

Workshop Manual

Audi Q3 2012 ➤

Audi Q3 China 2013 ➤

Brake system

Edition 08.2014



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List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 45 - Anti-lock brake system
- 46 - Brakes - mechanism
- 47 - Brakes - hydraulics



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

Contents

00 - Technical data	1
1 Identification	1
1.1 PR number and type of brake system	1
2 Safety precautions	2
2.1 Safety precautions when working on vehicles with start/stop system	2
2.2 Safety precautions when using testers and measuring instruments during a road test	2
3 Repair notes	3
3.1 Rules for cleanliness	3
3.2 General repair instructions	3
3.3 Contact corrosion	3
4 Technical data	4
4.1 Technical data for brakes	4
5 Brake test	5
5.1 General notes	5
5.2 Testing vehicles with front-wheel drive	5
5.3 Testing vehicles with four-wheel drive	5
5.4 Testing parking brake	5
45 - Anti-lock brake system	7
1 General notes	7
1.1 Notes for repair work on the ABS	7
2 Overview of fitting locations	8
2.1 Overview of fitting locations - ABS/ESP	8
3 Control unit and hydraulic unit	10
3.1 Exploded view - control unit and hydraulic unit	10
3.2 Removing and installing ABS control unit J104 / ABS hydraulic unit N55	11
4 Sensors	18
4.1 Exploded view - front wheel speed sensor	18
4.2 Exploded view - rear wheel speed sensor	19
4.3 Removing and installing front wheel speed sensor G45 / G47	20
4.4 Removing and installing rear wheel speed sensor G44 / G46	21
46 - Brakes - mechanism	22
1 Front brakes	22
1.1 Exploded view - front brakes	22
1.2 Vibration dampers on brake caliper	26
1.3 Removing and installing brake pads	28
1.4 Removing and installing brake caliper	36
1.5 Renewing brake caliper	41
1.6 Removing and installing brake disc	48
1.7 Removing and installing splash plate	50
2 Rear brakes	52
2.1 Exploded view - rear brakes	52
2.2 Removing and installing brake pads	56
2.3 Removing and installing brake caliper	64
2.4 Renewing brake caliper	69
2.5 Removing and installing brake disc	76
2.6 Removing and installing splash plate	79
2.7 Renewing protective caps and guide pins	80
3 Parking brake	81
3.1 Exploded view - parking brake	81



3.2	Removing and installing control unit for electromechanical parking brake J540	81
3.3	Removing and installing parking brake motor V282 / V283	82
4	Brake pedal	85
4.1	Exploded view - brake pedal	85
4.2	Removing and installing mounting bracket	86
4.3	Separating brake pedal from brake servo	86
4.4	Connecting brake pedal to brake servo	87
4.5	Removing and installing brake pedal	88
47	Brakes - hydraulics	89
1	Front brake caliper	89
1.1	Exploded view - front brake caliper	89
1.2	Removing and installing brake caliper piston	90
2	Rear brake caliper	97
2.1	Exploded view - rear brake caliper	97
2.2	Removing and installing brake caliper piston	98
3	Brake servo / brake master cylinder	101
3.1	Exploded view - brake servo / brake master cylinder	101
3.2	Removing and installing brake light switch	102
3.3	Removing and installing brake servo	103
3.4	Removing and installing brake master cylinder	105
3.5	Removing and installing brake fluid reservoir	107
4	Vacuum system	110
4.1	Exploded view - electric vacuum pump	110
4.2	Exploded view - vacuum pump	111
4.3	Checking non-return valve	113
4.4	Removing and installing non-return valve	114
4.5	Removing and installing vacuum sender G608	115
4.6	Checking vacuum system	116
4.7	Removing and installing electric vacuum pump	120
4.8	Removing and installing vacuum pump	121
5	Brake lines	126
5.1	Connection points	126
5.2	Routing of brake lines	126
5.3	Repairing brake lines	127
6	Hydraulic system	132
6.1	General notes on brake fluid	132
6.2	Pre-bleeding hydraulic system	133
6.3	Bleeding hydraulic system (normal bleeding procedure)	134
6.4	Leak test	136



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00 – Technical data

1 Identification

(ARL003977; Edition 08.2014)

⇒ **"1.1 PR number and type of brake system", page 1**

1.1 PR number and type of brake system

The type of brake system installed in the vehicle is indicated among other things by the corresponding PR number on the vehicle data sticker.

Example of a vehicle data sticker:

A - Front brakes (example)

B - Rear brakes (example)

- ◆ For correct version refer to ⇒ Electronic parts catalogue
- ◆ The tables ⇒ [page 4](#) explain the PR numbers. These are important to obtain the correct combination of brake calipers/brake discs and brake pads.

---- 21-7-0928 926 96			
WAUZZZ 8R1 8A101698			
8 RB 0HY		S0R	
Q5 quat. 176 kW		TDI 3.0 A7S V6	
CCWA --- ---			
LX7W/LX7W N3Q/CA			
A	E0A 701	4UE 6XC	5SL 6TS
	1KE J0Z	1LJ 5MA	1AT 1BA
B	3FU F0A	8GR 0G7	0YD 0JJ
	T41 5KA	8BP U2A	X9X 1N3
	1XX	803 904	8Z5 D50
	7T6 C2T	7K0 4X3	2K1
	3L3	4KC 3Y0	4K4 5D7
		7MG 01A	4GF
88.8 8.8 88.8 888			
A00-10419			



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2 Safety precautions

⇒ **"2.1 Safety precautions when working on vehicles with start/stop system", page 2**

⇒ **"2.2 Safety precautions when using testers and measuring instruments during a road test", page 2**

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

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



WARNING

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

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

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

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



WARNING

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

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

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

3 Repair notes

⇒ [“3.1 Rules for cleanliness”, page 3](#)

⇒ [“3.2 General repair instructions”, page 3](#)

⇒ [“3.3 Contact corrosion”, page 3](#)

3.1 Rules for cleanliness

- ◆ Absolute cleanliness is required when working on the anti-lock brake system; avoid any products that contain mineral oil, such as oil, grease, etc.
- ◆ Thoroughly clean all connections and the adjacent areas before loosening, but do not use aggressive cleaning agents such as brake cleaner, petrol, thinners or similar.
- ◆ Place removed parts on a clean surface and cover them up.
- ◆ If repairs cannot be completed immediately, carefully cover or seal open components (Use sealing plugs from repair kit - 1H0 698 311 A-).
- ◆ Do not use fluffy cloths.
- ◆ Only remove replacement parts from packaging immediately prior to installation.
- ◆ Only use genuine spare parts from original packaging.
- ◆ When the system is open do not work with compressed air and do not move the vehicle.
- ◆ Ensure that no brake fluid enters electrical connectors.

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3.2 General repair instructions

- ◆ When performing repair work on brakes, hairline cracks are often found on the friction surface of the brake discs. Hairline cracks up to a length of 10 mm do not present a technical problem and do not justify a renewal of brake discs.
- ◆ Brake discs and pads with cracks going all the way across the friction surface must be renewed.

3.3 Contact corrosion

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

For this reason, all the fasteners on the vehicle have a special surface coating.

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

Always install new parts as listed in the ⇒ Electronic parts catalogue if you are unsure of the suitability of parts.

Note:

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

4 Technical data

⇒ "4.1 Technical data for brakes", page 4

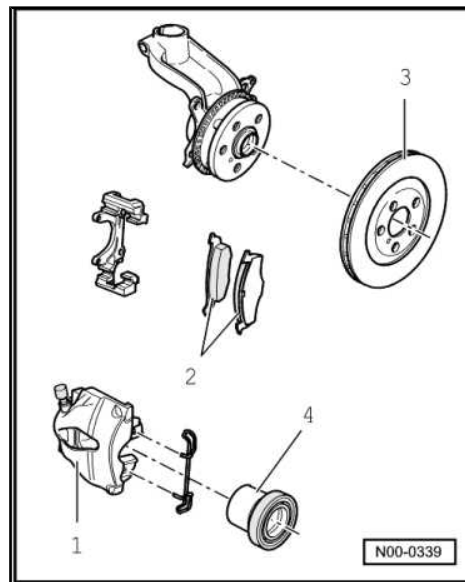
4.1 Technical data for brakes

Technical data, front brakes

Item	PR No.		1LJ, 1ZD	1LA, 1ZT
1	Brake caliper		FN3 (16")	Brembo M8 (18") wave design
3	Ventilated brake disc	Ø mm	312	365
		Thickness when new	25	34
	Wear limit of brake disc	mm	23	32
4	Brake caliper piston	Quantity	1	8

⇒ "1.1 Exploded view - front brakes", page 22

- ◆ For correct version refer to ⇒ Electronic parts catalogue
- ◆ Wear limit of brake pads ⇒ Maintenance ; Booklet 820

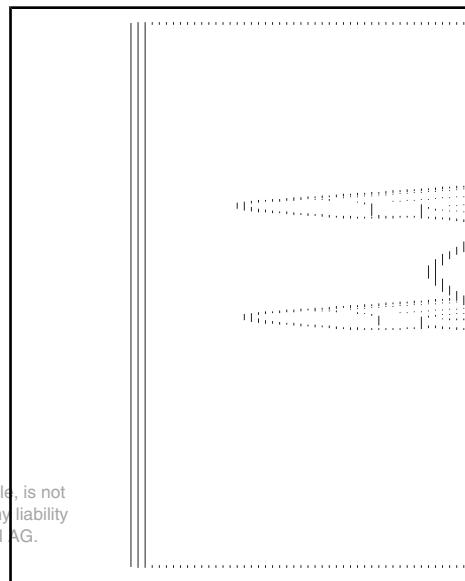


Technical data, rear brakes

Item	PR No.		1KU	2EA, 2EJ, GP1
1	Brake caliper		TRW CII 41 (16")	TRW CII41 (17")
3	Brake disc, non-ventilated	Ø mm	282	-
	Ventilated brake disc	Ø mm	-	310
	Thickness when new (non-ventilated)	mm	12	-
	Thickness when new (ventilated)	mm	-	22
	Wear limit of brake disc	mm	10	20

⇒ "2.1 Exploded view - rear brakes", page 52

- ◆ For correct version refer to ⇒ Electronic parts catalogue
- ◆ Wear limit of brake pads ⇒ Maintenance ; Booklet 820



5 Brake test

⇒ [“5.1 General notes”, page 5](#)

⇒ [“5.2 Testing vehicles with front-wheel drive”, page 5](#)

⇒ [“5.3 Testing vehicles with four-wheel drive”, page 5](#)

⇒ [“5.4 Testing parking brake”, page 5](#)

5.1 General notes

- ◆ The wheels are driven by the brake test rollers.
- ◆ During the test the gearbox must be in neutral on manual gearboxes or in position N on automatic gearboxes.
- ◆ Follow the instructions provided by the manufacturer of the brake test equipment when performing the test.



Note

Electronic brake control systems are inoperative when the ignition is switched off.

5.2 Testing vehicles with front-wheel drive

- ◆ Perform brake test on a single-axle brake dynamometer.
- ◆ The test speed must not exceed 5 km/h. Otherwise the EDL control can activate the brakes if the rollers start at different points in time.
- ◆ All brake test equipment approved by Audi meets these requirements.

5.3 Testing vehicles with four-wheel drive

Testing on a single-axle brake dynamometer for four-wheel drive vehicles:

- ◆ The rollers drive the wheels of one axle in opposite directions to avoid transmitting torque to the other axle.
- ◆ The test speed must not exceed 6 km/h. Otherwise the EDL control can activate the brakes if the rollers start at different points in time.
- ◆ All brake test equipment approved by Audi meets these requirements.

5.4 Testing parking brake

Test sequence:

- Drive rear wheels of vehicle onto test rollers and leave ignition switched on.



Note

Do not switch off ignition.

- “Test mode” is activated as soon as the speed of the rollers exceeds 3 km/h.
- The instrument cluster will then display a crossed-out yellow symbol for the electromechanical parking brake ⇒ Owner's Manual; Instruments and warning/indicator lamps .



The electromechanical parking brake will now function as follows:

- ◆ The brake is not applied abruptly; it is applied gradually each time the electromechanical parking brake button - E538- is actuated. The brake will be fully applied after operating the button 3 times.
- ◆ Pressing the electromechanical parking brake button - E538- releases the brake again.

Requirements for “test mode”:

- Ignition on
- Front wheels, speed = 0 km/h
- Rear wheels, min. speed = 3 km/ h, max. speed = 9 km/h



WARNING

When testing models with four-wheel drive you must use brake test rollers with synchronised wheel speeds.

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45 – Anti-lock brake system

1 General notes

⇒ [“1.1 Notes for repair work on the ABS”, page 7](#)

1.1 Notes for repair work on the ABS

Malfunctions in the ABS system do not influence the brake system and servo action. The conventional braking system remains functional even without ABS. However, the vehicle's braking behaviour can change. After the ABS warning lamp comes on, the rear wheels can lock early when braking.



WARNING

- ◆ *The anti-lock brake system is basically maintenance-free.*
- ◆ *Testing, removing, installing and repair work may only be performed by qualified personnel.*
- ◆ *Failure to observe the information described in this Workshop Manual may result in damage to the system and could make the vehicle unsafe.*

The brake system is split diagonally. The servo-assistance is pneumatic, supplied by the vacuum brake servo unit.

The direct connection between these components reduces possible sources of faults. Defective components must be renewed.

- ◆ Before carrying out repair work on the anti-lock brake system, determine the cause of the problem using self-diagnosis.
- ◆ When installing a new hydraulic control unit, always check its coding ⇒ [Vehicle diagnostic tester](#).
- ◆ Disconnect battery earth strap with ignition switched off.
- ◆ When working with brake fluid, observe the relevant safety precautions and notes ⇒ [page 132](#).
- ◆ Always bleed the brake system (using brake filling and bleeding equipment - VAS 5234-) after all work which involves opening the hydraulic system. In addition, a high- and low-pressure test should be carried out on the brake system ⇒ [page 136](#).
- ◆ During the final road test, ensure that at least one ABS-controlled braking operation is performed (pulsations must be felt at the brake pedal) ⇒ [Vehicle diagnostic tester](#).

2 Overview of fitting locations

⇒ "2.1 Overview of fitting locations - ABS/ESP", page 8

2.1 Overview of fitting locations - ABS/ESP

1 - Front left speed sensor - G47-

- ☐ Can be checked via "Guided Fault Finding" ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 20](#)

2 - ABS hydraulic unit - N55-

- ☐ Fitting location: in engine compartment (left-side), under battery
- ☐ The hydraulic unit consists of the following components:
 - ◆ Brake pressure sender 1 - G201- (cannot be renewed)
 - ◆ ABS hydraulic pump - V64- (cannot be renewed)
 - ◆ Valve block, comprising inlet and outlet valves (cannot be renewed)
- ☐ ABS hydraulic pump - V64- and valve block must not be separated from one another
- ☐ ABS hydraulic unit - N55- must not be separated from ABS control unit - J104-
- ☐ Exploded view ⇒ [page 10](#)

3 - ABS control unit - J104-

- ☐ Fitting location: on hydraulic unit in engine compartment (left-side), under battery
- ☐ Do not unplug connector before completing self-diagnosis. Switch ignition off before unplugging connector.
- ☐ ABS control unit - J104- must not be separated from ABS hydraulic unit - N55-
- ☐ Removing and installing ⇒ [page 11](#)

4 - Front right speed sensor - G45-

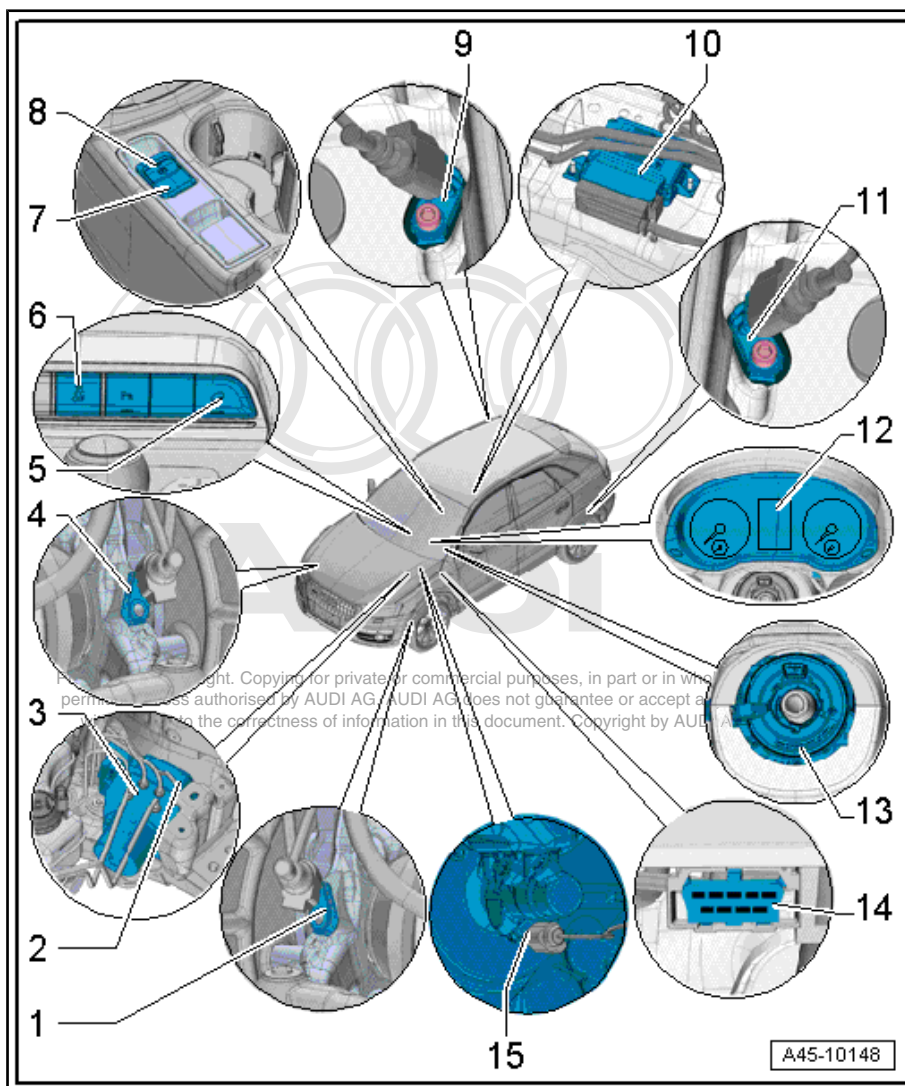
- ☐ Removing and installing ⇒ [page 20](#)

5 - TCS and ESP button - E256-

- ☐ Can be checked via "Guided Fault Finding" ⇒ Vehicle diagnostic tester
- ☐ Fitting location: on the centre console

6 - Hill descent control button - E618-

- ☐ Fitting location: on the centre console



7 - Electromechanical parking brake button - E538-

- ❑ Removing and installing ⇒ Electrical system; Rep. gr. 96 ; Controls; Removing and installing electro-mechanical parking brake button - E538- / auto-hold button - E540-

8 - Auto-hold button - E540-

- ❑ Removing and installing ⇒ Electrical system; Rep. gr. 96 ; Controls; Removing and installing electro-mechanical parking brake button - E538- / auto-hold button - E540-

9 - Rear right speed sensor - G44-

- ❑ Can be checked via "Guided Fault Finding" ⇒ Vehicle diagnostic tester
- ❑ Removing and installing ⇒ [page 21](#)

10 - Control unit for electromechanical parking brake - J540-

- ❑ Fitting location: under centre console
- ❑ Installed in one housing together with lateral acceleration sender - G200- , yaw rate sender - G202- and longitudinal acceleration sender - G251-
- ❑ Removing and installing ⇒ [page 81](#)

11 - Rear left speed sensor - G46-

- ❑ Can be checked via "Guided Fault Finding" ⇒ Vehicle diagnostic tester
- ❑ Removing and installing ⇒ [page 21](#)

12 - Dash panel insert

- ❑ with:

- ◆ ABS warning lamp - K47-
- ◆ Brake system warning lamp - K118-
- ◆ ESP and TCS warning lamp - K155-
- ◆ Electromechanical parking brake warning lamp - K213-
- ❑ Removing and installing ⇒ Electrical system; Rep. gr. 90 ; Dash panel insert

13 - Steering column electronics control unit - J527-

- ❑ With airbag coil connector and return ring with slip ring - F138- and steering angle sender - G85-
- ❑ Removing and installing ⇒ Electrical system; Rep. gr. 94 ; Steering column switch module; Removing and installing steering column electronics control unit - J527-

14 - Brake light switch - F-

- ❑ Location: on brake master cylinder
- ❑ Removing and installing ⇒ [page 102](#)

15 - Diagnostic connection

- ❑ Fitting location: in dash panel trim on driver's side

3 Control unit and hydraulic unit

⇒ [“3.1 Exploded view - control unit and hydraulic unit”, page 10](#)

⇒ [“3.2 Removing and installing ABS control unit J104 / ABS hydraulic unit N55”, page 11](#)

3.1 Exploded view - control unit and hydraulic unit

1 - Brake servo

- ❑ Removing and installing
⇒ [page 103](#)

2 - Brake line

- ❑ Brake master cylinder/primary piston circuit to hydraulic unit
- ❑ Identification: $\varnothing$ 6.5 mm and union screw with long thread M12x1 (male pipe union)
- ❑ Marked on hydraulic unit with “HZ1”
- ❑ Tightening torque
⇒ [page 11](#)

3 - Brake line

- ❑ Brake master cylinder/secondary piston circuit to hydraulic unit
- ❑ Identification: $\varnothing$ 6.5 mm and union screw with long thread M12x1 (male pipe union)
- ❑ Marked on hydraulic unit with “HZ2”
- ❑ Tightening torque
⇒ [page 11](#)

4 - Brake line

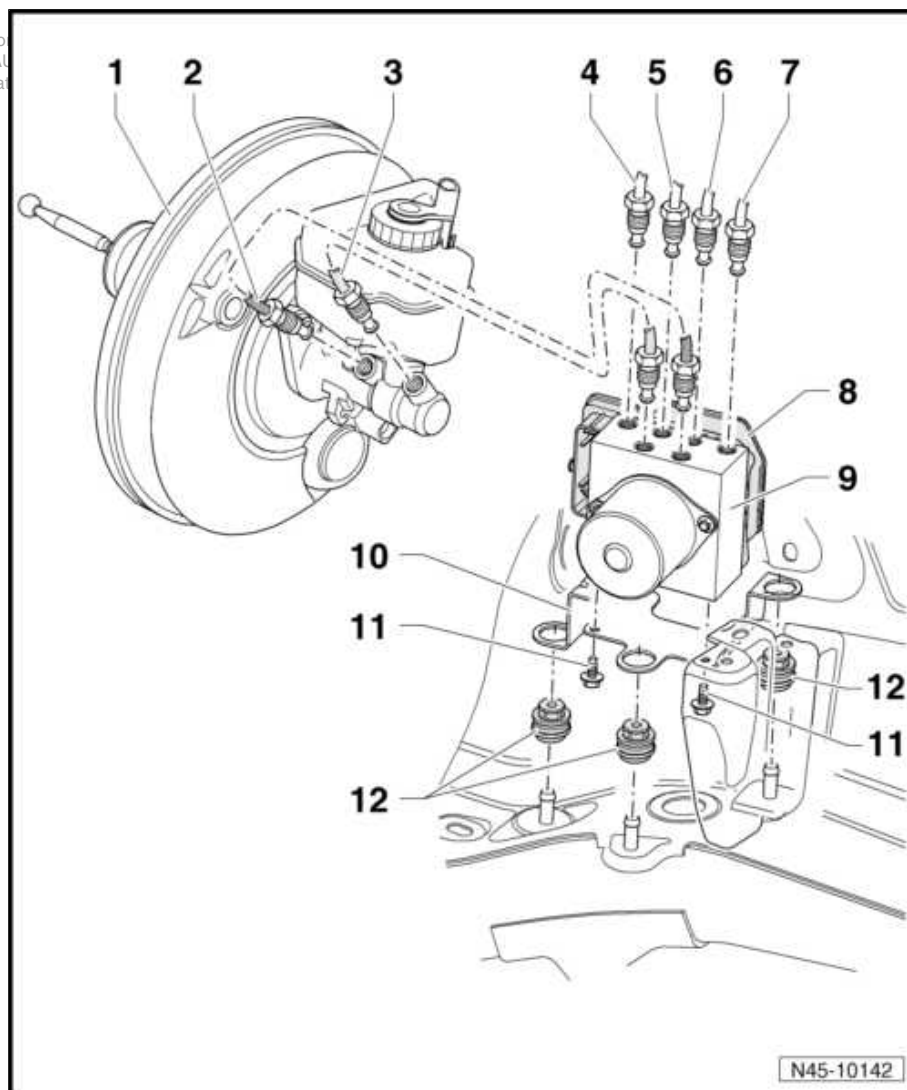
- ❑ To front right brake caliper
- ❑ Identification: $\varnothing$ 5.25 mm and union screw with M10x1 thread (male pipe union)
- ❑ Marked on hydraulic unit with “VR”
- ❑ Tightening torque and tightening sequence ⇒ [page 11](#)

5 - Brake line

- ❑ To rear left brake caliper
- ❑ Identification: $\varnothing$ 5.25 mm and union screw with short thread M12x1 (male pipe union)
- ❑ Marked on hydraulic unit with “HL”
- ❑ Tightening torque and tightening sequence ⇒ [page 11](#)

6 - Brake line

- ❑ To rear right brake caliper
- ❑ Identification: $\varnothing$ 5.25 mm and union screw with M10x1 thread (male pipe union)
- ❑ Marked on hydraulic unit with “HR”



- ❑ Tightening torque and tightening sequence ⇒ [page 11](#)

7 - Brake line

- ❑ To front left brake caliper
- ❑ Identification: Ø 5.25 mm and union screw with short thread M12x1 (male pipe union)
- ❑ Marked on hydraulic unit with "VL"
- ❑ Tightening torque and tightening sequence ⇒ [page 11](#)

8 - ABS control unit - J104-

- ❑ The control unit and hydraulic unit cannot be separated
- ❑ With integrated brake pressure sender 1 - G201-
- ❑ Removing and installing ⇒ [page 11](#)

9 - ABS hydraulic unit - N55-

- ❑ The control unit and hydraulic unit cannot be separated
- ❑ Removing and installing ⇒ [page 11](#)

10 - Bracket

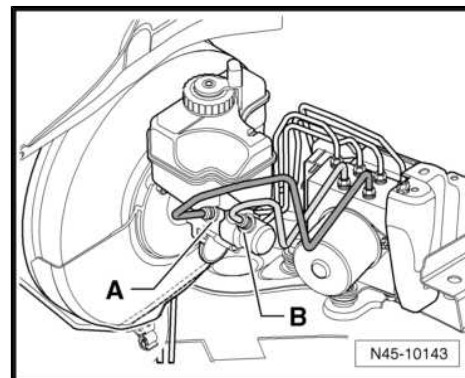
11 - Bolt

- ❑ 8 Nm

12 - Rubber damper

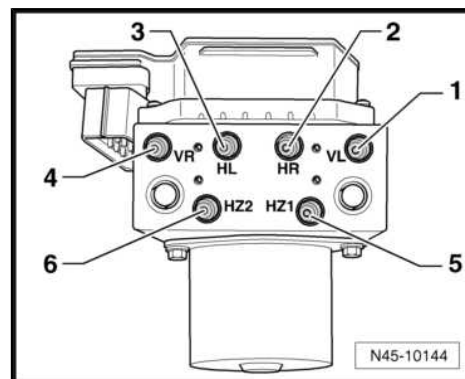
Brake line connections on brake master cylinder - tightening torque

- Tighten brake lines -A and B- to 14 Nm (counterhold brake lines).



Brake line connections on hydraulic unit - tightening torque and tightening sequence

- Tighten brake lines to 14 Nm in the sequence -1 ... 6- (counterhold brake lines -5 and 6-).



3.2 Removing and installing ABS control unit - J104- / ABS hydraulic unit - N55-

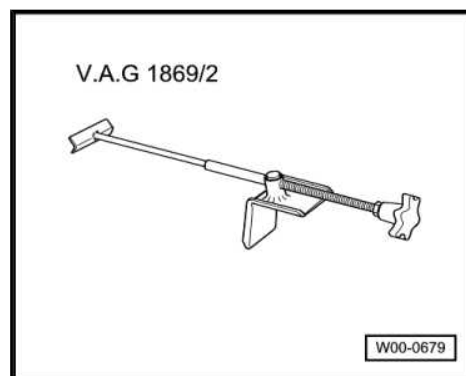


Note

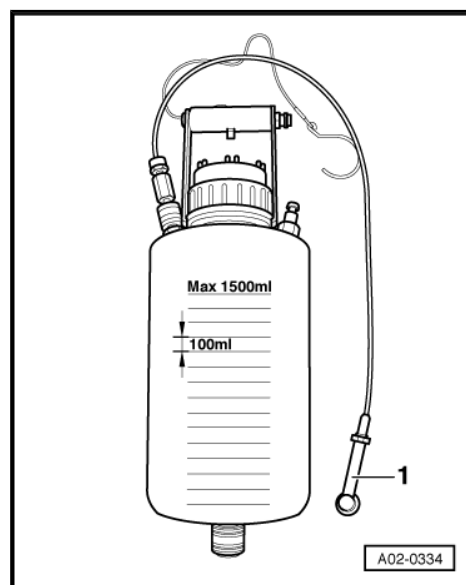
When renewing control unit, select "Replace" function for appropriate control unit in "Guided Functions" mode of ⇒ Vehicle diagnostic tester.

Special tools and workshop equipment required

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

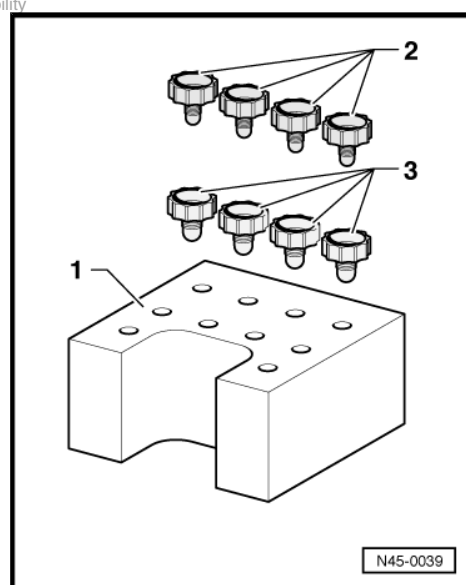


- ◆ Reservoir -1- from brake filling and bleeding equipment - VAS 5234-



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- ◆ Sealing plugs (repair kit - 1H0 698 311 A)



- 1 - Transport protection for contact pins (foam)
- 2 - M10 sealing plugs
- 3 - M12 sealing plugs

Removing



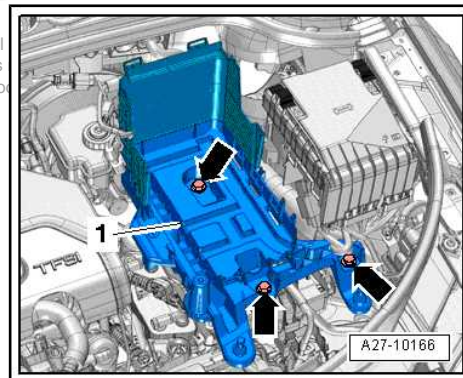
WARNING

Do not bend the brake lines in the vicinity of the hydraulic unit.

- Read out and note down control unit coding ⇒ Vehicle diagnostic tester.

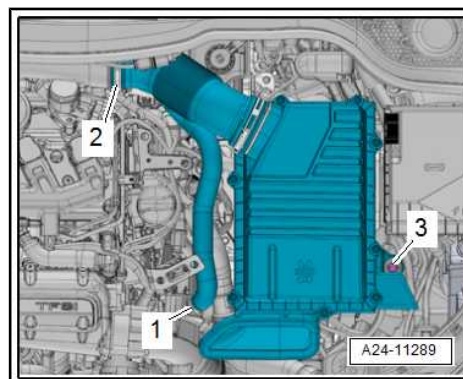
Audi Q3:

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

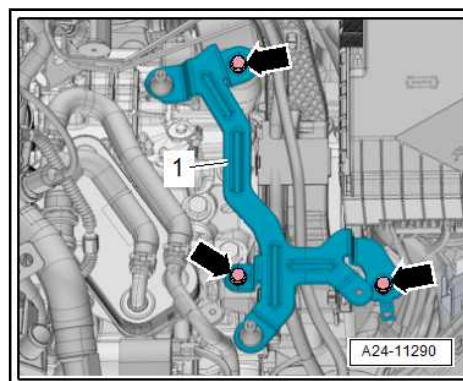


Audi RS Q3:

- Remove air cleaner housing ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .



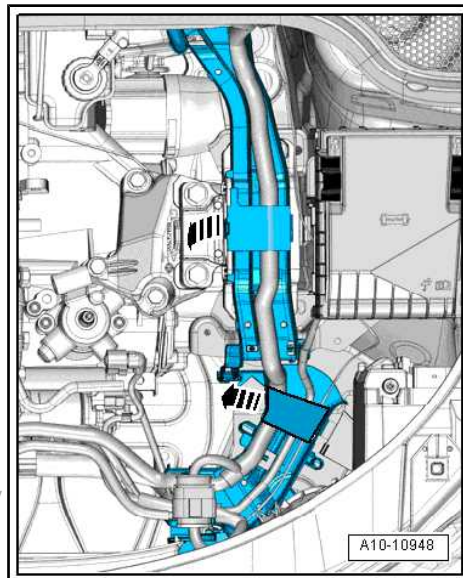
- Remove bolts -arrows- and detach bracket -1- for air cleaner housing.



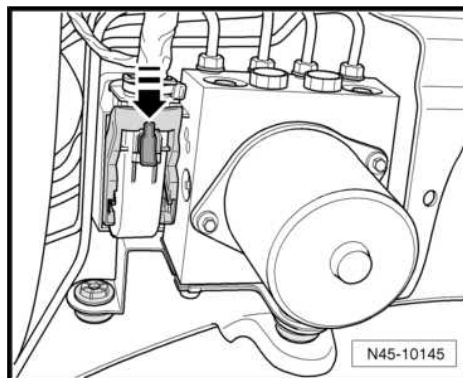
All vehicles (continued):

- Open retainers for wiring duct -arrows- and push electrical wiring aside.
- Unclip wiring duct.

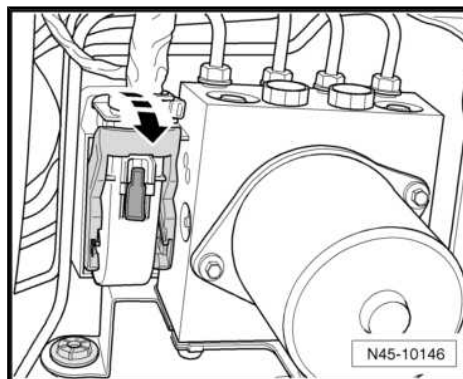
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- Press down red retainer catch -arrow-.



- Release electrical connector -arrow- and pull off.



- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Depress brake pedal at least 60 mm.

 Note

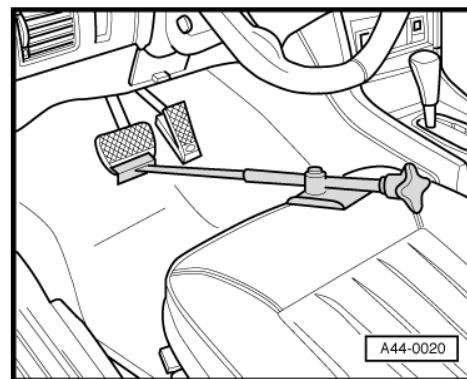
This closes the valves in the brake master cylinder and stops the brake fluid reservoir from running empty.



WARNING

Risk of skin irritation

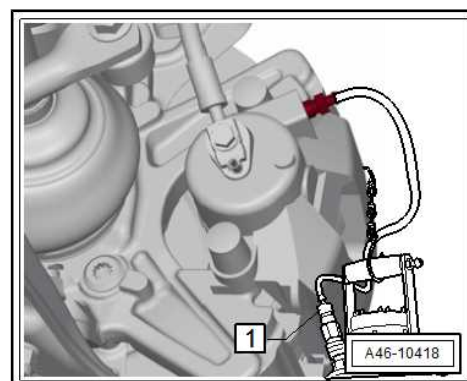
- ◆ *Always wear chemical-resistant protective gloves to prevent brake fluid from contacting skin.*



- Detach protective cap on bleeder screw of front left brake caliper.
- Fit bleeder hose -1- of reservoir onto bleeder screw.
- Open bleeder screw to relieve pressure in hydraulic system.

 Note

The brake type 1LJ, 1ZD is shown in the illustration as an example.



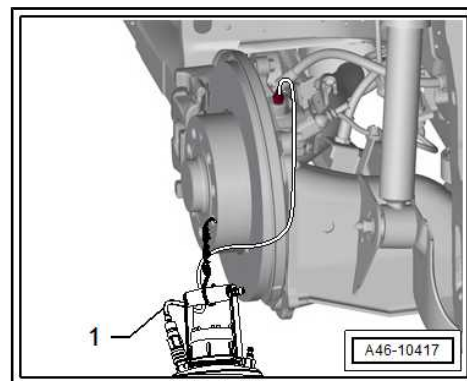
- Detach protective cap on bleeder screw of rear left brake caliper.
- Fit bleeder hose -1- of reservoir onto bleeder screw.

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- Open bleeder screw to relieve pressure in hydraulic system.
- Close bleeder screws (front left and rear left).

 Note

The brake pedal actuator - V.A.G 1869/2- must not be removed.

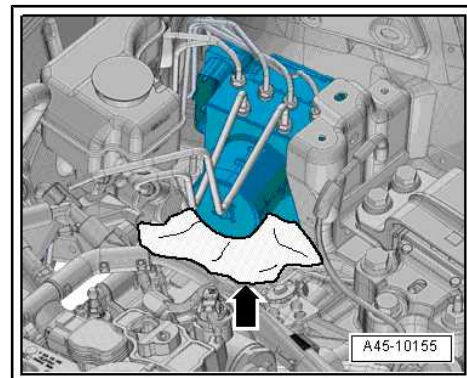


- Place sufficient lint-free cloths -arrow- under control unit and hydraulic unit.

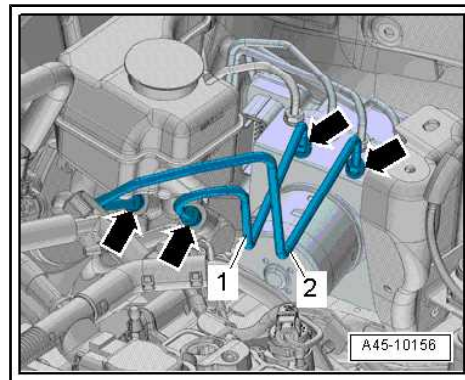


Caution

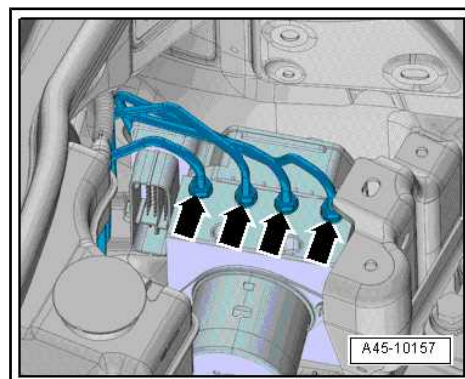
Make sure that no brake fluid gets onto contacts.



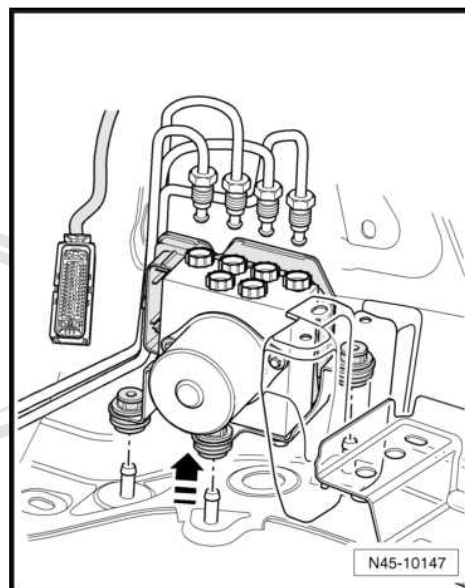
- Unscrew union screws -arrows- and detach brake lines -1, 2-.
- Seal brake lines and threaded holes immediately using sealing plugs from repair kit - 1H0 698 311 A- .



- Mark, disconnect and seal remaining brake lines leading to brake calipers.
- Unscrew union screws and plug brake lines; lift clear and tie up brake lines.
- Seal brake lines and threaded holes immediately using sealing plugs from repair kit - 1H0 698 311 A- .



- Pull hydraulic unit together with control unit upwards out of rubber dampers -arrow-.



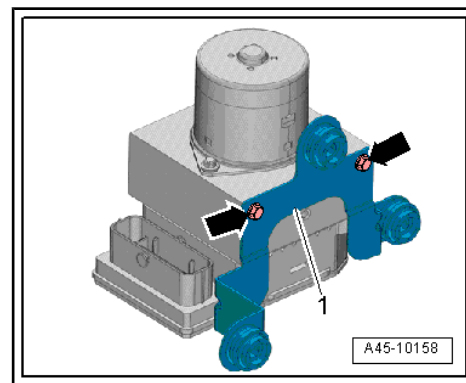
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- Remove bolts -arrows- and detach bracket -1-.

Installing

Installation is performed in reverse sequence; note the following:

- Secure bracket.
- Press ABS hydraulic unit - N55- with ABS control unit - J104- into rubber dampers.
- Secure brake lines (note correct sequence and tightening torques).
- Remove brake pedal actuator - V.A.G 1869/2- .



Note

- ◆ *Do not remove sealing plugs from new hydraulic unit until corresponding brake line is ready to be fitted.*
- ◆ *If the sealing plugs are removed from the hydraulic unit sooner, brake fluid may escape and it may no longer be possible to fill and bleed the unit properly.*
- ◆ *When installing the hydraulic unit, ensure that the rubber dampers are not pressed out of the bracket. The rubber dampers must rest on the longitudinal member cover plate.*

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - control unit and hydraulic unit”, page 10](#)
- ◆ ⇒ [Fig. ““Brake line connections on hydraulic unit - tightening torque and tightening sequence””, page 11](#) .
- ◆ ⇒ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing
- ◆ Battery tray and battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Exploded view - battery .

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4 Sensors

⇒ "4.1 Exploded view - front wheel speed sensor", page 18

⇒ "4.2 Exploded view - rear wheel speed sensor", page 19

⇒ "4.3 Removing and installing front wheel speed sensor G45 / G47", page 20

⇒ "4.4 Removing and installing rear wheel speed sensor G44 / G46", page 21

4.1 Exploded view - front wheel speed sensor

1 - Speed sensor

- ☐ Front right speed sensor - G45- / front left speed sensor - G47-
- ☐ Removing and installing
⇒ page 20

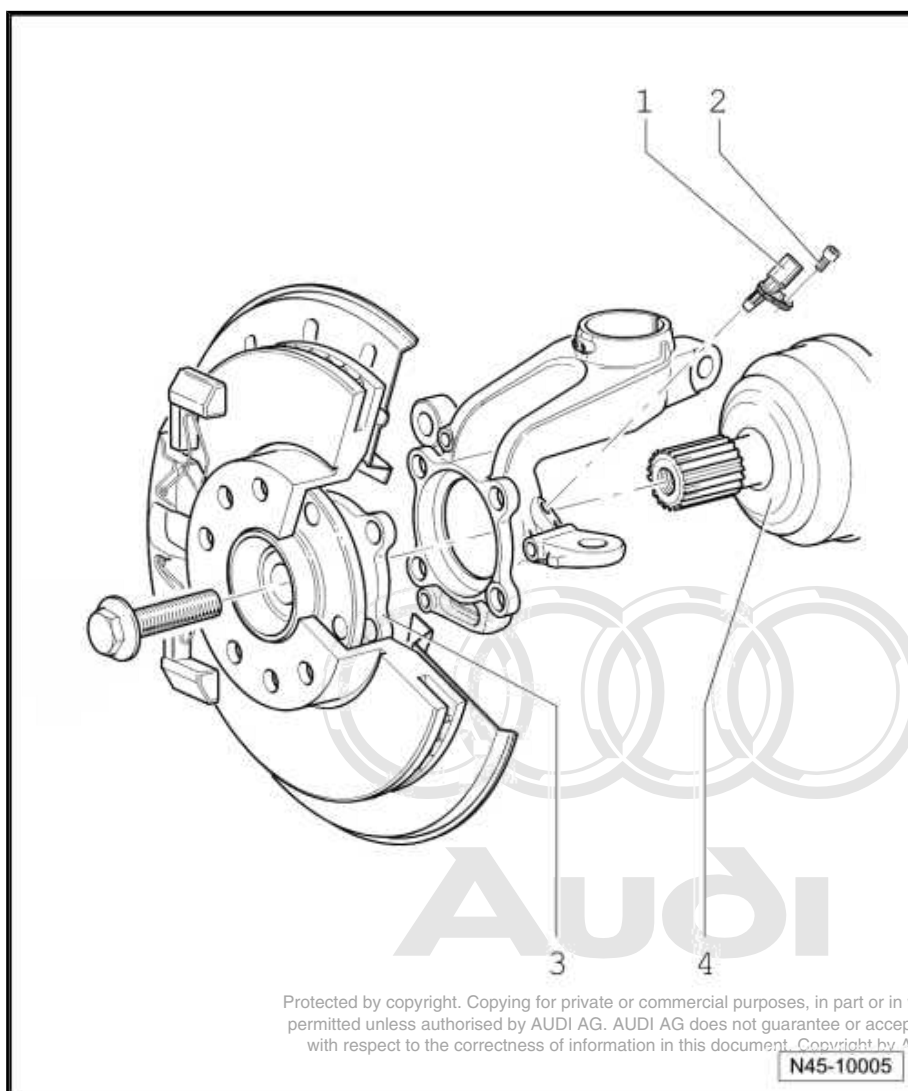
2 - Bolt

- ☐ 8 Nm

3 - Wheel hub with wheel bearing

- ☐ ABS sensor ring is installed in wheel bearing

4 - Drive shaft



4.2 Exploded view - rear wheel speed sensor

Front-wheel drive

1 - Speed sensor

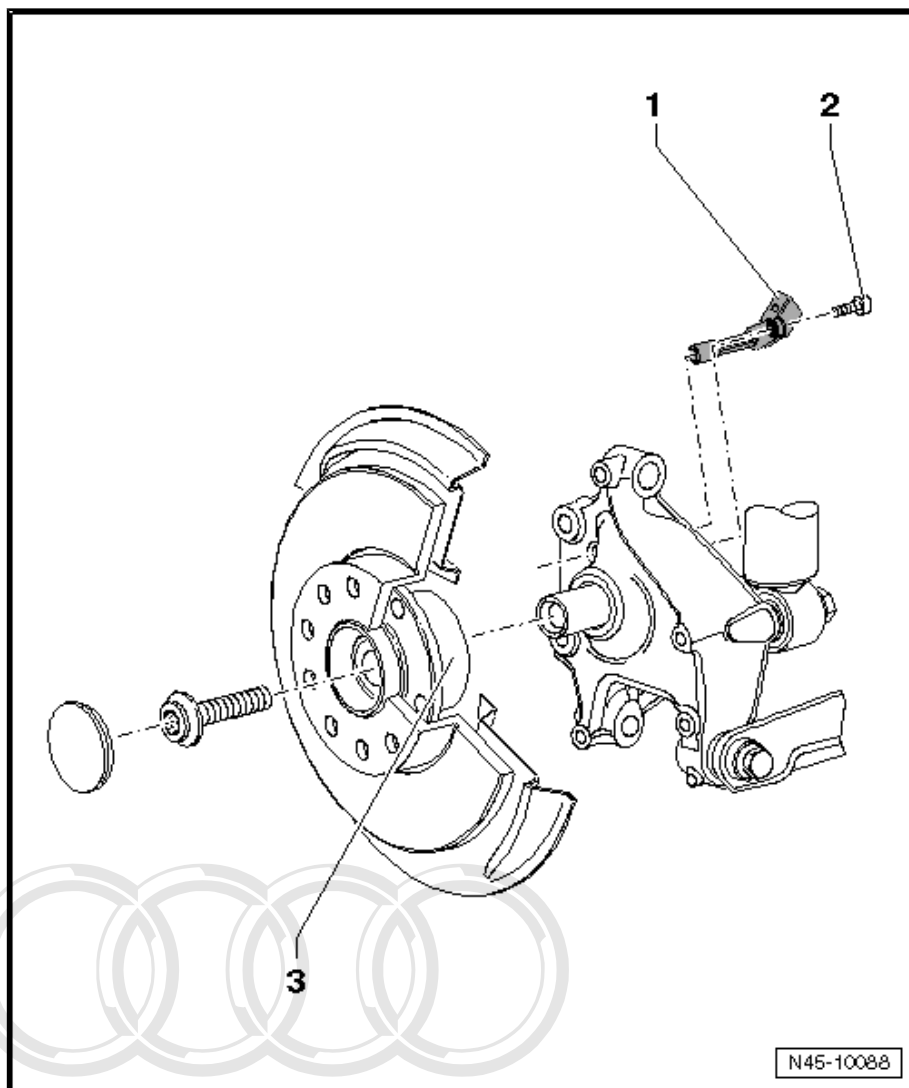
- ☐ Rear right speed sensor - G44- , rear left speed sensor - G46-
- ☐ Removing and installing
⇒ [page 21](#)

2 - Bolt

- ☐ 8 Nm

3 - Wheel hub with wheel bearing

- ☐ ABS sensor ring is installed in wheel bearing



Four-wheel drive

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1 - Speed sensor

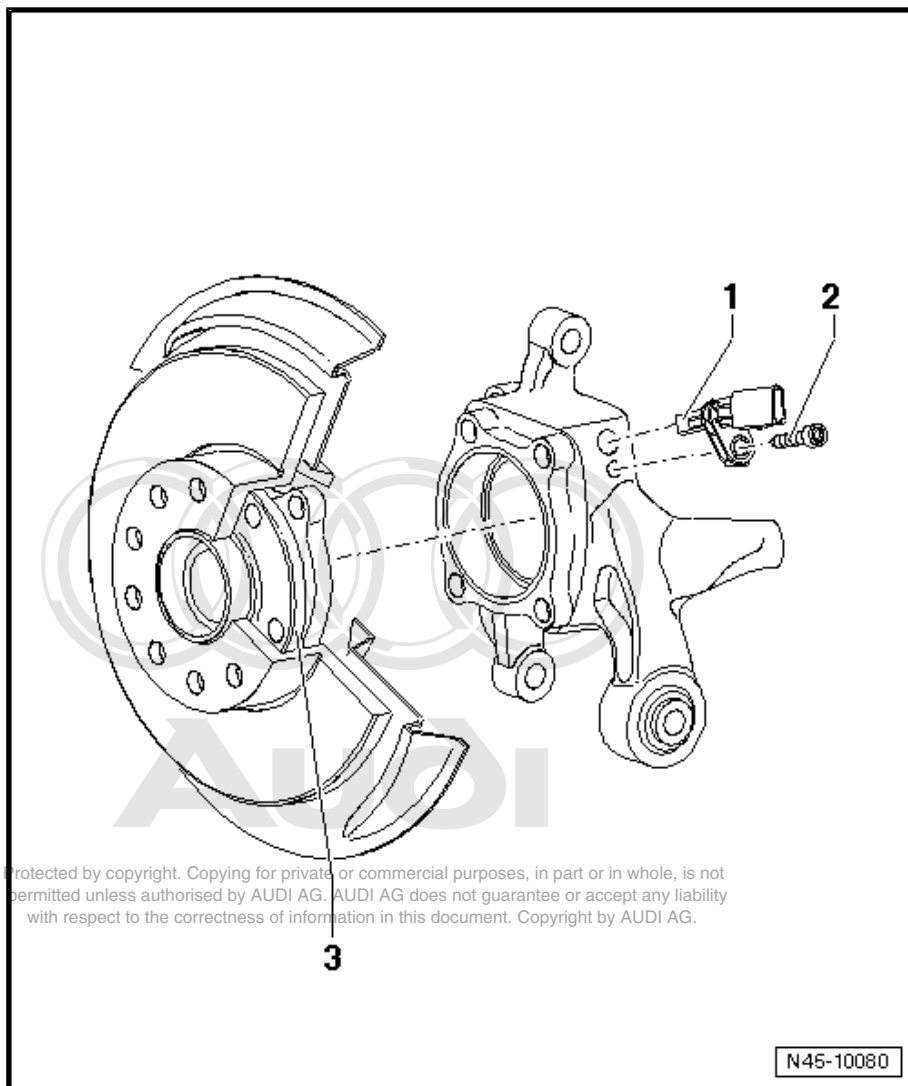
- ❑ Rear right speed sensor - G44- , rear left speed sensor - G46-
- ❑ Removing and installing
 ⇒ [page 21](#)

2 - Bolt

- ❑ 8 Nm

3 - Wheel bearing

- ❑ ABS sensor ring is installed in wheel bearing



4.3 Removing and installing front wheel speed sensor -G45- / -G47-

Removing

- Detach speed sensor wiring connector -1- from speed sensor.
- Unscrew bolt -2- and pull speed sensor out of wheel bearing housing.

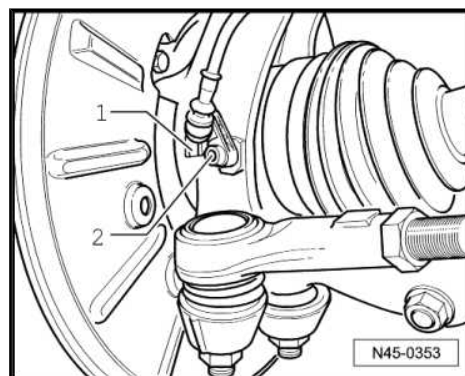
Installing

Installation is performed in reverse sequence; note the following:

- Before inserting speed sensor, clean inner surface of hole and coat speed sensor all round with high-temperature paste; for high-temperature paste refer to ⇒ Electronic parts catalogue .

Tightening torques

- ◆ ⇒ [“4.1 Exploded view - front wheel speed sensor”, page 18](#) .

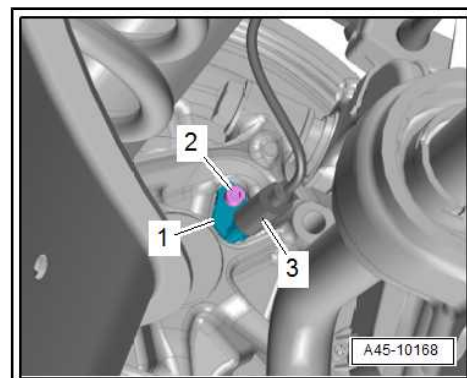


4.4 Removing and installing rear wheel speed sensor -G44- / -G46-

Removing

Front-wheel drive vehicles:

- Detach speed sensor wiring connector -3- from speed sensor -1-.
- Unscrew bolt -2- and pull speed sensor out of wheel bearing housing.



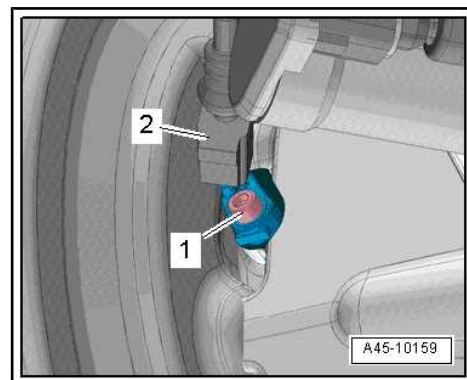
Four-wheel drive vehicles:

- Detach speed sensor wiring connector -1- from speed sensor.
- Unscrew bolt -2- and pull speed sensor out of wheel bearing housing.

Installing

Installation is performed in reverse sequence; note the following:

- Before inserting speed sensor, clean inner surface of hole and coat speed sensor all round with high-temperature paste; for high-temperature paste refer to ⇒ Electronic parts catalogue .



Tightening torques

- ◆ ⇒ [“4.2 Exploded view - rear wheel speed sensor”, page 19](#) .



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46 – Brakes - mechanism

1 Front brakes

⇒ ["1.1 Exploded view - front brakes", page 22](#)

⇒ ["1.3 Removing and installing brake pads", page 28](#)

⇒ ["1.4 Removing and installing brake caliper", page 36](#)

⇒ ["1.5 Renewing brake caliper", page 41](#)

⇒ ["1.6 Removing and installing brake disc", page 48](#)

⇒ ["1.7 Removing and installing splash plate", page 50](#)

1.1 Exploded view - front brakes

⇒ ["1.1.1 Exploded view - front brakes \(1LJ, 1ZD\)", page 22](#)

⇒ ["1.1.2 Exploded view - front brakes \(1LA, 1ZT\)", page 24](#)

1.1.1 Exploded view - front brakes (1LJ, 1ZD)

1 - Bolt

- ❑ 12 Nm

2 - Brake disc

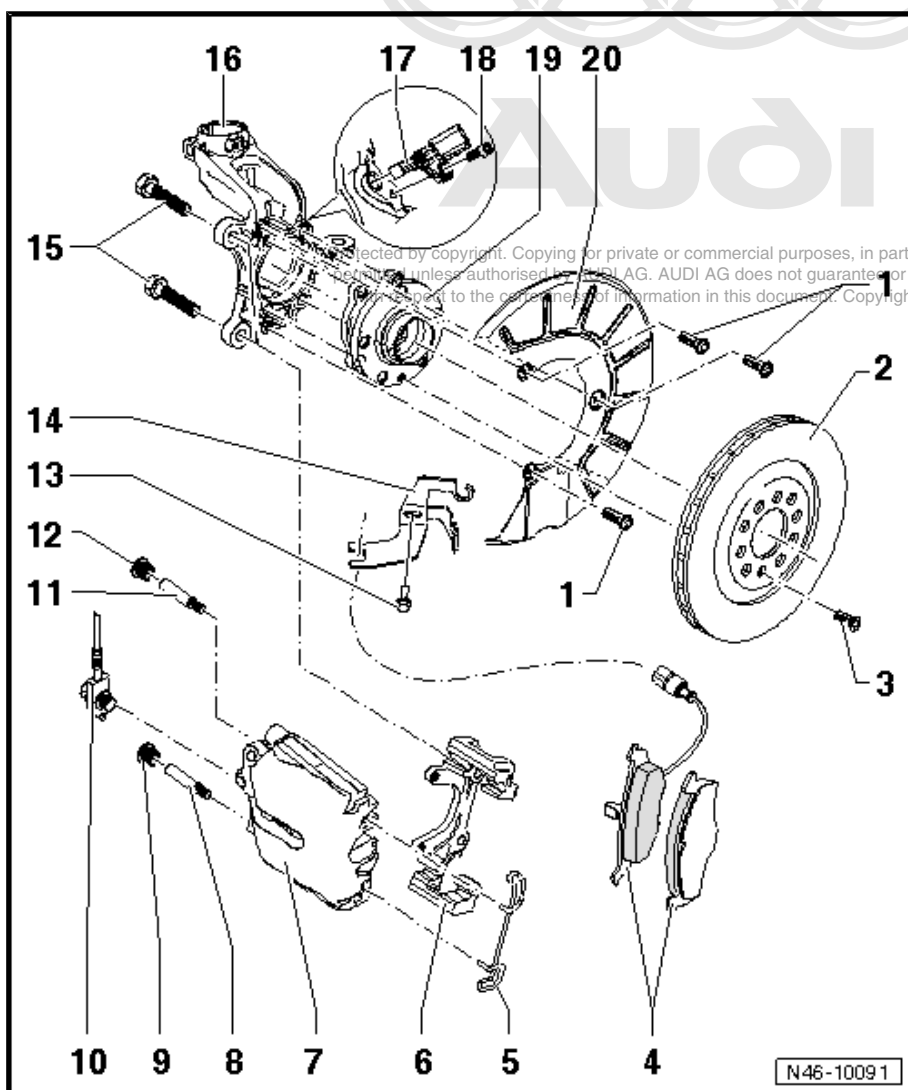
- ❑ For correct version refer to ⇒ [Electronic parts catalogue](#)
- ❑ Dimensions ⇒ [page 4](#)
- ❑ Wear limit ⇒ [Maintenance ; Booklet 820](#)
- ❑ Always renew on both sides of axle
- ❑ Never remove brake disc from wheel hub by force; if necessary use rust remover, as brake disc may otherwise be damaged
- ❑ Removing and installing ⇒ [page 48](#)

3 - Bolt

- ❑ 4 Nm

4 - Brake pads

- ❑ Different versions available ⇒ [Electronic parts catalogue](#)
- ❑ Checking pad thickness ⇒ [Maintenance ; Booklet 820](#)
- ❑ Wear limit ⇒ [Maintenance ; Booklet 820](#)
- ❑ Always renew on both sides of axle
- ❑ Removing and installing ⇒ [page 28](#)
- ❑ Note installation position ⇒ [page 24](#)



5 - Retaining spring

- ☐ Insert into both holes in brake caliper

6 - Brake carrier

- ☐ Replacement carriers are supplied assembled and with sufficient grease on guide pins
- ☐ Renew protective caps if they have been damaged (repair kit); use grease sachet supplied to lubricate the guide pins

7 - Brake caliper

- ☐ Do not disconnect brake hose when changing brake pads
- ☐ Unscrew from brake carrier to renew brake pads
- ☐ Removing and installing ⇒ [page 36](#)
- ☐ Renewing ⇒ [page 41](#)
- ☐ Servicing ⇒ [page 89](#)



Note

- ◆ *Depending on the model, two vibration dampers are fitted on each brake caliper*
- ◆ ⇒ [“1.2 Vibration dampers on brake caliper”, page 26](#)

8 - Guide pin

- ☐ 30 Nm

9 - Protective cap

10 - Brake hose

- ☐ With banjo union and banjo bolt
- ☐ Connection to brake caliper, 35 Nm
- ☐ Connection to brake line, 14 Nm

11 - Guide pin

- ☐ 30 Nm

12 - Protective cap

13 - Bolt

14 - Bracket

15 - Ribbed bolt

- ☐ Always renew if removed
- ☐ Clean part before reinstalling
- ☐ 200 Nm

16 - Wheel bearing housing

17 - Speed sensor

- ☐ Removing and installing ⇒ [page 18](#)

18 - Bolt

- ☐ 8 Nm

19 - Wheel bearing unit with integrated rotor

- ☐ Removing and installing ⇒ Running gear, axles, steering; Rep. gr. 40 ; Wheel bearing; Removing and installing wheel bearing unit

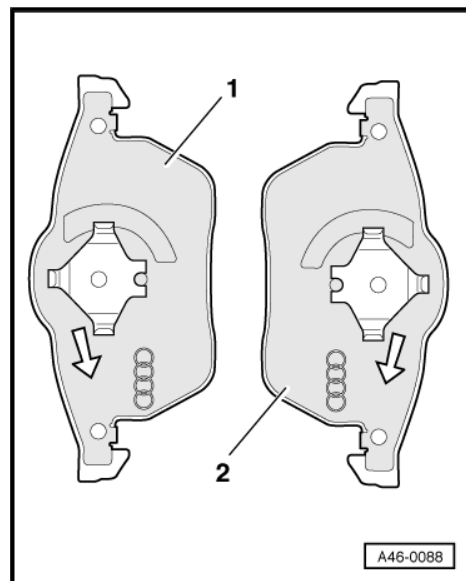
20 - Splash plate for brakes

- ☐ Removing and installing ⇒ [page 50](#)

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Installation position of brake pads

- 1 - Piston-side brake pad (right-side)
 - 2 - Piston-side brake pad (left-side)
- When installed, arrow on backplate of brake pad must face downwards.



1.1.2 Exploded view - front brakes (1LA, 1ZT)

1 - Pad retaining springs

- ☐ Renew when changing pads
- ☐ Ensure correct positioning in brake caliper

2 - Bracket

- ☐ For brake hose

3 - Bolt

- ☐ 8 Nm

4 - Brake hose

- ☐ Make sure the brake hose is routed correctly. The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.
- ☐ Renew if damaged
- ☐ Ensure that lugs are properly seated in grooves in bracket
- ☐ Tightening torque, brake hose to brake caliper: 15 Nm

5 - Rivet

6 - Bracket

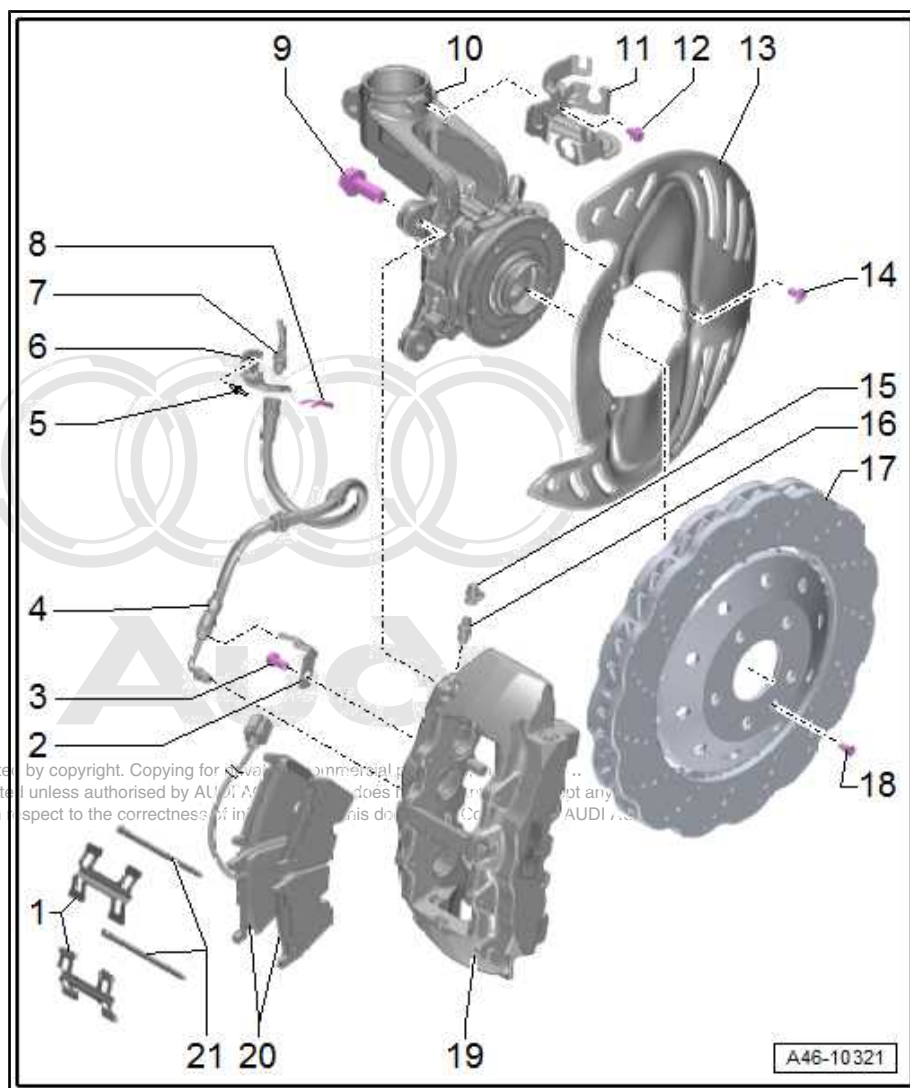
- ☐ For brake hose

7 - Brake line

- ☐ Tightening torque, brake line to brake hose: 14 Nm

8 - Retaining spring

- ☐ Renew if damaged



9 - Bolt

- ☐ With washer
- ☐ 2x
- ☐ Always renew if removed
- ☐ 200 Nm

10 - Hub carrier

11 - Bracket

- ☐ For brake hose and electrical wiring

12 - Bolt

- ☐ 8 Nm

13 - Splash plate

- ☐ Removing and installing

14 - Bolt

- ☐ 12 Nm

15 - Protective cap

16 - Bleeder screw

- ☐ 13 Nm

17 - Brake disc

- ☐ Wear limit ⇒ Maintenance ; Booklet 820
- ☐ For correct version refer to ⇒ Electronic parts catalogue
- ☐ Always renew on both sides of axle
- ☐ Removing and installing ⇒ [page 48](#)

18 - Bolt

- ☐ 4 Nm

19 - Brake caliper

- ☐ Must not be unbolted from brake carrier ⇒ [page 26](#)
- ☐ For correct version refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 38](#)
- ☐ Renewing ⇒ [page 44](#)
- ☐ Servicing ⇒ [page 90](#)



Note

- ◆ *Depending on the model, two vibration dampers are fitted on each brake caliper*
- ◆ ⇒ ["1.2 Vibration dampers on brake caliper", page 26](#)

20 - Brake pads

- ☐ Checking pad thickness ⇒ Maintenance ; Booklet 820
- ☐ Always renew on both sides of axle
- ☐ For correct version refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 32](#)
- ☐ Note correct position: inner brake pad with retainer for pad wear sender

21 - Pad retaining pins

- ☐ Renew when changing pads
- ☐ Note correct installation position
- ☐ Knock out inwards

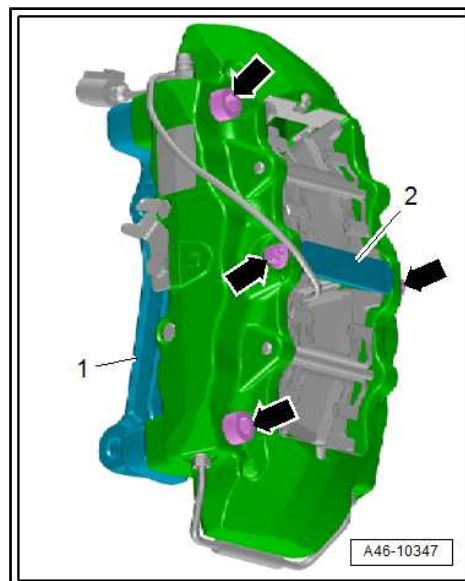
Do not slacken bolts securing brake caliper/brake carrier or bolts securing centre retaining pin



Caution

Risk of malfunction

- ◆ **DO NOT** slacken off bolts -arrows- securing brake carrier
-1- to brake caliper or bolts securing centre retaining pin
-2-.



1.2 Vibration dampers on brake caliper

Depending on the model, two vibration dampers are fitted on each brake caliper.



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1 - Bolt

Always renew if removed

10 Nm

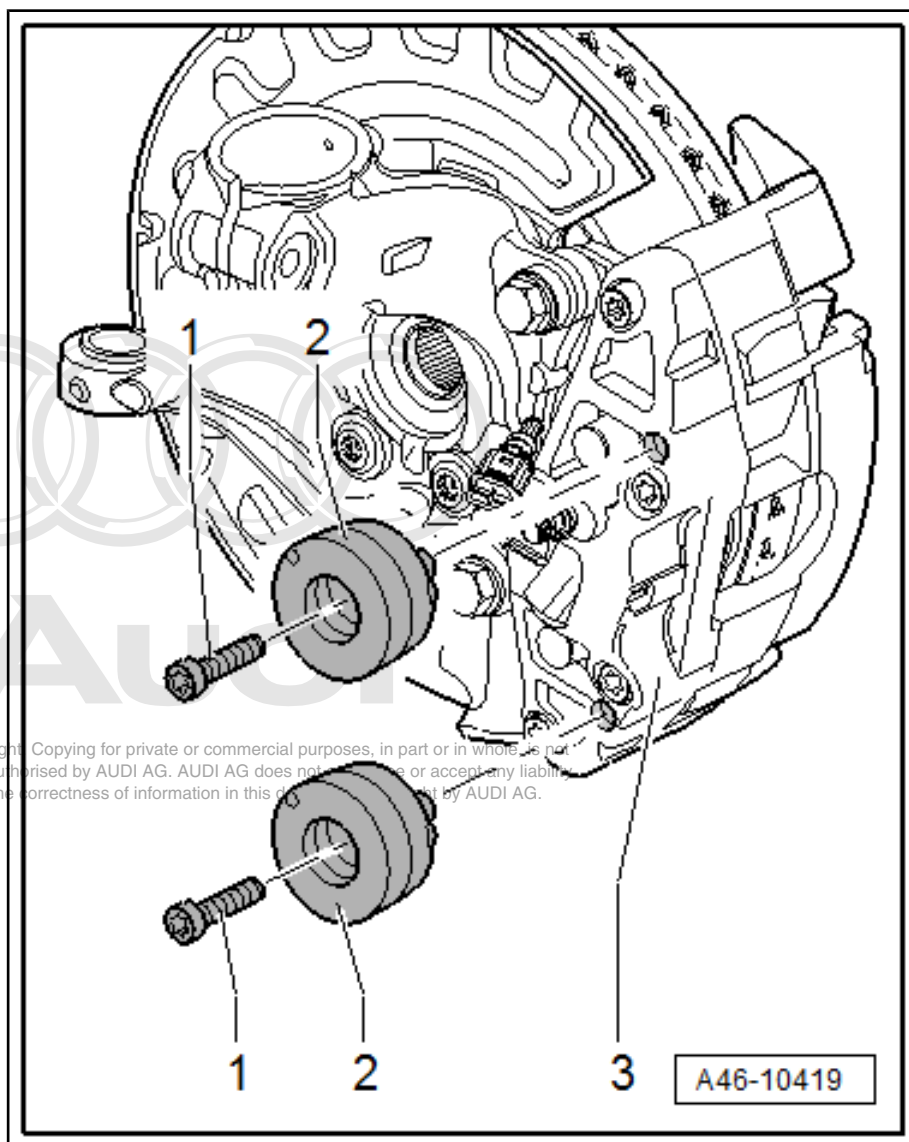
2 - Vibration damper

2x on each brake caliper

⇒ ["1.2.1 Removing and installing vibration dampers", page 27](#)

3 - Brake caliper

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1.2.1 Removing and installing vibration dampers

2x on each brake caliper

Removing

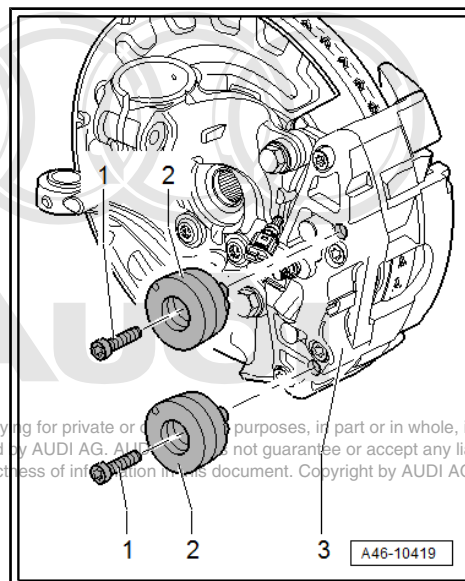
- Remove dust cap if fitted.

- Remove bolt -1-.
- Remove vibration damper -2- from brake caliper -3-.

Installing

2x on each brake caliper

- Clean brake caliper in area of vibration damper.
- Fit vibration damper -2- in brake caliper.
- Insert new bolt and tighten bolt ⇒ [Item 1 \(page 27\)](#) .
- Install dust cap if originally fitted.



1.3 Removing and installing brake pads

⇒ [“1.3.1 Removing and installing brake pads \(1LJ, 1ZD\)”](#),
[page 28](#)

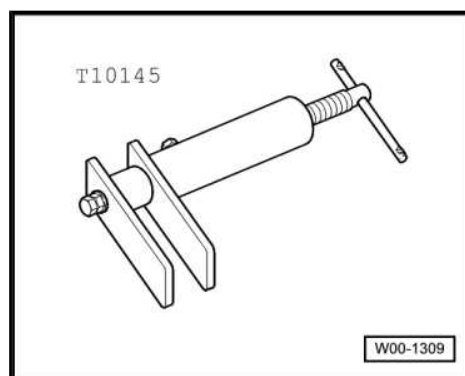
⇒ [“1.3.2 Removing and installing brake pads \(1LA, 1ZT\)”](#),
[page 32](#)

1.3.1 Removing and installing brake pads (1LJ, 1ZD)

Check the thickness of the brake disc when renewing brake pads.
Refer to wear limit for brake disc ⇒ [page 4](#) .

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-
- ◆ Piston resetting appliance - T 10145-



- ◆ Lithium grease

Removing

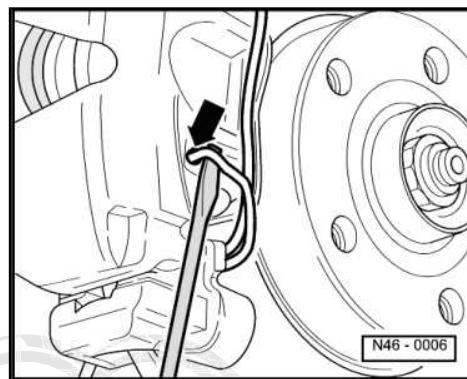


Note

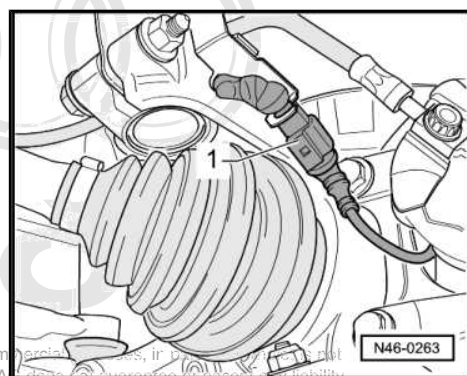
*Mark brake pads when removing them if they are to be reinstalled.
Reinstall in their original position to prevent uneven braking.*

- Remove front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

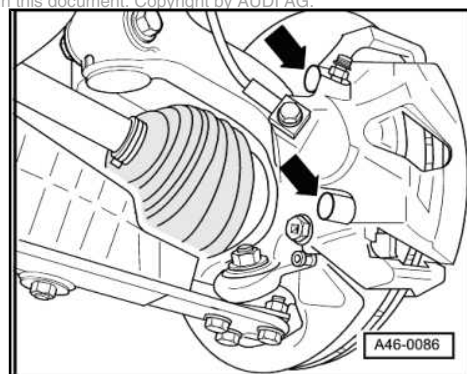
- Lever brake pad retaining spring out of brake caliper -arrow- with a screwdriver and remove.



- Unplug electrical connector -1- for brake pad wear indicator.



- Remove protective caps -arrows-.



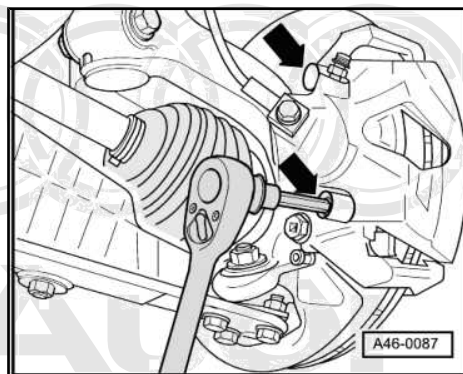
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- Unscrew both guide pins -arrows- and detach brake caliper.



Caution

- ◆ *Do not leave the brake caliper with brake carrier hanging from the brake hose. Take care that brake hose is not damaged by weight of brake components.*
- ◆ *The brake hose must be renewed if it is damaged.*
- ◆ *Do not apply brake when brake caliper is removed.*



- Tie brake caliper to body with suitable wire.
- Take brake pad out of brake caliper or from brake carrier.
- Check brake discs for wear ➔ [page 4](#) .

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Installing

Check the thickness of the brake disc when renewing brake pads.
Refer to wear limit for brake disc.

- Check brake discs for wear ➔ [page 4](#) .

Installation is performed in reverse sequence; note the following:

- Check brake discs for wear and damage when renewing brake pads ➔ [page 4](#) .



Caution

Escaping brake fluid can cause the vehicle to become dirty and may damage the paintwork.

- ◆ *If the brake pads are worn and brake fluid has been topped up unnecessarily, brake fluid can overflow when the piston is pressed back into the brake cylinder.*
- ◆ *Before pressing the piston back, check the brake fluid level. If the brake fluid is up to the "MAX" mark, fluid must be extracted.*
- ◆ *Use brake filling and bleeding equipment - VAS 5234- to extract brake fluid from brake fluid reservoir.*

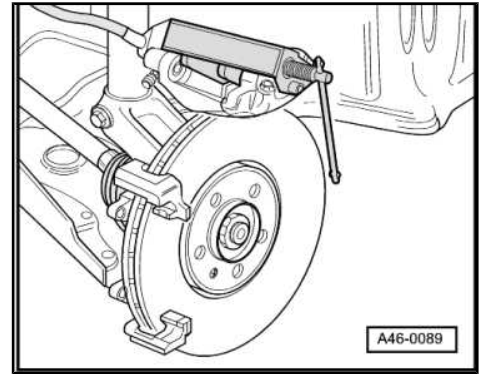
- Press brake piston all the way back into caliper using piston resetting appliance - T10145- .



WARNING

Risk to health

- ◆ *Do not blow out the brake system with compressed air.*



Note

Use only methylated spirits for cleaning the brake caliper housing.

- Thoroughly clean contact surfaces for brake pads on brake carrier and remove corrosion.
- Clean brake caliper, in particular the bonding surface for the brake pad. **It must be free of adhesive and grease residues.**
- Pull protective foil off backplate of outer brake pad.
- Fit outer brake pad on brake carrier.
- Insert inner brake pad with retaining spring into brake caliper (piston).



Note

- ◆ *When positioning the brake caliper, ensure that the brake pad does not stick to the brake caliper housing before it is positioned correctly.*
- ◆ *Do not damage adhesive surface.*
- ◆ *Make sure the electrical connector and brake hose are positioned correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*
- Fit front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Check brake fluid level.



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

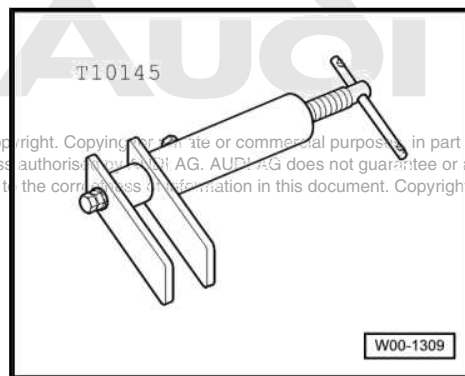
- ◆ ⇒ [“1.1.1 Exploded view - front brakes \(1LJ, 1ZD\)”, page 22](#)

1.3.2 Removing and installing brake pads (1LA, 1ZT)

Check the thickness of the brake disc when renewing brake pads.
Refer to wear limit for brake disc ➔ [page 4](#) .

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-
- ◆ Piston resetting appliance - T10145-



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- ◆ Punch (commercially available)
- ◆ Lithium grease

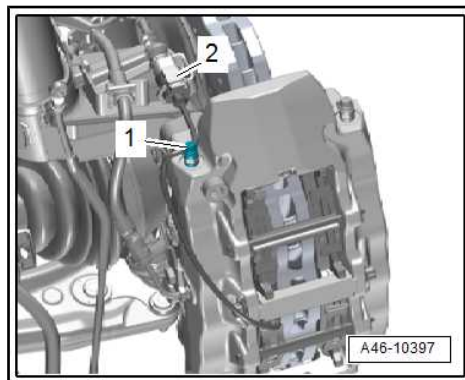
Removing



Note

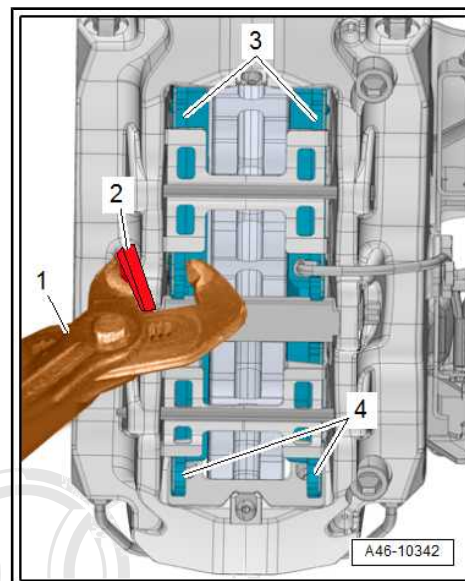
*Mark brake pads when removing them if they are to be reinstalled.
Reinstall in their original position to prevent uneven braking.*

- Remove front wheel ➔ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Unplug electrical connector -2- for pad wear sender and move clear; to do so, open dust cap -1-.



 Note

To make it easier to detach the brake caliper from the brake disc, use suitable pliers -1- to press back the brake pads -3, 4- slightly. To avoid damaging the paint on the caliper, insert a piece of rubber -2- between the caliper and the pliers.



 Note

Take care not to damage paint on brake caliper when knocking out pad retaining pins.

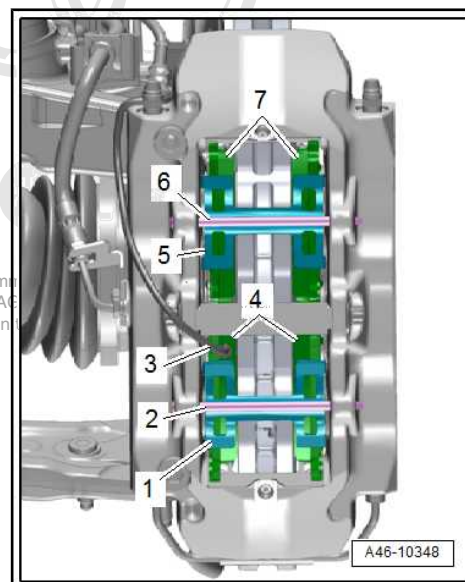


WARNING

Risk of injury.

- ◆ **The brake pad retaining springs -1, 5- are under tension. Hold down the pad retaining spring by hand while knocking out the retaining pin.**

- Use a suitable punch to knock pad retaining pins -2 and 6- inwards out of brake caliper and detach pad retaining springs -1 and 5-.



- Take brake pads -4 and 7- out of brake caliper.



Caution

Risk of damage to brake caliper pistons

- ◆ **Never press the brake pedal with the brake pads removed.**



Note

Disregard item -3-.

Installing

Check the thickness of the brake disc when renewing brake pads. Refer to wear limit for brake disc.

- Check brake discs for wear ➔ [page 4](#) .

Installation is performed in reverse sequence; note the following:

- Check brake discs for wear when renewing brake pads ➔ [page 4](#) .



Note

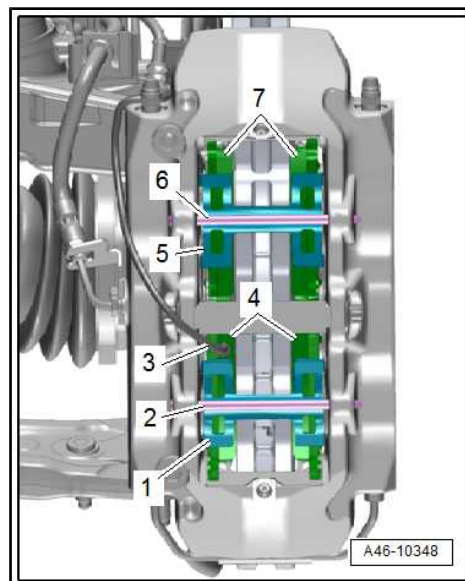
- ◆ **Install all parts supplied in the repair kit when fitting new brake pads.**
- ◆ **Always renew brake pads on both sides of the axle.**



Caution

Escaping brake fluid can cause the vehicle to become dirty and may damage the paintwork.

- ◆ **If the brake pads are worn and brake fluid has been topped up unnecessarily, brake fluid can overflow when the pistons are pressed back into the brake cylinders.**
- ◆ **Before pressing the pistons back, check the brake fluid level. Brake fluid must be extracted if the fluid level is up to the "MAX" mark.**
- ◆ **Use brake filling and bleeding equipment - VAS 5234- to extract brake fluid from brake fluid reservoir.**



Note

- ◆ **Use only methylated spirits for cleaning the brake caliper housing.**
- ◆ **Check protective caps on brake pistons for damage; if necessary, install all parts supplied in repair kit ➔ [page 93](#) .**

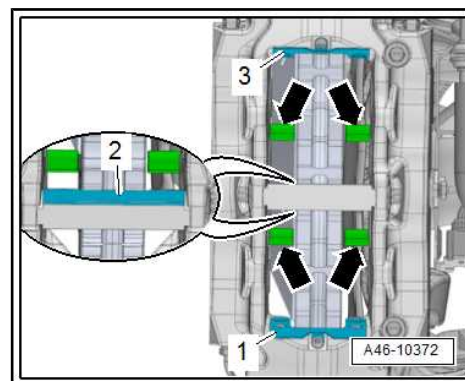


WARNING

Risk to health

- ◆ *Do not blow out the brake system with compressed air.*

- Press brake pistons all the way back into caliper using piston resetting appliance - T10145- .
- Clean brake caliper at contact surfaces -1, 2, 3- between brake pads and caliper and at retaining pins -arrows-, and apply a small amount of lithium grease.



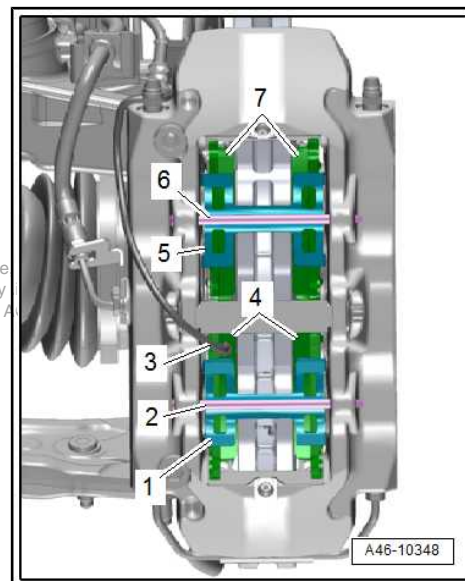
- If reinstalling used brake pads, check electrical wire -3- for pad wear sender for damage.



Note

Renew brake pads if pad wear sender is damaged.

- Fit brake pads -4 and 7- in brake caliper.
- The brake pad with the pad wear sender is fitted at the bottom left on the inside.
- Press down pad retaining springs -1 and 5- one at a time and knock pad retaining pins -2 and 6- into brake caliper as far as stop.



Note

Take care not to damage paint on brake caliper when driving in pad retaining pins.

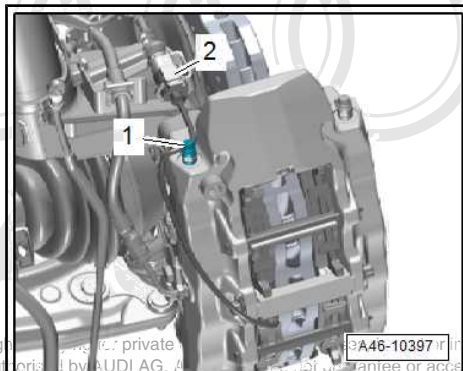
- Plug in electrical connector -2- and secure pad wear sender wire with dust cap -1-.
- Fit front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



WARNING

Risk of accident!

- ◆ ***Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.***
- ◆ ***Make sure that the brakes work properly before the vehicle is driven on the road.***



- Check brake fluid level and top up if necessary.

Tightening torques

- ◆ ⇒ [“1.1.2 Exploded view - front brakes \(1LA, 1ZT \)”, page 24](#)

1.4 Removing and installing brake caliper

⇒ [“1.4.1 Removing and installing brake caliper \(1LJ, 1ZD\)”, page 36](#)

⇒ [“1.4.2 Removing and installing brake caliper \(1LA, 1ZT\)”, page 38](#)

1.4.1 Removing and installing brake caliper (1LJ, 1ZD)



Note

In the following procedure the brake caliper is removed together with the brake carrier and brake pads. The brake hose remains connected.

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

Removing

- Remove front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Unclip brake hose and electrical wiring for pad wear indicator.

- Remove bolts -15- and carefully pull brake caliper and brake carrier off brake disc with pads installed.



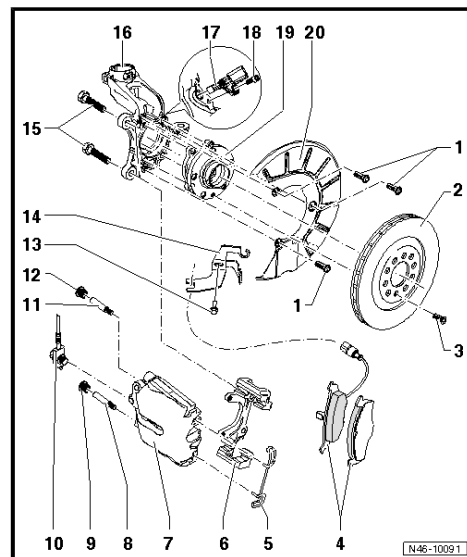
Note

To make it easier to detach the brake caliper from the brake disc with the pads installed, press back the brake pads slightly.



Caution

- ◆ *Do not leave the brake caliper with brake carrier hanging from the brake hose. Take care that brake hose is not damaged by weight of brake components.*
- ◆ *The brake hose must be renewed if it is damaged.*
- ◆ *Do not apply brake when brake caliper is removed.*



- Tie brake caliper to body with suitable wire.

Installing

Installation is performed in reverse sequence; note the following:



WARNING

Risk to health

- ◆ *Do not blow out the brake system with compressed air.*



Note

- ◆ *Renew bolts for brake caliper.*
- ◆ *Use only methylated spirits for cleaning the brake caliper housing.*
- Clean brake caliper.
- Slide brake caliper with brake carrier and brake pads fitted over brake disc.

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- Tighten new bolts -15-.
- Insert brake hose and electrical wiring for pad wear indicator into bracket.



Note

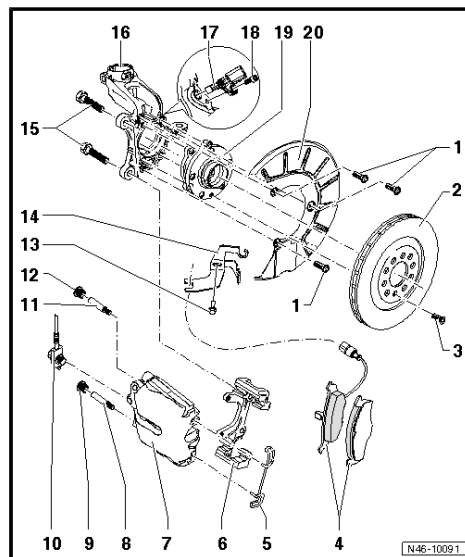
- ◆ *Make sure the electrical wiring and brake hose are positioned correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*
- Fit front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ⇒ ["1.1.1 Exploded view - front brakes \(1LJ, 1ZD\)", page 22](#)

1.4.2 Removing and installing brake caliper (1LA, 1ZT)



Note

In the following procedure the brake caliper is removed together with the brake pads. The brake hose remains connected.

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

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Removing



Caution

Risk of malfunction

- ◆ **DO NOT** slacken off bolts -arrows- securing brake carrier
- 1- to brake caliper or bolts securing centre retaining pin
- 2-.



- Remove front wheel ➔ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Unplug electrical connector -2- for pad wear sender.

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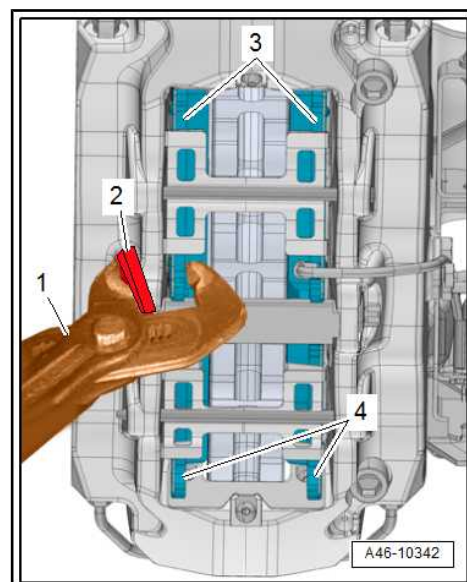
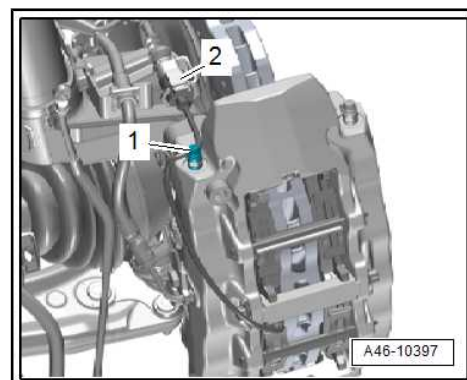
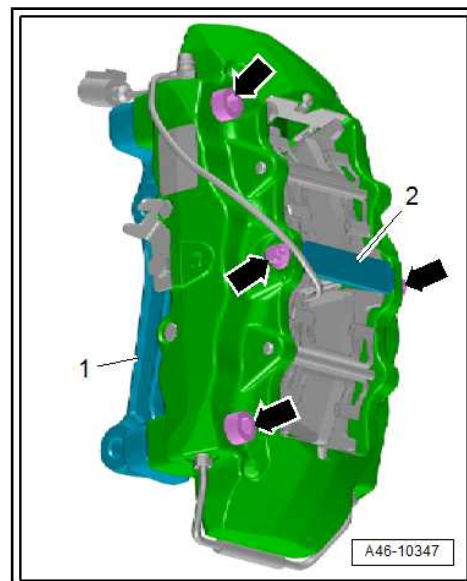
Note

Disregard item -1-.



Note

To make it easier to detach the brake caliper from the brake disc, use suitable pliers -1- to press back the brake pads -3, 4- slightly. To avoid damaging the paint on the caliper, insert a piece of rubber -2- between the caliper and the pliers.

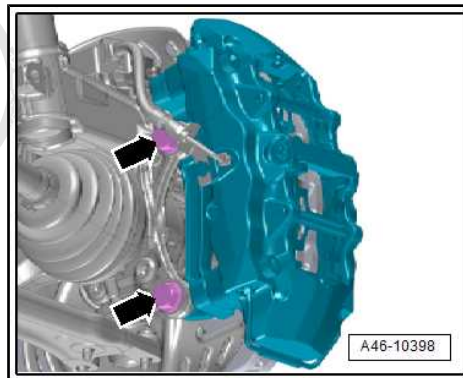


- Remove bolts -arrows- and carefully pull brake caliper off brake disc with brake pads installed.



Caution

- ◆ *Do not leave the brake caliper hanging from the brake hose. Take care that brake hose is not damaged by weight of brake components.*
- ◆ *The brake hose must be renewed if it is damaged.*
- ◆ *Do not apply brake when brake caliper is removed.*



- Tie brake caliper to body with suitable wire.

Installing

Installation is performed in reverse sequence; note the following:



WARNING

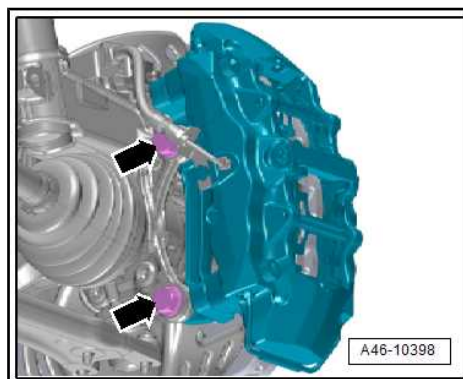
Risk to health

- ◆ *Do not blow out the brake system with compressed air.*



Note

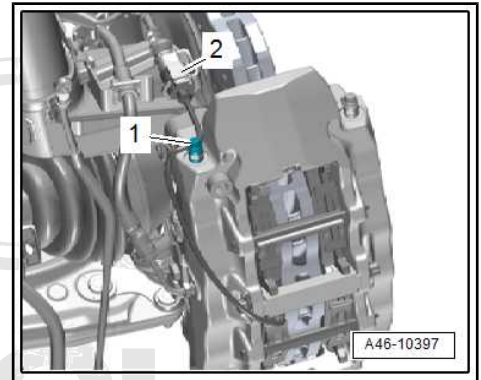
- ◆ *Renew bolts for brake carrier.*
- ◆ *Use only methylated spirits for cleaning the brake caliper housing.*
- Clean brake caliper.
- Carefully fit brake caliper (with pads installed) over brake disc.
- Tighten new bolts -arrows-.



- Plug in electrical connector -2-.

 Note

- ◆ *Make sure the electrical connector and brake hose are positioned correctly.*
 - ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*
- Fit front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

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Tightening torques

- ◆ ⇒ ["1.1.2 Exploded view - front brakes \(1LA, 1ZT\)", page 24](#)

1.5 Renewing brake caliper

⇒ ["1.5.1 Renewing brake caliper \(1LJ, 1ZD\)", page 41](#)

⇒ ["1.5.2 Renewing brake caliper \(1LA, 1ZT\)", page 44](#)

1.5.1 Renewing brake caliper (1LJ, 1ZD)

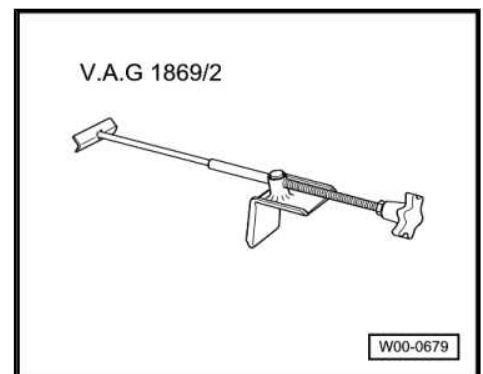


Note

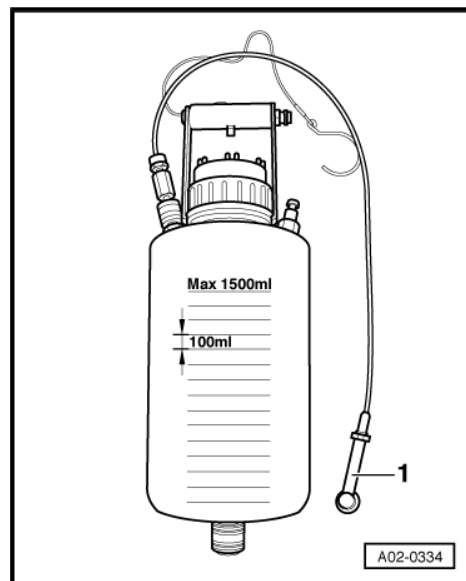
In the following procedure the brake caliper is removed and renewed. The brake hose is disconnected.

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-
- ◆ Brake pedal actuator - V.A.G 1869/2-



- ◆ Reservoir -1- from brake filling and bleeding equipment - VAS 5234-



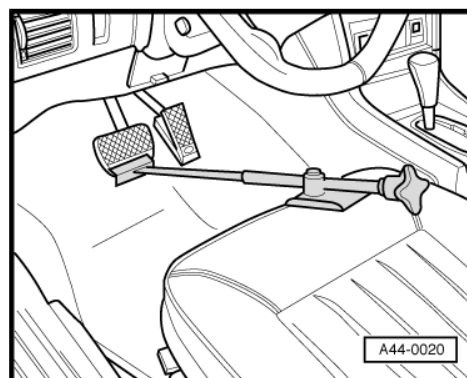
Removing

- Remove front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Depress brake pedal at least 60 mm.



Note

This closes the valves in the brake master cylinder and stops the brake fluid reservoir from running empty.



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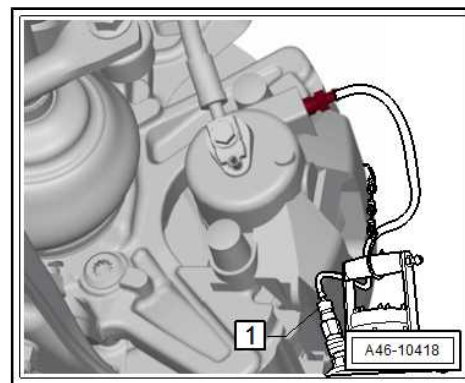
- Detach protective cap on bleeder screw of brake caliper.
- Fit bleeder hose -1- of reservoir onto bleeder screw.
- Open bleeder screw to relieve pressure in hydraulic system.
- Close bleeder screw and remove reservoir.



Note

The brake pedal actuator - V.A.G 1869/2- must not be removed.

- Disconnect brake hose from brake caliper.
- Remove brake pads ⇒ [page 28](#) .



Installing

Bleed brake system (only at wheel where caliper was detached and brake line disconnected).

Installation is performed in reverse sequence; note the following:

- Connect brake hose to caliper and tighten connection.



Note

- ◆ *Make sure the brake hose is routed correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*
- Install brake pads ⇒ [page 28](#) .
- Remove brake pedal actuator - V.A.G 1869/2- .
- Bleed brake system (only at wheel where caliper was detached and brake line disconnected) ⇒ [page 134](#) .



Note

Bleed brake system (only at wheel where caliper was detached and brake line disconnected). If the brake pedal still feels "soft", bleed the complete brake system ⇒ [page 134](#) .

- Fit front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

- ◆ ⇒ ["1.1.1 Exploded view - front brakes \(1LJ, 1ZD\)", page 22](#)

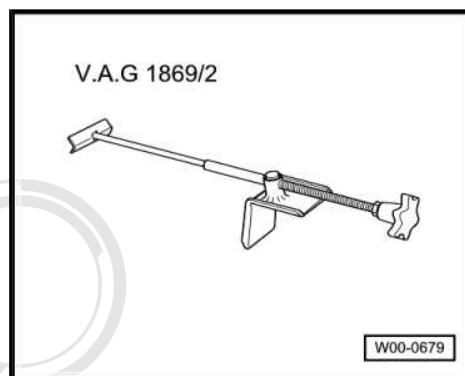
1.5.2 Renewing brake caliper (1LA, 1ZT)

Note

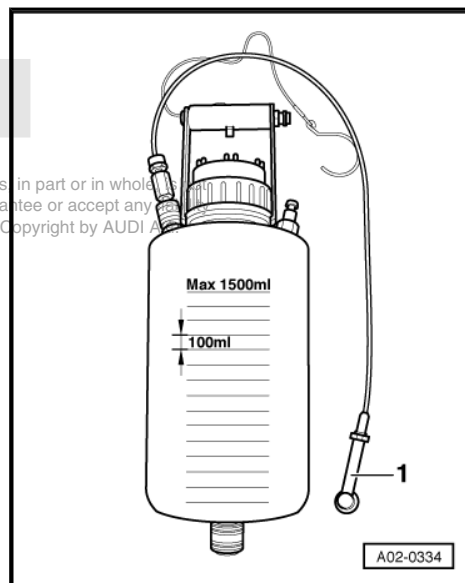
In the following procedure the brake caliper is removed and renewed. The brake hose is disconnected.

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-
- ◆ Brake pedal actuator - V.A.G 1869/2-



- ◆ Reservoir -1- from brake filling and bleeding equipment - VAS 5234-



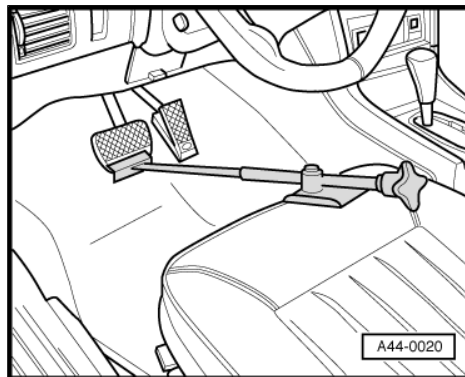
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Removing

- Remove front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Depress brake pedal at least 60 mm.

Note

This closes the valves in the brake master cylinder and stops the brake fluid reservoir from running empty.



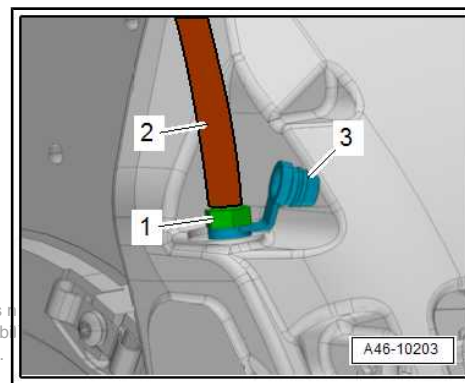


WARNING

Risk of skin irritation

- ◆ **Always wear chemical-resistant protective gloves to prevent brake fluid from contacting skin.**

- Detach protective cap -3- from bleeder screw -1-.
- Connect hose -2- from bleeder bottle as shown in illustration.
- Open bleeder screw to relieve pressure in brake system.
- Close bleeder screw and remove bleeder bottle.



Note

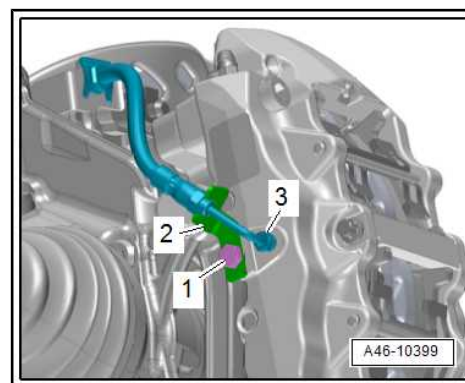
The brake pedal actuator - V.A.G 1869/2- must not be removed.



Note

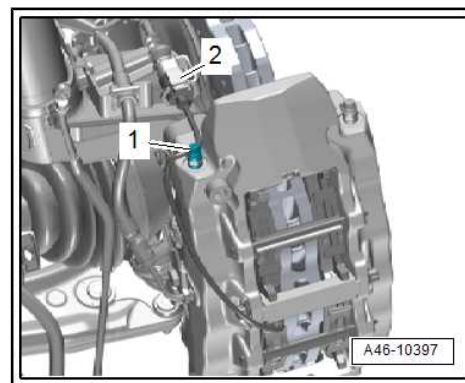
Place a cloth under the connection to catch escaping brake fluid.

- Unscrew union screw -3- and bolt -1-.
 - Detach bracket -2- and move brake hose to one side.
 - Seal open brake hose immediately using sealing plug from repair kit - 1H0 698 311 A- .
-
- Unplug electrical connector -2- for pad wear sender.



Note

Disregard item -1-.





Caution

Risk of contamination from escaping brake fluid

- ◆ **Brake fluid will escape when brake pads are pressed back.**



Note

To make it easier to detach the brake caliper from the brake disc, use suitable pliers -1- to press back the brake pads -3, 4- slightly. To avoid damaging the paint on the caliper, insert a piece of rubber -2- between the caliper and the pliers, as shown in the illustration.

- Seal off open connection at brake caliper immediately using sealing plug from repair kit - 1H0 698 311 A- .
- Remove bolts -arrows- and carefully pull brake caliper off brake disc with brake pads installed.
- Remove brake pads if necessary ➤ [page 32](#).

Installing

Bleed brake system (only at wheel where caliper was detached and brake line disconnected).

Installation is performed in reverse sequence; note the following:

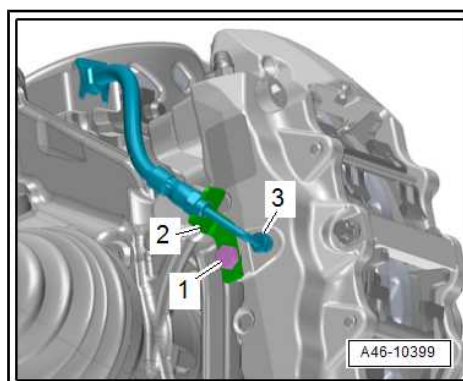
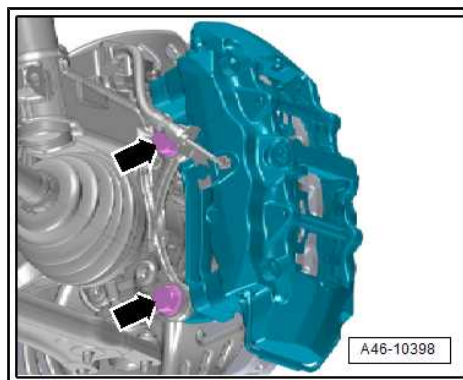
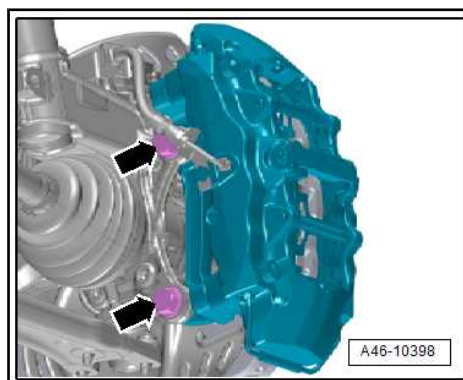
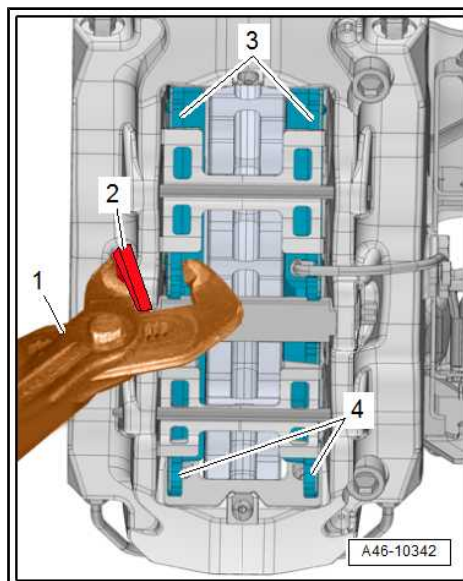


WARNING

Risk to health

- ◆ **Do not blow out the brake system with compressed air.**

- Locate brake caliper in installation position and tighten new bolts -arrows-.
- Install brake pads ➤ [page 32](#) .
- Secure brake hose -3- and bracket -2- with bolt -1-.

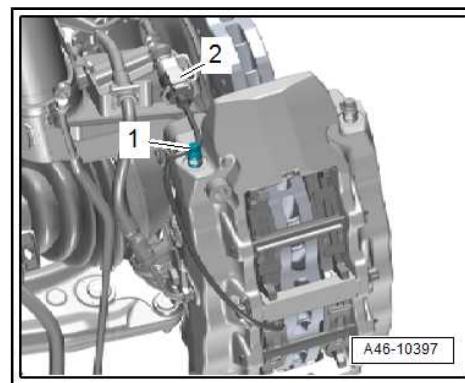


- Plug in electrical connector -2-.



Note

- ◆ *Make sure the electrical connector and brake hose are positioned correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*
- Remove brake pedal actuator - V.A.G 1869/2- .
- Bleed brake system (only at wheel where caliper was detached and brake line disconnected) ⇒ [page 134](#) .



Note

Bleed brake system (only at wheel where caliper was detached and brake line disconnected). If the brake pedal still feels "soft", bleed the complete brake system ⇒ [page 134](#) .

- Fit front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

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Tightening torques

- ◆ ⇒ ["1.1.2 Exploded view - front brakes \(1LA, 1ZT\)"](#), [page 24](#)

1.6 Removing and installing brake disc

⇒ [“1.6.1 Removing and installing brake disc \(1LJ, 1ZD\)”](#),
[page 48](#)

⇒ [“1.6.2 Removing and installing brake disc \(1LA, 1ZT\)”](#),
[page 48](#)

1.6.1 Removing and installing brake disc (1LJ, 1ZD)

Removing

- Remove relevant brake caliper ⇒ [page 36](#) .
- Remove bolt -3- and take off brake disc.

Installing

Installation is performed in reverse sequence; note the following:

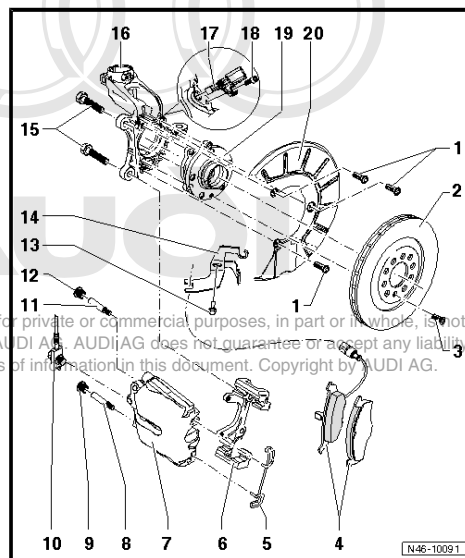
- Thoroughly clean contact surface of brake disc and wheel hub.
- Fit brake disc onto wheel hub.



Note

Take care to keep the brake disc straight when fitting it on the wheel hub.

- Tighten bolt -3-.
- Install brake caliper ⇒ [page 36](#) .



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WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

- ◆ ⇒ [“1.1.1 Exploded view - front brakes \(1LJ, 1ZD\)”](#), [page 22](#)

1.6.2 Removing and installing brake disc (1LA, 1ZT)

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

Removing

- Remove relevant brake caliper ➔ [page 38](#) .
- Remove bolt -1- and take off brake disc.

Installing

Installation is performed in reverse sequence; note the following:



Note

- ◆ *Wear limit ➔ [page 4](#)*
- ◆ *Always renew brake discs on both sides of the axle.*

- Thoroughly clean contact surface of brake disc and wheel hub.
- Fit brake disc onto wheel hub.



Note

Take care to keep the brake disc straight when fitting it on the wheel hub.

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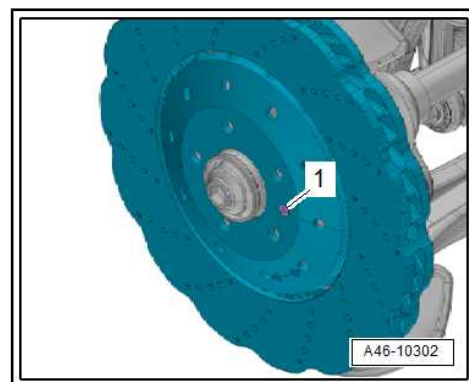
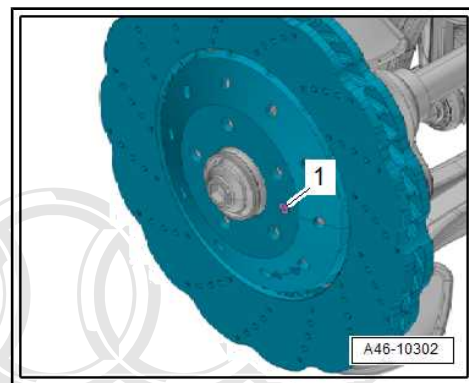
- Tighten bolt -1-.
- Install brake caliper ➔ [page 38](#) .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ➔ ["1.1.2 Exploded view - front brakes \(1LA, 1ZT\)", page 24](#)

1.7 Removing and installing splash plate

⇒ [“1.7.1 Removing and installing splash plate \(1LJ, 1ZD\)”](#),
[page 50](#)

⇒ [“1.7.2 Removing and installing splash plate \(1LA, 1ZT\)”](#),
[page 50](#)

1.7.1 Removing and installing splash plate (1LJ, 1ZD)

Removing

- Remove brake disc ⇒ [page 48](#) .
- Remove bolts -1- and detach splash plate -20-.

Installing

Installation is performed in reverse sequence; note the following:

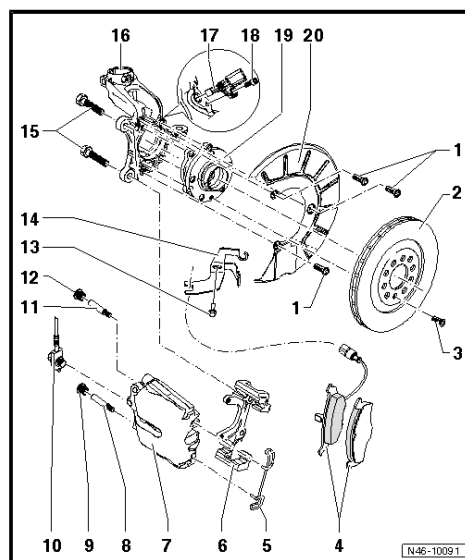
- Clean wheel hub and splash plate.
- Fit splash plate onto wheel hub and tighten bolts.
- Install brake disc ⇒ [page 48](#) .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ⇒ [“1.1.1 Exploded view - front brakes \(1LJ, 1ZD\)”](#), [page 22](#)

1.7.2 Removing and installing splash plate (1LA, 1ZT)

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

Removing

- Remove brake disc ➔ [page 48](#) .
- Remove bolts -arrows- and detach splash plate -1-.

Installing

Installation is performed in reverse sequence; note the following:

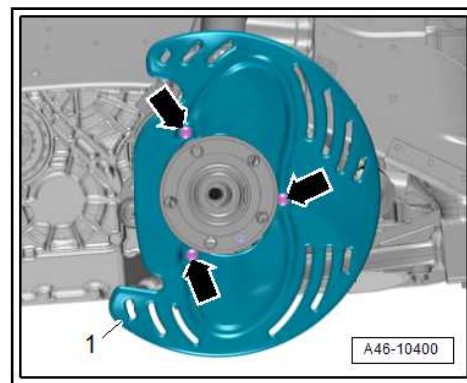
- Install brake disc ➔ [page 48](#) .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ➔ [“1.1.2 Exploded view - front brakes \(1LA, 1ZT\)”](#), [page 24](#)



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2 Rear brakes

⇒ [“2.1 Exploded view - rear brakes”, page 52](#)

⇒ [“2.2 Removing and installing brake pads”, page 56](#)

⇒ [“2.3 Removing and installing brake caliper”, page 64](#)

⇒ [“2.4 Renewing brake caliper”, page 69](#)

⇒ [“2.5 Removing and installing brake disc”, page 76](#)

⇒ [“2.6 Removing and installing splash plate”, page 79](#)

2.1 Exploded view - rear brakes

⇒ [“2.1.1 Exploded view - rear brakes \(1KU\)”, page 52](#)

⇒ [“2.1.2 Exploded view - rear brakes \(2EA, 2EJ, GP1\)”, page 54](#)

2.1.1 Exploded view - rear brakes (1KU)

1 - Splash plate for brakes

- ☐ Removing and installing
⇒ [page 79](#)

2 - Brake disc

- ☐ For correct version refer to ⇒ Electronic parts catalogue
- ☐ Dimensions ⇒ [page 4](#)
- ☐ Wear limit ⇒ Maintenance ; Booklet 820
- ☐ Always renew on both sides of axle
- ☐ Do not force brake discs off wheel hub; if necessary, use rust remover, otherwise brake discs could be damaged.
- ☐ Removing and installing
⇒ [page 76](#)

3 - Bolt

- ☐ 4 Nm

4 - Bolt

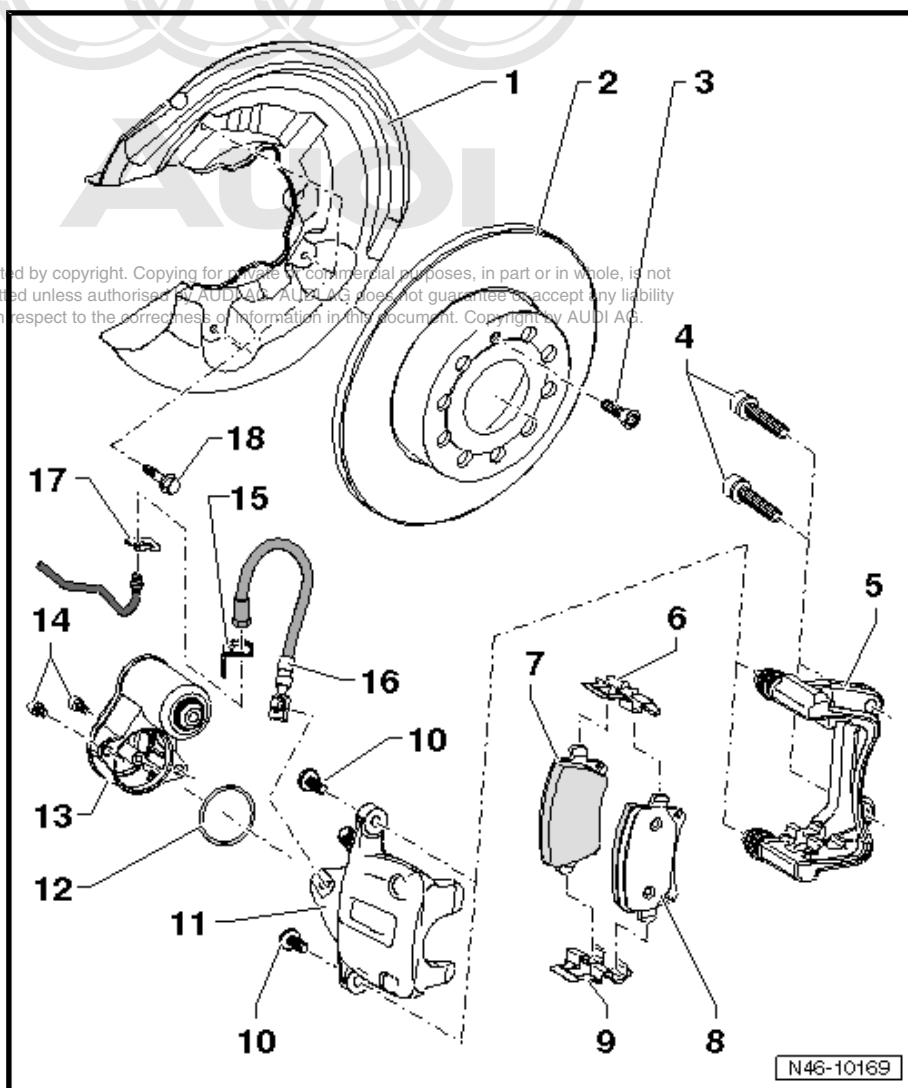
- ☐ Always renew if removed
- ☐ 90 Nm +90°

5 - Brake carrier

- ☐ With guide pins and protective caps
- ☐ Replacement carriers are supplied assembled and with sufficient grease on guide pins
- ☐ Renew protective caps if they have been damaged (repair kit); use grease sachet supplied to lubricate the guide pins

6 - Pad retainer

- ☐ Renew when changing pads



7 - Brake pad

- ☐ Checking pad thickness ⇒ Maintenance ; Booklet 820
- ☐ Wear limit ⇒ Maintenance ; Booklet 820
- ☐ Always renew on both sides of axle
- ☐ Removing and installing ⇒ [page 56](#)

8 - Brake pad

- ☐ Checking pad thickness ⇒ Maintenance ; Booklet 820
- ☐ Wear limit ⇒ Maintenance ; Booklet 820
- ☐ Always renew on both sides of axle
- ☐ Removing and installing ⇒ [page 56](#)

9 - Pad retainer

- ☐ Renew when changing pads

10 - Bolt

- ☐ Self-locking
- ☐ Renew
- ☐ 35 Nm

11 - Brake caliper

- ☐ Do not disconnect brake hose when changing brake pads
- ☐ Removing and installing ⇒ [page 64](#)
- ☐ Renewing ⇒ [page 69](#)
- ☐ Servicing ⇒ [page 97](#)

12 - Seal

13 - Electromechanical parking brake motor

- ☐ Left parking brake motor - V282- , right parking brake motor - V283-
- ☐ Removing and installing ⇒ [page 82](#)

14 - Bolt

- ☐ 12 Nm

15 - Bracket

- ☐ On subframe

16 - Brake hose

- ☐ With banjo union and banjo bolt
- ☐ Connection to brake caliper, 35 Nm
- ☐ Connection to brake line, 14 Nm

17 - Retaining clip

18 - Bolt

- ☐ 12 Nm

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2.1.2 Exploded view - rear brakes (2EA, 2EJ, GP1)

1 - Bolt

- ☐ 12 Nm

2 - Splash plate for brakes

- ☐ Removing and installing
⇒ [page 79](#)

3 - Hub carrier

4 - Bolt

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

5 - Bolt

- ☐ 8 Nm

6 - Retaining clip

7 - Brake line

- ☐ Tightening torque,
brake line to brake hose:
14 Nm

8 - Retaining clip

9 - Bracket

- ☐ For brake hose

10 - Brake hose

- ☐ Make sure the brake hose is routed correctly. The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.
- ☐ Renew if damaged
- ☐ Ensure that lugs are properly seated in grooves in bracket

11 - Bracket

- ☐ For brake hose

12 - Brake line

- ☐ Tightening torque, brake line to brake hose: 14 Nm
- ☐ Tightening torque, brake line to brake caliper: 14 Nm

13 - Bolt

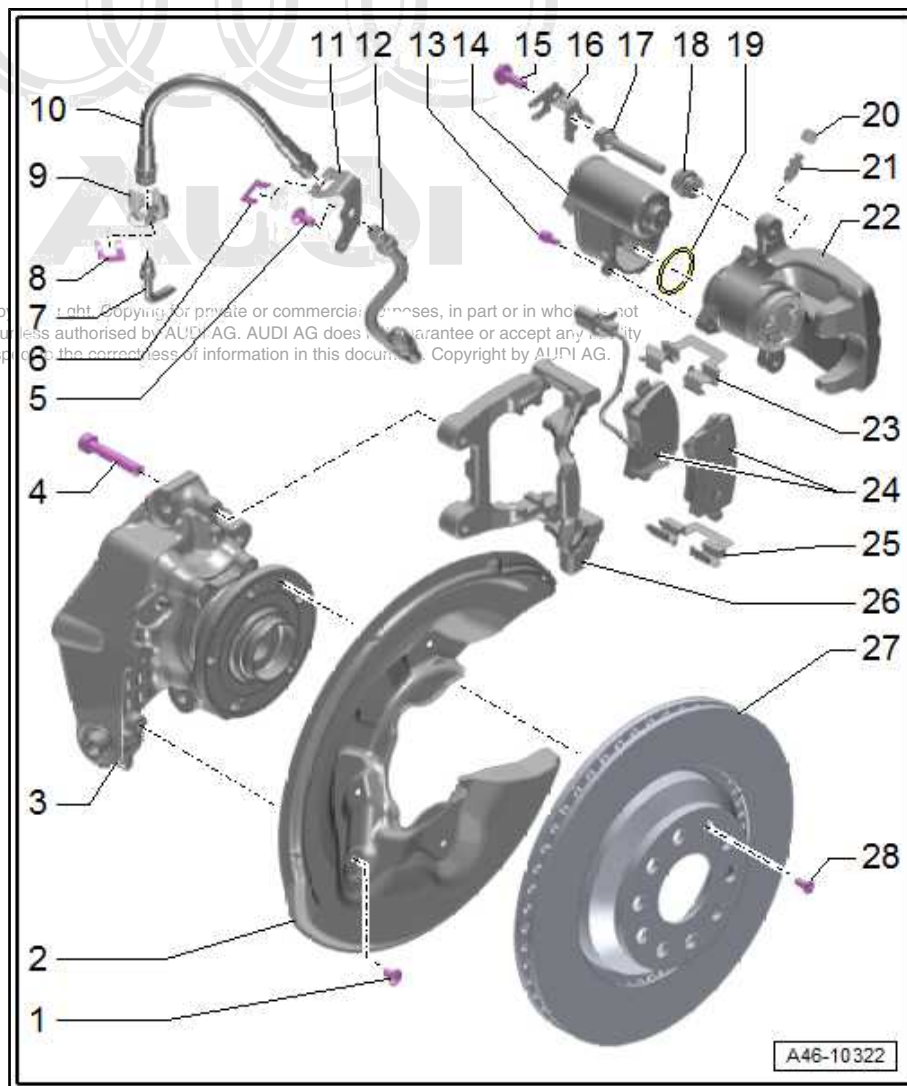
- ☐ 12 Nm

14 - Electromechanical parking brake motor

- ☐ Left parking brake motor - V282- , right parking brake motor - V283-
- ☐ Removing and installing parking brake motor ⇒ [page 82](#)
- ☐ Removing and installing control unit for electromechanical parking brake - J540- ⇒ [page 81](#)

15 - Bolt

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ Counter-hold guide pin when loosening and tightening
- ☐ 35 Nm



16 - Bracket

- ☐ For electrical connector

17 - Guide pin

- ☐ Check for ease of movement
- ☐ If protective caps or guide pins are damaged, renew using repair kit. Use grease sachet supplied to lubricate guide pins.

18 - Protective cap

19 - Seal

- ☐ Always renew if removed

20 - Protective cap

21 - Bleeder screw

- ☐ 13 Nm

22 - Brake caliper

- ☐ Removing and installing ⇒ [page 67](#)
- ☐ Renewing ⇒ [page 72](#)
- ☐ Servicing ⇒ [page 98](#)

23 - Pad retainer

- ☐ Renew when changing pads

24 - Brake pads

- ☐ Checking pad thickness ⇒ Maintenance ; Booklet 820
- ☐ Always renew on both sides of axle
- ☐ For correct version refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 59](#)
- ☐ Inner brake pad with retainer for pad wear indicator wire

25 - Pad retainer

- ☐ Renew when changing pads

26 - Brake carrier

- ☐ With guide pins and protective caps
- ☐ Replacement carriers are supplied assembled and with sufficient grease on guide pins
- ☐ Renew protective caps if they have been damaged (repair kit); use grease sachet supplied to lubricate the guide pins

27 - Brake disc

- ☐ Wear limit ⇒ [page 4](#)
- ☐ Always renew on both sides of axle
- ☐ For correct version refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 77](#)

28 - Bolt

- ☐ 4 Nm

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2.2 Removing and installing brake pads

⇒ [“2.2.1 Removing and installing brake pads \(1KU\)”, page 56](#)

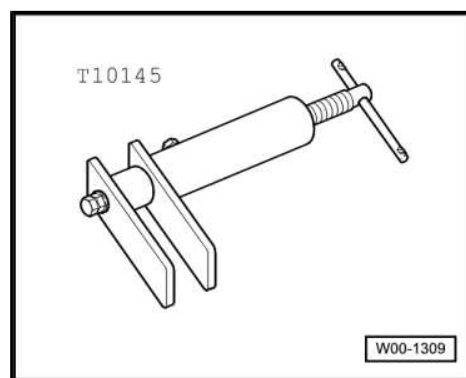
⇒ [“2.2.2 Removing and installing brake pads \(2EA, 2EJ, GP1\)”, page 59](#)

2.2.1 Removing and installing brake pads (1KU)

Check the thickness of the brake disc when renewing brake pads.
Refer to wear limit for brake disc ⇒ [page 4](#) .

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Piston resetting appliance - T10145-



Removing

- Parking brake released



Note

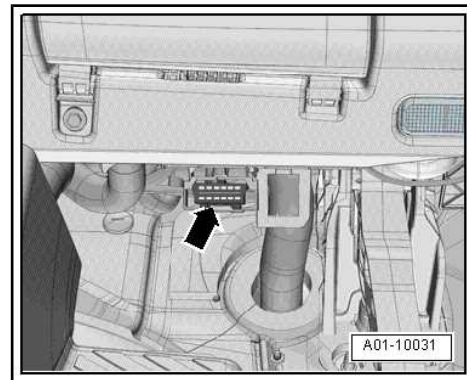
- ◆ *Mark brake pads when removing them if they are to be reinstalled. Reinstall in their original position to prevent uneven braking.*
- ◆ *Do not unplug electrical connectors of parking brake motors.*
- ◆ *The parking brake pistons must be moved back with the vehicle diagnostic tester if the brake pads are being renewed.*
- Remove relevant rear wheel ⇒ Running gear, axles, steering;
Rep. gr. 44 ; Wheels, tyres .



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- With ignition switched off, connect vehicle diagnostic tester to diagnostic connection in vehicle -arrow-.
- Switch on ignition.
- After entering vehicle identification data, select Guided Functions mode.
- Moving parking brake motors back:

Running gear/brake system	
01 Self-diagnosis compatible systems	
53 Control unit for electromechanical parking brake J540	
53 Functions - electromechanical parking brake	
53 46 Removing brake pads	

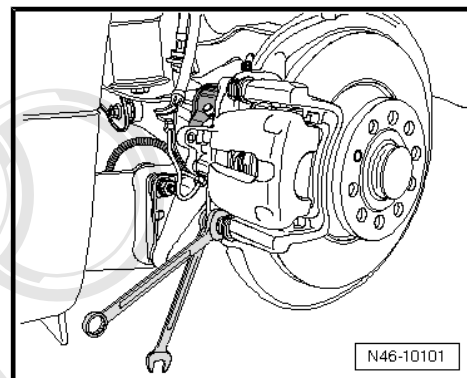


- Continue to follow the instructions on the vehicle diagnostic tester display.
- Remove securing bolts for brake caliper (counterhold guide pins).
- Remove brake caliper from brake carrier.



Note

- ◆ The compressor nut is moved back on the spindle when the pistons are moved back using the vehicle diagnostic tester .
- ◆ The piston must then be pressed back fully with the piston resetting appliance - T10145- .



Caution

Escaping brake fluid can cause the vehicle to become dirty and may damage the paintwork.

- ◆ If the brake pads are worn and brake fluid has been topped up unnecessarily, brake fluid can overflow when the piston is pressed back into the brake cylinder.
- ◆ Before pressing the piston back, check the brake fluid level. If the brake fluid is up to the "MAX" mark, fluid must be extracted.
- ◆ Use brake filling and bleeding equipment - VAS 5234- to extract brake fluid from brake fluid reservoir.

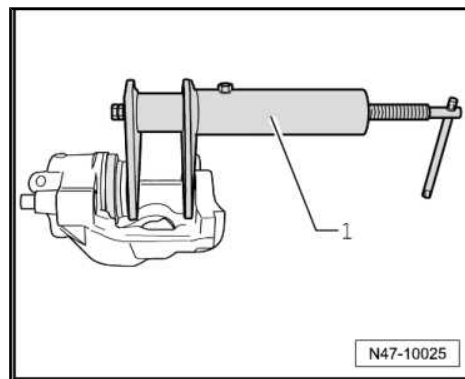
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- Press back piston completely with piston resetting appliance - T10145- .



Caution

- ◆ *Do not leave the brake caliper with brake carrier hanging from the brake hose. Take care that brake hose is not damaged by weight of brake components.*
- ◆ *The brake hose must be renewed if it is damaged.*
- ◆ *The brake and the electromechanical parking brake must not be operated when the brake caliper has been detached.*



- Tie brake caliper to body with suitable wire.

- Remove brake pads and pad retainers -arrows-.

- Check brake discs for wear ⇒ [page 4](#) .

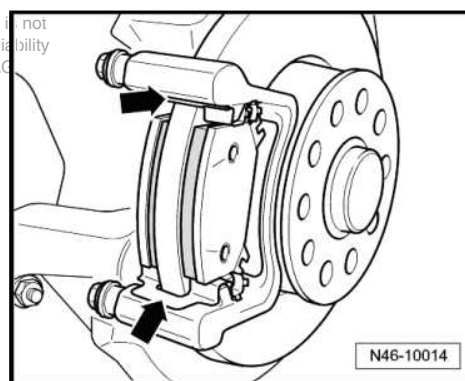
Installing

Check the thickness of the brake disc when renewing brake pads. Refer to wear limit for brake disc.

- Check brake discs for wear ⇒ [page 4](#) .

Installation is performed in reverse sequence; note the following:

- Check brake discs for wear when renewing brake pads ⇒ [page 4](#) .



Note

- ◆ *Renew bolts for brake caliper.*
- ◆ *Use only methylated spirits for cleaning the brake caliper housing.*

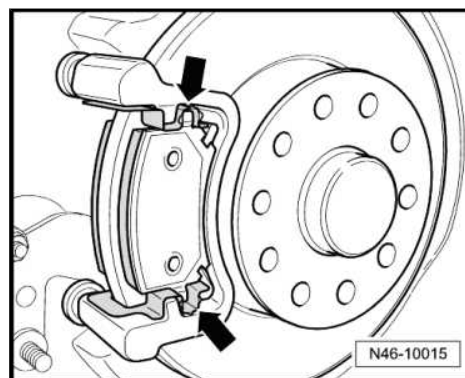


WARNING

Risk to health

- ◆ *Do not blow out the brake system with compressed air.*

- Thoroughly clean contact surfaces for brake pads on brake carrier and remove corrosion.
- Clean brake caliper.
- Ensure that brake pads are seated correctly in pad retainers -arrows-.
- Slide brake caliper over fitted brake pads.



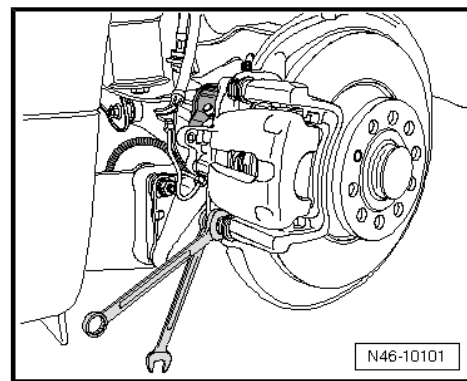
- Tighten new securing bolts for brake caliper (counterhold guide pins).
- Extend pistons using ⇒ Vehicle diagnostic tester; to do so follow the instructions on the screen.
- Fit rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Check brake fluid level.



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ⇒ [“2.1.1 Exploded view - rear brakes \(1KU\)”, page 52](#)

2.2.2 Removing and installing brake pads (2EA, 2EJ, GP1)

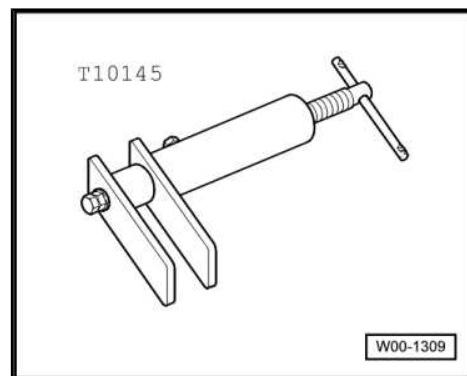
Check the thickness of the brake disc when renewing brake pads. Refer to wear limit for brake disc ⇒ [page 4](#) .

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Torque wrench - V.A.G 1331-
- ◆ Piston resetting appliance - T10145-



- ◆ Lithium grease ⇒ Electronic parts catalogue



Removing

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Parking brake released



Note

- ◆ *Mark brake pads when removing them if they are to be reinstalled. Reinstall in their original position to prevent uneven braking.*
- ◆ *Do not unplug electrical connectors of parking brake motors.*
- ◆ *The parking brake pistons must be moved back with the vehicle diagnostic tester if the brake pads are being renewed.*
- Remove relevant rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- With ignition switched off, connect vehicle diagnostic tester to diagnostic connection in vehicle.
- Switch on ignition.
- After entering vehicle identification data, select Guided Functions mode.
- Moving parking brake motors back:

Running gear/brake system

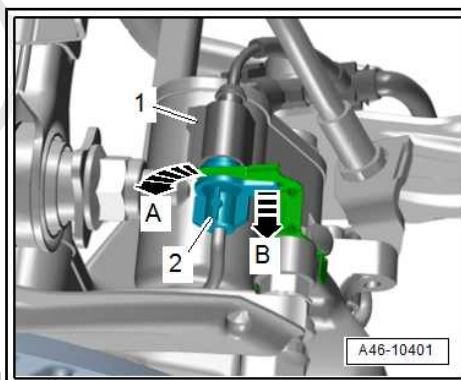
01 Self-diagnosis compatible systems

53 Control unit for electromechanical parking brake J540

53 Functions - electromechanical parking brake

53 46 Removing brake pads

- Continue to follow the instructions on the vehicle diagnostic tester display.
- Unplug electrical connector -1- for pad wear sender.
- Unplug electrical connector -2- for pad wear sender, release from bracket -arrow B- and at the same time turn 90° -arrow A-.



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- Counterhold guide pins -1 and 2- and remove bolts -arrows-.
- Detach bracket -3- and brake caliper.



Caution

- ◆ *Do not leave the brake caliper hanging from the brake hose. Take care that brake hose is not damaged by weight of brake components.*
- ◆ *The brake hose must be renewed if it is damaged.*
- ◆ *The brake and the electromechanical parking brake must not be operated when the brake caliper has been detached.*

- Tie brake caliper to body with suitable wire.
- Detach brake pads from brake carrier towards the side.

Installing

Check the thickness of the brake disc when renewing brake pads.
Refer to wear limit for brake disc.

- Check brake discs for wear ⇒ [page 4](#) .

Installation is performed in reverse sequence; note the following:

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Note

- ◆ *Install all parts supplied in the repair kit when fitting new brake pads.*
- ◆ *Check the brake disc for wear when renewing the brake pads. Wear limit of brake discs ⇒ [page 4](#)*
- ◆ *Always renew brake pads on both sides of the axle.*
- ◆ *Use only methylated spirits for cleaning the brake caliper housing.*
- ◆ *Check protective caps on brake pistons for damage; if necessary, install all parts supplied in repair kit ⇒ [page 98](#) .*



WARNING

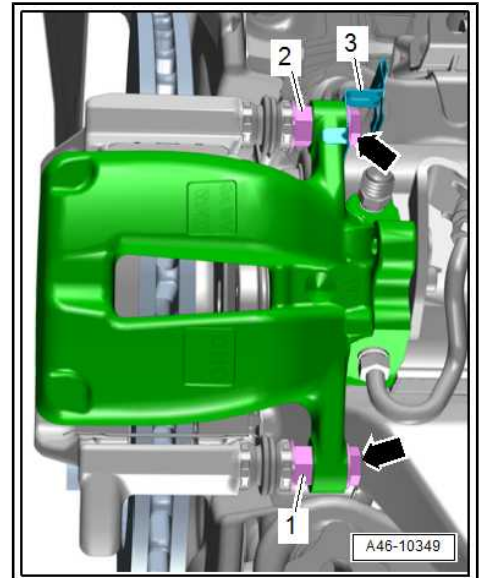
Risk to health

- ◆ *Do not blow out the brake system with compressed air.*



Note

- ◆ *The compressor nut is moved back on the spindle when the pistons are moved back using the vehicle diagnostic tester .*
- ◆ *The piston must then be pressed back fully with the piston resetting appliance - T10145- .*





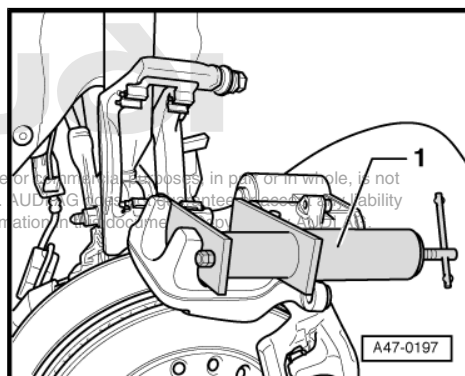
Caution

Escaping brake fluid can cause the vehicle to become dirty and may damage the paintwork.

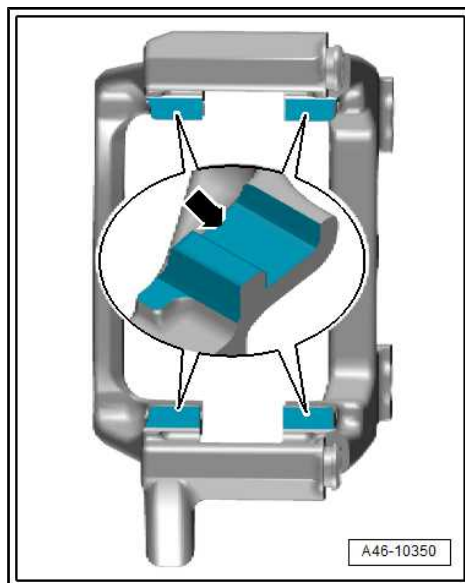
- ◆ **If the brake pads are worn and brake fluid has been topped up unnecessarily, brake fluid can overflow when the pistons are pressed back into the brake cylinders.**
- ◆ **Before pressing the pistons back, check the brake fluid level. Brake fluid must be extracted if the fluid level is up to the "MAX" mark.**
- ◆ **Use brake filling and bleeding equipment - VAS 5234- to extract brake fluid from brake fluid reservoir.**

- Press back piston completely with piston resetting appliance - T10145- .

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- Clean brake caliper carrier at contact surfaces -arrow- for pad retaining springs and apply a small amount of lithium grease.



- Fit pad retaining springs (note correct installation position).
- Fit brake pads in brake carrier.



Note

Make sure the brake pads are positioned in the pad retaining springs -arrows-.

- Slide brake caliper over fitted brake pads.



Note

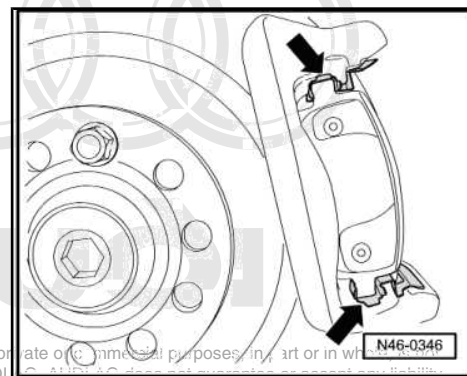
If the used brake pads are reinstalled, the pad wear indicator wire must be guided through the brake caliper.

- Locate bracket -3- in installation position.
- Counterhold guide pins -1 and 2- and tighten new bolts -arrows- for brake caliper.

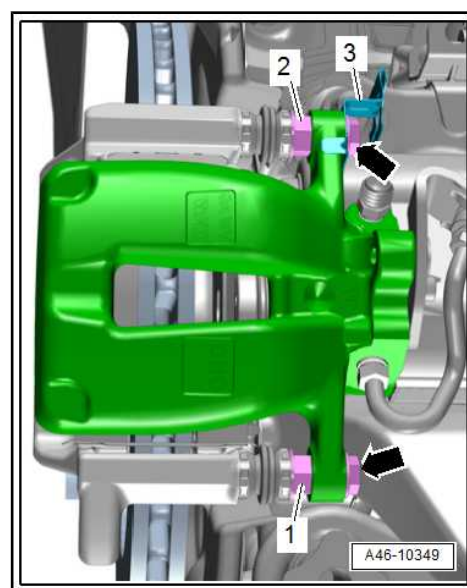


Note

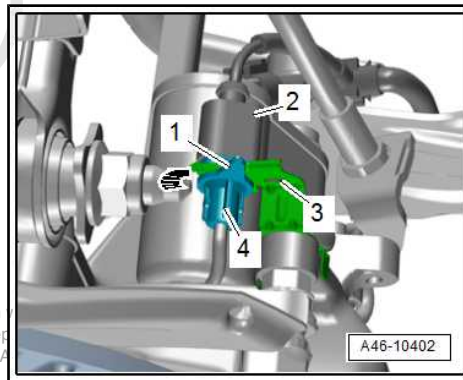
- ◆ *Make sure the electrical wiring and brake hose are positioned correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*



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- Locate electrical connector -4- in installation position and turn in direction of -arrow- until tab -1- engages in hole -3- in bracket.
- Fit electrical connector -2-.
- Fit rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Depress brake pedal firmly several times with vehicle stationary, so that brake piston reaches normal operating position.
- Extend pistons using ⇒ Vehicle diagnostic tester; to do so follow the instructions on the screen.



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

- ◆ ⇒ [“2.1.2 Exploded view - rear brakes \(2EA, 2EJ, GP1\)”, page 54](#)

2.3 Removing and installing brake caliper

⇒ [“2.3.1 Removing and installing brake caliper \(1KU\)”, page 64](#)

⇒ [“2.3.2 Removing and installing brake caliper \(2EA, 2EJ, GP1\)”, page 67](#)

2.3.1 Removing and installing brake caliper (1KU)



Note

In the following procedure the brake caliper is removed together with the brake carrier and brake pads. The brake hose remains connected.

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-

Removing

- Parking brake released

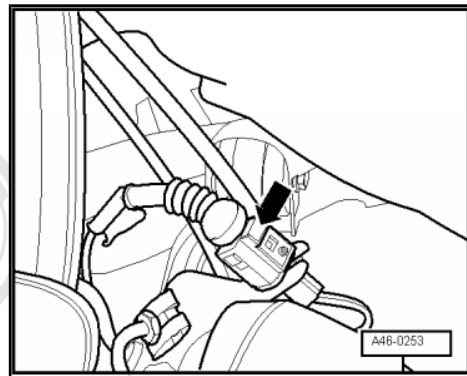


Note

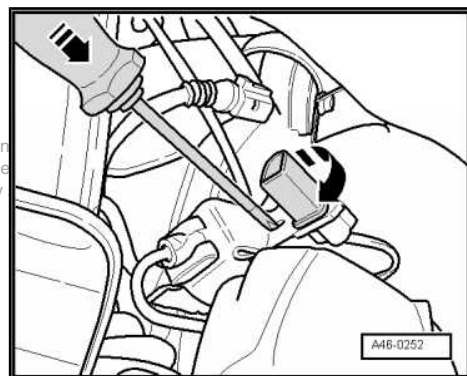
Do not unplug electrical connectors of parking brake motors.

- Remove relevant rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

- Unplug connector for brake pad wear indicator -arrow-.



- Release electrical connector from retainer and at the same time turn through 90°.
- Pull connector out of bracket.
- Pull electrical connector for parking brake motor out of bracket.
- Unclip brake hose from bracket.



- Remove bolts -4-.
- Pull brake caliper with brake carrier and brake pads fitted off brake disc (press back inner pad slightly if necessary).



Note

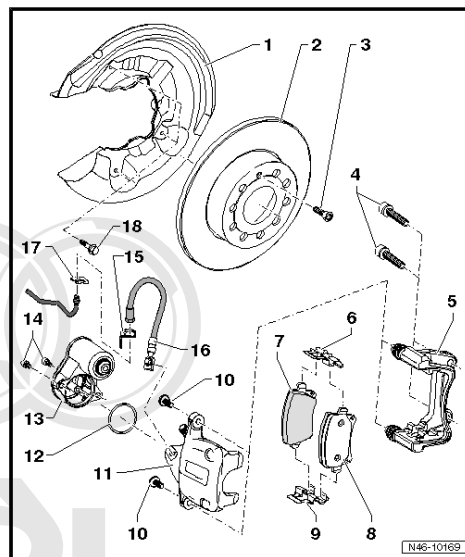
If the brake disc is worn down to such an extent that the brake caliper cannot be pulled off, the parking brake must be retracted as required ➔ [page 56](#) .

- Use a suitable length of wire to tie up brake caliper with brake carrier on the body.



Caution

- ◆ **Do not leave the brake caliper with brake carrier hanging from the brake hose. Take care that brake hose is not damaged by weight of brake components.**
- ◆ **The brake hose must be renewed if it is damaged.**
- ◆ **The brake and the electromechanical parking brake must not be operated when the brake caliper has been detached.**



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Installing

Installation is performed in reverse sequence; note the following:



Note

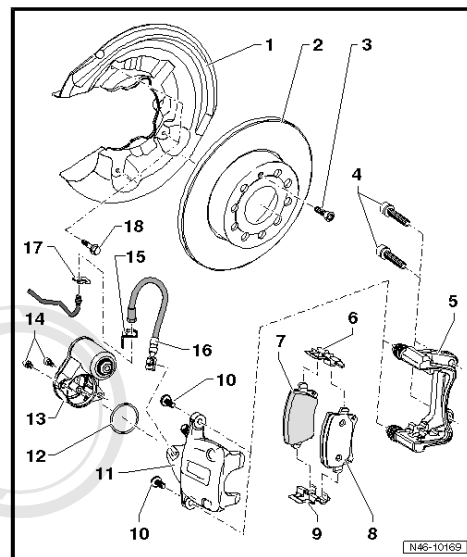
- ◆ *Renew bolts for brake carrier.*
- ◆ *Use only methylated spirits for cleaning the brake caliper housing.*
- Carefully press brake caliper and brake carrier (with brake pads fitted) over brake disc.

- Tighten new bolts -4- for brake carrier.
- Fit brake hose -16- in bracket -15-.



Note

- ◆ *Make sure the electrical wiring and brake hose are positioned correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*
- Extend pistons using ⇒ Vehicle diagnostic tester; to do so follow the instructions on the screen.
- Fit rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Check brake fluid level.



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

- ◆ ⇒ ["2.1.1 Exploded view - rear brakes \(1KU\)", page 52](#)

2.3.2 Removing and installing brake caliper (2EA, 2EJ, GP1)

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



Note

In the following procedure the brake caliper is removed together with the brake carrier and brake pads. The brake hose remains connected.

Removing

- Parking brake released



Note

Do not unplug electrical connectors of parking brake motors.

- Remove relevant rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

- Remove bolts -arrows- securing brake carrier.
- Pull brake caliper with brake carrier and brake pads fitted off brake disc.



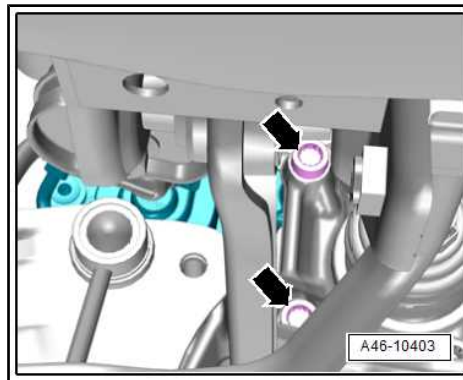
Note

If the brake disc is worn down to such an extent that the brake caliper cannot be pulled off, the parking brake must be retracted as required ⇒ [page 59](#) .



Caution

- ◆ *Do not leave the brake caliper with brake carrier hanging from the brake hose or electrical wiring. Take care that brake hose is not damaged by weight of brake components.*
- ◆ *The brake hose must be renewed if it is damaged.*
- ◆ *The brake and the electromechanical parking brake must not be operated when the brake caliper has been detached.*



- Use a suitable length of wire to tie up brake caliper with brake carrier on the body.

Installing

Installation is performed in reverse sequence; note the following:



Note

- ◆ *Renew bolts for brake carrier.*
- ◆ *Use only methylated spirits for cleaning the brake caliper housing.*



WARNING

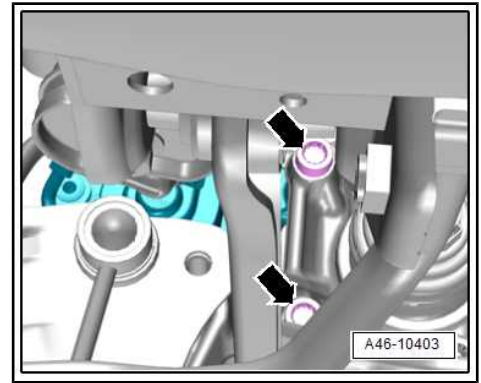
Do not blow out the brake caliper with compressed air.

- Slide brake caliper with brake carrier and brake pads fitted carefully over brake disc.

- Tighten new bolts -arrows- for brake carrier.

 Note

- ◆ *Make sure the electrical wiring and brake hose are positioned correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*
- Fit rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Depress brake pedal firmly several times with vehicle stationary, so that brake piston reaches normal operating position.
- Extend pistons using ⇒ Vehicle diagnostic tester; to do so follow the instructions on the screen.



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

- ◆ ⇒ [“2.1.2 Exploded view - rear brakes \(2EA, 2EJ, GP1\)”, page 54](#)

2.4 Renewing brake caliper

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⇒ [“2.4.1 Renewing brake caliper \(1KU\)”, page 69](#)

⇒ [“2.4.2 Renewing brake caliper \(2EA, 2EJ, GP1\)”, page 72](#)

2.4.1 Renewing brake caliper (1KU)



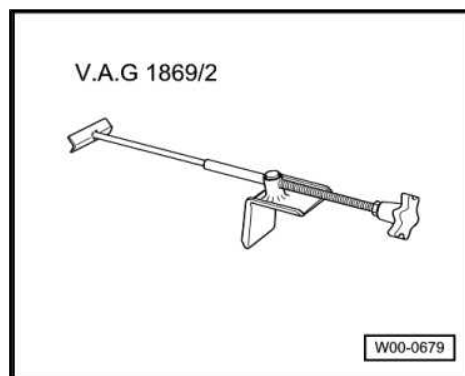
Note

- ◆ *In the following procedure the brake caliper is removed and renewed without the brake carrier and brake pads. The brake hose is disconnected.*
- ◆ *The parking brake must be retracted if the brake pads are also being renewed ⇒ [page 56](#) .*

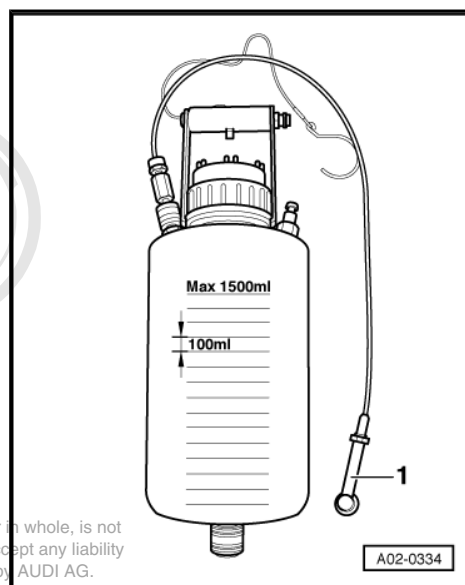
Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Torque wrench - V.A.G 1331-

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



◆ Reservoir -1- from brake filling and bleeding equipment - VAS 5234-



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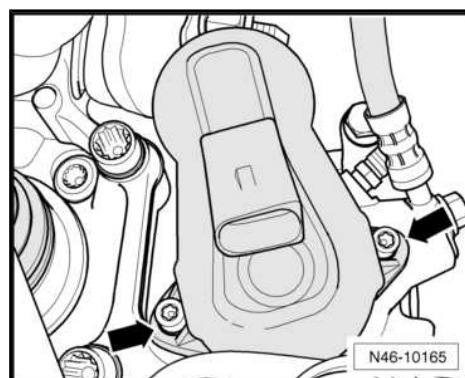
Removing

- Parking brake released



Note

- ◆ *Mark brake pads when removing them if they are to be reinstalled. Reinstall in their original position to prevent uneven braking.*
- ◆ *Do not unplug electrical connectors of parking brake motors.*
- Remove relevant rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Remove bolts -arrows- for parking brake motor.
- Detach parking brake motor from brake caliper and place to one side, leaving electrical connector attached.

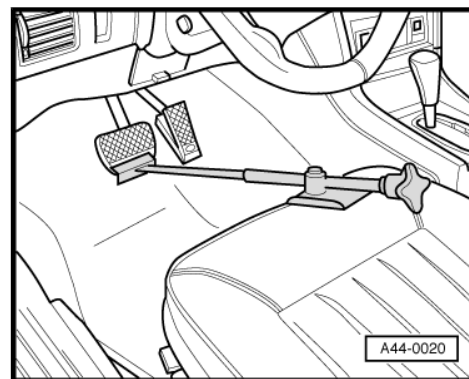


- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Depress brake pedal at least 60 mm.



Note

This closes the valves in the brake master cylinder and stops the brake fluid reservoir from running empty.



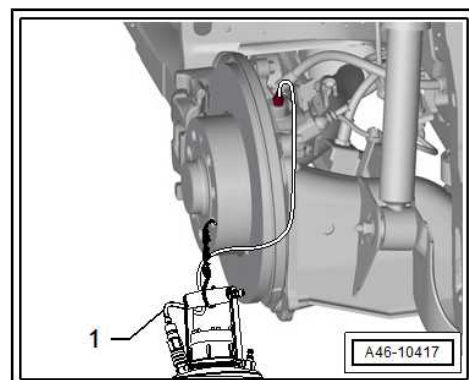
- Detach protective cap on bleeder screw of brake caliper.
- Fit bleeder hose -1- of reservoir onto bleeder screw.
- Open bleeder screw to relieve pressure in hydraulic system.
- Close bleeder screw and remove reservoir.



Note

The brake pedal actuator - V.A.G 1869/2- must not be removed.

- Disconnect brake line from brake hose and brake caliper.
- Remove securing bolts for brake caliper (counterhold guide pins).
- Remove brake caliper from brake carrier.



Installing

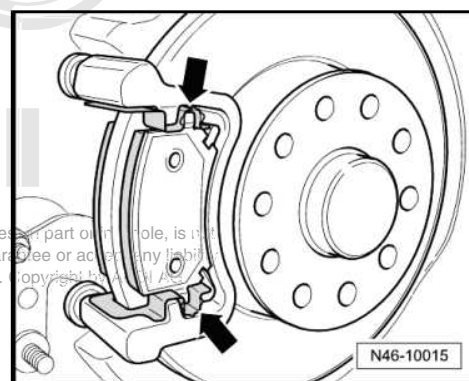
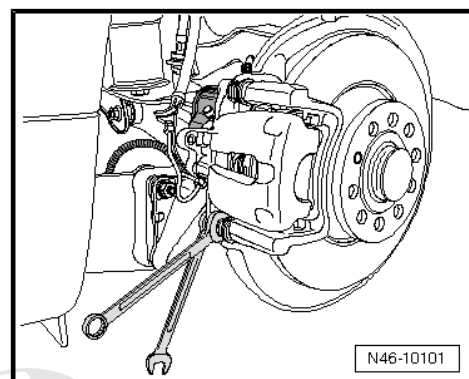
Bleed brake system (only at wheel where caliper was detached and brake line disconnected).

Installation is performed in reverse sequence; note the following:



Note

- ◆ *Renew bolts for brake caliper.*
- ◆ *Renew seal for parking brake motor.*
- ◆ *New brake calipers are filled with brake fluid and are pre-bled.*
- Ensure that brake pads are seated correctly in pad retainers -arrows-.
- Slide brake caliper over fitted brake pads.

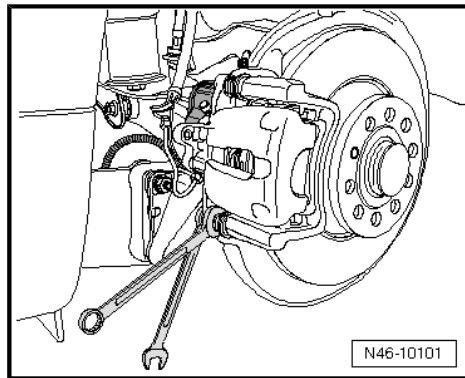


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- Tighten new securing bolts for brake caliper (counterhold guide pins).
- Install parking brake motor ➔ [page 82](#) .
- Remove brake pedal actuator - V.A.G 1869/2- .
- Bleed brake system (only at wheel where caliper was detached and brake line disconnected) ➔ [page 134](#) .

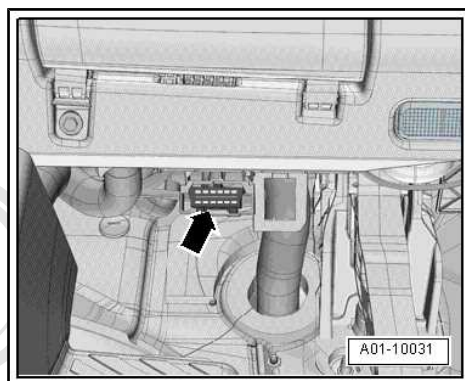
 Note

Bleed brake system (only at wheel where caliper was detached and brake line disconnected). If the brake pedal still feels "soft", bleed the complete brake system ➔ [page 134](#) .



- With ignition switched off, connect vehicle diagnostic tester to diagnostic connection in vehicle -arrow-.
- Switch on ignition.
- After entering vehicle identification data, select Guided Functions mode.
- Perform basic setting:

Running gear/brake system	
01 Self-diagnosis compatible systems	
53 Control unit for electromechanical parking brake J540	
53 Functions - electromechanical parking brake	
53 46 Basic setting	



- Continue to follow the instructions on the vehicle diagnostic tester display.
- Fit rear wheels ➔ [Running gear, axles, steering; Rep. gr. 44](#) ;
Wheels, tyres .

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WARNING

Risk of accident!

- ◆ ***Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.***
- ◆ ***Make sure that the brakes work properly before the vehicle is driven on the road.***

Tightening torques

- ◆ ➔ ["2.1.1 Exploded view - rear brakes \(1KU\)", page 52](#)

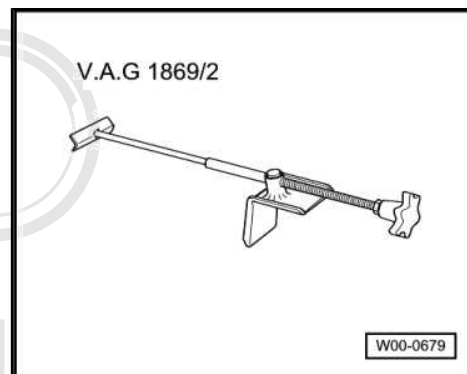
2.4.2 Renewing brake caliper (2EA, 2EJ, GP1)

 Note

In the following procedure the brake caliper is removed and renewed without the brake carrier and brake pads. The brake hose is disconnected.

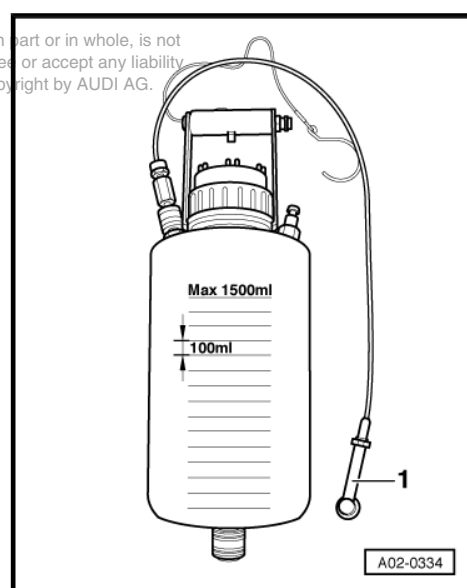
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-
- ◆ Brake pedal actuator - V.A.G 1869/2-



- ◆ Reservoir -1- from brake filling and bleeding equipment - VAS 5234-

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Removing

- Switch off ignition.
- Parking brake released
- Remove relevant rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Depress brake pedal at least 60 mm.



Note

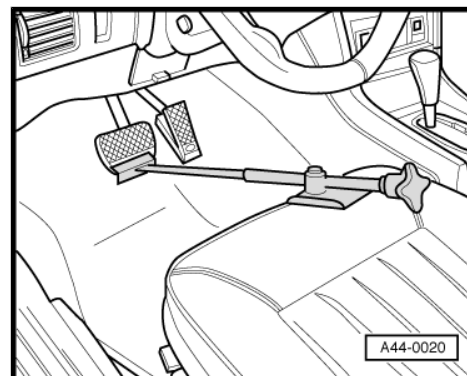
This closes the valves in the brake master cylinder and stops the brake fluid reservoir from running empty.



WARNING

Risk of skin irritation

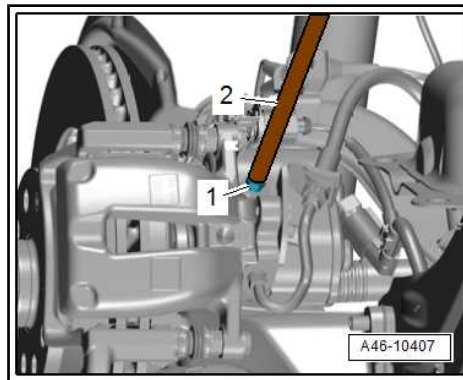
- ◆ *Always wear chemical-resistant protective gloves to prevent brake fluid from contacting skin.*



- Detach protective cap from bleeder screw -1-.
- Fit bleeder hose -2- of reservoir onto bleeder screw.
- Open bleeder screw to relieve pressure in hydraulic system.
- Close bleeder screw and remove reservoir.

 Note

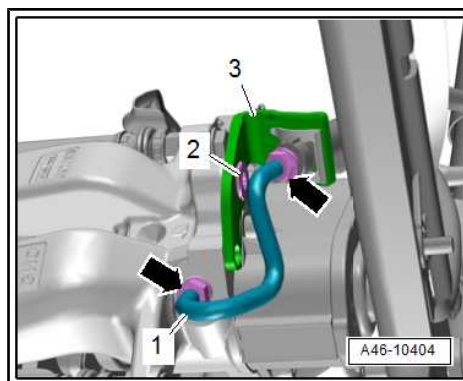
The brake pedal actuator - V.A.G 1869/2- must not be removed.



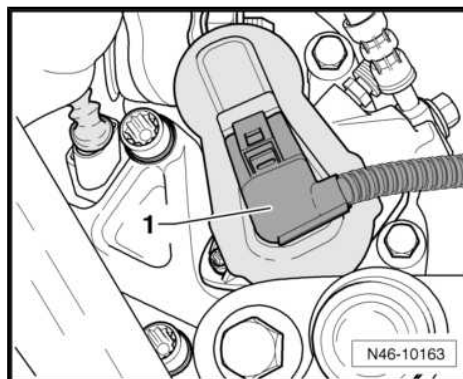
 Note

Place a cloth under the connection to catch escaping brake fluid.

- Unscrew union screws -arrows- and detach brake line -1-.
- Remove bolt -2-, detach bracket -3- and push bracket to one side with brake hose.



- Unplug electrical connector -1- on parking brake motor.



- Counterhold guide pins -1 and 2- and remove bolts -arrows-.
- Move bracket with electrical connector to side.
- Detach brake caliper.
- Remove electromechanical parking brake motor
⇒ [page 82](#) .
- Detach brake pads and pad retaining springs.

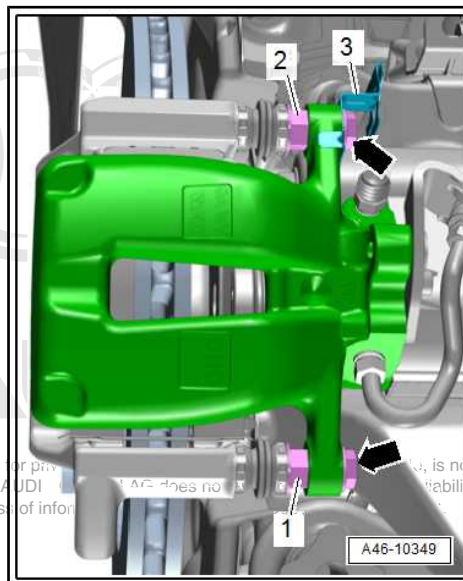
Installing

Bleed brake system (only at wheel where caliper was detached and brake line disconnected).

Installation is performed in reverse sequence; note the following:

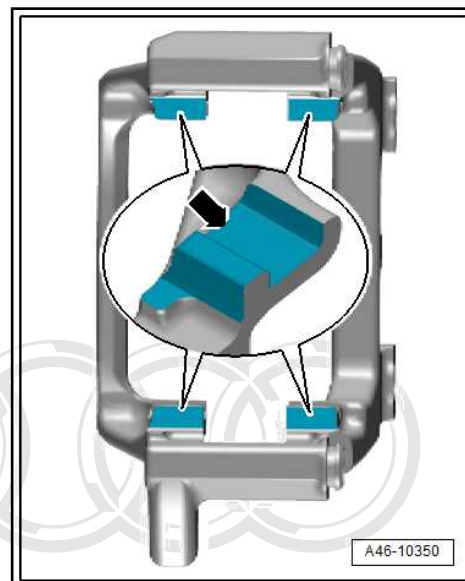
 Note

Renew bolts for brake caliper.



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- Clean brake caliper carrier at contact surfaces -arrow- for pad retaining springs and apply a small amount of lithium grease.



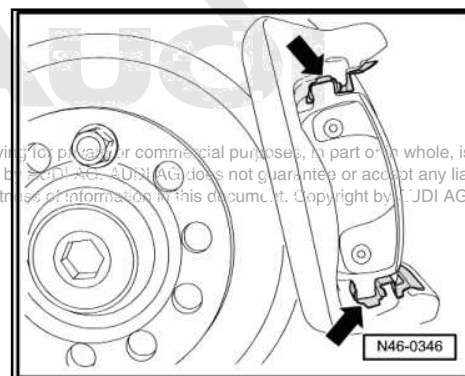
- Fit pad retaining springs (note correct installation position).
- Fit brake pads in brake carrier.



Note

Make sure the brake pads are positioned in the pad retaining springs -arrows-.

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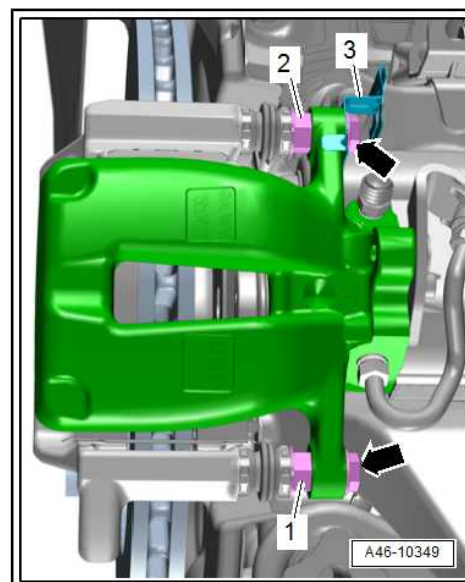


- Locate bracket -3- with electrical connector in installation position.

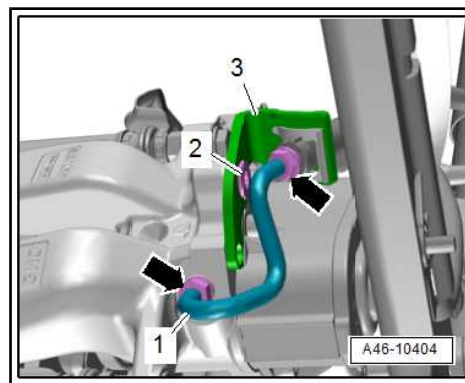


Note

- ◆ *Make sure the brake hose is routed correctly.*
- ◆ *The brake hose must not be kinked, crushed or twisted or chafe against parts of the vehicle at any point.*



- Secure bracket -3- and brake hose with bolt -2-.
- Locate brake line -1- in installation position and tighten union screws -arrows-.

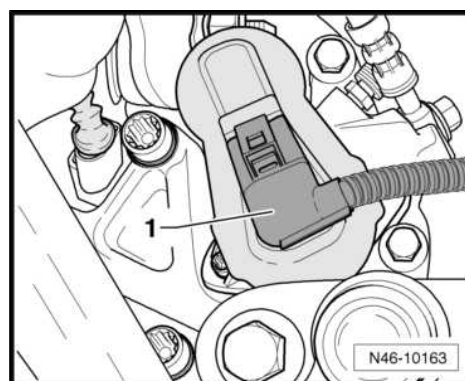


- Plug in electrical connector -1- for parking brake motor.
- Remove brake pedal actuator - V.A.G 1869/2- .
- Bleed brake system (only at wheel where caliper was detached and brake line disconnected) ⇒ [page 134](#) .



Note

Bleed brake system (only at wheel where caliper was detached and brake line disconnected). If the brake pedal still feels "soft", bleed the complete brake system ⇒ [page 134](#) .



- Fit rear wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Depress brake pedal firmly several times with vehicle stationary, so that brake piston reaches normal operating position.
- Extend pistons using ⇒ Vehicle diagnostic tester; to do so follow the instructions on the screen.



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

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- ◆ ⇒ ["2.1.2 Exploded view - rear brakes \(2EA, 2EJ, GP1\)"](#), [page 54](#)

2.5 Removing and installing brake disc

⇒ ["2.5.1 Removing and installing brake disc \(1KU\)"](#), [page 76](#)

⇒ ["2.5.2 Removing and installing brake disc \(2EA, 2EJ, GP1\)"](#), [page 77](#)

2.5.1 Removing and installing brake disc (1KU)

Removing

- Remove brake caliper with brake carrier ⇒ [page 64](#) .

- Remove bolt -3- and take off brake disc.

Installing

Installation is performed in reverse sequence; note the following:

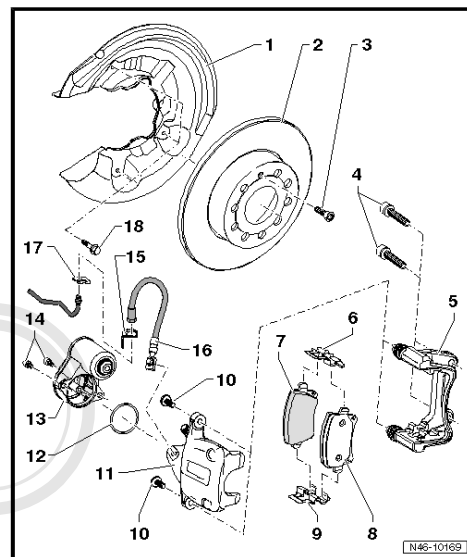
- Thoroughly clean contact surface of brake disc and wheel hub.
- Fit brake disc onto wheel hub.



Note

Take care to keep the brake disc straight when fitting it on the wheel hub.

- Tighten bolt -3-.
- Install brake caliper with brake carrier ➔ [page 64](#).



WARNING

Risk of accident!

- ◆ ***Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.***
- ◆ ***Make sure that the brakes work properly before the vehicle is driven on the road.***

Tightening torques

- ◆ ➔ ["2.1.1 Exploded view - rear brakes \(1KU\)", page 52](#)

2.5.2 Removing and installing brake disc (2EA, 2EJ, GP1)

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

Removing

- Remove brake caliper ⇒ [page 67](#) .
- Loosen bolt -1- and take off brake disc.

Installing

Installation is performed in reverse sequence; note the following:

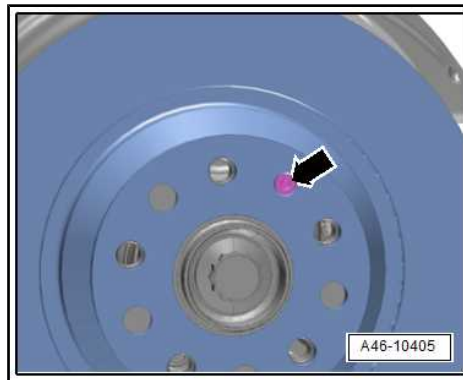
- Thoroughly clean contact surface of brake disc and wheel hub.
- Install brake caliper ⇒ [page 67](#) .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ⇒ [“2.1.2 Exploded view - rear brakes \(2EA, 2EJ, GP1\)”, page 54](#)



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2.6 Removing and installing splash plate

⇒ [“2.6.1 Removing and installing splash plate \(1KU\)”](#), page 79

⇒ [“2.6.2 Removing and installing splash plate \(2EA, 2EJ, GP1\)”](#), page 79

2.6.1 Removing and installing splash plate (1KU)

Removing

- Remove brake disc ⇒ [page 76](#) .
- Remove bolts -18- and detach splash plate -1-.

Installing

Installation is performed in reverse sequence; note the following:

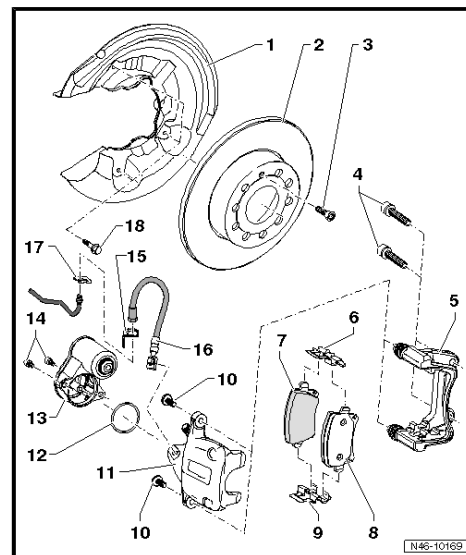
- Clean wheel hub and splash plate.
- Fit splash plate onto wheel hub.
- Tighten bolts -18-.
- Install brake disc ⇒ [page 76](#) .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ⇒ [“2.1.1 Exploded view - rear brakes \(1KU\)”](#), page 52

2.6.2 Removing and installing splash plate (2EA, 2EJ, GP1)

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Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

Removing

- Remove brake disc ➔ [page 77](#) .
- Remove bolts -arrows- and detach splash plate -1-.

Installing

Installation is performed in reverse sequence; note the following:

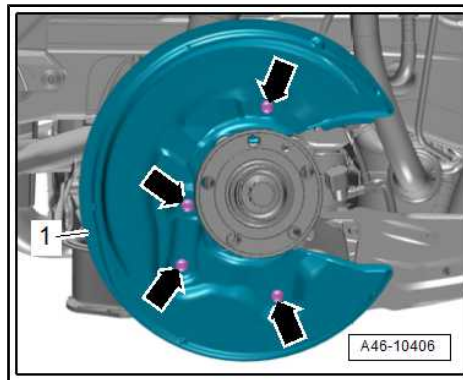
- Install brake disc ➔ [page 77](#) .



WARNING

Risk of accident!

- ◆ *Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*
- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



Tightening torques

- ◆ ➔ ["2.1.2 Exploded view - rear brakes \(2EA, 2EJ, GP1\)", page 54](#)

2.7 Renewing protective caps and guide pins



Note

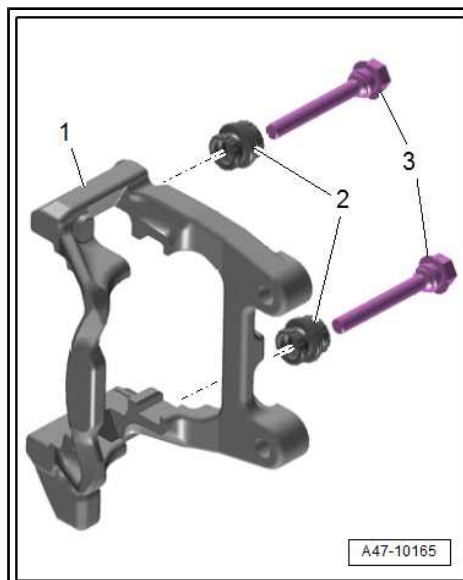
If protective caps or guide pins are damaged, renew using repair kit. Use grease sachet supplied to lubricate guide pins.

Removing

- Remove brake caliper ➔ [page 64](#) .
- Pull protective cap -2- out of groove in brake carrier -1-.
- Pull guide pin -3- out of brake carrier.
- Pull protective cap off guide pin.

Installing

- Grease guide pin before installing.
- Slide protective cap over groove on guide pin.
- Push guide pin -3- with protective cap -1- through brake carrier -1-.
- Press protective cap over groove on brake carrier.
- Install brake caliper ➔ [page 64](#) .



3 Parking brake

⇒ [“3.1 Exploded view - parking brake”, page 81](#)

⇒ [“3.2 Removing and installing control unit for electromechanical parking brake J540”, page 81](#)

⇒ [“3.3 Removing and installing parking brake motor V282 / V283”, page 82](#)

3.1 Exploded view - parking brake

1 - Bolt

- ☐ Tightening torque
⇒ [Item 14 \(page 53\)](#)

2 - Parking brake motor

- ☐ Left parking brake motor - V282-, right parking brake motor - V283-
- ☐ Removing and installing
⇒ [page 82](#)

3 - Control unit for electromechanical parking brake - J540-

- ☐ Removing and installing
⇒ [page 81](#)

4 - Auto-hold button - E540-

- ☐ With auto-hold warning lamp - K237-
- ☐ Fitting location: in centre console

5 - Electromechanical parking brake button - E538-

- ☐ With electromechanical parking brake warning lamp - K213-
- ☐ Fitting location: in centre console

6 - Instrument cluster

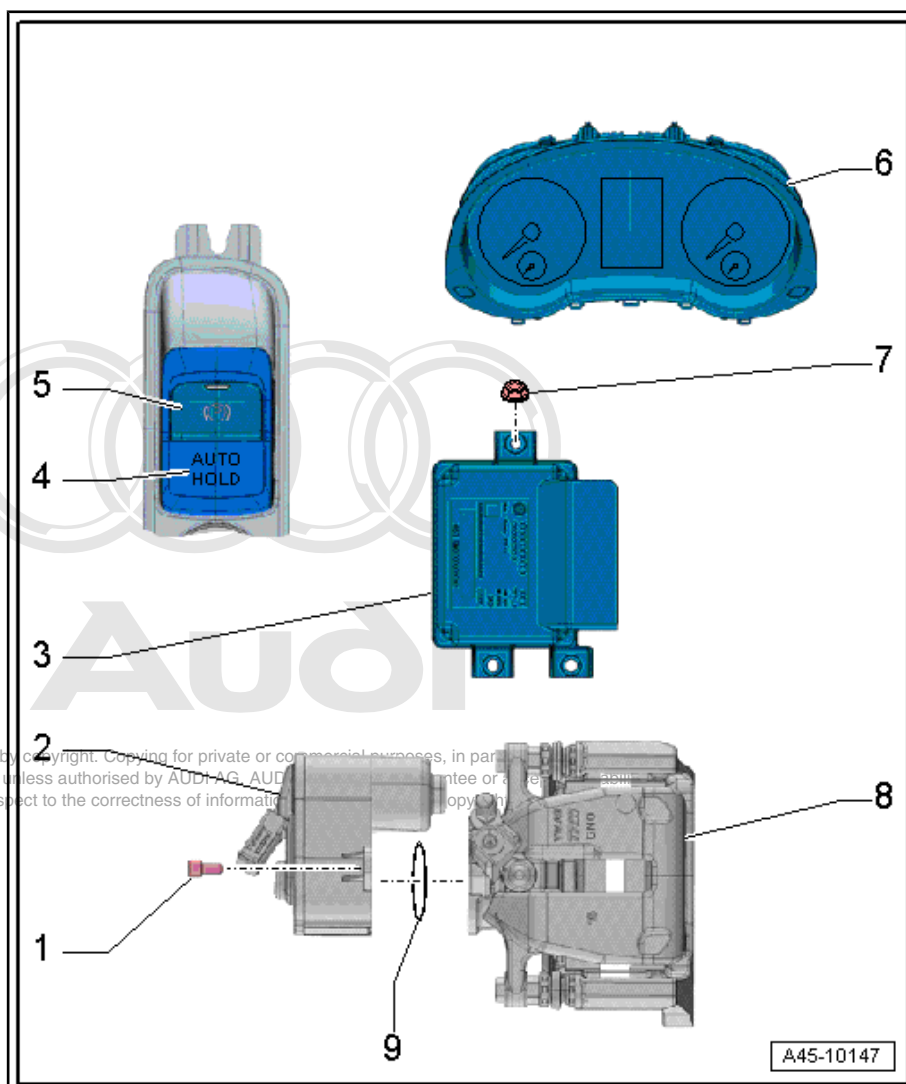
- ☐ with:
- ◆ Brake system warning lamp - K118-
- ◆ Electromechanical parking brake warning lamp - K213-

7 - Nut

- ☐ 2.5 Nm

8 - Rear brake caliper

9 - Seal



3.2 Removing and installing control unit for electromechanical parking brake - J540-

The housing of the control unit for electromechanical parking brake - J540- also incorporates lateral acceleration sender - G200-, yaw rate sender - G202- and longitudinal acceleration sender - G251- .

 Note

When renewing control unit, select "Replace" function for appropriate control unit in "Guided Functions" mode of ➔ Vehicle diagnostic tester.

Removing

- Remove centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- If fitted: remove air duct (rear) ➔ Heating, air conditioning; Rep. gr. 87 ; Air duct system; Removing and installing air ducts .
- Unplug electrical connector -1-.
- Remove nuts -arrows- and detach control unit for electromechanical parking brake - J540- .

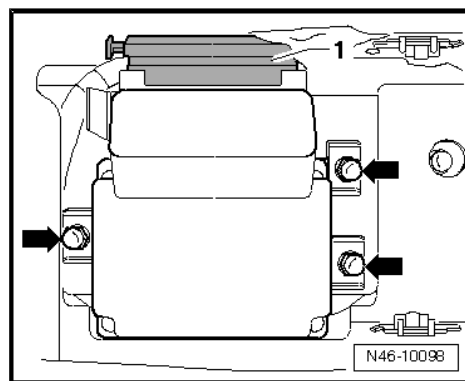
Installing

Installation is performed in reverse sequence; note the following:



Caution

If the control unit for electromechanical parking brake - J540- has been dropped onto a hard surface or shows signs of damage, it must not be installed in the vehicle.



- Ensure that unit is seated in bracket without strain.
- Install air duct (rear) ➔ Heating, air conditioning; Rep. gr. 87 ; Air duct system; Removing and installing air ducts .
- Install centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .

Tightening torques

- ♦ ➔ ["3.1 Exploded view - parking brake", page 81](#) .

3.3 Removing and installing parking brake motor -V282- / -V283-

Special tools and workshop equipment required

- ♦ Vehicle diagnostic tester
- ♦ Torque wrench - V.A.G 1331-

Removing

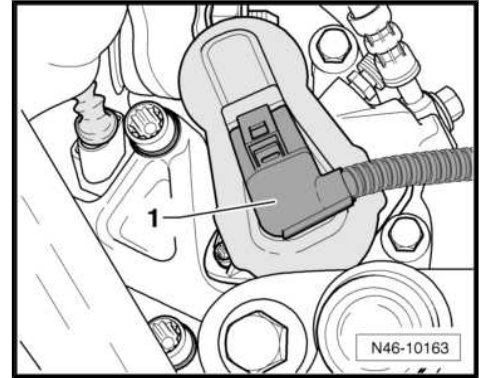
- Release parking brake.
- Switch off ignition.

 Note

Switch off ignition for at least 30 seconds before disconnecting connector.

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- Unplug electrical connector -1- on parking brake motor.

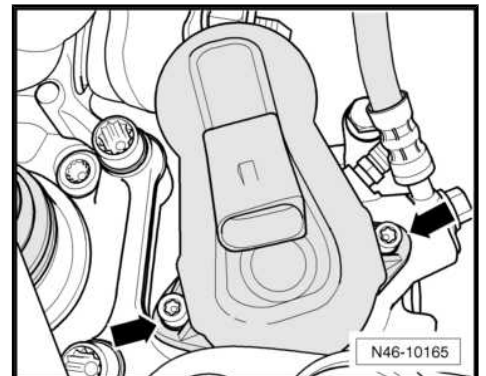


- Remove bolts -arrows- for parking brake motor.
- Detach parking brake motor from brake caliper.
- Take off seal.
- Clean annular groove and contact surface of parking brake motor.

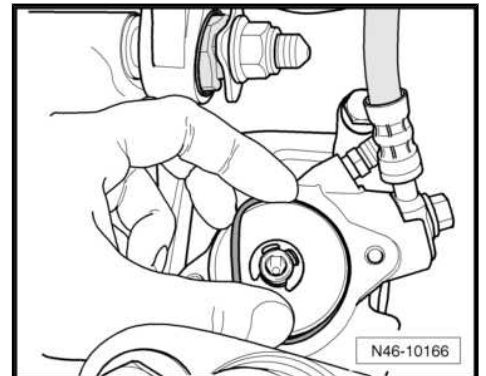
Installing

Installation is performed in reverse sequence; note the following:

- The annular groove and the contact surface of the parking brake motor must not be damaged.



- Lightly lubricate new seal with brake fluid before fitting.



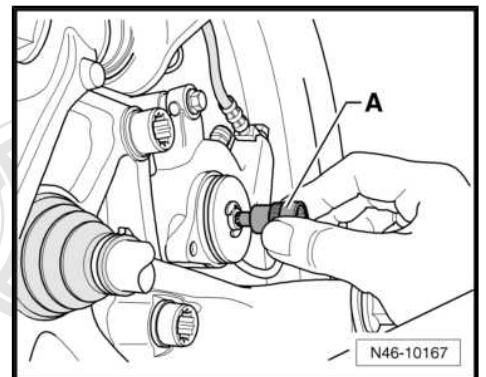
- Turn spindle back slightly, using an 8 mm multi-point socket bit -A- until parking brake motor can be fitted correctly.



Caution

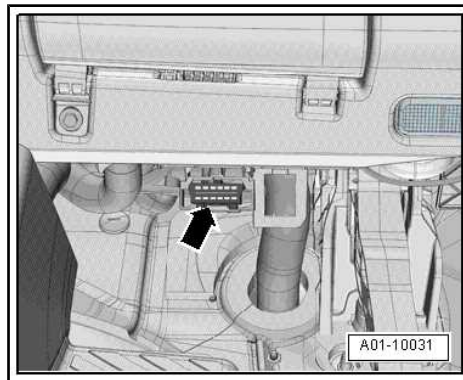
The seal must not be allowed to turn itself out while the parking brake motor is being installed!

- Turn parking brake motor until threaded hole and thread are aligned.
- The parking brake motor must make flush contact with the brake caliper; it must not be pulled down against the brake caliper with the bolts.



- With ignition switched off, connect vehicle diagnostic tester to diagnostic connection in vehicle -arrow-.
- Switch on ignition.
- After entering vehicle identification data, select Guided Functions mode.
- Perform basic setting:

Running gear/brake system	
01 Self-diagnosis compatible systems	
53 Control unit for electromechanical parking brake J540	
53 Functions - electromechanical parking brake	
53 46 Basic setting	



- Continue to follow the instructions on the vehicle diagnostic tester display.

Tightening torques

- ◆ ➔ ["2.1 Exploded view - rear brakes", page 52](#) .

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4 Brake pedal

⇒ ["4.1 Exploded view - brake pedal", page 85](#)

⇒ ["4.2 Removing and installing mounting bracket", page 86](#)

⇒ ["4.3 Separating brake pedal from brake servo", page 86](#)

⇒ ["4.4 Connecting brake pedal to brake servo", page 87](#)

⇒ ["4.5 Removing and installing brake pedal", page 88](#)

4.1 Exploded view - brake pedal



Note

Illustration shows installation position for left-hand drive vehicles.

1 - Mounting bracket

- ☐ Removing and installing
⇒ [page 86](#)

2 - Nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ Tighten nuts -A, B- first
- ☐ 25 Nm

3 - Noise insulation

- ☐ On brake pedal

4 - Clamping washer

5 - Brake pedal

- ☐ Removing and installing
⇒ [page 88](#)
- ☐ Separating brake pedal from brake servo
⇒ [page 86](#)
- ☐ Connecting brake pedal to brake servo
⇒ [page 87](#)

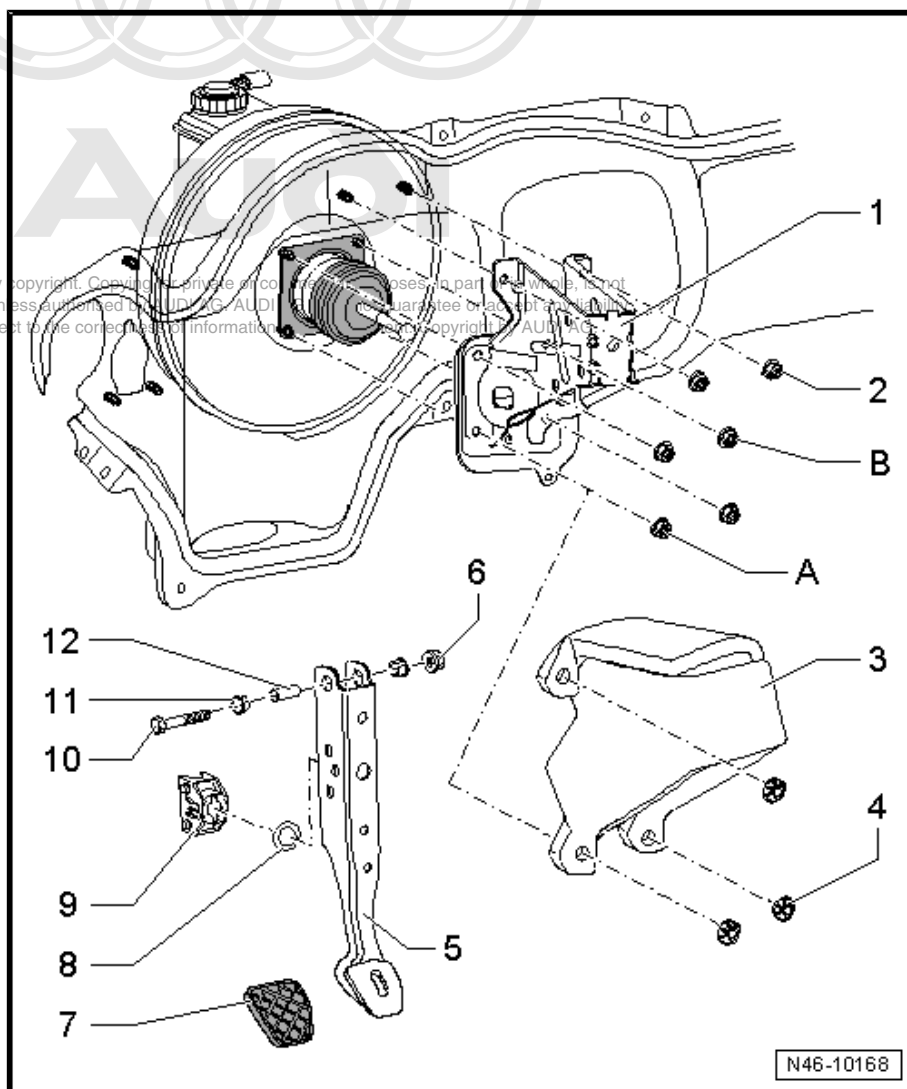


WARNING

The brake pedal travel must not be restricted by additional floor coverings.

6 - Nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ 25 Nm



7 - Cap

8 - Bearing shell

9 - Mounting

- For ball head of brake servo push rod

10 - Bolt

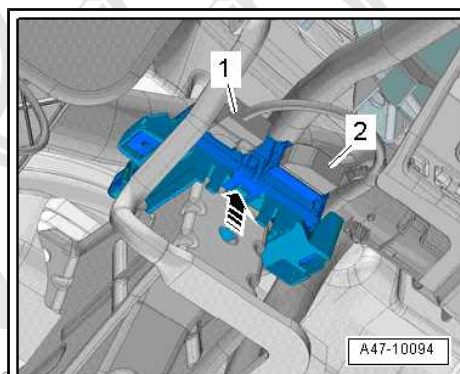
11 - Bearing bush

12 - Pivot pin

4.2 Removing and installing mounting bracket

Removing

- Remove brake pedal ➔ [page 88](#) .
- Unplug electrical connectors -1- and -2- and move electrical wiring clear.
- Release catch -arrow- and pull data bus diagnostic interface - J533- towards rear.



- Remove noise insulation on brake pedal.
- Remove nuts -1- and -2- and detach mounting bracket.

Installing

Installation is performed in reverse sequence; note the following:

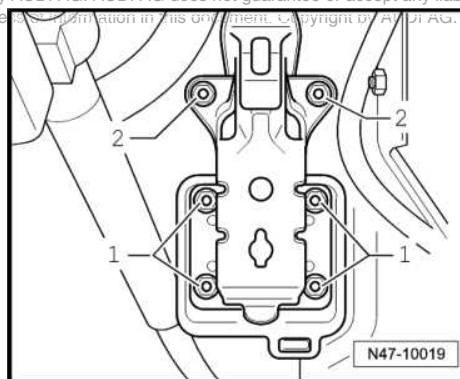
- Install brake pedal ➔ [page 88](#) .



WARNING

Risk of accident!

- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*



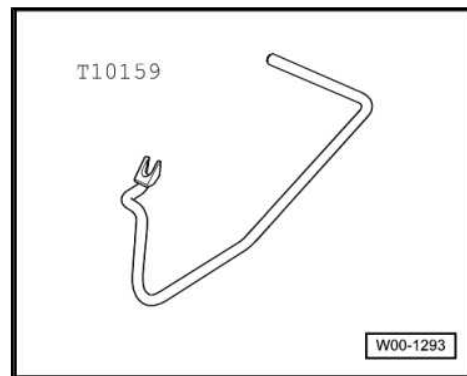
Tightening torques

- ◆ ➔ ["3.1 Exploded view - brake servo / brake master cylinder", page 101](#) .

4.3 Separating brake pedal from brake servo

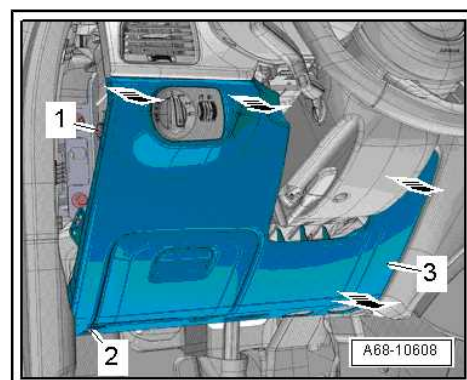
Special tools and workshop equipment required

◆ Release tool - T10159-



Procedure

- Remove dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/trim panels; Removing and installing dash panel cover (driver side) .



- First press brake pedal in direction of brake servo and hold.
- Insert release tool - T10159- and pull towards driver's seat, at the same time holding brake pedal in position to stop it moving towards the rear. This will press the retaining lugs -3- of the mounting off the ball head of the push rod -2-.

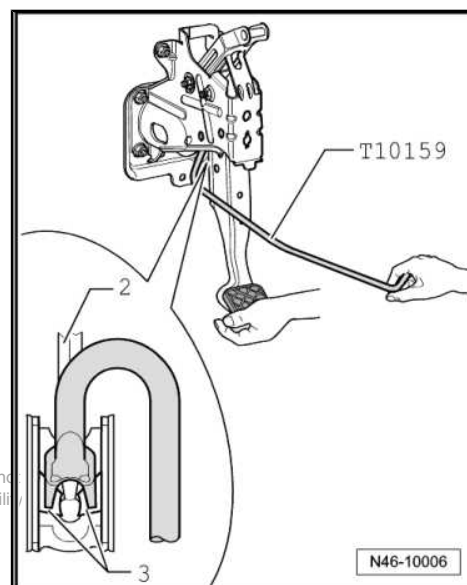


Note

For ease of illustration, components are shown with pedal cluster removed.

- Pull release tool - T10159- and brake pedal together towards driver's seat (this will pull the brake pedal off the ball head of the push rod).

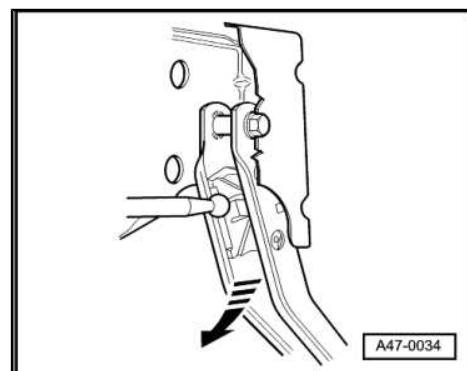
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4.4 Connecting brake pedal to brake servo

Procedure

- Hold ball head of push rod in front of mounting and push brake pedal in direction of brake servo so that the ball head audibly locks into place.
- Install dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/trim panels; Removing and installing dash panel cover (driver side) .



4.5 Removing and installing brake pedal

Removing

- Separate brake pedal from brake servo ⇒ [page 86](#) .
- Detach clamping washer -1- and push noise insulation -2- aside.
- Remove bolt -3- and take off brake pedal.

Installing

Installation is performed in reverse sequence; note the following:



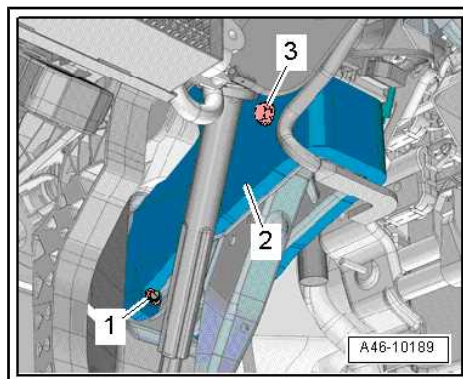
Note

Before installing, lubricate pivot points with polycarbamide grease - G 052 142 A2- .

- Connect brake pedal to brake servo ⇒ [page 87](#) .

Tightening torques

- ♦ ⇒ [“4.1 Exploded view - brake pedal”, page 85](#) .



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47 – Brakes - hydraulics

1 Front brake caliper

⇒ [“1.1 Exploded view - front brake caliper”, page 89](#)

⇒ [“1.2 Removing and installing brake caliper piston”, page 90](#)

1.1 Exploded view - front brake caliper

⇒ [“1.1.1 Exploded view - front brake caliper, single-piston brakes”, page 89](#)

⇒ [“1.1.2 Exploded view - front brake caliper, eight-piston brakes”, page 90](#)

1.1.1 Exploded view - front brake caliper, single-piston brakes

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1 - Protective cap

- ☐ Attach to bleeder screw

2 - Bleeder screw

- ☐ Before screwing in, grease thread with thin coat of lithium grease - G 052 150 A2-
- ☐ 10 Nm

3 - Caps

- ☐ Insert into bearing bush

4 - Guide pin

- ☐ 30 Nm

5 - Bearing bush

- ☐ Insert in brake caliper

6 - Brake caliper

7 - Brake carrier

- ☐ Replacement carriers are supplied assembled and with sufficient grease on guide pins
- ☐ Renew protective caps if they have been damaged (repair kit); use grease sachet supplied to lubricate the guide pins

8 - Retaining spring

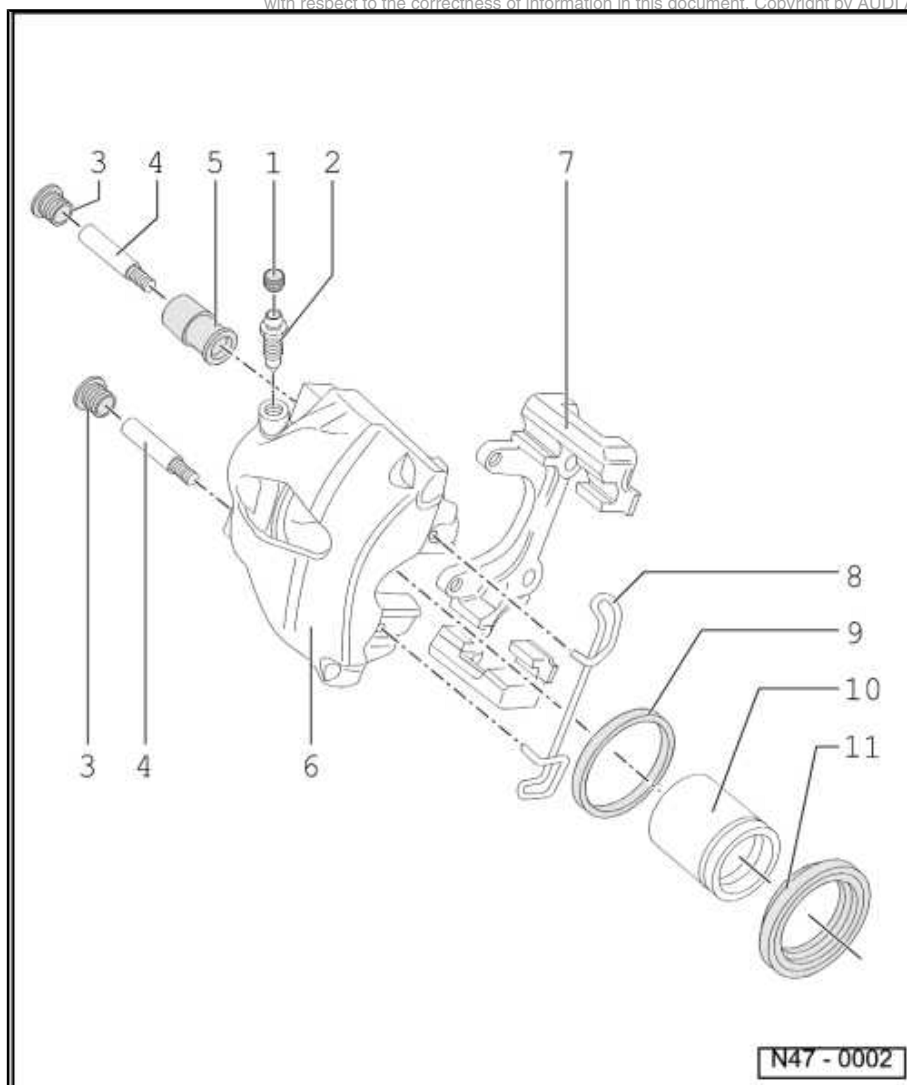
- ☐ Insert into both holes in brake caliper

9 - Seal

- ☐ Removing and installing ⇒ [page 90](#)
- ☐ Do not damage when inserting piston

10 - Piston

- ☐ Removing and installing ⇒ [page 90](#)
- ☐ Apply a thin coat of lithium grease - G 052 150 A2- to piston



11 - Protective cap

- ☐ Removing and installing ⇒ [page 90](#)
- ☐ Push outer sealing lip onto piston

1.1.2 Exploded view - front brake caliper, eight-piston brakes

1 - Brake caliper

2 - Seal

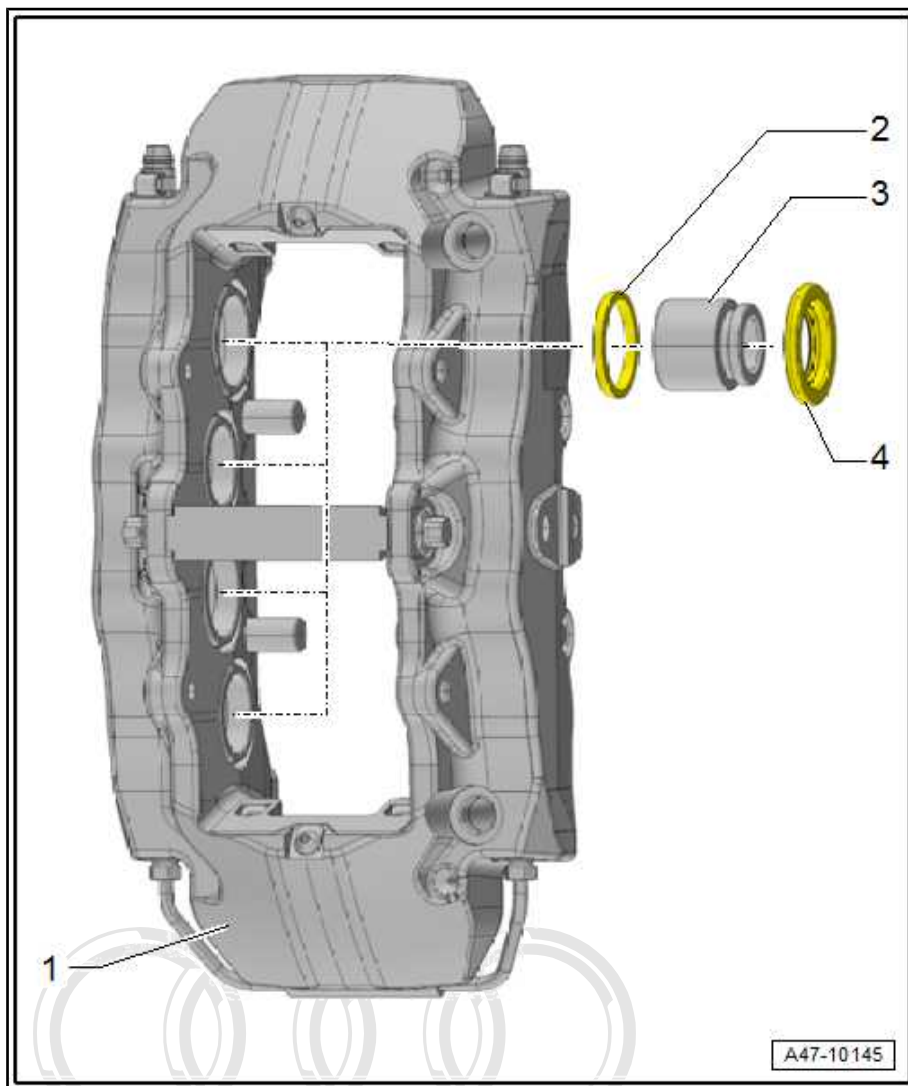
- ☐ 8x

3 - Brake caliper piston

- ☐ 8x
- ☐ Removing and installing
⇒ [page 93](#)

4 - Protective cap

- ☐ 8x
- ☐ If damaged, install all
parts supplied in repair
kit ⇒ Electronic parts
catalogue .



1.2 Removing and installing brake caliper piston

⇒ ["1.2.1 Removing and installing brake caliper piston, single-piston brake", page 90](#)

⇒ ["1.2.2 Removing and installing brake caliper pistons, eight-piston brake", page 93](#)

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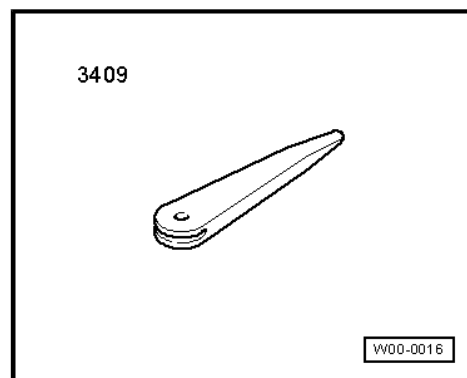
1.2.1 Removing and installing brake caliper piston, single-piston brake

Special tools and workshop equipment required

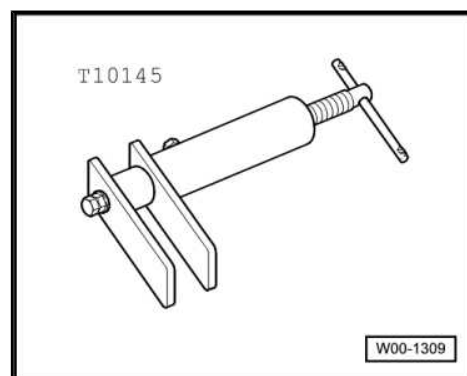
◆ Removal wedge - 3409-

Audi

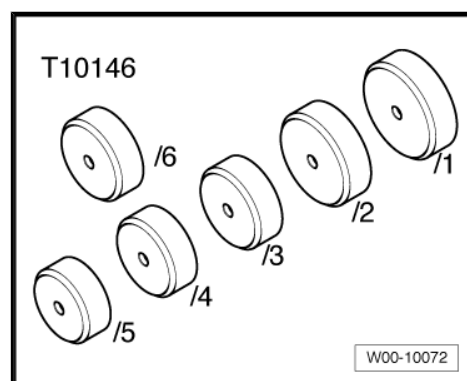
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◆ Piston resetting appliance - T10145-



◆ -T10146/6- from assembly tool for protective caps - T10146-



Removing

- Brake caliper removed



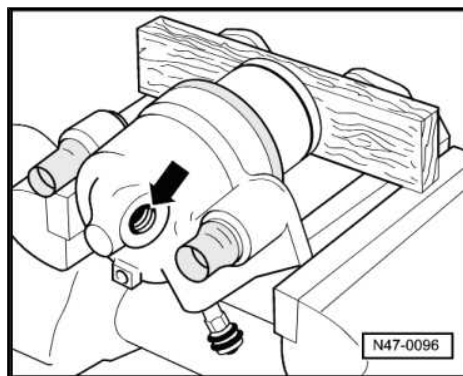
Note

- ◆ *Install complete repair kit when servicing.*
- ◆ *Use only methylated spirits to clean the brake components.*
- ◆ *Apply a thin coat of lithium grease - G 052 150 A2- to brake cylinder, piston and seal.*

 Note

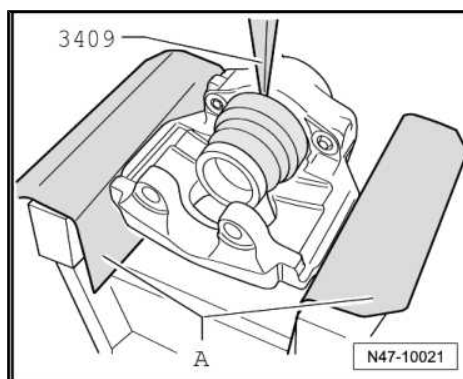
Place a piece of wood in the recess to prevent damaging the piston.

- Force piston out of brake caliper using compressed air via threaded hole for brake hose -arrow-.



- Lever off protective cap from brake caliper using removal wedge - 3409- .

A - Jaw covers for vice



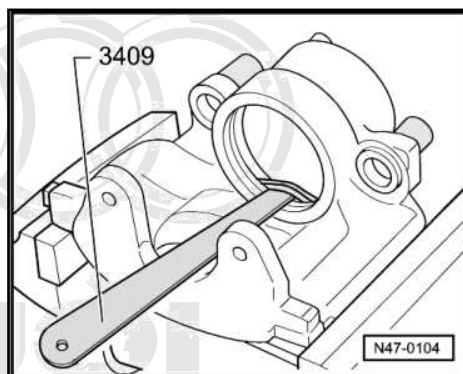
- Remove seal using removal wedge - 3409- .

 Note

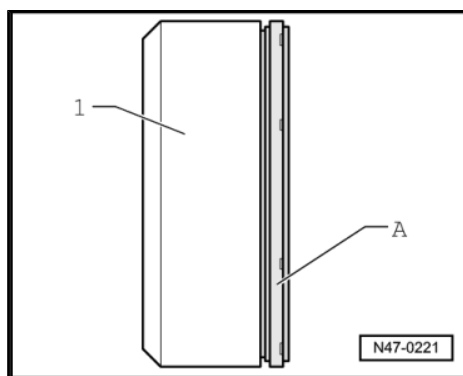
When removing ensure that the bore of the cylinder is not damaged.

Installing

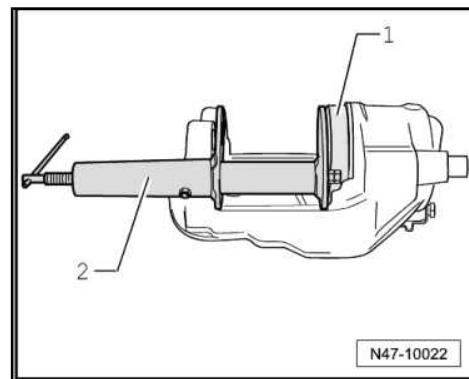
- The surfaces of the piston and seal must be cleaned only with methylated spirits and then dried.
- Before installing, lightly lubricate piston and seal with lithium grease - G 052 150 A2- .
- Insert seal in brake caliper.
- Fit protective cap -A- in assembly tool -T10146/6- -item 1-.



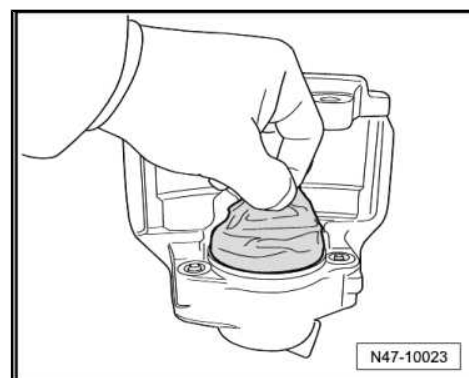
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- Using assembly tool -1- and piston resetting tool -2-, press protective cap onto brake caliper so that it is fully in contact with brake caliper all around.



- Checking correct seating of protective cap:
 - At this stage it should not be possible to remove the protective cap from the brake caliper by hand.

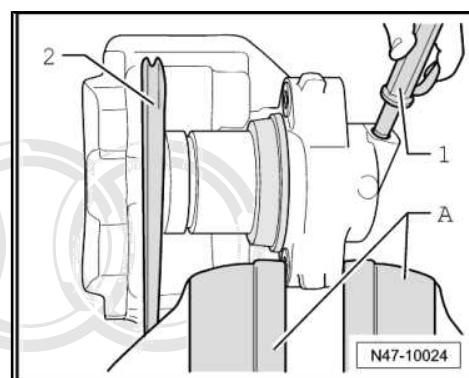


- Press piston lightly onto protective cap and lock it in this position using removal wedge - 3409- -item 2- or similar.
- Blow out protective cap with compressed air (maximum 3 bar) -1-. The protective cap will then locate around the piston.

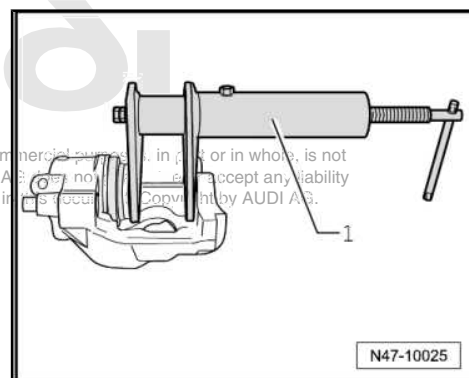


Caution

Keep the piston straight to avoid damaging the seal.



- Press piston into brake caliper using piston resetting tool -1-.
- The outer sealing lip of the protective cap will then lock in the groove on the piston.

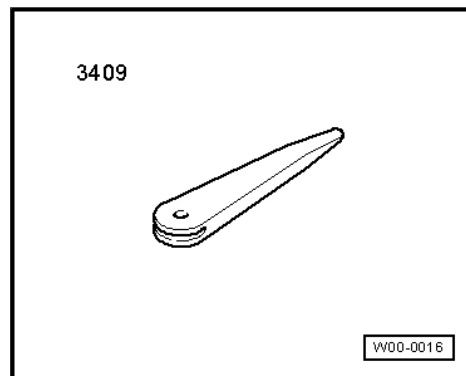


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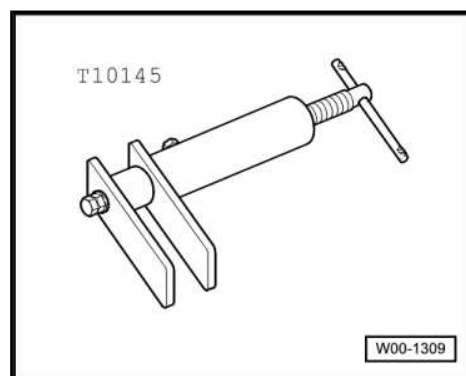
1.2.2 Removing and installing brake caliper pistons, eight-piston brake

Special tools and workshop equipment required

◆ Removal wedge - 3409-



◆ Piston resetting appliance - T10145-



- ◆ Safety goggles
- ◆ Protective gloves
- ◆ Lithium grease ⇒ Electronic parts catalogue

Removing

- Remove brake pads ⇒ [page 32](#) .
- Remove brake caliper and disconnect from hydraulic system ⇒ [page 38](#) .



WARNING

Risk of injury.

- ◆ *Wear safety goggles.*
- ◆ *When pressing out brake caliper piston, DO NOT reach into brake caliper with your fingers.*
- ◆ *Place a cloth over bore in brake caliper to catch any brake fluid spatter. Wrap another cloth tightly around nozzle of compressed-air gun applied to brake caliper.*
- ◆ *Always wear chemical-resistant protective gloves to prevent brake fluid from contacting skin.*

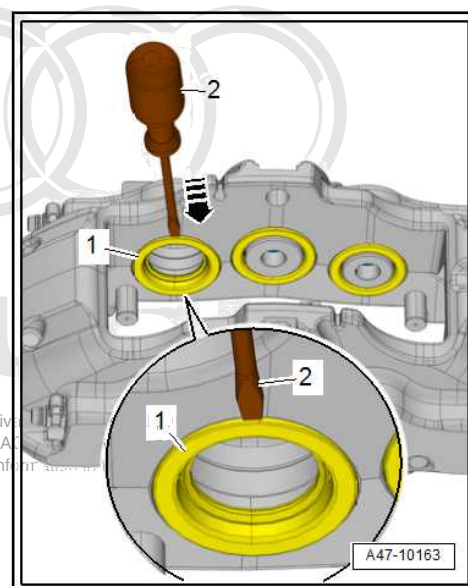
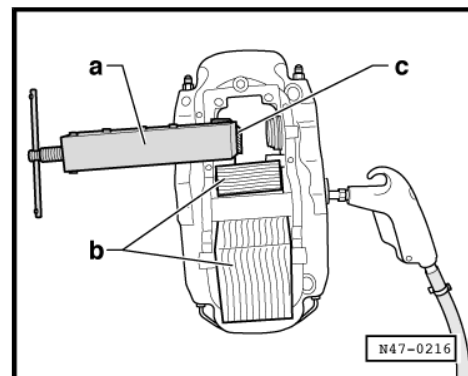


Note

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- ◆ *Take care not to damage paint on brake caliper when removing brake caliper pistons and protective caps.*
- ◆ *The brake caliper pistons can only be removed one at a time.*

- Use the piston resetting appliance - T10145- -item a- to hold the opposite brake caliper piston in place in the brake caliper.
- To avoid damaging the paint on the caliper, insert a piece of rubber between the piston resetting appliance - T10145- and the caliper.
- Use blocks of wood or similar -b- to keep the other pistons in place. Also place a piece of wood -c- against the piston resetting appliance - T10145- to prevent the brake caliper piston from being damaged when it is forced out.
- Carefully press the brake caliper piston out of the brake caliper using compressed air.
- Carefully drive the protective cap -1- out of the brake caliper using a screwdriver -2- (tap it lightly with a hammer -arrow-), taking care not to damage the paint on the caliper.



- Remove seal using removal wedge - 3409- .

Installing

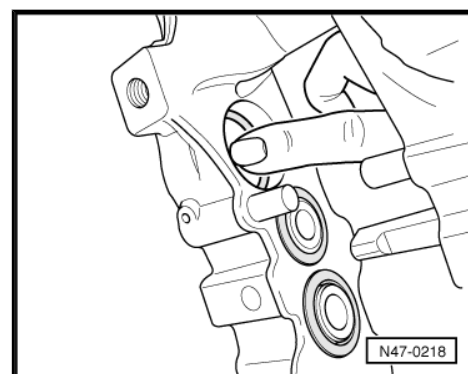
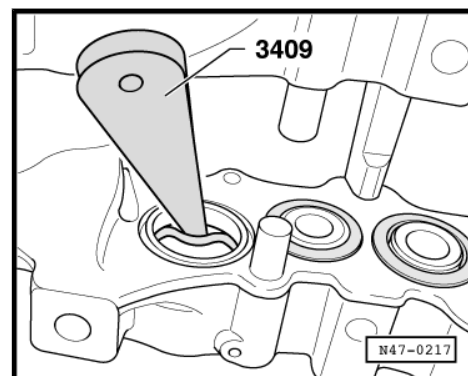
- The surfaces of the piston and seal must be cleaned only with methylated spirits and then dried.



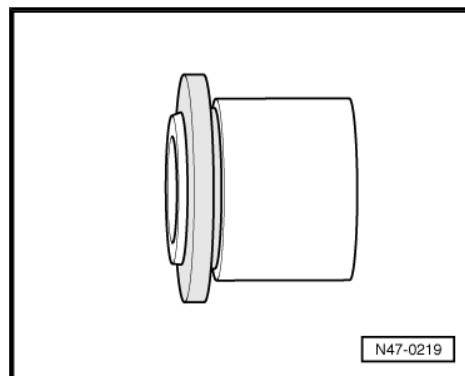
Note

The brake caliper must be replaced if a brake caliper piston or piston bore is damaged.

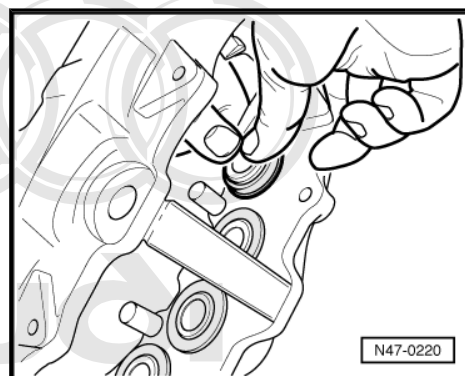
- Apply thin coat of lithium grease to brake caliper piston and seal ⇒ Electronic parts catalogue .
- Insert seal in brake caliper.



- Fit protective cap onto brake caliper piston.



- Push piston into caliper, exerting even pressure and making sure piston is straight.
- Press protective cap into groove on brake caliper.
- The protective cap must be securely seated in the groove. If necessary, press in further using piston resetting appliance - T10145- .
- Repeat procedure on next brake caliper piston.
- Install brake caliper ⇒ [page 38](#) .
- Install brake pads ⇒ [page 32](#) .
- Bleed brake system ⇒ [page 134](#) .



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2 Rear brake caliper

⇒ [“2.1 Exploded view - rear brake caliper”, page 97](#)

⇒ [“2.2 Removing and installing brake caliper piston”, page 98](#)

2.1 Exploded view - rear brake caliper

1 - Brake caliper

- ☐ Following repair work, pre-bleed brake caliper
⇒ [page 133](#) .

2 - Bolt

- ☐ Self-locking
- ☐ Renew
- ☐ Counter-hold guide pin when loosening and tightening
- ☐ 35 Nm

3 - Dust cap

4 - Bleeder screw

- ☐ Before screwing in, grease thread with thin coat of lithium grease - G 052 150 A2-
- ☐ 13 Nm

5 - Bolt

- ☐ Tightening torque
⇒ [Item 14 \(page 53\)](#)

6 - Parking brake motor

7 - Seal

8 - Guide pin

- ☐ Lubricate before installing protective cap

9 - Protective cap

- ☐ Insert onto brake carrier and guide pin

10 - Brake carrier with guide pins and protective caps

- ☐ Replacement carriers are supplied assembled and with sufficient grease on guide pins
- ☐ If protective caps or guide pins are damaged, renew using repair kit. Use grease sachet supplied to lubricate the guide pins.

11 - Protective cap

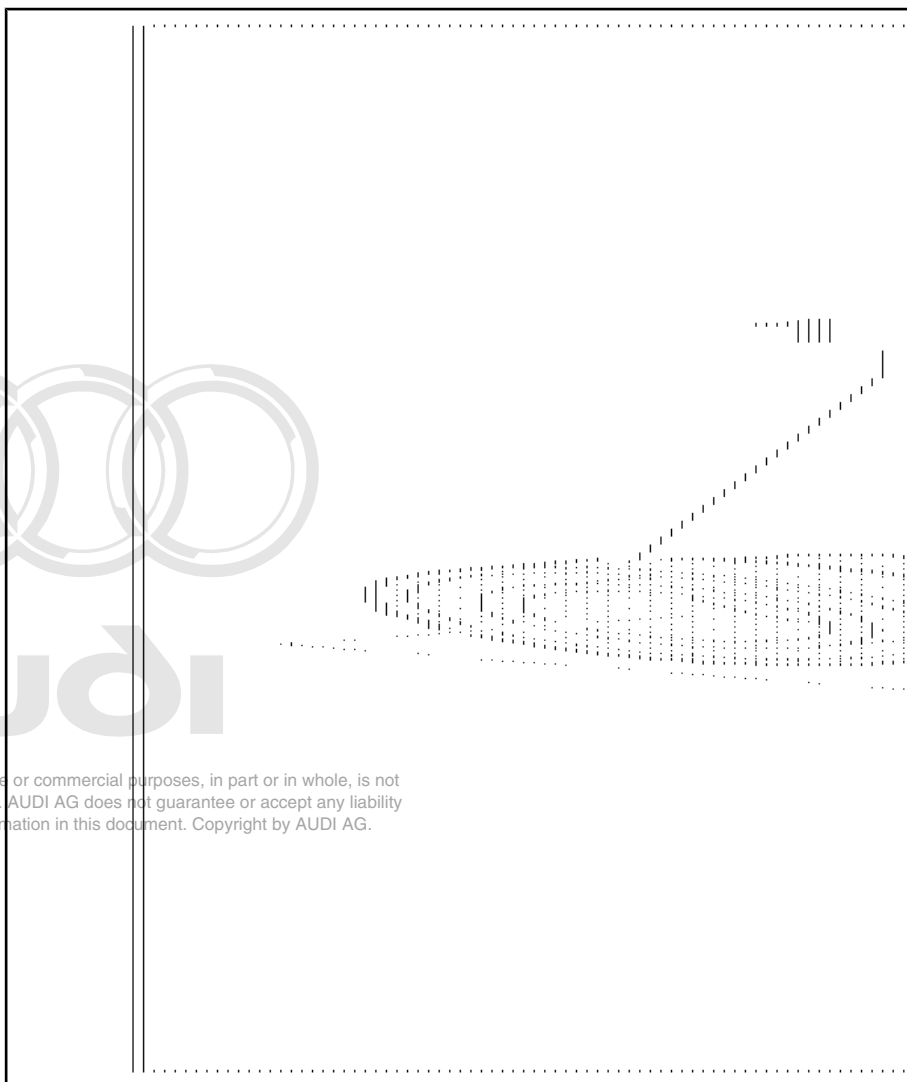
- ☐ Push outer sealing lip onto piston
- ☐ Removing and installing ⇒ [page 98](#)

12 - Piston

- ☐ Removing and installing ⇒ [page 98](#)
- ☐ Apply a thin coat of lithium grease - G 052 150 A2- to piston

13 - Seal

- ☐ Do not damage when inserting piston
- ☐ Removing and installing ⇒ [page 98](#)

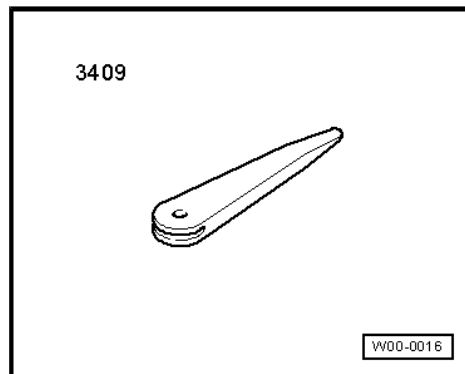


14 - Compressor nut

2.2 Removing and installing brake caliper piston

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



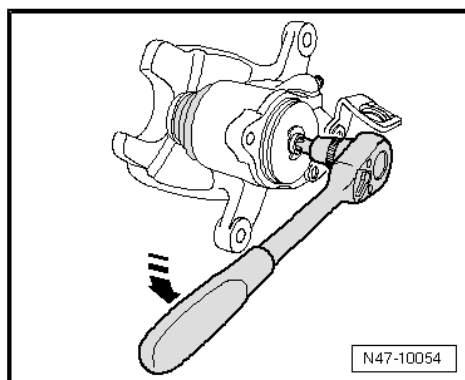
Removing

- Brake caliper removed ➔ [page 69](#)
- Parking brake motor removed ➔ [page 82](#)

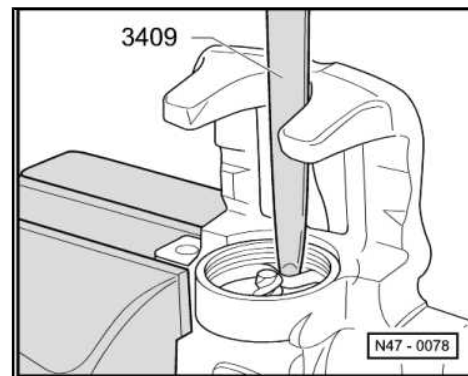


Note

- ◆ *Install complete repair kit when servicing.*
- ◆ *Use only methylated spirits to clean the brake components.*
- ◆ *Apply a thin coat of lithium grease - G 052 150 A2- to brake cylinder, piston and seal.*
- ◆ *When carrying out repairs it is essential to appropriately pre-bleed the brake calipers (without brake pads) before installing in the vehicle ➔ [page 133](#).*
- Turn spindle anti-clockwise -arrow- with 8 mm multi-point bit so that compressor nut presses piston out of brake caliper.
- Take piston with protective cap out of brake caliper.

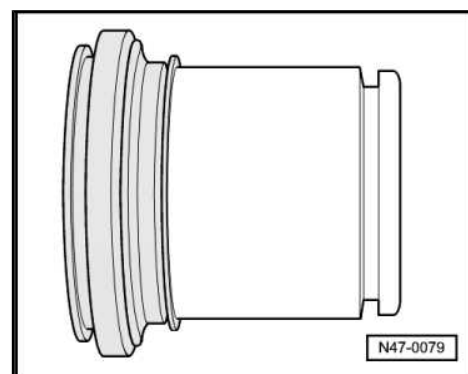


- Remove seal using removal wedge - 3409- .
- The surfaces of the piston and seal must be cleaned only with methylated spirits and then dried.

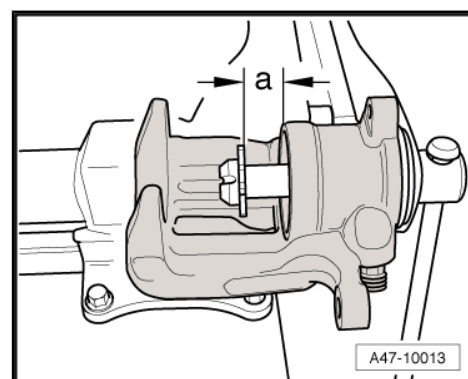


Installing

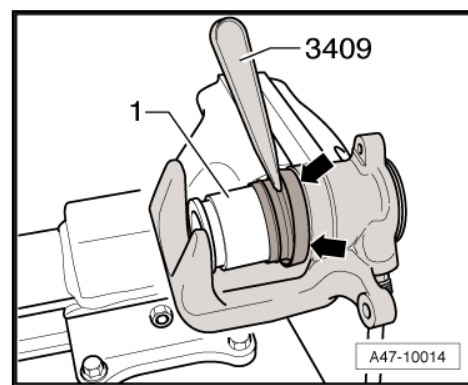
- Before installing, lightly lubricate piston and seal with lithium grease - G 052 150 A2- .
- Insert seal in brake caliper.
- Place outer sealing lip of protective cap on piston.



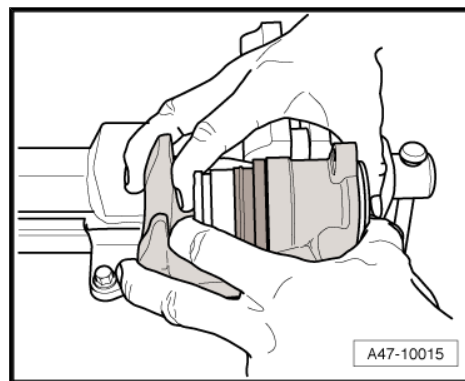
- Screw compressor nut onto spindle until dimension -a- = 15 mm.



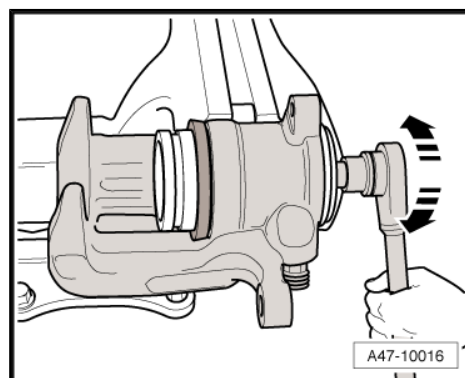
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- Insert inner sealing lip of protective cap into groove -arrows- in brake caliper using removal wedge - 3409- .
 - Push piston onto compressor nut; this is only possible in four positions.
 - Carefully press piston into brake caliper, moving piston as required.



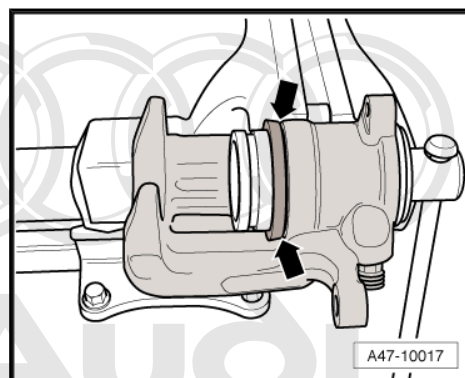
- Continue pressing piston into brake caliper until it rests against compressor nut.



- Carefully turn spindle clockwise until compressor nut is located on stop.

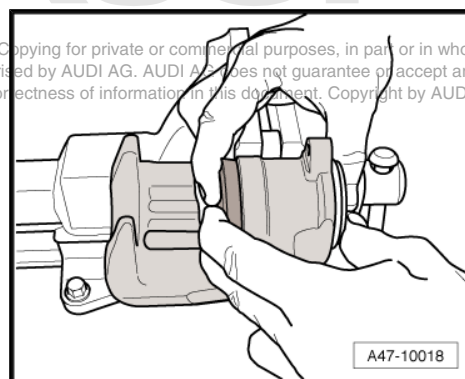


- The protective cap must make contact all round on the brake caliper -arrows-.



- Press piston into brake caliper by hand.

- The outer sealing lip of the protective cap will then lock in the groove on the piston.



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3 Brake servo / brake master cylinder

⇒ [“3.1 Exploded view - brake servo / brake master cylinder”, page 101](#)

⇒ [“3.2 Removing and installing brake light switch”, page 102](#)

⇒ [“3.3 Removing and installing brake servo”, page 103](#)

⇒ [“3.4 Removing and installing brake master cylinder”, page 105](#)

⇒ [“3.5 Removing and installing brake fluid reservoir”, page 107](#)

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3.1 Exploded view - brake servo / brake master cylinder



Note

Complete master cylinder and brake servo can be replaced independently of each other.

1 - Heat shield

2 - Nut

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ 25 Nm

3 - Sealing plug

- ☐ Moisten with brake fluid and press into brake fluid reservoir

4 - Bolt

- ☐ 5 Nm

5 - Brake fluid reservoir

- ☐ Removing and installing
⇒ [page 107](#)

6 - Seal

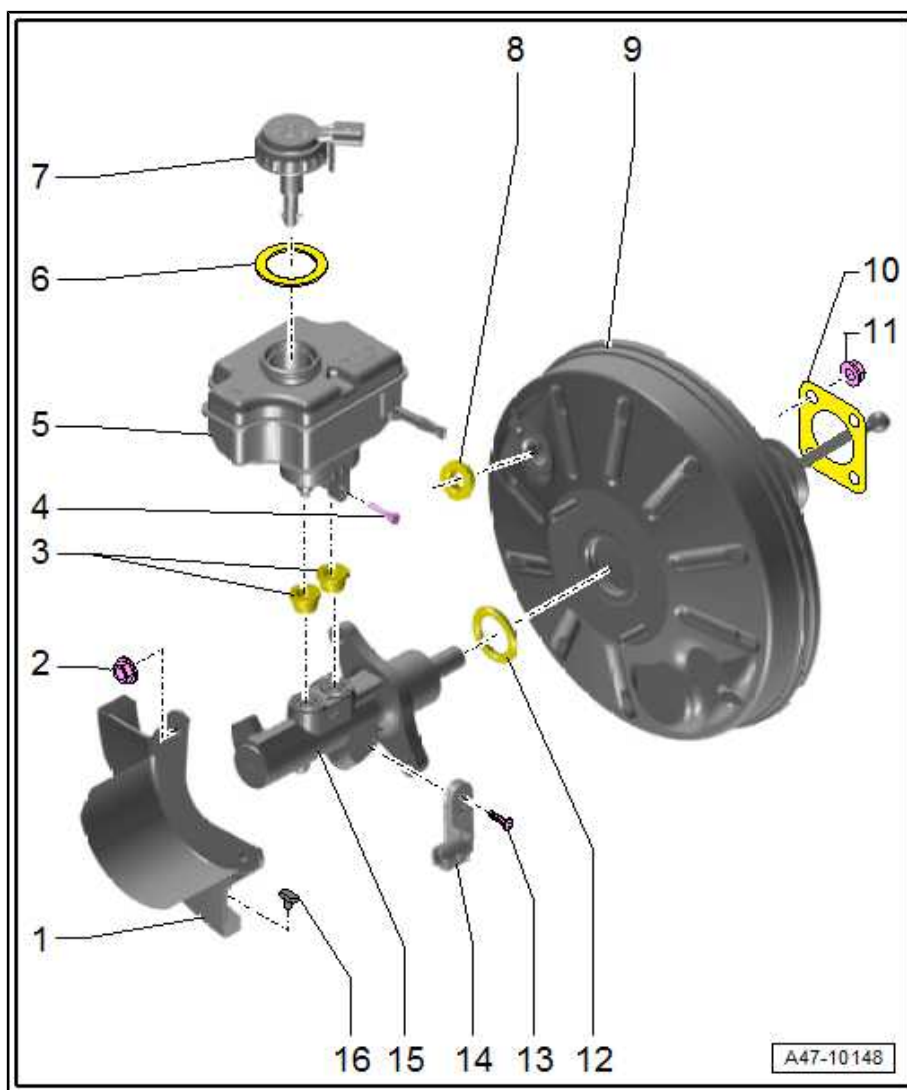
7 - Filler cap

8 - Grommet

9 - Brake servo

- ☐ Functional check:
 - With the engine switched off, firmly depress the brake pedal several times (this reduces the vacuum present in the servo unit).
 - Then hold brake pedal in applied position employing moderate force and start engine. If the servo unit is working properly, the pedal will give slightly under foot (servo assistance becomes activated).

- ☐ Separating from brake pedal ⇒ [page 86](#)



- ☐ Removing and installing ⇒ [page 103](#)

10 - Gasket

- ☐ For brake servo

11 - Nut

- ☐ Tightening torque and tightening sequence ⇒ [Item 2 \(page 85\)](#)

12 - Seal

- ☐ Always renew if removed

13 - Bolt

- ☐ 5 Nm

14 - Brake light switch - F- / brake pedal switch - F63-

- ☐ Removing and installing ⇒ [page 102](#)

15 - Brake master cylinder

- ☐ Cannot be repaired
- ☐ If defective renew complete unit
- ☐ Removing and installing ⇒ [page 105](#)

16 - Rubber buffer

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3.2 Removing and installing brake light switch



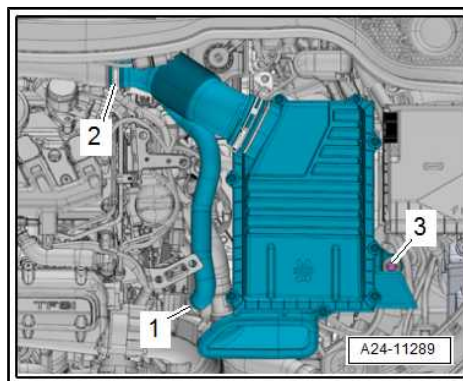
Note

The brake light switch - F- / brake pedal switch - F63- is located in the brake master cylinder.

Removing

Audi RS Q3:

- Remove air cleaner housing ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .



All vehicles (continued):

- Unplug electrical connector -1-.
- Remove bolt for brake light switch -2-.
- Pull brake light switch at bottom off brake master cylinder and out of retaining tab at top.

Installing

Installation is performed in reverse sequence; note the following:



Note

The brake light switch is not adjustable.

- Make sure that brake light switch is seated correctly in retaining tab at top.
- Tighten bolt for brake light switch.

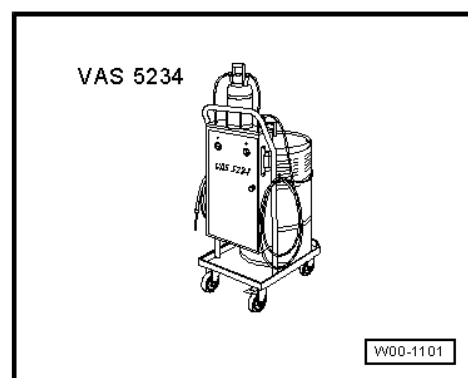
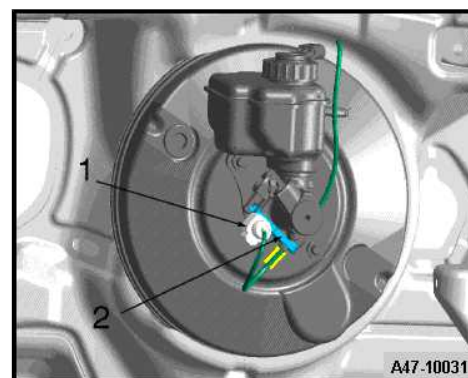
Tightening torques

- ◆ ⇒ ["3.1 Exploded view - brake servo / brake master cylinder", page 101](#)
- ◆ ⇒ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing

3.3 Removing and installing brake servo

Special tools and workshop equipment required

- ◆ Brake filling and bleeding equipment - VAS 5234- with adapter - VAS 5234/1A-



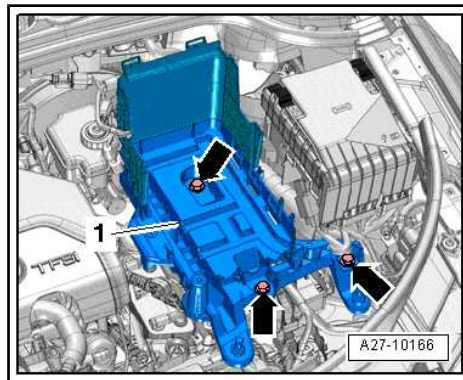
- ◆ Sealing plugs (repair kit - 1H0 698 311 A-)

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- Release brake servo vacuum by pressing the brake pedal several times.
- Remove air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

Audi Q3:

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



All vehicles (continued):

- Unplug electrical connector -2-.
- Disconnect vacuum line -1- from vacuum pump and brake servo and move to side with vacuum hose connected.

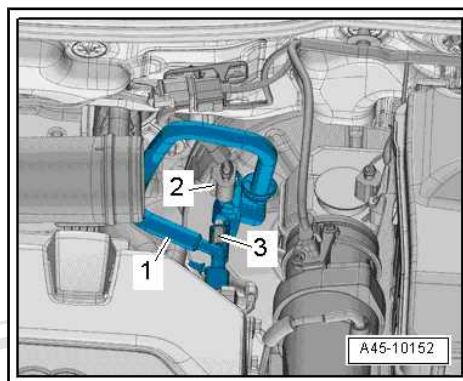


Note

Illustration shows vehicle with 2.0 ltr. TFSI engine as an example:

Vehicles with 2.0 ltr. TDI engine:

- Tie up air intake hose between air cleaner housing and turbo-charger to one side.
- Loosen screw-type clip on air intake hose between air cleaner housing and turn towards rear.



All vehicles (continued):

- Remove brake master cylinder with brake fluid reservoir
⇒ [page 105](#) .
- Separate brake pedal from brake servo ⇒ [page 86](#) .

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- Unscrew nuts -1-.
- Take off brake servo.

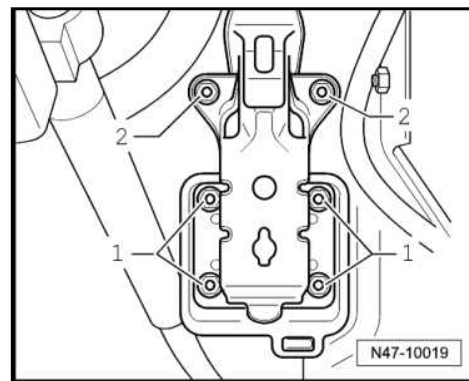


Disregard item -2-.

Installing

Installation is performed in reverse sequence; note the following:

- Connect brake pedal to brake servo ➔ [page 87](#) .
- Install brake master cylinder ➔ [page 105](#) .
- Bleed brake system ➔ [page 134](#) .
- Bleed clutch hydraulics ➔ Rep. gr. 30 ; Clutch mechanism; Bleeding clutch hydraulics .



WARNING

Risk of accident!

- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

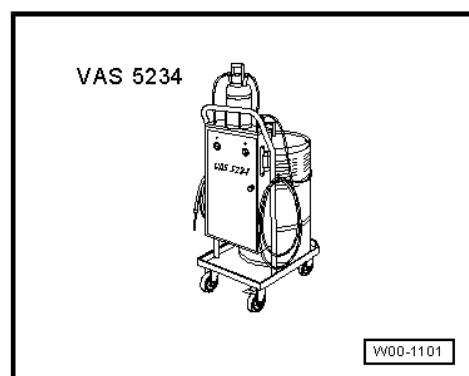
- ◆ ➔ [“3.1 Exploded view - brake servo / brake master cylinder”, page 101](#) .
- ◆ ➔ Rep. gr. 23 ; Air cleaner; Exploded view - air cleaner housing or ➔ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing
- ◆ Battery tray and battery ➔ Electrical system; Rep. gr. 27 ; Battery; Exploded view - battery .

3.4 Removing and installing brake master cylinder

Special tools and workshop equipment required

- ◆ Brake filling and bleeding equipment - VAS 5234-

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- ◆ Sealing plugs (repair kit - 1H0 698 311 A-)

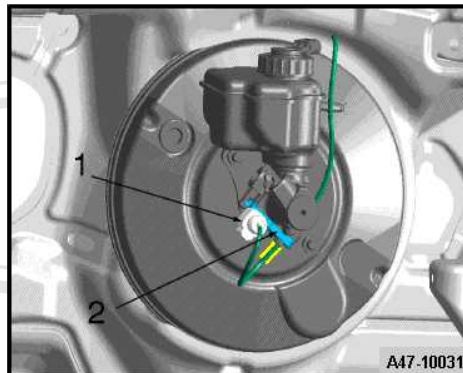
Removing

- Remove brake fluid reservoir ➔ [page 107](#) .
- Unplug electrical connector -1- at brake light switch - F- / brake pedal switch - F63- .



Note

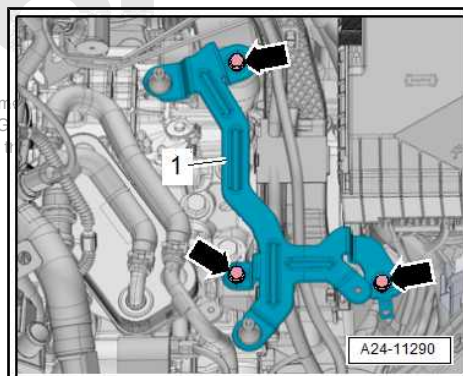
Disregard item -2-.



Audi RS Q3:

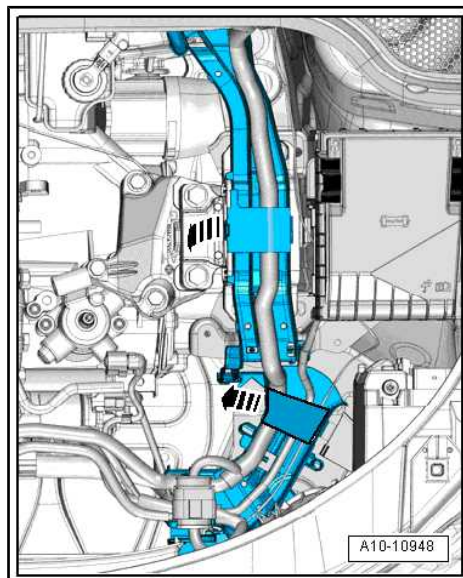
- Remove bolts -arrows- and detach bracket -1- for air cleaner housing.

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All vehicles (continued):

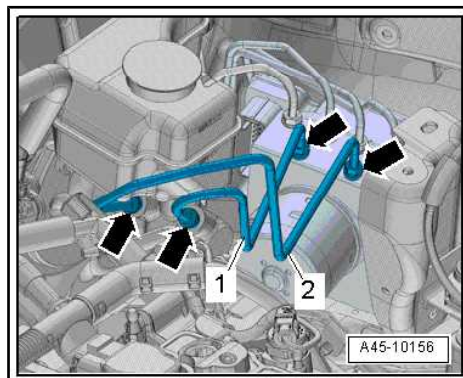
- Open retainers for wiring duct -arrows- and push electrical wiring aside.
- Unclip wiring duct.
- Draw off as much brake fluid as possible from brake fluid reservoir using brake filling and bleeding equipment - VAS 5234- .



Note

To protect against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath brake master cylinder.

- Unscrew union screws -arrows- and detach brake lines.
- Seal brake lines and threaded holes immediately using sealing plugs from repair kit - 1H0 698 311 A- .



- Unscrew nuts -2-.
- If fitted, remove heat shield with retaining plate.
- Detach brake master cylinder from brake servo.



Note

Disregard item -1-.

Installing

Installation is performed in reverse sequence; note the following.



Note

Renew seal between brake master cylinder and brake servo.

- When fitting brake master cylinder, make sure that push rod is correctly positioned in brake servo.
- Depress brake pedal slightly to make it easier to guide brake master cylinder onto push rod.
- Bleed brake system ➔ [page 134](#) .
- Bleed clutch hydraulics ➔ Rep. gr. 30 ; Clutch mechanism; Bleeding clutch hydraulics .



WARNING

Risk of accident!

- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

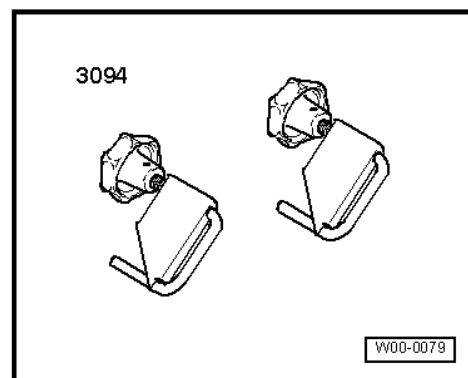
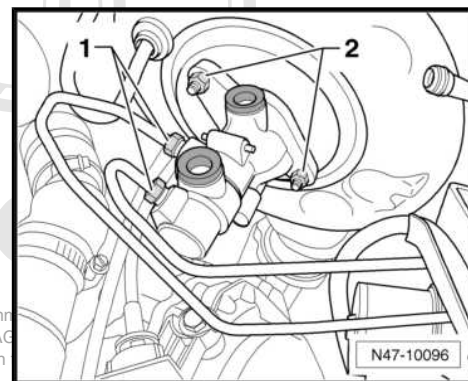
Tightening torques

- ◆ ➔ [“3.1 Exploded view - brake servo / brake master cylinder”, page 101](#) .
- ◆ ➔ [Fig. “Brake line connections on brake master cylinder - tightening torque”](#) , [page 11](#)

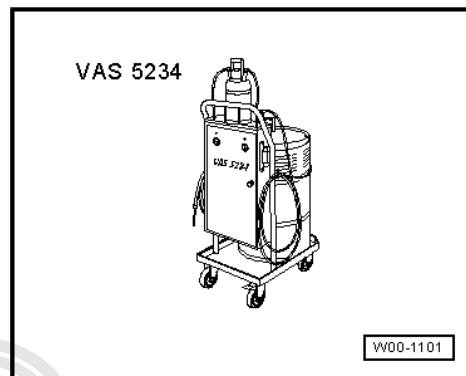
3.5 Removing and installing brake fluid reservoir

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm - 3094-



- ◆ Brake filling and bleeding equipment - VAS 5234- with adapter - VAS 5234/1A-



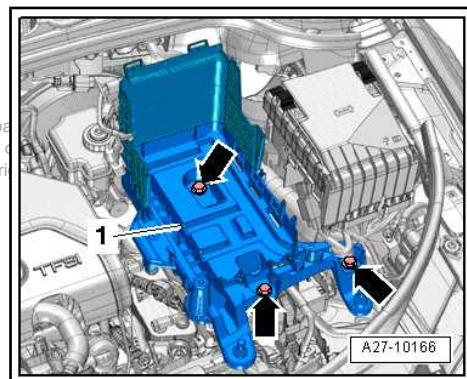
Removing

- Draw off as much brake fluid as possible from brake fluid reservoir using brake filling and bleeding equipment - VAS 5234- .
- To protect against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath brake master cylinder.

Audi Q3:

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

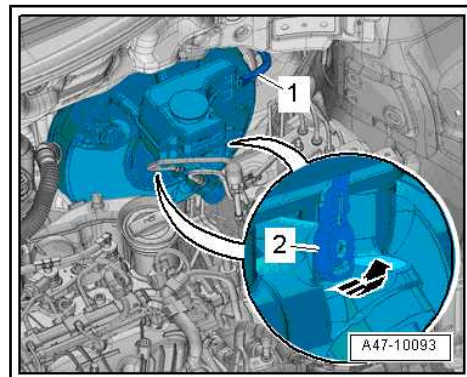
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Note

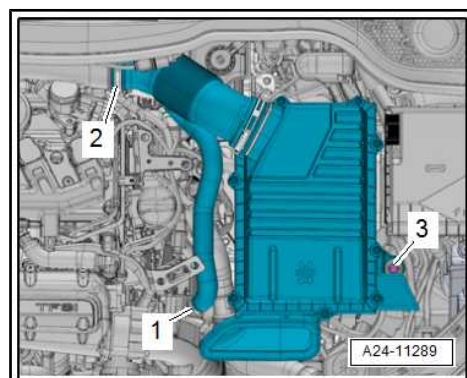
Place a cloth under the connection to catch escaping brake fluid.

- Vehicles with manual gearbox: Disconnect supply hose -1- for clutch master cylinder.
- Release catches -2- on both sides -arrow- and pull brake fluid reservoir off upwards out of sealing plugs.



Audi RS Q3:

- Remove air cleaner housing ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .



- Unscrew stud -arrow- and pull brake fluid reservoir -1- upwards out of sealing plugs.



Note

Disregard item -2-.

Installing

Installation is performed in reverse sequence; note the following:

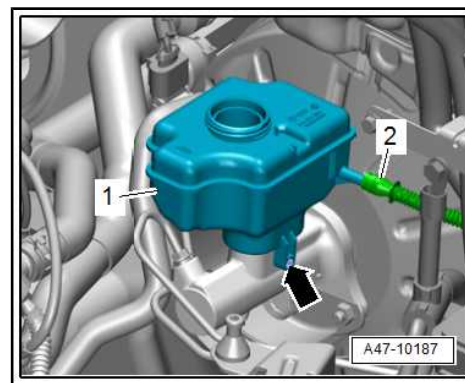
- Bleed brake system ➔ [page 134](#) .



WARNING

Risk of accident!

- ◆ ***Make sure that the brakes work properly before the vehicle is driven on the road.***



Tightening torques

- ◆ Air pipe ➔ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing
- ◆ Battery tray and battery ➔ Electrical system; Rep. gr. 27 ; Battery; Exploded view - battery .

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4 Vacuum system

⇒ "4.1 Exploded view - electric vacuum pump", page 110

⇒ "4.2 Exploded view - vacuum pump", page 111

⇒ "4.3 Checking non-return valve", page 113

⇒ "4.4 Removing and installing non-return valve", page 114

⇒ "4.5 Removing and installing vacuum sender G608", page 115

⇒ "4.6 Checking vacuum system", page 116

⇒ "4.7 Removing and installing electric vacuum pump", page 120

⇒ "4.8 Removing and installing vacuum pump", page 121

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4.1 Exploded view - electric vacuum pump

1 - Vacuum pump for brakes - V192-

- ☐ For correct version refer to ⇒ Electronic parts catalogue
- ☐ Fitting location: in engine compartment above joint between gearbox and engine
- ☐ Do not dismantle
- ☐ Removing and installing ⇒ page 120

2 - Vacuum line

- ☐ With brake servo pressure sensor
- ☐ For correct version refer to ⇒ Electronic parts catalogue

3 - Bracket

4 - Bolt

- ☐ 2x
- ☐ 8 Nm

5 - Rubber damper

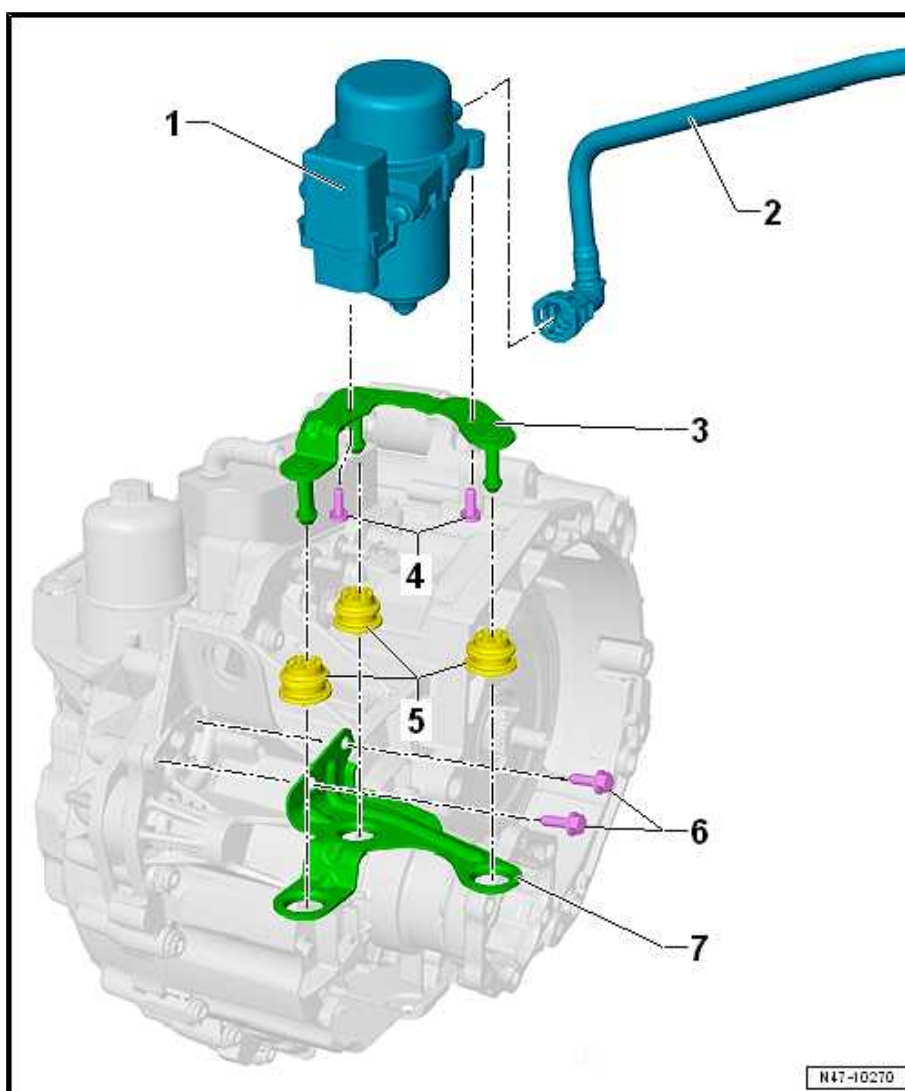
- ☐ 3x
- ☐ Make sure it is not pushed out of bracket during installation

6 - Bolt

- ☐ 25 Nm

7 - Bracket

- ☐ Attached to gearbox



4.2 Exploded view - vacuum pump

⇒ ["4.2.1 Exploded view - vacuum pump for vehicles with 2.0 ltr. TFSI engine", page 111](#)

⇒ ["4.2.2 Exploded view - vacuum pump for vehicles with 2.5 ltr. TFSI engine", page 112](#)

⇒ ["4.2.3 Exploded view - vacuum pump for vehicles with TDI engine", page 113](#)

4.2.1 Exploded view - vacuum pump for vehicles with 2.0 ltr. TFSI engine

1 - Bolt

- ☐ Tightening torque ⇒
Rep. gr. 24 ; High-pressure pump; Exploded view - high-pressure pump

2 - High-pressure pump

- ☐ Removing and installing
⇒ Rep. gr. 24 ; High-pressure pump; Removing and installing high-pressure pump

3 - O-ring

4 - Bolt

- ☐ 9 Nm

5 - Gasket

- ☐ Renew

6 - Coolant line

7 - Vacuum hose

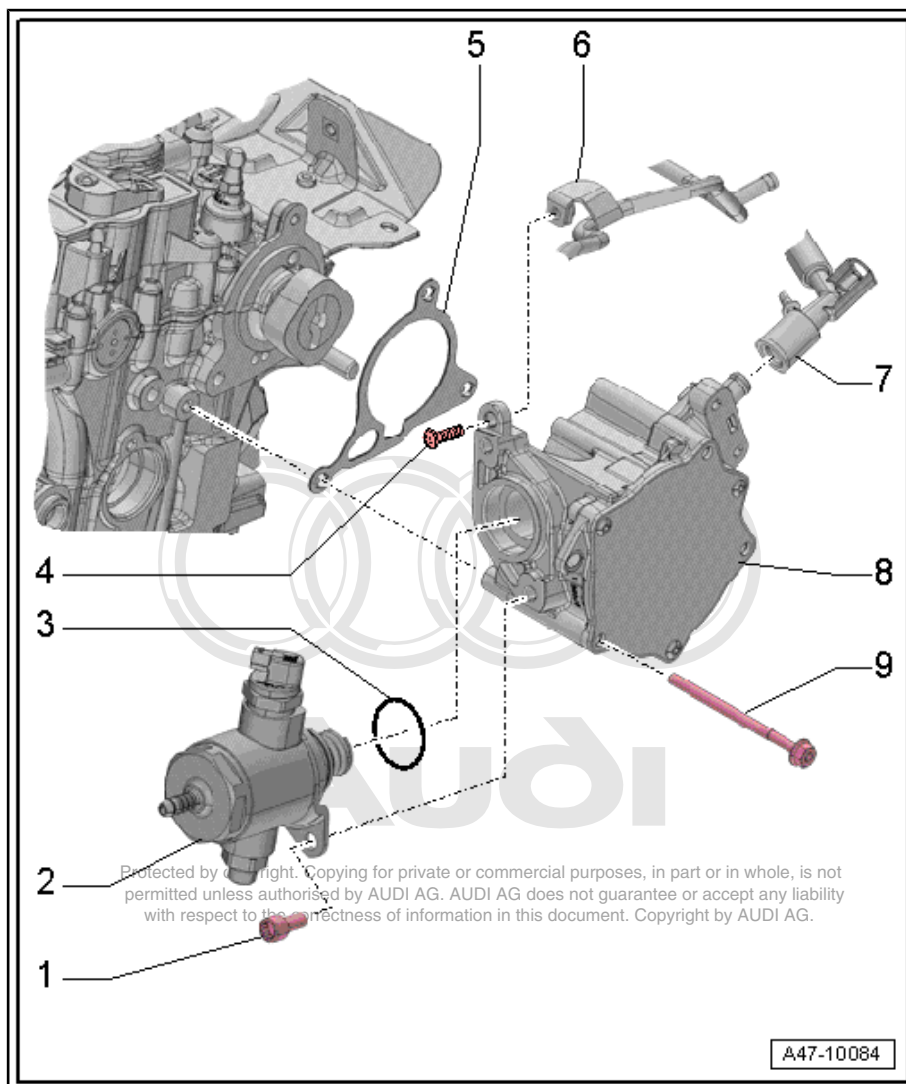
- ☐ With vacuum sender - G608-
- ☐ Renew vacuum hose if damaged
- ☐ Removing and installing vacuum sender - G608-
⇒ [page 115](#)

8 - Vacuum pump

- ☐ The vacuum pump is driven mechanically
- ☐ Checking vacuum system ⇒ [page 116](#)
- ☐ Removing and installing
⇒ [page 121](#)

9 - Bolt

- ☐ 9 Nm



4.2.2 Exploded view - vacuum pump for vehicles with 2.5 ltr. TFSI engine

1 - Bolt

- ☐ 9 Nm

2 - Gasket

- ☐ Always renew if removed

3 - Timing chain cover (bottom)

4 - Vacuum sender - G608-

- ☐ Removing and installing
⇒ [page 115](#)

5 - O-ring

- ☐ Renew if damaged

6 - Vacuum hose

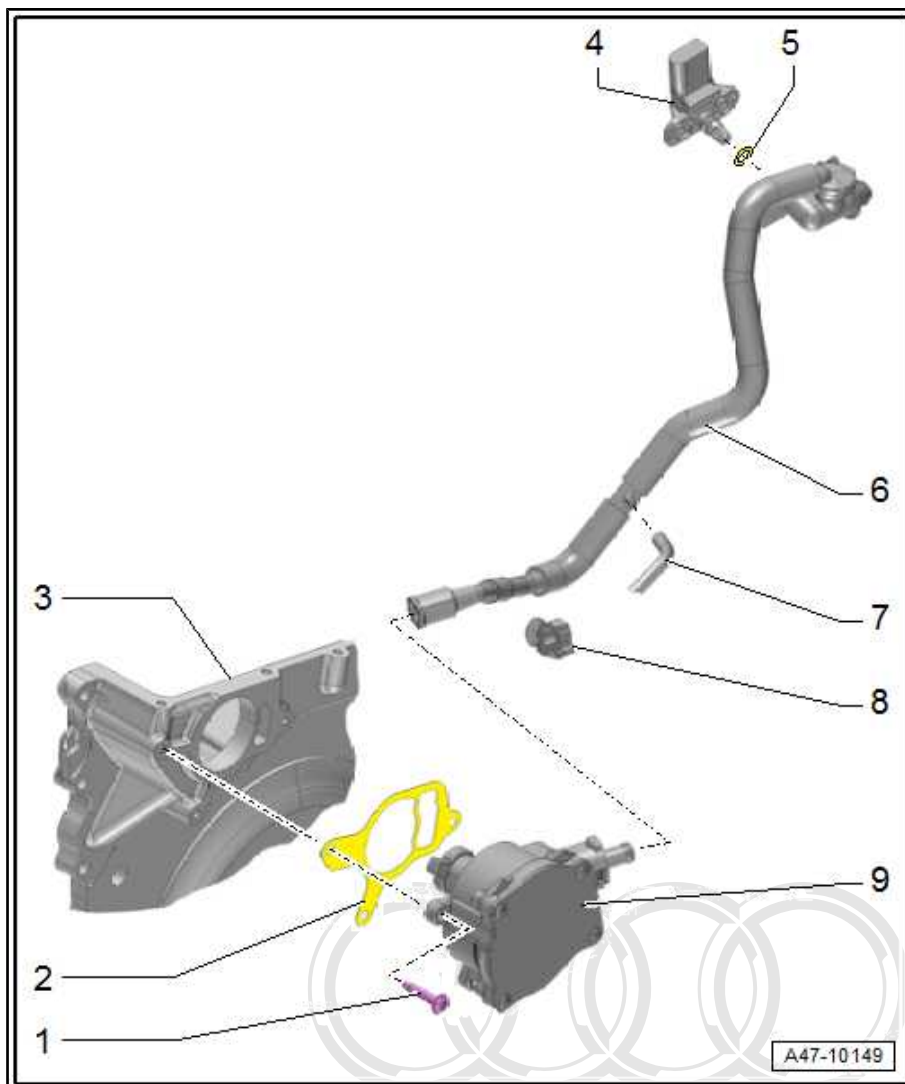
- ☐ With non-return valve
- ☐ Renew vacuum hose if damaged

7 - Vacuum hose

8 - Clip

9 - Vacuum pump

- ☐ The vacuum pump is driven mechanically
- ☐ Checking vacuum system ⇒ [page 116](#)
- ☐ Removing and installing
⇒ [page 121](#)



Audi

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4.2.3 Exploded view - vacuum pump for vehicles with TDI engine

1 - Vacuum hose

- ☐ Renew if damaged

2 - Vacuum line

- ☐ Renew if damaged

3 - Gasket

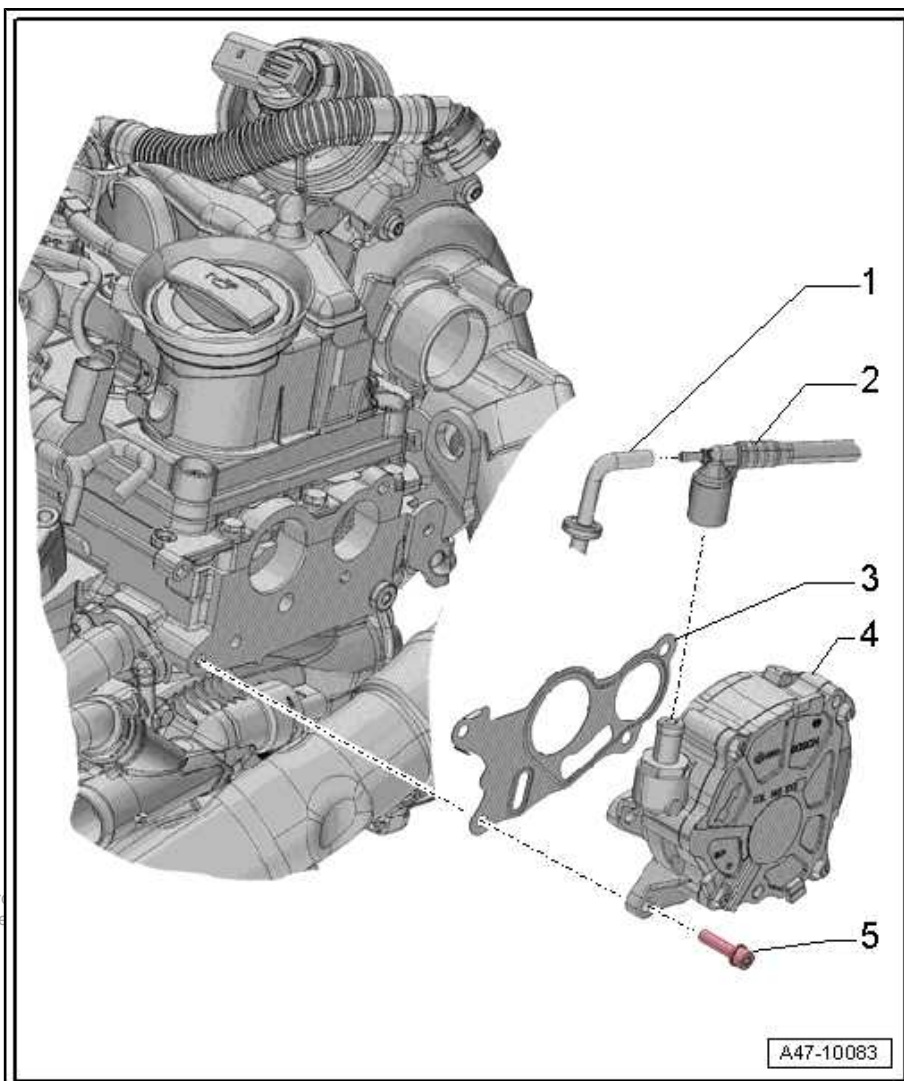
- ☐ Renew

4 - Vacuum pump

- ☐ The vacuum pump is driven mechanically
- ☐ Checking vacuum system ⇒ [page 116](#)
- ☐ Removing and installing ⇒ [page 124](#)

5 - Bolt

- ☐ 9 Nm



4.3 Checking non-return valve

- Non-return valve removed ⇒ [page 114](#)



Note

The non-return valve is fitted directly in front of the vacuum pump.

- The valve should allow air to pass in the direction indicated by the arrow.
- Valve must remain closed in opposite direction.



Note

- ♦ *Pay attention to correct installation position.*
- ♦ *The arrow indicating the flow direction points towards the vacuum pump.*

4.4 Removing and installing non-return valve

Note

- ◆ *The non-return valve is fitted directly in front of the vacuum pump.*
- ◆ *The vacuum pump does not have to be removed.*

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Removing

Audi Q3:

- Use suitable pliers to release hose clip on vacuum hose.
- Detach vacuum hose from vacuum pump for brakes -V192- .

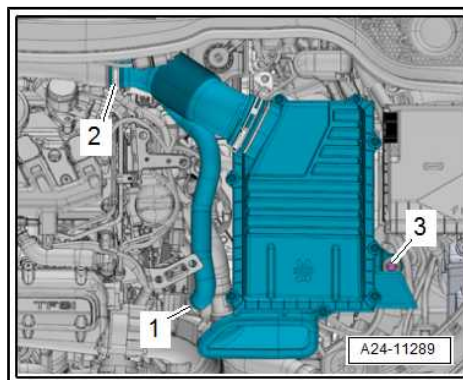


Caution

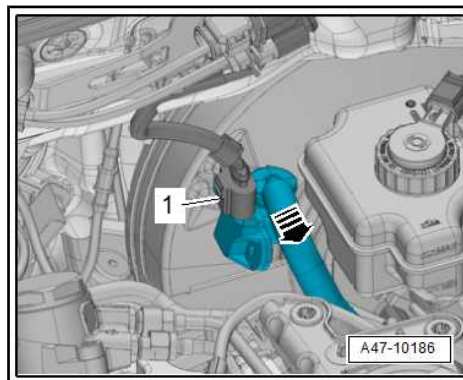
Take care not to damage the vacuum hose. The vacuum hose must be renewed if it is damaged.

Audi RS Q3:

- Remove air cleaner housing ➔ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .



- Unplug electrical connector -1-.
- Disconnect vacuum hose from brake servo -arrow-.



- Pull off vacuum hose -2-.
- Release vacuum hose -1- -arrow-, disconnect from brake servo vacuum pump and detach.



Caution

Take care not to damage the vacuum hose. The vacuum hose must be renewed if it is damaged.

Installing



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To facilitate installation, moisten the non-return valve and vacuum hose slightly with water; do not use oil.

- Fit new hose clip on vacuum hose.

Tightening torques

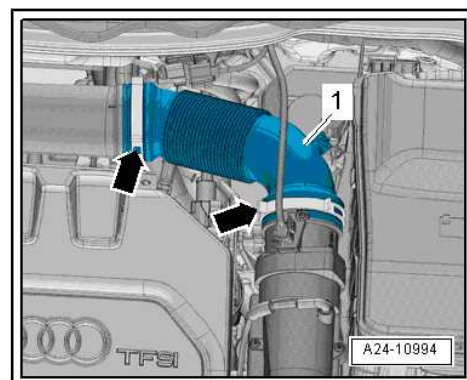
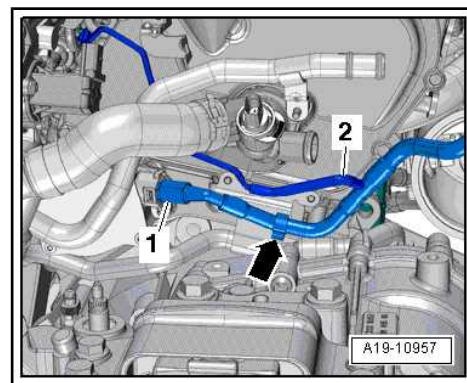
- ◆ ⇒ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing

4.5 Removing and installing vacuum sender - G608-

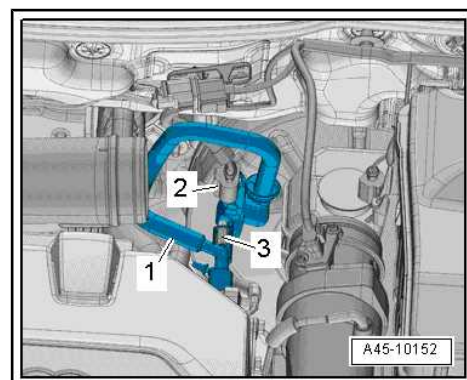
Removing

Audi Q3:

- Release hose clips -arrows- and remove air pipe -1-.

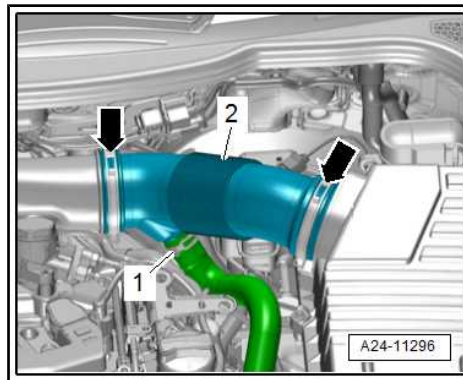


- Unplug electrical connector -2-.
- Pull off vacuum hose -3-.

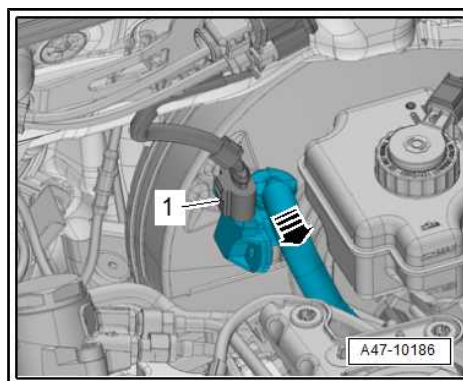


Audi RS Q3:

- Release hose clips -arrows- and move air pipe to one side with hose connected.



- Unplug electrical connector -1-.
- Disconnect vacuum line from brake servo -arrow-.
- Disconnect vacuum line -1- from vacuum pump and brake servo and move to side with vacuum hose connected.



All vehicles (continued):

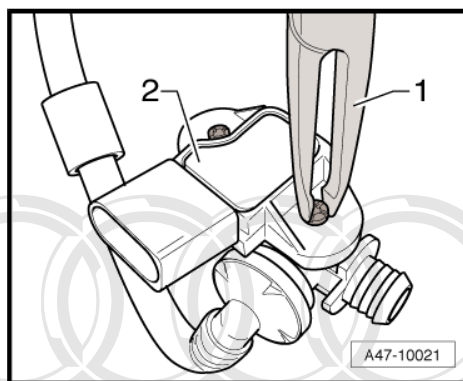
- Release fasteners with pliers -1-.
- Carefully lever out vacuum sender - G608- -item 2-.

Installing

Installation is carried out in the reverse sequence.

Tightening torques

- ♦ Air pipe ⇒ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing



4.6 Checking vacuum system

⇒ [“4.6.1 Test and test requirements”, page 116](#)

⇒ [“4.6.2 Connecting brake servo tester”, page 117](#)

⇒ [“4.6.3 Checking vacuum generation”, page 118](#)

⇒ [“4.6.4 Checking for leaks”, page 118](#)

⇒ [“4.6.5 Generating vacuum with hand vacuum pump”, page 120](#)

4.6.1 Test and test requirements

The following instructions are intended to help you trace the causes of faults quickly and effectively in the event of problems involving the brake servo or in the event of a »hard brake pedal«.

This check relates to the following components:

- ♦ Brake servo
- ♦ Seal between brake master cylinder and brake servo.
- ♦ Non-return valve

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- ◆ Vacuum hoses with connectors
- ◆ Vacuum pump (if fitted)

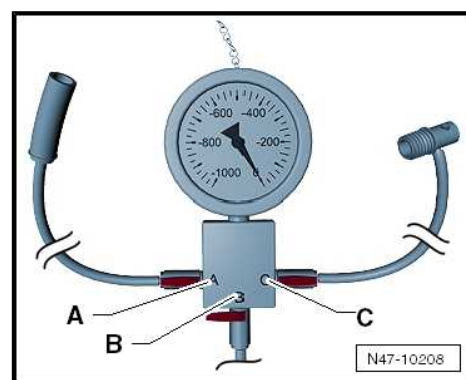
When evaluating the measured results, bear in mind that they will be influenced by your geographical location. The higher your location is above sea level, the lower the air pressure will be.

Before checking the vacuum system, it is important to observe the following test requirements:

- ◆ Visual inspection of all vacuum hoses for damage (e.g. cracks or animal bites) and to check that they are correctly and firmly attached
- ◆ Ensure cleanliness when working on the vacuum system
- ◆ Before starting work, clean the engine compartment if necessary

Special tools and workshop equipment required

- ◆ Brake servo tester - VAS 6721-

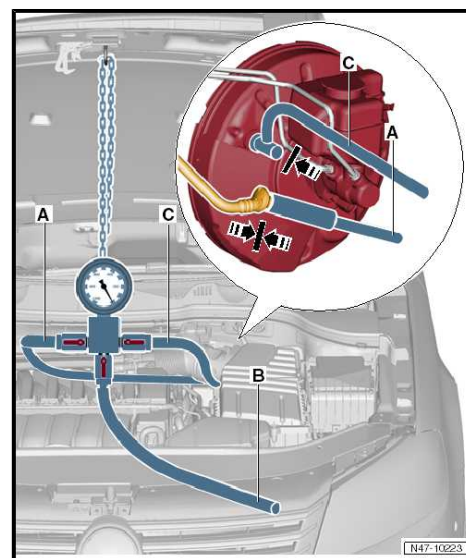


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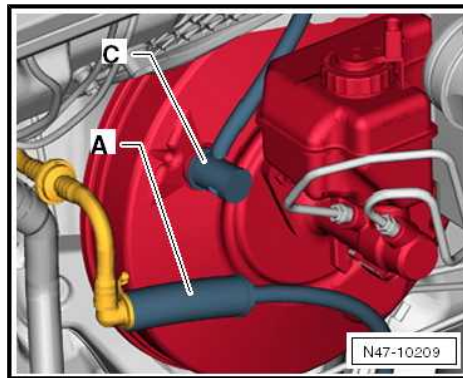
4.6.2 Connecting brake servo tester

- Pull vacuum hose out of brake servo.
- First press the brake pedal several times in order to facilitate removal of the vacuum hose.
- Connect brake servo tester - VAS 6721- as shown in the following illustrations.

Item	Component	Explanation
A	Shut-off valve	To vacuum hose, non-return valve and (if fitted) vacuum pump
B	Shut-off valve	◆ Open to facilitate removal of brake servo tester - VAS 6721- ◆ Open to simulate a fault ◆ Connection for hand vacuum pump - VAS 6213-
C	Shut-off valve	To brake servo



- Push hose -A- of brake servo tester - VAS 6721- onto vacuum hose and press adapter -C- into brake servo.



4.6.3 Checking vacuum generation



Note

- ♦ *The mean atmospheric pressure at sea level is 1013 mbar and decreases rapidly with increasing altitude (approx. 100 mbar per 1,000 m of altitude). Fluctuations at different locations and times also influence vacuum generation.*
- ♦ *Continuous engine idling will impair vacuum generation.*

- Before starting work, check all vacuum hoses for damage (e.g. cracks or animal bites) and make sure they are correctly and securely attached.

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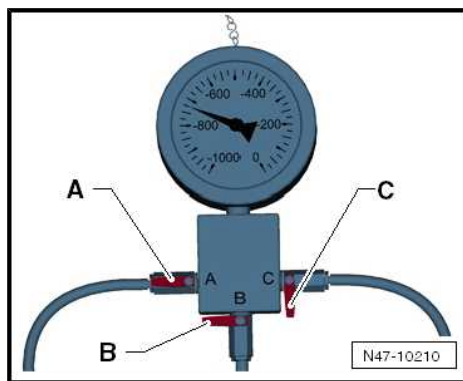
- Connect brake servo tester - VAS 6721- ➔ [page 117](#) .
- Open shut-off valve -A-.
- Close shut-off valves -B+C-.
- Start warm engine (>60° C), press accelerator briefly (engine speed greater than 2000/min).
- Read indicated value.

Under normal conditions (see notes), the generated vacuum should be between 600 and 950 mbar (depending on engine version).

If the specified value is not obtained even though the test conditions (see notes) have been met, the vacuum system must first be checked for leaks.

- For comparison purposes, generate the vacuum with the hand vacuum pump - VAS 6213- ➔ [page 120](#) .

Open shut-off valve -B- to facilitate removal of hose connections and adapter.



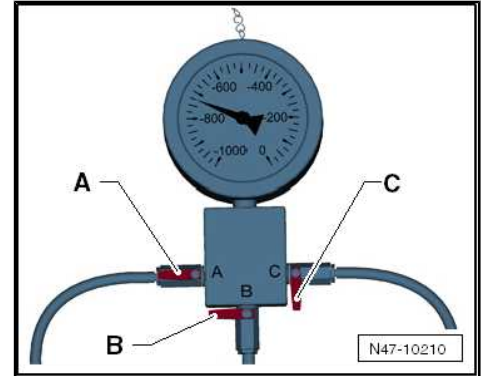
4.6.4 Checking for leaks



Note

- ♦ *The mean atmospheric pressure at sea level is 1013 mbar and decreases rapidly with increasing altitude (approx. 100 mbar per 1,000 m of altitude). Fluctuations at different locations and times also influence vacuum generation.*
- ♦ *Continuous engine idling will impair vacuum generation.*

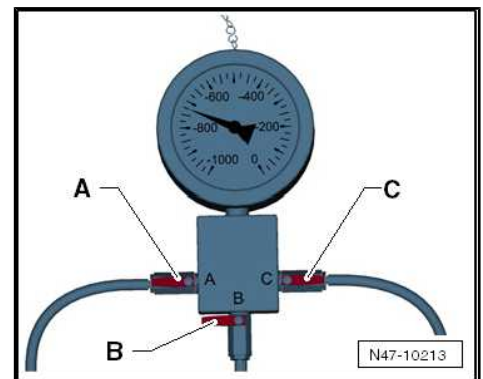
- Before starting work, check all vacuum hoses for damage (e.g. cracks or animal bites) and make sure they are correctly and securely attached.
- Connect brake servo tester - VAS 6721- ➔ [page 117](#) .
- Open shut-off valve -A-.
- Close shut-off valves -B+C-.
- Start warm engine ($>60^{\circ}\text{C}$), press accelerator briefly (engine speed greater than 2000/min).
- Under normal conditions (see notes), the generated vacuum should be between 600 and 950 mbar (depending on engine version).



- Open shut-off valve -C- to evacuate brake servo.
- Switch off engine.
- Read and make a note of measured value shown.
- A vacuum decrease of 400 mbar in 12 hours is permissible.

If the vacuum decrease is greater, check for leaks in the vicinity of...

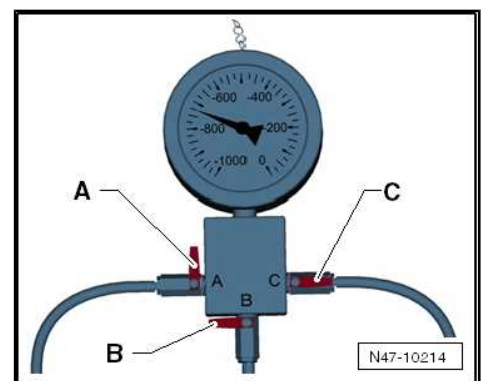
- 1 - Brake servo
- or
- 2 - non-return valve, vacuum hoses with connectors or vacuum pump/intake manifold.



If there are large leaks, the vacuum will decrease rapidly within a few seconds.

Vacuum check in vicinity of brake servo:

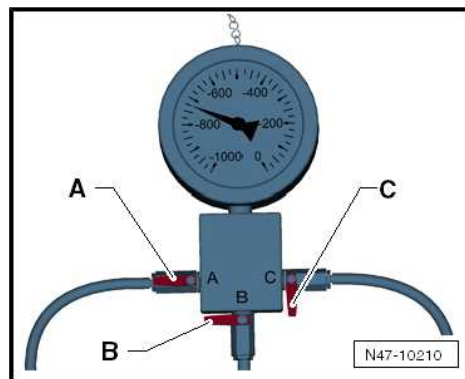
- After generating vacuum, close shut-off valve -A- in order to check brake servo vacuum system.



Vacuum check in vicinity of non-return valve, vacuum hoses with connectors and vacuum pump/intake manifold:

- After generating vacuum, close shut-off valve -C- in order to check vacuum system from brake servo tester - VAS 6721- to intake manifold or vacuum pump.

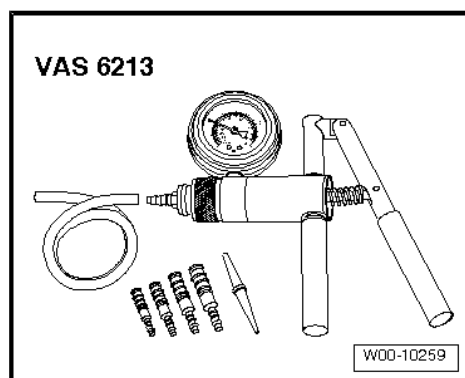
Open shut-off valve -B- to facilitate removal of hose connections and adapter.



4.6.5 Generating vacuum with hand vacuum pump

Instead of vacuum generation using the engine or vacuum pump, vacuum can be also generated by means of the hand vacuum pump - VAS 6213- in certain cases.

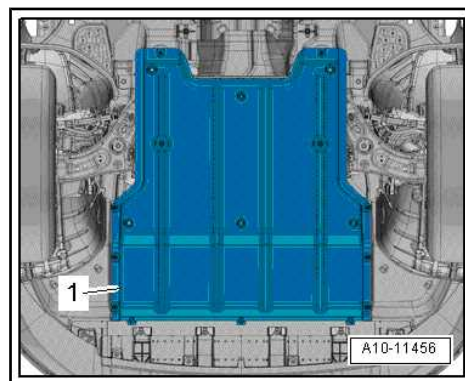
- To do this, connect hand vacuum pump - VAS 6213- to vacuum hose from connection -B- on brake servo tester - VAS 6721- .
- Open shut-off valve -B-.
- Generate vacuum with hand vacuum pump - VAS 6213- until brake servo tester - VAS 6721- indicates between 600 and 950 mbar.
- Then carry out the corresponding checks.



4.7 Removing and installing electric vacuum pump

Removing

- Remove noise insulation -1- ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



- Unplug electrical connector -4-.
- Disconnect vacuum hose -3- from electric vacuum pump -1-.
- Push electric vacuum pump upwards out of rubber dampers in bracket -2- -arrow-.

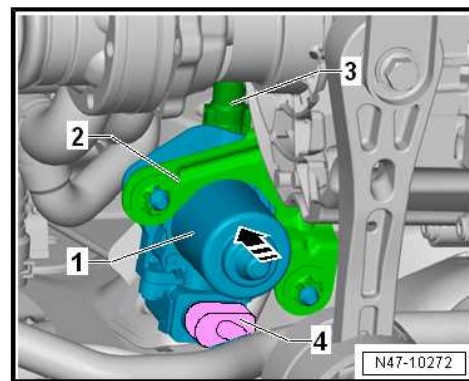
Installing

Installation is performed in reverse sequence; note the following:



Note

The bracket for the electric vacuum pump should be transferred from the old unit if the vacuum pump is being renewed.



Tightening torques

- ◆ ⇒ [“4.1 Exploded view - electric vacuum pump”, page 110](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

4.8 Removing and installing vacuum pump

⇒ [“4.8.1 Removing and installing vacuum pump \(vehicles with 2.0 ltr. TFSI engine\)”, page 121](#)

⇒ [“4.8.2 Removing and installing vacuum pump \(vehicles with 2.5 ltr. TFSI engine\)”, page 123](#)

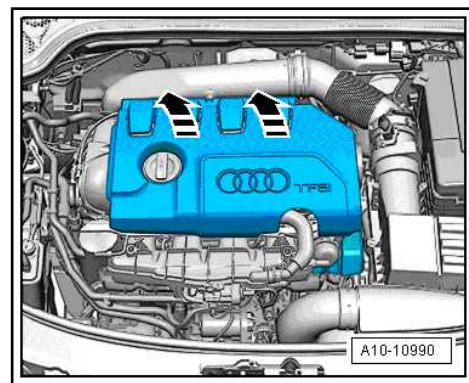
⇒ [“4.8.3 Removing and installing vacuum pump \(vehicles with TDI engine\)”, page 124](#)

4.8.1 Removing and installing vacuum pump (vehicles with 2.0 ltr. TFSI engine)

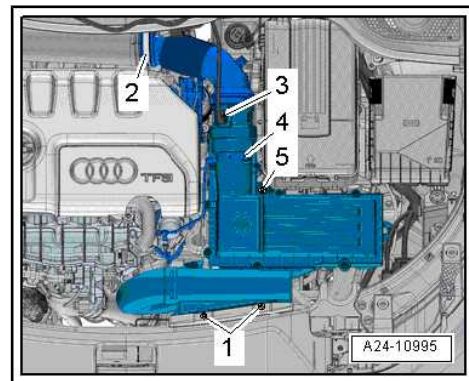
Removing

- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

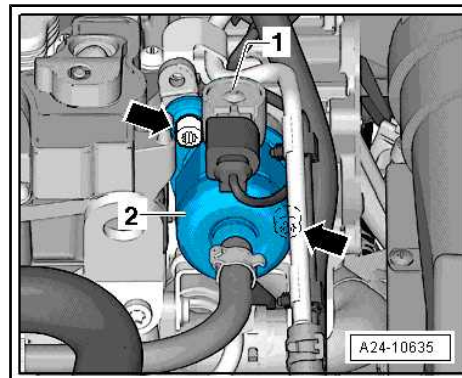
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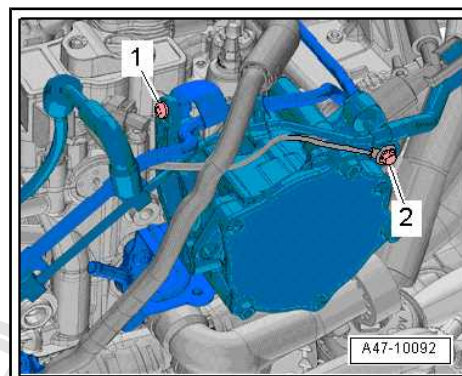
- Remove air cleaner housing ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .



- Remove high-pressure pump ⇒ Rep. gr. 24 ; High-pressure pump; Removing and installing high-pressure pump .



- Remove bolt -1- for coolant line and bolt -2- for earth wire.



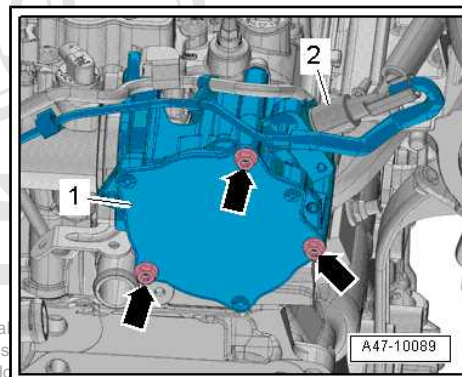
- Disconnect vacuum hoses -2- from vacuum pump -1- and move clear.



Caution

Take care not to damage vacuum hoses. A damaged vacuum hose must be renewed.

- Remove bolts -arrows- from sealing flange of vacuum pump.
- Pull vacuum pump out of its mounting and detach.



Installing

Installation is performed in reverse sequence; note the following:



Note

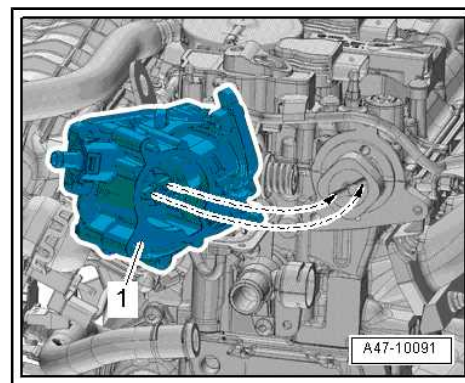
Renew gasket.

- Ensure that gasket is seated correctly.

- Turn drive lugs of vacuum pump -1- so they engage in slot in camshaft when vacuum pump is installed -arrows-.
- Install engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

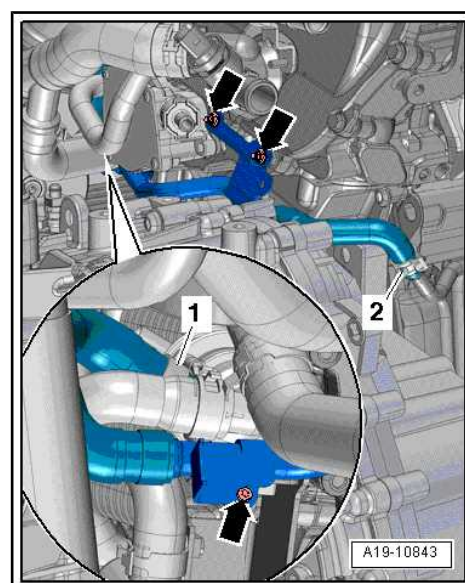
- ◆ ⇒ [“4.2.1 Exploded view - vacuum pump for vehicles with 2.0 ltr. TFSI engine”, page 111](#)
- ◆ ⇒ Rep. gr. 24 ; High-pressure pump; Exploded view - high-pressure pump
- ◆ ⇒ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing



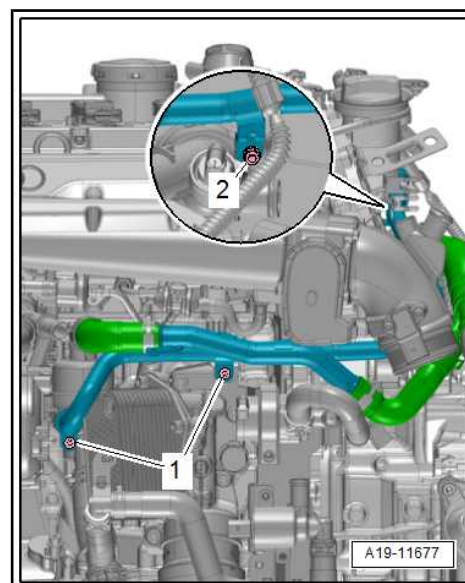
4.8.2 Removing and installing vacuum pump (vehicles with 2.5 ltr. TFSI engine)

Removing

- Remove coolant pipe (left-side) ⇒ Rep. gr. 19 ; Coolant pipes; Removing and installing coolant pipes .



- Remove bolts -1- and nut -2-, disconnect coolant pipes (front) from thermostat housing and push slightly to one side.



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- Remove bolts -arrows- and detach vacuum pump -1-.

Installing

Installation is performed in reverse sequence; note the following:



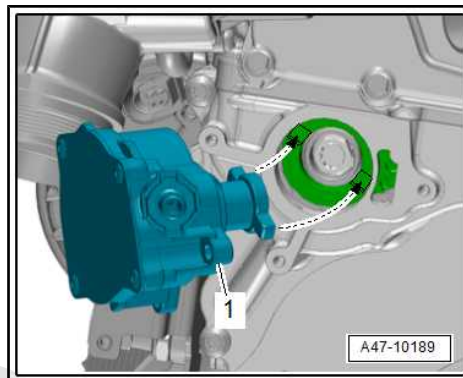
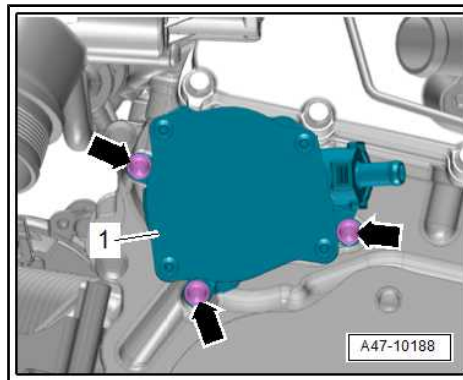
Note

Renew gasket.

- Ensure that gasket is seated correctly.
- Turn drive lugs of vacuum pump -1- so they engage in slots on drive sprocket for camshaft timing chain when vacuum pump is installed -arrows-.

Tightening torques

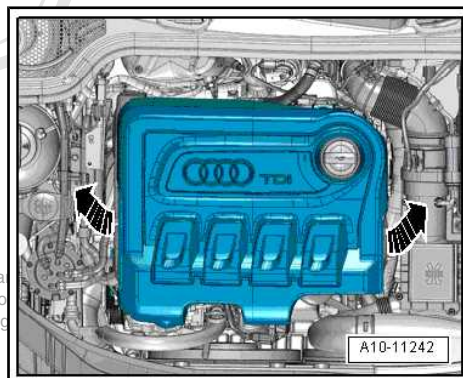
- ♦ ⇒ [“4.2.2 Exploded view - vacuum pump for vehicles with 2.5 ltr. TFSI engine”, page 112](#)
- ♦ ⇒ Rep. gr. 19 ; Coolant pipes; Removing and installing coolant pipes



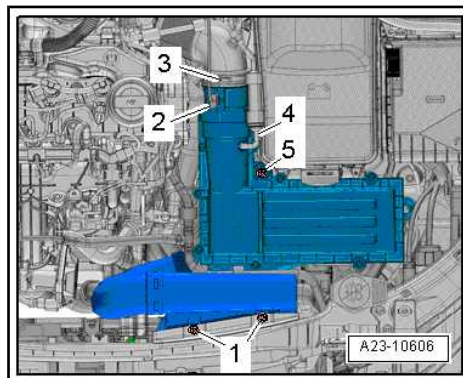
4.8.3 Removing and installing vacuum pump (vehicles with TDI engine)

Removing

- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



- Remove air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing .



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- Detach vacuum hose -2- upwards from vacuum pump -1-.
- Remove bolts -arrows- from sealing flange of vacuum pump.
- Pull vacuum pump out of its mounting and detach.

Installing

Installation is performed in reverse sequence; note the following:



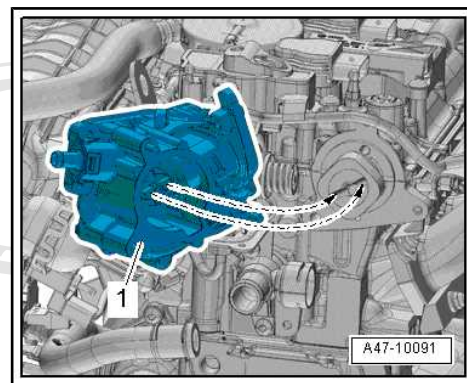
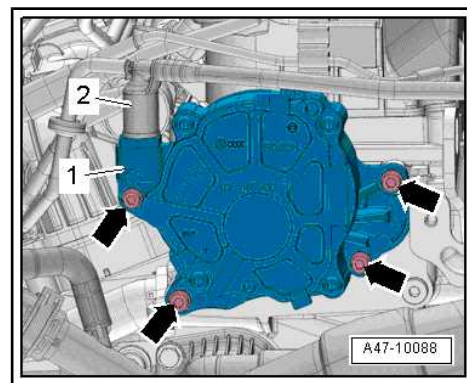
Note

Renew gasket.

- Ensure that gasket is seated correctly.
- Turn drive lugs of vacuum pump -1- so they engage in slot in camshaft when vacuum pump is installed -arrows-.
- Install engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel;
Removing and installing engine cover panel .

Tightening torques

- ◆ ⇒ [“4.2.3 Exploded view - vacuum pump for vehicles with TDI engine”, page 113](#) .
- ◆ ⇒ Rep. gr. 23 ; Air cleaner; Exploded view - air cleaner housing



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5 Brake lines

⇒ ["5.1 Connection points", page 126](#)

⇒ ["5.2 Routing of brake lines", page 126](#)

⇒ ["5.3 Repairing brake lines", page 127](#)

5.1 Connection points

Brake lines on underbody

- 1 - Brake line
- 2 - Brake hose
- 3 - Retaining spring
- 4 - Brake hose retainer

Tightening torques

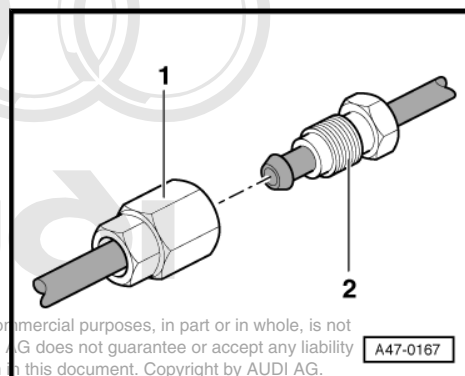
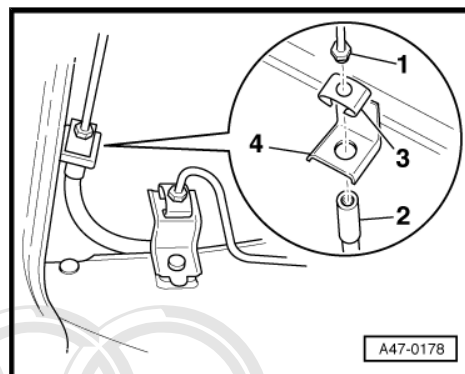
- ◆ ⇒ [Item 10 \(page 23\)](#) , ⇒ [Item 16 \(page 53\)](#)

Brake line to brake line

- Counterhold union nut -1- when tightening union screw -1-.

Tightening torque

- ◆ 14 Nm



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5.2 Routing of brake lines

- ◆ The brake lines and brake pipes are supplied as replacement parts ready for installation.
- ◆ Secure brake hoses and brake lines to the original mounting points when installing.



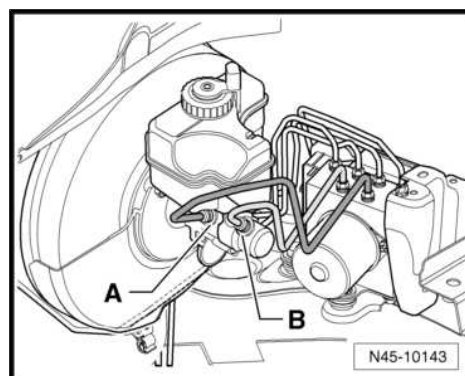
WARNING

Risk of accident!

- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

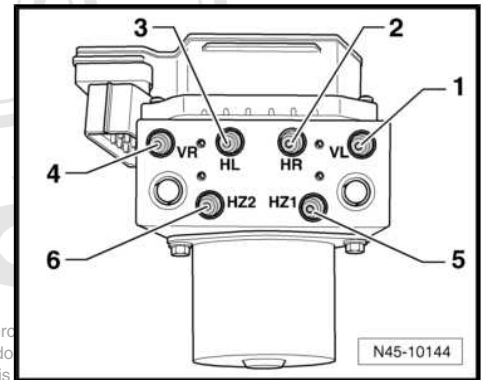
Brake lines to brake master cylinder

Tightening torques ⇒ [page 11](#) .



Brake lines to hydraulic unit

- Tightening torques ➔ [page 11](#) .



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5.3 Repairing brake lines

With the aid of the flanging tool for brake lines - VAS 6056- it is possible to make connections on the ends of the brake lines without damaging the coating. In certain cases this makes it possible to replace sections of brake lines and thus save repair costs.



Caution

Risk of damage to brake lines

- ◆ *The flanging tool set V.A.G 1356 must not be used for the black brake lines because of the coating and the diameter of these brake lines.*
- ◆ *Do not bend brake lines more than 90°; this would cause kinks or other deformations which would excessively restrict the brake lines.*

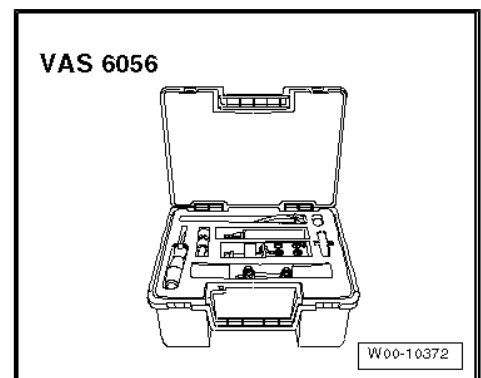


Note

- ◆ *Wherever possible, disconnect the brake lines on the underside of the vehicle.*
- ◆ *Select the position of the connecting pieces so that they cannot chafe against any moving parts.*
- ◆ *Do not grease the spindle; clean with methylated spirits only.*

Special tools and workshop equipment required

- ◆ Flanging tool for brake lines - VAS 6056-



List of individual tools

1 - Flanging tool -VAS 6056/1-
 (including jaws -VAS 6056/6-)

2 - Pipe cutter -VAS 6056/2-

3 - Brake line scraper tool -VAS
 6056/3-

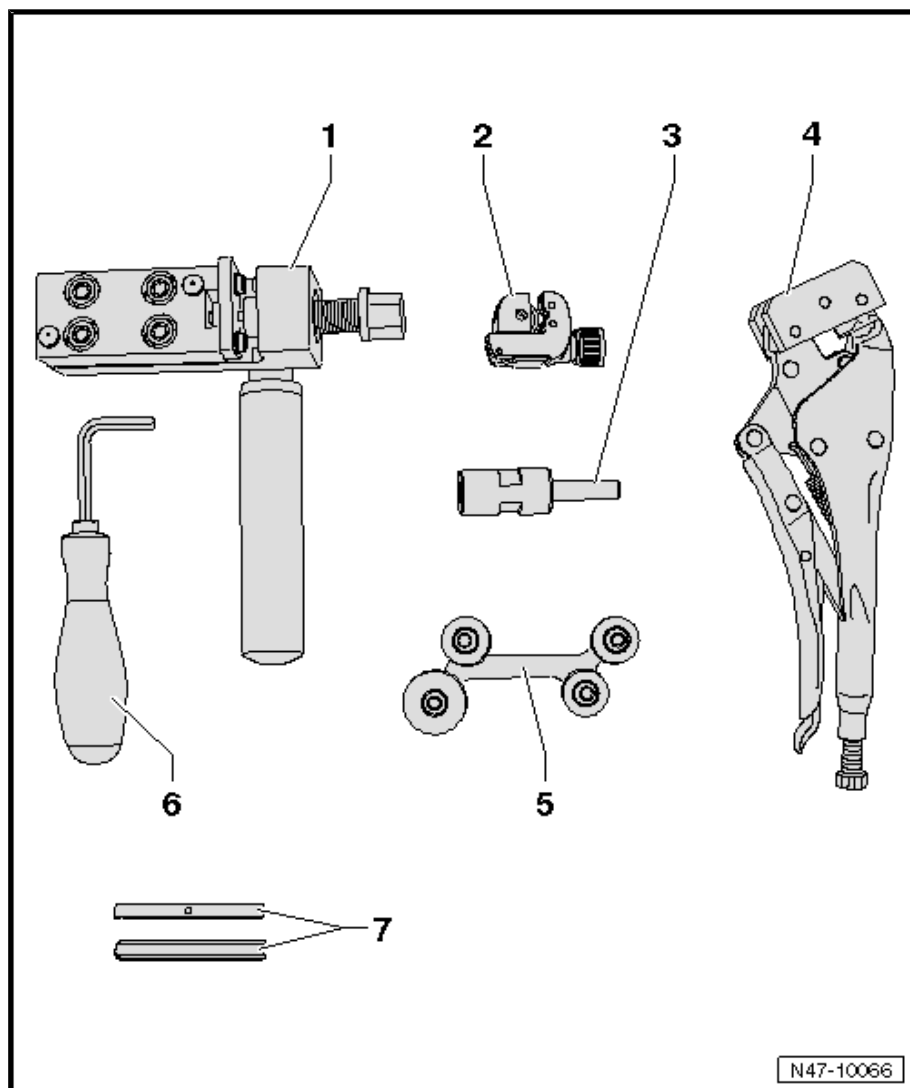
- ❑ The grub screws (in the stem and on the sides of the tool) are pre-set and must not be turned.

4 - Set of grips with plastic jaws
 -VAS 6056/4-

5 - Pipe bending tool -VAS
 6056/5-

6 - Allen key (6 mm)

7 - Jaws for flanging tool -VAS
 6056/6- , -VAS 6056/7-



Flanging tool (including jaws VAS 6056/6)



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1 - Top section of flanging tool

- ☐ Unscrew this part to change jaws of flanging tool

2 - Mounting for handle

- ☐ Must be removed to access retaining screw for top section

3 - Retaining screw

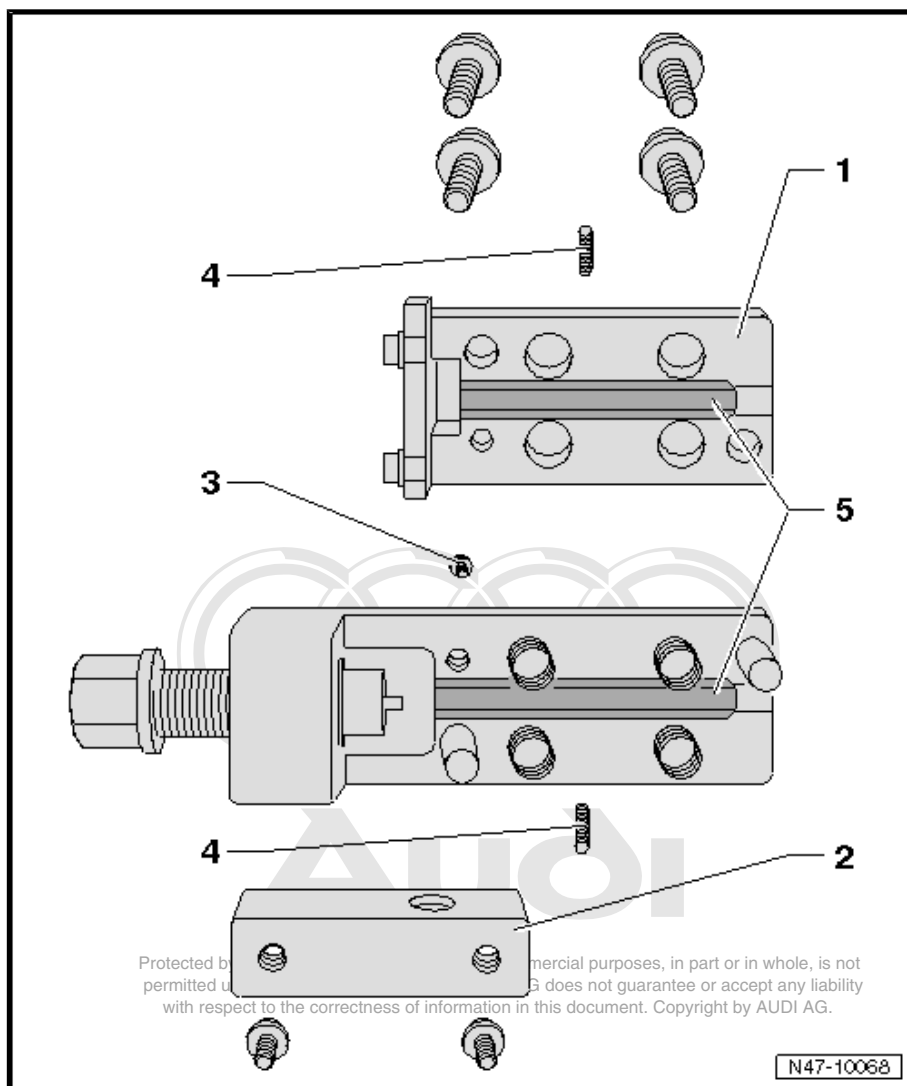
- ☐ For top section of flanging tool

4 - Grub screws for jaws

- ☐ These screws centralise and secure jaws of flanging tool
- ☐ 2 mm socket head

5 - Jaws for flanging tool

- ☐ Different versions available
- ☐ Assembly instructions ➔ [page 129](#)



Assembly instructions for jaws of flanging tool:

- ◆ VAS 6056/6 (dark) for black brake lines
- ◆ VAS 6056/7 (light) for green brake lines

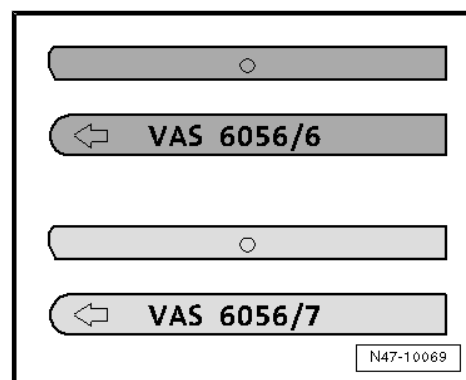


Note

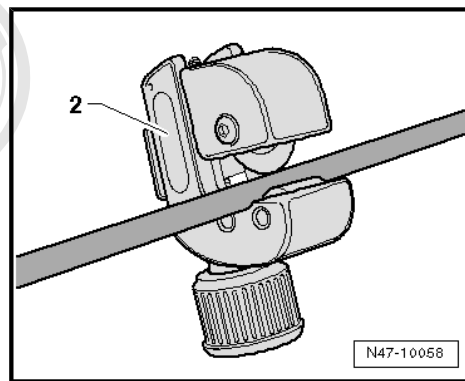
The arrow on the rounded end of the jaws must face the end of the housing and the straight end of the jaws must face the spindle, otherwise the flanged connection on the brake line will not be formed correctly.

Instructions

- Unscrew defective brake line at brake caliper or wheel brake cylinder. Catch escaping brake fluid and dispose of fluid in the correct manner.



- Cut through brake line at a suitable point (straight, easily accessible section of pipe) using pipe cutter -2-.
- Remove section of pipe to be replaced.
- De-grease outside surface of brake lines.



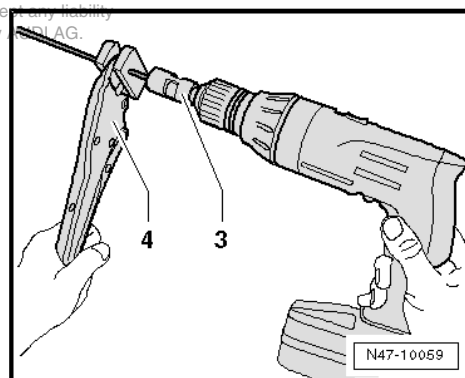
- Clamp brake line in mole grips -4- so that approx. 50 mm protrudes out of plastic jaws.

- Clamp brake line scraper tool -3- in electric drill and apply tool to brake line.

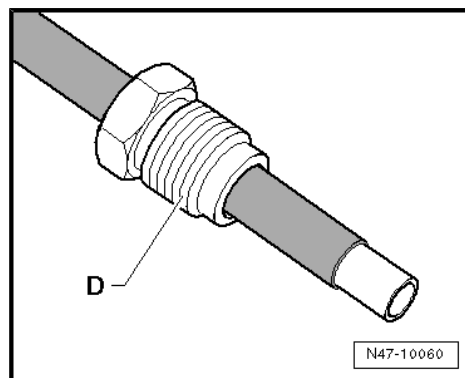
- With electric drill running at slow speed, exert light pressure and strip off coating from brake line.

The length of the coating that is stripped off is determined by the limit stop incorporated in the brake line scraper tool.

- Pull scraper tool off brake line and clean off residue of coating.



- Remove mole grips and slide union screw -D- onto brake line.



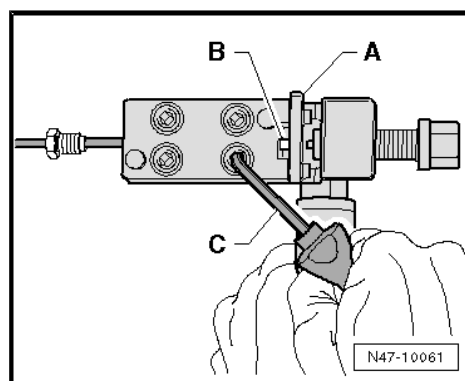
- Push brake line -B- against limit stop -A- in flanging tool.



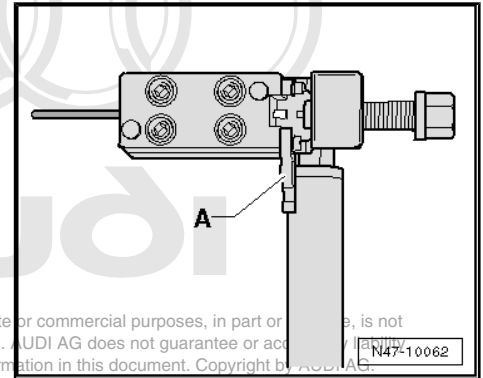
Note

The brake line must be in contact with the limit stop when the socket head bolts are tightened, otherwise the flanged connection on the brake line will not be formed correctly.

C - Allen key

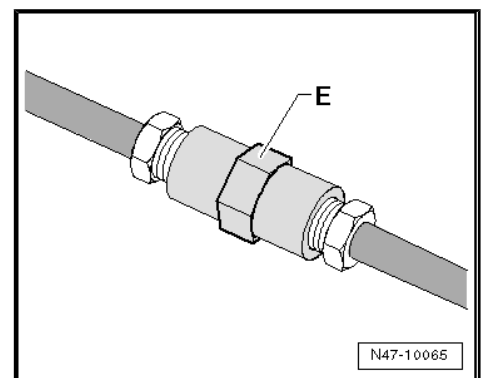
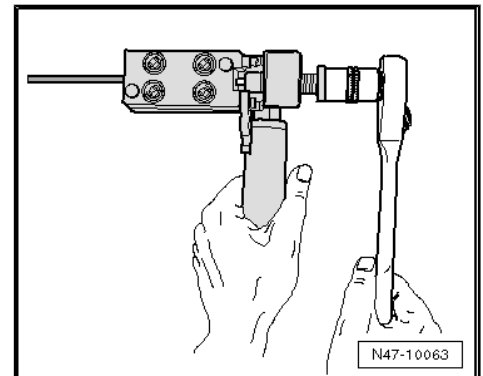


- Clamp brake line in flanging tool until brake line can no longer be moved. Then fold up limit stop -A- and fully tighten socket head bolts in diagonal sequence using Allen key.



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- Screw spindle into flanging tool onto limit stop.
- Unscrew spindle.
- Slacken off socket head bolts in diagonal sequence.
- Take brake line out of flanging tool. Clean and inspect brake line with flanged connection.
- Connect brake filling and bleeding equipment - VAS 5234- and briefly flush out section of pipe remaining in vehicle.
- Attach hose of reservoir to flanged connection of brake line and operate brake filling and bleeding equipment - VAS 5234- briefly until some brake fluid has run through.
- Blow out new section of brake line with compressed air before installing.
- Join together sections of brake line with connecting piece -E-.
- Install brake line.
- Finally, bleed brake system ⇒ [page 134](#) .



6 Hydraulic system

⇒ "6.1 General notes on brake fluid", page 132

⇒ "6.2 Pre-bleeding hydraulic system", page 133

⇒ "6.3 Bleeding hydraulic system (normal bleeding procedure)", page 134

⇒ "6.4 Leak test", page 136

6.1 General notes on brake fluid

Brake fluid is hygroscopic, i.e. it has the tendency to absorb water and moisture from the atmosphere.

The boiling point decreases as the water content increases, which means a considerable rise in brake fluid temperature can lead to formation of vapour bubbles and brake failure.

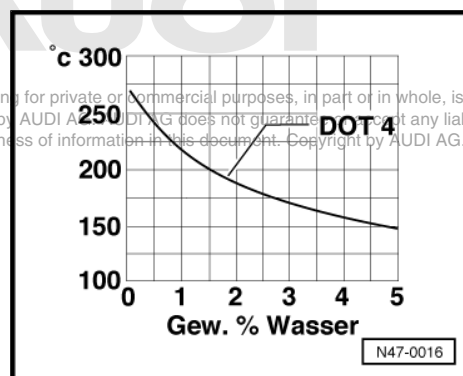
The colour of the brake fluid becomes darker over the course of time. A dark brake fluid colour is not an indication of its condition. The change in colour is caused by chemical reactions.



WARNING

Rubber parts of brake system (sleeves, seals) are not compatible with mineral oil, fuel and cleaning agents.

Even minute quantities coming into contact with a seal or sleeve will affect the component and could impair brake operation. The consequences of a contaminated brake system only become apparent months later, and then give rise to greater expenses, particularly in vehicles equipped with ABS.

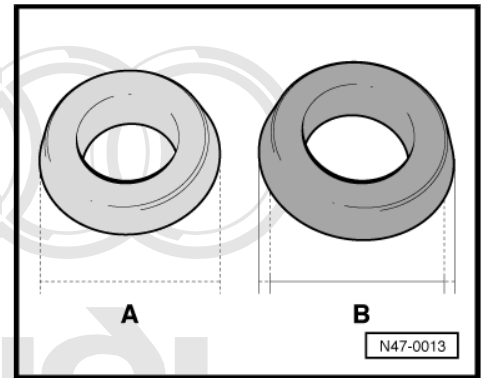


A = Sleeve (original size)

B = Sleeve (swollen due to contact with mineral oil)

Summary of the above mentioned points:

- ◆ Always keep brake fluid containers properly sealed. This is the only way of preventing contamination by oil, dirt, cleaning agents or moisture.
- ◆ Brake fluid containers should be kept completely separate from oils (including hydraulic fluid) and cleaning agents to prevent any mixture of fluids or even filling of the brake system with an incorrect fluid.



WARNING

- ◆ ***Do not under any circumstances allow brake fluid to come into contact with fluids that contain mineral oils (e.g. oil, petrol, cleaning agents). Mineral oils damage the plugs and seals in the brake system.***
- ◆ ***Brake fluid is poisonous and must NOT be drawn off by sucking through a hose. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.***
- ◆ ***Brake fluid is hygroscopic, i.e. it absorbs moisture from the surrounding air, and should therefore always be stored in airtight containers.***
- ◆ ***Always observe the relevant environmental regulations for disposal.***

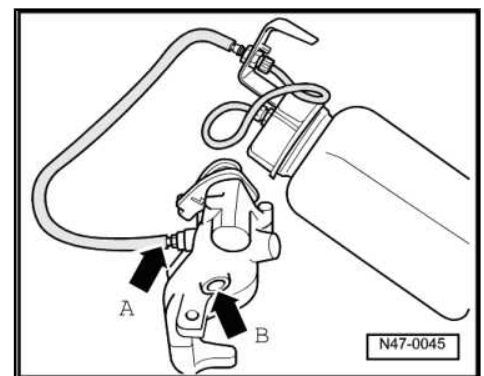


Note

- ◆ Always use fresh brake fluid.
- ◆ Rinse off brake fluid spillages using plenty of water.

6.2 Pre-bleeding hydraulic system

- Position brake caliper as illustrated for pre-bleeding.
- Open bleeder screw -arrow A- and fill with brake fluid from a commercially available bleeder container until bubble-free fluid emerges from hole (brake hose connection) -arrow B-. Close bleeder screw.



6.3 Bleeding hydraulic system (normal bleeding procedure)

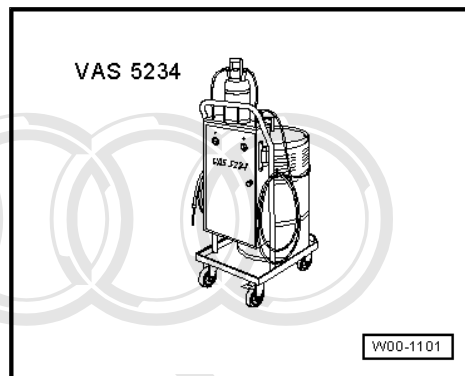
⇒ [“6.3.1 Bleeding brake system with brake filling and bleeding equipment”, page 134](#)

⇒ [“6.3.2 Bleeding brake system without brake filling and bleeding equipment”, page 135](#)

6.3.1 Bleeding brake system with brake filling and bleeding equipment

Special tools and workshop equipment required

- ◆ Brake filling and bleeding equipment - VAS 5234- with adapter - VAS 5234/1A-



Procedure

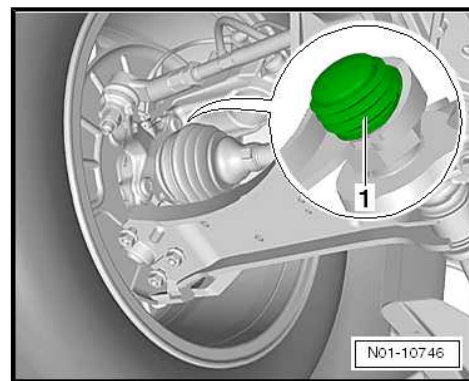
- Connect brake filling and bleeding equipment - VAS 5234- with adapter - VAS 5234/1A- .

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- Remove protective cap -1- from bleeder screw on relevant brake caliper and fit hose from reservoir onto bleeder screw.

Bleeding sequence

- 1 - Front left-side brake caliper
 - 2 - Front right-side brake caliper
 - 3 - Rear left-side brake caliper
 - 4 - Rear right-side brake caliper
- With bleeder hose attached, leave bleeder screw open until the brake fluid which emerges is clear and free from bubbles.
 - Press brake pedal 5 times to assist bleeding process.
 - Tighten bleeder screw, detach bleeder hose and fit protective cap on bleeder screw.
 - Repeat bleeding procedure in stated sequence at other brake calipers.
 - Fill brake fluid reservoir up to max. marking (depending on degree of pad wear) and screw on filler cap.
 - Start engine and check brake pedal travel and brake pedal pressure.
 - In the event of excessive pedal travel, check brake system for leaks and/or repeat bleeding procedure.
 - Zero compensation for brake pressure sender 1 - G201- must be performed after bleeding brake system ⇒ Vehicle diagnostic tester.



Perform test drive after completion of bleeding. At least one ABS control operation must be applied at all four wheels.

Changing brake fluid ⇒ Maintenance ; Booklet 820

 **WARNING**

Risk of accident!

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◆ **Make sure that the brakes work properly before the vehicle is driven on the road.**

Tightening torques

- ◆ ⇒ [“1.1 Exploded view - front brake caliper”, page 89](#)
- ◆ ⇒ [“2.1 Exploded view - rear brake caliper”, page 97](#)

6.3.2 Bleeding brake system without brake filling and bleeding equipment

Procedure



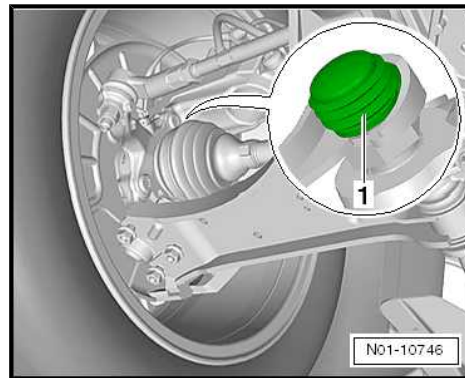
Note

Make sure brake fluid reservoir is always full.

- Remove protective cap -1- from bleeder screw on relevant brake caliper and fit hose from reservoir onto bleeder screw.

Bleeding sequence

- 1 - Front left-side brake caliper
 - 2 - Front right-side brake caliper
 - 3 - Rear left-side brake caliper
 - 4 - Rear right-side brake caliper
- Build up pressure in brake system by pumping brake pedal.



Note

Press brake pedal slowly to avoid formation of bubbles.

- Once pressure has built up, keep brake pedal depressed.
- Open bleeder screw with hose of reservoir attached until pressure has dissipated (pedal sags).
- Keep pedal depressed and close bleeder screw.
- Release brake pedal and wait approx. 2 seconds to allow brake fluid to flow in from brake fluid reservoir.
- Repeat procedure until emerging brake fluid is clear and free from bubbles.
- Tighten bleeder screw, detach bleeder hose and fit protective cap on bleeder screw.
- Repeat bleeding procedure in stated sequence at other brake calipers.
- Fill brake fluid reservoir up to max. marking (depending on degree of pad wear) and screw on filler cap.
- Start engine and check brake pedal travel and brake pedal pressure.
- In the event of excessive pedal travel, check brake system for leaks and/or repeat bleeding procedure.

Changing brake fluid ⇒ Maintenance ; Booklet 820



WARNING

Risk of accident!

- ◆ *Make sure that the brakes work properly before the vehicle is driven on the road.*

Tightening torques

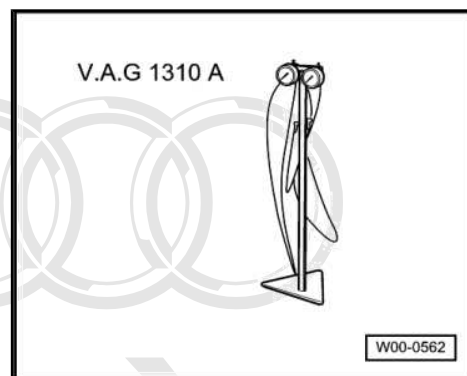
- ◆ ⇒ [“1.1 Exploded view - front brake caliper”, page 89](#)
- ◆ ⇒ [“2.1 Exploded view - rear brake caliper”, page 97](#)

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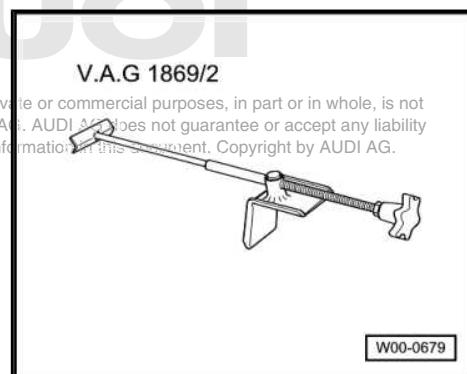
6.4 Leak test

Special tools and workshop equipment required

◆ Tester for brake pressure regulator - V.A.G 1310A-



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



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High-pressure test:

- Make sure that the brake system (master cylinder, brake hoses, brake lines and brake calipers) works properly and is free of leaks.
- Unscrew bleeder screw at one of the front brake calipers. Connect tester for brake pressure regulator - V.A.G 1310 A- and bleed.
- Insert brake pedal actuator - V.A.G 1869/2- between brake pedal and driver's seat. Apply pressure to brake pedal until the gauge indicates a pressure of 50 bar. The pressure must not drop by more than 4 bar during the test period of 45 seconds.

Renew brake master cylinder if drop in pressure exceeds the specification.

Low-pressure test:

- Move the brake pedal actuator back until the pressure gauge indicates a pressure of 6 bar.
- The pressure should not drop by more than 1 bar within the test period of 3 minutes.

Renew brake master cylinder if drop in pressure exceeds the specification.

