# 45-19 Removing and Installing Parts of the ABS System on the Front and Rear Axle

## Removing and installing wheel speed sensor on the front axle - Vehicles with ABS systems BOSCH 5.7 or BOSCH 8.0

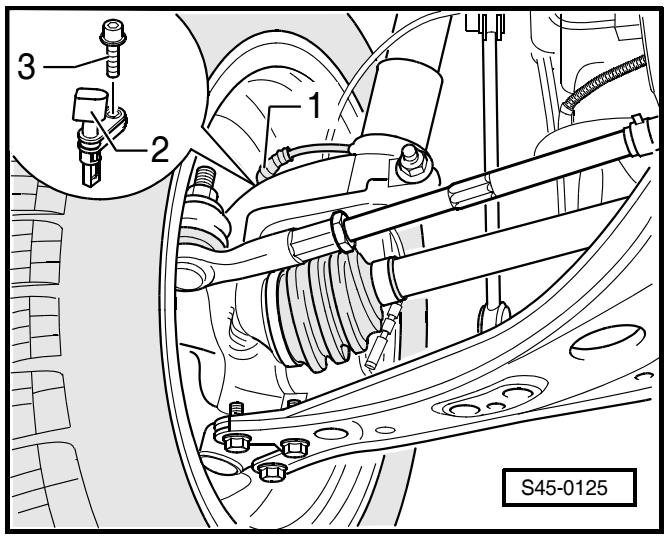
**Removing**

– Raise vehicle.

– Separate plug connection -1- wheel speed sensor cable/wheel speed sensor. ►

– Release Allan screw -3-.

– Remove wheel speed sensor -2- from the wheel-bearing housing.




**Installing**

– Insert the wheel speed sensor in the bore of the wheel-bearing housing and tighten the Allan screw -3- to 8 Nm.

– Connect plug connection -1- wheel speed sensor cable/wheel speed sensor.

## Removing and installing front wheel speed sensors - Vehicles with ABS systems BOSCH 5.7

**Special tools, test and measuring equipment and auxiliary items required**

- Wiring loom repair kit, e.g. Skoda Car Tool Kit Škoda, Order No.: S 504 500 V
- Vehicle system tester -V.A.G 1552- or vehicle diagnosis, measurement and information system -VAS 5051-
- Diagnostic cable -V.A.G 1551/3-, -V.A.G 1551/3A-, -V.A.G 1551/3B-, -V.A.G 1551/3C-, -VAS 5051/5A- or -VAS 5051/6A-

**Removing**

**Note**

- *It is prohibited to repair shielded leads of the ABS system.*
- *Before disconnecting the battery determine the code of radio sets fitted with anti-theft coding.*

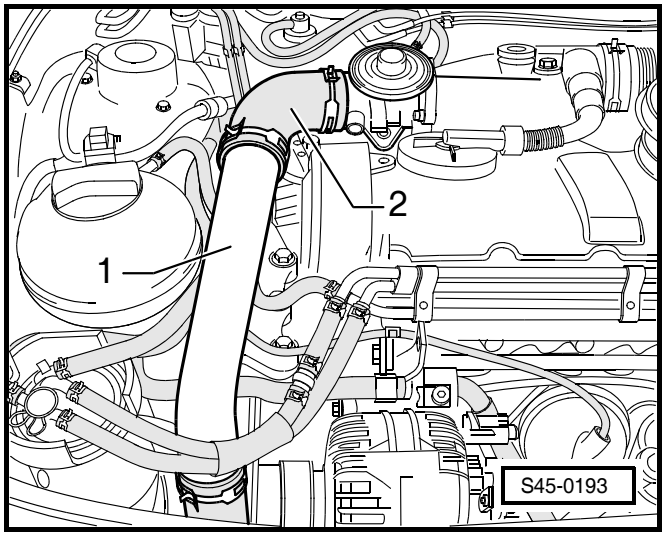
– Disconnect battery ⇒ Electrical System; Rep. Gr. 27.

– Remove engine cover ⇒ Engine, Mechanics; Rep. Gr. 10.

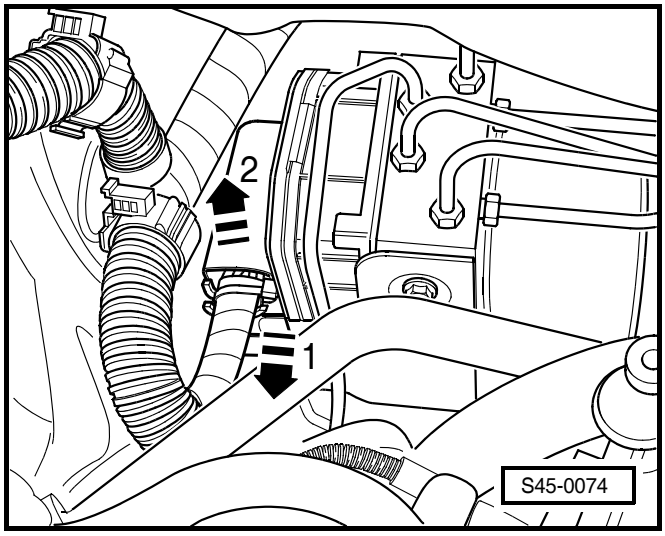
**Vehicles with TDI PD Turbocharger engines**

– Remove top charge-air pipe -1- with connecting hose -2- ⇒ TDI Engine, Mechanics; Rep. Gr. 21.

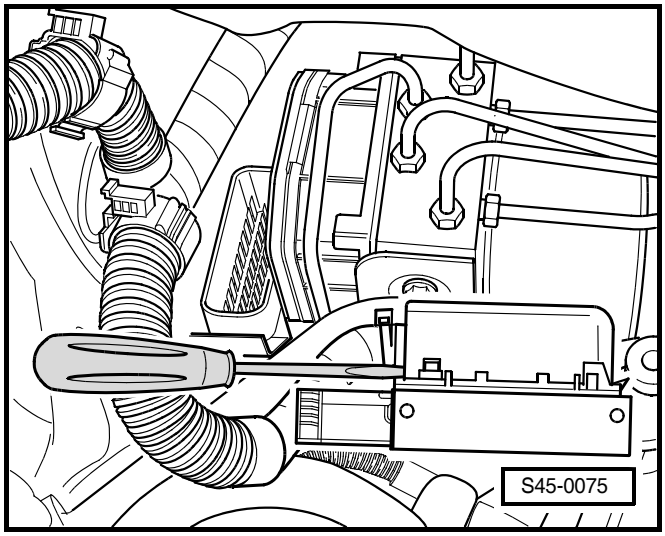
**Continued for all vehicles**



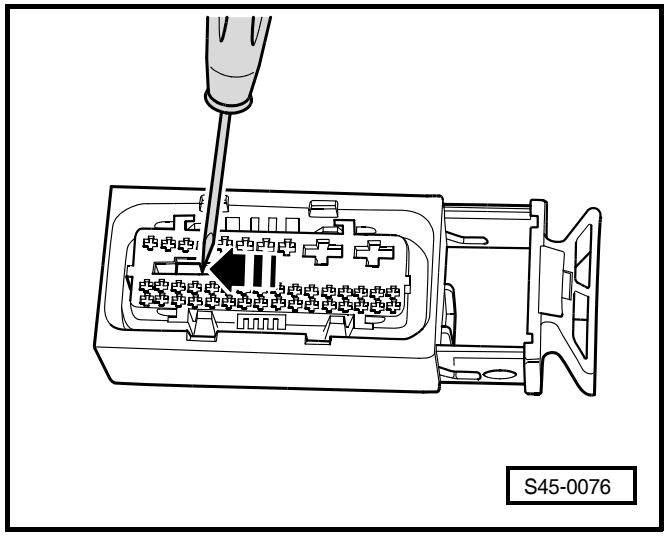

– Unlatch the multi-pin connector -arrow 1- and disconnect from the control unit -arrow 2-.




– Lever off the cap of the multi-pin connector on both sides with a screwdriver and remove cap.
– Open cable strap.

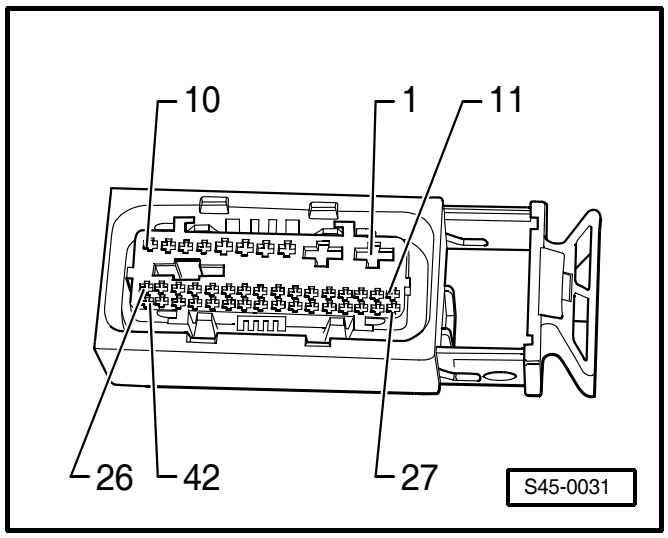


– Release secondary lock (purple) with a small screwdriver in the direction of the arrow. ►




**Contact assignment for multipin plug connector T42a wiring loom/ABS control unit -J104-** ►

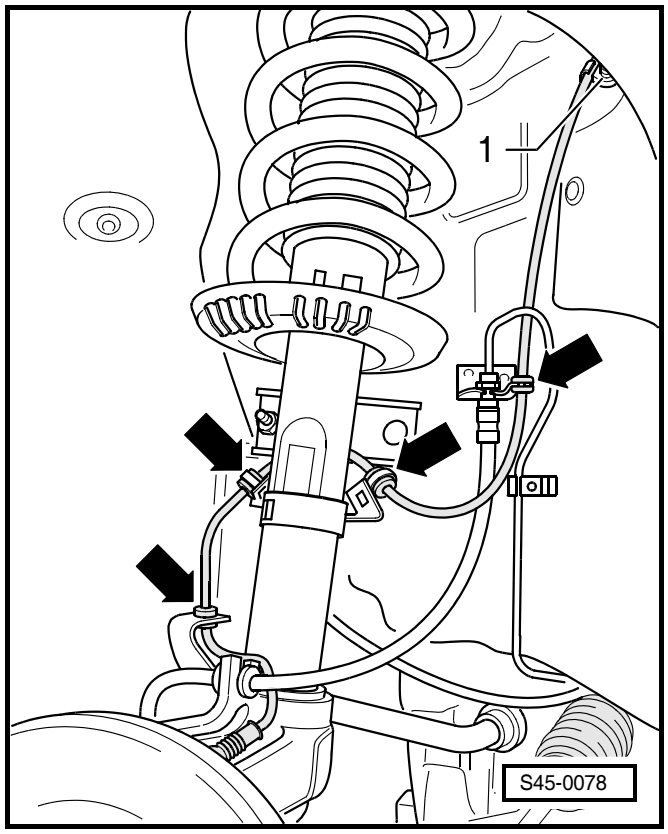
| Contact | Wiring to component … |
|---|---|
| 15 + 16 | Speed sensor front right -G45- |
| 12 + 28 | Speed sensor front left -G47- |
| 30 + 31 | Speed sensor rear right -G44- |
| 13 + 14 | Speed sensor rear left -G46- |




– Open wiring loom.
– Using a suitable ejection tool from the wiring loom repair kit press out the relevant contacts.
– Raise vehicle.
– Remove wheel.
– Release plug connection on speed sensor and separate plug connector.
– Remove defective speed sensor cable.

**Installing**

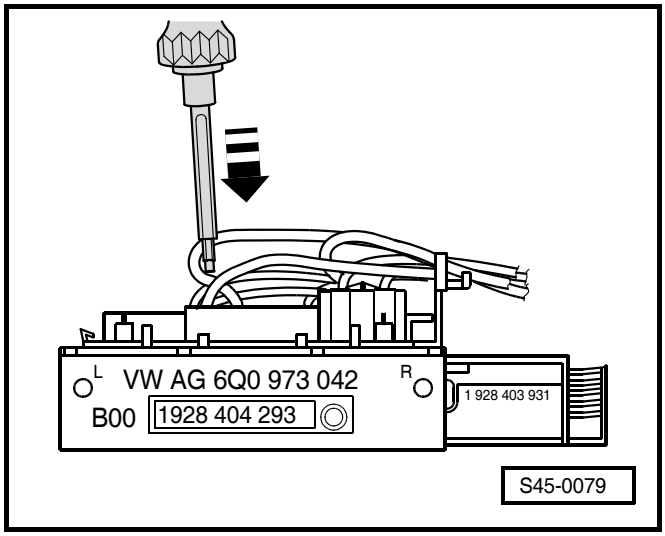
– Draw in new speed sensor cable.
– Connect speed sensor cable to speed sensor.
– Clip on speed sensor cable -arrows- and mount in bracket -1-. ►
– Actuate steering from left to right up to the stop and check for free movement of the speed sensor cable.




**Note**

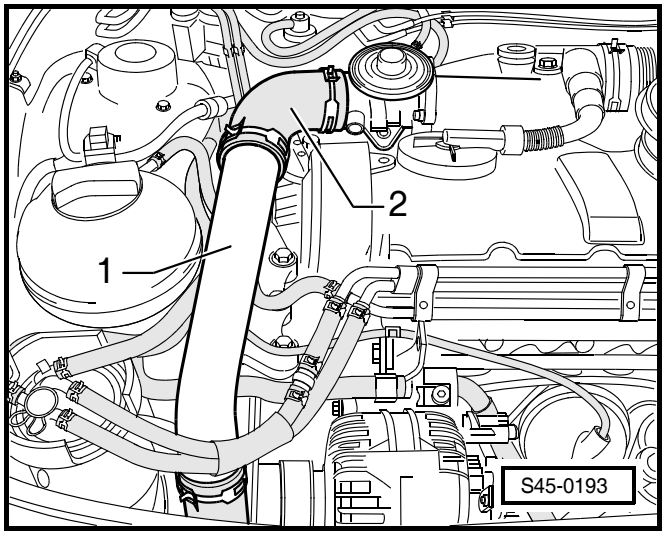
*When assembling the speed sensor cable make sure it is not twisted when installed in the wheelhouse.*

– Mount wheel.
– Lower the vehicle.
– Insert contact in the plug housing and insert the single cable seal with a suitable plug-in tool from the wiring loom repair kit up to the stop. ►
– Secure contacts with the secondary lock.
– Mount new cable strap for wiring loom on multi-pin connector.
– Position the cap on the multi-pin connector and lock into position.
– Insert the multi-plug connector on the control unit and lock.




**Vehicles with TDI PD Turbocharger engines**

– Install top charge-air pipe -1- with connecting hose -2- ► ⇒ TDI Engine, Mechanics; Rep. Gr. 21.




**Continued for all vehicles**

– Installing engine cover ⇒ Engine, Mechanics; Rep. Gr. 10.
– Connect battery ⇒ Electrical System; Rep. Gr. 27.
– Perform automatic test sequence ⇒ Chapter 45-5 either using the vehicle system tester -V.A.G 1552- or the vehicle system test ⇒ Chapter 45-4 using the vehicle diagnosis, measurement and information system -VAS 5051-.

If faults are stored in the fault memory:

– Eliminating fault ⇒ Chapter 45-6.
– Erasing fault memory ⇒ Chapter 45-5.

## Removing and installing front wheel speed sensors - Vehicles with ABS systems BOSCH 8.0

**Special tools, test and measuring equipment and auxiliary items required**

- Wiring loom repair kit, e.g. Skoda Car Tool Kit Škoda, Order No.: S 504 500 V
- Vehicle system tester -V.A.G 1552- or vehicle diagnosis, measurement and information system -VAS 5051-
- Diagnostic cable -V.A.G 1551/3-, -V.A.G 1551/3A-, -V.A.G 1551/3B-, -V.A.G 1551/3C-, -VAS 5051/5A- or -VAS 5051/6A-

**Removing**

**Note**

- *It is prohibited to repair shielded leads of the ABS system.*
- *Before disconnecting the battery determine the code of radio sets fitted with anti-theft coding.*

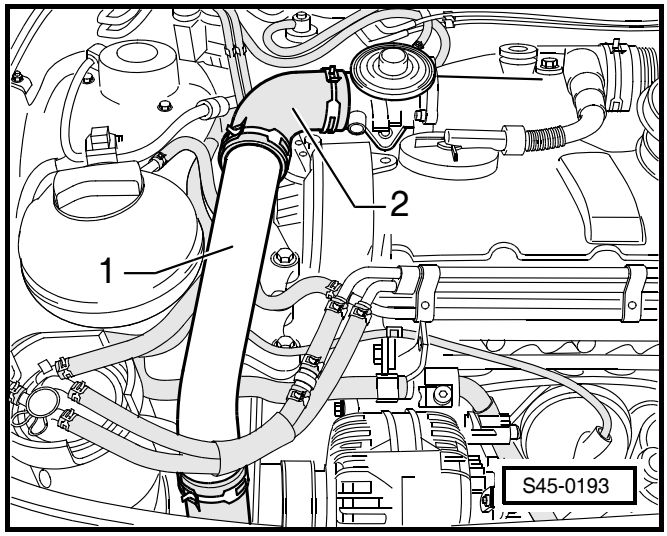
– Disconnect battery ⇒ Electrical System; Rep. Gr. 27.

– Remove engine cover ⇒ Engine, Mechanics; Rep. Gr. 10.

**Vehicles with TDI PD Turbocharger engines**

– Remove top charge-air pipe -1- with connecting hose -2- ⇒ TDI Engine, Mechanics; Rep. Gr. 21.

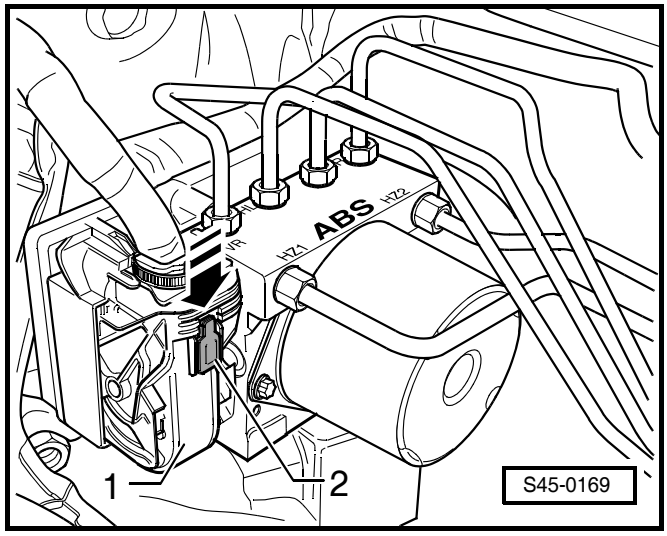
**Continued for all vehicles**




– Release multi-pin connector -1-.

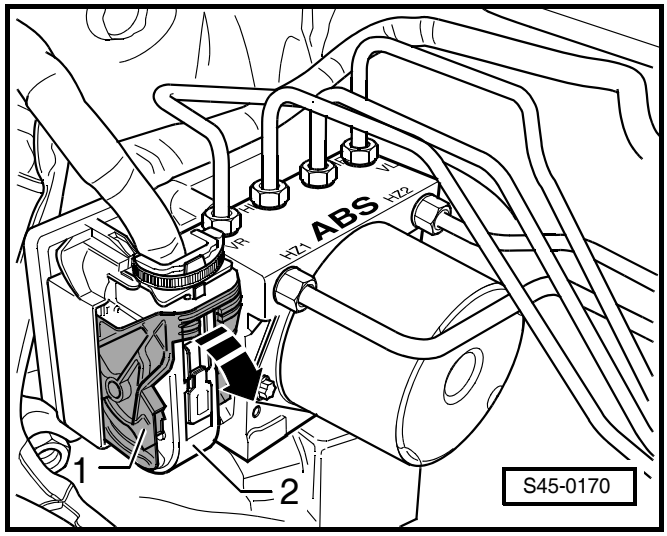
– Insert red fuse -2- up to the stop in -direction of the arrow-.

2 - Hydraulic control unit




– Swivel the clamp downwards -1- up to the stop in the -direction of arrow-.

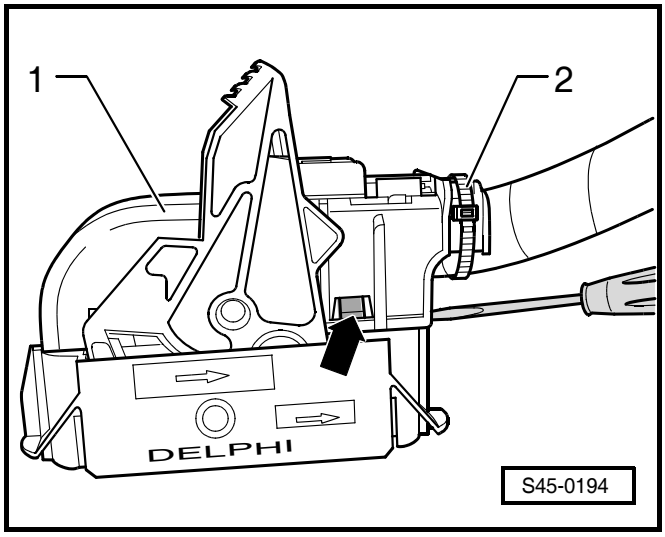
– Pull out multi-pin connector -2- from hydraulic control unit.



– Open cable straps -2-.

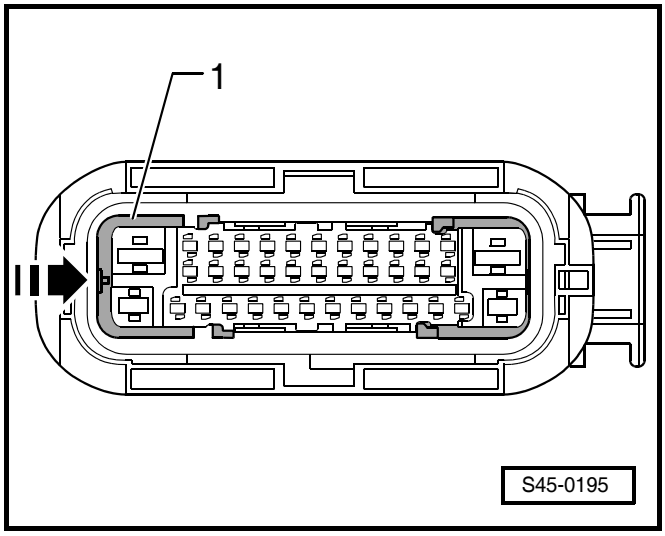
– Lever off the cap -1- of the multi-pin connector on both sides from the catches -arrow- with a screwdriver.

– Remove cap -1- from the bottom part of the multi-pin connector.



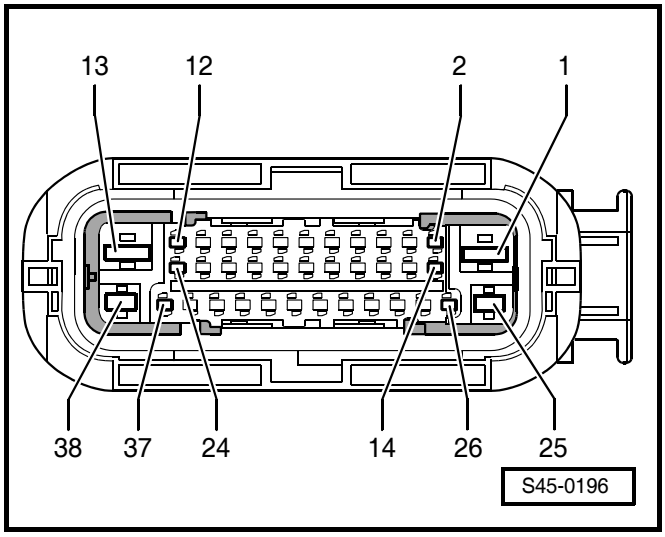

– Slide secondary lock (purple) -1- with a small screwdriver in the -direction of the arrow-.

At the same time the contacts are released.




**Contact assignment for multipin plug connector wiring loom/ABS control unit -J104-**

| Contact | Wiring to component |
|---|---|
| 6 + 18 | Speed sensor front right -G45- |
| 22 +34 | Speed sensor front left -G47- |
| 19 + 31 | Speed sensor rear right -G44- |
| 20 + 33 | Speed sensor rear left -G46- |




– Open wiring loom.

– Using a suitable ejection tool from the wiring loom repair kit press out the relevant contacts.

– Raise vehicle.

– Remove wheel.

– Release plug connection on speed sensor and separate plug connector.

– Remove defective speed sensor cable.

**Installing**

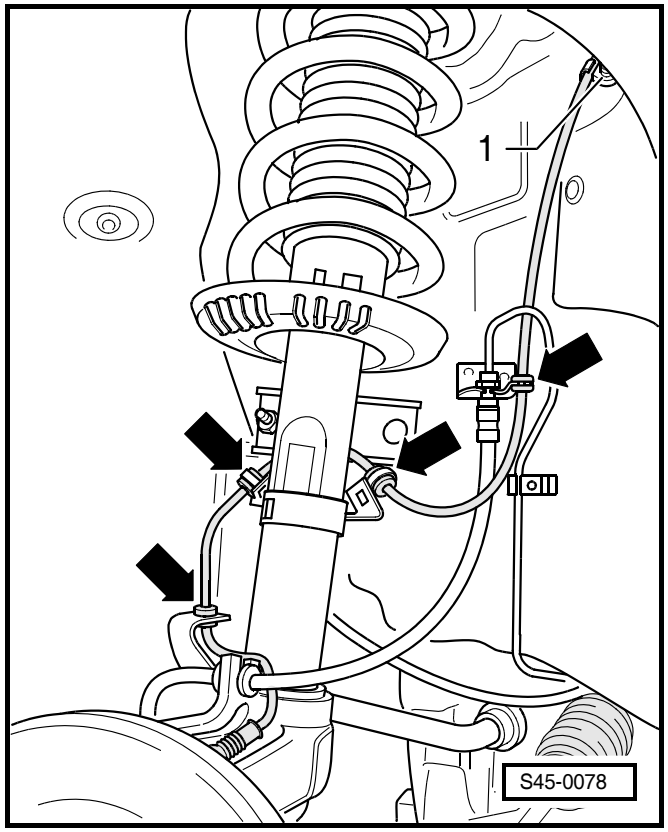
– Draw in new speed sensor cable.

– Connect speed sensor cable to speed sensor.

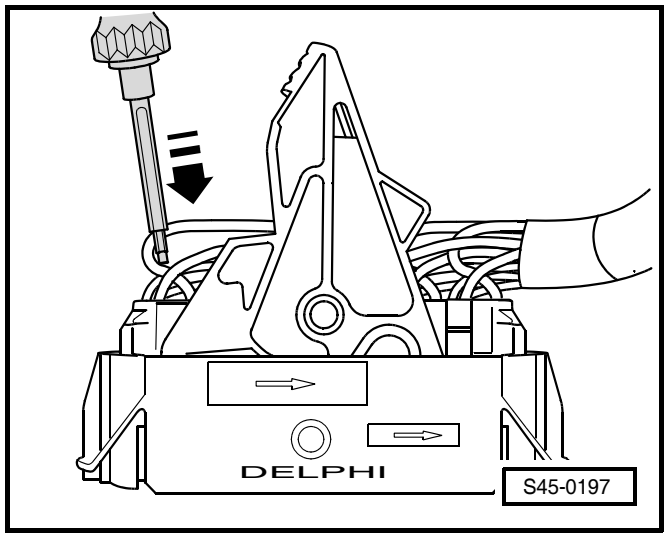
– Clip on speed sensor cable -arrows- and mount in bracket -1-.
– Actuate steering from left to right up to the stop and check for free movement of the speed sensor cable.

**Note**

*When assembling the speed sensor cable make sure it is not twisted when installed in the wheelhouse.*

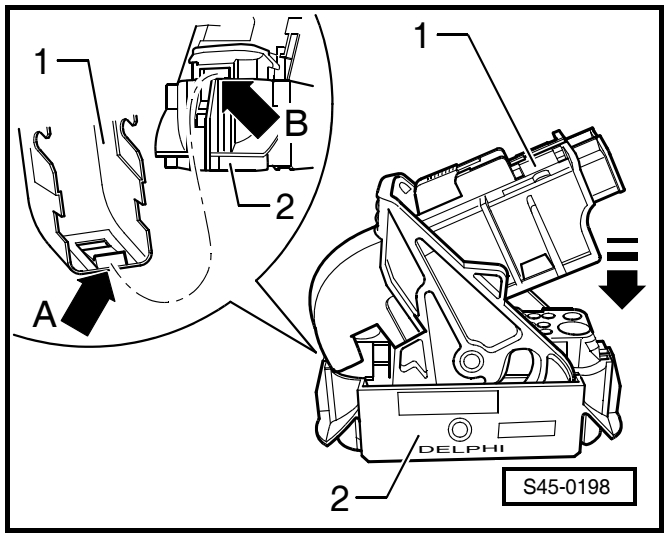



– Mount wheel.
– Lower the vehicle.
– Insert contact in the plug housing and insert the single cable seal with a suitable plug-in tool from the wiring loom repair kit up to the stop.
– Secure contacts by sliding the secondary lock (purple).

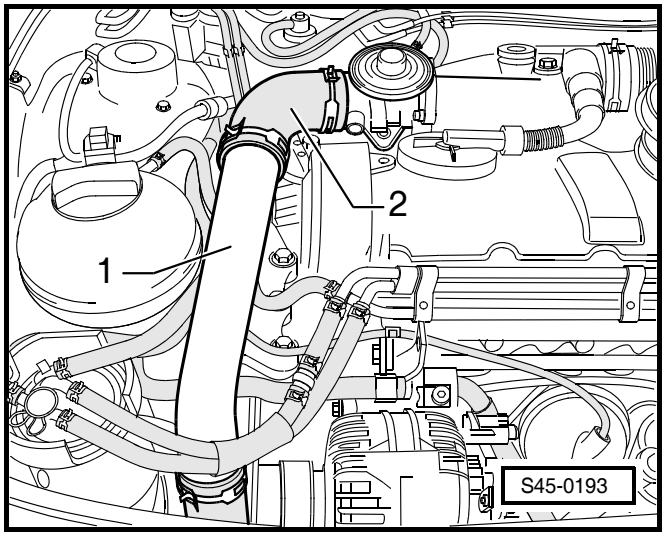



– Insert catch -arrow A- of the cap -1- into the recess -arrow B- of the bottom part -2- of the multi-pin connector.
– Swivel cover -1- in -direction of the arrow- and lock into position with the bottom part -2- of the multi-pin connector.
– Mount new cable strap for wiring loom on multi-pin connector.
– Insert the multi-plug connector on the ABS with EDL control unit -J104- and lock.

**Vehicles with TDI PD Turbocharger engines**



– Install top charge-air pipe -1- with connecting hose -2- ⇒ TDI Engine, Mechanics; Rep. Gr. 21.




**Continued for all vehicles**

– Installing engine cover ⇒ Engine, Mechanics; Rep. Gr. 10.
– Connect battery ⇒ Electrical System; Rep. Gr. 27.
– Perform automatic test sequence ⇒ Chapter 45-5 either using the vehicle system tester -V.A.G 1552- or the vehicle system test ⇒ Chapter 45-4 using the vehicle diagnosis, measurement and information system -VAS 5051-.

If faults are stored in the fault memory:

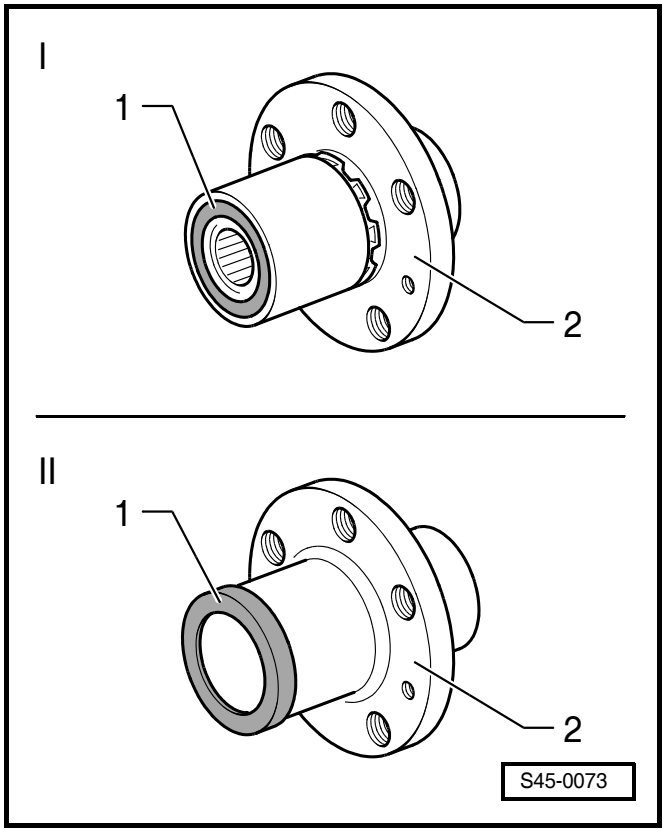
– Eliminating fault ⇒ Chapter 45-7.
– Erasing fault memory ⇒ Chapter 45-5.

## Sensor ring for ABS on the front and rear axle

The sensor ring -1- is fitted in the wheel hub with wheel bearing -2- and cannot be replaced individually.

In the event of damage or defect of the sensor ring, replace wheel hub with wheel bearing.

I - Removing and installing wheel hub and wheel bearing for front axle ⇒ Chap. 40-3
II - Removing and installing wheel hub and wheel bearing for rear axle ⇒ Chap. 42-5

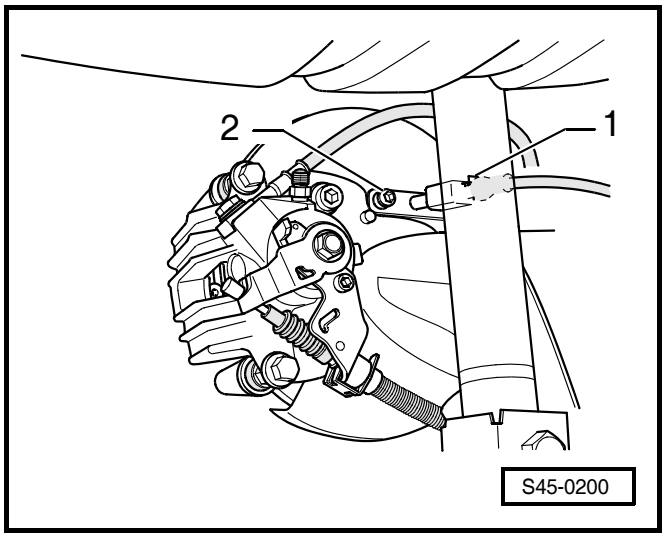



## Removing and installing wheel speed sensor on the rear axle

**Vehicles with disc brakes**

**Removing**

– Raise vehicle.
– Separate plug connection -1- wheel speed sensor cable - wheel speed sensor.
– Release Allan screw -2-.
– Pull the wheel speed sensor from the axle stud and brake carrier.

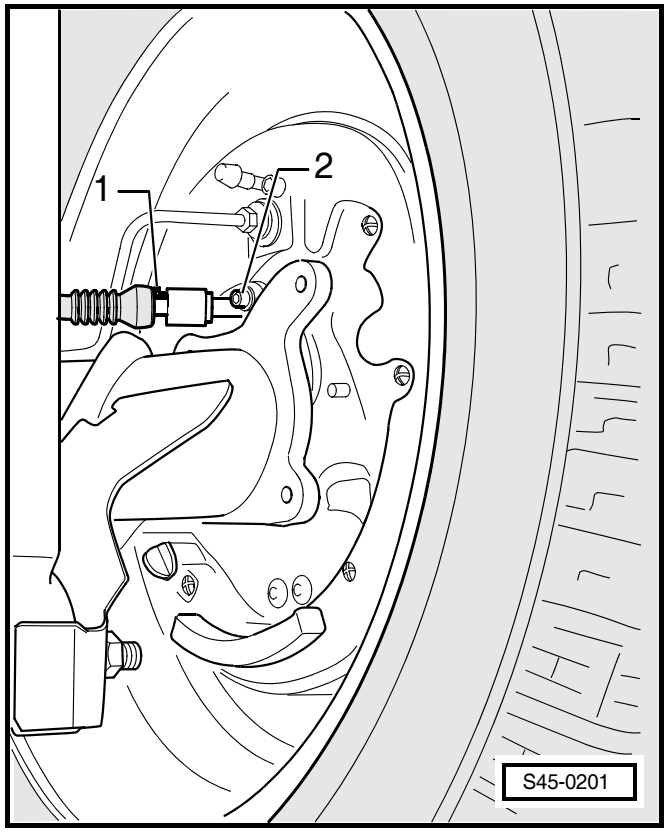



**Installing**

– Insert the wheel speed sensor in the bore of the axle stud and tighten the Allan screw -2- to 8 Nm.
– Connect plug connection -1- wheel speed sensor cable - wheel speed sensor.

**Vehicles with drum brakes**

Removing and installing the wheel speed sensor occurs in the same way as for the disc brake version ⇒ 45-19 page 8.




1 - Plug connection wheel speed sensor cable/wheel speed sensor
2 - Allan screw for fixing the wheel speed sensor

## Repairing rear wheel speed sensor cables - Vehicles with ABS systems BOSCH 5.7 and BOSCH 8.0

**Special tools, test and measuring equipment and auxiliary items required**

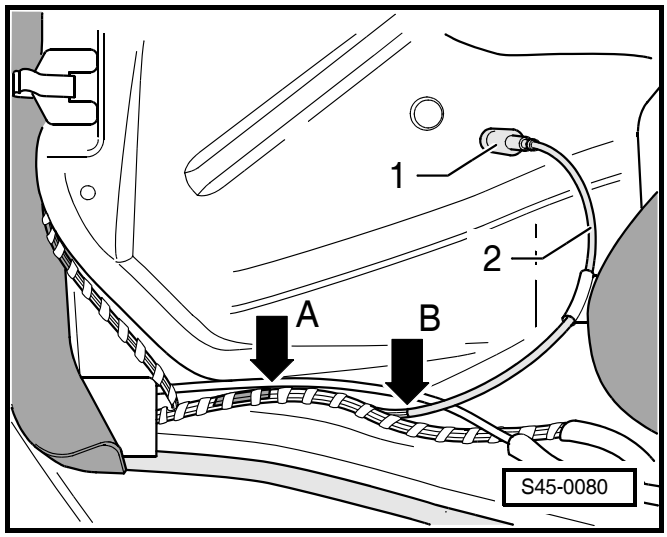
- Wiring loom repair kit, e.g. Skoda Car Tool Kit Škoda, Order No.: S 504 500 V
- Vehicle system tester -V.A.G 1552- or vehicle diagnosis, measurement and information system -VAS 5051-
- Diagnostic cable -V.A.G 1551/3-, -V.A.G 1551/3A-, -V.A.G 1551/3B-, -V.A.G 1551/3C-, -VAS 5051/5A- or -VAS 5051/6A-

**Removing**

**Note**

*Before disconnecting the battery determine the code of radio sets fitted with anti-theft coding.*

– Disconnect battery ⇒ Electrical System; Rep. Gr. 27.
– Release plug connection on speed sensor and separate plug connector.
– Unclip wheel speed sensor cable on rear axle and body.
– Removing the seat bench ⇒ Body Work; Rep. Gr. 72.
– Removing trim panel at bottom of pillar C ⇒ Body Work; Rep. Gr. 70.
– Removing the entrance plate ⇒ Body Work; Rep. Gr. 68.
– Fold back the floor covering around the seat bench.
– Release the rubber grommet -1- and pull the wheel speed sensor cable -2- into the vehicle interior.
– Separate the wheel speed sensor cable between crimp connection -arrow A- and sheathing -arrow B-.



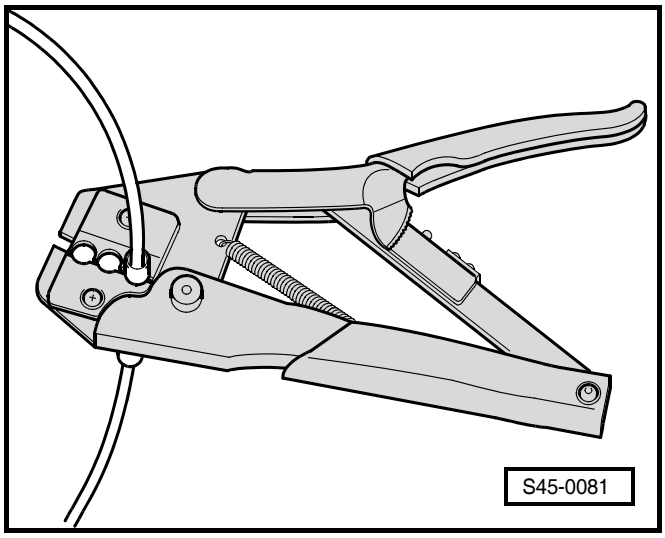

**Installing**

– Draw in the new wheel speed sensor cable and attach the rubber grommet.
– Insulate the two cable extremities with a 6…7 mm wire stripper.
– Twist the two cable extremities.

**Note**

- *The insulation of the cable extremities must not be pinched together.*
- *Make sure the correct red crimp connector for 0.5 mm² is selectd.*

– Slide the crimp connector on the cable extremities and crimp it together at both sides with the stop pliers.

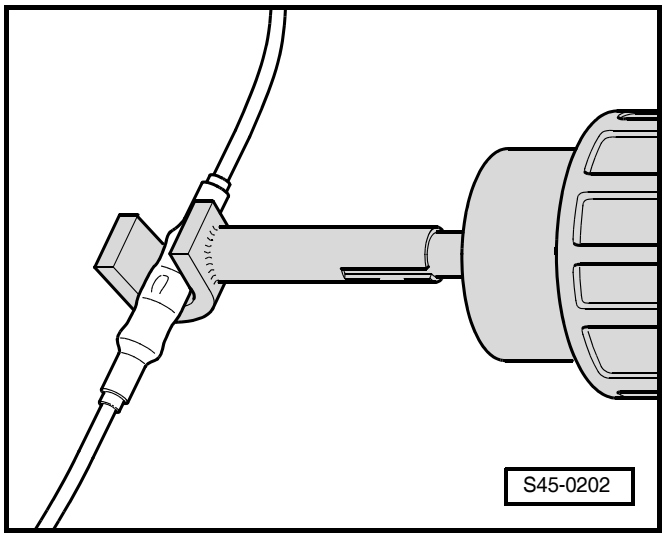



**Note**

- *The crimp connector must be heated from the centre towards the outside until it is fully sealed and the adhesive flows out.*
- *Set the hot-air blower to the relevant temperature according to the operating instructions.*
- *During shrinking make sure the hot nozzle does not damage any other cables, plastic parts or insulating materials.*

– After crimping shrink the crimp connector with the hot-air blower.

  To do so use the hot-air blower from the wiring loom repair kit.




– If the repair cable was initially wrapped, you must rewrap this point with yellow insulating tape, or if necessary again attach the cable with a cable strap.

Further installation occurs in reverse order.

– Installing the entrance plate ⇒ Body Work; Rep. Gr. 68.
– Installing trim panel at bottom of pillar C ⇒ Body Work; Rep. Gr. 70.
– Installing the seat bench ⇒ Body Work; Rep. Gr. 72.
– Connect battery ⇒ Electrical System; Rep. Gr. 27.
– Perform automatic test sequence ⇒ Chapter 45-5 either using the vehicle system tester -V.A.G 1552- or the vehicle system test ⇒ Chapter 45-4 using the vehicle diagnosis, measurement and information system -VAS 5051-.

If faults are stored in the fault memory:

**ABS systems BOSCH 5.7**

– Eliminating fault ⇒ Chapter 45-6.
– Erasing fault memory ⇒ Chapter 45-5.

**ABS systems BOSCH 8.0**

– Eliminating fault ⇒ Chapter 45-7.
– Erase fault memory.

# 46 – Brakes, Brake mechanics

## 46-1 Repairing the front wheel brake

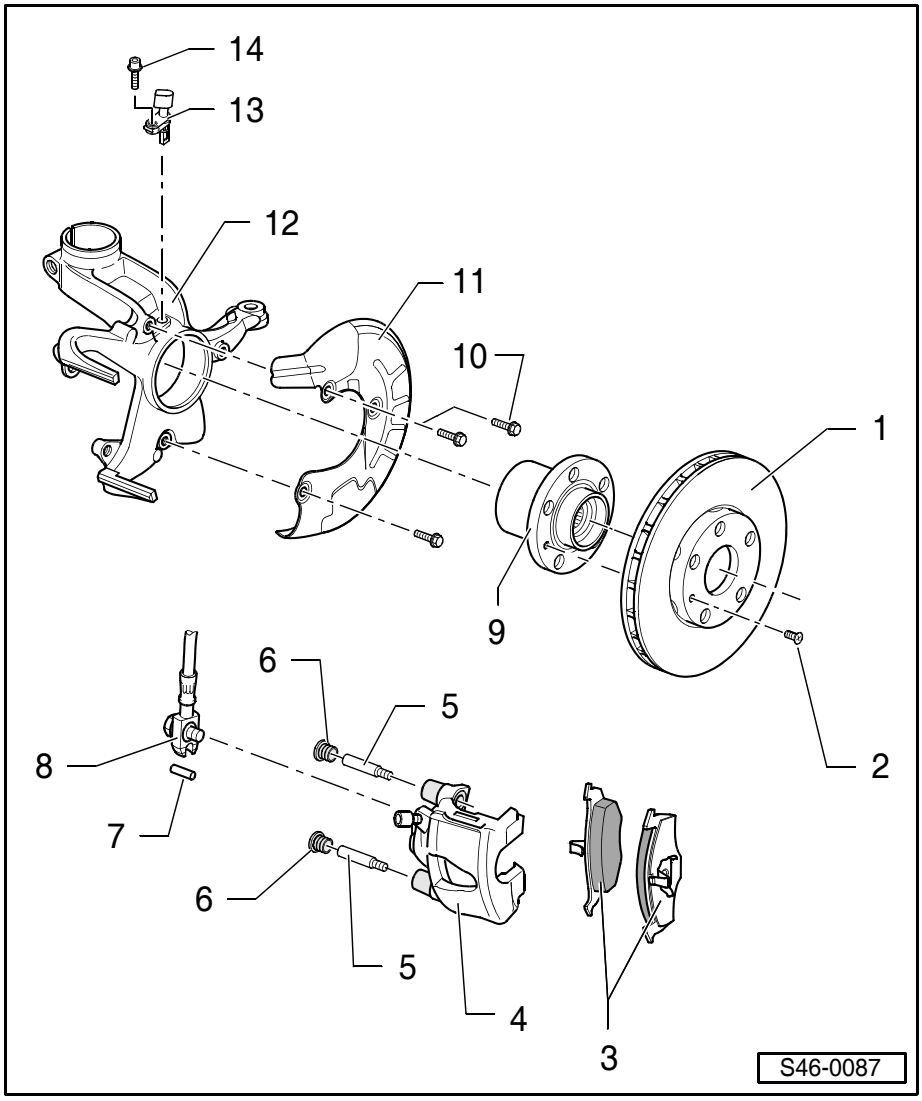
### Repairing front brake, the floating caliper disc brake FS-III

**Special tools, test and measuring equipment and auxiliary items required**

- Piston jig -MP 9-403-
- Brake pedal load, e.g. -V.A.G 1869/2 -
- Torque wrench
- Brake filling and bleeding device, e. g. -ROMESS S15-
- Bleeding bottle (commercially available)
- Brake fluid ⇒ Chapter 00-3

**Note**

- *After replacing the brake pads forcefully apply the brake pedal repeatedly to ensure the brake pads go into their normal operating position.*
- *Use brake pedal load, e.g. -V.A.G 1869/2 - or -V.A.G 1238 B-, before removing a brake caliper or separating a brake hose from the brake caliper*
- *Use a bleeding bottle, that only comes into contact with the brake fluid, to drain brake fluid from the brake fluid reservoir. Brake fluid is toxic and must never be sucked up by mouth!*
- *Already used brake fluid must never be used again.*
- *Tightening torque of the wheel screws: 120 Nm.*




**1 - Brake disc**
- ❑ Thickness: 22 mm
- ❑ Wear limit: 19 mm
- ❑ always replace axle-wise
- ❑ Unscrew the brake caliper before removing
- ❑ Do not use force to separate the brake discs from the wheel hub, if necessary use rust solvent; as you could otherwise damage the brake discs.

**2 - Screw, 4 Nm**

**3 - Brake pads**
- ❑ with wear indicator
- – with a corresponding wear (limit 2 to 3 mm) the warning lamp in the dash panel insert lights up
- ❑ Thickness: 19.6 mm (including the support plate)
- ❑ Wear limit: 2.0 mm without supporting plate
- ❑ Check thickness ⇒ Inspection and Maintenance
- ❑ always replace axle-wise
- ❑ do not unscrew the brake hose when replacing the brake pad
- ❑ removing and installing ⇒ 46-1 page 3
- ❑ do not interchange the inside and outside brake pads ⇒ 46-1 page 3

**4 - Brake caliper**
- ❑ removing:
- – Remove the brake pads ⇒ 46-1 page 3
- – Use brake pedal load
- – Unscrew brake hose from brake caliper
- ❑ Installing:
- – Installing brake pads ⇒ 46-1 page 3
- – Screw the brake hose onto the brake caliper
- – Remove brake pedal load
- – Bleed the brake system ⇒ Chapter 47-4
- ❑ repair ⇒ Chapter 47-1

**5 - Guide bolts, 28 Nm**

**6 - Cap**
- ❑ removing

**7 - Tensioning sleeve**

**8 - Brake hose with supports, hollow screw and gasket rings**
- ❑ must be replaced completely, do not dismantle
- ❑ Tightening torque: 35 Nm
- ❑ do not unscrew when replacing the brake pad

**9 - Wheel hub with wheel bearing**
- ❑ for vehicles with ABS the sensor ring is built into the wheel hub

- ❑ replace after each removal, is destroyed during removal
- ❑ removing and installing ⇒ Chapter 40-3
- ❑ assignment ⇒ Spare part catalogue

**10 - Screw, 10 Nm**

**11 - Cover plate**

**12 - Wheel-bearing housing**

**13 - Speed sensor ABS**

**14 - Allan screw, 8 Nm**

- ❑ for speed sensor ABS

## Removing and installing brake pads - Floating caliper disc brake FS-III

**Special tools, test and measuring equipment and auxiliary items required**

- Piston jig -MP 9-403-
- Torque wrench
- Brake filling and bleeding device, e. g. -ROMESS S15-
- Bleeding bottle (commercially available)
- Brake fluid ⇒ Chapter 00-3

### Removing

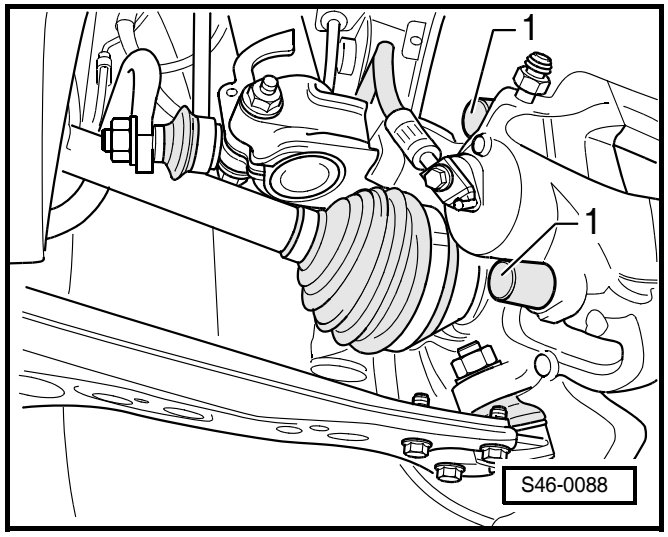
– Remove wheel.

**Note**

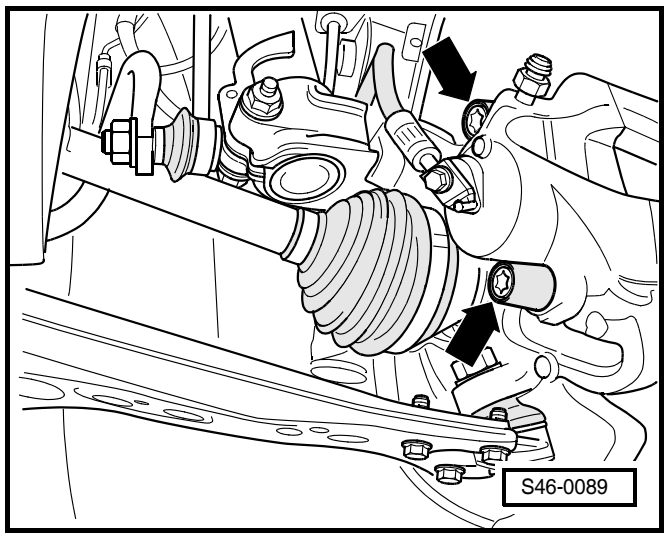
- *When removing mark the brake pads you intend to keep using. Install in the same location, as otherwise this may cause uneven braking!*
- *Do not unscrew the brake hose when replacing the brake pad.*

– Disconnect the plug connection for the brake pad wear indicator (where the vehcile is fitted with this).

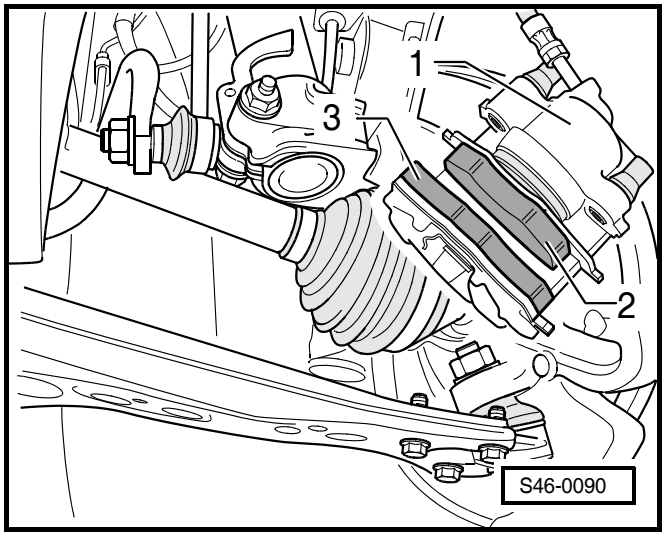
– Remove caps -1-.




– Unscrew and remove the two guide bolts -arrow- from the brake caliper.



– Remove the brake caliper -1- and secure with wire in such a way that the weight of the brake caliper does not burden or damage the brake hose.
– Remove brake pads -2- and -3- from the brake caliper.




## Installing

**Note**

*Drain brake fluid from the brake fluid reservoir using a ventilation bottle before pushing the piston back in.*

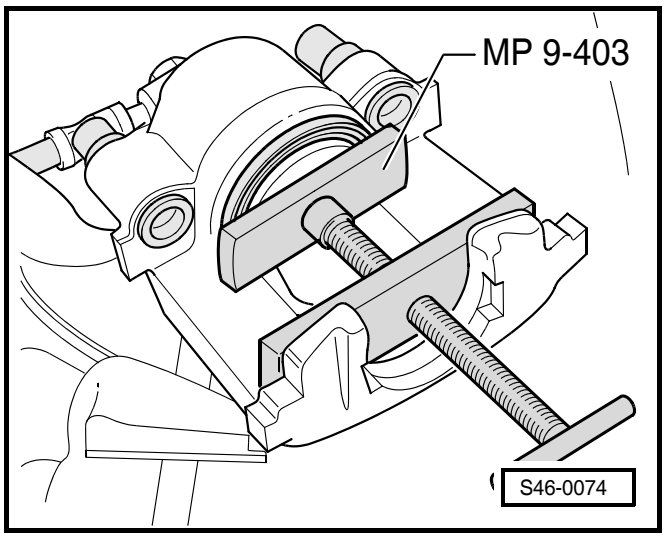
**Caution!**

***Brake fluid is toxic and must never be sucked off by mouth.***

**Note**

*Use alcohol only to clean the brake caliper housing.*

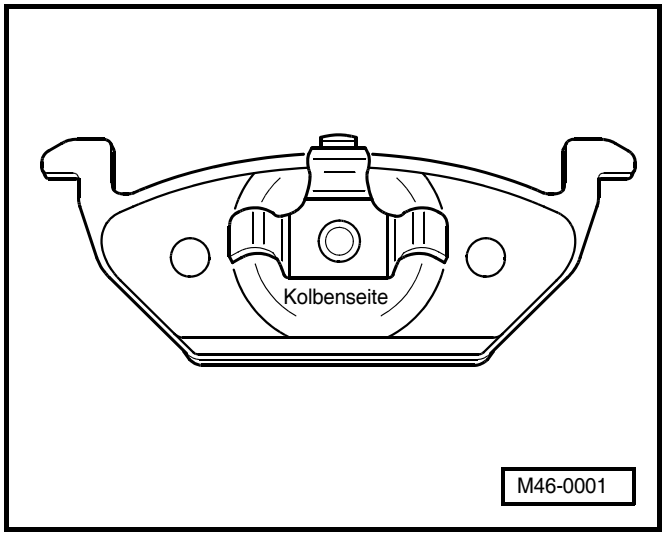
– Clean the brake caliper.
– Push piston back with piston jig -MP 9-403-.




**Note**

*Do not interchange the inside and outside brake pads. Pay attention to identification.*

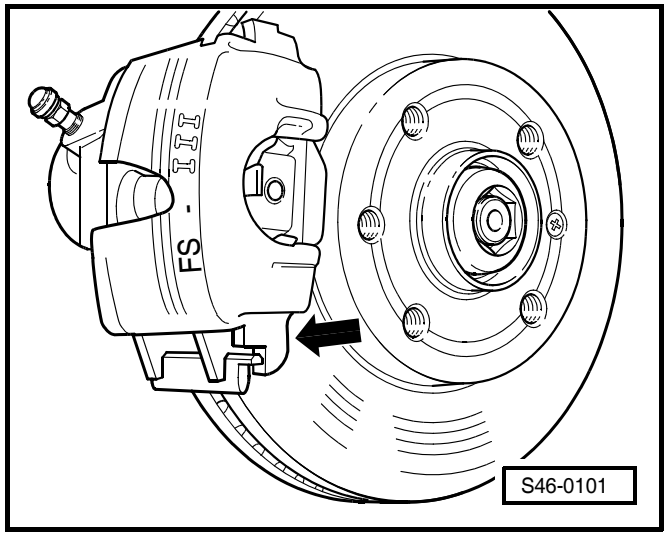
– Insert the brake pads with the white marking on the rear side „piston side“ in the piston.
– Insert the brake pads with the black three-finger clip in the brake caliper housing.



– First position the brake caliper at the bottom.

– Mount the brake caliper with brake pads onto the wheel bearing housing.

The brake caliper pin -arrow- must be located behind the guide of the wheel bearing housing!



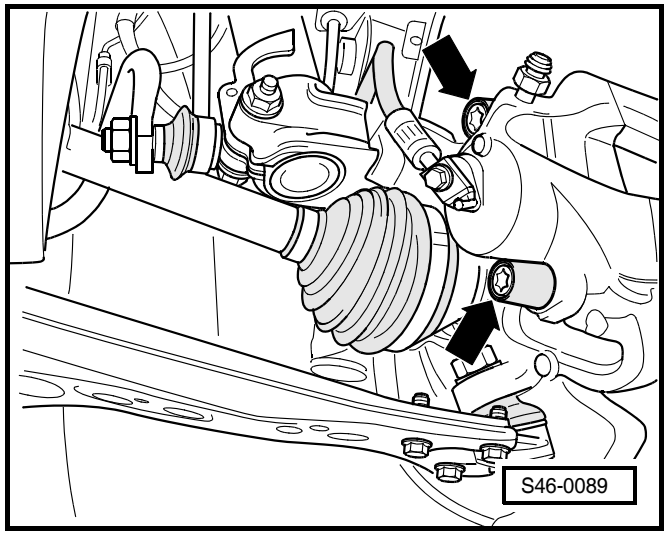

– Screw the brake caliper with both guide bolts -arrows- onto the wheel bearing housing.

  Tightening torque: 28 Nm

– Connect up the plug connection for the brake pad wear indicator (where the vehcile is fitted with this).

– Insert the caps of the guide bolts.

– Attach the wheel.




**Note**

- *After each brake pad replacement forcefully apply the brake pedal repeatedly to ensure the brake pads go into their normal operating position.*
- *Check brake fluid level after replacing the brake pads, if necessary top up with brake fluid.*

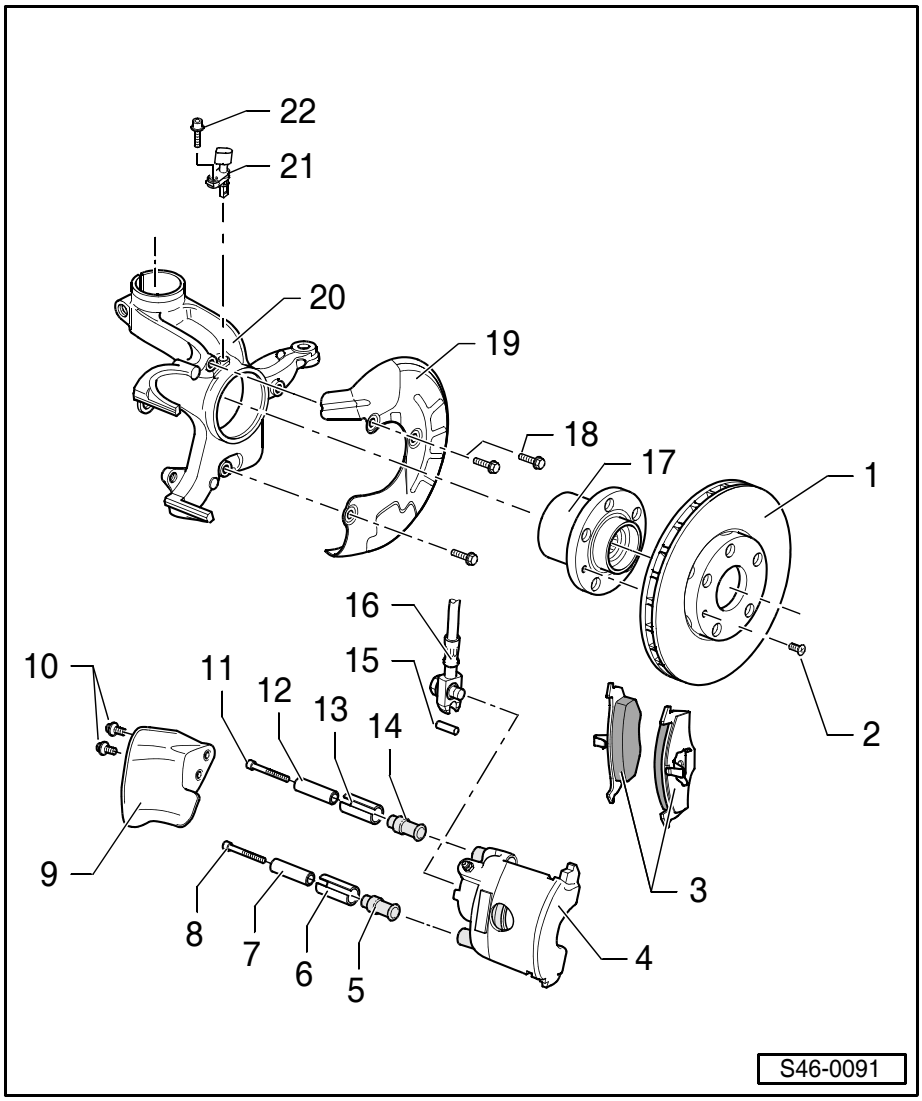
## Repairing front brake, the floating caliper disc brake FS-III

**Special tools, test and measuring equipment and aids required**

♦ ⇒ 46-1 page 1

**Note**

*⇒ 46-1 page 1*




**1 - Brake disc**
- ❑ Thickness: 18 mm
- ❑ Wear limit: 15 mm
- ❑ always replace axle-wise
- ❑ Unscrew the brake caliper before removing
- ❑ Do not use force to separate the brake discs from the wheel hub, if necessary use rust solvent; as you could otherwise damage the brake discs.

**2 - Screw, 4 Nm**

**3 - Brake pads**
- ❑ with wear indicator
- – with a corresponding wear (limit:2 to 3 mm) the warning lamp in the dash panel insert lights up
- ❑ with riveted retaining spring
- ❑ Install brake pad with a smaller pad surface on the piston side
- ❑ Thickness: 17.6 mm (including the support plate)
- ❑ Wear limit: 2.0 mm without supporting plate
- ❑ Check thickness ⇒ Inspection and Maintenance
- ❑ always replace axle-wise
- ❑ do not unscrew the brake hose when replacing the brake pad
- ❑ removing and installing ⇒ 46-1 page 7
- ❑ do not interchange the inside and outside brake pads ⇒ 46-1 page 7

**4 - Brake caliper**
- ❑ removing:
- – Remove the brake pads ⇒ 46-1 page 7
- – Use brake pedal load
- – Unscrew brake hose from brake caliper
- ❑ Installing:
- – Installing brake pads ⇒ 46-1 page 7
- – Screw the brake hose onto the brake caliper
- – Remove brake pedal load
- – Bleed the brake system ⇒ Chapter 47-4
- ❑ repair ⇒ Chapter 47-1

**5 - The rubber bush below**
- ❑ before screwing in coat thread with lithium grease -G 052 150 A2-

**6 - Bottom bushing**
- ❑ with slits on one side
- ❑ before screwing in coat thread with lithium grease -G 052 150 A2-

**7 - Bottom distance sleeve**
- ❑ before screwing in coat thread with lithium grease -G 052 150 A2-

**8 - Fillister head screw with internal serrations bottom, 25 Nm**
- ❑ M8 x 48

**9 - Air deflector**

**10 - Screw, 10 Nm**
- ❑ for air deflector

**11 - Fillister head screw with internal serrations top, 25 Nm**
- ❑ M8 x 59

**12 - Top distance sleeve**
- ❑ before screwing in coat thread with lithium grease -G 052 150 A2-

**13 - Top bushing**
- ❑ with slits on one side
- ❑ before screwing in coat thread with lithium grease -G 052 150 A2-

**14 - The rubber bush above**
- ❑ before screwing in coat thread with lithium grease -G 052 150 A2-

**15 - Tensioning sleeve**

**16 - Brake hose with supports, hollow screw and gasket rings**
- ❑ must be replaced completely, do not dismantle
- ❑ Tightening torque: 35 Nm
- ❑ do not unscrew when replacing the brake pad

**17 - Wheel hub with wheel bearing**
- ❑ for vehicles with ABS the sensor ring is built into the wheel hub
- ❑ replace after each removal, is destroyed during removal
- ❑ removing and installing ⇒ Chapter 40-3
- ❑ assignment ⇒ Spare part catalogue

**18 - Screw, 10 Nm**

**19 - Cover plate**

**20 - Wheel-bearing housing**

**21 - Speed sensor ABS**

**22 - Allan screw, 8 Nm**
- ❑ for speed sensor ABS

## Removing and installing brake pads - Floating caliper disc brake FS-II

### Special tools, test and measuring equipment and auxiliary items required

- ♦ ⇒ 46-1 page 3

### Removing

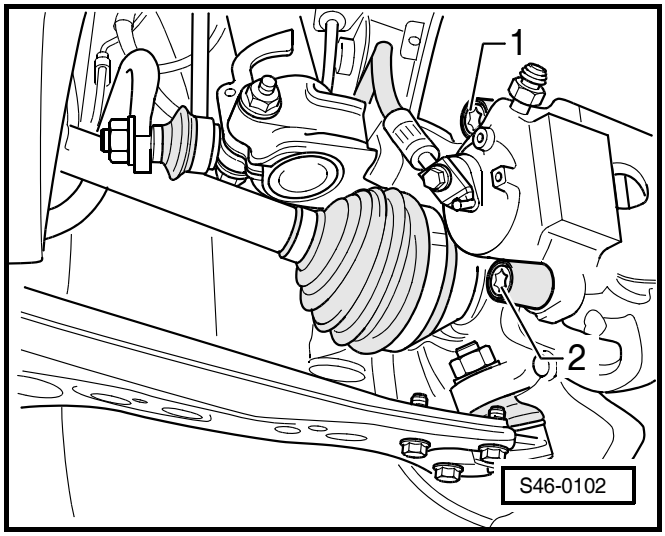
– Remove wheel.

**Note**

- *When removing mark the brake pads you intend to keep using. Install in the same location, as otherwise this may cause uneven braking!*
- *Do not unscrew the brake hose when replacing the brake pad.*

– Disconnect the plug connection for the brake pad wear indicator (where the vehcile is fitted with this).

– Release fillister head screw with internal serrations -1- and -2-. ►

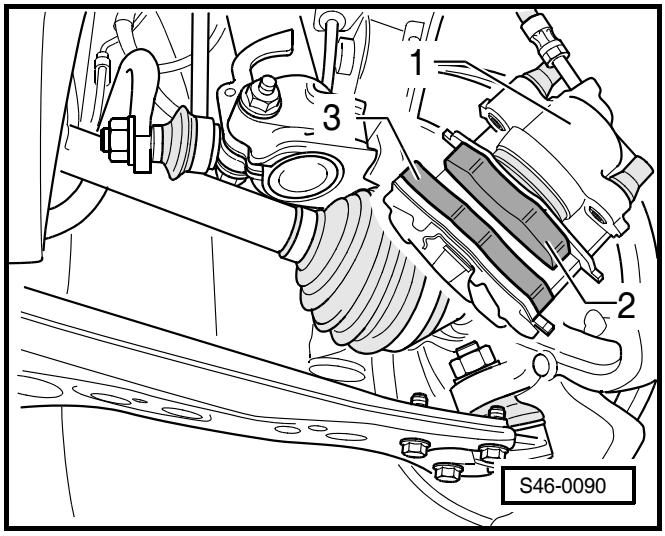



**Note**

*Figure shows floating caliper disc brake FS-II with removed air deflector.*

– Remove the brake caliper -1- and secure with wire in such a way that the weight of the brake caliper does not burden or damage the brake hose. ►

– Remove brake pads -2- and -3- from the brake caliper.




## Installing

**Note**

*Drain brake fluid from the brake fluid reservoir using a ventilation bottle before pushing the piston back in.*

**Caution!**

***Brake fluid is toxic and must never be sucked off by mouth.***

**Note**

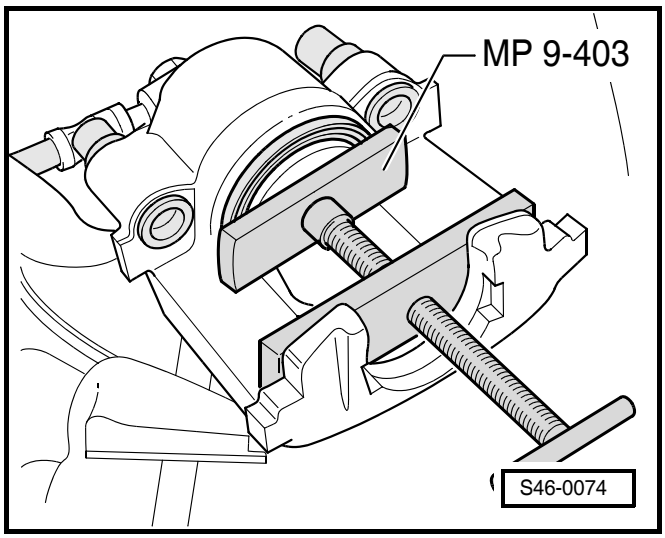
*Only use alcohol to clean the brake caliper housing.*

– Clean the brake caliper.

– Push piston back with piston jig -MP 9-403-. ►

– Install brake pad with a smaller pad surface on the piston side.

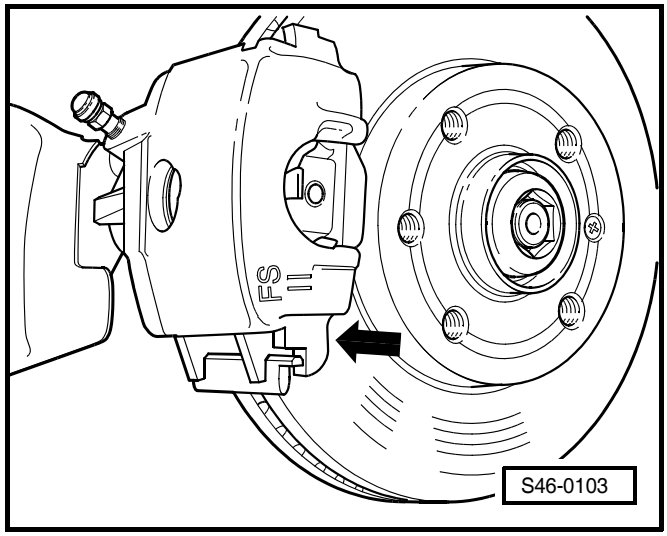
– Install brake pads with a greater pad surface in the brake caliper housing.



– First position the brake caliper at the bottom.

– Mount the brake caliper with brake pads onto the wheel bearing housing.

The brake caliper pin -arrow- must be located behind the guide of the wheel bearing housing!

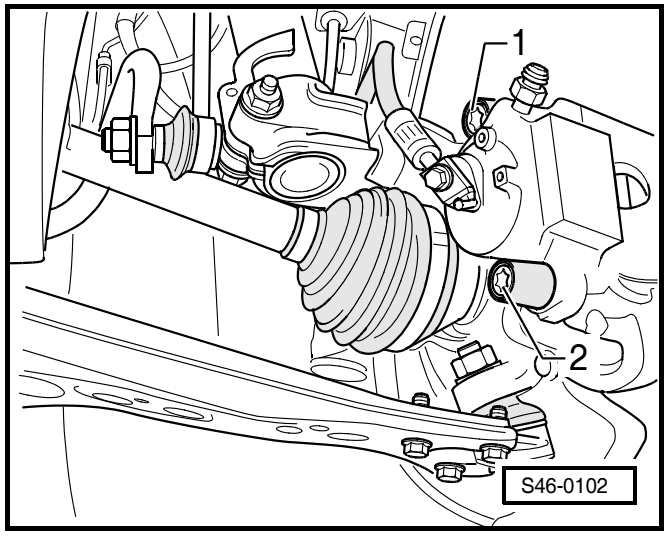



– Screw the brake caliper to the wheel bearing housing with fillister head screws with internal serrations -1- and -2-

Tightening torque: 25 Nm

– Connect up the plug connection for the brake pad wear indicator (where the vehcile is fitted with this).

– Attach the wheel.




**Note**

- *After each brake pad replacement forcefully apply the brake pedal repeatedly to ensure the brake pads go into their normal operating position.*
- *Check brake fluid level after replacing the brake pads, if necessary top up with brake fluid.*

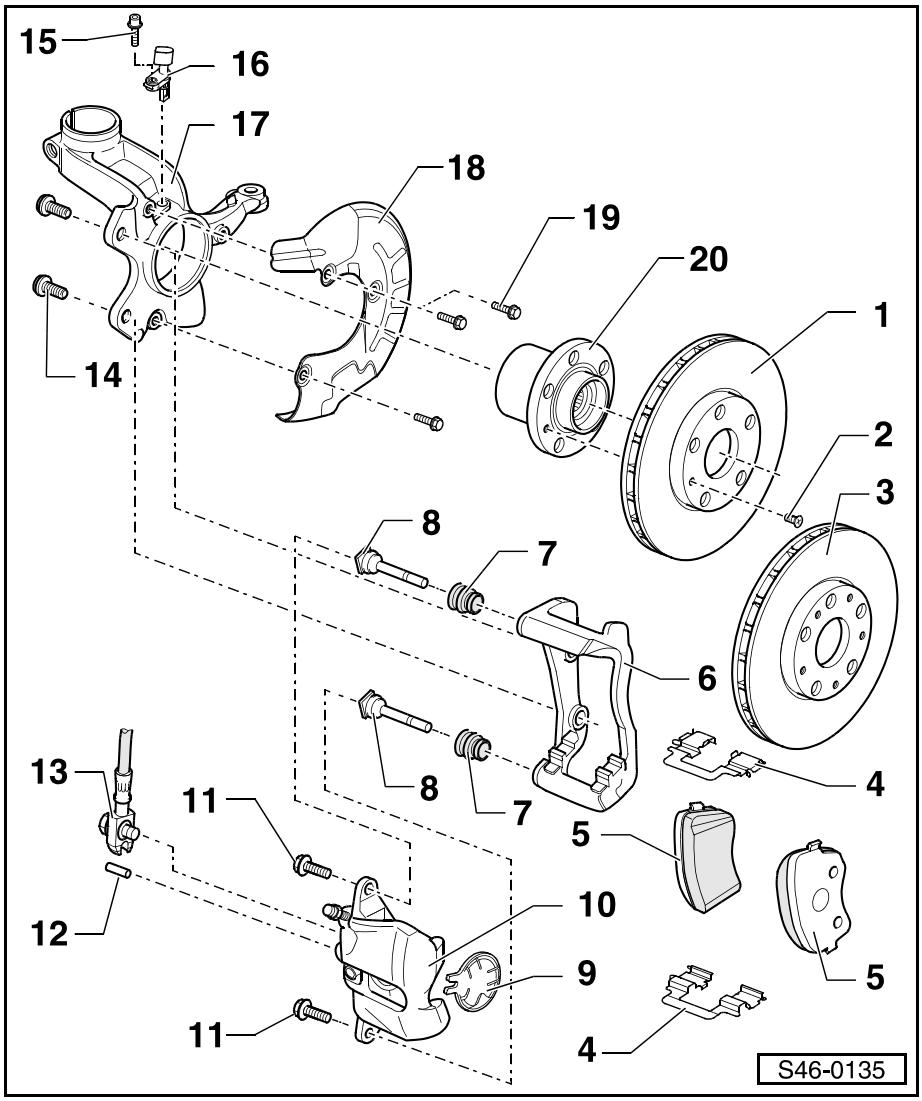
# Repairing the front brake - the floating caliper disc brake C54-II

**Special tools, test and measuring equipment and aids required**

♦ ⇒ 46-1 page 1

**Note**

*⇒ 46-1 page 1*




**1 - Brake disc**
- ❑ the max. wheel run-out is not marked
- ❑ released combination of a brake disc without marking and a wheel hub with marking
- ❑ with a fixing hole for the wheel hub
- ❑ Thickness: 25 mm
- ❑ Wear limit: 22 mm
- ❑ always replace axle-wise
- ❑ for removing, first of all unbolt brake caliper complete from wheel bearing housing
- ❑ Do not use force to separate the brake discs from the wheel hub, if necessary use rust solvent, as you could otherwise damage the brake discs.

**2 - Screw, 4 Nm**

**3 - Brake disc**
- ❑ with a roughly 5 mm marking for marking the maximum wheel run-out
- ❑ released combination of a brake disc with marking and a wheel hub without marking
- ❑ with 5 fixing holes for the wheel hub
- ❑ Thickness: 25 mm
- ❑ Wear limit: 22 mm
- ❑ always replace axle-wise
- ❑ for removing, first of all unbolt brake caliper complete from wheel bearing housing
- ❑ Do not use force to separate the brake discs from the wheel hub, if necessary use rust solvent, as you could otherwise damage the brake discs.

**4 - Pad retaining plate**
- ❑ always replace when changing the brake pads
- ❑ brake pads contained in repair kit
- ❑ fit on before installing brake pads

**5 - Brake pads**
- ❑ with wear indicator
- – with a corresponding wear (limit 2 to 3 mm) the warning lamp in the dash panel insert lights up
- ❑ Thickness: 18.6 mm (including the support plate)
- ❑ Wear limit: 2.0 mm without supporting plate
- ❑ Check thickness ⇒ Inspection and Maintenance
- ❑ always replace axle-wise

- ❑ do not unscrew the brake hose when replacing the brake pad
- ❑ removing and installing ⇒ 46-1 page 12

**6 - Brake carrier**

- ❑ is supplied as replacement part assembled with guide pin and protective caps as well as adequate quantity of grease on guide pins
- ❑ if there is any damage to the protective caps or guide bolts fit a repair set (use the enclosed grease packing to lubricate the guide bolts)
- ❑ also use grease packing for greasing the slot on the guide pin and brake caliper for attaching the protective cap

**7 - Protective cap**

- ❑ contained in repair kit
- ❑ insert into the slot of the brake carrier and of the guide pin; grease the slot first using grease packing from the repair kit

**8 - Guide bolts**

- ❑ contained in repair kit

**9 - Heat shield**

- ❑ always replace when changing the brake pads
- ❑ contained in repair kit
- ❑ insert into piston

  Fitting position: insert plate at heat shield into opening (slot) of the brake caliper

**10 - Brake caliper**

- ❑ removing:
- – Use brake pedal load
- – Unscrew brake hose from brake caliper
- – Unbolt brake caliper from brake carrier
- ❑ Installing:
- – Bolt brake caliper onto brake carrier
- – Screw the brake hose onto the brake caliper
- – Remove brake pedal load
- – Bleed the brake system ⇒ Chapter 47-4
- ❑ repair ⇒ Chapter 47-1

**11 - Screw, 30 Nm**

- ❑ replace after each removal

**12 - Tensioning sleeve**

**13 - Brake hose with supports, hollow screw and gasket rings**

- ❑ must be replaced completely, do not dismantle
- ❑ Tightening torque: 35 Nm
- ❑ do not unscrew when replacing the brake pad

**14 - Screw, 125 Nm**

- ❑ clean ribbing on underside each time removed

**15 - Allan screw, 8 Nm**

- ❑ for speed sensor ABS

**16 - Speed sensor ABS**

**17 - Wheel-bearing housing**

**18 - Cover plate**

**19 - Screw, 10 Nm**

**20 - Wheel hub with wheel bearing**

- ❑ with and without marking of the maximum wheel run-out
- ❑ one can combine a wheel hub without marking of the maximum wheel run-out with a brake disc with marking of the maximum wheel run-out; the total wheel run-out of the floating caliper disc brake C54-II will not be reduced
- ❑ for vehicles with ABS the sensor ring is built into the wheel hub
- ❑ replace after each removal, is destroyed during removal

❑ removing and installing ⇒ Chapter 40-3
❑ assignment ⇒ Spare part catalogue

## Removing and installing brake pads - the floating caliper disc brake C54-II

**Special tools, test and measuring equipment and auxiliary items required**

♦ ⇒ 46-1 page 3

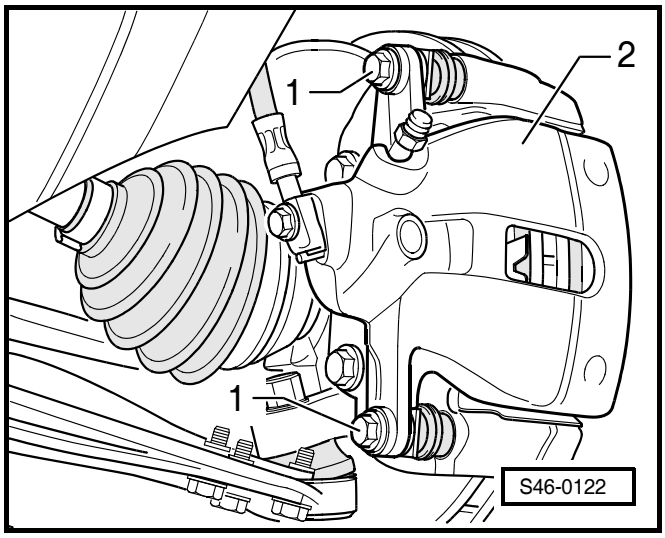
### Removing

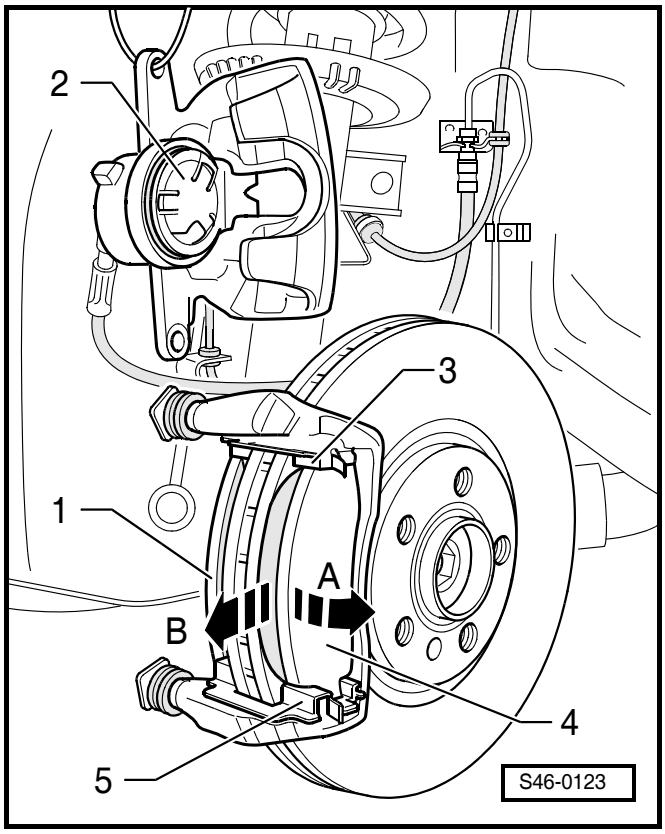
– Remove wheel.

**Note**

♦ *When removing mark the brake pads you intend to keep using. Install in the same location, as otherwise this may cause uneven braking!*
♦ *Do not unscrew the brake hose when replacing the brake pad.*
♦ *If brake pads are changed, replace heat shield in the caliper and pad retaining plates.*

– Disconnect the plug connection for the brake pad wear indicator (where the vehcile is fitted with this).
– Detach brake line from fixture at wheel bearing housing.
– Screw out bolt -1-.
– Remove brake caliper -2- and secure with wire in such a way that the weight of the brake caliper does not pull on or damage the brake hose.
– Remove heat shield -2-.
– Take out brake pad -1-.
– Swivel brake pad -4- out to the side in -direction of arrow A- and at the same time take out to the front in -direction of arrow B-.
– Remove pad retaining plates -3- and -5-.




### Installing

Installation is carried out in the reverse order. Pay attention to the following:

**Note**

*Drain brake fluid from the brake fluid reservoir using a ventilation bottle before pushing the piston back in.*

**Caution!**

***Brake fluid is toxic and must never be sucked off by mouth.***

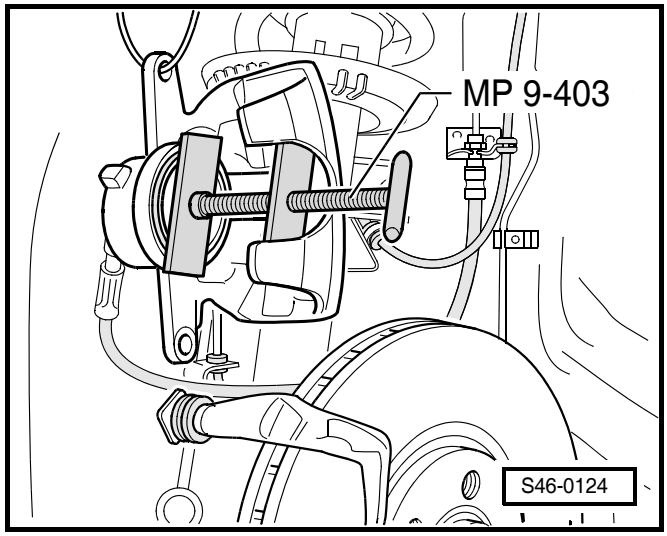
**Note**

*Only use white spirits to clean the brake caliper housing and brake carrier.*

– Clean the brake caliper.

– Clean contact surfaces for pad retaining plates at the brake carrier, remove any corrosion present.

– Push piston back with piston setting and timing device -MP 9-403 -. ►




– Install the heat shield.

Fitting position: insert plate at heat shield into opening (slot) of the brake caliper.

– Install the pad retaining plate.

– Insert brake pads.

– Fit brake caliper to the brake carrier.

  Do this while using new collar screws from the repair set.

– Attach brake line to fixture and secure with new clip.

– Connect up the plug connection for the brake pad wear indicator (where the vehcile is fitted with this).

– Attach the wheel.

**Note**

- *After each brake pad replacement forcefully apply the brake pedal repeatedly to ensure the brake pads go into their normal operating position.*
- *Check brake fluid level after replacing the brake pads, if necessary top up with brake fluid.*

### Tightening torques:

| | |
|---|---|
| Brake caliper to brake carrier<br>♦ Use new screws! | 30 Nm |
| Wheel bolts | 120 Nm |

# 46-2 Repairing a rear brake

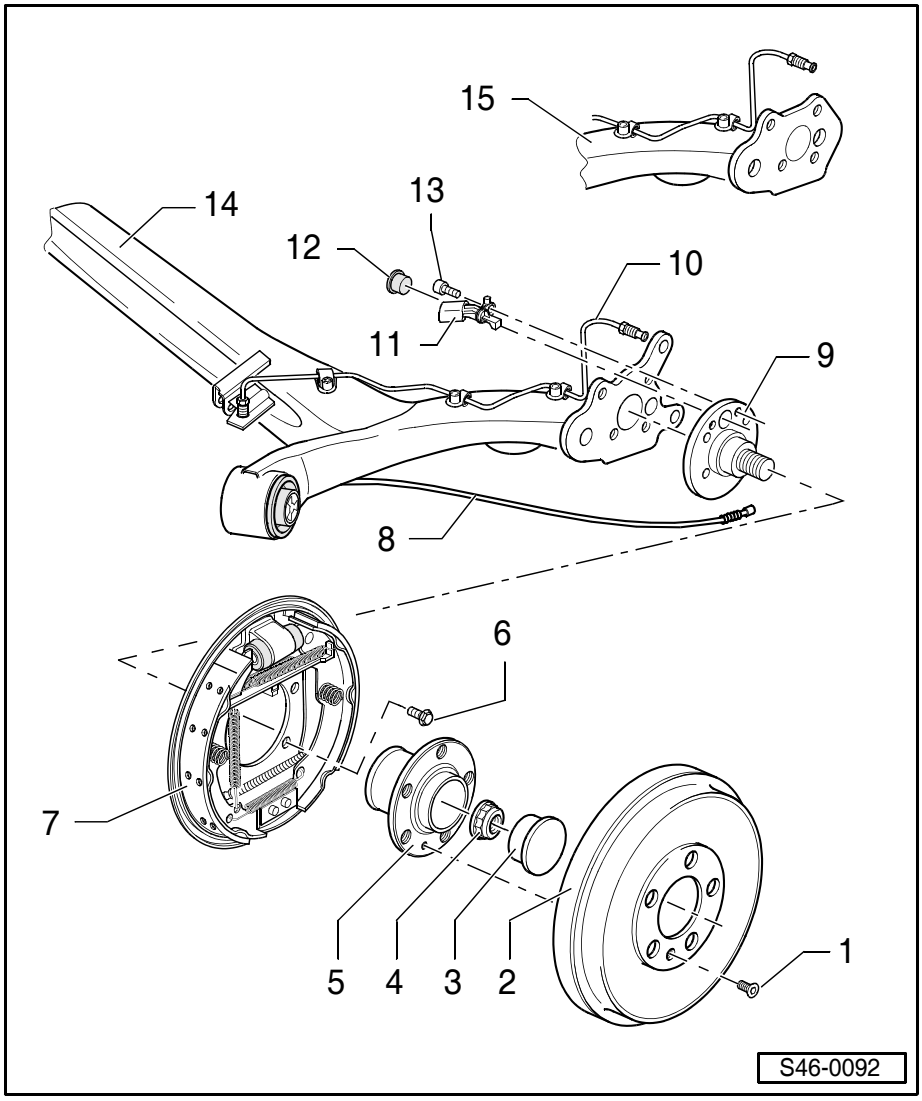
## Removing and installing rear brake - Drum brake

**Special tools, test and measuring equipment and auxiliary items required**

- Torque wrench
- Torque wrench with angle indicator
- Brake pedal load, e.g. -V.A.G 1869/2-
- Brake filling and bleeding device, e. g. -ROMESS S15-
- Bleeding bottle (commercially available)
- Brake fluid ⇒ Chapter 00-3

**Note**

- *After replacing the wheel-brake cylinder, brake carrier and the rear brake shoes, forcefully apply the brake pedal once to ensure the brake shoes go into their normal operating position.*
- *Generally tighten the brake line pipe screws to a tightening torque of 14 Nm.*
- *Use a bleeding bottle, that only comes into contact with the brake fluid, to drain brake fluid from the brake fluid reservoir. Brake fluid is toxic and must never be sucked up by mouth!*
- *Use brake pedal loader, e. g. -V.A.G 1869/2- before removing a brake cylinder, a brake carrier or before separating a brake line from the brake cylinder.*
- *Already used brake fluid must never be used again.*
- *Tightening torque of the wheel screws: 120 Nm.*




**1 - 4 Nm**

**2 - Brake drum**
- ❑ Brake drum diameter 200 mm
- ❑ Wear limit: 201 mm
- ❑ clean carefully, and check for wear, damage, dimensional accuracy and perfect brake surface

**3 - Cap**
- ❑ replace after each removal
- ❑ pressing off and inserting ⇒ Chapter 42-5

**4 - Self-locking twelve-point nut, 70 Nm and tighten a further 30°**
- ❑ replace after each removal

**5 - Wheel hub with wheel bearing**
- ❑ for vehicles with ABS the sensor ring is built into the wheel hub
- ❑ must be replaced completely
- ❑ removing and installing ⇒ Chapter 42-5
- ❑ assignment ⇒ Spare part catalogue

**6 - turn 30 Nm and 90°**
- ❑ replace after each removal

**7 - Brake carrier with brake shoe**
- ❑ removing:
- – Reset brake ⇒ 46-2 page 3
- – Remove the brake drum
- – Use brake pedal load
- – Unscrew the brake line
- – Remove the brake carrier
- – unhook the hand brake cable if necessary
- ❑ Installing:
- – Install the brake carrier
- – hook on the hand brake cable if necessary
- – Screw on the brake line
- – Remove brake pedal load
- – Install the brake drum
- – Bleed the brake system ⇒ Chapter 47-4
- ❑ repairing ⇒ 46-2 page 4

**8 - Hand-brake cable**
- ❑ Setting the hand-brake ⇒ 46-2 page 8

**9 - Axle stud**
- ❑ removing and installing ⇒ Chapter 42-5

**10 - Brake line**
- ❑ Tightening torque of the pipe screws: 14 Nm

**11 - Speed sensor ABS**

**12 - Plug**
- ❑ for vehicles without ABS

❑ to plug the hole for the speed sensor in the axle stud

**13 - Allan screw, 8 Nm**

❑ for speed sensor ABS

**14 - Axle body**

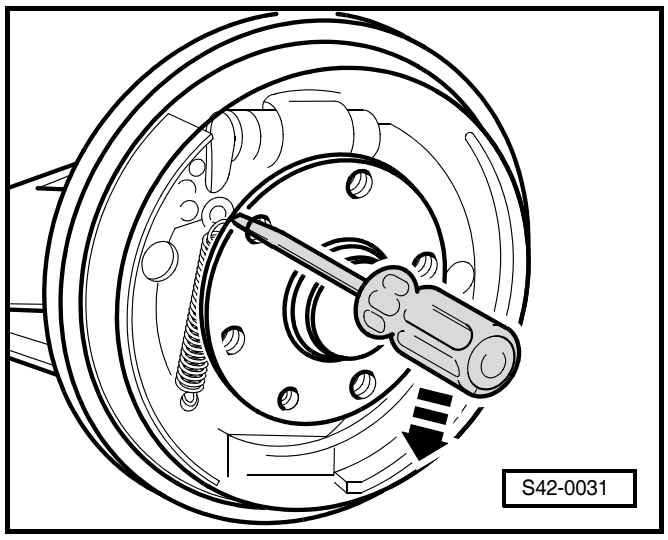
❑ assignment ⇒ Spare part catalogue

**15 - Axle body**

❑ assignment ⇒ Spare part catalogue

## Resetting brake

– Use a screwdriver to push the wedge up through a hole for the wheel screws in the brake drum.



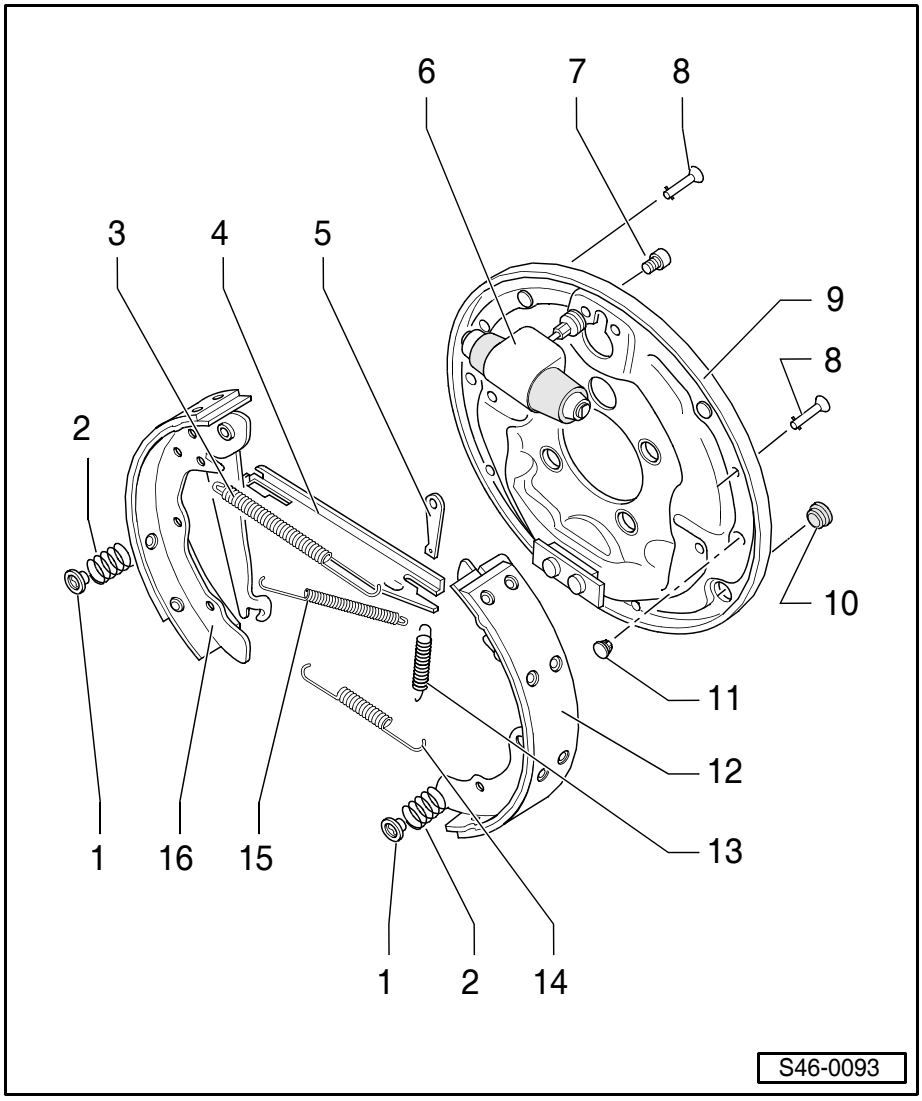
## Repairing rear brake - drum brake

**Special tools, test and measuring equipment and aids required**

- Torque wrench
- Brake pedal load, e.g. -V.A.G 1869/2-.
- Plastic wedge -3409-
- Brake filling and bleeding device, e. g. -ROMESS S15-
- Hook (commercially available)
- Brake fluid ⇒ Chapter 00-3
- Solid lubricant paste -G 000 650-

**Note**

- *Use brake pedal loader, e. g. -V.A.G 1869/2- before removing a brake cylinder, a brake carrier or before separating a brake line from the brake cylinder.*
- *Generally tighten the brake line pipe screws to a tightening torque of 14 Nm.*
- *After working on the rear axle brake: Release hand-brake; forcefully activate the brake pedal repeatedly.*




**1 - Spring cap**
- ❑ to remove push against pressure spring and turn 90°

**2 - Pressure spring**

**3 - Locating spring**

**4 - Pressure rod**
- ❑ Grease the contact points with solid lubricant paste -G 000 650-

**5 - Wedge**
- ❑ when removing and installing the brake drum push up through a hole for wheel screws (reset brake) ⇒ 46-2 page 3

**6 - Wheel-brake cylinder**
- ❑ check the system for tightness ⇒ 46-2 page 5
- ❑ Repairs not allowed
- ❑ removing:
- – Remove the brake shoe ⇒ 46-2 page 6
- – Use brake pedal load
- – Unscrew the brake line
- – Remove the wheel-brake cylinder
- ❑ Installing:
- – Install the wheel-brake cylinder
- – Screw on the brake line
- – Remove brake pedal load
- – Install the brake shoe ⇒ 46-2 page 6
- – Bleed the brake system ⇒ Chapter 47-4

**7 - Allen screw, 8 Nm**

**8 - Tensioning pin**

**9 - Brake carrier**

**10 - Cap**
- ❑ remove to check brake pad thickness

**11 - Sliding block**
- ❑ Cover the whole contact surface of the brake shoe with solid lubricant paste -G 000 650-

**12 - Brake shoe**
- ❑ removing and installing ⇒ 46-2 page 6
- ❑ Minimum pad thickness without supporting shoe: 1.5 mm
- ❑ Check the brake pad thickness ⇒ Inspection and Maintenance
- ❑ Visual checking of the brake pad thickness through the inspection hole in the brake carrier ⇒ 46-2 page 5.
- ❑ always use equivalent pad quality per axle
- ❑ Brake pads can also be supplied without supporting shoe

**13 - Tension spring**

**14 - Bottom retractor spring**
- ❑ Grease the contact points with solid lubricant paste -G 000 650-

**15 - Top retractor spring**

**16 - Brake shoe with lever for hand-brake**
- ❑ removing and installing ⇒ 46-2 page 6
- ❑ Setting the hand-brake ⇒ 46-2 page 8

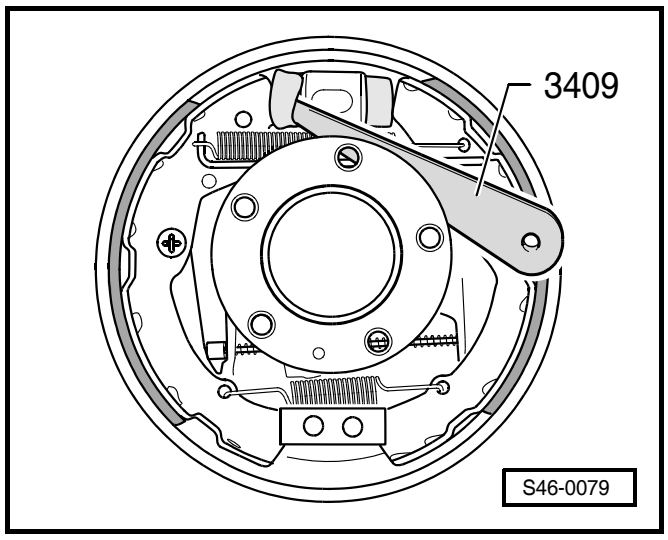
### Checking the wheel-brake cylinder for tightness ►

– Lift off dust cup.

  To this end use demounting key -3409-.

– If there is any brake fluid in the dust cup, replace wheel-brake cylinder.

Make sure the dust cup is not damaged when lifting it off.




### Checking the brake pad thickness through the inspection hole in the brake carrier. ►

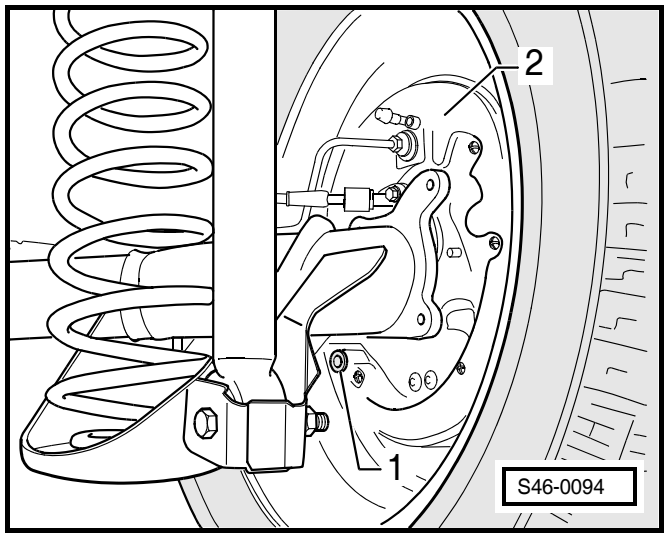
– Unclip cap -1- from the brake carrier-2-.

– Checking the brake pad thickness through the inspection hole in the brake carrier.

  Minimum pad thickness without supporting shoe (wear dimension) 1.5 mm.

**Note**

*The brake pads must not be soiled with brake fluid or grease.*



# Removing and installing brake shoe - Drum brake

**Special tools, test and measuring equipment and auxiliary items required**

- Torque wrench
- Hook (commercially available)
- Solid lubricant paste -G 000 650-

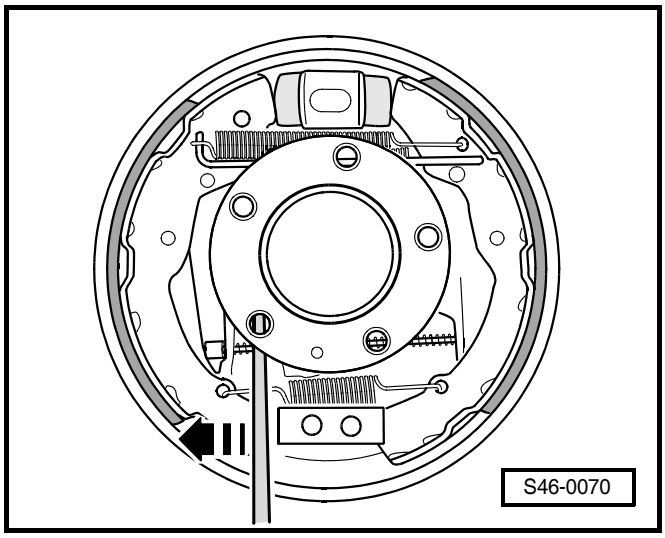
## Removing

– Remove wheel.

– Remove the brake drum.

– Remove spring cap with pressure springs.

– Use a screwdriver to lever off the brake shoes from the bottom support in the direction of the arrow. ►




– Unhook the retractor spring at the bottom.

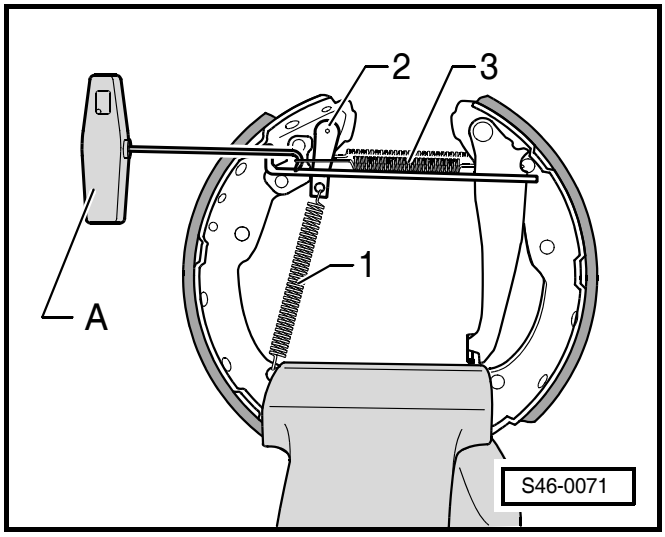
– Unhook the hand-brake cable.

– Carefully guide the brake shoes out between the wheel hub and the brake carrier.

– Tighten the brake shoe in the vice. ►

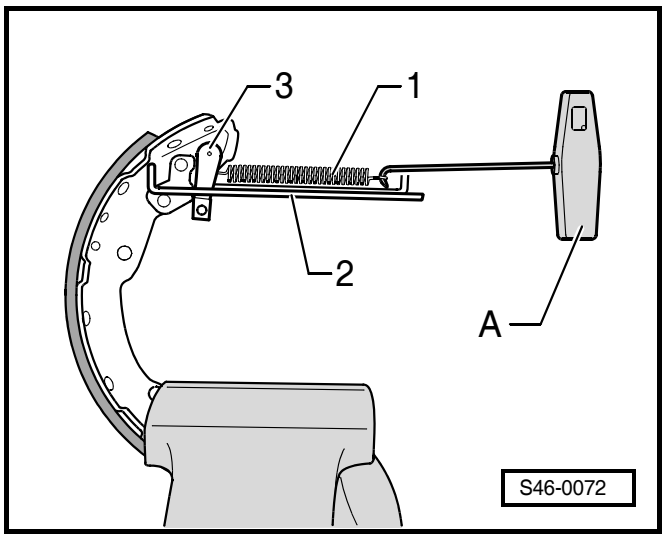
– Remove the tension spring -1- for wedge -2-.

– Unhook the retractor spring at the top -3- with hook -A-.




– Unhook the locating spring -1- with hook -A-. ►

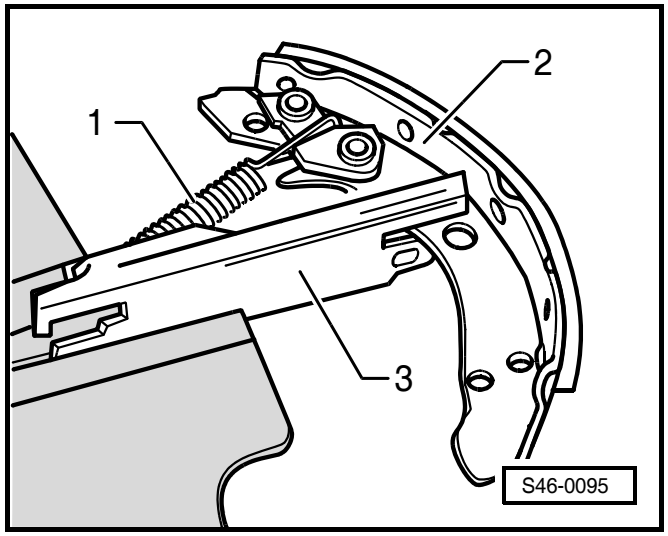
– Remove the pressure rod -2- and the wedge -3- from the brake shoe.



### Installing

– Grease the contact point of the pressure rod using solid lubricant paste -G 000 650-. ►

– Insert the locating spring -1- in the brake shoe -2- and position the brake shoe on the pressure rod -3-

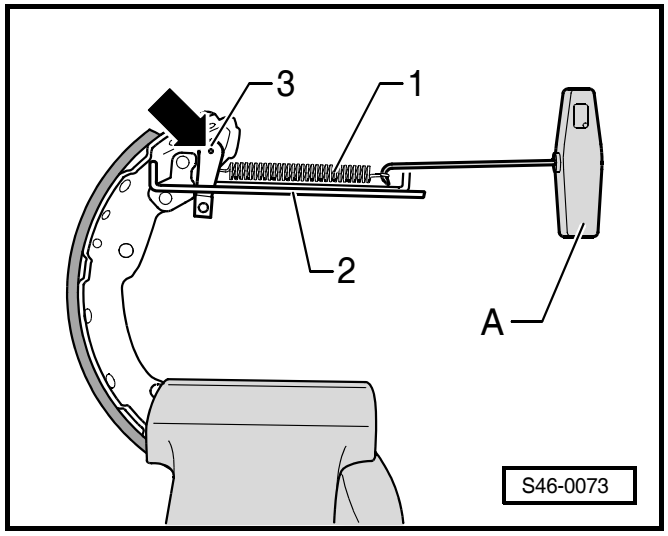



– Hook locating spring -1- with hook -A- in the pressure rod -2-. ►

– Insert wedge -3-.

**Note**

*Pay attention to the fitting position of the wedge. The raised part of the wedge -arrow- must remain visible during installation.*




– Grease the contact point of the pressure rod using solid lubricant paste -G 000 650-. ►

– Insert the brake shoe with brake lever in the pressure rod.

– Hook on the retractor spring at the top -3- with hook -A-.

– Hook on the tension spring -1- for wedge -2-.

– Carefully guide the brake shoes in between the wheel hub and the brake carrier.

– Position the brake shoe on the brake cylinder piston.

– Hook the hand-brake cable onto the brake lever.

– Grease the contact points of the bottom retractor spring on the brake shoe with solid lubricant paste -G 000 650-.

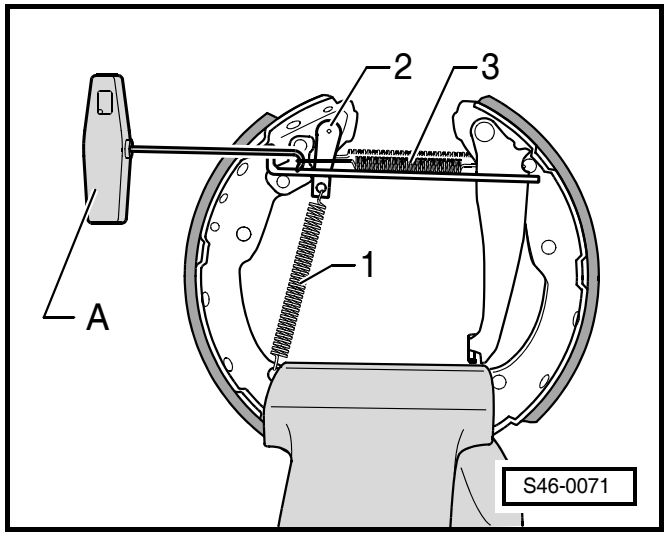
– Insert the bottom retractor spring and lift the brake shoe onto the bottom bracket.

– Insert the pressure spring with spring cap.

– Install the brake drum.

– Activate the foot pedal forcefully once; this causes the rear wheel-brake to be adjusted.

– Setting the hand-brake ⇒ 46-2 page 8.



– Attach the wheel.

## Setting the hand-brake - drum brake

**Note**

- *Resetting of the hand-brake is not required after resetting of the rear brake due to automatic resetting of the rear wheel-brake.*
- *Resetting is only required after replacing the hand-brake cable, the brake carrier or the brake pads/brake shoes.*

– Remove the centre console ⇒ Body Work; Rep. Gr. 68.

– Release the hand-brake.

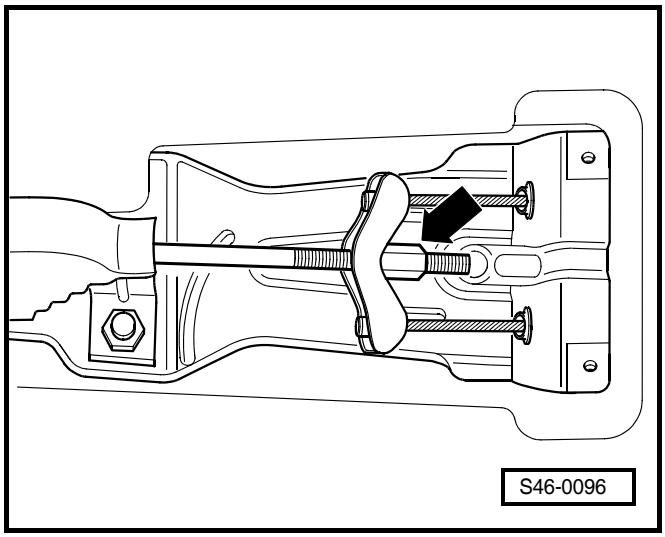
– Forcefully apply the foot brake repeatedly.

– Pull the handbrake on and release it three times.

This sets the components into position.

– Put the hand-brake lever into the 1st catch position (after being in the release position).

– Tighten adjusting nut -arrow- until both wheels are hard to turn by hand. ►




**Note**

*The adjusting nut must be screwed over the end of the tension rod (self-locking effect).*

– Release hand-brake and check whether both wheels rotate freely, if necessary release adjusting nut slightly.

– Put the hand-brake lever into the 4th catch position (after being in the release position).

No wheel should be rotatable; tighten the adjusting nut if necessary.

– Release hand-brake and check whether both wheels rotate freely, if necessary release adjusting nut slightly.

– Put the hand-brake lever into the 1st catch position and release the hand-brake.

The hand-brake must automatically return into the release position below the 1st catch.

– Install the centre console ⇒ Body Work; Rep. Gr. 68.

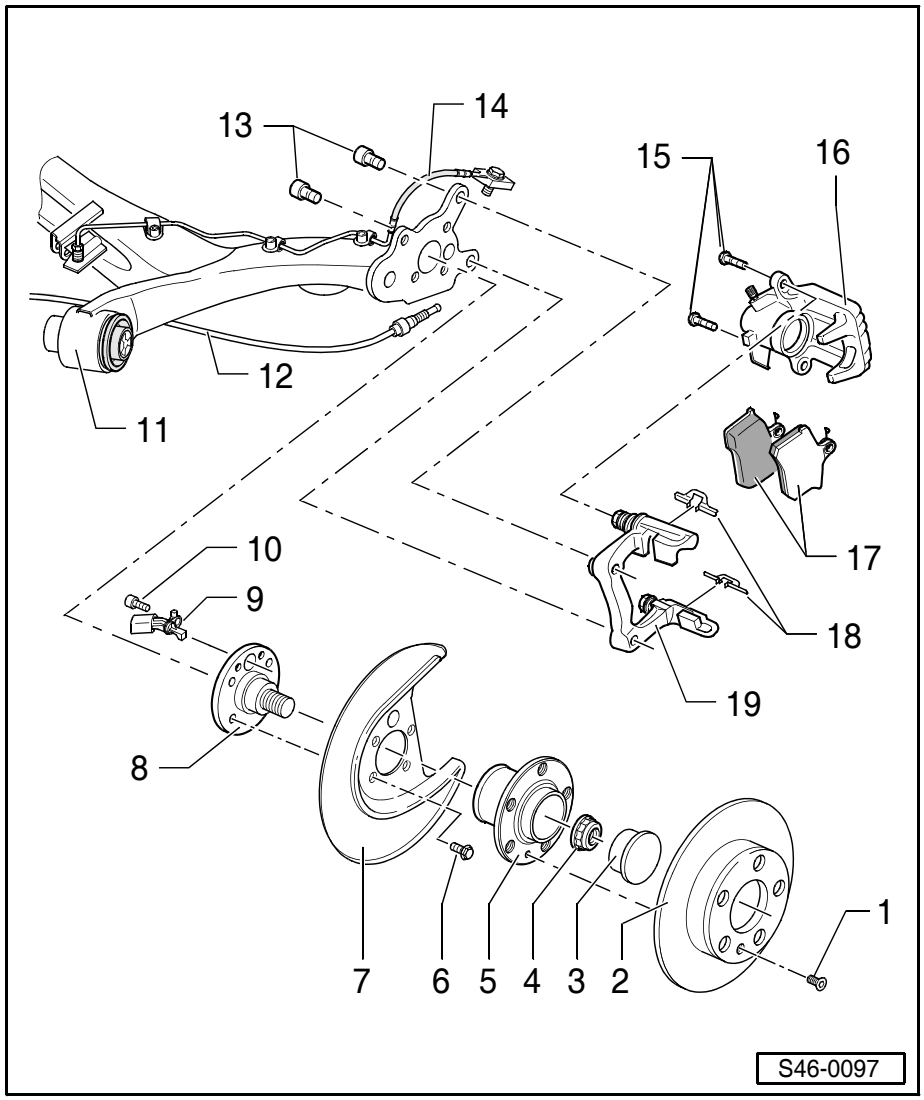
## Removing and installing rear brake - Disc brake

**Special tools, test and measuring equipment and aids required**

- Torque wrench
- Torque wrench with angle indicator
- Brake pedal load, e.g. -V.A.G 1869/2 -
- Brake filling and bleeding device, e. g. -ROMESS S15-
- Bleeding bottle (commercially available)
- Brake fluid ⇒ Chapter 00-3

**Note**

- *After replacing the brake pads forcefully apply the brake pedal repeatedly to ensure the brake pads go into their normal operating position.*
- *Generally tighten the brake line pipe screws to a tightening torque of 14 Nm.*
- *Use the brake pedal load, e.g. -V.A.G 1869/2- before removing a brake caliper or separating a brake hose from the brake caliper.*
- *Already used brake fluid must never be used again.*
- *Tightening torque of the wheel screws: 120 Nm.*




**1 - 4 Nm**

**2 - Brake disc**
- ❑ Thickness: 9 mm
- ❑ Wear limit: 7 mm
- ❑ if worn replace axle-wise

**3 - Cap**
- ❑ replace after each removal
- ❑ pressing off and inserting ⇒ Chapter 42-5

**4 - Self-locking twelve-point nut, 70 Nm and tighten a further 30°**
- ❑ replace after each removal

**5 - Wheel hub with wheel bearing**
- ❑ must be replaced completely
- ❑ removing and installing ⇒ Chapter 42-5
- ❑ assignment ⇒ Spare part catalogue

**6 - turn 30 Nm and 90°**
- ❑ replace after each removal

**7 - Cover plate**

**8 - Axle stud**

**9 - ABS speed sensor**

**10 - Allen screw, 8 Nm**
- ❑ for speed sensor ABS

**11 - Axle body**

**12 - Hand-brake cable**
- ❑ Setting the hand-brake ⇒ 46-2 page 13

**13 - Allan screw, tighten to 30 Nm and then turn by a further 30°**

**14 - Brake line with supports, hollow screw and seal**
- ❑ must be replaced completely, do not dismantle

- ❑ Tightening torque of the hollow screws: 35 Nm
- ❑ do not unscrew when replacing the brake pad

**15 - Self-locking hexagon screw, 35 Nm**

- ❑ replace after each removal

**16 - Brake caliper**

- ❑ removing:
- – Use brake pedal load
- – Unscrew brake line from brake caliper
- ❑ Installing:
- – Screw the brake line onto the brake caliper
- – Remove brake pedal load
- – Bleed the brake system ⇒ Chapter 47-4
- – repair ⇒ Chapter 47-1
- – One must first adjust the hand-brake cable after undertaking repair or replacement work
- – Setting the hand-brake ⇒ 46-2 page 13

**17 - Brake pads**

- ❑ Thickness: 16.9 mm (including the support plate)
- ❑ Wear limit: 2.0 mm without supporting plate
- ❑ Check thickness ⇒ Inspection and Maintenance
- ❑ always replace axle-wise
- ❑ removing and installing ⇒ 46-2 page 10

**18 - Pad retaining spring**

- ❑ always replace when changing the pads

**19 - Brake carrier with guide bolts and protective caps**

- ❑ must be assembled with sufficient grease on the guide bolt, supplied as a spare part
- ❑ fit a repair set if there is any damage to the protective caps or guide bolts; (use the enclosed grease packing to lubricate the guide bolts)

## Removing and installing brake pads - Disc brake

**Special tools, test and measuring equipment and auxiliary items required**

- ♦ Resetting and turning out tool -MP 9-401-
- ♦ Torque wrench
- ♦ Bleeding bottle (commercially available)
- ♦ Brake fluid ⇒ Chapter 00-3

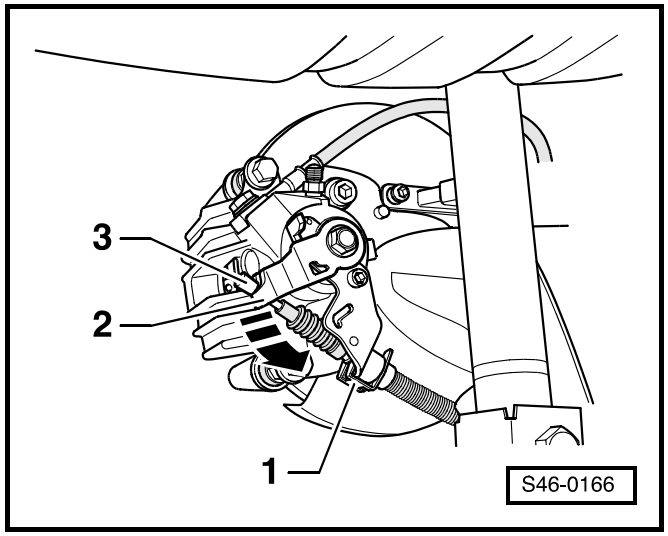
**Note**

- ♦ *When removing mark the brake pads you intend to keep using. Install in the same location, as otherwise this may cause uneven braking!*
- ♦ *Do not unscrew the brake line on the brake caliper when replacing the brake pad.*

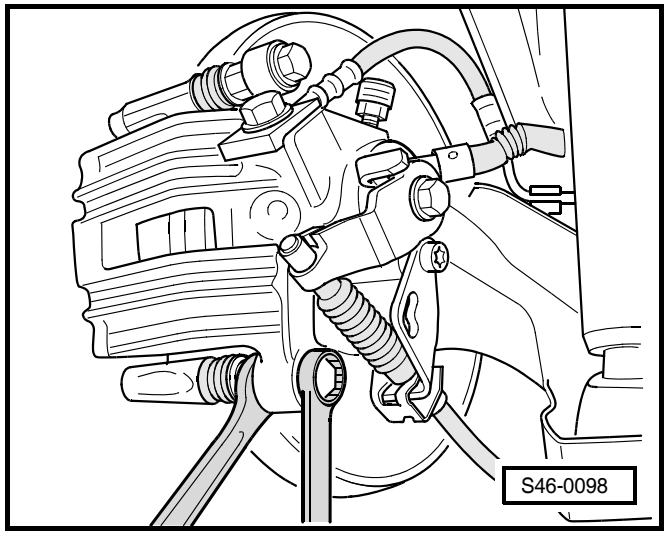
### Removing

– Remove wheel.

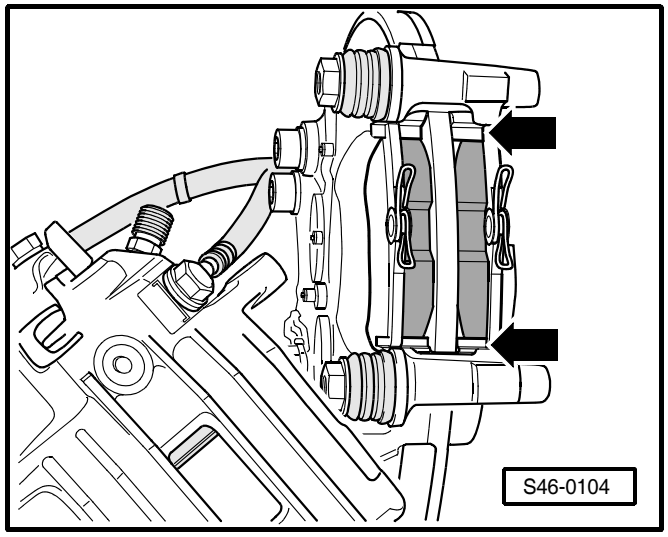
– Disconnect the plug connection for the brake pad wear indicator (where the vehcile is fitted with this - only right vehicle side).
– Lift off the clip -1- with a screwdriver and pull down to remove. ►
– Push the brake lever -2- in the direction of the arrow and unhook the hand-brake cable -3-.




– Unscrew the fixing screws of the brake carrier while counterholding the guide bolts. ►
– Remove the brake caliper and secure with wire in such a way that the weight of the brake caliper does not burden or damage the brake hose.




– Remove the brake pads and pad retaining springs -arrows-. ►




**Note**

- *Only use alcohol to clean the brake caliper housing.*
- *The adherend for the brake pads must be free from glue residues and grease.*

– Clean the brake caliper.

## Installing

**Note**

*Drain brake fluid from the brake fluid reservoir using a ventilation bottle before pushing the piston back in.*

**Caution!**

***Brake fluid is toxic and must never be sucked off by mouth.***

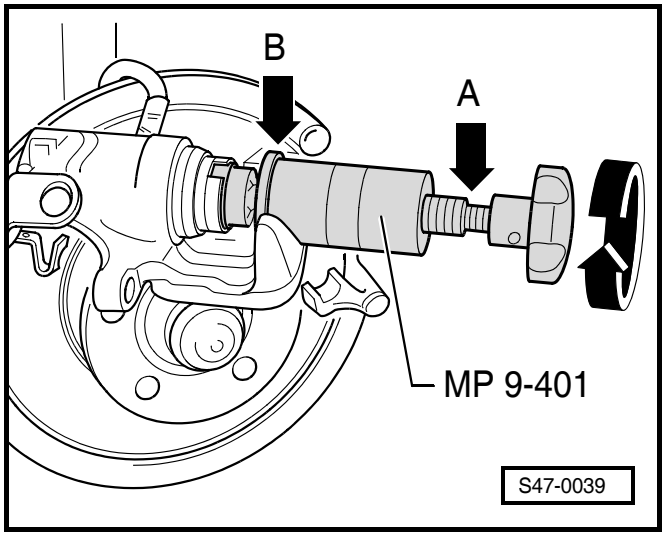
**Note**

- *Only use the resetting and turning out tool to reset the piston.*
- *When resetting the piston with a piston resetting device the automatic reset in the brake caliper is destroyed.*

– Insert theresetting and turning out tool -MP 9-401-, the tool collar -arrow B- must be located on the brake caliper.

– Place an open-jawed spanner SW 13 on a suitable spanner surface -arrow A- if the piston is difficult to move.

– Screw in the piston by turning the knurled wheel clockwise on the resetting and turning out tool -MP 9-401-.

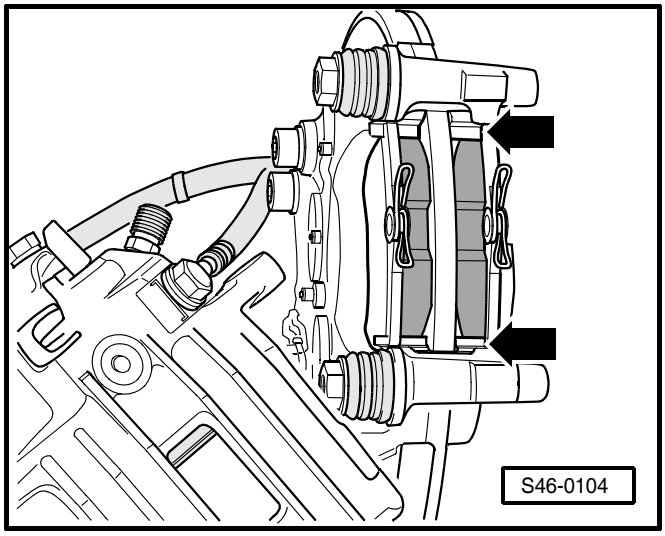



– Insert the new pad retaining springs -arrows- and brake pads in the brake carrier.

– Remove the protective foil from the supporting plate of the brake pad.

**Note**

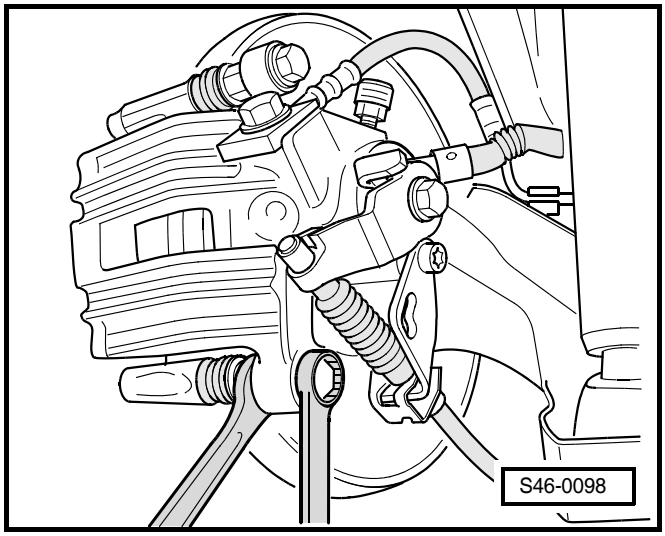
*There are four self-locking hexagon screws in the repair set, which must be fitted.*



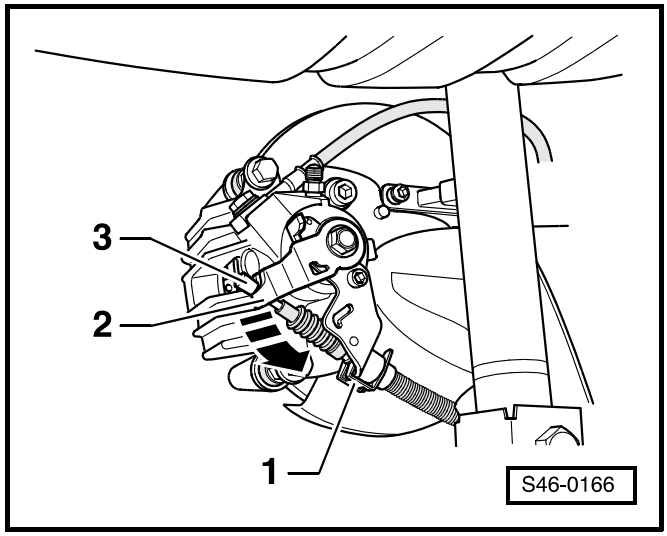

– Secure the brake caliper to the brake carrier using new self-locking screws.

Hold the guide bolts while tightening the screws.

Tightening torque: 35 Nm



– Push the brake lever -2- in the direction of the arrow and hook on the hand-brake cable -3-.
– Fit clip -1-.
– Setting the hand-brake ⇒ 46-2 page 13
– Connect up the plug connection for the brake pad wear indicator (where the vehcile is fitted with this - only right vehicle side).
– Attach the wheel.




**Note**

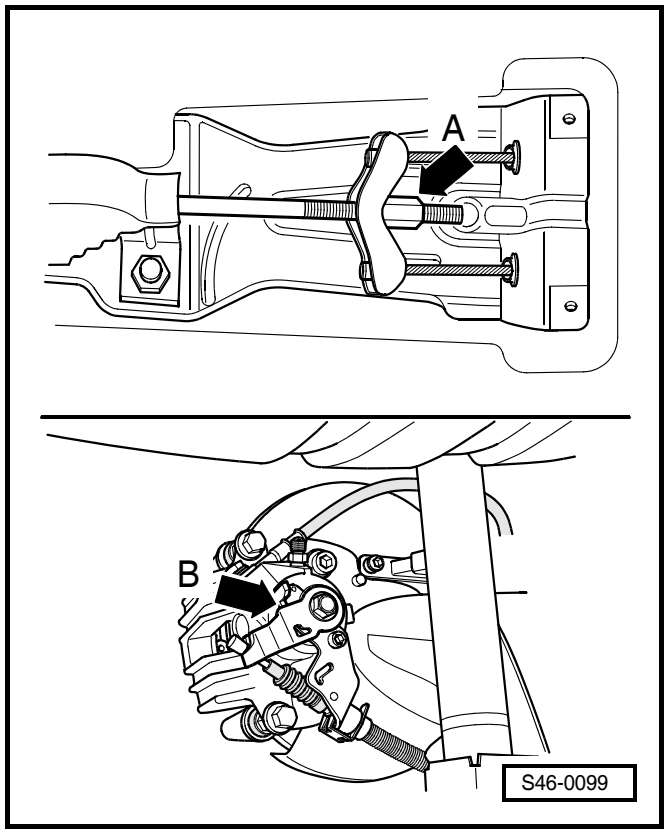
- *After each brake pad replacement forcefully apply the brake pedal repeatedly to ensure the brake pads go into their normal operating position.*
- *Check brake fluid level after replacing the brake pads, if necessary top up with brake fluid.*

## Setting the hand-brake - disc brake

**Note**

- *Resetting of the hand-brake is not required after resetting of the rear brake due to automatic resetting of the rear wheel-brake.*
- *Resetting is only required after replacing the hand-brake cable, the brake caliper or after replacing the brake pads or the brake disc.*
- *The brake pedal must be ventilated and fully functional.*

– Remove the centre console ⇒ Body Work; Rep. Gr. 68.
– Release the hand-brake.
– Forcefully apply the foot brake repeatedly.
– Tighten adjusting nut -arrow A- so far that the levers -arrow B- rise from the stops on the brake calipers.




**Note**

*The adjusting nut must be screwed over the end of the tension rod (self-locking effect).*

– Check distance -a- between the lever and stop on the left and right brake caliper using a feeler gauge.

  With the hand-brake released the total distance -a- (between the lever and the stop) on the left and right brake caliper must not be less than or exceed a minimum of 1 mm and a maximum of 4mm; the maximum distance of 3 mm on a brake must not be exceeded.

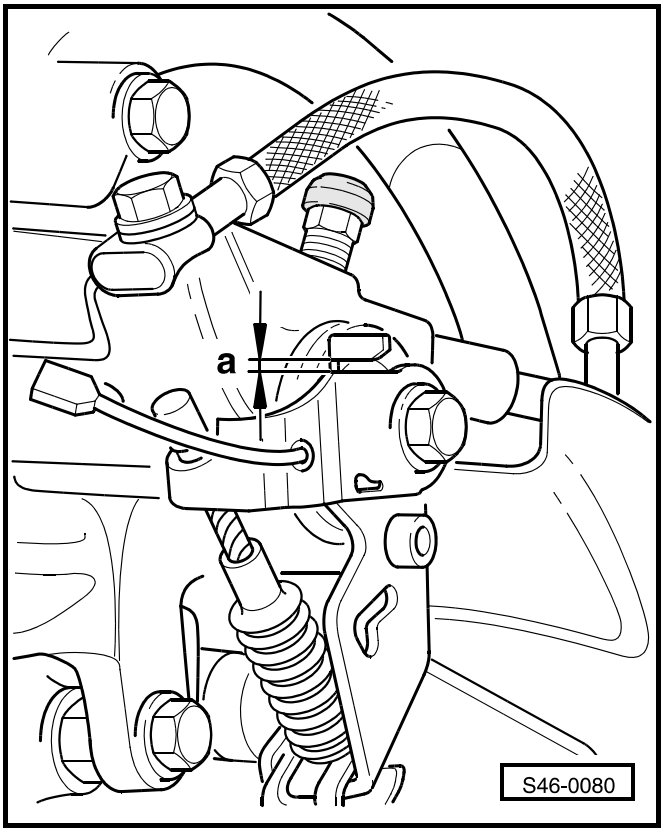
– Pull the handbrake on and release it three times. This sets the components into position.

– With the hand-brake released check whether the two wheels turn freely, release the adjusting nut slightly and check distance -a- again if necessary.

– Put the hand-brake lever into the 1st catch position and release the hand-brake.

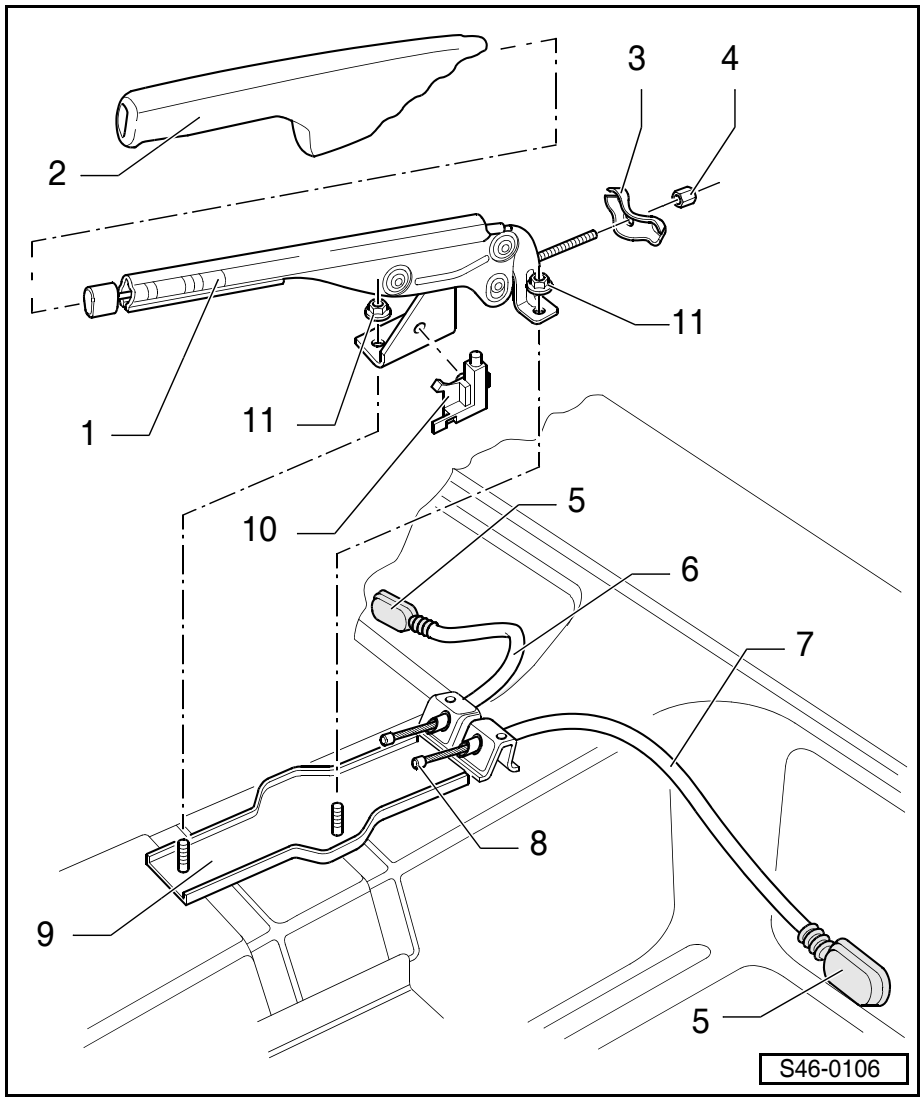
  The hand-brake must automatically return into the release position below the 1st catch.

– Install the centre console ⇒ Body Work; Rep. Gr. 68.



# 46-3 Handbrake

## Summary of components of hand brake




**1 - Hand-brake lever**
- ❑ removing and installing:
- – Removing the centre console ⇒ Body Work; Rep. Gr. 68
- ❑ Assignment ⇒ Spare part catalogue

**2 - Cover**
- ❑ removing:
- – Press down the catch pegs at the bottom of the trim panel with a small screwdriver and pull off the trim towards the front.
- ❑ Installing:
- – Slide the trim panel until the catch peg catches onto the hand-brake lever. Check trim panel catch.
- ❑ Assignment ⇒ Spare part catalogue

**3 - Compensating clamp**

**4 - Adjusting nut**
- ❑ Setting the hand-brake ⇒ Chap. 46-2

**5 - Grommet**
- ❑ removing:
- – Pull hand-brake cable from guide tube.
- – Release grommet.
- – Pull grommet from guide tube.
- ❑ Installing:

  The installation occurs in reverse order. After installing make sure the grommet fits correctly in the body recess.

**6 - Right guide tube**
- ❑ for hand-brake cable

**7 - Left guide tube**
- ❑ for hand-brake cable

**8 - Hand-brake cable**
- ❑ removing and installing ⇒ 46-3 page 2
- ❑ Check fitting position:

  The positioning ring of the hand-brake cable must be located in the recess of the retaining clip.

**9 - Hand-brake lever support**
- ❑ welded to the body tunnel

**10 - Switch for hand-brake control -F9-**
- ❑ clipped onto hand-brake lever
- ❑ replace if defective

**11 - Tighten self-locking hexagon nut 20 Nm and 90°**
- ❑ replace after each removal

# Removing and installing the hand-brake cable

**Special tools, test and measuring equipment and auxiliary items required**

- Torque wrench (40...200 Nm), e.g. -V.A.G 1332-

## Removing

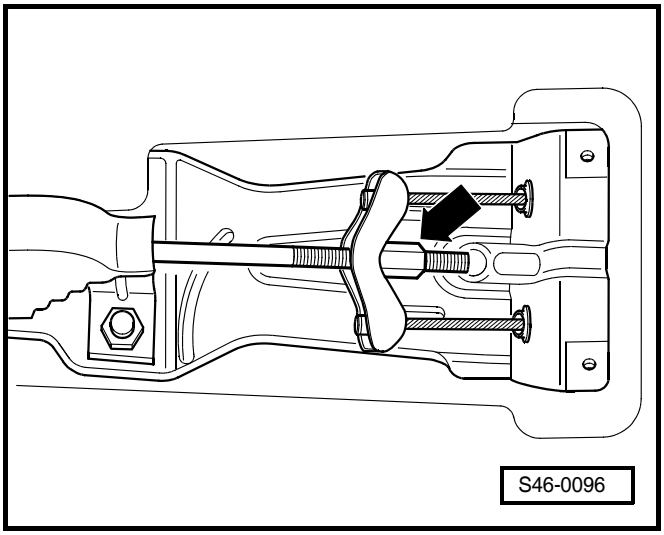
– Removing the centre console ⇒ Body Work; Rep. Gr. 68.

– Raise vehicle.

– Remove wheel.

– Release the hand-brake.

– Release adjusting nut -arrow- and unhook hand-brake cable from compensating clamp. ►




**Note**

*The retaining clip for the hand-brake cable must be replaced each time it is removed.*

– Remove the retaining clip of the rear axle.

– Unhook hand-brake cable from brackets.

### Vehicles with drum brakes

– Removing brake drum ⇒ Chap. 46-2.

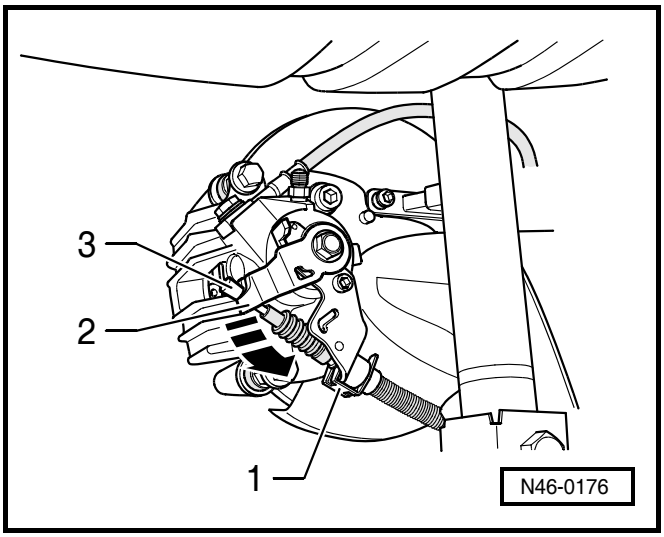
– Unhook the hand-brake cable from the brake lever.

– Pull hand-brake cable out of brake carrier.

### Vehicles with disc brakes

– Lift off the clip -1- with a screwdriver and pull down to remove. ►

– Push the brake lever -2- in the direction of the arrow and unhook the hand-brake cable -3-.




### Continued for all vehicles

– Pull hand-brake cable out of guide tube.

## Installing

The installation occurs in reverse order.

– Insert new retaining clip on the hand-brake cable.

The positioning ring must be located in the recess of the retaining clip.

– Setting the hand-brake:

Vehicles with drum brakes ⇒ Chap. 46-2

Vehicles with disc brakes ⇒ Chap. 46-2