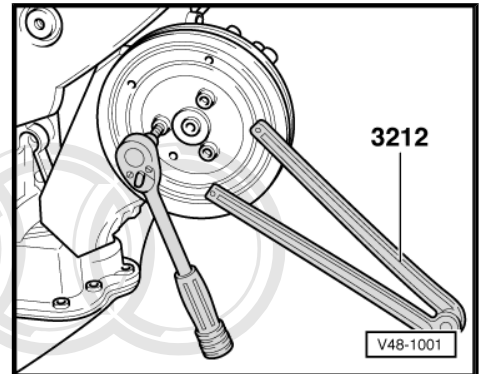
- Unscrew the air conditioner compressor -1-.
- Hang up the air conditioner compressor to one side with a piece of welding wire.
- Take care not to strain the coolant hoses and wire -2-.



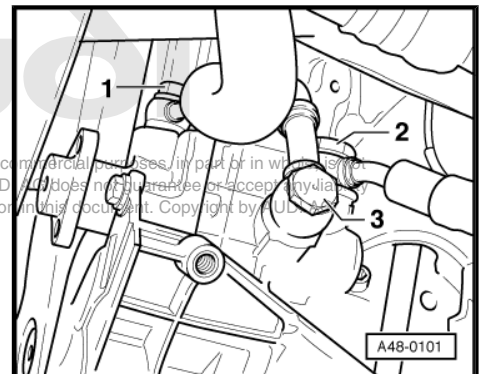
- Unscrew the tandem pump pulley.
- Use a pin wrench -3212- to provide support.

 Note

For greater clarity, the engine has been removed in the illustration.



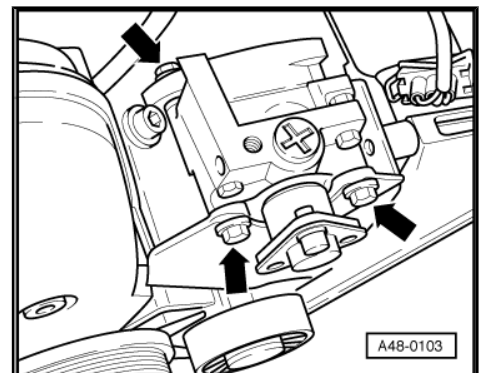
- Unscrew the high-pressure hose -1-, expansion hose -2- and suction hose -3- from the pump.
- Seal the connecting holes with plugs.



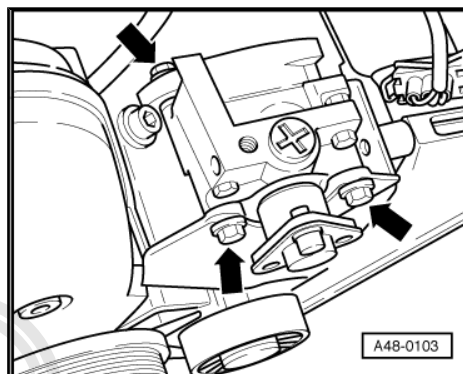
- Unscrew the tandem pump from the holder and take out.

Installing

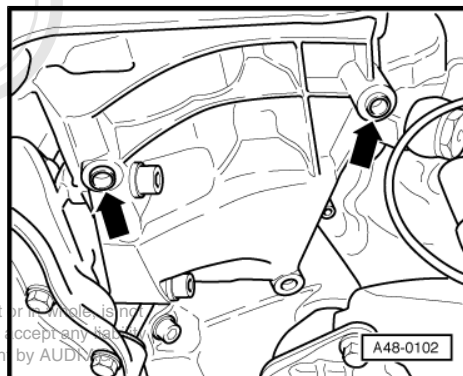
- ◆ Before fitting a new pump, pour in hydraulic fluid on the suction end and crank by hand until fluid emerges on the delivery end.
- ◆ Clean fouled areas in the engine compartment.



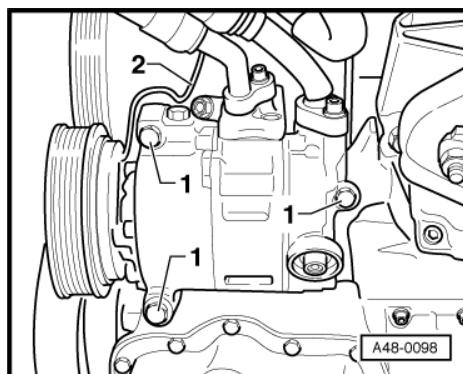
- Insert the pump in the holder and screw in all three bolts by hand.
- Tighten the two front bolts first and then the rear bolt.
- Fit the expansion, high-pressure and suction hoses with new seals.
- Detach the hose clamps -3094- .
- Screw on the pulley.



- Before fitting the air conditioner compressor, make sure the guide rings -arrows- are correctly positioned.



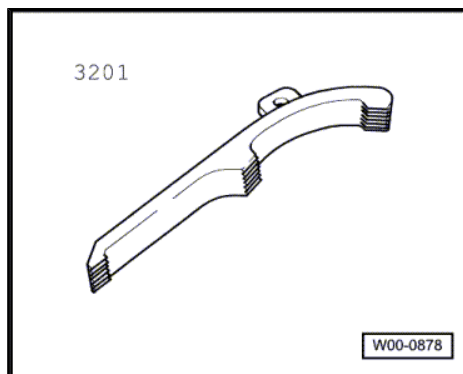
- Tighten the air conditioner compressor bolts -1- at the holder to 20 Nm.
- Check the alignment of the poly V-belt ➔ [page 274](#) .



14.6 Checking and adjusting poly V-belt alignment - Audi S6 Plus with 8-cyl. engine

Special tools and workshop equipment required

- ♦ Alignment gauge -3201-

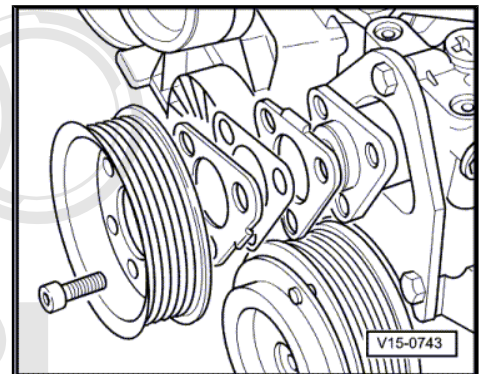
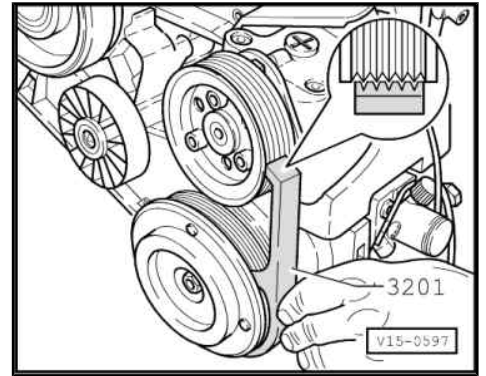


Sequence of operations

- Position the alignment gauge -3201- on the pulley of the air conditioner compressor.
- The pump and air conditioner compressor pulleys must be aligned.

If the two pulleys are not in alignment:

- Unscrew the pump pulley.
- Use the shims available from the replacement parts range to adjust the gap such that the two pulleys are aligned.
- Fit the poly V-belt and take out the mandrel -3204- .
- Check the hydraulic fluid level ⇒ [page 276](#) .
- Bleed the steering system ⇒ [page 276](#) .
- Check the steering system for leaks ⇒ [page 277](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

15 Checking fluid level, bleeding steering system, checking for leaks

⇒ [“15.1 Checking power steering fluid level”, page 276](#)

⇒ [“15.2 Bleeding steering system”, page 276](#)

⇒ [“15.3 Checking steering system for leaks”, page 277](#)

15.1 Checking power steering fluid level

Sequence of operations

- On vehicles with self-levelling suspension, the fluid level is only to be checked in unladen condition.
- With the engine not running, move the front wheels to the straight ahead position.

Cold fluid:

- Unscrew the cap.
- Wipe over the dipstick with a clean cloth.
- Screw in the cap hand-tight and screw off again.



Note

The level is only valid if the cap had been screwed on beforehand.

- Check the fluid level:
- The fluid level must be around the MIN mark (up to 2 mm above or below the mark).

Warm fluid as of approx. 50 °C:

- Check the fluid level:
- The fluid level must be between the MIN and MAX marks.



Note

- ◆ *Fluid must be drawn off if the level is above the stated range.*
- ◆ *The hydraulic system must be checked for leaks if the fluid level is below the stated range. It is not sufficient to merely replenish the fluid.*
- ◆ *The hydraulic fluid drained off is not to be re-used.*

15.2 Bleeding steering system

Sequence of operations

- Check the hydraulic fluid level and replenish the fluid if necessary.
- Raise the vehicle such that the front wheels are free.
- With the engine switched off, turn the steering wheel 10 times from lock to lock.
- Check the hydraulic fluid level and replenish the fluid if necessary.
- Lower the vehicle.



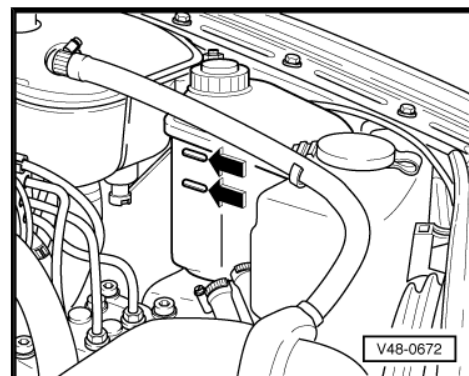
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Start the engine and let it idle for approx. 2 minutes with the front wheels in straight ahead position.
- Observe the fluid level in the reservoir; switch off the engine as soon as no further bubbles rise to the surface in the reservoir.
- Check the hydraulic fluid level and replenish the fluid if necessary.



Note

Any residual air in the steering system escapes automatically whilst driving after 10 ... 20 km.



15.3 Checking steering system for leaks

Sequence of operations

- Start the engine.
- Turn the steering wheel to full lock on both sides and briefly hold in this position.
 - The maximum possible pressure is thus built up.

To avoid pump damage, do not run the engine for more than 10 seconds when performing this test.

Check the following components for leaks in this position:

- ◆ Steering pinion seal at steering box valve housing
- ◆ All pipe connections
- ◆ Rack seals

This test can only be performed with the bellows pushed back.

- Unfasten the clamp of the bellows.
- Push back the boot.
- The steering box must be replaced if fluid is visible in the steering box housing and/or the boots.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.