



Workshop Manual Audi TT 2007 ➤

Brake system

Edition 04.2009

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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.

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00 – Technical data

1 Technical data

1.1 Production code (PR No.) allocation: brakes

Which brakes are fitted on the vehicle can be determined from the corresponding production code (PR No.) on the vehicle data sticker.

The vehicle data sticker can be found in the spare wheel well and in the Service Schedule.

The corresponding PR numbers are listed in the following tables. They indicate the required combination of brake discs/calipers/drums ⇒ Electronic parts catalogue (ETKA)

1.2 Brakes

Brake system	
Diagonal dual-circuit brake system, anti-lock brake system (ABS) with electronic brake pressure distribution (EBPD). Certain equipment versions or model production dates additionally feature electronic differential lock (EDL), traction control system (ASR) and electronic stabilisation program (ESP).	

1.3 Front brakes

Front axle						
Brake caliper (PR No.)		1LJ	1LL	1LK	1LM	1LN
Front brake caliper		FN3	FN3	FNR-G-57	FNR-G-57	FNR-G-57
Piston	Ø mm	54	54	57	57	57
Brake disc (PR No.)		1LJ	1LJ	1LK	1LK	1LK
Front brake disc	Ø mm	312 (16")	312 (16")	340 (17")	340 (17")	340 (17")
Brake disc thickness (ventilated)	mm	25	25	30	30	30
Brake disc, wear limit	mm	21	21	27	27	27
Brake pad						
Pad thickness (new, without backplate)	mm	14	14	14	14	14
Pad wear limit (without backplate)	mm	2	2	2	2	2

1.4 Front brakes (TT RS)

Front axle, TT RS	
Brakes (PR No.)	1LA
Front brake caliper	Brembo (M4)
Piston	Ø 40 / 44 mm
Brake disc (PR No.)	1LK
Front brake disc	Ø 370 mm
Brake disc thickness (ventilated)	32 mm
Brake disc, wear limit	30 mm



Front axle, TT RS	
Pad wear limit (without backplate)	2 mm

1.5 Rear wheel brakes, front-wheel drive

Rear wheel brakes, front-wheel drive		
Brake caliper (PR No.)		2ED 1KZ
Rear brake caliper		CII 38HR CII 38HR
Piston	Ø mm	38 38
Brake disc (PR No.)		2ED, 2EE 1KZ, 1KJ,
Rear brake disc	Ø mm	286 (16") 286 (16")
Brake disc thickness (non-ventilated)	mm	12 12
Brake disc thickness (ventilated)	mm	9 9
Brake disc wear limit	mm	9 9
Brake pad		
Pad thickness (new, without backplate)	mm	12 12
Pad wear limit (without backplate)	mm	2 2

1.6 Rear wheel brakes, four-wheel drive

Rear wheel brakes, four-wheel drive						
Brake caliper (PR No.)		1KJ	2EE	2EA	2EF	2EG
Rear brake caliper		CII 41HR	CII 41HR	CII 41HR	CII 41HR	CII 41HR
Piston	Ø mm	41	41	41	41	41
Brake disc (PR No.)		1KJ, 1KZ	2EE, 2ED	2EA	2EF	2EG
Rear brake disc	Ø mm	286 (16")	286 (16")	310 (17")	310 (17")	310 (17")
Brake disc thickness (non-ventilated)	mm	12	12	-----	-----	-----
Brake disc thickness (ventilated)	mm	-----	-----	22	22	22
Brake disc, wear limit	mm	9	9	19	19	19
Pad wear limit (without backplate)	mm	2	2	2	2	2

1.7 Rear brakes (TT RS)

Rear brakes (TT RS)		
Rear brake caliper		CII 41 HR
Piston	Ø mm	41
Rear brake disc	Ø mm	312
Brake disc thickness (ventilated brake disc)	mm	22
Brake disc, wear limit	mm	19
Pad wear limit (without back-plate)	mm	2

2 Brake test

2.1 General notes

The wheels are driven by the 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.

2.2 Vehicles with front-wheel drive

Testing on a single-axle brake dynamometer

Perform brake test on a single-axle brake dynamometer.

The EDL control can activate the brakes if the rollers start at different points in time.

Test speed must not exceed 6 km/h.

All brake test equipment approved by Audi meets these requirements.

2.3 Four-wheel drive vehicles with Haldex coupling

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 EDL control can activate the brakes if the rollers start at different points in time.

Test speed must not exceed 6 km/h.

All brake test equipment approved by Audi meets these requirements.

2.4 Testing four-wheel drive vehicles with Haldex coupling on a conventional brake dynamometer

Proceed as follows to test brakes on a conventional brake dynamometer.

- Drive vehicle forward until front wheels are standing on rollers.
- Switch off engine and wait for 3 seconds.
- Perform brake test on front wheels.
- Allow engine to run for approx. 5 seconds after performing brake test to build up sufficient vacuum in the servo.
- Drive vehicle forward until rear wheels are standing on rollers.



- Switch off engine and wait for 3 seconds.
- Perform brake test on rear wheels.



WARNING

The engine must not run and the ignition must be switched off during the brake test, otherwise the rear wheels will be driven by the Haldex coupling.



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3 Brake fluid

3.1 General notes

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

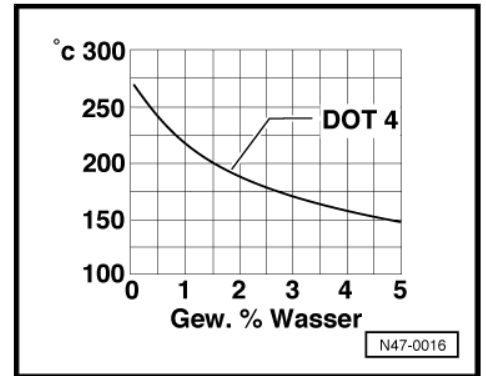
The boiling point decreases as the water content increases, which means a considerable rise in brake fluid temperature can lead to formation of vapour bubbles and reduced braking effect.

The colour of the brake fluid becomes darker over the course of time. This is caused by a normal chemical reaction and is not an indication of the condition of the fluid.



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 sleeve or seal will affect the component and could impair brake operation.



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45 – Anti-lock brake system

1 General information on the anti-lock brake system

1.1 Notes for repair work on ABS Mark 60



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.



Note

Malfunctions in the ABS system do not influence the brake system itself. However, a change in braking behaviour must be reckoned with.

Vehicles equipped with the ABS Mark 60 do not have a mechanical brake pressure regulator. A specially matched software in the control unit controls the rear axle brake pressure regulation.

- ◆ Before carrying out repair work on the anti-lock brake system, determine the cause of the problem using self-diagnosis.
- ◆ Always switch off ignition before unplugging the connector at hydraulic control unit.
- ◆ If a new hydraulic control unit has been fitted, it must be encoded. Vehicle diagnostic, testing and information system - VAS 505x-
- ◆ Bleed brake system after performing work involving opening of brake system: ABS/ESP Mark 60 ➔ [page 109](#) . To do so, use for example the brake filling and bleeding equipment - V.A.G 1869- or brake filling and bleeding equipment -VAS 5234- .
- ◆ 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; do not use harsh cleaning agents such as brake cleaner, fuel, thinners or similar.
- ◆ Place removed parts on a clean surface and cover them up.
- ◆ Carefully cover or seal open components if repairs are not to be carried out immediately. Use plugs from repair kit; Part No. ➔ ETKA .
- ◆ When the brake system is open do not work with compressed air and do not move the vehicle.
- ◆ Only use lint-free cloths.
- ◆ Only use genuine spare parts from original packaging.

- ◆ Only remove replacement parts from packaging immediately prior to installation.
- ◆ During the final road test, ensure that at least one ABS-controlled braking operation is performed (pulsations must be felt at the brake pedal).
- ◆ During painting operations, the electronic control unit can be exposed to a maximum temperature of 95 °C for only a short period, and to a maximum of 85 °C for longer periods (approx. 2 hours).
- ◆ Before carrying out welding work with an electric welding unit, refer to ⇒ General notes; Body repairs; Safety notes .

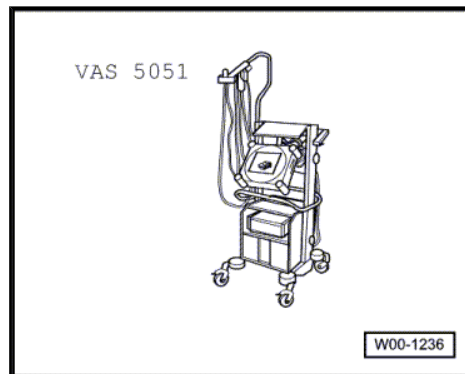


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2 Connecting -VAS 505x- and selecting functions

Special tools and workshop equipment required

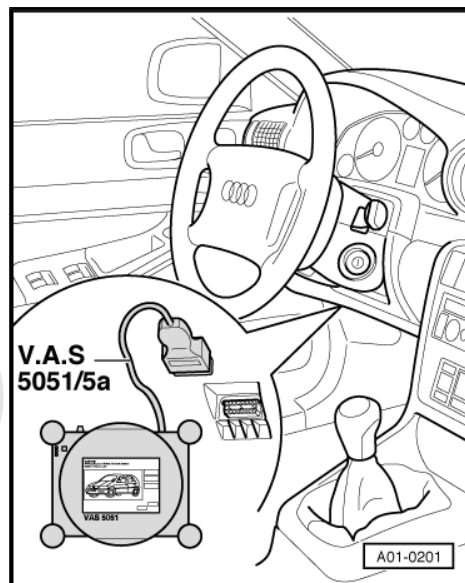
- ◆ Vehicle diagnostic, testing and information system -VAS 505x-



WARNING

- ◆ *Test equipment must always be secured to the rear seat when road-testing the vehicle.*
- ◆ *While the vehicle is moving this equipment must be operated by a second person; NOT by the driver.*

- Attach the diagnosis cable connector to the diagnosis connection.



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- Switch on tester -arrow-.

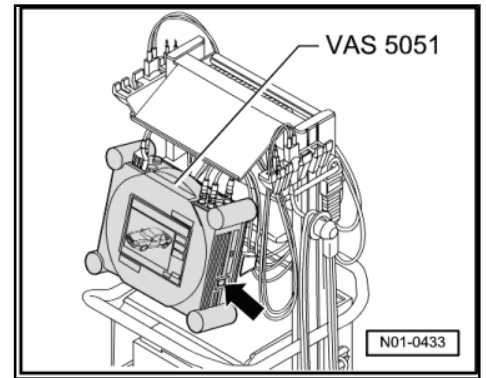
The tester is ready as soon as a picture of a car appears in the display.

- Switch on ignition.
- Press the Guided Fault Finding button on the display screen.
- Select the following:
 - ◆ Make
 - ◆ Model
 - ◆ Model year
 - ◆ Version
 - ◆ Engine code letters
- Confirm the entered information.

Wait until the tester has interrogated all the control units in the vehicle.

- Press the **Go to** button and select the option “Function/component selection”.

Follow the instructions in the display to begin with the desired functions.

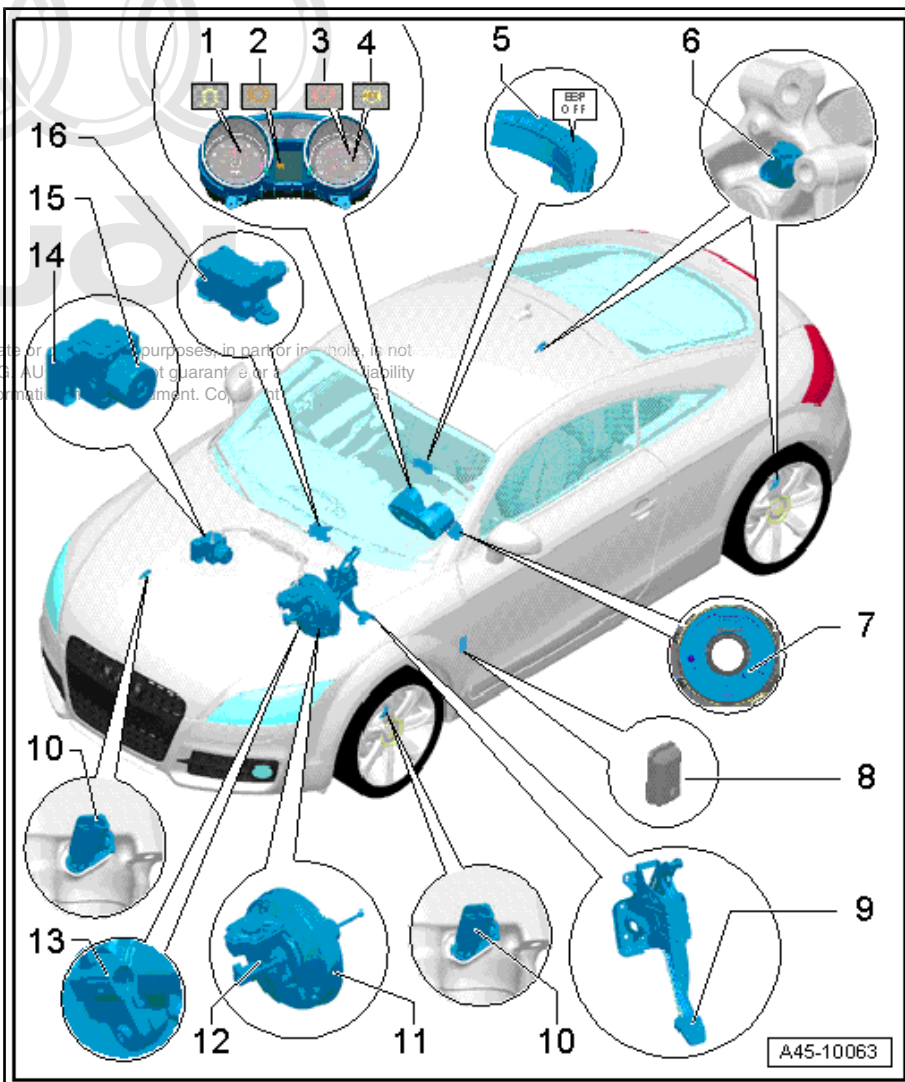


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3 Components and fitting locations on brake system ABS/ESP Mark 60

1 - ESP and TCS warning lamp -K155-

- ❑ Fitting location: in rev. counter.
- ❑ Flashes when the vehicle is in motion and the ESP/TCS control is in operation
- ❑ Lights up when the ignition is switched on and goes out after a short self test has been completed
- ❑ Lights up if there is a malfunction in the ESP
- ❑ Lights up if there is a malfunction in the ABS, since the ESP works in conjunction with the ABS
- ❑ Lights up when the ESP is switched off
- ❑ Lights up during automatic self-adaption of the sensor systems when:
 - ◆ the battery has been disconnected and then re-connected
 - ◆ the vehicle has been jump-started
 - ◆ the battery charge level is very low
- ❑ The warning lamp goes out after the vehicle has been in motion for a short time as soon as the learning procedure of the sensor systems is finalised.



2 - Brake pad warning lamp -K32-

- ❑ Fitting location: in centre display zone
- ❑ Lights up when wear limit of the brake pads is reached ⇒ [page 1](#)

3 - Brake system warning lamp -K118-

- ❑ Fitting location: in speedometer
- ❑ Lights up when the handbrake is applied.
- ❑ Lights up if there is a malfunction in the ABS system.
- ❑ Flashes if brake fluid level is too low

4 - ABS warning lamp -K47-

- ❑ Fitting location: in speedometer
- ❑ Lights up for a few seconds when the ignition is switched on and goes out after the automatic ABS self-test has been completed, providing no faults have been detected in the ABS.
- ❑ There is a malfunction of the ABS if the warning lamp:
 - ◆ does not light up when the ignition is switched on,
 - ◆ does not go out again after a few seconds,

◆ lights up while the vehicle is in motion.

- ☐ Malfunctions in the ABS system do not influence the brake system itself. However, a change in braking behaviour must be reckoned with.
- ☐ The ESP warning lamp will light up as well as the ABS warning lamp if there is a malfunction in the ABS, since the two systems work in conjunction.

5 - TCS and ESP button -E256-

- ☐ Fitting location: on the centre console

6 - Rear left speed sensor -G44- , rear right speed sensor -G46- -

- ☐ 8 Nm

7 - Steering angle sender -G85-

- ☐ Fitting location: on steering column between steering wheel and steering column switch
- ☐ Removing and installing ⇒ [page 16](#)

8 - Diagnostic connection

- ☐ Fitting location: cover in driver's footwell

9 - Brake pedal

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

10 - Front left speed sensor -G45- , front right speed sensor -G47-

- ☐ Removing and installing ⇒ [page 40](#)
- ☐ 8 Nm

11 - Brake servo

- ☐ Removing and installing ⇒ [page 113](#)



Note

- ◆ *On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#) .*
- ◆ *The noise amplifier is located in the engine compartment in front of the brake servo.*

- ☐ With integrated brake vacuum sender -G 483
- ☐ Brake vacuum sender -G 483 is not fitted on all models
- ☐ Removing and installing brake servo vacuum sender -G 483 ⇒ [page 17](#)



Note

The brake vacuum sender -G 483 is only installed on vehicles with OHBV.

12 - Brake master cylinder

- ☐ With brake light switch attached
- ☐ Removing and installing ⇒ [page 117](#)



Note

- ◆ *On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#) .*
- ◆ *The noise amplifier is located in the engine compartment in front of the brake servo.*

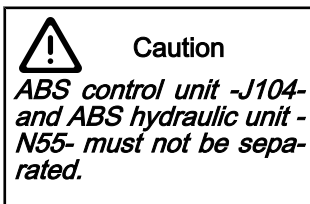
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13 - Brake light switch

- ☐ Removing and installing ⇒ [page 13](#)
- ☐ Removing and installing (TT RS) ⇒ [page 13](#)
- ☐ The brake light switch is not adjustable.
- ☐ Location: On brake master cylinder
- ☐ 5 Nm

14 - ABS control unit (with ESP) -J104-

- ☐ Fitting location: on hydraulic unit -N55 on right-side of engine compartment.
- ☐ Do not unplug connector before completing self-diagnosis. Switch off ignition before detaching connector.
- ☐ Removing and installing ⇒ [page 20](#)
- ☐ Removing and installing (TFSI engine) ⇒ [page 25](#)
- ☐ Removing and installing (vehicles with diesel particulate filter) ⇒ [page 34](#)



15 - ABS hydraulic unit -N55-

- ☐ Fitting location: in engine compartment (right-side) on control unit -J104-.
- ☐ Removing and installing ⇒ [page 20](#)
- ☐ Removing and installing (TFSI engine) ⇒ [page 25](#)
- ☐ Removing and installing (vehicles with diesel particulate filter) ⇒ [page 34](#)
- ☐ The ABS hydraulic pump -V64- , the ABS hydraulic unit -N55- and the ABS control unit (with ESP) -J104- together make up the hydraulic control unit.
- ☐ With integrated brake pressure sender -G201-
- ☐ The brake pressure sender -G201- cannot be renewed separately.
- ☐ Allocation ⇒ ETKA

16 - ESP sensor unit -G419-

- ☐ 9 Nm
- ☐ Fitting location: on centre console in front of gear lever.
- ☐ Combined lateral acceleration sender -G200- and yaw rate sender -G202-
- ☐ Longitudinal acceleration sender -G251- (only four-wheel drive vehicles)
- ☐ Removing and installing ESP sensor unit ⇒ [page 15](#)



Note

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The ABS sensor ring / rotor is incorporated in the corresponding wheel bearing unit and cannot be renewed.

4 Removing and installing parts of ABS/ESP system

4.1 Removing and installing brake light switch

Removing



Note

- ◆ *The brake light switch is located on the brake master cylinder.*
- ◆ *The brake light switch is not adjustable.*
- Unplug electrical connector -1-.
- Remove securing bolt for brake light switch -2- from brake master cylinder.
- Pull brake light switch at bottom out of brake master cylinder and lift switch out of retaining tab at top.

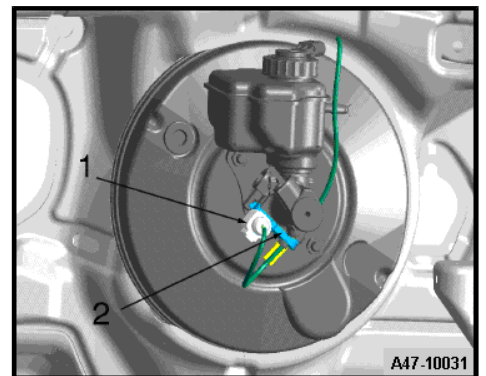
Installing

- Installation is carried out in the reverse sequence. Ensure proper seating of switch in retaining tab at top.



Note

The brake light switch is not adjustable.



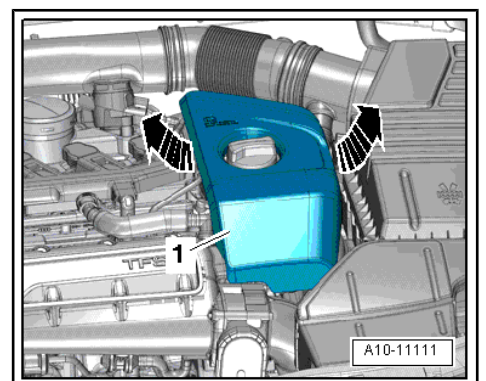
4.2 Removing and installing brake light switch (TT RS)

Removing



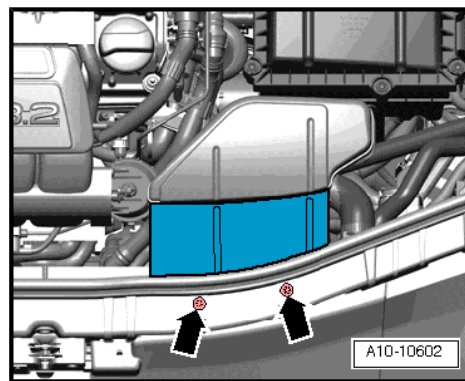
Note

- ◆ *The brake light switch is located on the brake master cylinder.*
- ◆ *The brake light switch is not adjustable.*
- Lift off engine cover panel -1-.

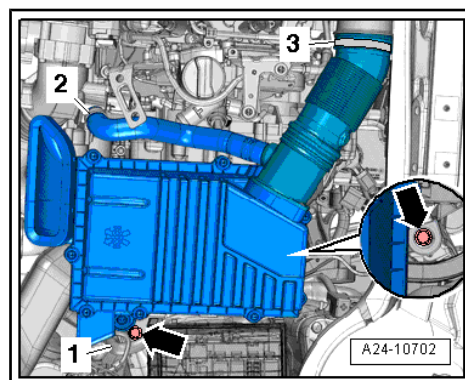


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- Unscrew bolts -arrows- and detach air duct.



- Unscrew bolts -arrows- and detach air cleaner housing.



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

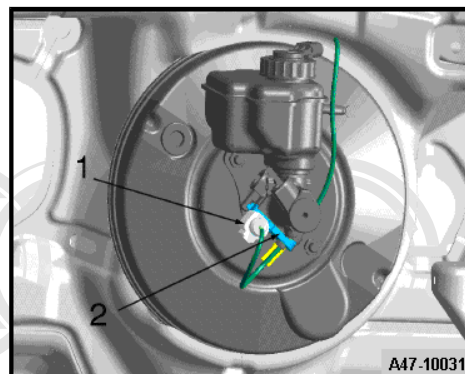
Installing

- Installation is carried out in the reverse sequence. Ensure proper seating of switch in retaining tab at top.

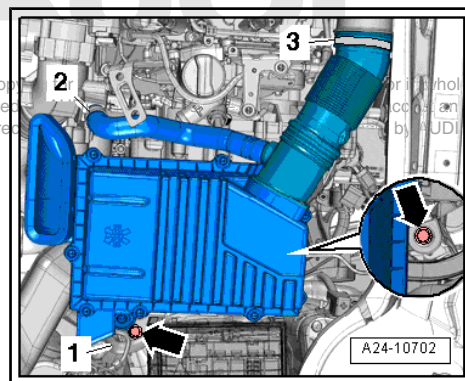


Note

The brake light switch is not adjustable.

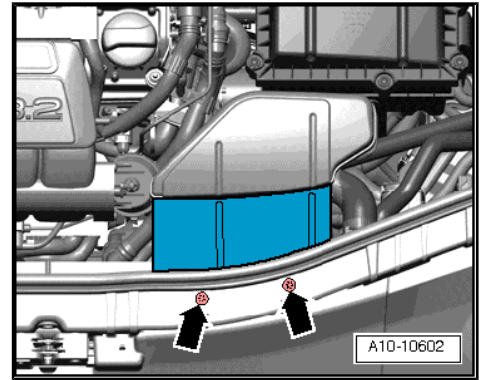


- Insert air cleaner housing and tighten bolts -arrows-.



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- Insert air duct and tighten bolts -arrows-.
- Install engine cover panel.



4.3 Removing and installing ESP sensor unit -G419-



WARNING

The ESP sensor unit is sensitive to impact. The ESP sensor unit can be damaged if subjected to impact. If the ESP sensor unit has been dropped by mistake it may not work properly and must not be installed in the vehicle.

- After renewing ESP sensor unit -G419-, a basic setting (calibration) for
 - ◆ Lateral acceleration sender -G200-
 - ◆ Yaw rate sender -G202-
 - ◆ Longitudinal acceleration sender -G251- (on four-wheel drive vehicles)
- must be performed

Removing



Note

ESP sensor unit -G419 is fitted on centre console under trim in front of gear lever / selector lever.

- Remove centre console trim ⇒ Rep. Gr. 68 .
- Unplug connector.
- Remove bolts.

Lift out ESP sensor unit -G419-

Installing

Installation is performed in reverse sequence; note the following:

Calibrate lateral acceleration sender -G200 and longitudinal acceleration sender -G251 on vehicles with four-wheel drive. To do so, use the vehicle diagnosis, testing and information system - VAS 505x- .

- Select on the display:
 - ◆ Running gear
 - ◆ Brake system (Repair group 01; 45)
 - ◆ 01 - Self-diagnosis compatible systems

- ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select the function you require on the display.
- ◆ Calibrate lateral acceleration sender -G200-
- ◆ Calibrate longitudinal acceleration sender -G251- (only on four-wheel drive vehicles)
- Carry out ESP road test and system test.

4.4 Removing and installing steering angle sender -G85-

Removing

- Turn wheels to straight ahead position.
- Remove airbag unit and steering wheel ⇒ Rep. Gr. 48 .

Item -1-: Return ring with slip ring

- Clipped to switch for turn signal indicator, main beam, dipped beam and headlight flasher

Item -2- Steering angle sender -G85-

- Clipped to return ring with slip ring



WARNING

The return ring with slip ring must not be rotated following removal.

- Remove driver's storage compartment ⇒ Rep. Gr. 68 .
- Remove steering column switch module ⇒ Rep. Gr. 94 .

Installing

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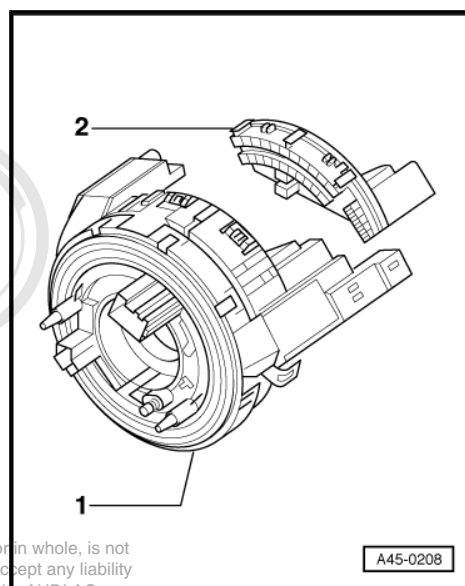
Installation is carried out in the reverse sequence.

- Install airbag unit and steering wheel. ⇒ Rep. Gr. 48

Calibrate steering angle sender -G85.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Select on the display:
- ◆ Running gear
- ◆ Brake system (Repair group 01; 45)
- ◆ 01 - Self-diagnosis compatible systems
- ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select the function you require on the display.
- ◆ J104 - Control unit for ABS/TCS/ESP, Functions
- ◆ G-85 - Calibrate steering angle sensor ⇒ Vehicle diagnosis, testing and information system -VAS 505x- .
- Carry out ESP road test and system test.



A45-0208

4.5 Removing and installing brake servo vacuum sender -G483- . Only on vehicles with (OHV) optimised hydraulic brake assistance/vacuum sender



Note

- ◆ On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#) .
- ◆ The noise amplifier is located in the engine compartment in front of the brake servo.



Note

Vehicles on which the brake vacuum is supplied entirely by the intake manifold and vehicles with mechanical vacuum pump are not fitted with brake servo vacuum sender -G483.

Special tools and workshop equipment required

- ◆ Vehicle diagnostic, testing and information system -VAS 505x-



Note

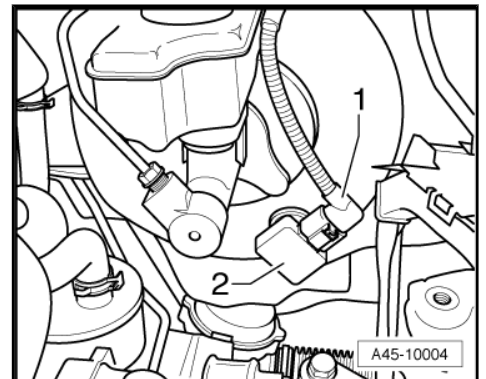
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- ◆ Brake servo vacuum sender -G483- does not have to be calibrated after renewal.
 - ◆ The "Guided Fault Finding" contains a description of the electrical check.

Removing



Note

- ◆ On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#) .
 - ◆ The noise amplifier is located in the engine compartment in front of the brake servo.
- Unplug electrical connector -1- for vacuum sender -2-.



- Pull back retaining ring -1- on OHBV and remove sender - G483 -2- from brake servo.

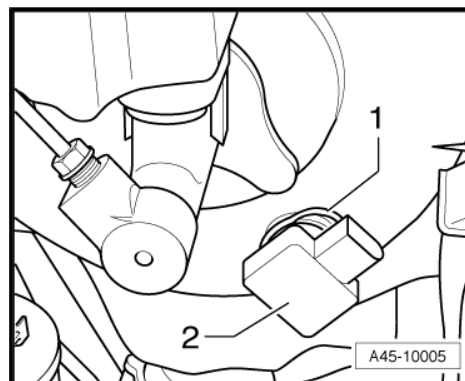
Installing



Note

- ◆ On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#).
- ◆ The noise amplifier is located in the engine compartment in front of the brake servo.

Installation is carried out in reverse sequence.



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5 ABS/ESP Mark 60 control unit -J104- and hydraulic unit -N55-

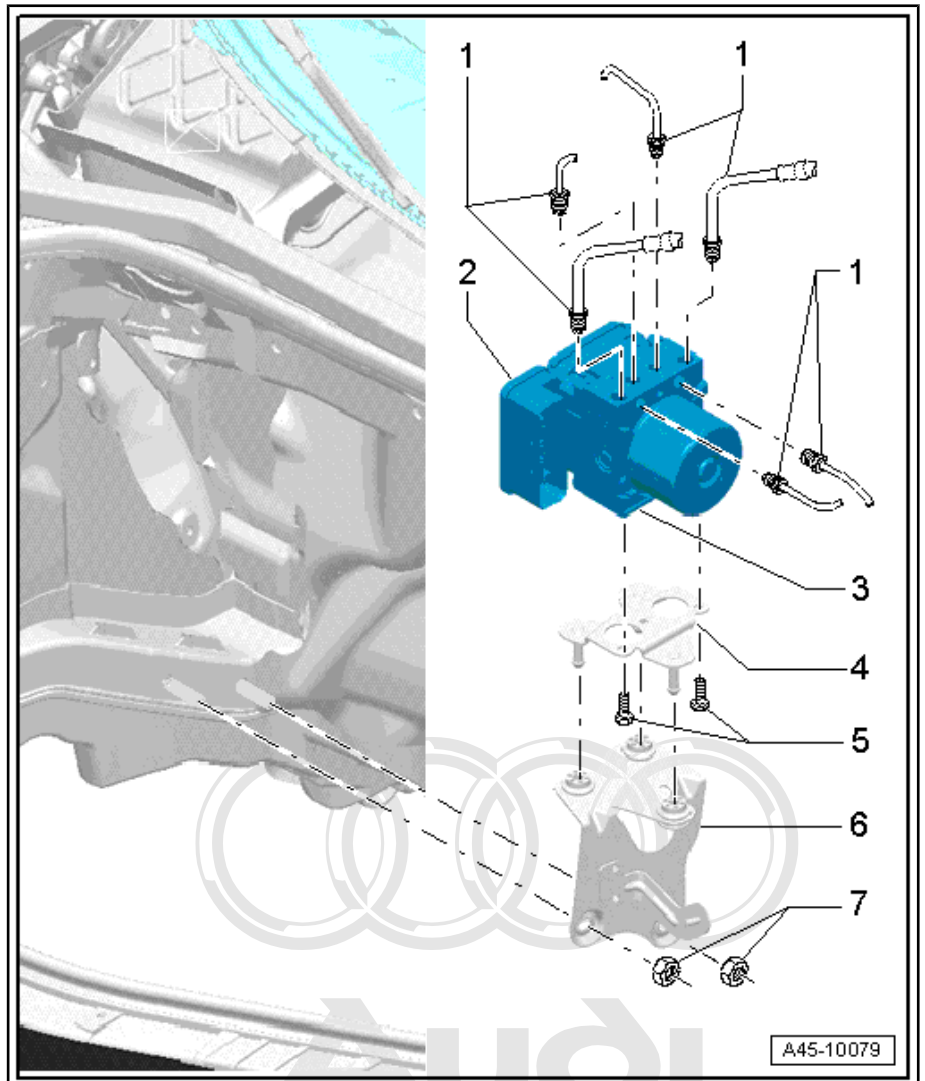
5.1 Exploded view

1 - Brake lines

- ◆ Marking - DK - Brake master cylinder/primary piston circuit to hydraulic unit.
 - ◆ Marking - HL - To rear left brake caliper.
 - ◆ Marking - VR - To front right brake caliper.
 - ◆ Marking - VL - To front left brake caliper.
 - ◆ Marking - HR - To rear right brake caliper.
 - ◆ Marking - SK - Brake master cylinder/secondary piston circuit to hydraulic unit.
- ☐ 14 Nm
 - ☐ Perform final control diagnosis after securing brake lines to hydraulic unit. To do this, use vehicle diagnosis, testing and information system -VAS 505x-.

2 - ABS control unit (with ESP) -J104-

- ☐ Fitting location: on hydraulic unit -N55 on right-side of engine compartment.
- ☐ Allocation ⇒ ETKA
- ☐ Removing and installing ⇒ [page 20](#)
- ☐ Removing and installing (TFSI engine) ⇒ [page 25](#)
- ☐ Removing and installing (TT RS) ⇒ [page 29](#)
- ☐ Removing and installing (vehicles with diesel particulate filter) ⇒ [page 34](#)



Caution

ABS control unit -J104- and ABS hydraulic unit -N55- must not be separated. Control unit and hydraulic unit must be renewed as one unit.

3 - ABS hydraulic unit -N55-

- ☐ Fitting location: in engine compartment (right-side) on control unit -J104-
- ☐ Allocation ⇒ ETKA

- ☐ Removing and installing ⇒ [page 20](#)
- ☐ Removing and installing (TFSI engine) ⇒ [page 25](#)
- ☐ Removing and installing (TT RS) ⇒ [page 29](#)
- ☐ Removing and installing (vehicles with diesel particulate filter) ⇒ [page 34](#)

4 - Bracket

- ☐ Removing and installing together with hydraulic unit -N55- and control unit -J104- ⇒ [page 20](#)

5 - Bolt

- ☐ Bracket to hydraulic unit
- ☐ 8 Nm

6 - Mounting bracket

- ☐ With rubber buffer

7 - Nut

5.2 Removing and installing ABS control unit -J104- and ABS hydraulic unit -N55-

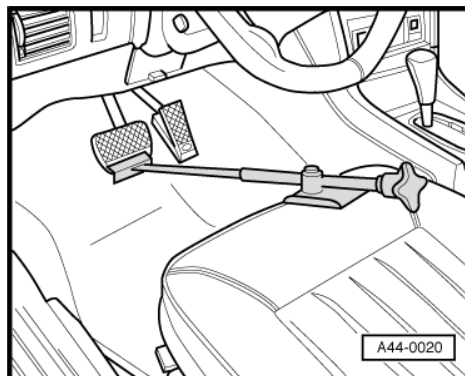


Caution

ABS control unit -J104- and ABS hydraulic unit -N55- must not be separated.

Removing hydraulic unit with control unit

- Read out control unit version and note down.
- Disconnect battery ⇒ Electrical system; Rep. Gr. 27 (note radio code).
- Insert brake pedal actuator -V.A.G 1869/2- between brake pedal and driver's seat (depress brake pedal at least 60 mm).
- Connect hose of bleeder bottle to bleeder screws of front left and rear left brake calipers.
- Open bleeder screws of rear left and front left brake calipers to release pressure in hydraulic unit.
- Close bleeder screws of front left and rear left brake calipers.
- Do not remove brake pedal actuator -V.A.G 1869/2- .

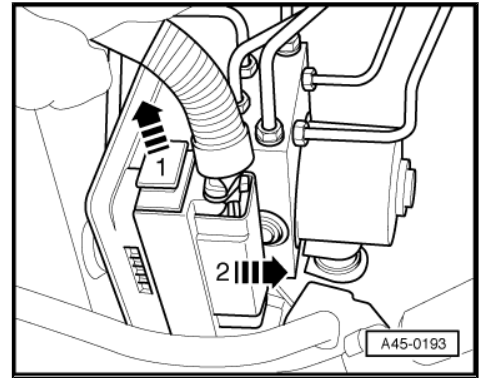


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- Release connector at control unit -arrow 1- and unplug -arrow 2-.

 **Note**

- ◆ *Make sure brake fluid does not get into connector housing of control unit. This can result in corrosion of the contacts and failure of the system.*
- ◆ *Use compressed air to carefully clean connector housing if necessary.*
- To protect against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath control unit and hydraulic unit.
- Mark brake lines ⇒ [Item 1 \(page 19\)](#) .



WARNING

Do not bend or kink brake lines.

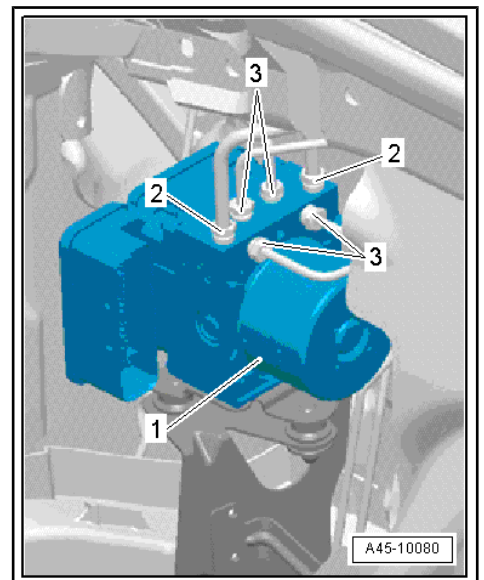
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- Unscrew brake lines from hydraulic unit -2- to brake master cylinder and tie in place.
- Disconnect remaining brake lines -3- on hydraulic unit.

 **Note**

Hydraulic pump -1- must not be separated from hydraulic unit.

- Seal brake lines and threaded holes using sealing plugs from repair kit.



- Carefully pull hydraulic unit -2- together with control unit and bracket -4- out of rubber buffers on mounting bracket -6-.
- Take hydraulic unit out of vehicle.
- Unscrew bolts -5- from bracket -4- and detach bracket.


WARNING

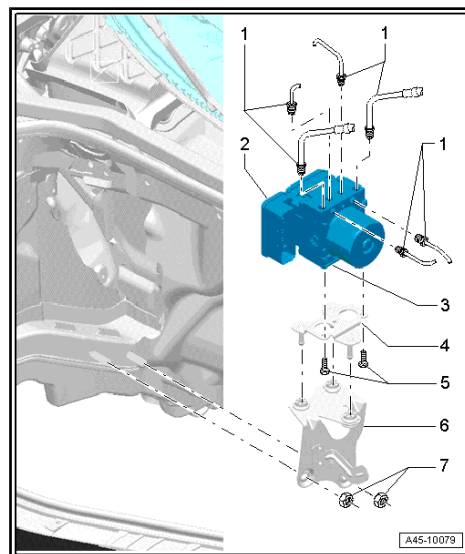
Severe shocks or jolts can damage the control unit. The control unit must not be re-installed if it has been damaged in any way.

- Place hydraulic unit on a clean flat surface with control unit facing downwards.

Seal threaded holes and brake lines using sealing plugs - 1H0.698.311.A after removing control unit and hydraulic unit.


WARNING

Hydraulic pump must not be separated from hydraulic unit.


Installing

Installation is performed in reverse sequence; note the following:


Note

- ◆ *The hydraulic unit supplied as a replacement is filled with brake fluid.*
- ◆ *Do not remove sealing plug of corresponding brake line before fitting, otherwise brake fluid will escape. Proper bleeding is then no longer ensured.*

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- Secure bracket -4- by tightening bolts -5- to 8 Nm.
- Carefully insert hydraulic unit -2- together with control unit and bracket -4- in rubber buffers on mounting bracket -6-.

Make sure that rubber buffers are not pressed through mounting bracket when inserting unit.

- Connect brake lines as previously marked.



WARNING

Interchanging brake line connections will result in ESP system malfunction.

- Connect brake lines to hydraulic unit.
- Attach connector to control unit and lock connector.
- Bleed brake system ⇒ [page 109](#) .
- Perform final control diagnosis after securing brake lines to hydraulic unit.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .



Note

Final control diagnosis can be used to establish whether line connections have been interchanged.

If a new ABS control unit -J104- has been fitted, it must be encoded.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

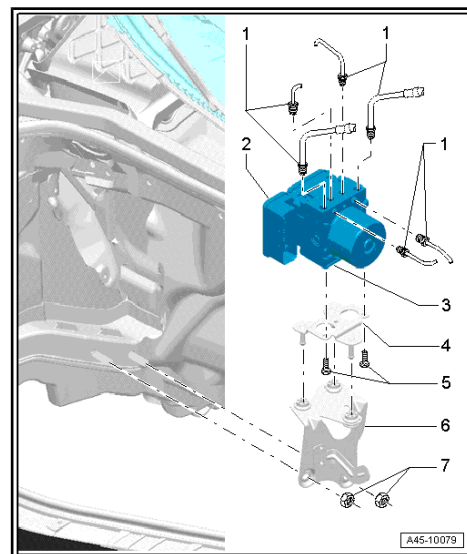
- Select on the display:
 - ◆ Running gear
 - ◆ Brake system (Repair group 01; 45)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 03 - Brake electronics ABS/ESP Mark 60
 - Select required function on the display.
 - ◆ J104 - Control unit for ABS/TCS/ESP Mark 60
 - ◆ J104 - Control unit for ABS/TCS/ESP, Functions
 - ◆ J104 - Encoding control unit

Also calibrate the following senders after renewing control unit - J104-.

- ◆ Steering angle sender -G85-
- ◆ Lateral acceleration sender -G200-
- ◆ Brake pressure sender 1 -G201-
- ◆ Longitudinal acceleration sender -G251- (only on four-wheel drive vehicles)

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

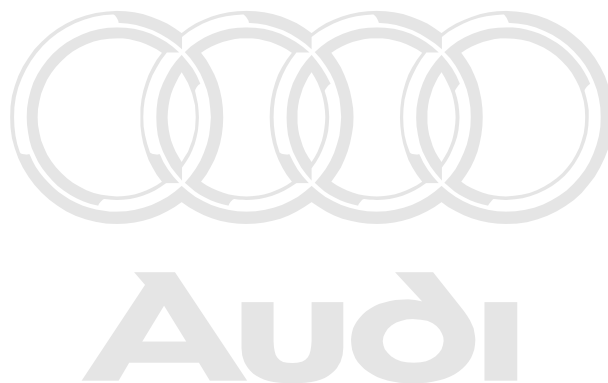
- Select on the display:



- ◆ Running gear
- ◆ Brake system
- ◆ 01 - Self-diagnosis compatible systems
- ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select required function on the display.
- ◆ J104 - Control unit for ABS/TCS/ESP Mark 60
- ◆ J104 - Control unit for ABS/TCS/ESP, Functions
- Then carry out ESP road test and system test.

**WARNING**

Before driving vehicle for the first time, make sure function of brakes is OK.



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6 TFSI engine: ABS control unit -J104- and ABS hydraulic unit -N55-

6.1 Removing and installing control unit - J104- with hydraulic unit -N55- (TFSI)

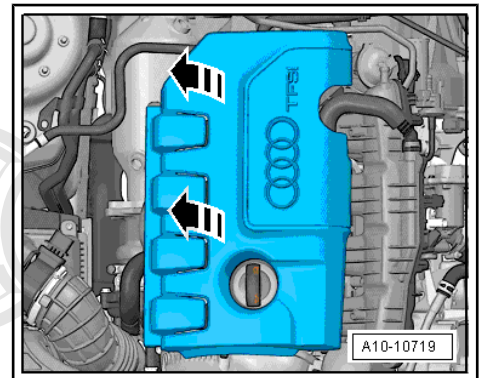
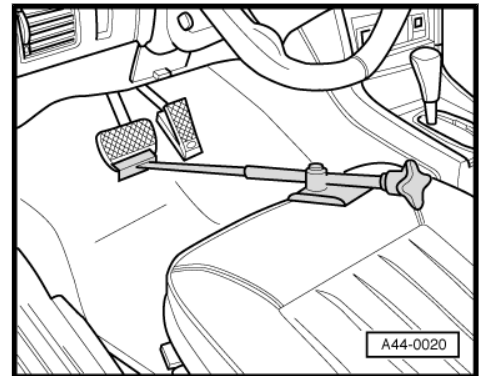


Caution

ABS control unit -J104- and ABS hydraulic unit -N55- must not be separated.

Removing hydraulic unit with control unit

- Read out control unit version and note down.
- Disconnect battery ⇒ Electrical system; Rep. Gr. 27 (note radio code).
- Insert brake pedal actuator -V.A.G 1869/2- between brake pedal and driver's seat (depress brake pedal at least 60 mm).
- Connect hose of bleeder bottle to bleeder screws of front left and rear left brake calipers.
- Open bleeder screws of rear left and front left brake calipers to release pressure in hydraulic unit.
- Close bleeder screws of front left and rear left brake calipers.
- Do not remove brake pedal actuator -V.A.G 1869/2- .
- Lower vehicle.
- Detach engine cover panel.
- Using suitable pliers, unfasten clamp at air hose to air duct and detach hose
- Using suitable pliers, unfasten clamps of air duct and detach.
- Remove air duct to turbocharger from bracket.
- Take air duct out of vehicle.

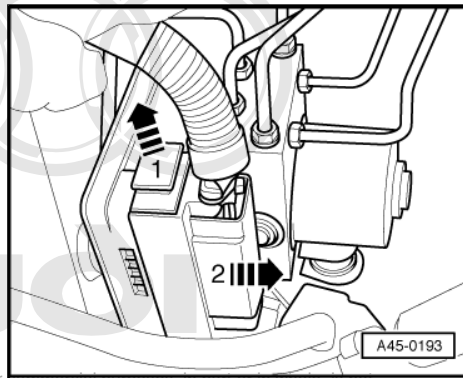


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- Release connector at control unit -arrow 1- and unplug -arrow 2-.


Note

- ◆ *Make sure brake fluid does not get into connector housing of control unit. This can result in corrosion of the contacts and failure of the system.*
- ◆ *Use compressed air to carefully clean connector housing if necessary.*
- To protect against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath control unit and hydraulic unit.
- Mark brake lines ⇒ [Item 1 \(page 19\)](#) .

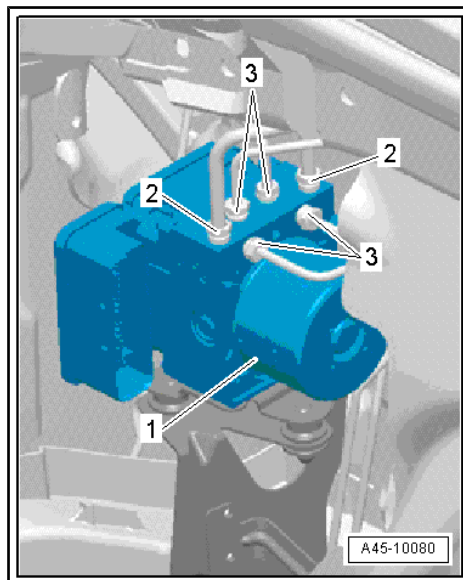

WARNING

Do not bend or kink brake lines.

- Unscrew brake lines from hydraulic unit -2- to brake master cylinder and tie in place.
- Disconnect remaining brake lines -3- on hydraulic unit.
- Seal brake lines and threaded holes using sealing plugs from repair kit.


Note

The hydraulic pump must not be separated from the hydraulic unit.



- Carefully pull hydraulic unit -2- together with control unit and bracket -4- out of rubber buffers on mounting bracket -6-.
- Take hydraulic unit out of vehicle.
- Unscrew bolts -5- from bracket -4- and detach bracket.
- Place hydraulic unit on a clean flat surface with control unit facing downwards.



WARNING

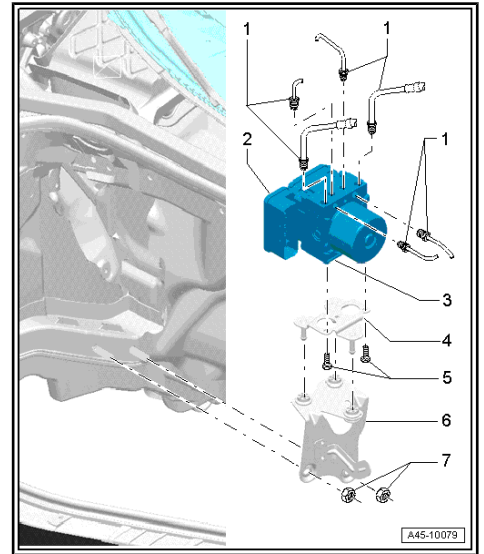
Severe shocks or jolts can damage the control unit. The control unit must not be re-installed if it has been damaged in any way.

Seal threaded holes and brake lines using sealing plugs - 1H0.698.311.A after removing control unit and hydraulic unit.



WARNING

Hydraulic pump must not be separated from hydraulic unit.



Installing

Installation is performed in reverse sequence; note the following:



Note

- ◆ *The hydraulic unit supplied as a replacement is filled with brake fluid.*
- ◆ *If sealing plugs are removed before fitting corresponding brake line, brake fluid will escape. Proper bleeding is then no longer ensured.*

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- Secure bracket -4- by tightening bolts -5- to 8 Nm.
- Carefully insert hydraulic unit -2- together with control unit and bracket -4- in rubber buffers on mounting bracket -6-.

Make sure that rubber buffers are not pressed through mounting bracket when inserting unit.

- Connect brake lines as previously marked
 ⇒ [Item 1 \(page 19\)](#) .

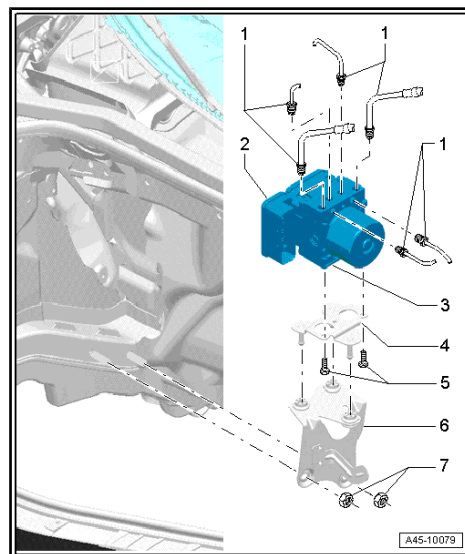


WARNING

Interchanging brake line connections will result in ESP system malfunction.

- Connect brake lines to hydraulic unit.
- Attach connector to control unit and lock connector.
- Insert air duct for turbocharger and use suitable pliers to fasten clamps.
- Secure air duct for turbocharger at bracket.
- Connect air hose and use suitable pliers to fasten clamp.
- Install engine cover panel.
- Bleed brake system ⇒ [page 109](#) .
- Perform final control diagnosis after securing brake lines to hydraulic unit.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .



Note

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Final control diagnosis can be used to establish whether line connections have been interchanged.

If a new ABS control unit -J104- has been fitted, it must be encoded.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Select on the display:
 - ◆ Running gear
 - ◆ Brake system (Repair group 01; 45)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select required function on the display.
 - ◆ J104 - Control unit for ABS/TCS/ESP Mark 60
 - ◆ J104 - Control unit for ABS/TCS/ESP, Functions
 - ◆ J104 - Encoding control unit

Also calibrate the following senders after renewing control unit -J104-.

- ◆ Steering angle sender -G85-
- ◆ Lateral acceleration sender -G200-

- ◆ Brake pressure sender 1 -G201-
- ◆ Longitudinal acceleration sender -G251- (only on four-wheel drive vehicles)

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Select on the display:
- ◆ Running gear
- ◆ Brake system
- ◆ 01 - Self-diagnosis compatible systems
- ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select required function on the display.
- ◆ J104 - Control unit for ABS/TCS/ESP Mark 60
- ◆ J104 - Control unit for ABS/TCS/ESP, Functions
- Then carry out ESP road test and system test.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

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6.2 Removing and installing control unit - J104- with hydraulic unit -N55- (TT RS)



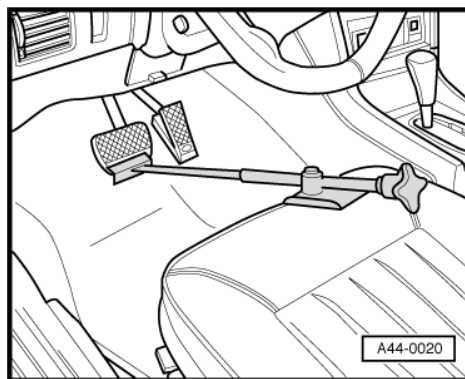
Caution

ABS control unit -J104- and ABS hydraulic unit -N55- must not be separated.

Removing hydraulic unit with control unit

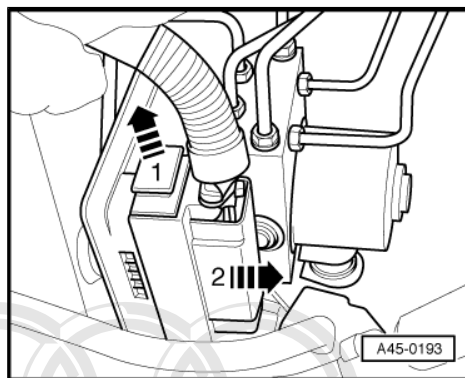
- Read out control unit version and note down.
- Disconnect battery ⇒ Electrical system; Rep. Gr. 27 (note radio code).

- Insert brake pedal actuator -V.A.G 1869/2- between brake pedal and driver's seat (depress brake pedal at least 60 mm).
- Connect hose of bleeder bottle to bleeder screws of front left and rear left brake calipers.
- Open bleeder screws of rear left and front left brake calipers to release pressure in hydraulic unit.
- Close bleeder screws of front left and rear left brake calipers.
- Do not remove brake pedal actuator -V.A.G 1869/2- .
- Lower vehicle.
- Using suitable pliers, unfasten clamp at air hose to air duct and detach hose.
- Using suitable pliers, unfasten clamps of air duct and detach.
- Remove air duct to turbocharger from bracket.
- Take air duct out of vehicle.
- Unclip coolant line to coolant expansion tank from bulkhead.
- Carefully press coolant line to one side.
- Release connector at control unit -arrow 1- and unplug -arrow 2-.



Note

- ◆ *Make sure brake fluid does not get into connector housing of control unit. This can result in corrosion of the contacts and failure of the system.*
- ◆ *Use compressed air to carefully clean connector housing if necessary.*
- Unfasten cable tie for electrical wiring to connector and move wiring clear to one side.
- To protect against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath control unit and hydraulic unit.
- Mark brake lines ⇒ [Item 1 \(page 19\)](#) .



WARNING

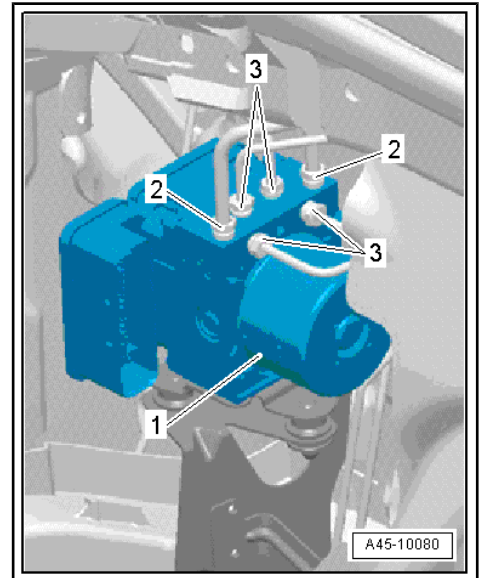
Do not bend or kink brake lines.

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- Unscrew brake lines from hydraulic unit -2- to brake master cylinder and tie in place.
- Disconnect remaining brake lines -3- on hydraulic unit.
- Seal brake lines and threaded holes using sealing plugs from repair kit.

 **Note**

The hydraulic pump must not be separated from the hydraulic unit.



- Carefully pull hydraulic unit -2- together with control unit and bracket -4- out of rubber buffers on mounting bracket -6-.
- Take hydraulic unit out of vehicle.
- Unscrew bolts -5- from bracket -4- and detach bracket.
- Place hydraulic unit on a clean flat surface with control unit facing downwards.



WARNING

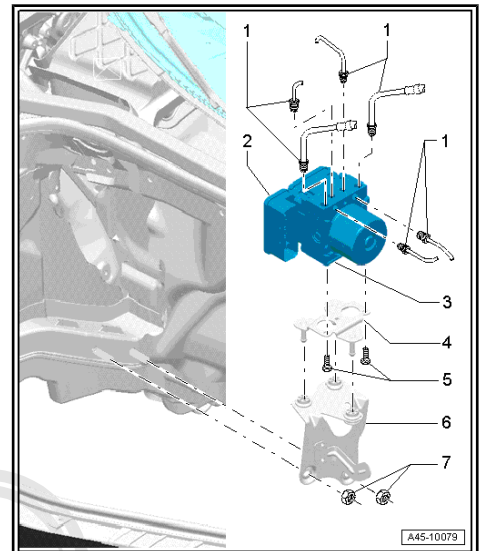
Severe shocks or jolts can damage the control unit. The control unit must not be re-installed if it has been damaged in any way.

Seal threaded holes and brake lines using sealing plugs - 1H0.698.311.A after removing control unit and hydraulic unit.



WARNING

Hydraulic pump must not be separated from hydraulic unit.



Installing

Installation is performed in reverse sequence; note the following:

 **Note**

- ◆ *The hydraulic unit supplied as a replacement is filled with brake fluid.*
- ◆ *If sealing plugs are removed before fitting corresponding brake line, brake fluid will escape. Proper bleeding is then no longer ensured.*

- Secure bracket -4- by tightening bolts -5- to 8 Nm.
- Carefully insert hydraulic unit -2- together with control unit and bracket -4- in rubber buffers on mounting bracket -6-.

Make sure that rubber buffers are not pressed through mounting bracket when inserting unit.

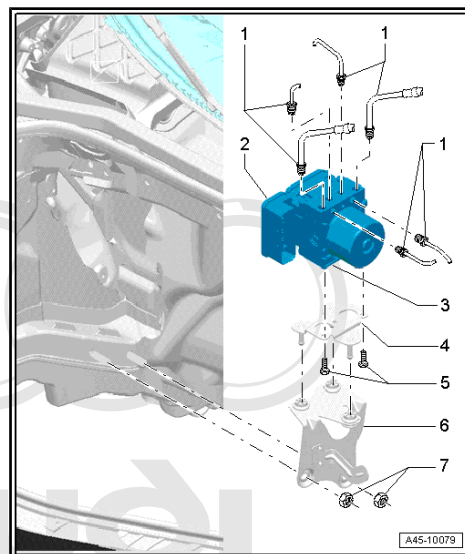
- Connect brake lines as previously marked
 ⇒ [Item 1 \(page 19\)](#) .



WARNING

Interchanging brake line connections will result in ESP system malfunction.

- Connect brake lines to hydraulic unit.
- Attach connector to control unit and lock connector.
- Secure electrical wiring for connector to body using a cable tie.
- Clip coolant line to coolant expansion tank into retainers in bulkhead.



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Note

Fasten retainers at bulkhead.

- Insert air duct for turbocharger and use suitable pliers to fasten clamps.
- Secure air duct for turbocharger at bracket.
- Connect air hose and use suitable pliers to fasten clamp.
- Bleed brake system ⇒ [page 109](#) .
- Perform final control diagnosis after securing brake lines to hydraulic unit.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .



Note

Final control diagnosis can be used to establish whether line connections have been interchanged.

If a new ABS control unit -J104- has been fitted, it must be encoded.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Select on the display:
 - ◆ Running gear
 - ◆ Brake system (Repair group 01; 45)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select required function on the display.
 - ◆ J104 - Control unit for ABS/TCS/ESP Mark 60

- ◆ J104 - Control unit for ABS/TCS/ESP, Functions
- ◆ J104 - Encoding control unit

Also calibrate the following senders after renewing control unit - J104-

- ◆ Steering angle sender -G85-
- ◆ Lateral acceleration sender -G200-
- ◆ Brake pressure sender 1 -G201-
- ◆ Longitudinal acceleration sender -G251- (only on four-wheel drive vehicles)

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Select on the display:
 - ◆ Running gear
 - ◆ Brake system
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select required function on the display.
 - ◆ J104 - Control unit for ABS/TCS/ESP Mark 60
 - ◆ J104 - Control unit for ABS/TCS/ESP, Functions
- Then carry out ESP road test and system test.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

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7 Vehicles with diesel particulate filter: Control unit -J104- with hydraulic unit -N55-

7.1 Removing and installing control unit - J104- with hydraulic unit -N55- (TDI)

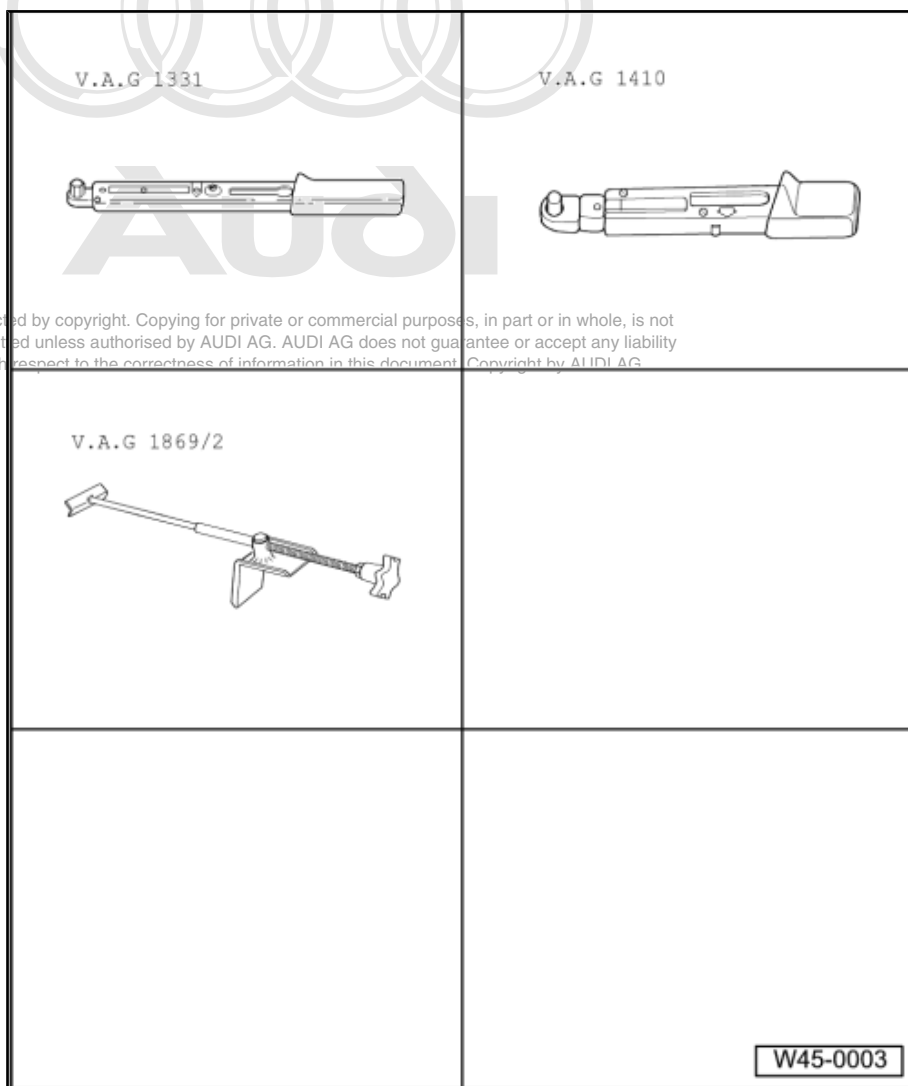


Note

The diesel particulate filter must be removed ⇒ Rep. Gr. 26 .

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1410-
- ◆ Brake pedal actuator - V.A.G 1869/2-



Sealing plug repair kit, Part no. 1H0 698 311 A

No warranty can be assumed for hydraulic units without transport protection.

- 1 - Transport protection for valve domes (foam)
- 2 - Sealing plugs M10 for brake lines and tapped holes
- 3 - Sealing plugs M12 for brake lines and tapped holes



Caution

ABS control unit -J104- and ABS hydraulic unit -N55- must not be separated.

Removing hydraulic unit with control unit

- Read out control unit version and note down.
- Disconnect battery → Electrical system; Rep. Gr. 27 (note radio code).
- Insert brake pedal actuator -V.A.G 1869/2- between brake pedal and driver's seat. Depress the brake pedal at least 60 mm.
- Connect hose of bleeder bottle to bleeder screws of front left and rear left brake calipers and open bleeder screws.

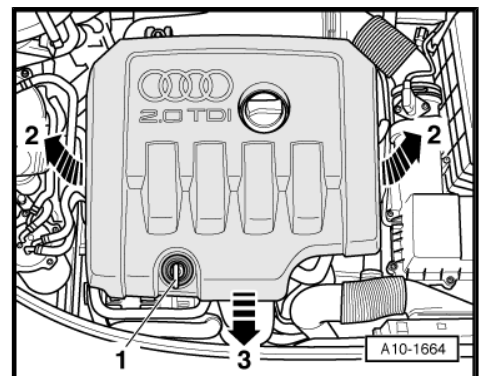
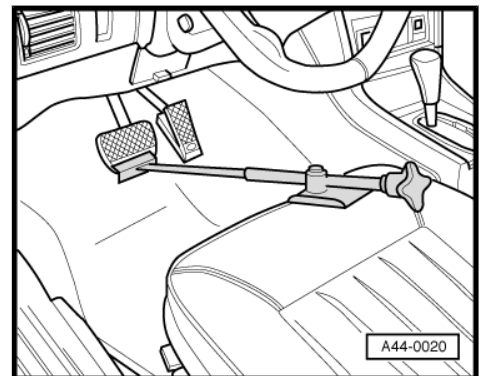
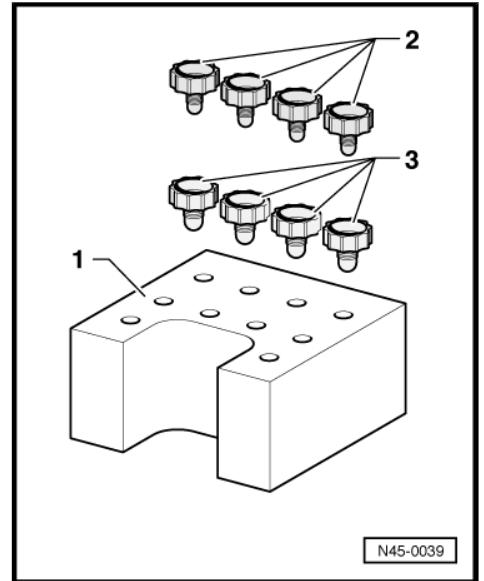


Note

This will release the pressure in the hydraulic unit.

- Close front left and rear left bleeder screws.
- Do not remove brake pedal actuator -V.A.G 1869/2- .
- Lower vehicle.
- Remove engine cover panel.
- Remove diesel particulate filter → Rep. Gr. 26 .

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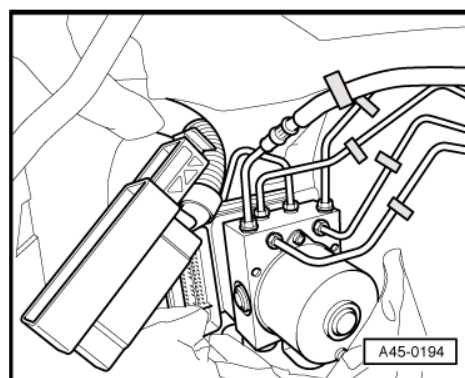
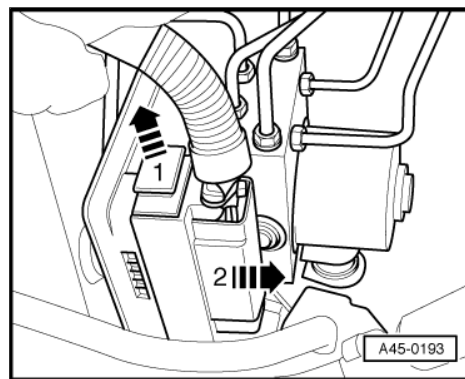


- Release connector at control unit -arrow 1- and unplug -arrow 2-.



Note

- ◆ *Make sure brake fluid does not get into connector housing of control unit. This can result in corrosion of the contacts and failure of the system.*
- ◆ *Use compressed air to carefully clean connector housing if necessary.*
- As protection against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath control unit and hydraulic unit.
- Mark brake lines.



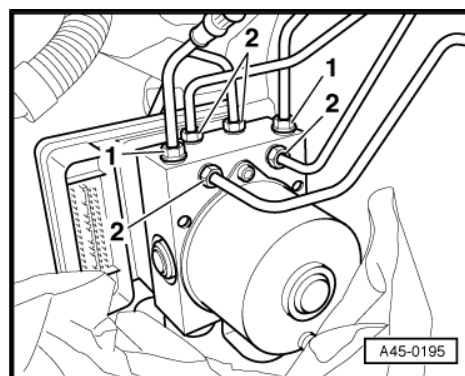
- Unscrew brake lines from hydraulic unit -1- to brake master cylinder and tie in place.
- Disconnect remaining brake lines -2- on hydraulic unit.



WARNING

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

- Seal brake lines and tapped holes with sealing plugs from repair kit.



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- Carefully pull hydraulic unit -2- together with control unit and bracket -4- out of rubber buffers -6-.
- Take hydraulic unit out of vehicle.
- Unscrew bolts -5- from bracket -4- and detach bracket.
- Place hydraulic unit on a clean flat surface with control unit facing downwards.



WARNING

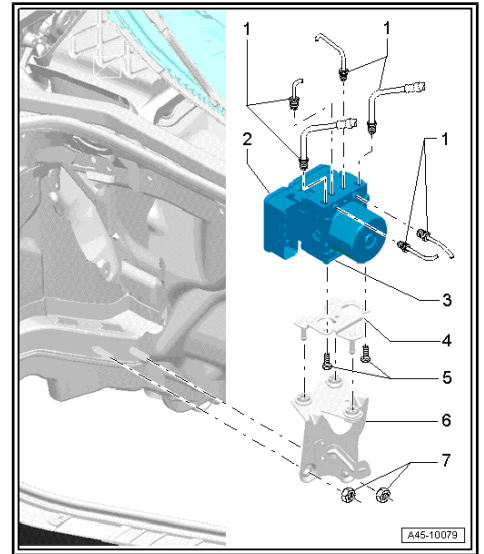
Severe shocks or jolts can damage the control unit. The control unit must not be re-installed if it has been damaged in any way.

Seal threaded holes and brake lines using sealing plugs 1H0.698.311.A after removing control unit and hydraulic unit.



WARNING

Hydraulic pump must not be separated from hydraulic unit.



Installing

Installation is performed in reverse sequence; note the following:



Note

- ◆ *The hydraulic unit supplied as a replacement is filled with brake fluid.*
- ◆ *If sealing plugs are removed before fitting corresponding brake line, brake fluid will escape. Proper bleeding is then no longer ensured.*



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- Secure mounting bracket -4- with bolts -5-. Tightening torque: 8 Nm.
- Carefully insert hydraulic unit -2- together with control unit and bracket -4- in rubber buffers on mounting bracket -6-.

Make sure that rubber buffers are not pressed through mounting bracket when inserting unit.

- Connect brake lines as previously marked.

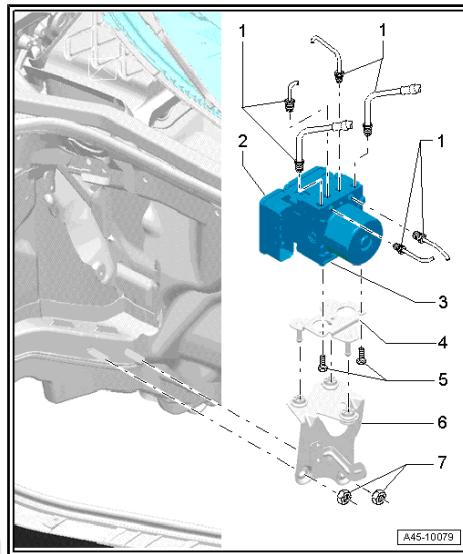


WARNING

Interchanging brake lines will result in ESP system malfunction.

- Connect brake lines to hydraulic unit.
- Attach connector to control unit and lock connector.
- Install diesel particulate filter ⇒ Rep. Gr. 26 .
- Install engine cover panel.
- Bleed brake system ⇒ [page 109](#) .
- Perform final control diagnosis after securing brake lines to hydraulic unit.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .



Note

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Final control diagnosis can be used to establish whether line connections have been interchanged.

If a new ABS control unit -J104- has been fitted, it must be encoded.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Select on the display:
 - ◆ Running gear
 - ◆ Brake system (Repair group 01; 45)
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select required function on the display.
 - ◆ J104 - Control unit for ABS/TCS/ESP Mark 60
 - ◆ J104 - Control unit for ABS/TCS/ESP, Functions
 - ◆ J104 - Encoding control unit

Also calibrate the following senders after renewing control unit -J104-.

- ◆ Steering angle sender -G85-
- ◆ Lateral acceleration sender -G200-
- ◆ Brake pressure sender 1 -G201-
- ◆ Longitudinal acceleration sender -G251- (only on four-wheel drive vehicles)

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Select on the display:
 - ◆ Running gear
 - ◆ Brake system
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 03 - Brake electronics ABS/ESP Mark 60
- Select required function on the display.
 - ◆ J104 - Control unit for ABS/TCS/ESP Mark 60
 - ◆ J104 - Control unit for ABS/TCS/ESP, Functions
- Then carry out ESP road test and system test.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

7.2 Basic setting of inlet valves and separating valves (Mark 60EC)

The basic setting of the inlet valves should only be performed if the ABS control unit -J104- has been renewed.

To do so, use the vehicle diagnosis, testing and information system -VAS 505x- or -VAS 5052- .

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Note

If the basic setting of the inlet valves has to be performed, you must then perform the basic setting of the separating valves.

- ◆ Running gear
- ◆ Brake system
- ◆ 01 - Self-diagnosis compatible systems
- ◆ 03 ABS control unit J104 MK60EC
- ◆ 03 Functions ABS MK60EC J104
- ◆ Basic setting of inlet valves
- ◆ Basic setting of separating valves

Please follow the instructions on the display exactly.

8 ABS/ESP system components on front axle

8.1 Exploded view



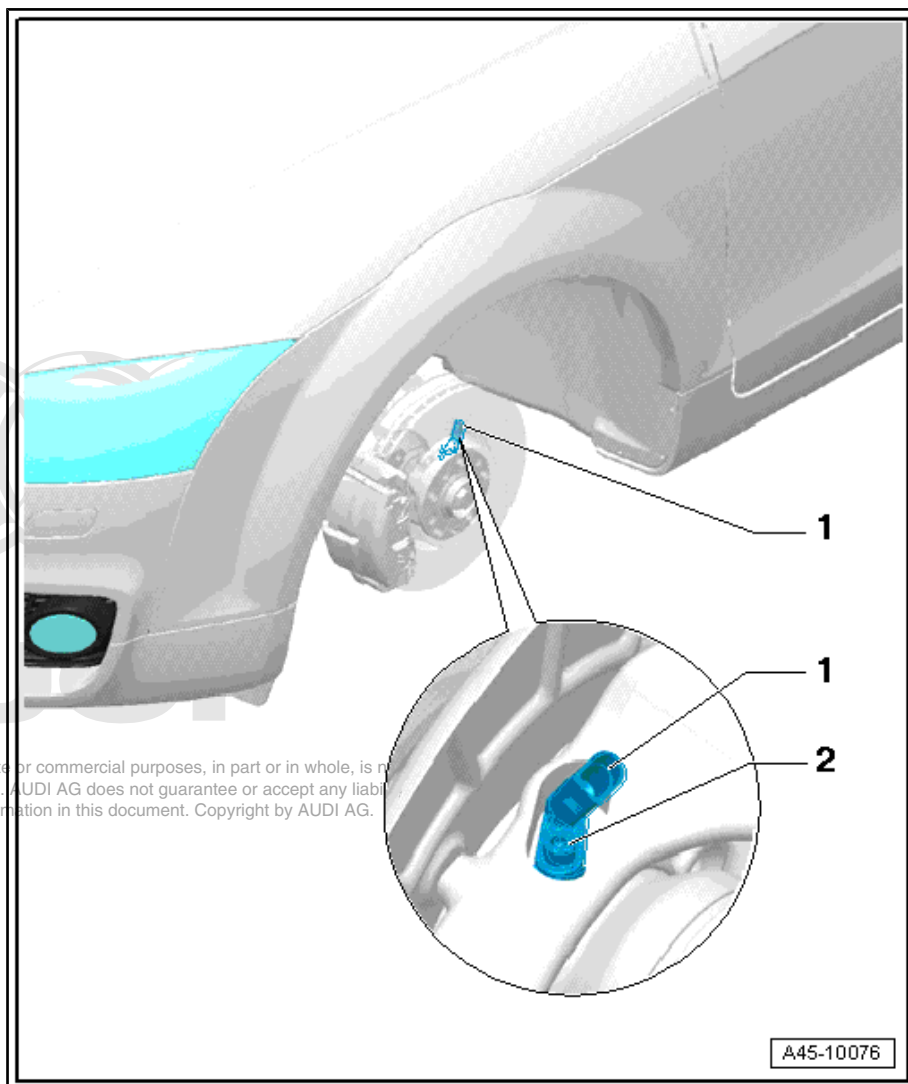
The ABS sensor ring / rotor is incorporated in the corresponding wheel bearing unit ⇒ Rep. Gr. 42 and cannot be renewed.

1 - Speed sensor

- Removing and installing
⇒ [page 40](#)

2 - Hexagon socket head bolt

- 8 Nm



8.2 Removing and installing speed sensor

Removing

- Release connector -1- at speed sensor and unplug.
- Remove bolt -2-.
- Pull speed sensor -1- 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 thoroughly with lubricating paste G 000 650.
- Turn steering completely to left and right and check clearance of speed sensor wire.



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9 ABS/ESP system components on rear axle (front-wheel drive vehicles)

9.1 Exploded view



Note

The ABS sensor ring / rotor is incorporated in the corresponding wheel bearing unit ⇒ Rep. Gr. 42 and cannot be renewed.

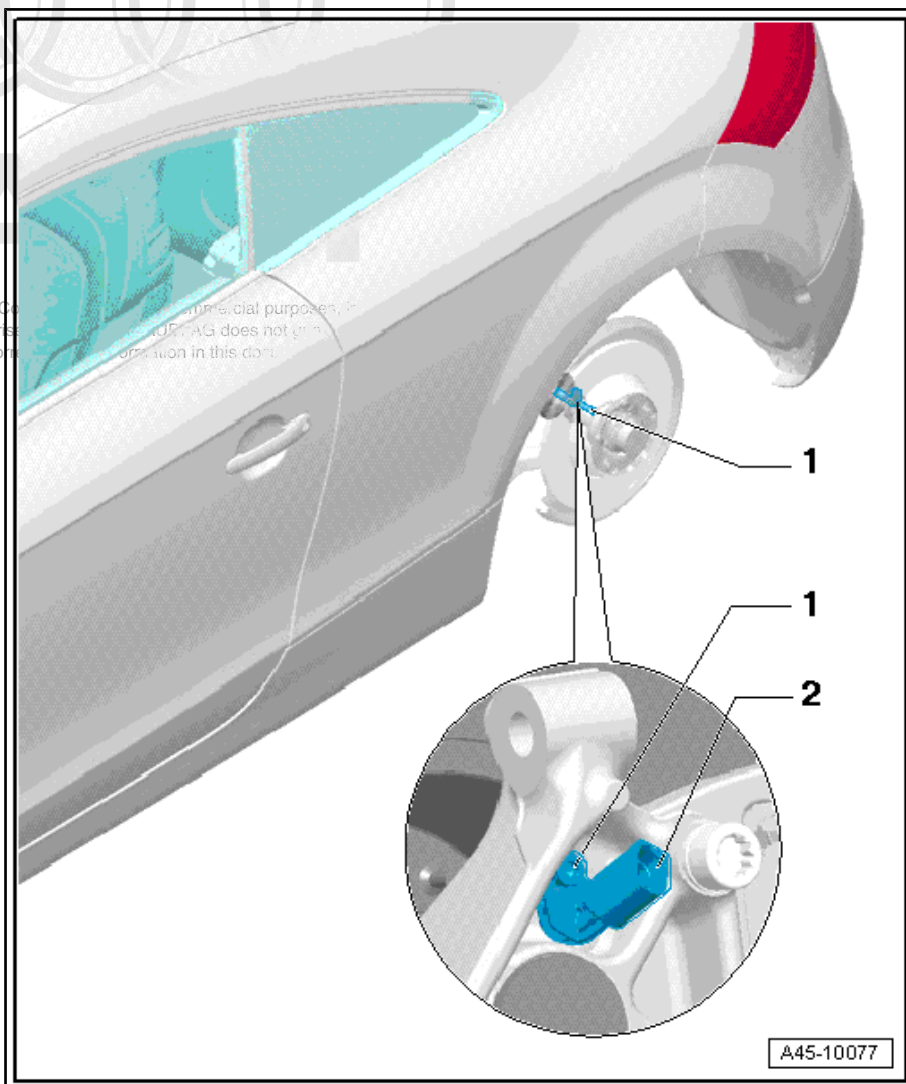
1 - Hexagon socket head bolt

- 8 Nm

2 - Speed sensor

- Removing and installing
⇒ [page 42](#)

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9.2 Removing and installing rear speed sensor

Removing

- Release connector -2- at speed sensor and unplug.
- Remove bolt -1-.
- Pull speed sensor -2- out of wheel bearing housing.

Installing

Installation is performed in reverse sequence; note the following:

- Before inserting speed sensor, clean inner surface of fitting hole and coat speed sensor thoroughly with grease -G 000 650- .



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10 ABS/ESP system components on rear axle (four-wheel drive vehicles)

10.1 Exploded view



Note

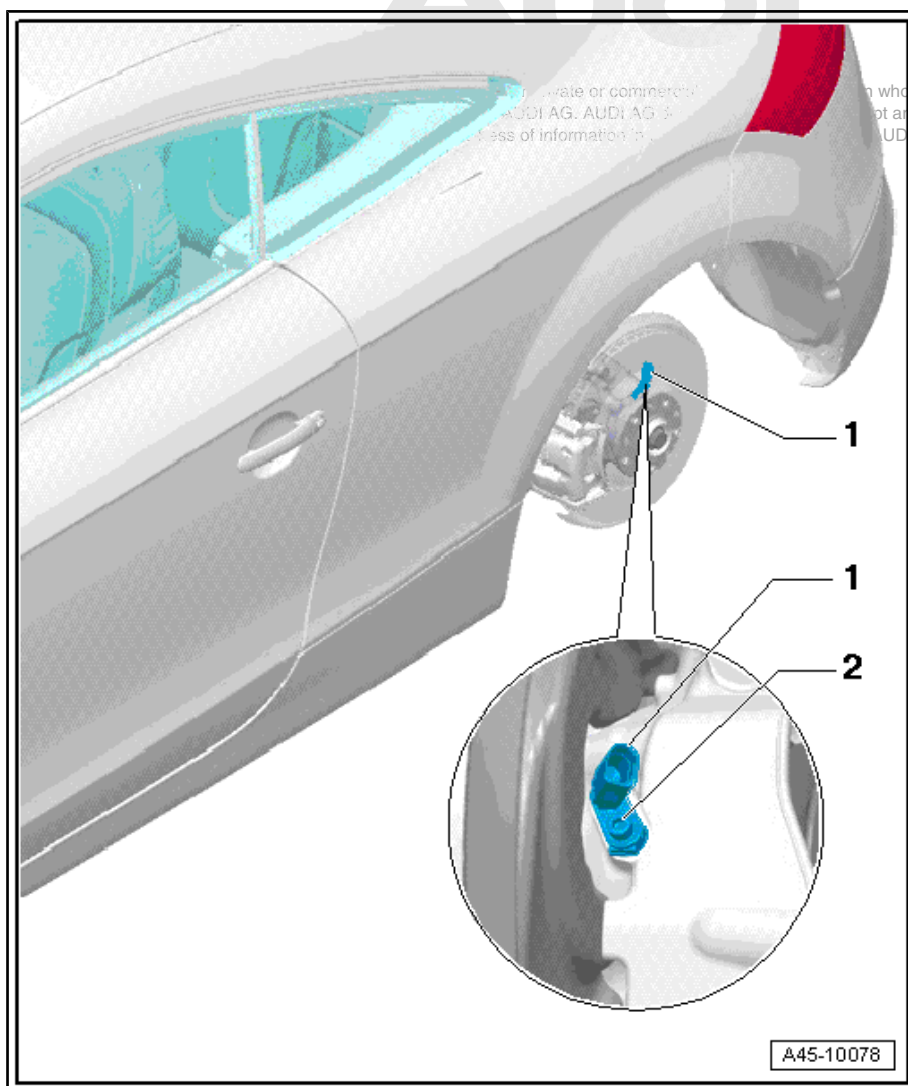
The ABS sensor ring / rotor is incorporated in the corresponding wheel bearing unit ⇒ Rep. Gr. 42 and cannot be renewed.

1 - Speed sensor

- ❑ Removing and installing
⇒ [page 44](#)

2 - Hexagon socket head bolt

- ❑ 8 Nm



10.2 Removing and installing rear speed sensor

Removing

- Release connector -1- at speed sensor and unplug.
- Remove bolt -2-.
- Pull speed sensor -1- 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 thoroughly with lubricating paste G 000 650.



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46 – Brakes - mechanism

1 Servicing front brakes

Observe general notes before servicing.



Note

- ◆ *Use the brake filling and bleeding equipment -VAS 5234- to extract brake fluid from brake fluid reservoir.*
- ◆ *Before removing brake caliper or disconnecting brake hose from brake caliper, insert brake pedal actuator -V.A.G 1869/2- to prevent brake fluid reservoir from emptying completely.*
- ◆ *To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.*
- ◆ *Make sure that no brake fluid escapes, otherwise components and paintwork will be damaged.*
- ◆ *Always install all parts supplied in repair kit.*



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth.

1.1 Servicing front brakes 16" FN3

- ◆ Install all parts supplied in repair kit.
- ◆ After replacing brake pads, depress brake pedal firmly several times with vehicle stationary so that the pads are properly seated in their normal operating position.

Observe general notes ➔ [page 46](#) .

1 - Wheel bearing unit with integrated ABS sensor wheel

- ☐ Removing and installing
 ⇒ Rep. Gr. 40

2 - Speed sensor

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

3 - Hexagon socket head bolt

- ☐ 8 Nm

4 - Splash plate

5 - Bolt

- ☐ 10 Nm

6 - Brake disc

- ☐ Allocation, dimensions and wear limit ⇒ [page 1](#)
- ☐ To remove, unbolt brake caliper housing
- ☐ Do not force brake discs off wheel hub; if necessary, use rust remover, otherwise brake discs could be damaged.
- ☐ Always renew on both sides of axle

7 - Bolt

- ☐ Do not loosen unless removing brake disc
- ☐ 4 Nm

8 - Brake carrier

- ☐ Bolt to wheel bearing housing
- ☐ 200 Nm
- ☐ Renew protective caps if they have been damaged (repair kit); use grease sachet supplied to lubricate the guide pins

9 - Brake pads

- ☐ With wear indicator (on inner brake pad on left-side only)
- ☐ Pad thickness, wear limit ⇒ [page 1](#)
- ☐ Always renew on both sides of axle

Before fitting pads, clean guide surfaces and apply a thin coating of grease ⇒ ETKA .

- ☐ Removing and installing ⇒ [page 49](#)
- ☐ Checking pad thickness: ⇒ Maintenance ; Booklet 808

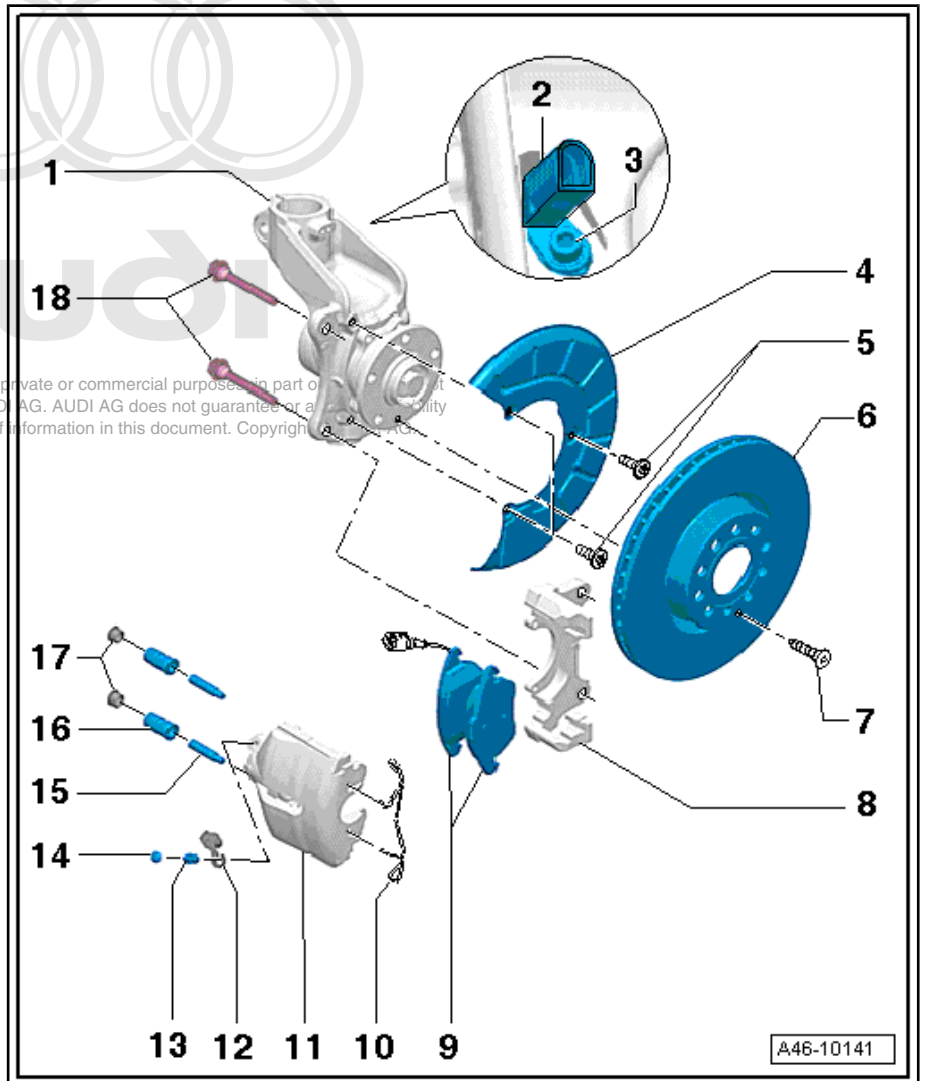


Note

Clean the brake caliper thoroughly (grease-free) before inserting new brake pads. It is particularly important to ensure that contact surfaces for brake pads are clean.

10 - Retaining spring

- ☐ Insert in both holes in brake caliper housing



11 - Brake caliper housing

- ☐ Piston diameter ⇒ [page 1](#) ; versions available ⇒ ETKA
- ☐ Unscrew from brake carrier to replace brake pads
- ☐ Removing and installing ⇒ [page 52](#)
- ☐ Servicing ⇒ [page 96](#)

Brake line connection to brake caliper, 19 Nm

Brake line connection to brake hose, 12 Nm

Counterhold at hexagon flats on brake hose when connecting brake line to brake hose.

- ☐ Brake caliper with vibration damper ⇒ [page 74](#)

12 - Bracket**13 - Bolt**

- ☐ Bracket to brake caliper

14 - Protective cap**15 - Guide pin**

- ☐ Brake caliper to brake carrier
- ☐ 30 Nm

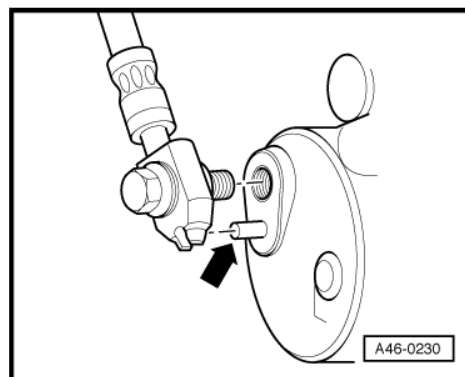
16 - Bearing bush**17 - Protective cap****18 - Bolt**

- ☐ Brake carrier to wheel bearing housing
 - ☐ Always renew if removed
 - ☐ 200 Nm
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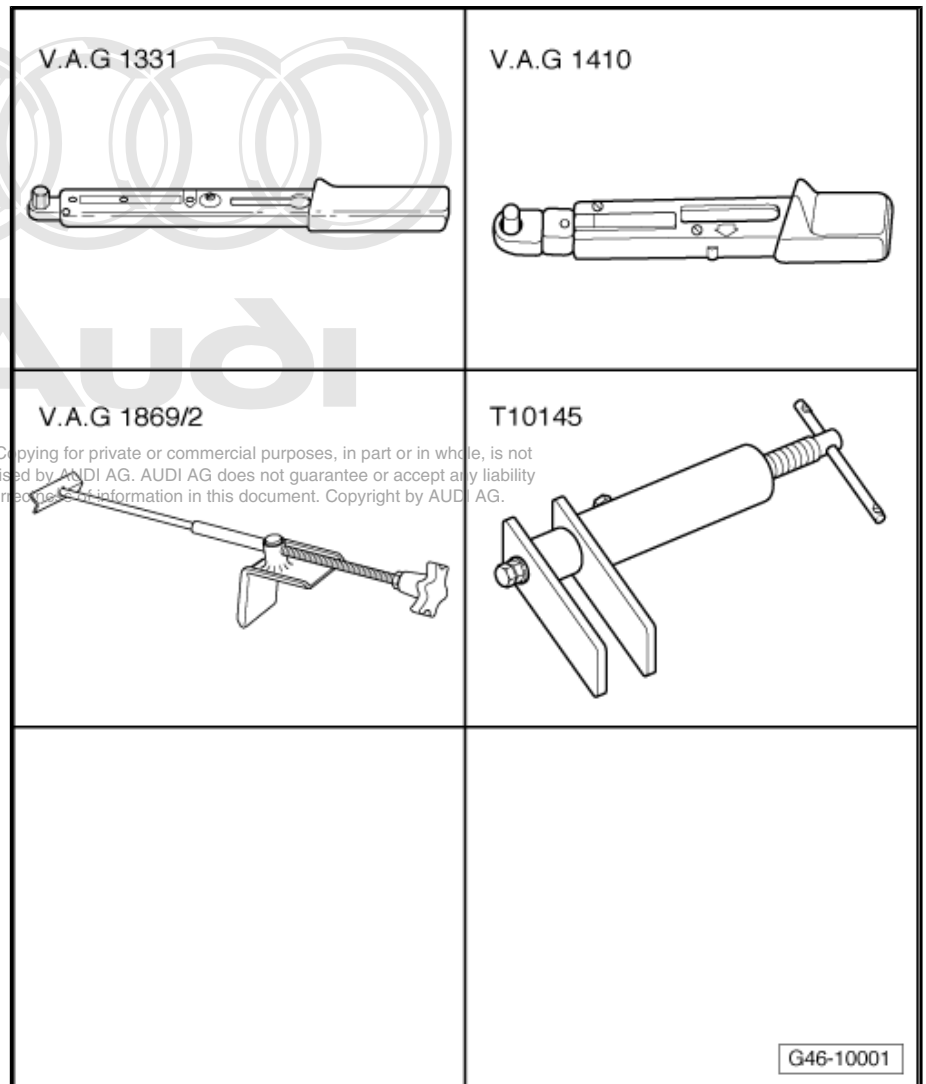
Brake hose connection with locating pin

Tightening torque for brake hose to brake caliper for 16" FN-3 brakes: 35 Nm

- Make sure groove in banjo union of brake hose is inserted on locating pin -arrow-.



1.2 Removing and installing brake pads - front brakes 16" FN3



Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1410-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Brake pedal actuator -V.A.G 1869/2-
- ◆ Piston resetting appliance -T10145-

Removing

- Raise vehicle.
- Remove wheels.

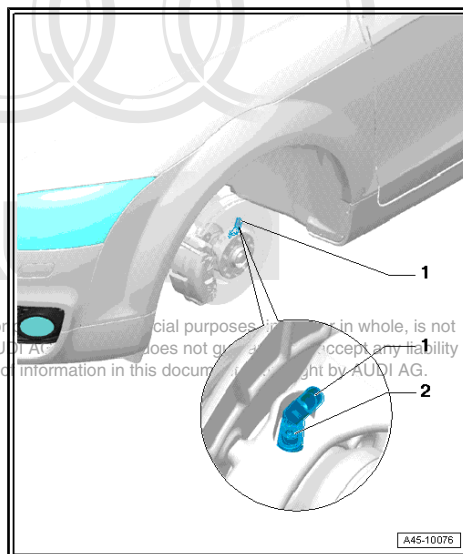


Note

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

- Unplug connector -1- of brake pad wear indicator at left brake.
- Do not loosen bolt -2-.

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- Lever off brake pad retaining spring from brake caliper housing with a screwdriver -arrow- and remove.
- Remove brake caliper. ⇒ [page 52](#)
- Remove brake caliper and secure such that the weight of the caliper does not damage the brake line.



Note

Brake hose/line must not be twisted or kinked.

- Take brake pads out of brake caliper housing or from brake carrier.
- Clean brake caliper housing; in particular the bonding surface for the brake pad must be free of any traces of adhesive and grease.

Only use methylated spirits to clean the brake caliper housing.

Installing

Before fitting pads, clean guides and apply a thin coating of grease ⇒ ETKA .

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ [page 73](#) .

Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.

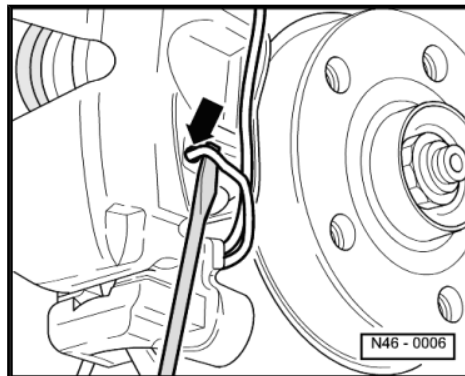


WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

Perform further installation in reverse order; note the following:

- Insert brake pads in brake carrier, paying attention to fitting location:



When properly installed, arrow on backplate of brake pad must face downwards.

1 - Right-side brake pad (facing piston)

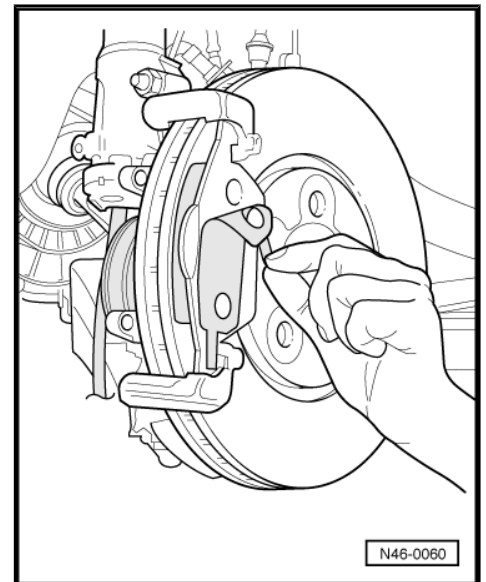
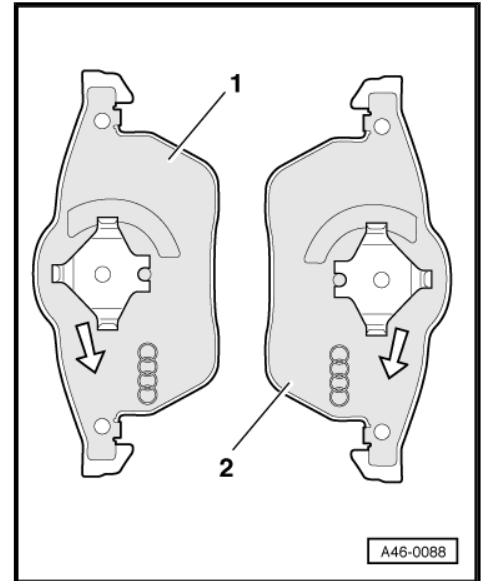
2 - Left-side brake pad (facing piston)



Note

The wear indicator is located on inner brake pad on front left brake caliper.

- Pull protective foil off outer brake pad backplate.
- Fit brake caliper onto brake carrier and brake disc.
- Secure brake caliper with both guide pins to brake carrier
⇒ [page 52](#) . Note tightening torque ⇒ [Item 15 \(page 48\)](#) .



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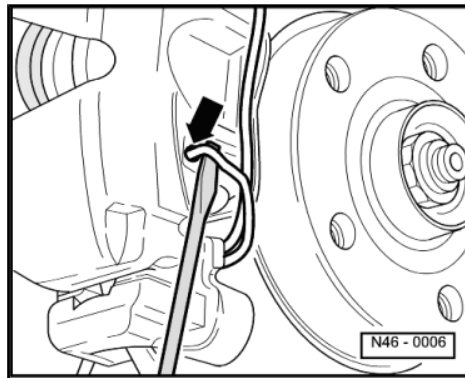
- Insert retaining spring -arrow- in brake caliper housing.



Note

Make sure not to twist or stretch brake hose when installing.

- Fit both protective caps onto guide pins.
- Insert retaining spring into brake caliper housing.
- Press in spring clip.
- Plug in connector for wear indicator.
- Press connector for wear indicator into bracket and insert wire.
- Fit wheels → Wheels and tyres; Rep. Gr. 44 .



WARNING

- ♦ *The retaining spring must be pressed under the brake carrier after inserting into both holes. If incorrectly installed, the wear of the outer pad cannot be adjusted, and the pedal travel will be increased as a result.*
- ♦ *After installing the brake pads and bleeding brake system, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.*

- Check brake fluid level and top up if necessary.
-



WARNING

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.



WARNING

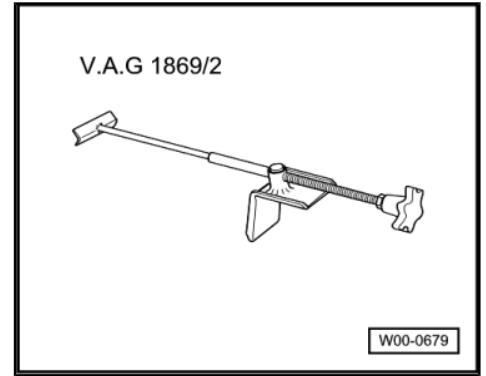
Before driving vehicle for the first time, make sure function of brakes is OK.

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1.3 Removing and installing brake caliper - front brakes 16" FN3

Special tools and workshop equipment required

◆ Brake pedal actuator -V.A.G 1869/2-



Removing

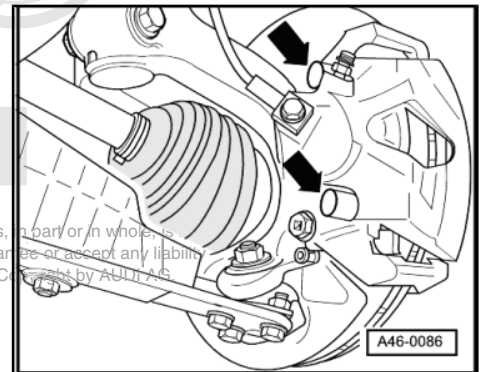
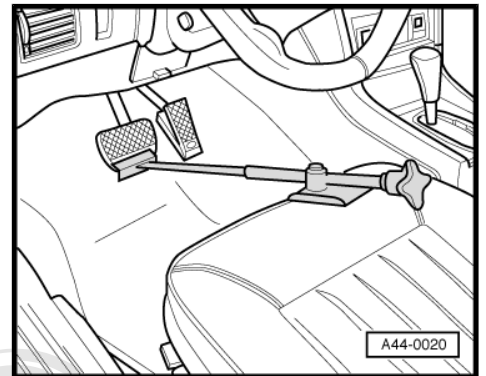
- Insert brake pedal actuator -V.A.G 1869/2- between brake pedal and driver's seat (depress brake pedal at least 60 mm).



Note

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

- Connect hose of bleeder bottle to bleeder screw of removed brake caliper.
- Open bleeder screw.
- Do not remove brake pedal actuator -V.A.G 1869/2- .
- Close bleeder screws.
- Disconnect brake hose from brake caliper.
- Remove protective caps from guide pins -arrows-.



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- Remove guide pins -arrows-.
- Pull both guide pins out of brake caliper and bearing bushes.
- Remove brake pads ⇒ [page 49](#) .

Installing

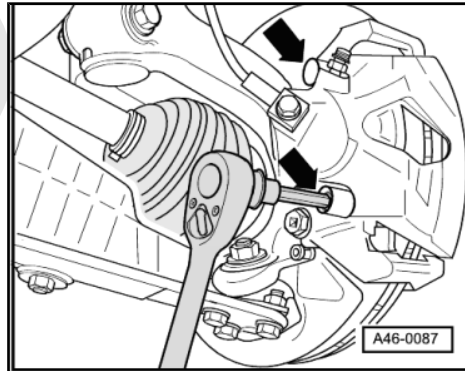
Installation is performed in reverse sequence; note the following:

- Remove brake pedal actuator -V.A.G 1869/2- .

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ [page 73](#) .

Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

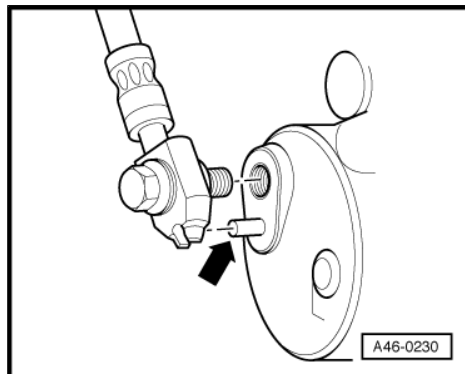
Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

- Install brake pads ⇒ [page 49](#) .
- Secure brake caliper with both guide pins to brake carrier ⇒ [page 52](#) . Note tightening torque ⇒ [Item 15 \(page 48\)](#) .
- Secure brake hose to brake caliper.

Brake hose connection with locating pin

Tightening torque for brake hose to brake caliper for 16" FN-3 brakes: 35 Nm

- Make sure groove in banjo union of brake hose is inserted on locating pin -arrow-.
- Bleed brake system ABS/ESP Mark 60 ⇒ [page 109](#) .
- Fit wheels ⇒ Wheels and tyres; Rep. Gr. 44 .



WARNING

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

2 Servicing front brakes 17" FNR G57

- ◆ Install all parts supplied in repair kit.
- ◆ After replacing brake pads, depress brake pedal firmly several times with vehicle stationary so that the pads are properly seated in their normal operating position.

Observe general notes ⇒ [page 46](#) .

1 - Brake disc

- ☐ Always renew on both sides of axle
- ☐ Detach brake caliper prior to removing
- ☐ Lubricate contact surfaces between brake disc and wheel hub with polycarbamide grease -G 052 142 A2- . ⇒ Rep. Gr. 44
- ☐ Allocation, dimensions and wear limit ⇒ [page 1](#)
- ☐ Checking thickness ⇒ Maintenance ; Booklet 808

2 - Retaining spring

- ☐ Ensure correct installation position

3 - Brake caliper housing

- ☐ Piston diameter ⇒ [page 1](#) ⇒ ETKA
- ☐ Unscrew from brake carrier to replace brake pads
- ☐ Removing and installing ⇒ [page 60](#)
- ☐ Servicing brake caliper ⇒ [page 100](#)
- ☐ Brake caliper with vibration damper ⇒ [page 74](#)

4 - Bearing bush

- ☐ Insert into brake caliper housing

5 - Guide pin

- ☐ 30 Nm

6 - Protective cap

7 - Cable retainer for wear indicator

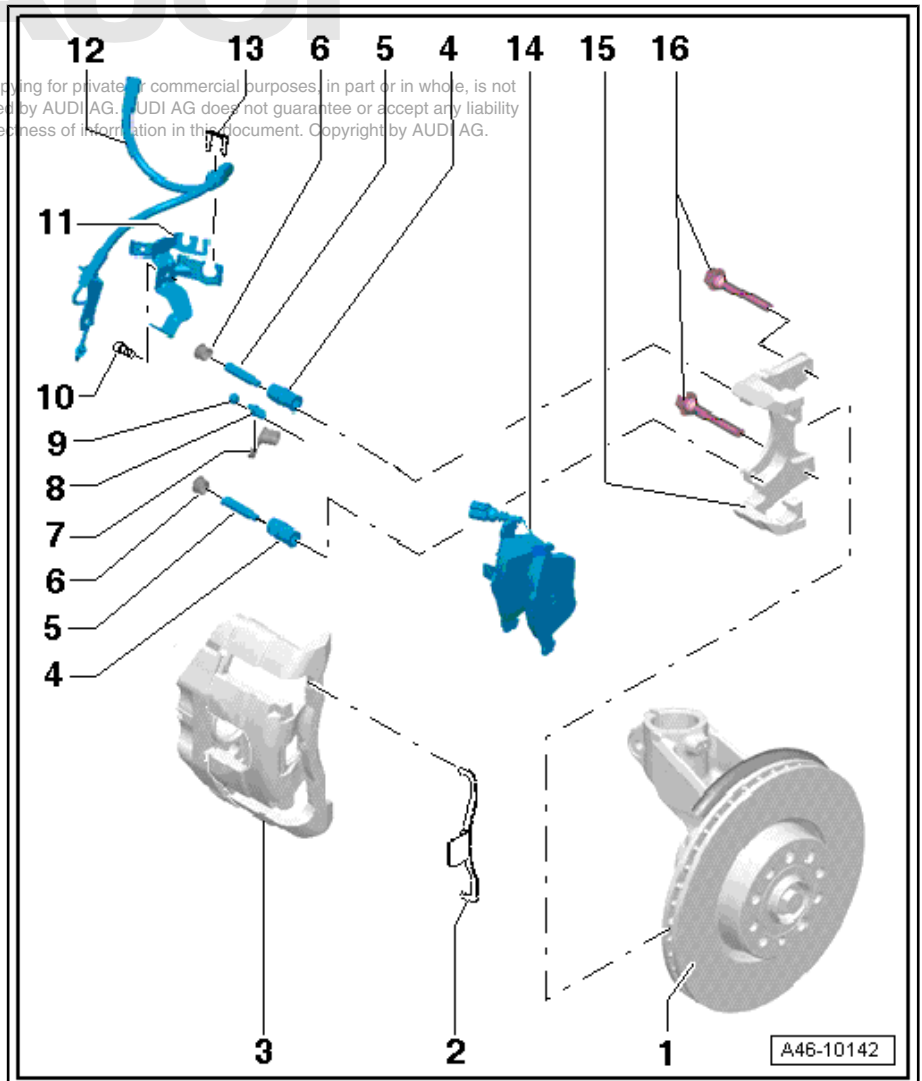
8 - Bolt

- ☐ Cable retainer to brake caliper
- ☐ 25 Nm

9 - Protective cap

10 - Bolt

- ☐ Bracket for brake line to brake caliper



- ☐ 15 Nm

11 - Bracket for brake line

- ☐ Bolt to brake caliper housing
- ☐ Attach brake line

12 - Brake line

- ☐ Screw into brake caliper housing with ⇒ [Item 11 \(page 56\)](#)
- ☐ Do not twist hose when fitting
- ◆ Brake line connection to brake caliper, 14 Nm
- ◆ Brake line connection to brake hose, 14 Nm
- ◆ Counterhold at hexagon flats on brake hose when connecting brake line to brake hose.

13 - Spring clip

- ☐ Secures brake line in bracket ⇒ [Item 11 \(page 56\)](#)

14 - Brake pads

- ☐ With wear indicator (on inner brake pad on left-side only)
- ☐ Pad thickness, wear limit ⇒ [page 1](#)
- ☐ Removing and installing ⇒ [page 57](#)

Before fitting pads, clean guide surfaces and apply a thin coating of grease ⇒ ETKA .

- ☐ Always renew on both sides of axle
- ☐ Checking pad thickness: ⇒ Maintenance ; Booklet 808



Note

Clean the brake caliper thoroughly (grease-free) before inserting new brake pads. It is particularly important to ensure that contact surfaces for brake pads are clean.

15 - Brake carrier

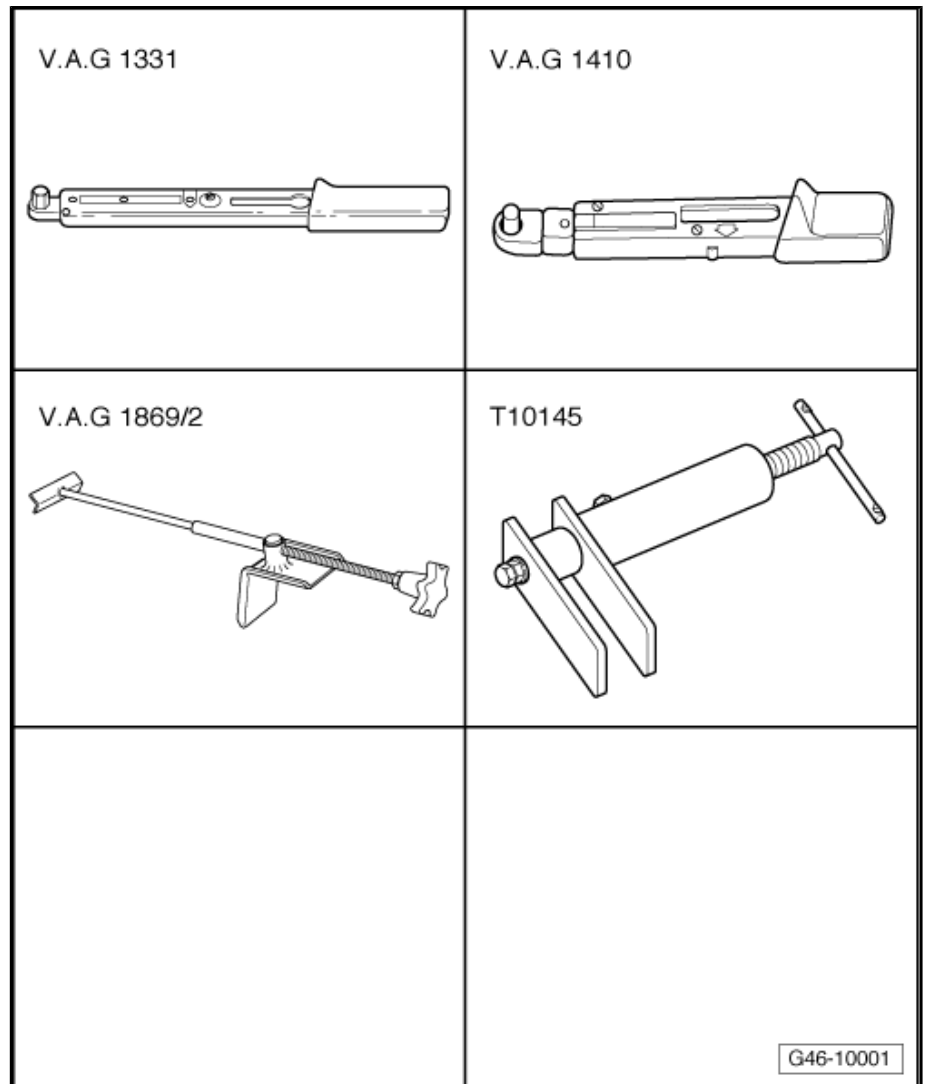
- ☐ Bolt to wheel bearing housing
- ☐ 200 Nm

16 - Bolt

- ☐ Brake carrier to wheel bearing housing
- ☐ Always renew if removed
- ☐ 200 Nm

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2.1 Removing and installing brake pads - front brakes 17" FNR G57



Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1410-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Brake pedal actuator -V.A.G 1869/2-
- ◆ Piston resetting appliance -T10145-

Removing



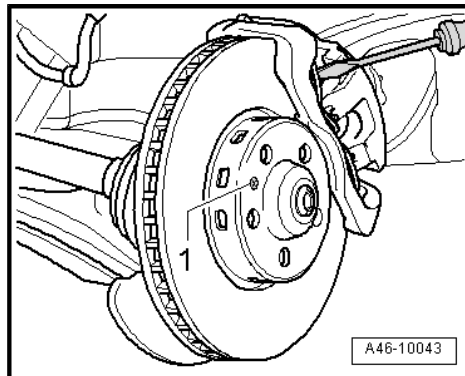
Note

- ◆ *Mark brake pads when removing them if they are to be reinstalled. Reinstall in their original position to prevent uneven braking.*
- ◆ *When installing brake discs, note direction of travel -indicated by arrow on brake disc- and fitting location -left or right-.*

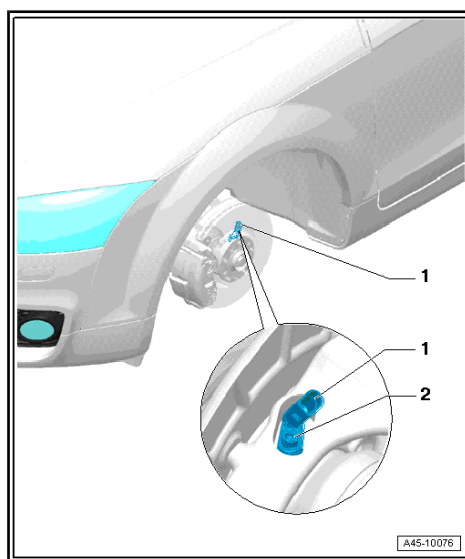
– Raise vehicle.

- Remove wheels.
- Fit wheels ⇒ Wheels and tyres; Rep. Gr. 44 .
- Lever brake pad retaining spring out of brake caliper housing with a screwdriver and remove.

Loosen bolt -1- only when removing brake disc (4 Nm).



- Unplug connector for brake pad wear indicator -1-.
- Do not loosen bolt -2-.
- Unplug connector for brake pad wear indicator from bracket and detach wire.



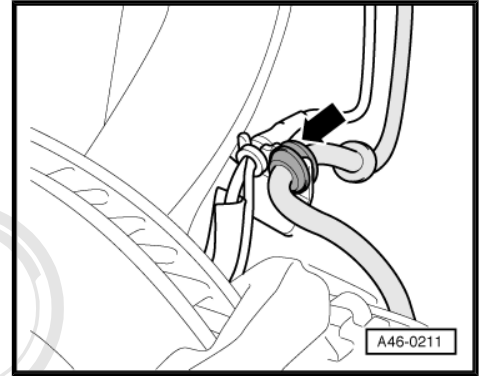
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- Take spring clip -arrow- out of bracket for brake line.
- Detach brake line from bracket.
- Remove bolt and detach bracket for brake line.
- Remove brake caliper ⇒ [page 60](#) .
- Remove brake caliper and secure such that the weight of the caliper does not damage the brake line.



Note

Brake hose/line must not be twisted or kinked.



- Take brake pads out of brake caliper housing or from brake carrier.
- Clean brake caliper housing; in particular the bonding surface for the brake pad must be free of any traces of adhesive and grease.

Only use methyated spirits to clean the brake caliper housing.

Installing

Before fitting pads, clean guide surfaces and apply a thin coating of grease ⇒ ETKA .

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ [page 73](#) .

Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

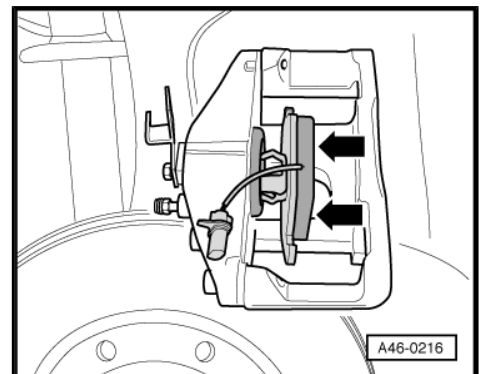
Perform further installation in reverse order; note the following:



Note

The wear indicator is located on inner brake pad on front left brake caliper.

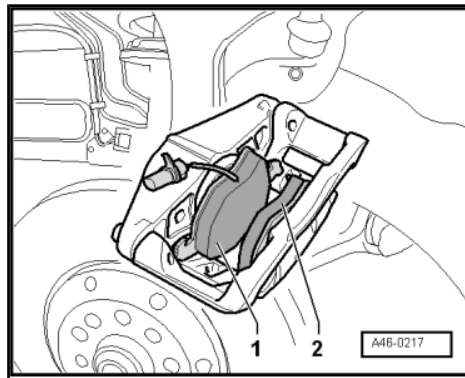
- Insert brake pad with retaining spring and wear indicator into brake caliper housing (piston).



- Fit outer brake pad -2- in brake caliper.
- The wear indicator wire is fitted to the inner pad -1- at front left wheel.
- Fit brake caliper together with inserted brake pads onto brake carrier and brake disc.
- Secure brake caliper housing with both guide pins to brake carrier. ➔ [page 60](#) Note specified tightening torque.
➔ [Item 5 \(page 55\)](#)

 **Note**

Make sure not to twist or stretch brake hose when installing.



- Fit both protective caps.
- Secure bracket for brake line.
- Insert retaining spring into brake caliper housing.
- Attach brake line to bracket.
- Press in spring clip.
- Plug in connector for wear indicator.
- Press connector for wear indicator into bracket and insert wire.
- Fit wheels ➔ Wheels and tyres; Rep. Gr. 44 .

 **Note**

The retaining spring must be pushed under the brake carrier after engaging onto both studs. If incorrectly installed, the wear of the outer pad cannot be adjusted, and the pedal travel will be increased as a result.

 **Note**

Check that the brake caliper moves freely by moving it from side to side.

- Check brake fluid level and top up if necessary.



WARNING

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.

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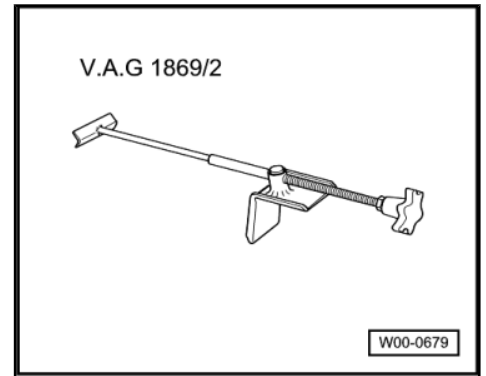
WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

2.2 Removing and installing brake caliper - front brakes 17" FNR G57

Special tools and workshop equipment required

◆ Brake pedal actuator -V.A.G 1869/2-



Removing

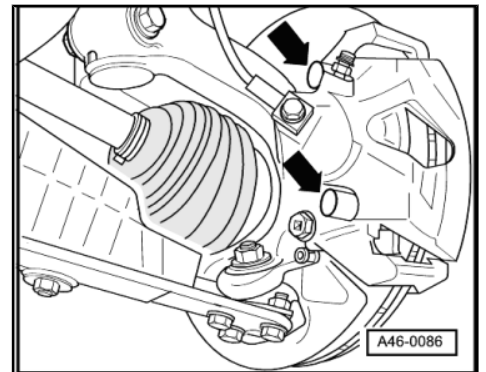
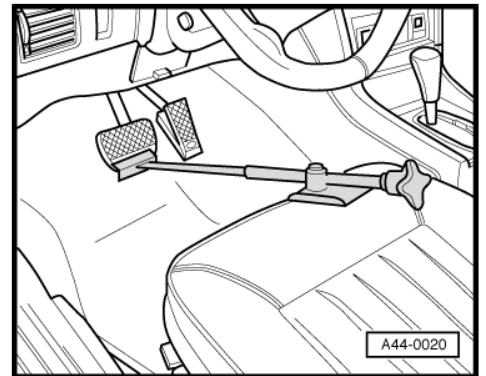
- Insert brake pedal actuator -V.A.G 1869/2- between brake pedal and driver's seat (depress brake pedal at least 60 mm).



Note

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

- Connect hose of bleeder bottle to bleeder screw of removed brake caliper.
- Open bleeder screw.
- Do not remove brake pedal actuator -V.A.G 1869/2- .
- Close bleeder screws.
- Disconnect brake hose from brake caliper.
- Remove protective caps from guide pins -arrows-.



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- Remove guide pins -arrows-.
- Pull both guide pins out of brake caliper and bearing bushes.
- Remove brake pads ⇒ [page 57](#) .

Installing

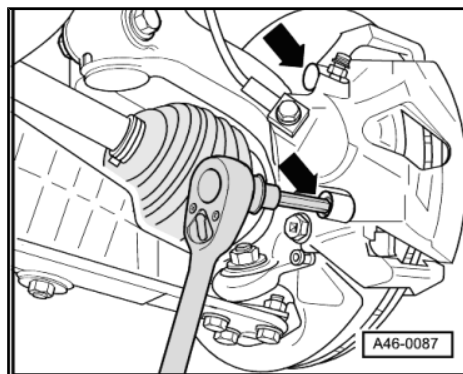
Installation is performed in reverse sequence; note the following:

- Remove brake pedal actuator -V.A.G 1869/2- .

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ [page 73](#) .

Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

- Install brake pads ⇒ [page 57](#) .
- Push both guide pins through bearing bushes into brake caliper.
- Secure brake caliper housing with both guide pins to brake carrier. Note specified tightening torque ⇒ [Item 5 \(page 55\)](#) .
- Secure brake hose to brake caliper.

Tightening torque for brake hose to brake caliper for 17" FNR-G57 brakes: 14 Nm

- Bleed brake system ABS/ESP Mark 60 ⇒ [page 109](#) .



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- ♦ *Check that the brake caliper moves freely by moving it from side to side.*
- ♦ *Fit wheels ⇒ Wheels and tyres; Rep. Gr. 44 .*

- Lower vehicle.



WARNING

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

3 Servicing front brakes (TT RS)

- ◆ Install all parts supplied in repair kit.
- ◆ After replacing brake pads, depress brake pedal firmly several times with vehicle stationary so that the pads are properly seated in their normal operating position.

1 - Bleeder screw

- ☐ 10 Nm



Note

2 - Bolt

- ☐ Unscrew for removal of brake caliper
- ☐ 200 Nm



Note

3 - Speed sensor

4 - Bolt

- ☐ For speed sensor
- ☐ 8 Nm

5 - Brake caliper



Note

- ☐ Removing and installing
⇒ [page 67](#)
- ☐ Renewing ⇒ [page 69](#)

6 - Brake disc

- ☐ Wear limit ⇒ [page 1](#)



Note

- ☐ Removing and installing
⇒ [page 71](#)

7 - Bolt

- ☐ For securing brake disc
- ☐ 4 Nm



Note

8 - Brake pads

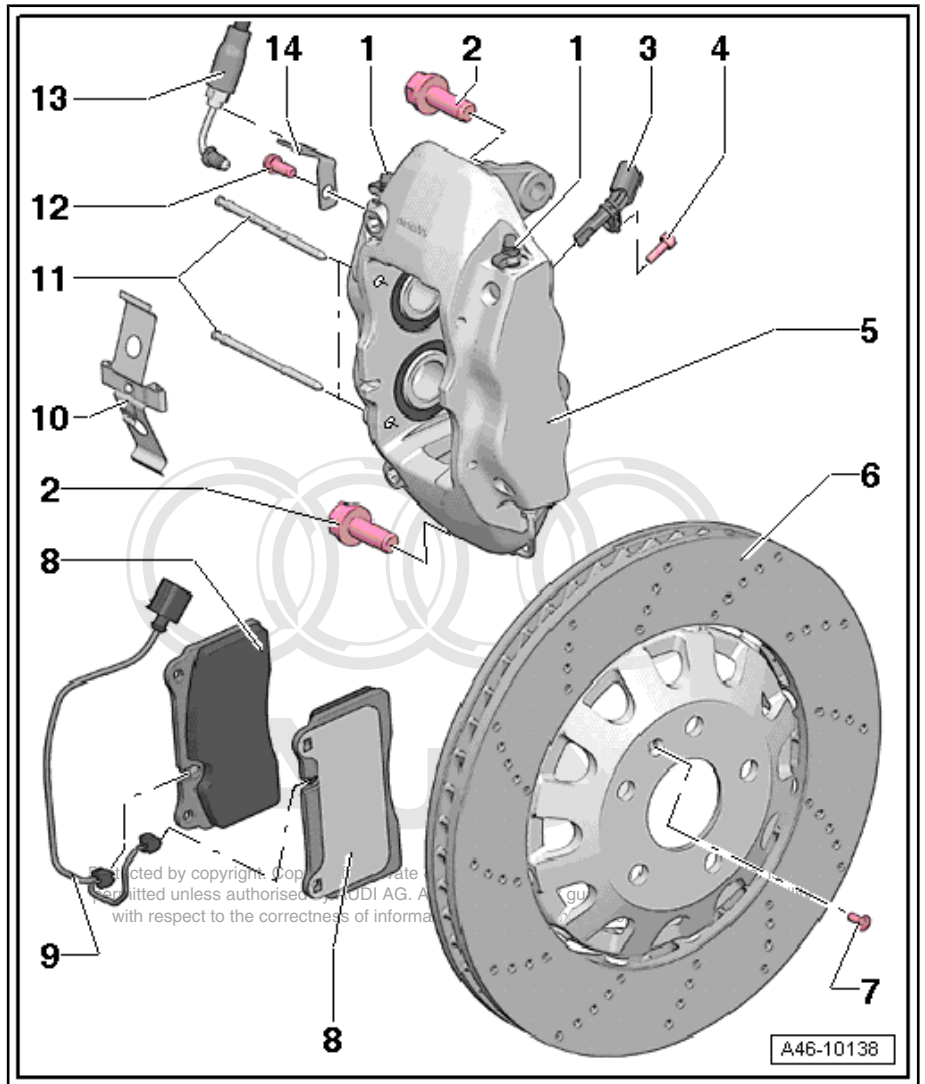
- ☐ With brake pad wear cable (only in left brake caliper)
- ☐ Wear limit ⇒ [page 1](#)
- ☐ Removing and installing ⇒ [page 64](#)

Before fitting pads, clean guides and apply a thin coating of grease ⇒ ETKA .

Before fitting pads, peel off adhesive foil

9 - Brake pad wear cable

- ☐ Only installed in left brake caliper



10 - Retaining clip

- ☐ Ensure correct installation position

**Note****11 - Brake pad retaining pins****Note****12 - Bolt**

- ☐ For bracket
- ☐ 18 Nm

13 - Brake hose

- ☐ Screw into brake caliper
- ☐ Insert in bracket
- ☐ 35 Nm

Tightening torque for brake hose to brake caliper for TT RS: 35 Nm

**Note****14 - Bracket**

- ☐ For brake hose and brake pad wear cable

3.1 Removing and installing brake pads - front brakes (TT RS)

Special tools and workshop equipment required

- ◆ Piston resetting appliance - T10145

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**Note**

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

Removing

- Raise vehicle.
- Remove wheels.

**Note**

The brake pad wear cable is only installed at the left brake caliper.

- Unclip brake pad wear cable -9- from bracket.

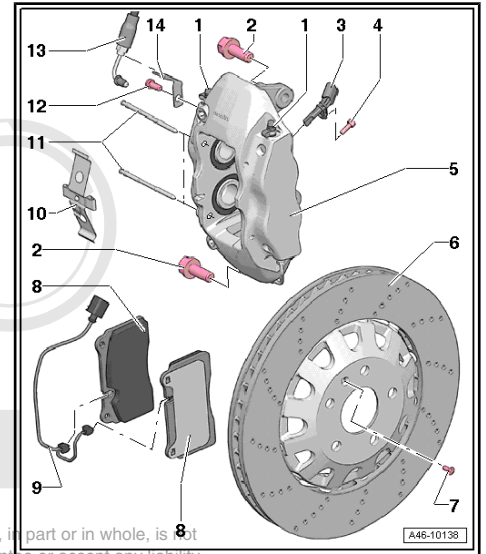
 **Note**

Do not loosen bolts -2-.

- Unplug electrical connector from brake pad wear cable.
- Press brake pistons at brake pads slightly back into brake caliper using a suitable tool.

 **Note**

Take care not to scratch or damage brake caliper.



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- Pull brake pad wear cable -9- out of retaining clip -10-.
- Pull one brake pad retaining pin -11- out of brake caliper. While doing so, press down retaining clip -10-.
- Pull second brake pad retaining pin -11- out of brake caliper.
- Take brake pads out of brake caliper.

Only use methylated spirits to clean the brake caliper housing.



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

Installing

If provided, peel adhesive foil off back of brake pads.

Before fitting pads, clean guides and apply a thin coating of grease ⇒ ETKA .

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ [page 73](#) .

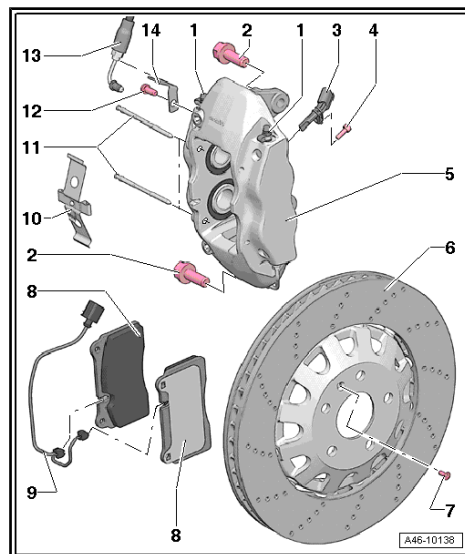
Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.



Perform further installation in reverse order; note the following:

- Insert brake pads into brake caliper.



Note

- ◆ *Make sure that brake pads are seated correctly.*
- ◆ *The brake pads with the brake pad wear cable are only fitted in the left brake caliper.*
- ◆ *The brake pad wear cable is fitted in the left brake caliper in both brake pads.*

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- Slide one brake pad retaining pin -11- through brake caliper and brake pads from inside to outside.
- Insert retaining spring -10- underneath retaining pin -11-.
- Slide second retaining pin through brake caliper and brake pads from inside to outside. While doing so, press down retaining spring -10-.



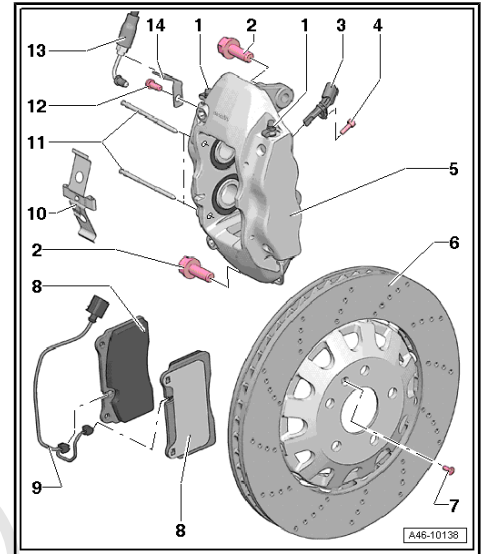
WARNING

Both brake pad retaining pins must be pressed through the brake caliper and the brake pads as far as the stop so that the spring is seated at the retaining pin in the brake caliper.

- Insert brake pad wear cable -9- in retaining spring -10-.
- Connect brake pad wear cable.
- Insert brake pad wear cable in bracket.

Fit wheels ⇒ Wheels and tyres; Rep. Gr. 44 .

- Lower vehicle.
- Check brake fluid level and top up if necessary.



WARNING

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.

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WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

3.2 Removing and installing brake caliper - front brakes (TT RS)

Removing

- Raise vehicle.
- Remove wheels.



Note

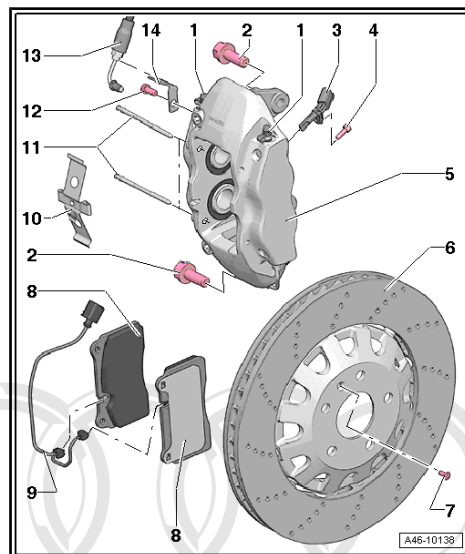
The brake pad wear cable is only installed at the left brake caliper.

- Unclip brake pad wear cable -9- from bracket.
- Unplug electrical connector from brake pad wear cable.
- Unclip brake hose -13- from bracket.
- Press brake pistons at brake pads slightly back into brake caliper using a suitable tool.



Note

Take care not to scratch or damage brake caliper.



- Remove bolts -2-.
- Detach brake caliper.



Note

Do not suspend the brake caliper from the brake hose. Secure it to the body with a suitable wire.

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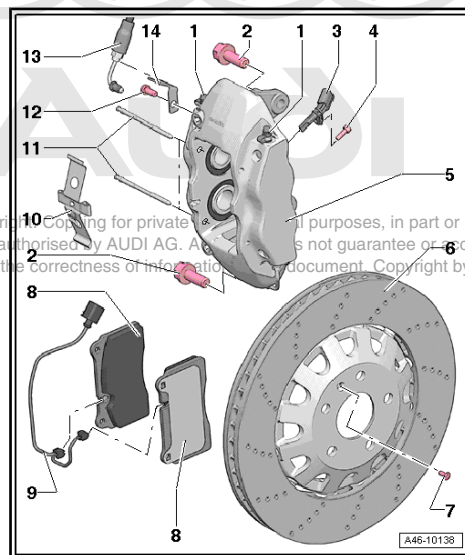
Installing



Note

Renew bolts -2-.

- Carefully slide brake caliper (with brake pads fitted) over brake disc and install.



- Secure brake caliper with new bolts -2-. 200 Nm
- Fit brake hose -13- in bracket.
- Connect brake pad wear cable -9-.
- Insert brake pad wear cable in bracket.

Fit wheels ⇒ Wheels and tyres; Rep. Gr. 44 .

- Lower vehicle.
- Check brake fluid level and top up if necessary.



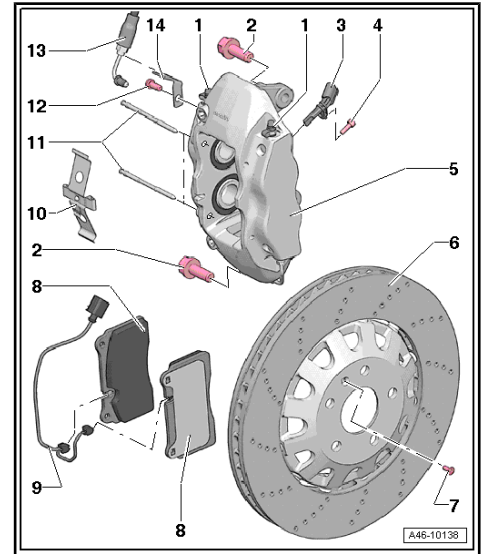
WARNING

Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.



3.3 Renewing brake caliper - front brakes (TT RS)



Note

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

Removing

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



Note

The brake pad wear cable is only installed at the left brake caliper.

- 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.

- Connect hose of bleeder bottle to bleeder screw of removed brake caliper.
- Open bleeder screw.
- Do not remove brake pedal actuator -V.A.G 1869/2- .
- Close bleeder screws.
- Disconnect brake hose from brake caliper.
- Remove brake pads ⇒ [page 64](#) .
- Disconnect brake hose -13- from brake caliper.
- Remove bolts -2-. Hold brake caliper in position while doing so.
- Detach brake caliper.

Installing



Note

Renew bolts -2-.

- Remove brake pedal actuator -V.A.G 1869/2- .
- Install brake caliper.

- Secure brake caliper with new bolts -2-. 200 Nm

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ [page 73](#) .

Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

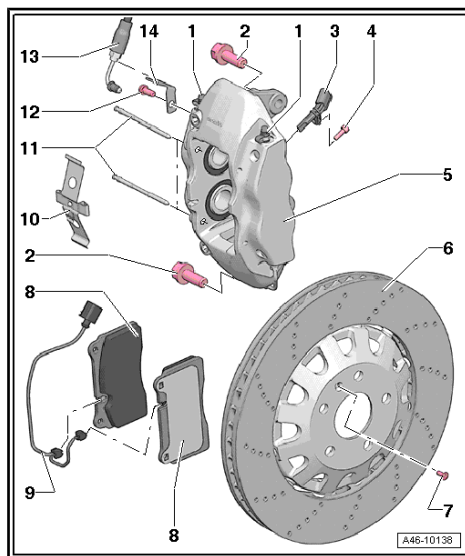
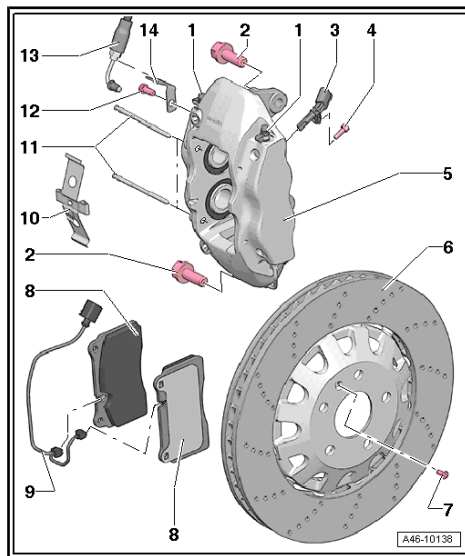
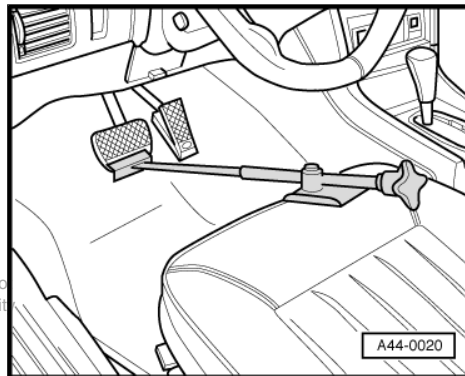
To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

- Install brake pads ⇒ [page 64](#) .



- Remove bolt -7-.
- Pull brake disc off wheel hub.

 **Note**

Keep brake disc straight while detaching it.

Installing

 **Note**

Always renew bolt -7-.

- Clean contact surfaces on wheel hub and brake disc.
- Fit brake disc onto wheel hub.

 **Note**

Keep brake disc straight while installing it.

- Secure brake disc with new bolt -7- (4 Nm).

- Install brake caliper ⇒ [page 67](#) .

Fit wheels ⇒ Wheels and tyres; Rep. Gr. 44 .

- Lower vehicle.
- Check brake fluid level and top up if necessary.



WARNING

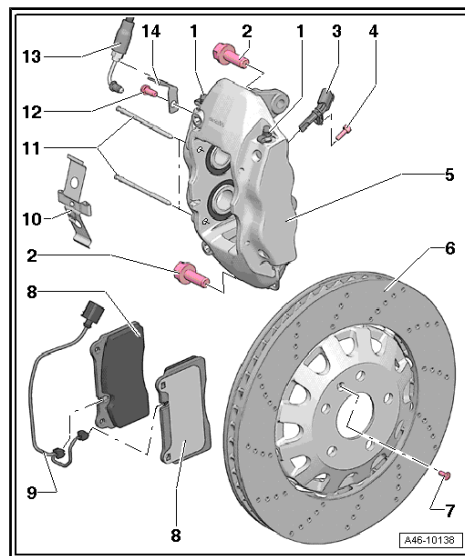
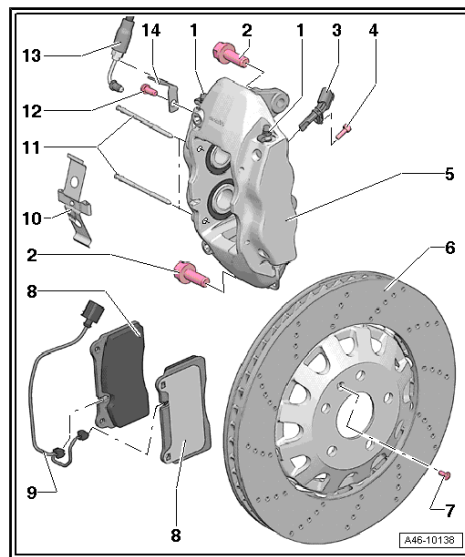
Firmly depress the brake pedal several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.

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WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.



4 Pressing back brake piston in front brake caliper

Special tools and workshop equipment required

◆ Piston resetting appliance -T10145-



Before inserting new brake pads, press brake piston back into cylinder with resetting appliance. Before pressing the piston back, draw off brake fluid from the reservoir with a bleeder bottle, otherwise components can be damaged by escaping brake fluid.

Press back brake pistons using piston resetting appliance - T10145- → [page 73](#) .

Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

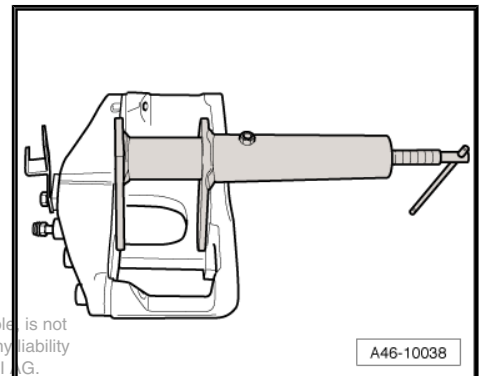
To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

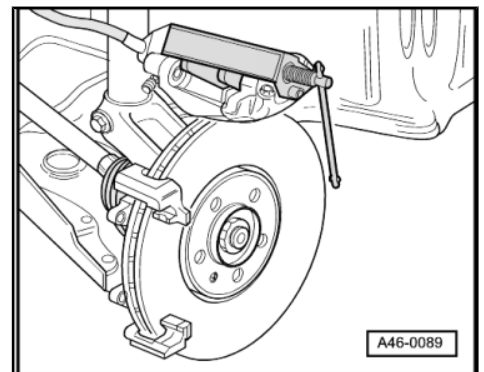
Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

Pressing piston back



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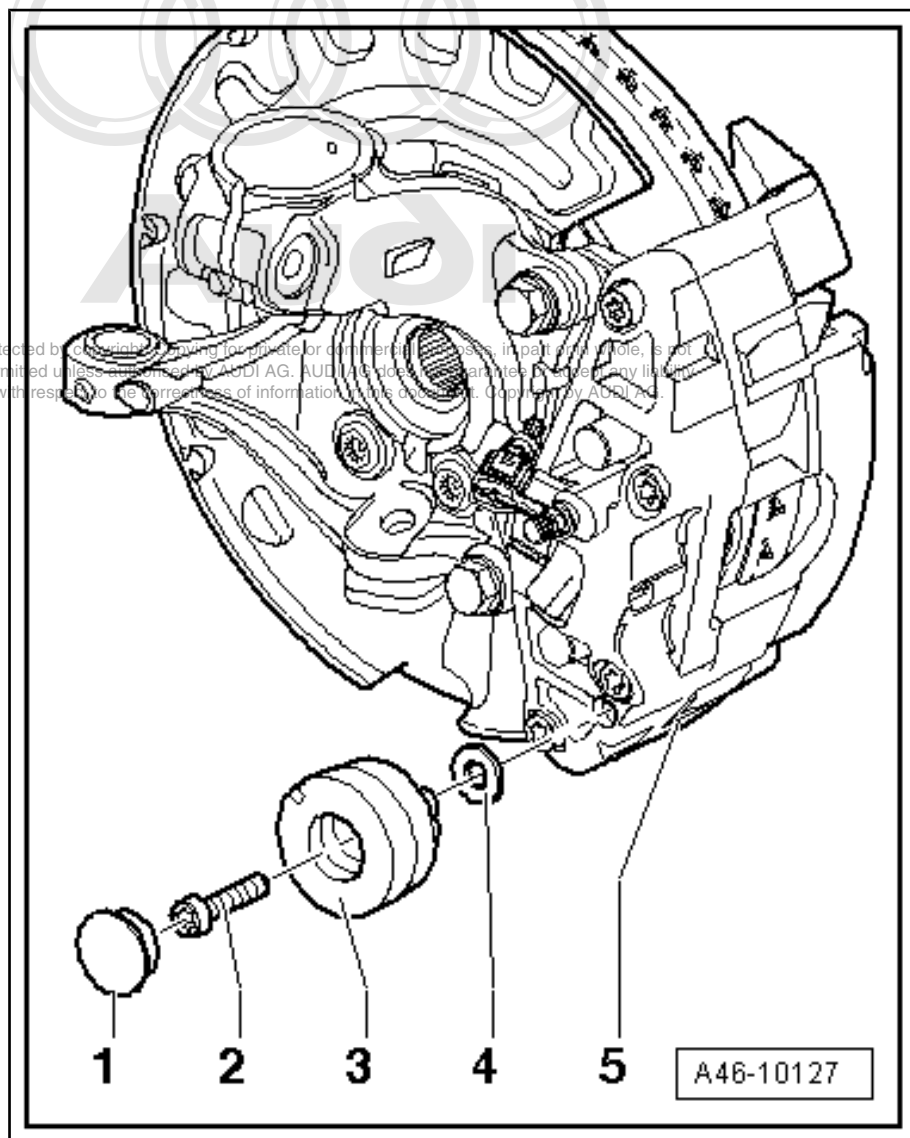
Pressing piston back



5 Vibration damper on brake caliper - front brakes

The vibration damper is not fitted with all models. This has no influence on removal, installation and servicing of the brake caliper.

- 1 - Dust cap
- 2 - Bolt
 - ☐ Always renew
 - ☐ 10 Nm
- 3 - Vibration damper
 - ☐ Removing and installing
[⇒ page 74](#)
- 4 - Washer
- 5 - Brake caliper



5.1 Removing and installing vibration damper

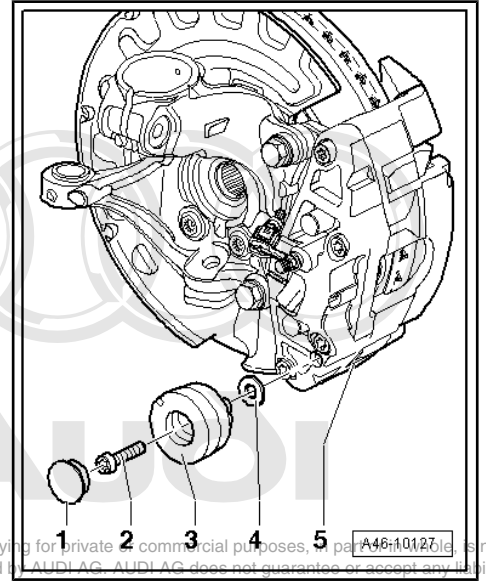
Removing

- Raise vehicle.
- Remove front wheels.
- Remove dust cap.

- Remove bolt -2-.
- Detach vibration damper -3- and washer -4- from brake caliper.

Installing

- Clean brake caliper in area of vibration damper.
- Insert washer -4- and vibration damper -3- in brake caliper.
- Insert new bolt -2- and tighten to 10 Nm.
- Insert and press home the dust cap -1-.
- Fit wheels ⇒ Wheels and tyres; Rep. Gr. 44 .



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6 Servicing rear brakes



Note

- ◆ Use the brake filling and bleeding equipment -VAS 5234- or the upgrade kit and extraction unit -V.A.G 1869/4- to extract brake fluid from brake fluid reservoir.
- ◆ Before removing brake caliper or disconnecting brake hose from brake caliper, insert brake pedal actuator -V.A.G 1869/2- to prevent brake fluid reservoir from emptying completely.



WARNING

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.

6.1 Rear brakes

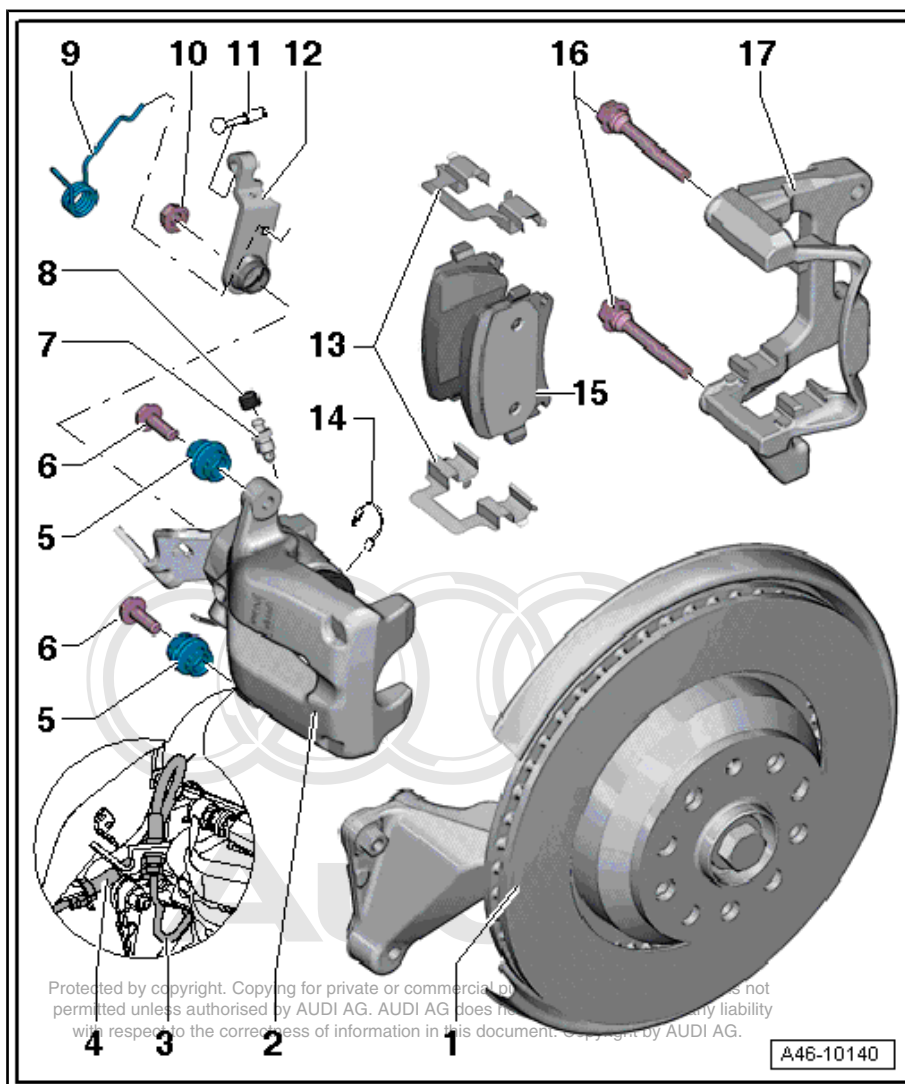
General notes ⇒ [page 76](#)

1 - Brake disc

- ☐ Allocation, dimensions and wear limit (front-wheel drive) ⇒ [page 2](#)
- ☐ Allocation, dimensions and wear limit (four-wheel drive) ⇒ [page 2](#)
- ☐ Allocation, dimensions and wear limit (TT RS) ⇒ [page 2](#)
- ☐ Do not force brake discs off wheel hub; if necessary, use rust remover, otherwise brake discs could be damaged.
- ☐ Remove brake caliper prior to removing
- ☐ Always renew on both sides of axle

2 - Brake caliper

- ☐ Do not disconnect brake hose when changing brake pads
- ☐ Piston diameter (front-wheel drive) ⇒ [page 2](#)
- ☐ Piston diameter (four-wheel drive) ⇒ [page 2](#)
- ☐ Piston diameter (TT RS) ⇒ [page 2](#)
- ☐ Removing and installing ⇒ [page 80](#)
- ☐ Servicing ⇒ [page 105](#)
- ☐ The handbrake must be adjusted following re-



pair or replacement
 ⇒ [page 89](#) .

3 - Brake line

- ☐ Do not disconnect brake hose and brake line when changing brake pads
- ☐ Tightening torque for brake line (all models): 14 Nm

4 - Brake hose

- ☐ Do not disconnect brake hose when changing brake pads
- ☐ Tightening torque for brake hose (all models): 14 Nm

5 - Protective cap

6 - Bolt

- ☐ Remove when changing brake pads
- ☐ Always renew if removed
- ☐ Brake caliper to brake carrier
- ☐ Self-locking
- ☐ When loosening and tightening, counter-hold on guide pin
- ☐ 35 Nm



Note

7 - Bleeder screw

- ☐ 10 Nm

8 - Protective cap

9 - Return spring for handbrake

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10 - Nut

- ☐ Secures handbrake linkage to brake caliper
- ☐ Do not loosen

11 - Handbrake cable

- ☐ Removing and installing ⇒ [page 87](#)

12 - Handbrake linkage

13 - Pad retaining spring

- ☐ Always renew when changing pads

14 - Speed sensor wire

15 - Brake pads

- ☐ Always renew on both sides of axle
- ☐ Wear limit (front-wheel drive) ⇒ [page 2](#)
- ☐ Wear limit (four-wheel drive) ⇒ [page 2](#)
- ☐ Wear limit (TT RS) ⇒ [page 2](#)
- ☐ Removing and installing ⇒ [page 78](#)

Before fitting pads, clean guide surfaces and apply a thin coating of grease ⇒ ETKA .

- ☐ Removing and installing
- ☐ Checking pad thickness: ⇒ Maintenance ; Booklet 808
- ☐ For correct version refer to ⇒ ETKA



Note

16 - Bolt

- ☐ Brake carrier to wheel bearing housing
- ☐ Always renew if removed

- 90 Nm + 90°



Note

17 - Brake carrier

- Bolt to wheel bearing housing

6.2 Removing and installing rear brake pads



Note

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

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-

V.A.G 1331



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W00-0427

Removing

- Raise vehicle.
- Remove wheels.

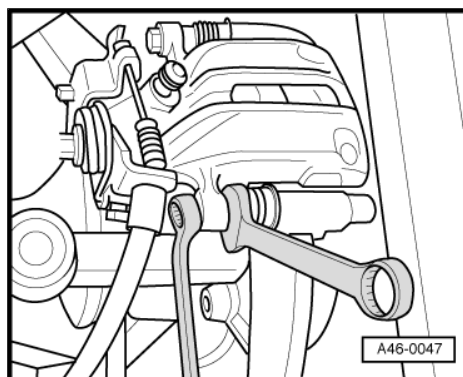
Do not detach handbrake cable from brake caliper.

- Detach brake caliper housing (counterhold at guide pin).
- Remove brake caliper housing from brake disc.
- Secure brake caliper housing with wire such that the weight of the caliper does not damage the brake hose.



WARNING

Do not kink or bend brake lines and brake hose.



A46-0047

- Remove brake pads and pad retaining springs from brake carrier -arrows-.

 **Note**

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

- Clean brake caliper housing; in particular the bonding surface for the brake pad must be free of any traces of adhesive and grease.

Only use methylated spirits to clean the brake caliper housing.

Installing

Before fitting pads, clean guide surfaces and apply a thin coating of grease ⇒ ETKA .

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ [page 73](#) .

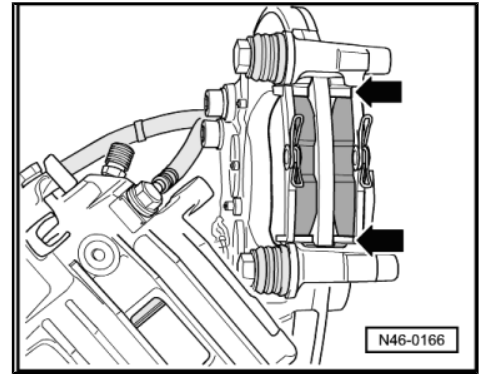
Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.



Perform further installation in reverse order; note the following:



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- Insert brake pad retaining springs -arrows- and brake pads into brake carrier.
- Pull protective foil off brake pad backplate.



Note

Fit brake caliper onto brake carrier and brake disc.

- Secure brake caliper housing with new self-locking bolts. Note tightening torque ➔ [Item 6 \(page 77\)](#) .



Note

The repair kit includes four self-locking hexagon bolts which must be installed in all cases.

- Fit wheels ➔ Wheels and tyres; Rep. Gr. 44 .
- Check brake fluid level and top up if necessary.



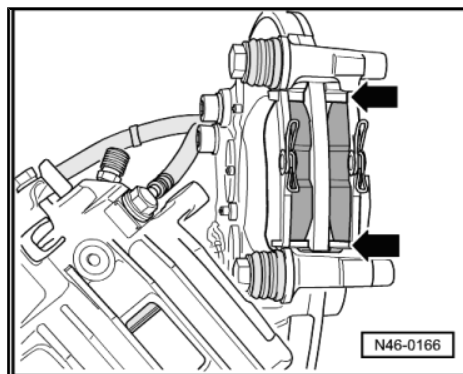
WARNING

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.



6.3 Removing and installing rear brake caliper

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-

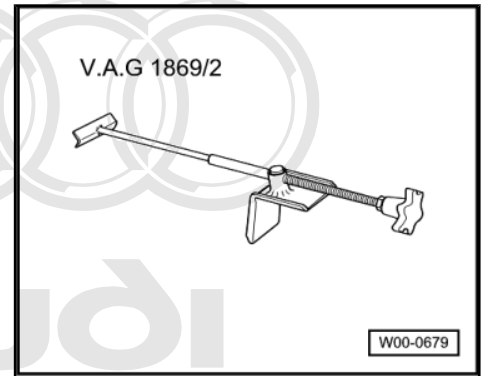
V.A.G 1331



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◆ Brake pedal actuator -V.A.G 1869/2-



Removing

- Raise vehicle.
- Remove wheels.

Only detach handbrake cable when brake caliper is being removed completely ⇒ [page 83](#) .

- Remove brake pads ⇒ [page 78](#) .



Note

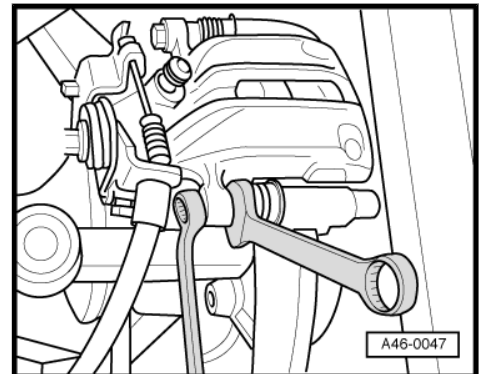
*Mark brake pads when removing them if they are to be reinstalled.
Reinstall in their original position to prevent uneven braking.*

- Detach brake caliper housing (counterhold at guide pin).
- Remove brake caliper housing from brake disc.
- Secure brake caliper housing with wire such that the weight of the caliper does not damage the brake hose.



WARNING

Do not kink or bend brake lines and brake hose.

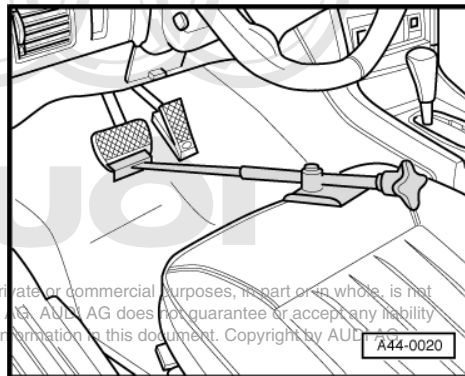


- Insert brake pedal actuator -V.A.G 1869/2- between brake pedal and driver's seat (depress brake pedal at least 60 mm).

**Note**

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

- Connect hose of bleeder bottle to bleeder screw of rear brake caliper (removed) and front brake caliper on same side of vehicle.
- Open both bleeder screws.
- Close front bleeder screw.
- Do not remove brake pedal actuator -V.A.G 1869/2- .
- Disconnect brake hose from brake caliper.

**Installing**

Press back brake pistons using piston resetting appliance - T10145- when fitting new brake pads ⇒ page 73 .

Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.

**WARNING**

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.

Perform further installation in reverse order; note the following:

- Install brake pads ⇒ page 78 .
- Secure brake caliper housing with new self-locking bolts. Note tightening torque ⇒ Item 6 (page 77) .
- Secure brake hose to brake caliper.

**Tightening torque for brake hose to brake caliper (all models):
14 Nm**

**Note**

Make sure not to twist or stretch brake hose when installing.

- After fitting a serviced or new brake caliper, the handbrake must be adjusted ⇒ page 89 . Do not press the brake pedal until after the handbrake has been adjusted.
- Bleed brake system: ABS/ESP Mark 60 ⇒ page 109 .

**WARNING**

After installing the brake pads, depress pedal firmly several times with the vehicle stationary, so that the brake pads are properly seated in their normal operating position.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

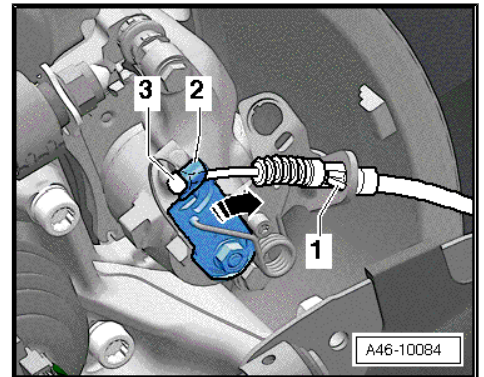
6.4 Detaching and attaching handbrake cable from/to brake caliper

Removing

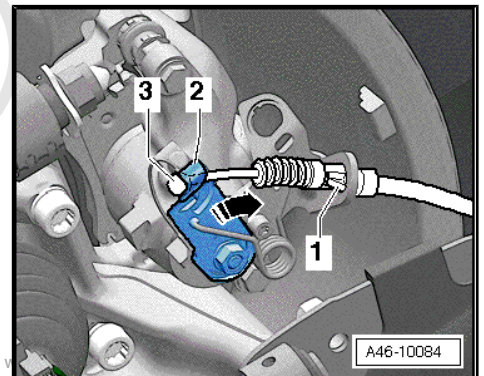
- Press brake lever -2- in direction of arrow and disengage handbrake cable -3-.
- Compress retaining tabs -1- and pull out handbrake cable through guide.

Installing

- Insert handbrake cable through guide



- Compress retaining tabs -1- and engage. Make sure that both retaining tabs are engaged.
- Press brake lever -2- in direction of arrow and attach handbrake cable -3-.

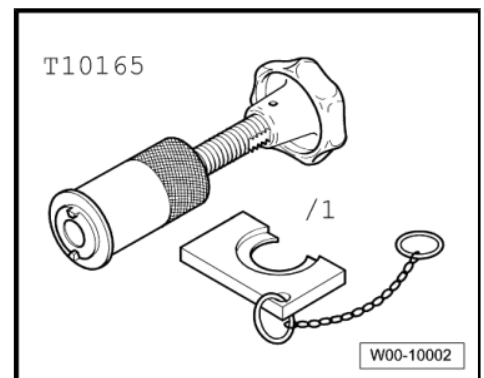


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6.5 Pressing back piston in rear brake caliper

Special tools and workshop equipment required

- ♦ Piston compressing tool -T 10165-



**Note**

Before pressing the piston back, draw off brake fluid from the reservoir. To draw off fluid, use a bleeder bottle or plastic bottle kept specially for this purpose.

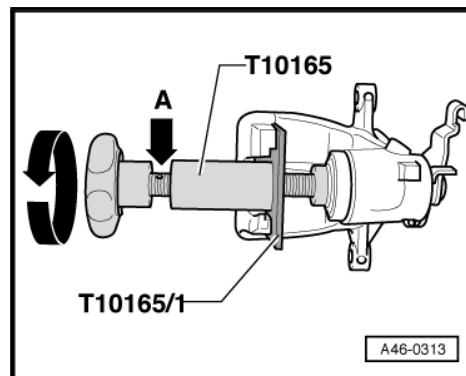
**WARNING**

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth.

- Apply piston compressing tool -T 10165- on piston of brake caliper housing.
- Screw in piston by turning knurled wheel of piston compressing tool -T 10165- clockwise, do not damage protective cap when doing so.

**Note**

If piston will not move easily, a 13 mm open-ended spanner can be applied at the appropriate flats -arrow-.



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7 Handbrake

7.1 Handbrake - exploded view

1 - Handbrake lever

- ☐ Available as replacement part complete with pull rod, pawl, push rod, push-button, compression spring and locking segment
- ☐ Removing and installing
⇒ [page 85](#)
- ☐ Switch for warning lamp is located under handbrake lever
- ☐ Removing and installing handbrake lever trim

2 - Handbrake switch

- ☐ Removing and installing
⇒ [page 86](#)
- ☐ For handbrake warning lamp in instrument cluster

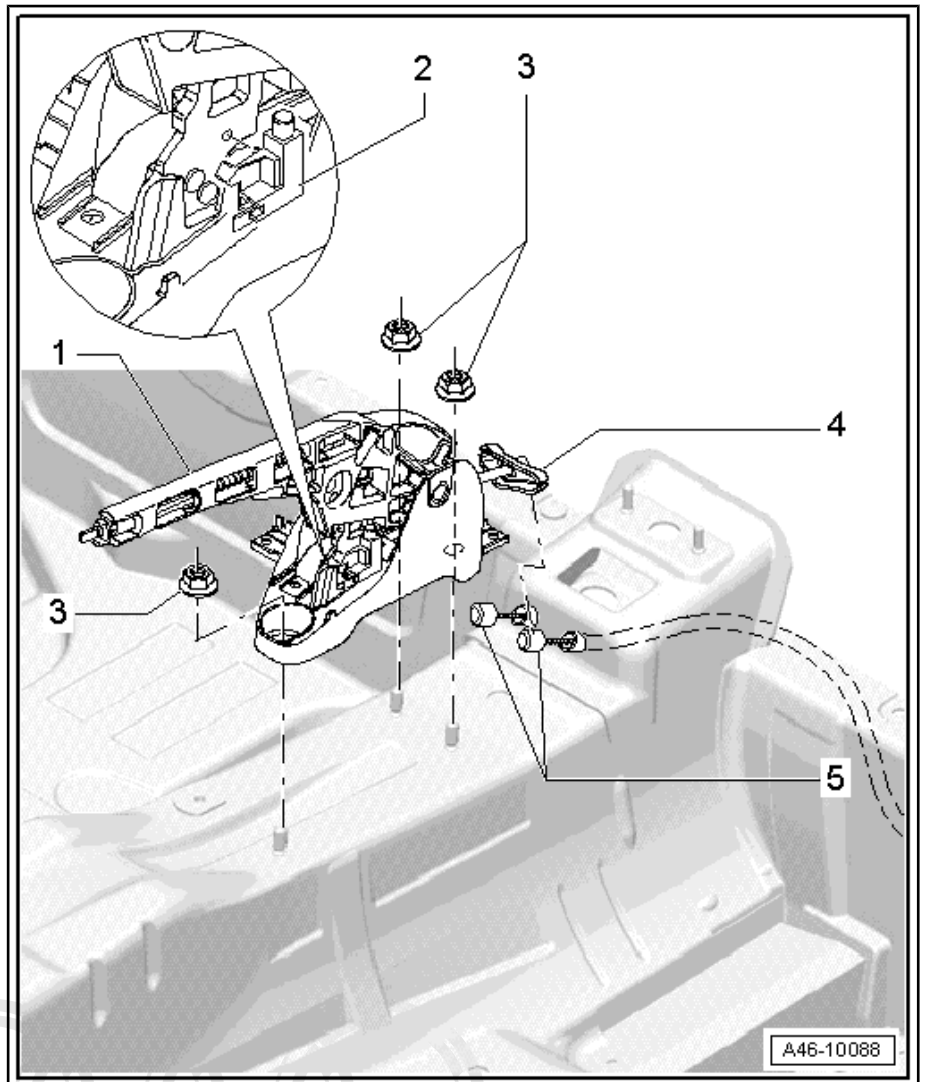
3 - Hexagon nut

- ☐ 15 Nm

4 - Compensator

- ☐ With adjustment nut to adjust handbrake cable

5 - Handbrake cable (left and right)



7.2 Removing and installing handbrake lever

Removing

- Release handbrake.
- Remove centre console trim ⇒ Rep. Gr. 68 .
- Loosen adjustment nut on compensator -4- until handbrake cables -5- can be unhooked from compensator on left and right sides.
- Remove handbrake switch -2- ⇒ [page 86](#) .
- Remove nuts -3-.
- Remove handbrake lever from vehicle.

Installing

- Installation is carried out in reverse sequence.
- Install handbrake switch ⇒ [page 86](#) .
- Pretension handbrake cable with adjustment nut on compensator -4-.

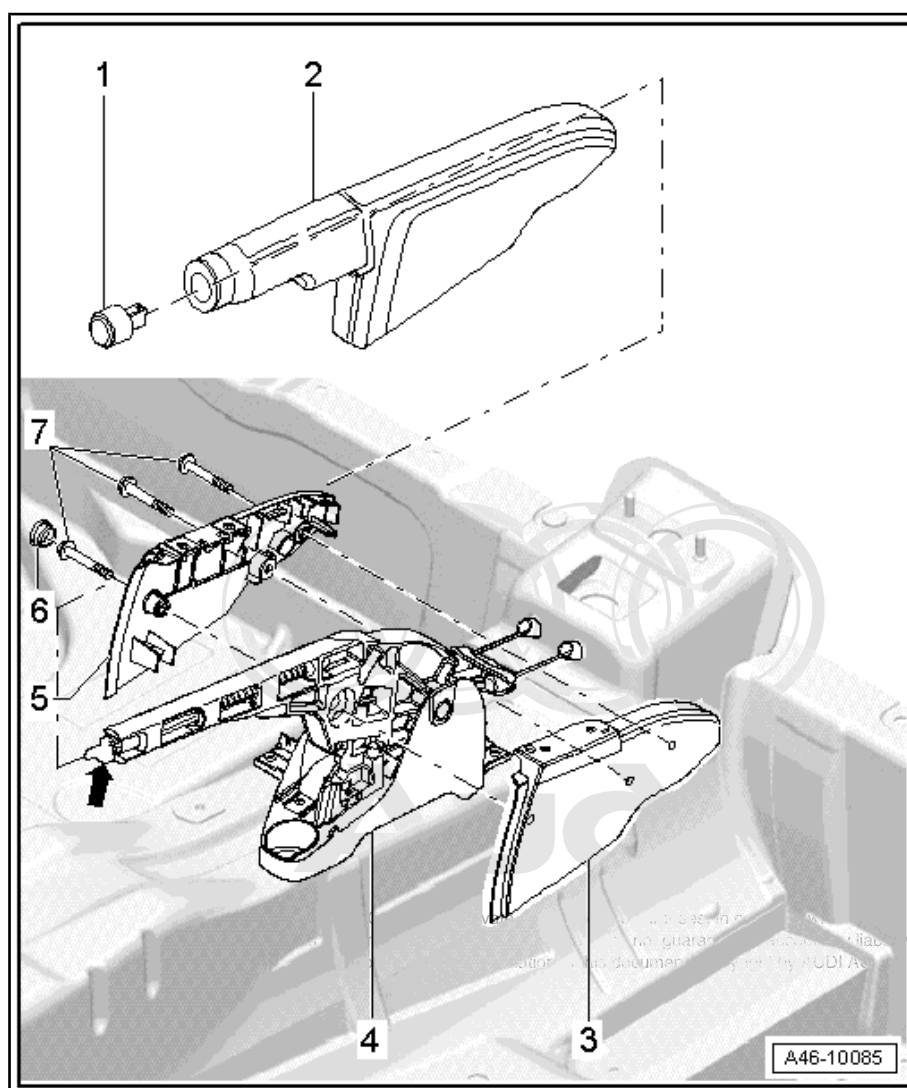


Note

The handbrake must be adjusted after installing handbrake cable ⇒ [page 89](#) .

7.3 Removing and installing handbrake switch

- 1 - Locking knob
- 2 - Trim, one-piece
 - ❑ Depending on type of equipment
- 3 - Trim (left-side)
 - ❑ Depending on type of equipment
- 4 - Handbrake switch
 - ❑ For handbrake warning lamp in instrument cluster
- 5 - Trim (right-side)
 - ❑ Depending on type of equipment
- 6 - Protective cap
- 7 - Bolt
 - ❑ 0.7 Nm



Removing

- Remove centre console trim ⇒ Rep. Gr. 68 .
- Detach locking knob -1-.

 **Note**

Note different versions of handbrake trim.

- One-piece trim for handbrake -2-: release and pull off to front.
- Two-piece trim for handbrake: release handle and pull off to front.
- Remove two-piece trim for handbrake lever.
- Unclip handbrake switch -4-.
- Unplug connector.

Installing

- Installation is carried out in the reverse sequence.

The handbrake does not have to be adjusted after installing the handbrake switch.

7.4 Removing and installing handbrake cable

1 - Guide tube (bottom right) for handbrake cable (right-side)

2 - Clip for guide tube (bottom right)

3 - Nut for clip (bottom right)

- ☐ Do not loosen when removing handbrake cable and guide tube

- ☐ 12 Nm

4 - Bolt (left and right)

- ☐ 4 Nm

5 - Bracket for handbrake cable on axle beam (left and right)

- ☐ On some versions it is necessary to detach skid plate

6 - Handbrake cable (left and right)

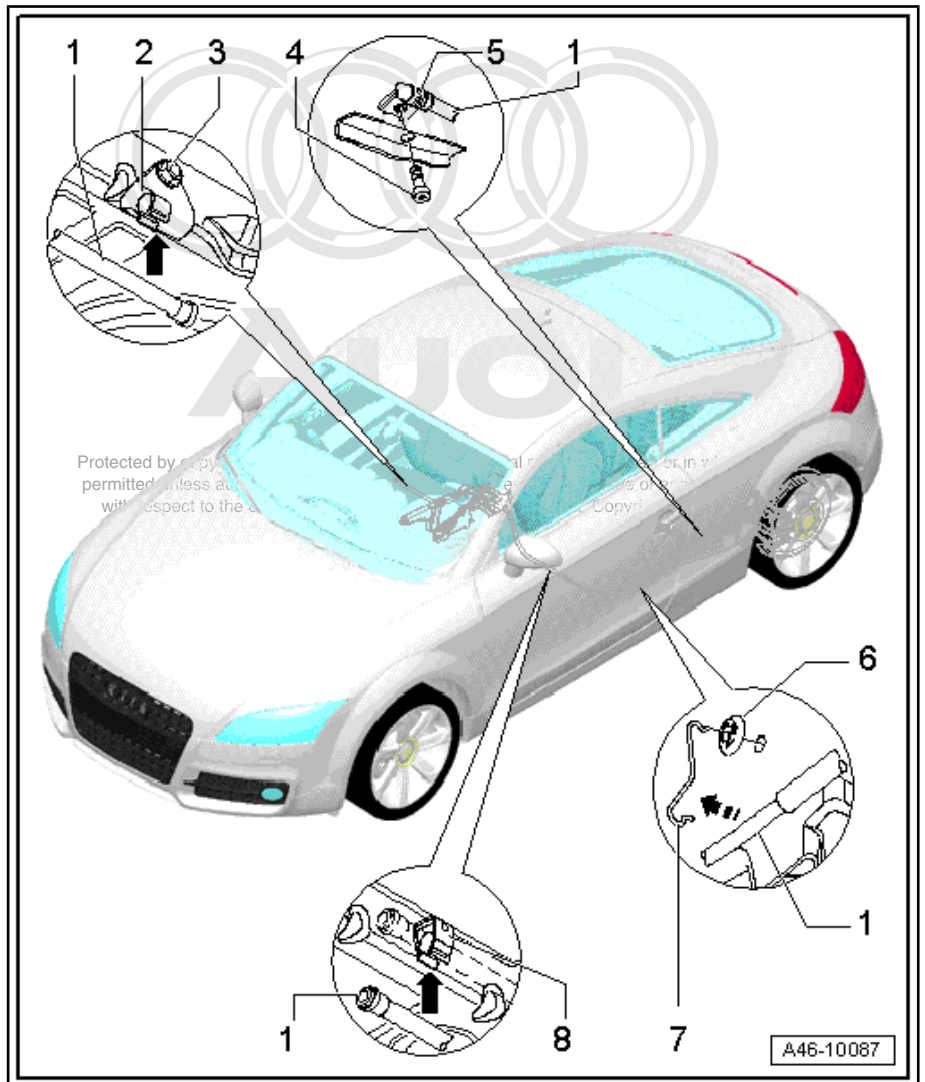
7 - Rubber grommet (left and right)

8 - Handbrake cable (left and right)

9 - Retainer for handbrake cable (left and right)

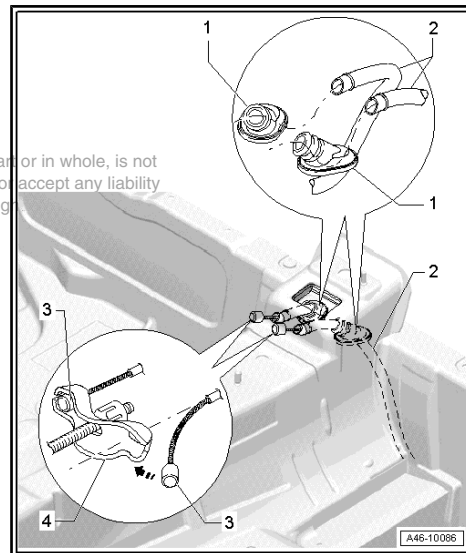
10 - Clip for guide tube (bottom left)

11 - Guide tube (bottom left)



Removing

- Release handbrake.
- Use hook to release cover in storage compartment in centre console (rear) and remove cover.
- Loosen adjustment nut on handbrake cable until the handbrake cables -3- can be unhooked from the compensator -4- (left and right sides).
- Raise vehicle.
- Detach handbrake cables from brake calipers ➤ [page 83](#) (left and right).
- Unfasten bolt (right-side) on axle beam (right-side) and detach bracket with handbrake cable.
- Detach handbrake cable (right-side) from compensator.
- Unclip guide tube (right-side) ➤ [Item 1 \(page 87\)](#) from bracket ➤ [Item 2 \(page 87\)](#), do not loosen nut ➤ [Item 3 \(page 87\)](#).
- Carefully pull out handbrake cable (right-side) from guide tube (right-side).
- Unfasten bolt (left-side) on axle beam (left-side) and detach bracket with handbrake cable.
- Detach handbrake cable left-side) from compensator.
- Unclip guide tube (left-side) ➤ [Item 11 \(page 87\)](#) from bracket (left-side) ➤ [Item 10 \(page 87\)](#).
- Carefully pull out handbrake cable (left-side) from guide tube (left-side).



Installing



Note

Install handbrake cable free of tension and stress.

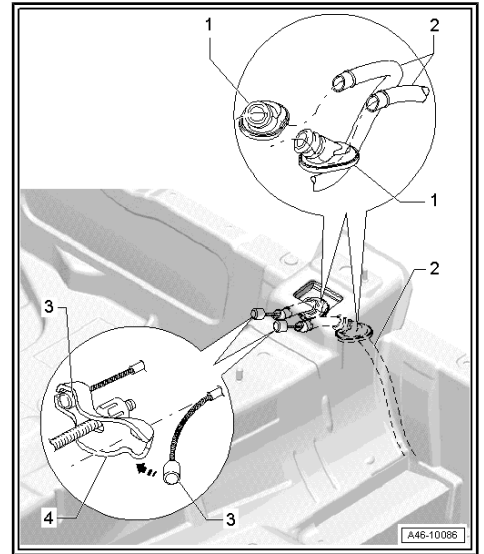
- Installation is carried out in the reverse sequence.
- Carefully push handbrake cables (left and right) through corresponding guide tubes and into vehicle interior.
- Engage handbrake cables on brake calipers ➤ [page 83](#) (left and right).
- Lower vehicle.

- Pull handbrake cables (left and right) -3- out of front end of relevant guide tube -2-.
- Engage handbrake cables (left and right) -3- in compensator -4-.
- Pretension handbrake cable with adjustment nut on compensator -4-.



Note

*The handbrake must be adjusted after installing handbrake cable
 ⇒ [page 89](#).*



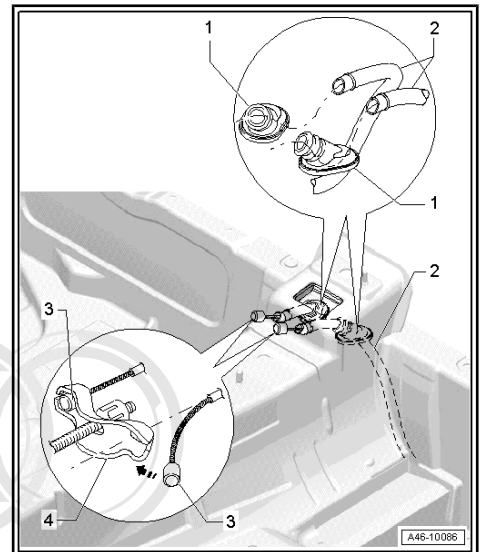
7.5 Removing and installing guide tubes for handbrake cable

Removing

- Remove handbrake cable ⇒ [page 87](#).
- Unclip guide tubes from vehicle floor.
- Pull guide tubes -2- out of opening in vehicle floor from below.
- Take care not to damage rubber grommets -1-.

Installing

- Push guide tubes -2- through opening into vehicle interior from below.
- Take care not to damage rubber grommets -1-.
- Clip guide tubes into retainers on vehicle floor.



7.6 Adjusting handbrake



Note

Adjustment is only necessary if handbrake cables, brake calipers or brake discs have been replaced.

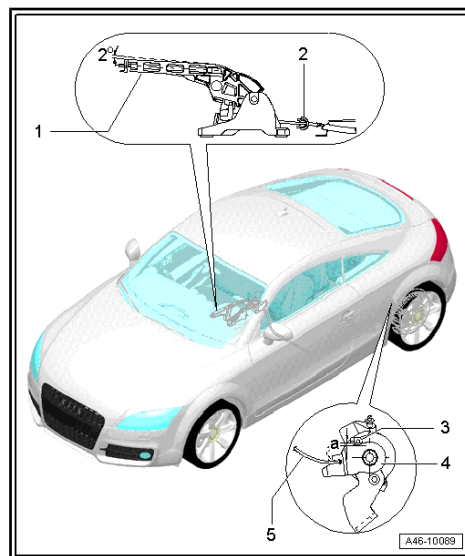
- ◆ Both rear wheels must turn freely when handbrake lever is not pulled (released position).
- ◆ The handbrake lever must return by itself to released position if not pulled up to the first catch.
- ◆ The adjustment nut on the compensator must be screwed past the end of the pull rod.

- Release handbrake.
- Use hook to release cover in storage compartment in centre console (rear) and remove cover.
- The handbrake cable -5- must be routed free of stress.

Do not pull up the handbrake lever -1- more than 2 degrees when adjusting the handbrake.

- Tighten adjustment nut on compensator -2- until levers on brake caliper -4- lift away from stop -3-.
- The sum of distances -a- between lever on brake caliper -4- and stop -3- on both sides of vehicle must be at least 1 mm (with handbrake lever in released position).
- The distance on one side must not exceed 4 mm.
- The distance -a- to stop -3- on one side must be greater than 0 mm, however not greater than 4 mm.
- Apply handbrake firmly 3 times and then release.
- With handbrake released, check whether both wheels turn freely. Check whether the distances -a- meet specifications.
- If the handbrake lever is pulled up to the first catch, there must be a slight brake effect on the rear wheels.

If necessary, adjust via the adjustment nut.



Note

Due to the automatic adjustment of the rear brake, it is no longer necessary to adjust the handbrake after performing initial adjustment.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

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8 Brake pedal

8.1 Brake pedal - exploded view



WARNING

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

1 - Brake servo

- ☐ Removing and installing
 ⇒ [page 122](#)

2 - Brake light switch on brake master cylinder

3 - Mounting bracket

- ☐ With crash bar

4 - Bearing bush

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

5 - Hexagon nut

- ☐ 25 Nm

6 - Hexagon nut

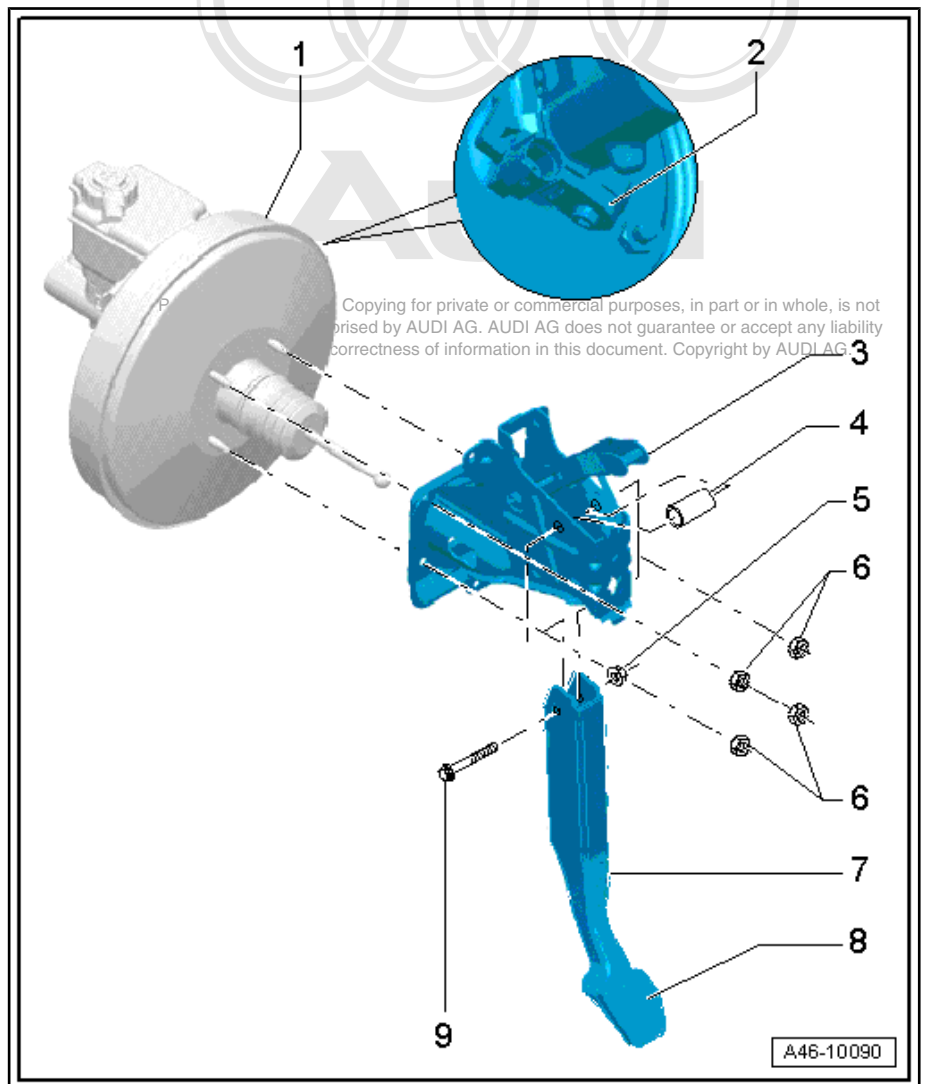
- ☐ 25 Nm

7 - Brake pedal

- ☐ Removing and installing
 ⇒ [page 91](#)
- ☐ Separating from brake servo ⇒ [page 92](#)
- ☐ Before installing, lubricate pivot points with polycarbamide grease - G 052 142 A2- .

8 - Cap

9 - Hexagon bolt



8.2 Removing and installing brake pedal

Removing

- Remove driver's storage compartment: ⇒ Rep. Gr. 68
- Separate brake pedal from brake servo ⇒ [page 92](#) .

- Unscrew nut -5-.
- Pull hexagon bolt -9- out of brake pedal and bearing bush.

Installing

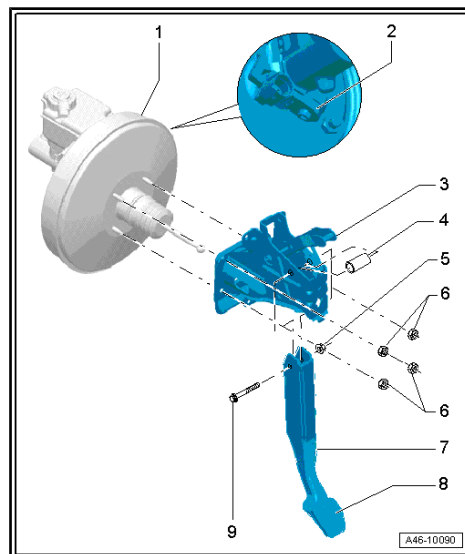
Installation is carried out in the reverse sequence.

- Push hexagon bolt -9- through brake pedal and bearing bush.
- Use new nut -5- and tighten. Note tightening torque
⇒ Item 5 (page 91) .



Note

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



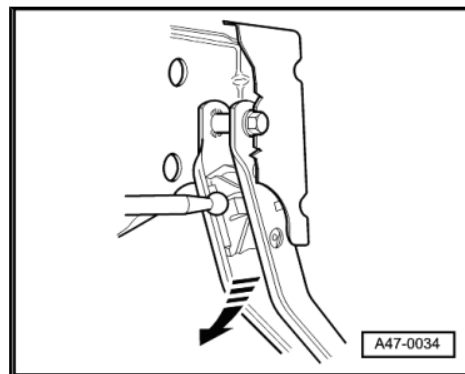
Clip brake pedal to ball head of brake servo push rod.

- 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 ⇒ **page 92** .



WARNING

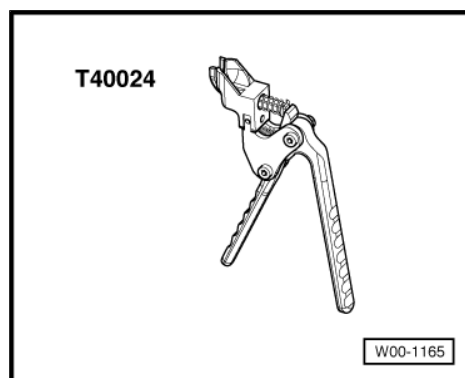
Before driving vehicle for the first time, make sure function of brakes is OK.



8.3 Separating brake pedal from brake ser-vo

Special tools and workshop equipment required

- ◆ Release tool -T 40024-



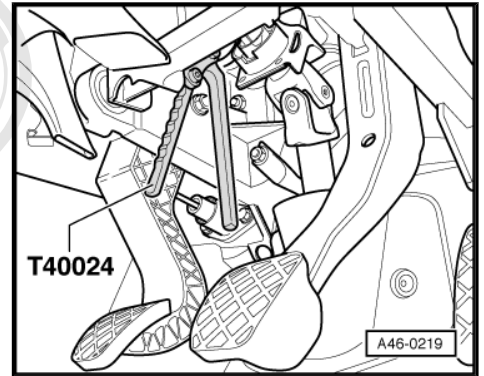
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Separating

- Remove driver's storage compartment: ⇒ Rep. Gr. 68

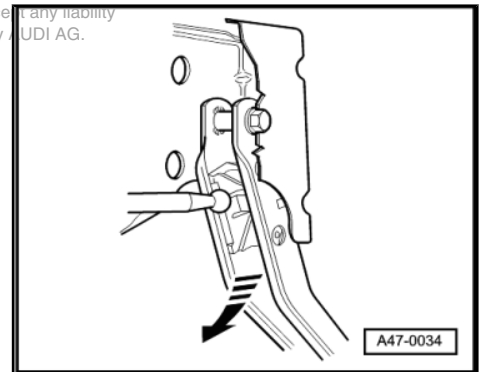
- Use release tool -T 40024- to separate brake pedal from brake servo.
- Position release tool -T 40024- and press handles together while simultaneously pulling the brake pedal towards driver's seat. (The brake pedal is thereby detached from ball head of push rod).

Installing



Clip brake pedal to ball head of brake servo push rod.

- 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 storage compartment on driver's side: ⇒ Rep. Gr. 68



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

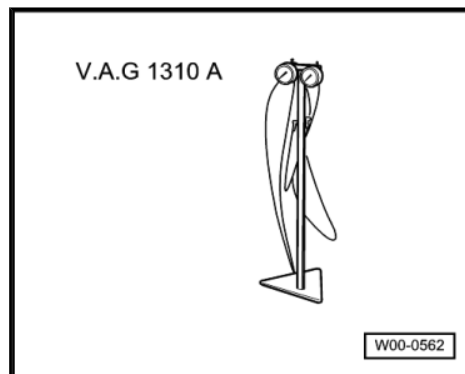
47 – Brakes - hydraulics

1 High-pressure and low-pressure tests

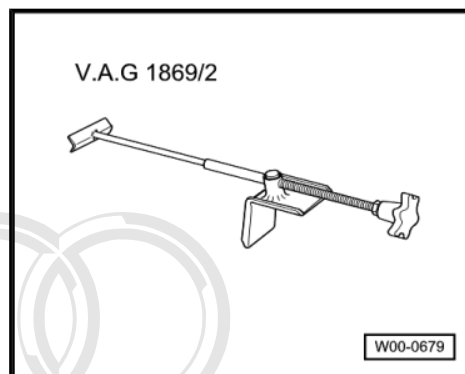
1.1 Tests

Special tools and workshop equipment required

- ◆ Tester for brake pressure regulator -V.A.G 1310A-



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



High-pressure test:



Note

Make sure that the brake system (master cylinder, brake hoses, brake lines and brake calipers) works properly and is free of leaks.

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- Screw out 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.



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2 Servicing front brake caliper FN3



Note

- ◆ Install complete repair kit when servicing.
- ◆ New brake calipers are filled with brake fluid and are pre-bled.
- ◆ Apply thin coat of lithium grease -G 052 150 A2- to brake cylinder, piston and seal.

2.1 Front brake caliper FN3 - exploded view

1 - Protective cap

- ☐ Fit onto bleeder valve

2 - Bleeder screw, 10 Nm

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

3 - Protective caps

- ☐ Insert into bearing bush

4 - Guide pin, 30 Nm

5 - Bearing bush

- ☐ Insert into brake caliper housing

6 - Brake caliper housing

- ☐ Brake caliper with vibration damper ⇒ [page 74](#)

7 - Brake carrier

- ☐ Bolt to brake caliper housing

8 - Retaining spring

- ☐ Insert both ends in holes in brake caliper housing

9 - Seal

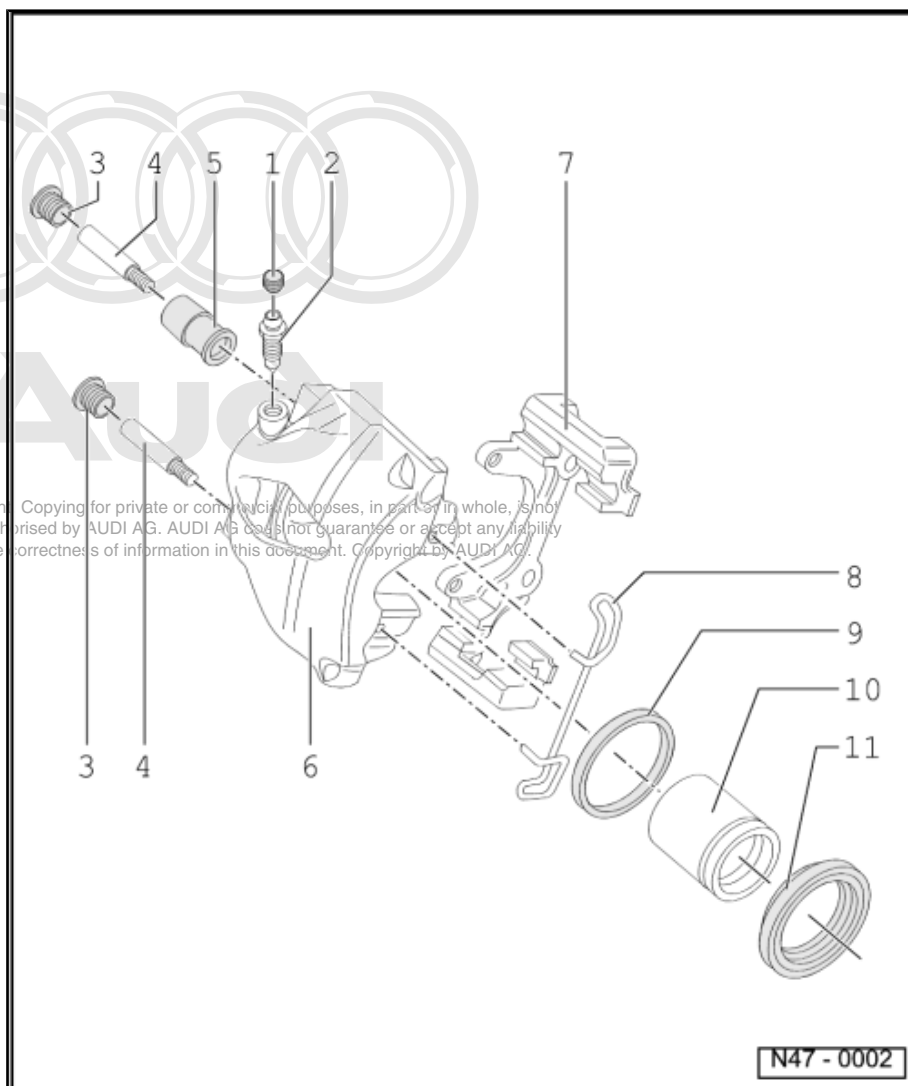
- ☐ Do not damage when inserting piston
- ☐ Removing and installing ⇒ [page 97](#)

10 - Piston

- ☐ Removing and installing ⇒ [page 97](#)
- ☐ Apply a thin coat of lithium grease -G 052 150 A2- to piston

11 - Protective cap

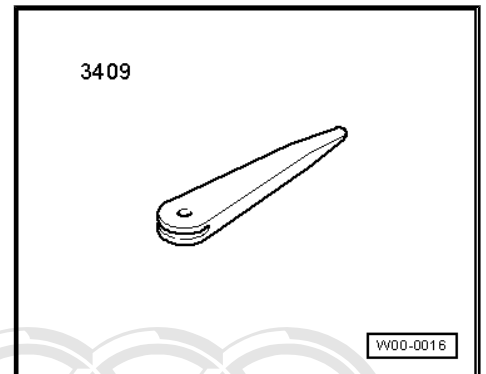
- ☐ Push outer sealing lip onto piston
- ☐ Do not damage when inserting piston
- ☐ Removing and installing ⇒ [page 97](#)



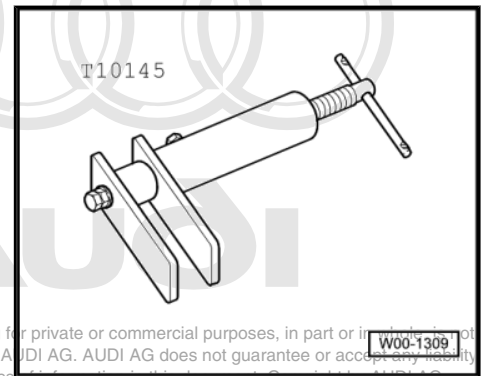
2.2 Removing and installing piston for front brake caliper FN3

Special tools and workshop equipment required

- ◆ Removal wedge -3409-

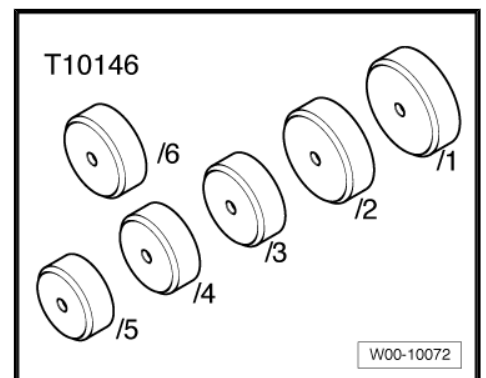


- ◆ Piston resetting appliance -T 10145-



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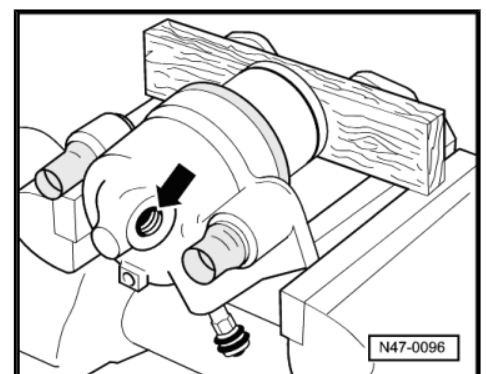
- ◆ Assembly tool for protective caps -T10146/6-



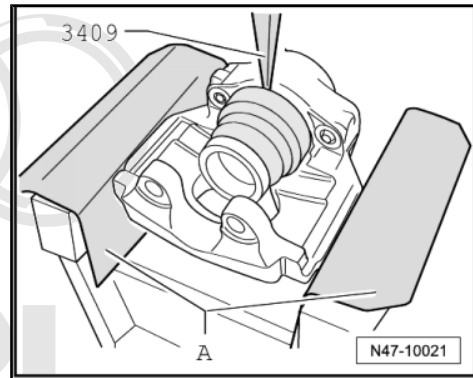
Removing

- Force piston out of brake caliper using compressed air.

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



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

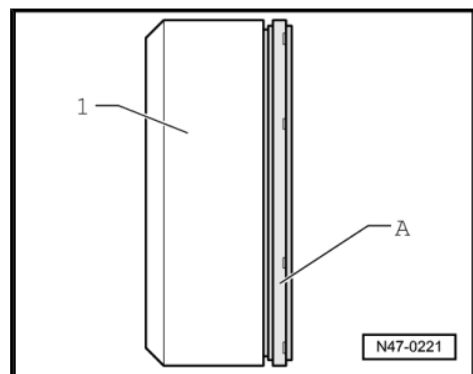
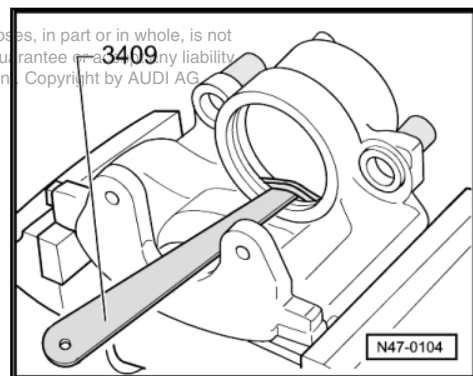


- Remove seal using removal wedge -3409-.

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

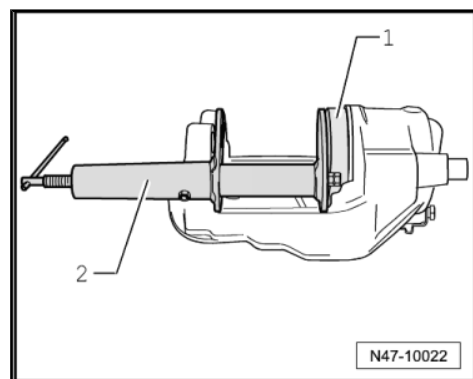
Installing

- The surface of the piston and seal should be cleaned using only methylated spirits and then dried.
- Apply a thin coat of lithium grease -G 052 150 A2- to piston and seal before inserting.
- Insert the seal into the brake caliper.
- Insert protective cap -A- into assembly tool T10146/6 -1-.

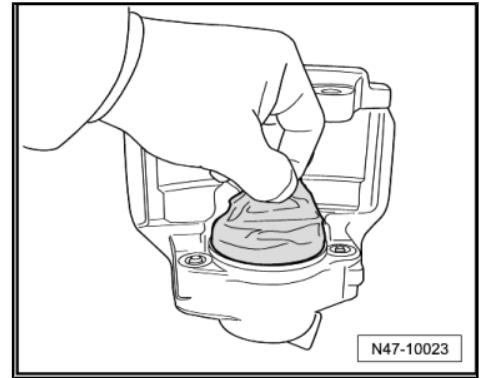


- Push protective cap onto brake caliper using assembly tool -1- and piston resetting appliance -2- so that it is seated on the brake caliper all round.

Checking correct seating of protective cap:

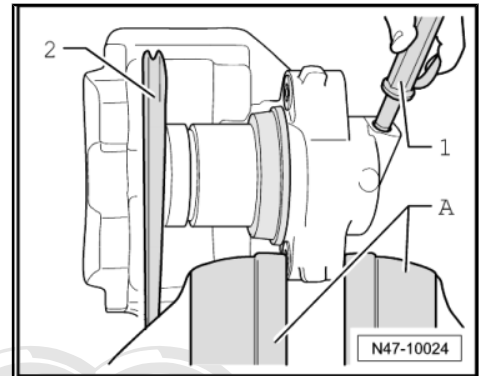


- At this stage it should not be possible to remove the protective cap from the brake caliper by hand.
- Press the piston lightly against the protective cap and lock in position (e.g. with assembly wedge -2-).



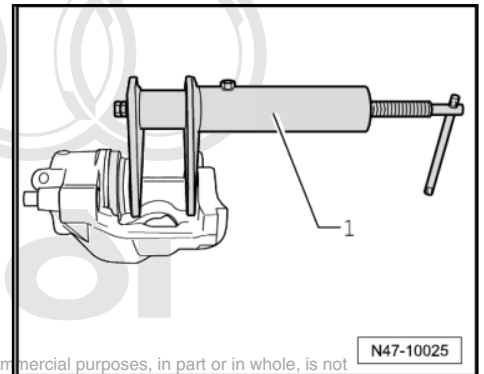
- Inflate protective cap with compressed air (maximum 3 bar) -1-. The protective cap will then locate around the piston.

Keep the piston straight to avoid damaging the seal.



- Press the piston into the brake caliper using piston resetting appliance -1-.

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



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3 Servicing front brake caliper FNRG57



Note

- ◆ Install complete repair kit when servicing.
- ◆ Apply thin coat of lithium grease -G 052 150 A2- to brake cylinder, piston and seal.

3.1 Front brake caliper FNRG57 - exploded view

1 - Brake carrier

- Bolt to brake caliper housing

2 - Guide pin

- 30 Nm

3 - Protective caps

- Insert into bearing bush

4 - Protective cap

- Push onto bleeder valve

5 - Bleeder valve

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

6 - Bearing bush

- Insert into brake caliper housing

7 - Brake caliper housing

- Brake caliper with vibration damper ⇒ [page 74](#)

8 - Retaining spring

- Note correct installation position.
- Engage onto both brake caliper housing studs and onto outer pad retaining spring.

9 - Protective cap

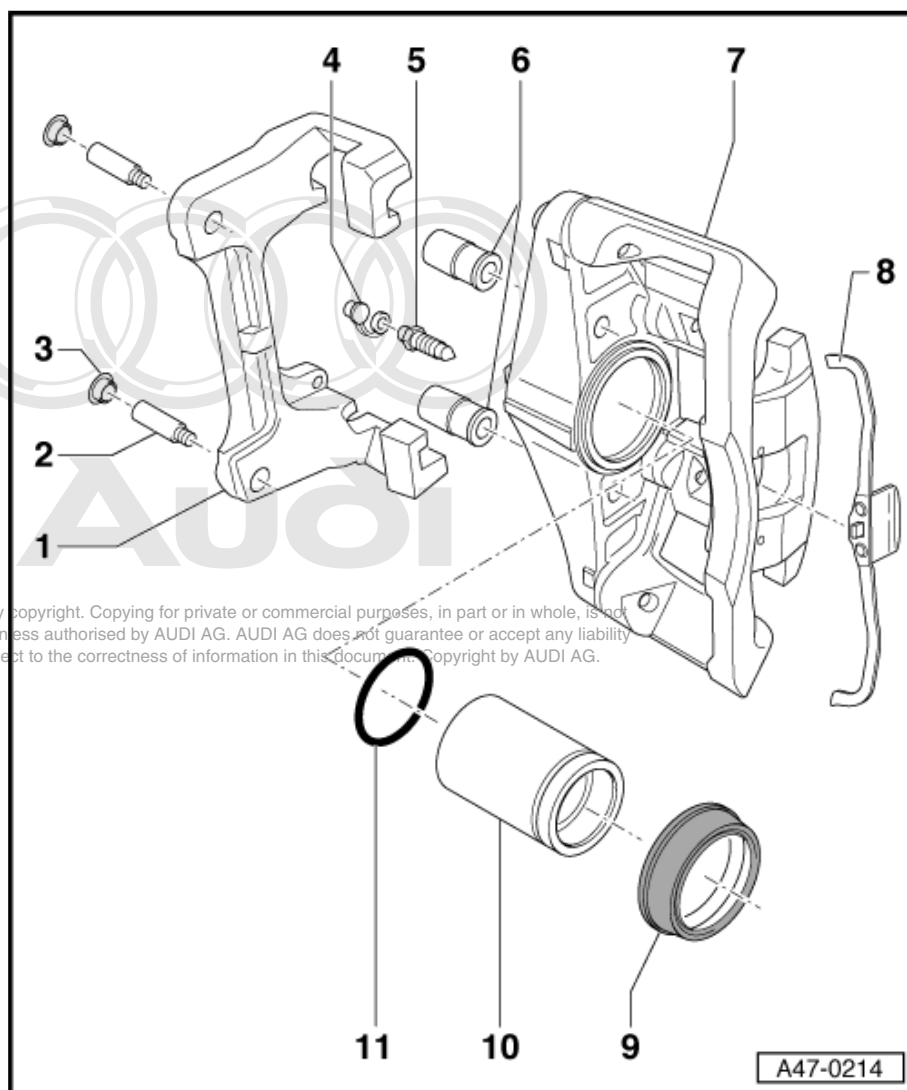
- Do not damage when inserting piston
- Apply a thin coat of lithium grease -G 052 150 A2-

10 - Piston

- Apply a thin coat of lithium grease -G 052 150 A2- to piston

11 - Seal

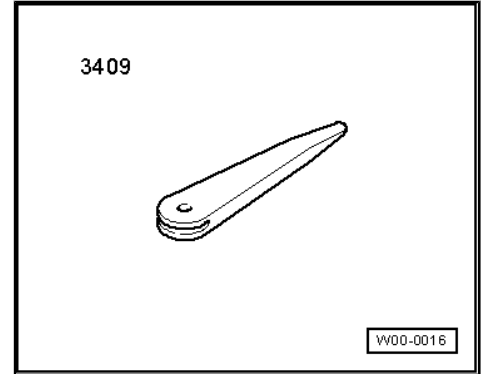
- Apply a thin coat of lithium grease -G 052 150 A2-



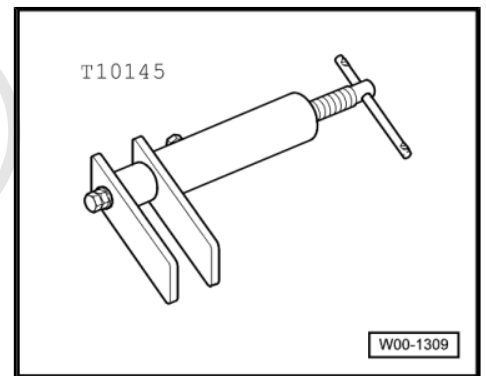
3.2 Removing and installing piston for front brake caliper FNRG57

Special tools and workshop equipment required

- ◆ Lithium grease -G 052 150 A2-
- ◆ Removal wedge -3409-

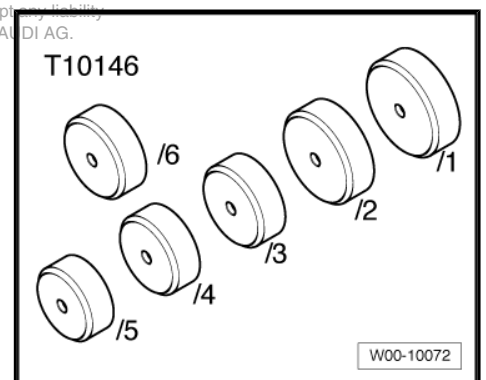


- ◆ Piston resetting appliance -T10145-



- ◆ Assembly tool -T10146-

- ◆ Assembly tool for protective caps -T10146/2-



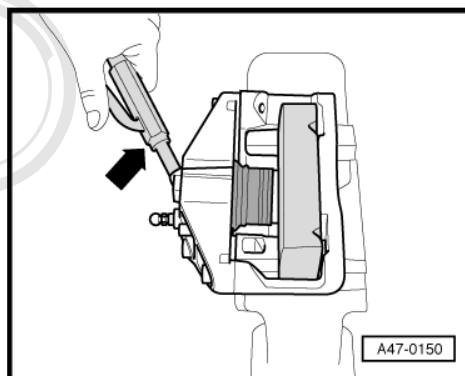
Removing

- Force piston out of brake caliper housing using compressed air.



Note

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



- Take out seal.

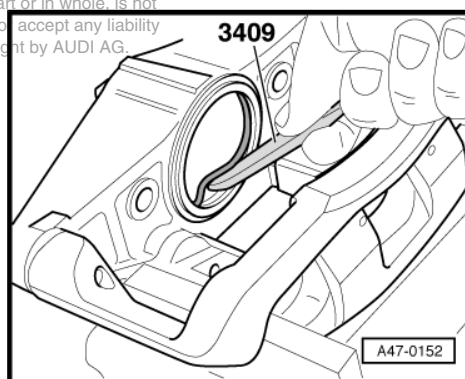
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- To do so, use removal wedge -3409- .



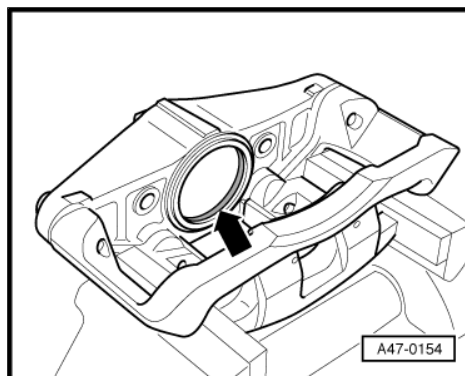
Note

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



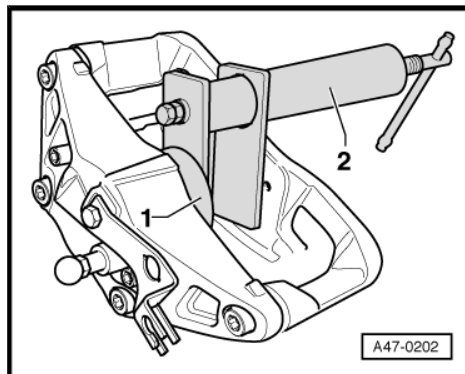
Installing

- The surface of the piston and seal should be cleaned using only methylated spirits and then dried.
- Apply a thin coat of lithium grease -G 052 150 A2- to piston and seal before inserting.
- Using the removal wedge -3409- , insert inner seal into groove of brake caliper.

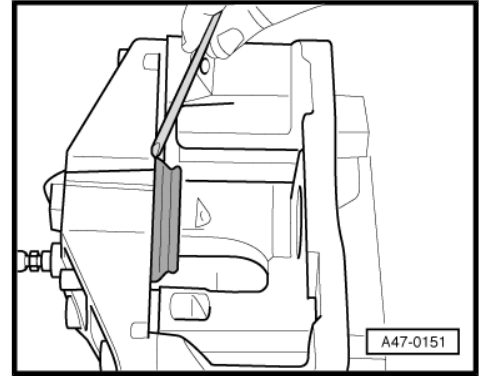


- Press in protective cap with special tool -1- and -2-.
- Item -1- Assembly tool for protective caps -T10146/2-
- Item-2- Piston resetting appliance -T10145-

Use jaw protectors



- Push protective cap onto brake caliper housing and press it in so that it is seated flush -arrow-.
- At this stage it should not be possible to remove the protective cap from the brake caliper housing by hand.
- Apply a thin coat of lithium grease -G 052 150 A2- to piston and seal before inserting.



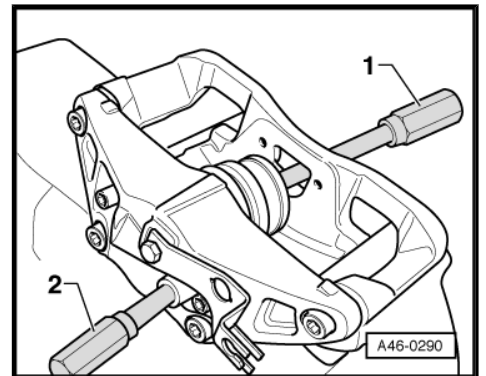
- Lift up piston with standard extension and ratchet attachment as shown in illustration and press lightly onto protective cap.

Keep the piston straight to avoid damaging the seal.

- Inflate protective cap with compressed air (maximum 3 bar). The protective cap will then locate around the brake piston.

Use jaw protectors

- Press piston into brake caliper housing by hand.



The inner sealing lip on the protective cap will then locate in the piston groove.

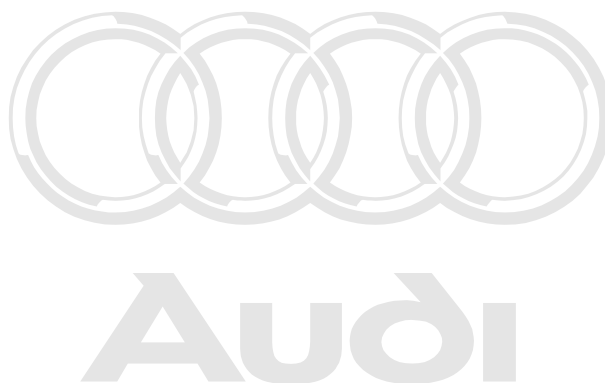


4 Servicing brake caliper (TT RS)



Note

There is no provision for servicing the brake caliper on the TT RS.



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5 Servicing rear brake calipers



Note

- ◆ *Install complete repair kit when servicing.*
- ◆ *Use only methylated spirits to clean the brake caliper*
- ◆ *New brake calipers are filled with brake fluid and are pre-bled.*
- ◆ *Apply 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 107](#).*

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5.1 Rear brake caliper - exploded view

1 - Bolt

- ☐ Self-locking
- ☐ Always renew if removed
- ☐ When loosening and tightening, counter-hold on guide pin
- ☐ 35 Nm

2 - Bleeder screw

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

3 - Protective cap

4 - Guide pin

- ☐ Lubricate before installing protective cap

5 - Protective cap

- ☐ Insert onto brake carrier and guide pin

6 - Brake carrier with guide pins and protective caps

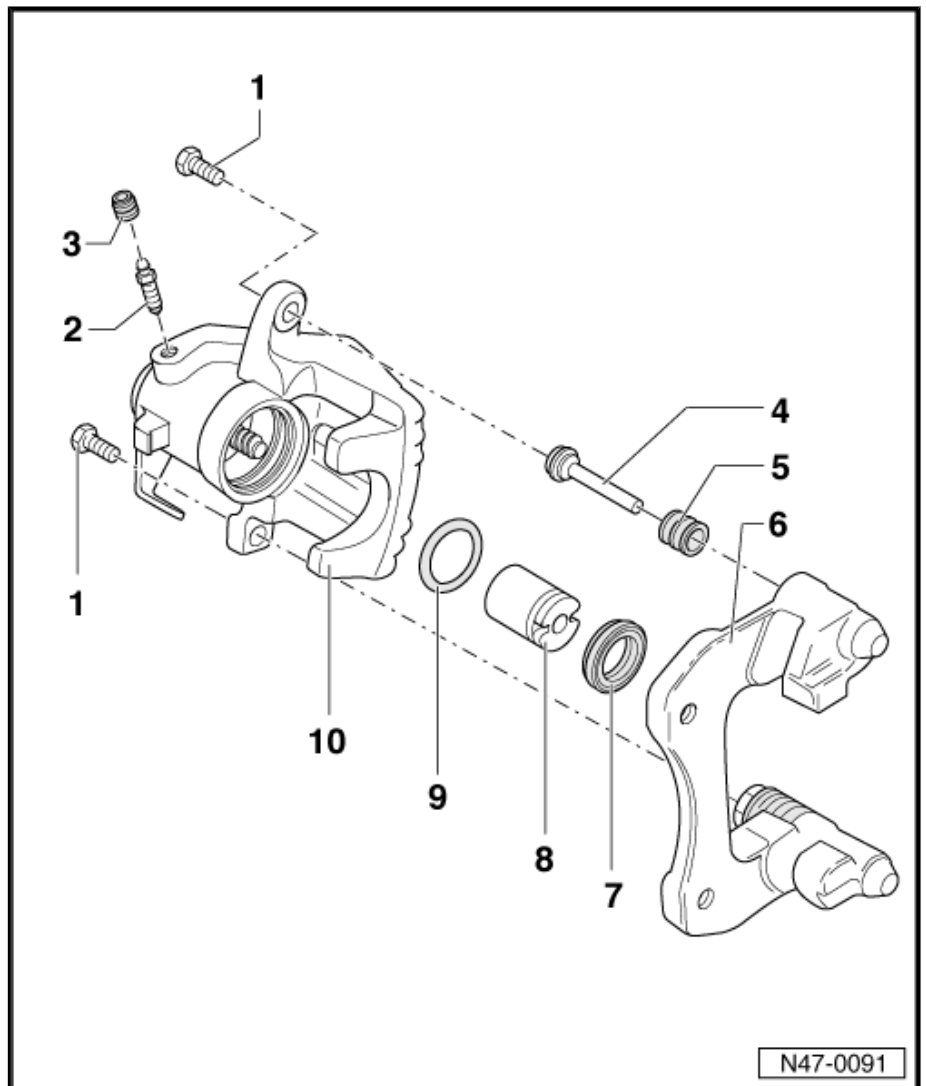
- ☐ Replacement carriers are supplied assembled and with sufficient grease on guide pins
- ☐ If protective caps or guide pins are damaged, renew using repair kit. Use grease sachet supplied to lubricate the guide pins.

7 - Protective cap

- ☐ Push outer sealing lip onto piston

8 - Piston with automatic adjustment

- ☐ Removing and installing ⇒ [page 106](#)



- ❑ Apply a thin coat of lithium grease -G 052 150 A2- to piston

9 - Seal

- ❑ Do not damage when inserting piston
- ❑ Removing and installing ⇒ [page 106](#)

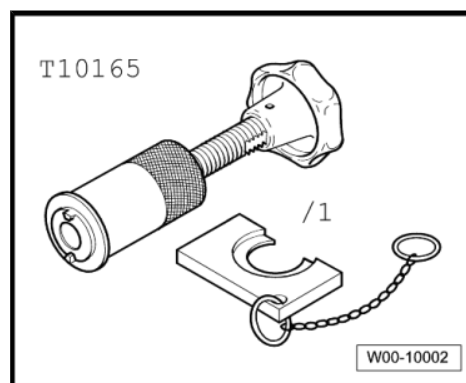
10 - Brake caliper housing with lever for handbrake cable

- ❑ Renew the brake caliper housing if there is a leak at the lever for handbrake cable
- ❑ After repairing, pre-bleed brake caliper housing ⇒ [page 107](#)

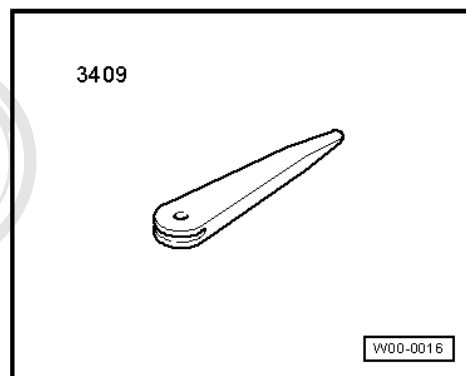
5.2 Removing and installing piston for rear brake caliper

Special tools and workshop equipment required

- ◆ Piston compressing tool -T10165-



- ◆ Removal wedge -3409-

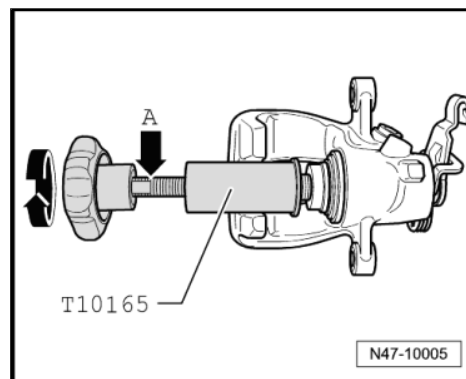


Removing

- Screw piston out of brake caliper by turning knurled wheel anti-clockwise.

Insert piston compressing tool (make sure that the collar contacts the piston).

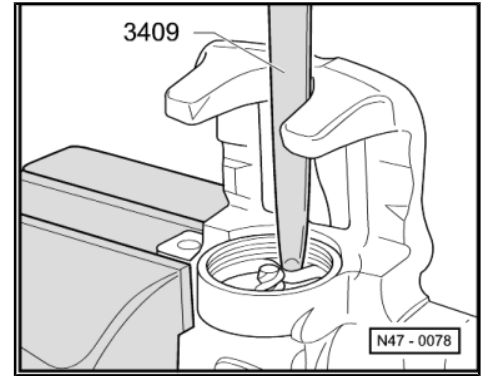
- ◆ If piston will not move easily, a 13 mm open-end spanner can be applied at the flats provided -arrow A-.



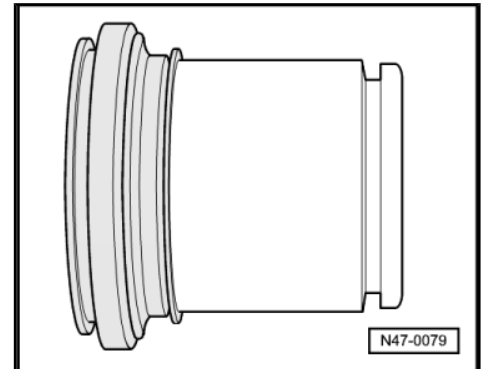
- Remove seal using removal wedge -3409- .

Installing

- The surface of the piston and seal should be cleaned using only methylated spirits and then dried.
- Apply a thin coat of lithium grease -G 052 150 A2- to piston and seal before inserting.
- Insert the seal into the brake caliper housing.



- Place outer sealing lip of protective cap on the piston

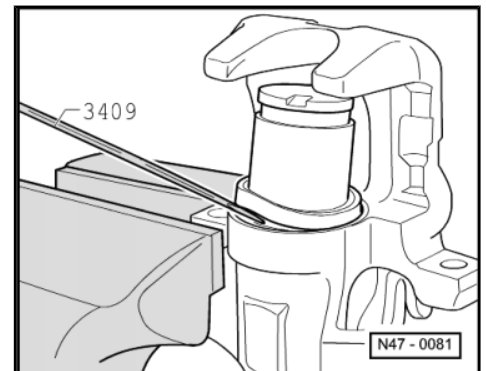


- Using the removal wedge -3409- , insert the inner sealing lip into the groove of cylinder.



Note

When doing this hold piston in front of caliper housing.



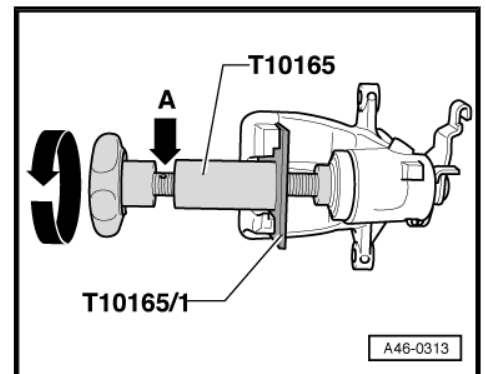
- Apply piston compressing tool -T10165- on piston of brake caliper housing.
- Screw in piston by turning knurled wheel clockwise.



Note

- ◆ *If the piston is pushed back with a piston resetting tool, the automatic adjustment in the brake caliper will be damaged.*
- ◆ *If piston will not move easily, a 13 mm open-ended spanner can be applied at the appropriate flats -arrow-.*

- **Fit brake pads**



Pre-bleeding brake caliper

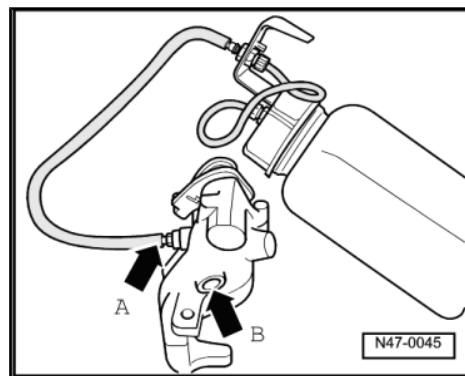


- Open bleeder screw -arrow A- and fill with brake fluid from a commercially available bleeder container until bubble-free fluid emerges from hole (brake hose connection) -arrow B-. Close bleeder screw.



Note

Position brake caliper as illustrated for pre-bleeding.



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6 Bleeding brake system - ABS/ESP Mark 60



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 sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paint-work.*
- ◆ *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.*

When topping up brake fluid with, for example, brake filling and bleeding equipment -VAS 5234- or upgrade kit and extraction unit -V.A.G 1869/4- , make sure the filling pressure does not exceed 1 bar.

The brake fluid pressure must be reduced to 1 bar on brake filling and bleeding equipment ⇒ VAS 5234 or V.A.G 1869 operating instructions .



Note

- ◆ *Use only new brake fluid.*
- ◆ *Rinse off brake fluid spillages using plenty of water.*

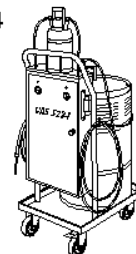
6.1 Bleeding brake system with brake filling and bleeding equipment -VAS 5234- or upgrade kit and extraction unit -V.A.G 1869/4-

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Special tools and workshop equipment required

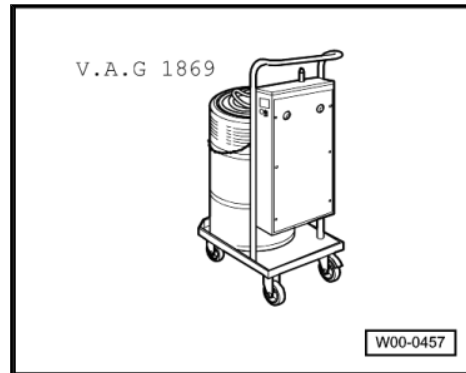
- ◆ Brake filling and bleeding equipment -VAS 5234- or

VAS 5234



W00-1101

◆ Brake filling and bleeding equipment -V.A.G 1869-



◆ Upgrade kit and extraction unit -V.A.G 1869/4-

Procedure

- Connect brake filling and bleeding equipment -VAS 5234- or upgrade kit and extraction unit -V.A.G 1869/4- .
- Detach protective cap on bleeder screw of brake caliper.
- Attach bleeder hose of bleeder bottle to bleeder valve of 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 to 10 Nm.
- Detach bleeder hose and attach protective cap to bleeder screw.
- Perform same bleeding procedure on all brake calipers.

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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
- Fill brake fluid reservoir as far as max. marking and screw on cap.
 - Start engine to check brake pedal travel and brake pedal pressure.
 - Check the brake system for leaks if the pedal travel is excessive or if the pedal is soft. Repeat bleeding procedure.

After bleeding brake system, zero position compensation must be performed for brake pressure sender 1 -G201- .

Vehicle diagnosis, testing and information system -VAS 505x- .
 ⇒ Vehicle diagnosis, testing and information system -VAS 505x- under the function "Guided Fault Finding".

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 808



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

6.2 Bleeding brake system without brake filling and bleeding equipment

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Note

A second person is required to bleed the brake system without brake filling and bleeding equipment.

Make sure that the brake fluid reservoir does not drain completely.

- Detach protective cap on bleeder screw of brake caliper.
- Attach bleeder hose of bleeder bottle to bleeder valve of 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 bleeder bottle 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 to 10 Nm.
- Detach bleeder hose and attach protective cap to bleeder screw.
- Perform same bleeding procedure on all brake calipers.

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
- Fill brake fluid reservoir as far as max. marking and screw on cap.
 - Start engine to check brake pedal travel and brake pedal pressure.
 - Check the brake system for leaks if the pedal travel is excessive or if the pedal is soft. Repeat bleeding procedure.

Changing brake fluid

⇒ Maintenance ; Booklet 808



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.



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7 Brake servo/brake master cylinder - left-hand drive vehicles

7.1 Exploded view

Note

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

2 - Brake servo

- ☐ On some vehicle types, the vacuum required is taken exclusively from the intake manifold
- ☐ Vehicles with OHBV are fitted with brake servo vacuum sender -G483
[⇒ page 17](#)

Checking function

- ◆ With the engine switched off, firmly depress the brake pedal several times (this reduces the vacuum present in the servo unit).
- ◆ Depress brake pedal and hold.
- ◆ Start engine.
- ◆ If the brake servo unit is working properly, the pedal will give noticeably under the foot.
- ☐ Separating from brake pedal [⇒ page 92](#)
- ☐ Removing and installing [⇒ page 122](#)
- ☐ Removing and installing (TT RS) [⇒ page 126](#)

Note

- ◆ On vehicles with TTS engine the noise amplifier must be removed and installed [⇒ page 129](#).
- ◆ The noise amplifier is located in the engine compartment in front of the brake servo.

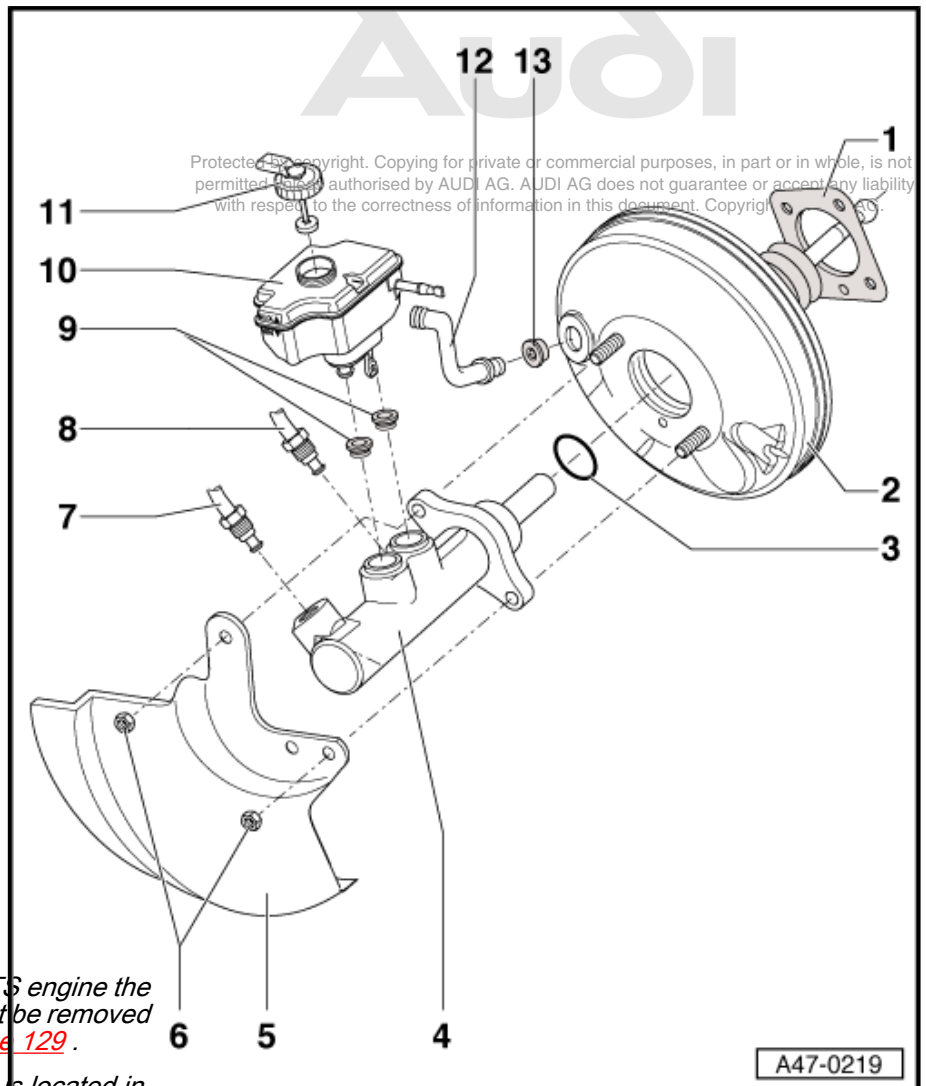
- ☐ If faulty, renew complete.

1 - Gasket

- ☐ For brake servo

3 - Seal

- ☐ Renew



4 - Brake master cylinder

- ☐ With brake light switch attached ⇒ [Item 13 \(page 11\)](#)
- ☐ Cannot be repaired.
- ☐ If faulty, renew complete.
- ☐ Removing and installing ⇒ [page 117](#)
- ☐ Removing and installing (TT RS) ⇒ [page 119](#)

**Note**

- ◆ *On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#).*
- ◆ *The noise amplifier is located in the engine compartment in front of the brake servo.*

5 - Heat shield

- ☐ Allocation ⇒ ETKA

6 - Hexagon nut

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

7 - Brake line

- ☐ Brake master cylinder/secondary piston circuit to hydraulic unit
- ☐ 14 Nm

8 - Brake line

- ☐ Brake master cylinder/primary piston circuit to hydraulic unit
- ☐ 14 Nm

9 - Sealing plug

- ☐ Lubricate with brake fluid and insert into brake master cylinder

10 - Brake fluid reservoir

- ☐ Lubricate with brake fluid and insert in sealing plugs in brake master cylinder
- ☐ With integrated warning contact for brake fluid level (gradual introduction)
- ☐ Brake fluid reservoir must be removed before renewing warning contact
- ☐ Press brake fluid reservoir into sealing plugs
- ☐ Removing and installing ⇒ [page 115](#)

11 - Filler cap

- ☐ With integrated float and warning contact for brake fluid level

12 - Vacuum pipe

- ☐ With non-return valve

13 - Sealing plug

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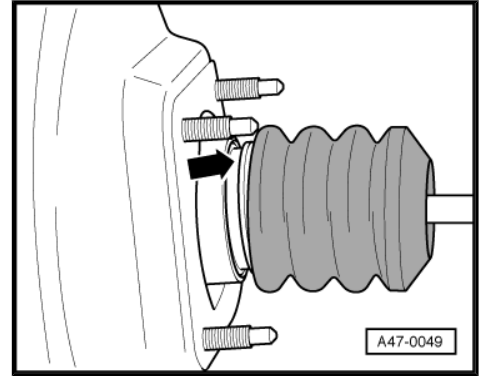
Checking inner bellows at brake servo

- Remove driver's storage compartment ⇒ Rep. Gr. 68 .
- Check that bellows has not slipped out of circumferential groove as shown in illustration.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.



7.2 Checking non-return valve (TT RS)

The non-return valve is installed in front of the brake servo.



Note

- ◆ *Air must pass through non-return valve in direction of arrow. Valve must remain closed in opposite direction.*
- ◆ *The non-return valve is open on the side of the brake servo.*

Removing and installing non-return valve ⇒ [page 115](#)

7.3 Removing and installing non-return valve (TT RS)

The non-return valve is installed in front of the brake servo.

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Removing

- Lift off engine cover panel -1-.
- Detach vacuum hoses from non-return valve.

Installing

Make sure that non-return valve is installed in correct position.



Note

- ◆ *Air must pass through non-return valve in direction of arrow. Valve must remain closed in opposite direction.*
- ◆ *The non-return valve is open on the side of the brake servo.*

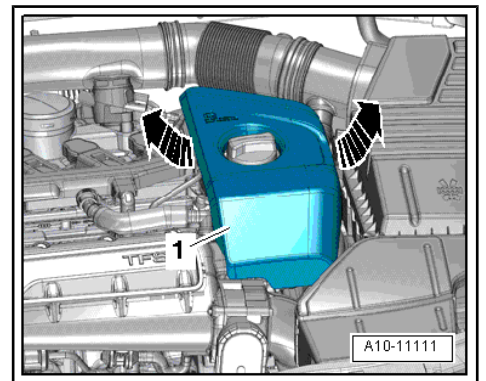
- Press vacuum hoses onto connections of non-return valve.



Note

To make it easier to install vacuum hoses, slightly moisten connections on non-return valve with water prior to installation.

- Install engine cover panel.



7.4 Removing and installing brake fluid reservoir

Removing

- TT RS: Lift off engine cover panel -1-.

Engine cover panel (TT RS)

- Extract brake fluid from reservoir.

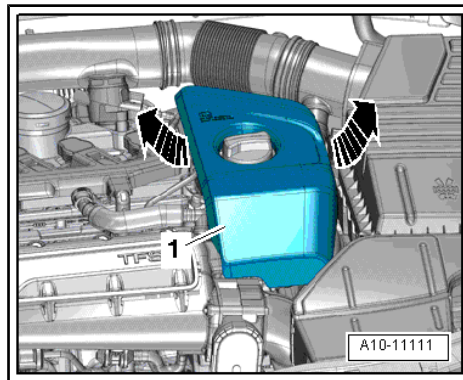
Make sure that no brake fluid escapes from brake fluid reservoir; otherwise components and paintwork will be damaged.

To draw off brake fluid from brake fluid reservoir use a bleeder bottle which is used only for brake fluid.



WARNING

Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.



- Detach and seal clutch hose.
- Unscrew bolt underneath brake fluid reservoir.



Note

Depending on the model, an additional securing pin may be pressed through the mounting in the brake master cylinder and the brake fluid reservoir.

- Pull securing pin out of mounting of brake master cylinder and brake fluid reservoir.
- Detach brake fluid reservoir.

Installing

- Lubricate connections on brake fluid reservoir with brake fluid and insert in sealing plugs in brake master cylinder.



Note

Depending on the model, an additional securing pin may be pressed through the mounting in the brake master cylinder and the brake fluid reservoir.

- Slide securing pin through mounting of brake master cylinder and brake fluid reservoir.
- Screw in and tighten bolt underneath brake fluid reservoir.
- Connect clutch hose.
- Bleed clutch ⇒ Rep. Gr. 68 .
- Bleed brake system ⇒ [page 109](#) .



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

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7.5 Removing and installing brake master cylinder



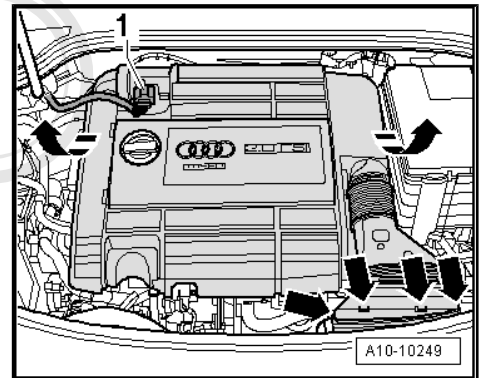
Note

- ◆ On vehicles with TTS engine the noise amplifier must be removed and installed [⇒ page 129](#).
- ◆ The noise amplifier is located in the engine compartment in front of the brake servo.

Removing

Special tools and workshop equipment required

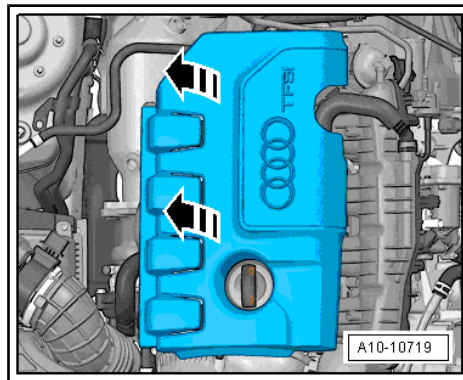
- ◆ Torque wrench -V.A.G 1331-
- ◆ Brake filling and bleeding equipment -V.A.G 1869-
- ◆ Upgrade kit and extraction unit -V.A.G 1869/4-
- ◆ Brake filling and bleeding equipment -VAS 5234-
- ◆ Sealing plug repair kit, Part No. -1H0 698 311 A-
- Unplug electrical connector -1-.
- Unclip air duct leading to air cleaner housing -arrows- or unbolt on both sides.
- Detach air duct from air cleaner.
- Lift off engine cover panel in direction of arrow.



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TFSI engine

- Lift off engine cover panel in direction of arrow.
- Depending on engine version, remove noise amplifier
⇒ [page 129](#) .
- Remove brake light switch ⇒ [page 13](#) .
- To protect against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath brake master cylinder.
- Draw off as much brake fluid as possible from brake fluid reservoir using brake filling and bleeding equipment -VAS 5234- or upgrade kit and extraction unit -V.A.G 1869/4- .



WARNING

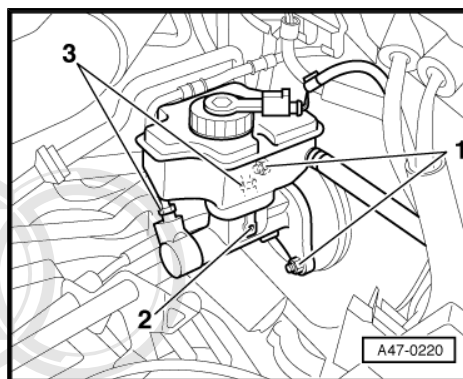
- ◆ *Do not under any circumstances allow brake fluid to come into contact with fluids that contain mineral oils (e.g. oil, petrol, cleaning agents). Mineral oils damage the plugs and seals in the brake system.*
- ◆ *Brake fluid is poisonous and must NOT be sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.*
- ◆ *Always observe the relevant environmental regulations for disposal.*

- Detach connector for brake fluid level warning contact.
- Disconnect brake lines -3- from brake master cylinder and seal brake lines with plugs from repair kit.
- Unscrew securing nuts -1- for brake master cylinder.
- Detach heat shield.
- Unclip brake fluid reservoir at position -2- and pull off upwards.
- Detach brake master cylinder from brake servo.

Installing

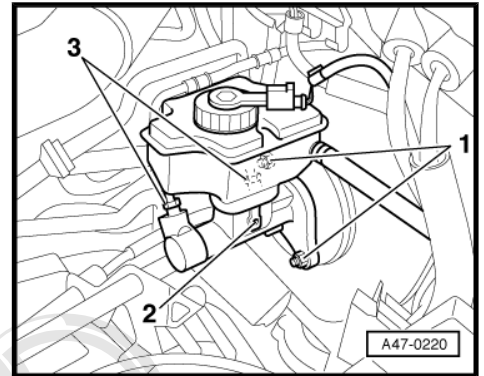
Installation is performed in reverse sequence; note the following:

- 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.



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- Use new nuts -1-. Note tightening torque
 ⇒ [Item 6 \(page 114\)](#) .
- Depress brake pedal slightly to make it easier to guide brake master cylinder onto pushrod.
- Connect brake lines -3- to brake master cylinder. Note tightening torque ⇒ [Item 7 \(page 114\)](#) .
- Install brake light switch ⇒ [page 13](#) .
- Install brake fluid reservoir ⇒ [page 115](#) .
- Depending on engine version, install noise amplifier
 ⇒ [page 129](#) .
- Bleed brake system ABS/ESP Mark 60 ⇒ [page 109](#) .
- Initiate basic setting for brake pressure sender.



To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Carry out ESP road test and system test.

Vehicle diagnosis, testing and information system -VAS 505x- .

- See: Running gear
- Brake system (Repair group 01; 45)
- 01 - Self-diagnosis compatible systems
- 03 - Brake electronics ABS/ESP Mark 60 si
- J104 - Control unit for ABS/TCS/ESP, Functions



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

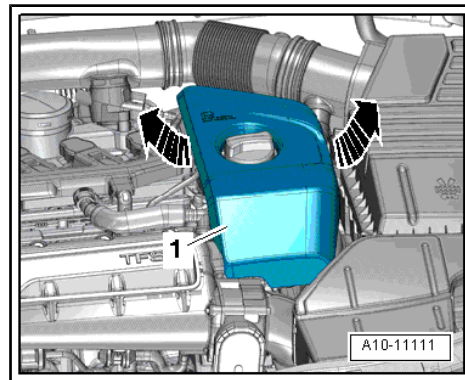
7.6 Removing and installing brake master cylinder (TT RS)

Removing

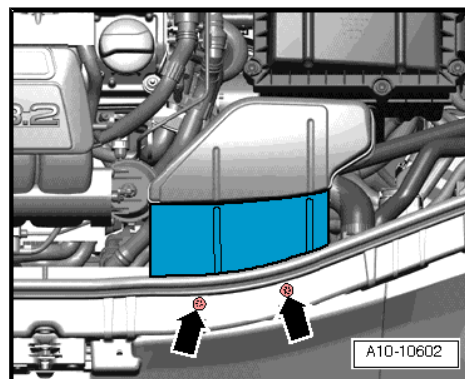
Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-
- ◆ Brake filling and bleeding equipment -V.A.G 1869-
- ◆ Upgrade kit and extraction unit -V.A.G 1869/4-
- ◆ Brake filling and bleeding equipment -VAS 5234-
- ◆ Sealing plug repair kit, Part No. -1H0 698 311 A-

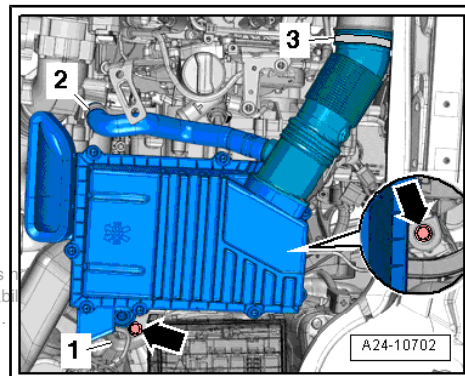
- Lift off engine cover panel -1-.



- Unscrew bolts -arrows- and detach air duct.



- Unscrew bolts -arrows- and detach air cleaner housing.
- Remove brake light switch (TT RS) ⇒ [page 13](#) .
- To protect against escaping brake fluid, place a sufficient number of lint-free cloths in area beneath brake master cylinder.
- Draw off as much brake fluid as possible from brake fluid reservoir using brake filling and bleeding equipment -VAS 5234- or upgrade kit and extraction unit -V.A.G 1869/4-



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 sucked through a hose with the mouth. On account of its corrosive effect it must also not be allowed to come into contact with paintwork.**
- ◆ **Always observe the relevant environmental regulations for disposal.**

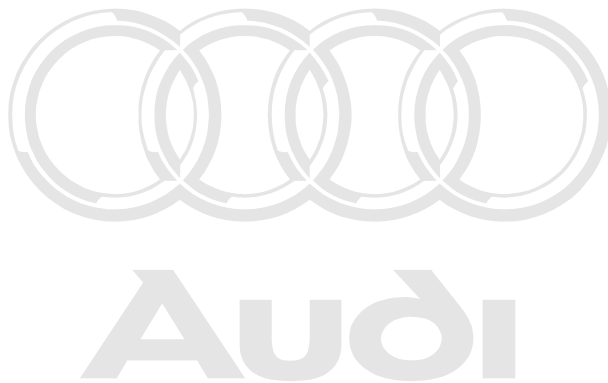
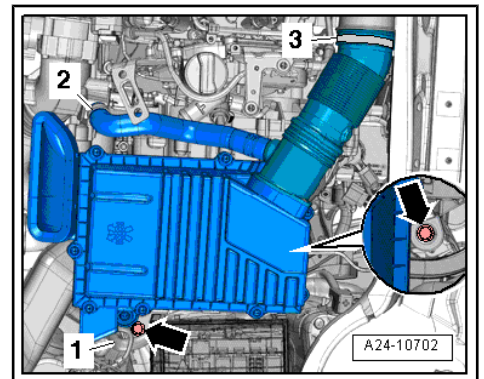
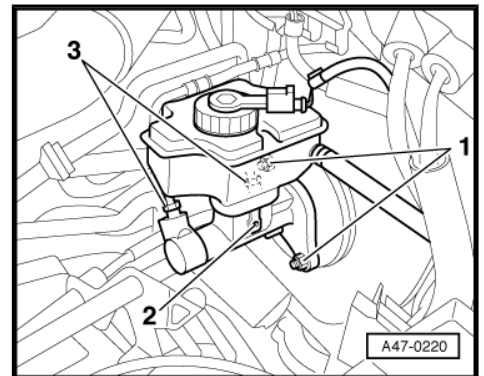
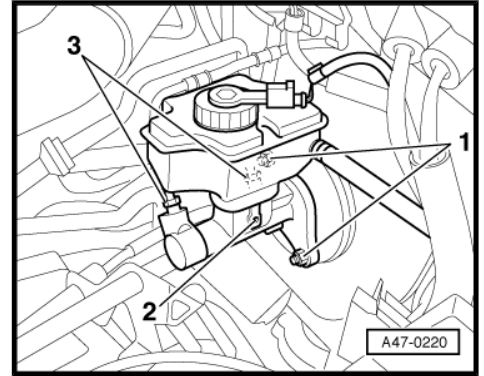
- Detach connector for brake fluid level warning contact.

- Disconnect brake lines -3- from brake master cylinder and seal brake lines with plugs from repair kit.
- Unscrew securing nuts -1- for brake master cylinder.
- Detach heat shield.
- Unclip brake fluid reservoir at position -2- and pull off upwards.
- Detach brake master cylinder from brake servo.

Installing

Installation is performed in reverse sequence; note the following:

- 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.
- Use new nuts -1-. Note tightening torque [⇒ Item 6 \(page 114\)](#) .
- Depress brake pedal slightly to make it easier to guide brake master cylinder onto pushrod.
- Connect brake lines -3- to brake master cylinder. Note tightening torque [⇒ Item 7 \(page 114\)](#) .
- Install brake light switch (TT RS) [⇒ page 13](#) .
- Install brake fluid reservoir [⇒ page 115](#) .
- Insert air cleaner housing and tighten bolts -arrows-.



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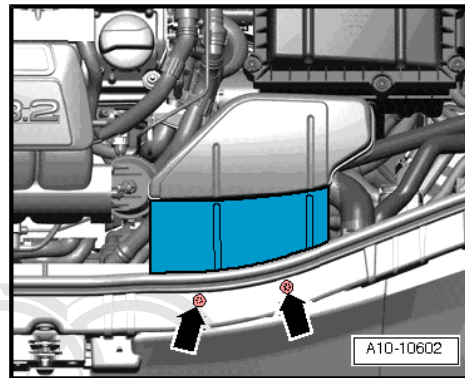
- Insert air duct and tighten bolts -arrows-.
- Install engine cover panel.
- Bleed brake system ABS/ESP Mark 60 ⇒ [page 109](#) .
- Initiate basic setting for brake pressure sender.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Carry out ESP road test and system test.

Vehicle diagnosis, testing and information system -VAS 505x- .

- See: Running gear
- Brake system (Repair group 01; 45)
- 01 - Self-diagnosis compatible systems
- 03 - Brake electronics ABS/ESP Mark 60 si
- J104 - Control unit for ABS/TCS/ESP, Functions



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

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7.7 Removing and installing brake servo



Note

- ◆ On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#) .
- ◆ The noise amplifier is located in the engine compartment in front of the brake servo.

1 - Brake servo

- ☐ Removing and installing (TT RS) ⇒ [page 126](#)

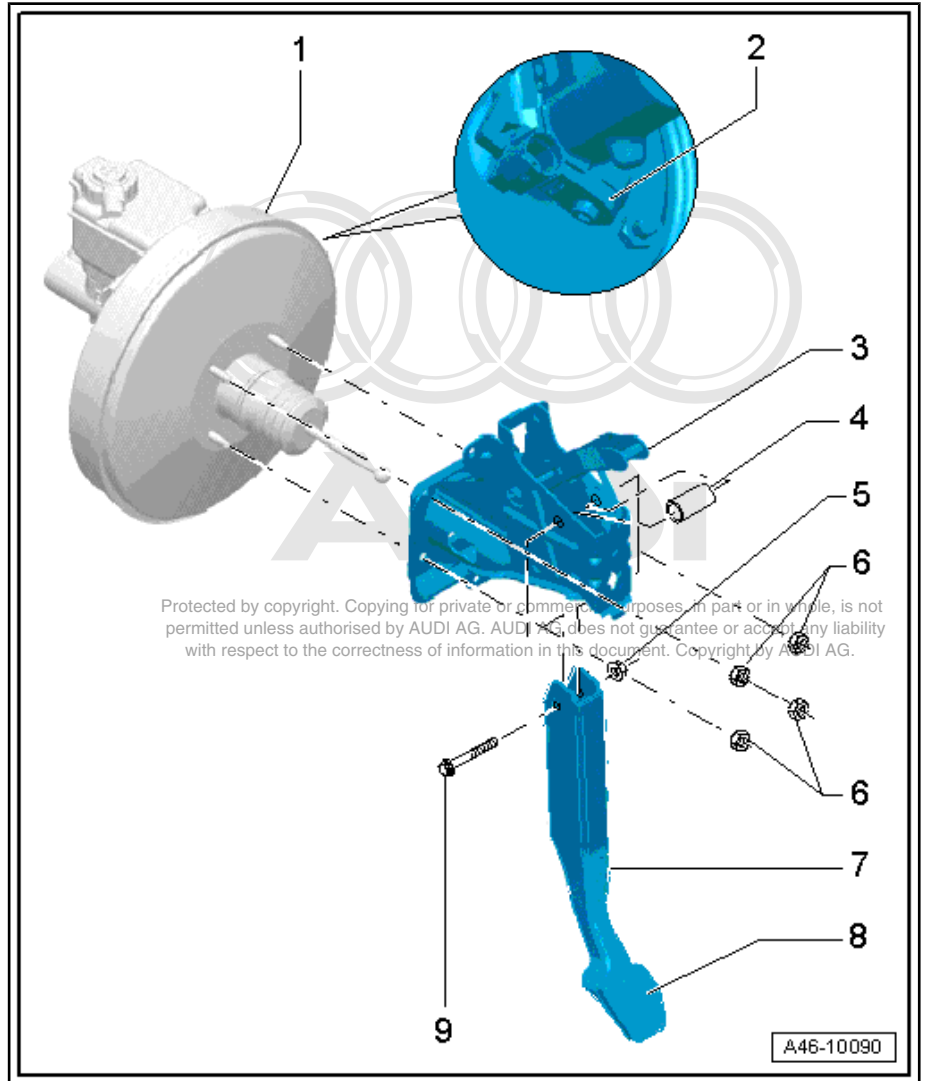
2 - Brake light switch

- ☐ On brake servo

6 - Bolt

- ☐ 25 Nm

8 - Brake pedal



Removing



Note

- ◆ On vehicles with TTS engine the noise amplifier must be removed and installed ⇒ [page 129](#).
- ◆ The noise amplifier is located in the engine compartment in front of the brake servo.

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-
- ◆ Brake filling and bleeding equipment -V.A.G 1869-
- ◆ Upgrade kit and extraction unit -V.A.G 1869/4-
- ◆ Brake filling and bleeding equipment -VAS 5234-
- ◆ Sealing plug repair kit, Part No. -1H0 698 311 A-
- Release brake servo vacuum by pressing the brake pedal several times.
- Depending on engine version, remove noise amplifier ⇒ [page 129](#).



- Remove brake light switch ⇒ [page 13](#) .
- Remove brake master cylinder ⇒ [page 117](#) .



Note

Remove brake servo vacuum sender -G483 (depending on type of vehicle) ⇒ [page 17](#) .

- Unclip vacuum line from brake servo and detach.
- Remove driver's storage compartment ⇒ Rep. Gr. 68 .
- Separate brake pedal from brake servo ⇒ [page 92](#) .



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- Unscrew nuts -6-.
- Remove brake servo from vehicle.

Installing

Installation is performed in reverse sequence; note the following:

Use new nuts.

- Note tightening torque ⇒ [Item 6 \(page 123\)](#) .
- Attaching brake pedal to brake servo ⇒ [page 92](#) .



Note

Install brake servo vacuum sender -G483 (depending on type of vehicle) ⇒ [page 17](#) .

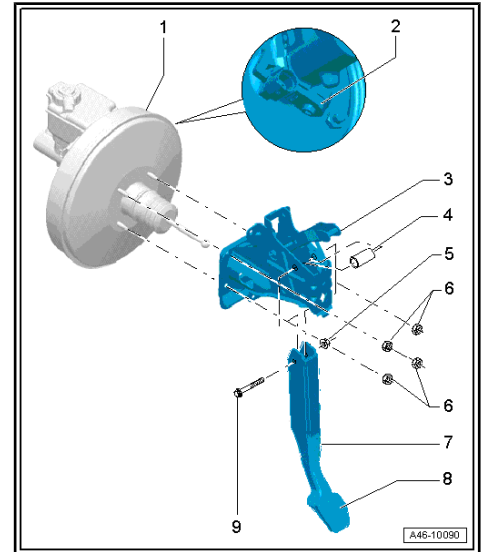
- Install brake master cylinder ⇒ [page 117](#) ..
- Install brake light switch ⇒ [page 13](#) .
- Depending on engine version, install noise amplifier ⇒ [page 129](#) .
- Install driver's storage compartment ⇒ Rep. Gr. 68 .
- Bleed brake system ABS/ESP Mark 60 ⇒ [page 109](#) .
- Initiate basic setting for brake pressure sender.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Carry out ESP road test and system test.

Vehicle diagnosis, testing and information system -VAS 505x- .

- See: Running gear
- Brake system (Repair group 01; 45)
- 01 - Self-diagnosis compatible systems
- 03 - Brake electronics ABS/ESP Mark 60si
- J104 - Control unit for ABS/TCS/ESP, Functions
- On vehicles with ABS/ESP, start basic setting for brake pressure sender(s).
- Carry out ESP road test and system test.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

7.8 Removing and installing brake servo (TT RS)

1 - Brake servo

2 - Brake light switch

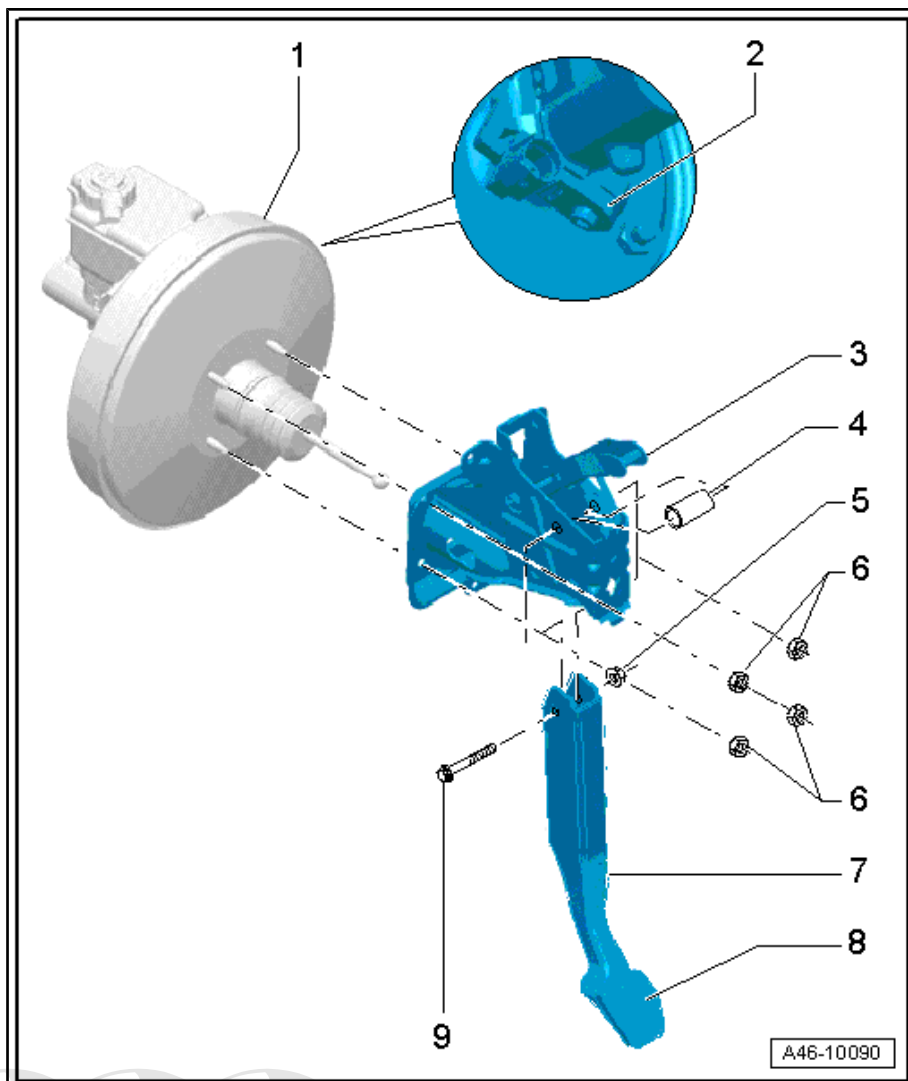
□ On brake servo

– Remove brake light switch (TT RS)
 ⇒ [page 13](#) .

6 - Bolt

□ 25 Nm

8 - Brake pedal



Removing

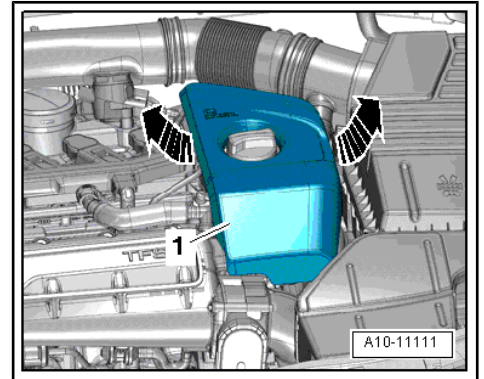
Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-
- ◆ Brake filling and bleeding equipment -V.A.G 1869-
- ◆ Upgrade kit and extraction unit -V.A.G 1869/4-
- ◆ Brake filling and bleeding equipment -VAS 5234-
- ◆ Sealing plug repair kit, Part No. -1H0 698 311 A-
- Release brake servo vacuum by pressing the brake pedal **several times** .
- Remove brake light switch (TT RS) ⇒ [page 13](#) .
- Remove brake master cylinder (TT RS) ⇒ [page 119](#) .

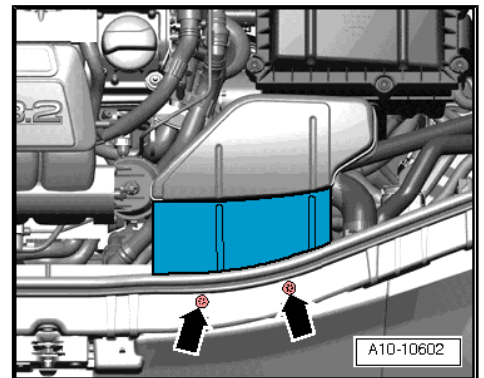
 **Note**

Remove brake servo vacuum sender -G483 (depending on type of vehicle) ⇒ [page 17](#) .

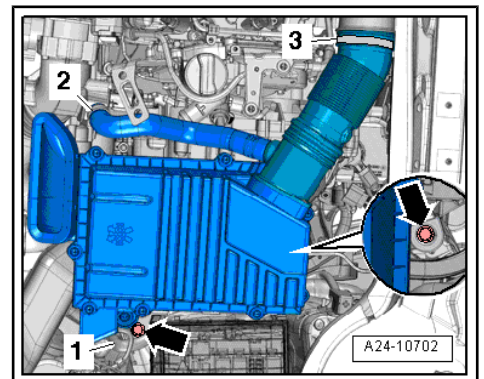
- Lift off engine cover panel -1-.



- Unscrew bolts -arrows- and detach air duct.



- Unscrew bolts -arrows- and detach air cleaner housing.
- Unclip vacuum line from brake servo and detach.
- Detach vacuum line from non-return valve.
- Remove driver's storage compartment ⇒ Rep. Gr. 68 .
- Separate brake pedal from brake servo ⇒ [page 92](#) .



- Unscrew nuts -6-.
- Remove brake servo from vehicle.

Installing

Installation is performed in reverse sequence; note the following:

Use new nuts.

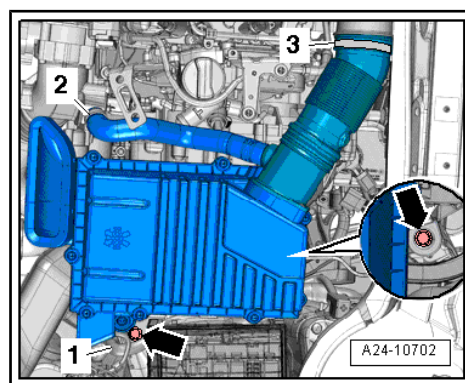
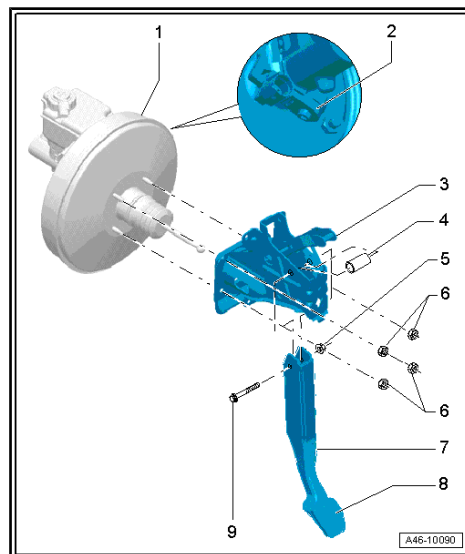
- Note tightening torque ➔ [Item 6 \(page 123\)](#) .
- Attaching brake pedal to brake servo ➔ [page 92](#) .



Note

Install brake servo vacuum sender -G483 (depending on type of vehicle) ➔ [page 17](#) .

- Install brake master cylinder. ➔ [page 117](#) .
- Install brake light switch (TT RS) ➔ [page 13](#) .
- Install vacuum line.
- Connect vacuum line to non-return valve.
- Install driver's storage compartment ➔ Rep. Gr. 68 .
- Insert air cleaner housing and tighten bolts -arrows-.



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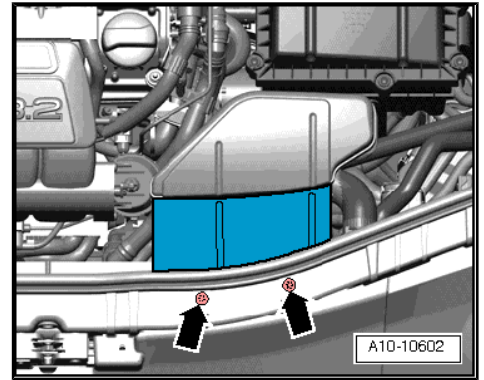
- Insert air duct and tighten bolts -arrows-.
- Install engine cover panel.
- Bleed brake system ABS/ESP Mark 60 → [page 109](#) ..
- Initiate basic setting for brake pressure sender.

To do this, use vehicle diagnosis, testing and information system -VAS 505x- .

- Carry out ESP road test and system test.

Vehicle diagnosis, testing and information system -VAS 505x- .

- See: Running gear
- Brake system (Repair group 01; 45)
- 01 - Self-diagnosis compatible systems
- 03 - Brake electronics ABS/ESP Mark 60si
- J104 - Control unit for ABS/TCS/ESP, Functions
- On vehicles with ABS/ESP, start basic setting for brake pressure sender(s).
- Carry out ESP road test and system test.



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

7.9 Removing and installing noise amplifier (TFSI)

The noise amplifier is located in the engine compartment in front of the brake servo.

Removing

- Unclip air duct leading to air cleaner housing.
- Detach air duct from air cleaner.

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- Lift off engine cover panel in direction of arrow.
- Detach top air duct from noise amplifier.
- Pull noise amplifier out of 3 rubber buffers in bracket.
- Detach bottom air duct from noise amplifier.
- Remove noise amplifier from vehicle.

Installing

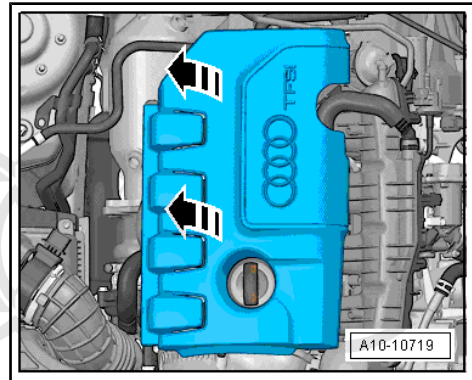
Installation is carried out in the reverse sequence.

**Note**

- ◆ *Connect bottom air hose before fitting noise amplifier.*
- ◆ *The air hose leading to the noise amplifier must not be kinked when installing.*

**Note**

Make sure the noise amplifier is clipped into all three rubber buffers on the bracket.



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8 Exhauster pumps

The exhauster pump is driven mechanically.

Removing and installing (TDI engine) ⇒ [page 131](#)

Removing and installing (TFSI engine) ⇒ [page 133](#)

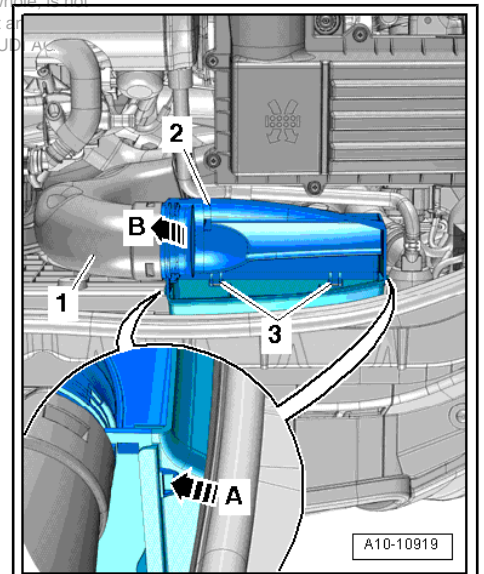
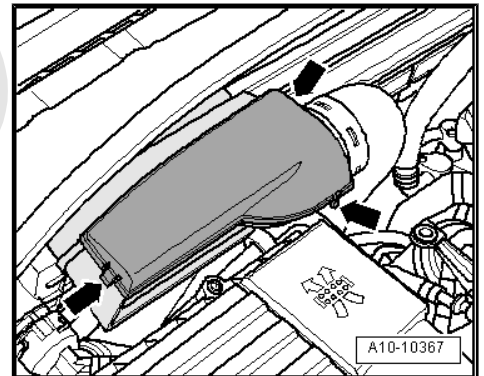
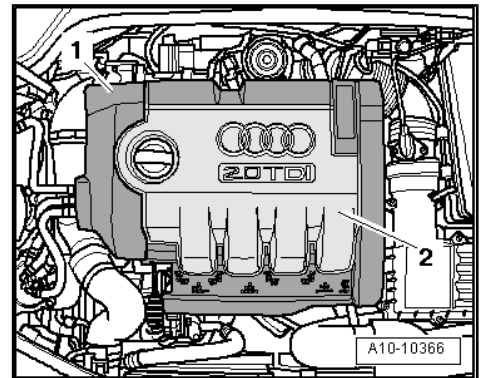
Removing and installing (TT RS) ⇒ [page 134](#)

8.1 Removing and installing exhauster pump (TDI)

Removing

The exhauster pump is fitted on the left side of the engine.

- Remove engine cover panel -1 and 2-.
- Carefully lift off engine cover panel.
- Release the catches -arrows- on the side and detach the air duct cover.
- Release the catches on the left and right -arrow A- and unclip the air duct at the bottom -2-.
- Swivel the air duct at the bottom slightly to the rear and disengage the air duct at the bottom at the mounts -3-.
- Disengage the air pipe -1- from the air duct -arrow B-.



- Unplug electrical connector -2- on air mass meter.
- Detach hose -1-.
- Unfasten clamp -3- and detach air hose.
- Remove bolt -4- and take off air cleaner housing.



Caution

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

- Unscrew bolts at air pipe -arrows-.



Note

The noise insulation at the bottom must be removed for the bolts -bottom arrow-.

- Remove noise insulation (bottom) ⇒ Rep. Gr. 50 .
- Press air pipe to one side.
- Detach vacuum hose upwards from exhauster pump.
- Remove bolts from sealing flange of exhauster pump.
- Pull exhauster pump out of mounting and remove from vehicle.

Installing

Install in reverse order; note the following.



Note

Renew seal.

Make sure seal is correctly positioned with respect to exhauster pump.

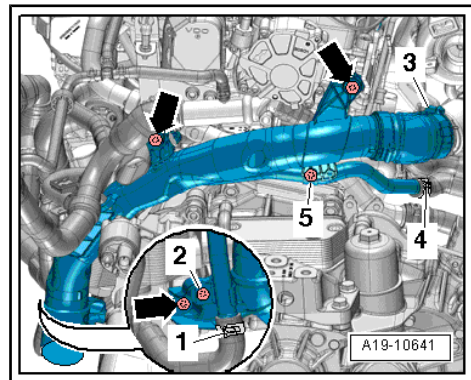
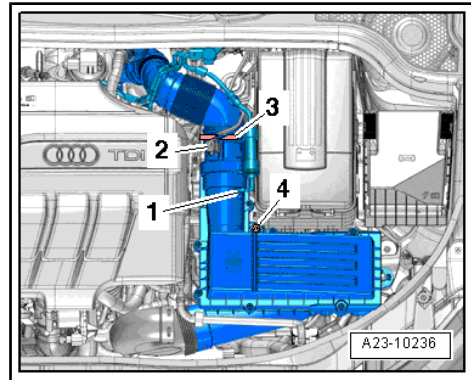
- Turn drive lugs of exhauster pump so they engage in slots in camshaft when exhauster pump is installed.
- Fit exhauster pump in position.
- Fit all bolts to sealing flange of exhauster pump and tighten to 9 Nm.
- Push vacuum hose onto connection of exhauster pump.



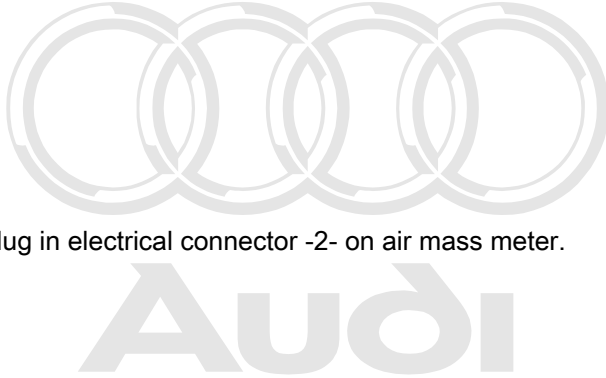
Note

The vacuum hose must be pressed as far as possible onto connection of exhauster pump.

- Insert air pipe.

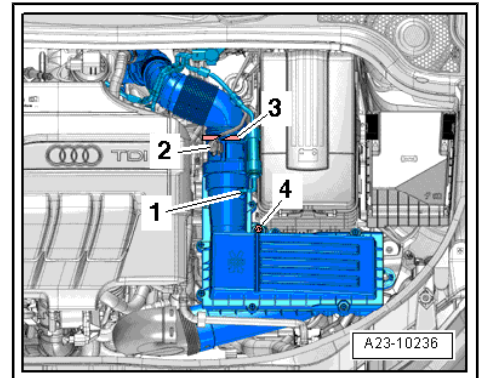
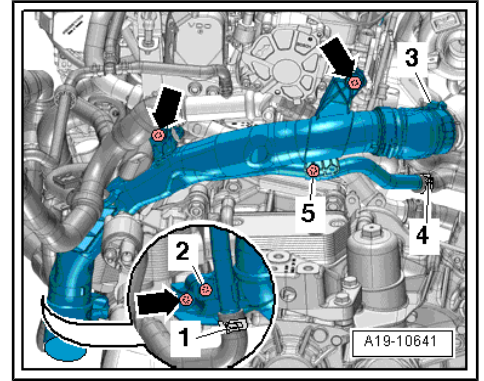


- Screw in bolts -arrows- at air pipe.
- Install noise insulation ⇒ Rep. Gr. 50 .
- Install air cleaner housing ⇒ Rep. Gr. 23 .

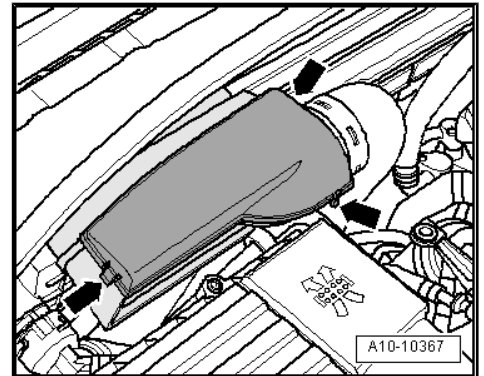


- Plug in electrical connector -2- on air mass meter.

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- Clip in the catches -arrows- on the side and fit the air duct cover.
- Install engine cover panel.



8.2 Removing and installing exhauster pump (TFSI)

The exhauster pump is fitted on the left side of the engine.

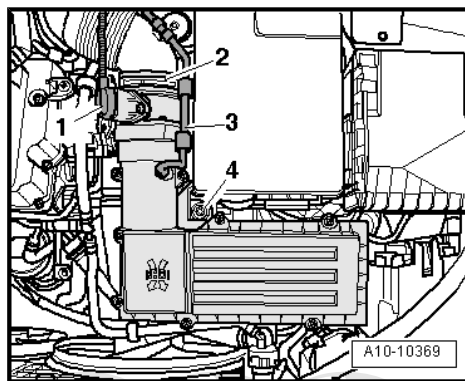
- Remove engine cover panel.

- Unplug electrical connector -1- on air mass meter.
- Disconnect breather hose -3-.
- Remove cover from air cleaner housing.
- Disconnect air duct at clamp -2-.
- Push air duct to one side.
- Detach vacuum hose from exhauster pump.



Caution

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



- Remove bolts from sealing flange of exhauster pump.
- Pull exhauster pump out of mounting and remove from vehicle.

Installing



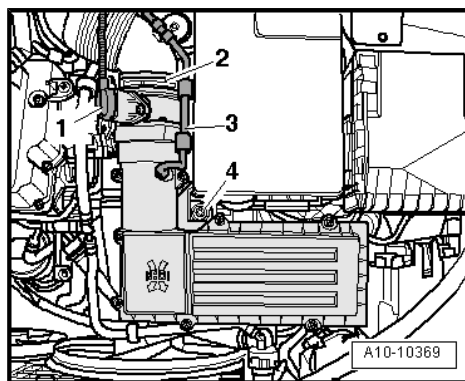
Note

Renew seal.

Ensure that seal is seated correctly.

- Turn drive lugs of exhauster pump so they engage in slots in camshaft when exhauster pump is installed.
- Fit exhauster pump in position.
- Fit all bolts to sealing flange of exhauster pump and tighten: 9 Nm.
- Connect vacuum hose to exhauster pump.
- Fit air duct.
- Connect air duct at clamp -2-.
- Install cover on air cleaner housing.
- Connect breather hose -3-.
- Plug in electrical connector -1- on air mass meter.
- Install engine cover panel.

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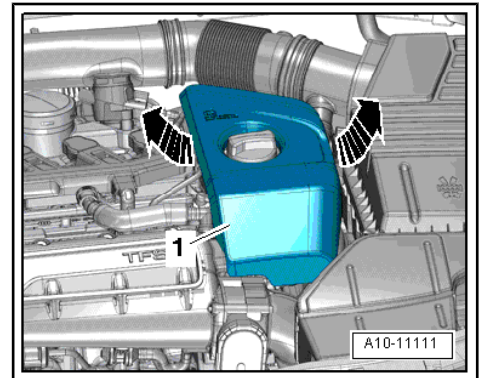


8.3 Removing and installing exhauster pump (TT RS)

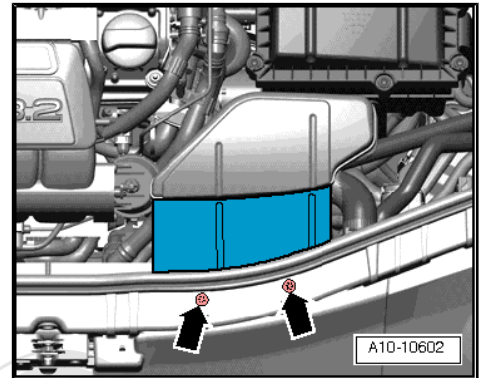
The exhauster pump is fitted on the left side of the engine.

Removing

- Lift off engine cover panel -1-.



- Unscrew bolts -arrows- and detach air duct.



- Unscrew bolts -arrows- and detach air cleaner housing.
- The coolant pipe is routed in front of the exhaust pump.
- Remove coolant pipe ⇒ Rep. Gr. 19 .

Observe the following when working on the cooling system:

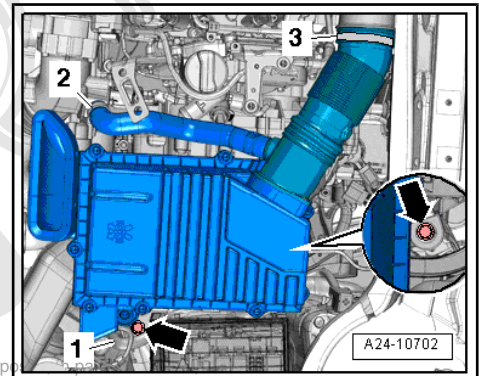


WARNING

Risk of scalding due to hot steam and hot coolant.

- ◆ *When the engine is warm, the cooling system is pressurised.*
- ◆ *Release the pressure by covering the cap of the coolant expansion tank with a cloth and opening it carefully.*

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Carefully detach vacuum hose -2-. The vacuum hose must be renewed if it is damaged.

- Remove bolts -1-.
- Detach exhauster pump; to do so, press coolant hoses slightly to one side.

Installing



Note

Renew seal.

Ensure that seal is seated correctly.

- Turn drive lugs of exhauster pump so they engage in slots in shaft when exhauster pump is installed.
- Fit exhauster pump in position.
- Fit all bolts -1- to sealing flange of exhauster pump and tighten to 9 Nm.
- Push vacuum hose -2- onto connection of exhauster pump.

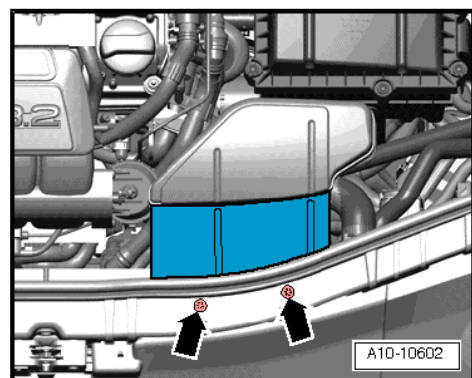
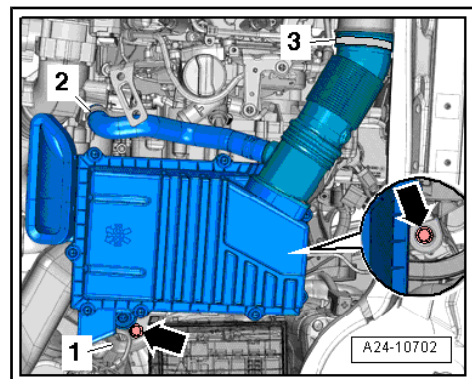
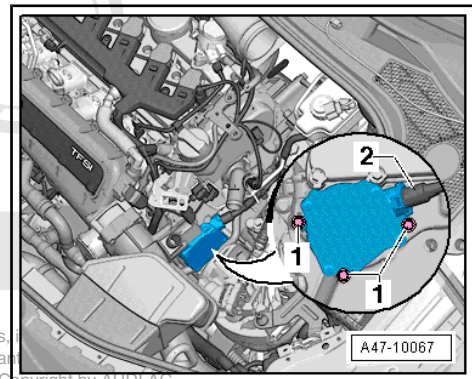
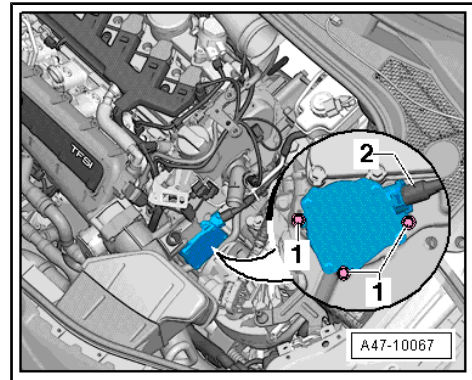


Note

The vacuum hose must be pressed as far as possible onto connection of exhauster pump.

- Install coolant pipe ⇒ Rep. Gr. 19.
- Insert air cleaner housing and tighten bolts -arrows-.

- Insert air duct and tighten bolts -arrows-.
- Install engine cover panel.



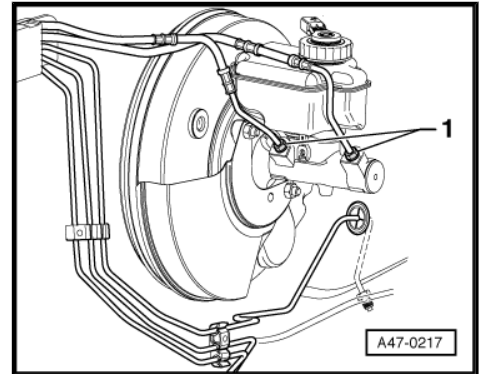
9 Brake lines and brake hoses

9.1 Removing and installing brake lines and brake hoses

The various brake line fitting locations and torques are given in the following.

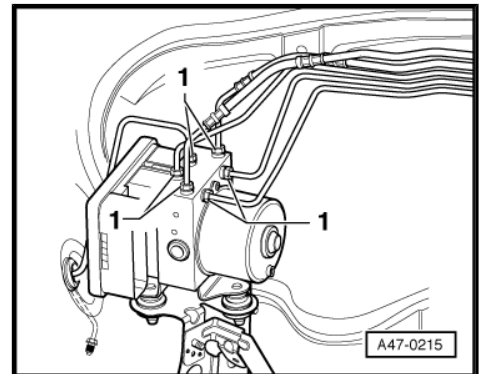
Brake lines in area of brake master cylinder/hydraulic unit ITT Mark 60/ ITT Mark 70

1 - Brake line at brake master cylinder, 14 Nm



Brake lines in area of brake master cylinder/hydraulic unit Mark 60

1 - Brake line at hydraulic unit, 14 Nm

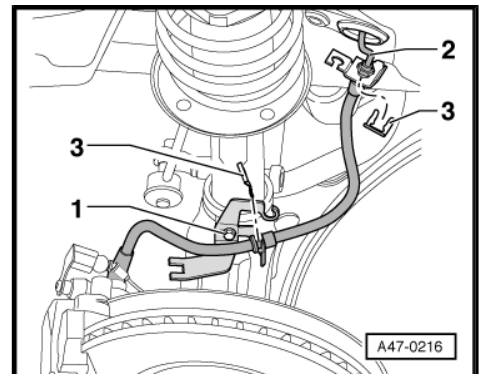


Brake lines/hoses in area of front wheel - front-wheel drive vehicles

1 - Hexagon bolt, 8 Nm

2 - Brake line, 14 Nm

3 - Securing clip



Brake hose connection with locating pin

- Make sure groove in banjo union of brake hose is inserted on locating pin -arrow-.

Tightening torques for brake line to front brake caliper:

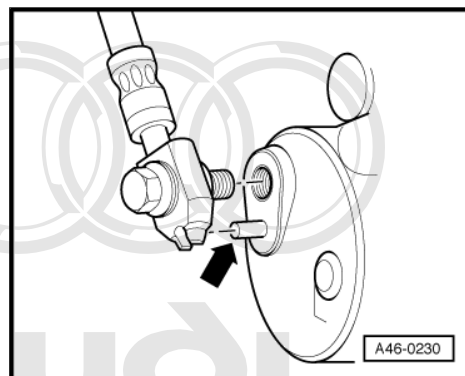
- ◆ 16" FN-3 brakes: 35 Nm
- ◆ 17" FNR-G57 brakes: 14 Nm
- ◆ TT RS brakes: 35 Nm

Tightening torque for brake line to rear brake caliper:

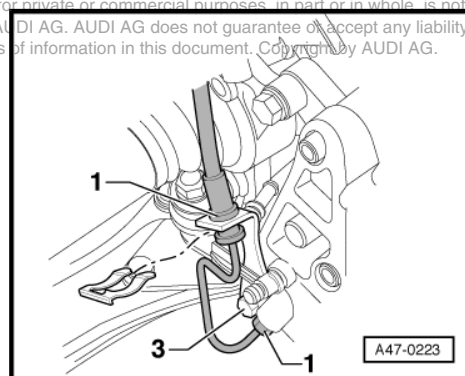
- ◆ All models: 14 Nm

Brake line connections

Hexagon bolt -1-: 15 Nm

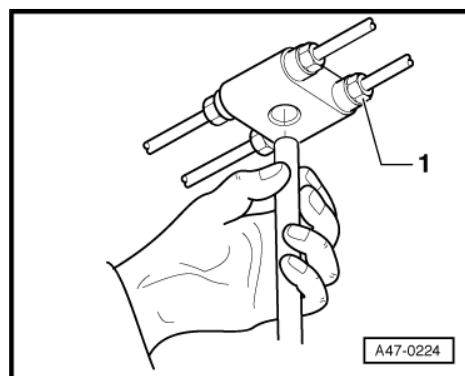


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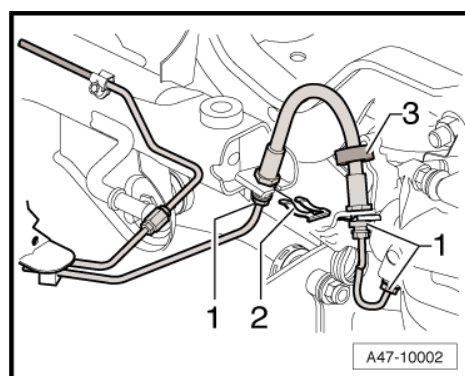
Brake line connection at underbody

1 - Brake line, 14 Nm



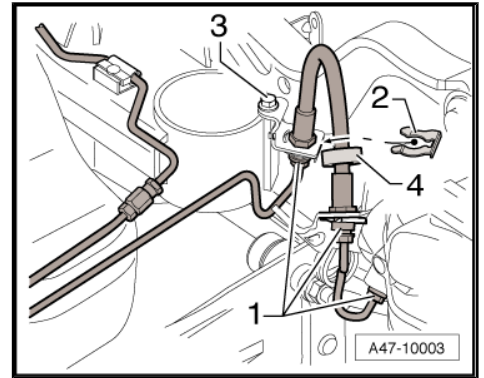
Brake lines/hoses in area of rear wheel - front-wheel drive vehicles

- 1 - Brake line, 14 Nm
- 2 - Securing clip
- 3 - Spacer -3- should face brake caliper when installing.



Brake lines/hoses in area of rear axle

- 1 - Brake line, 14 Nm
- 2 - Securing clip
- 4 - Spacer -4- should face brake caliper when installing.



Brake line connection

- When tightening banjo bolt -2-, counter-hold on banjo nut -1-.
- ◆ Tightening torque: 14 Nm



WARNING

Before driving vehicle for the first time, make sure function of brakes is OK.

