Technical Info

TI-No.: 35.10U06387A **Distributed: 00.00.2008**
Your contact is Setra customer service in the respective country

TYPE: S217HDH-USA
Model designation: 626028
UNIT.:
TITLE: SAFETY RECALL Wheel hub exchange S217 HDH-USA

COMPLAINT
Under certain circumstances, the wheel hubs can break after high mileage and under high loading caused by extreme operating conditions.

CAUSE
Under extreme loading caused by extreme conditions of use in conjunction with insufficient tire air pressure, insufficient tightening of the wheel bolts and possible poor maintenance of the front axle parts, cracking of the wheel hubs can occur.

REMEDY
Replacement of the front axle wheel hubs.

NOTE
The wheel bearings are to be reused after thorough inspection. To avoid damage of the bearings during dismantling, the tools specified in the work instruction are to be used.

The removed wheel hubs are to be rendered unserviceable and disposed of locally.

SPARE PARTS REQUIRED

Quantity	Name	Number	Remark
2	Front wheel hub	A 627,334 00 01	
2	Impulse ring D 165 x D 141 x 14	315-24.11.118-030	
20	Wheel bolts M 22 x 1.5 x 60	6.125.312.233.0	for wheel hub A 627 334 00 01 with steel rim
20	Wheel bolts M 22 x 1.5 x 69	A 627,401 00 71	for wheel hub A 627 334 00 01 with aluminum rim
2	Hub cap	139-24.11.113-12.0	
2	Gasket	129-24.11.171-01.0	
2	Radial shaft sealing ring 100 x 140 x 15 DFS	A 012 997 15 46	
2	Radial shaft sealing ring 70 x 81.5 x 6 DG UV02	4.753.799.000.0	
20	Locking shaped screw M 16 x 1.5 x 55	319-24.13.311-01.0	
4	Locking shaped screw M 20 x 1.5 x 55	179-24.11.116-38.0	
1	Multipurpose grease	A 001 989 34 51	800 g, according to lubricant sheet 267.1

JOB TEXTS

Job No.	Job text	Target job duration /h	Remark
02-4346	Replacement of right and left front axle wheel hubs.	6,6	

These times are valid for hourly paid work.

CLAIM NUMBER

33920 69	Wheel hub replacement

Removing the front axle wheel hub

Notes about important additional information

Warning notices about damage to property that may possibly occur if the notice is not heeded

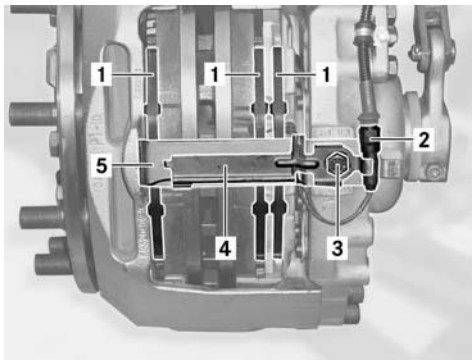
Danger! Warning notices for risks to people

Notes about environmental protection measures

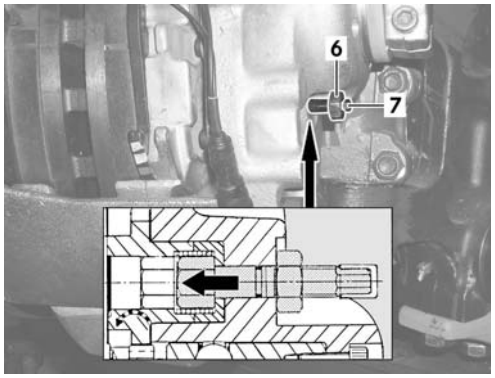
Preparation:

Remove the brake pad

Danger! Every time the brake pad is removed, the brake caliper bearing must be checked for mobility, the brake disc for condition and the sealing elements for damage.

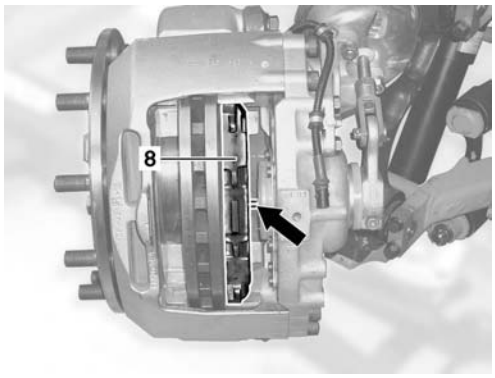


- Disconnect the plug connection (2) from the brake pad wear sensor.
- Unscrew screw (3) from the pad mounting bracket (5), take off the cable guidance plate (4) and connection cable of the brake wear sensor from the pad mounting bracket.
- Take off the pad mounting bracket from the brake caliper.
- Remove the pad retaining springs (1) from the pad backing plates and the pressure plate.



- Remove the protective cap from the adjuster device.
- Undo the lock nut (6) from the adjuster device and screw back as far as the thread end of the adjustment bolt (7).
- Press the adjustment bolt (7) into the brake caliper housing and lightly turn to and fro until it noticeably engages in the adjuster device.
- Once the adjustment bolt is engaged, set the adjustment device so far back in the activation direction of the diaphragm cylinder, that the brake pad can be pulled out.

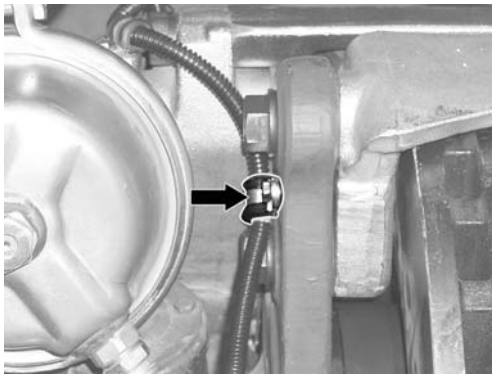
To push it back use a ratchet spanner with a socket.



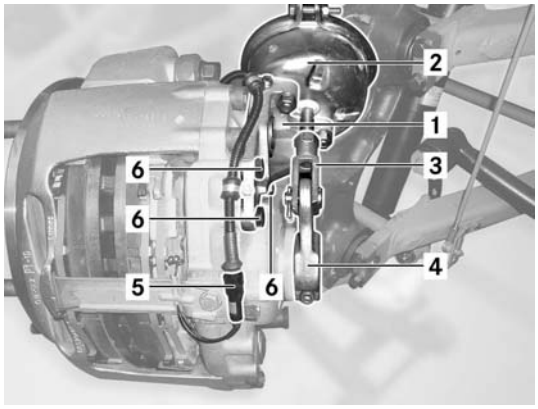
- Pull the brake pad out of the pad groove and remove the pressure plate (8).
- Clean the brake caliper.

Danger! For health reasons, cleaning or drying with compressed air is not permitted. To clean, use only a vacuum cleaner or moist cleaning cloths.

Remove the diaphragm cylinder with the retainer



- Unscrew the cable clip (arrow) of the electrical connection cable from the stub axle.



- Disconnect the plug connection (5) from the brake pad wear sensor.
- Remove the actuating rod (3) from the brake lever (4).
- Unscrews screws (6) at the bracket (1) of the membrane cylinder (2) and take-off the diaphragm cylinder with bracket from the brake housing.

To protect the brake hose and the electrical connection cable, tie the diaphragm cylinder to the wheel arch or the axle body so that it free from any tension or strain.

Check the bearing and sealing elements of the brake caliper

Check the bearing

- With the brake pads removed, manually push the floating frame several times.

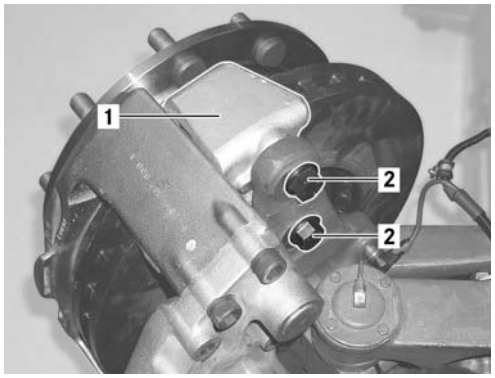
Danger! The floating frame must move easily. If it sticks, or does not move freely, repair the floating frame guide bearing.

Check the condition of the sealing elements

- Check the condition of the gaiter and protective cap of the guide bearing as well as ensuring they are correctly seated.
- Check the condition of the gaiter and protective cap at the cover of the brake housing as well as ensuring they are correctly seated.

Danger! The gaiters and protective caps may not have any cracks or other damage. Damaged sealing elements must be replaced immediately. Ingress of dirt or moisture into the brake housing or the guide bearings leads to corrosion. This can impair the operation of the tensioning mechanism, the adjuster and guidance of the floating caliper, and may, in extreme cases, lead to brake failure.

Remove the brake carrier with the brake caliper

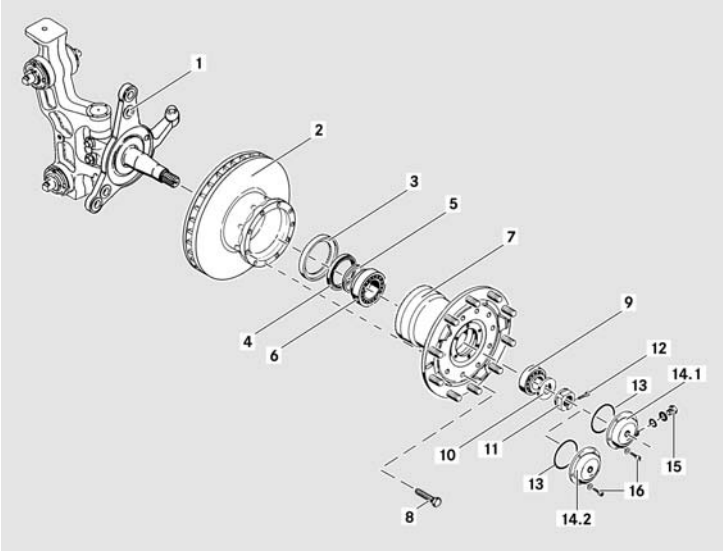


- Secure the brake caliper with a suitable hoist.

Danger! The weight of the brake caliper with the brake carrier is about 50 kg.

- Unscrew 4 screws (2) from the brake carrier (1) and raise the brake carrier with the brake caliper from the stub axle.

Remove the hub



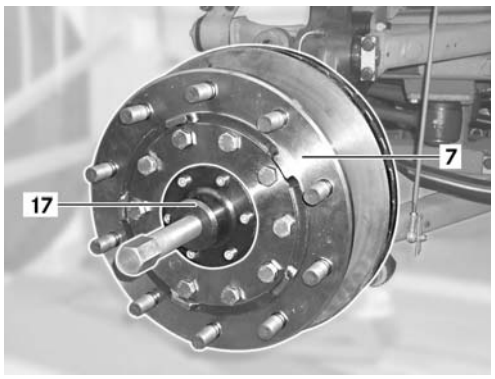
1	Stub axle	9	Outer tapered roller bearing
2	Brake disc	10	Thrust washer
3	Impulse ring ABS sensor	11	Axle nut
4	Outer radial shaft seal	12	Clamp screw
5	Inner radial shaft seal	13	O-Ring
6	Inner tapered roller bearing	14.1	Hub cap with oil check hole
7	Hub	14.2	Hub cap without oil check hole (grease lubrication)
8	Screw	15	Oil check screw
		16	Screw

- Hub with oil lubrication: unscrew the oil check screw (15), turn the oil check hole vertically downwards by turning the hub and allow the gear oil to run out.

Capture the gear oil in a suitable container and dispose of environmentally.

When fitting, lubrication of the hubs, must be changed over from oil to grease. The conversion to grease must be carried out on both front axle hubs as a matter of course.

- Unscrew the screws (16) of the hub cap (14.1, 14.2) and remove it.
- Remove the O-ring (13) from the hub cap.
- Loosen the cheese-head screw (12) at the axle nut (11).
- Unscrew axle nut (11) from the stub axle.
- Take off the thrust washer (10).



- Attach a hub puller (17) to the hub (7).

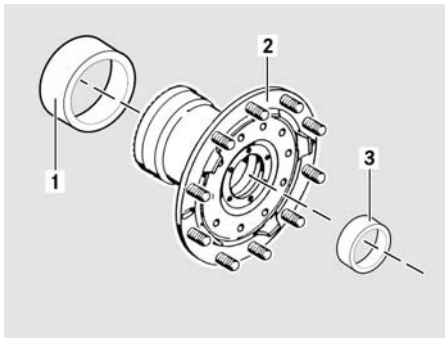
Attach the hub puller using M8 x 20 screws.

- Pull the hub (7) with brake disc (2) from the stub axle (1).
- Remove the hub puller and take out the outer tapered roller bearing (9) from the hub.
- Remove the radial shaft seal or the hub unitized seal ring (4) from the hub.
- Remove the inner tapered roller bearing (6) with the radial shaft ring (5) from the hub.
- Clean the outer and inner tapered roller bearings and check their condition, replace if necessary.

If the tapered roller bearings are refitted, remove the radial shaft seal (5) from the inner tapered roller bearing (6).

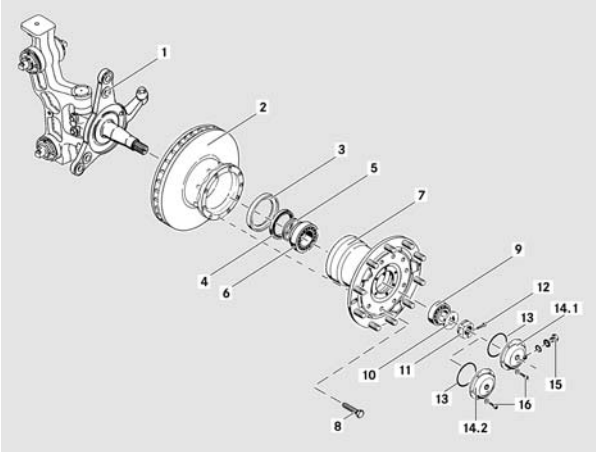
- Remove the brake disc (2) from the hub (7).

Renew the tapered roller bearing at the front axle hub as required



- Remove the inner and outer bearing ring (1, 3) from the hub (2).
- Clean the seat of the bearing outer ring.
- Drive the inner bearing ring (1) with tool part A (17.2) of the assembly tool up to the stop in the hub.
- Drive the outer bearing ring (3) in as far as the stop in the wheel hub.

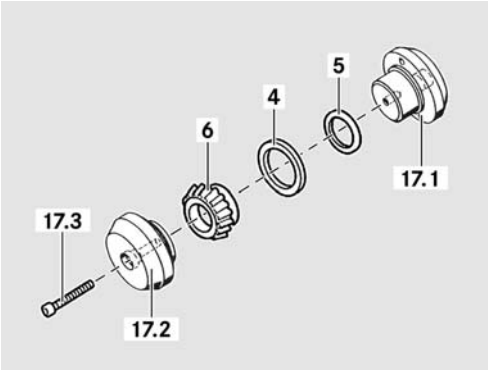
Fitting the front axle wheel hub



- After replacing the hub (7) fit the brake disc to the hub using new screws (8) and tighten the screws in a diagonal pattern.

Nm 305 Nm (225 Ft-lbs)

- Before refitting, clean the inner chamber of the hub to remove any oil residues if the hub was previously oil-lubricated.
- Clean the contact surface of the stub axle and remove any rust.
- Clean the axle stub and degrease the bearing seats.

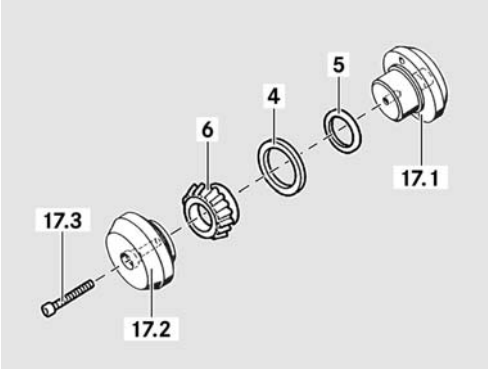


- Place the inner radial shaft seal (5) on tool part B (17.1) of the assembly tool.

The closed side of the radial shaft seal must lie against the tool par. Half fill (50 %) the space between the seal lips with grease.

- Position the outer radial shaft seal (4) on the tapered roller bearing (6).

Half fill (50 %) the space between the seal lips with grease. The open side of the radial shaft seal must lie against the tapered roller bearing.



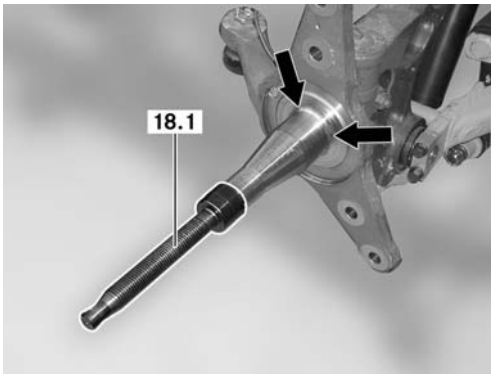
- Place the inner roller bearing (6) on tool part A (17.2) of the assembly tool.
- Place tool part B (17.1) with the inner radial shaft seal on the outer radial shaft seal and screw in screw (17.3).
- Pull the radial shaft seal using screw (17.3) up to the stop on the inner tapered roller bearing.
- Remove the assembly tool from the tapered roller bearing.
- Grease the inner and outer tapered roller bearings.

The amount of grease to use for the inner tapered roller bearing is about 210 g, the amount for the outer one is about 170 g. Apply the greater part of each quantity of grease to the bearing cage and the space between the tapered rollers. Use the remainder of the grease to fill the hub space between the two tapered roller bearings.

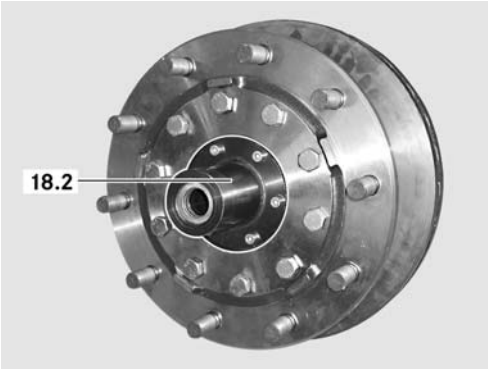
- Drive the inner tapered roller bearing using tool part B (17.1) of the assembly tool up to the stop in the hub.

- Check the impulse ring (3) of the ABS sensor at the hub for its condition, renew if necessary.

Heat the new impulse ring to about 100 °C (212 °F) before fitting. (Submerse in boiling water for approx. 10 minutes)

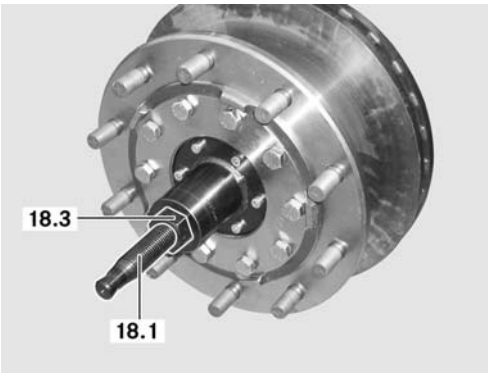


- Apply grease all around the interface between the axle stub and the contact surface (arrow).
- Screw the spindle (18.1) of the hub puller onto the axle stub.

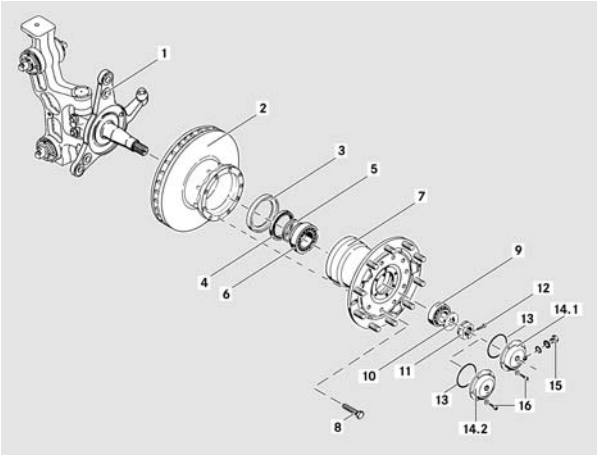


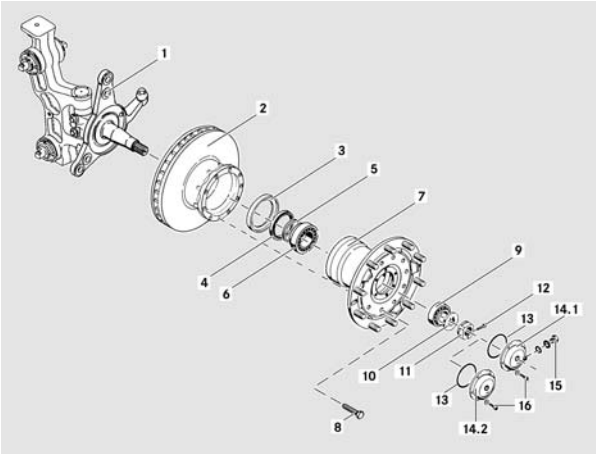
- Attach the flange (18.2) of the hub puller to the hub.

Attach the flange using M8 x 20 screws.



- Place the hub with brake disc on the stub axle (1) and screw nut (18.3) on to the spindle (18.1) of the hub puller.
- Remove the hub removal and fitting device or hoist from the hub.
- Tighten the hub up to the stop.
- Remove the hub puller from the hub and stub axle.





- Insert the outer tapered roller bearing (9) in the hub, position the thrust washer (10) and screw on the axle nut (11).
- Carefully tighten the axle nut by continuous turning of the hub, until a slight increase in the friction torque is noticed - i.e. the hub becomes more difficult to turn.
- Release the axle nut 1/12 of a turn and tighten the axle nut clamp screw (12).

Nm 40 Nm (29 Ft-lbs)

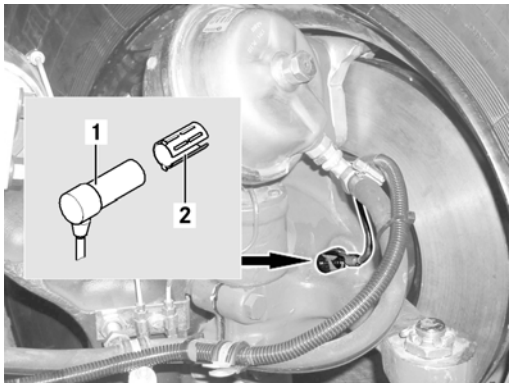
- Slightly grease the new paper seal (13) of the hub cap (14) and insert in the cap groove.
- Place the hub cap on the hub and tighten the screws in a diagonal pattern.

Nm 23 Nm (17 Ft-lbs)

- Insert the ABS sensor by hand until it contacts the impulse ring.

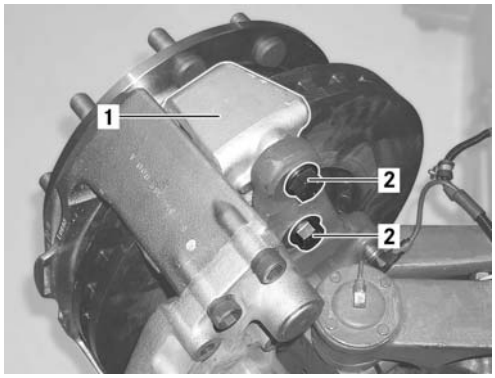
The distance between the ABS sensor and the impulse ring adjusts itself automatically due to the wheel bearing play during running.

If the ABS sensor (1) is stuck, do not use a hammer or similar. In this case replace the ABS sensor and collet (2).



Finishing off:

Fit the brake carrier with the brake caliper

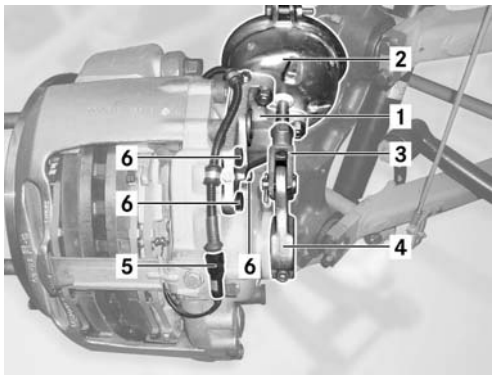


- Attach the brake carrier (1) with the brake caliper on the stub axle, screw in 4 new screws (2) and tighten.

Nm 515 Nm (380 Ft-lbs)

- Remove the hoist from the brake caliper.

Fit the diaphragm cylinder and retainer



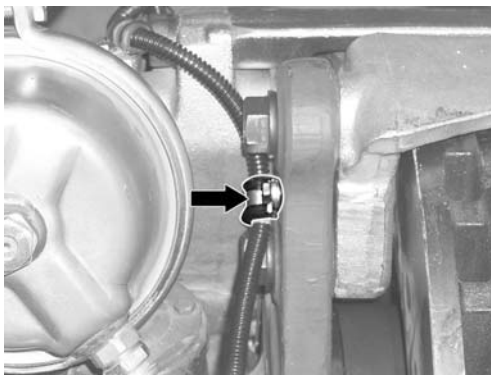
- Place the retainer (1) of the diaphragm cylinder (2) on the brake housing, screw in and tighten screws (6).

Use new screws.

Nm 120 Nm (88 Ft-lbs)

- Position the actuating rod (3) on the brake lever (4), insert and tighten the bearing bolt.

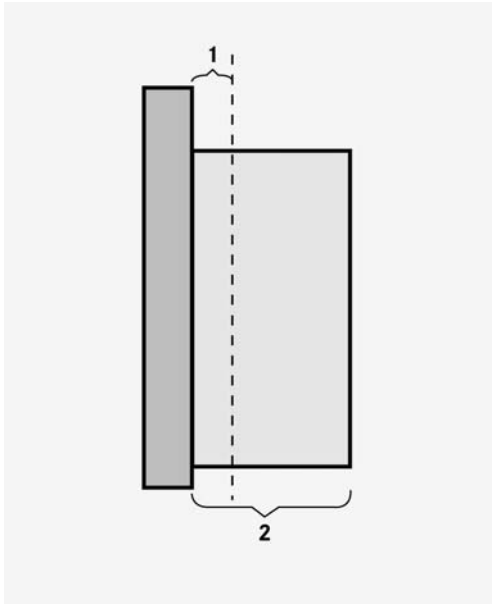
If the old diaphragm cylinder is refitted, check the bearing bolt and fork head for wear and replace as necessary. Grease the bearing bolt before fitting. The bearing bolt must be able to be inserted free from any strain.



- Screw the cable clip (arrow) of the electrical connection cable from the stub axle.
- With the brake pads fitted, press the brakes several times and check the leak-tightness of the diaphragm cylinder.

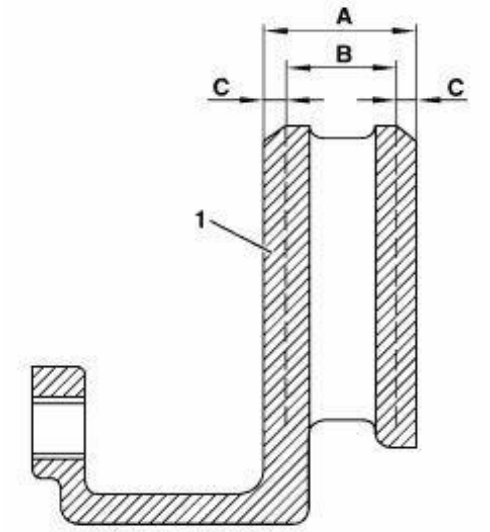
Fit the brake pads

Danger! All the brake pads of an axle must be changed at the same time. Only brake pads of approved Setra quality may be fitted. If this regulation is not adhered to, the vehicle operating licence expires automatically.



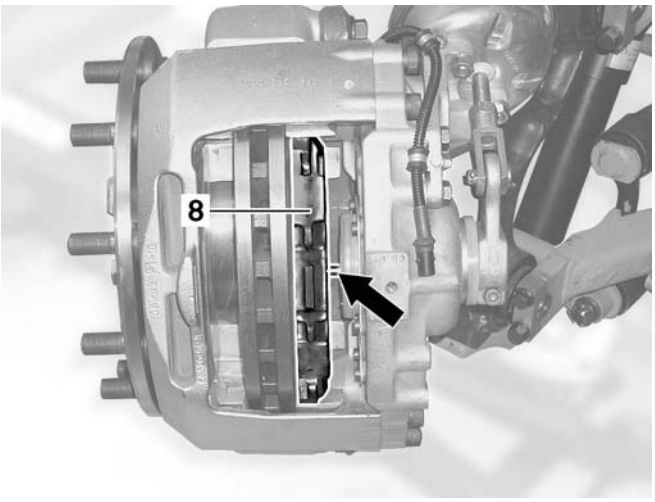
- Check the friction lining thickness (1). Minimum thickness: **2mm**

Danger! To avoid damage to the brake disc, the brake pads must be replaced if the brake lining thickness is 2 mm, measured from the mounting plate, when measured at the thinnest point (1). If this regulation is not adhered to, there is a risk that the brake disc will be damaged once the brake pads wear out and that braking efficiency will be reduced.



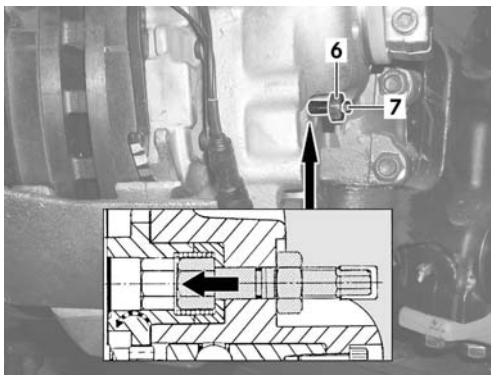
- Measure the brake disc thickness.

Brake disc thickness when new (A)	: **45 mm**
1.Repair dimension (B) (Use of normal sized brake pads)	: **41 – 45 mm**
2.Repair dimension (B) (Use of over-sized brake pads)	: **38 – 40 mm**
Absolute wear dimension (B) (Replace brake disc immediately)	: **at least 35 mm**



- Insert the pressure plate in the pad groove.

The locking pin of the anti-twist device at the pressure screw (arrow) must engage in the pressure plate.



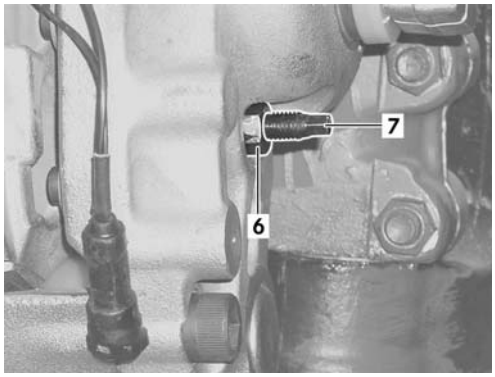
- If new brake pads are fitted, push back the adjustment device in the activation direction of the diaphragm cylinder using the engaged adjustment bolt (7).

To prevent the locking pin from slipping out when setting back the adjustment device, guide the pressure plate (8) after it by hand. If the end stop of the adjustment device is reached, advance the adjustment bolt by 1/4 of a turn in the direction opposite to the activation direction of the diaphragm cylinder. To adjust the adjustment device, use a ratchet spanner with a socket.

- Insert the outer brake pad in the pad groove and push the pad with the floating caliper against the brake disc.
- Insert the inner brake pad in the pad groove.

If a heat insulation plate was found when the inner brake pad was removed, then it must always be reinserted when fitting the pad. When fitting a heat insulation plate with knobs, ensure that these engage in recesses in the pressure plate.

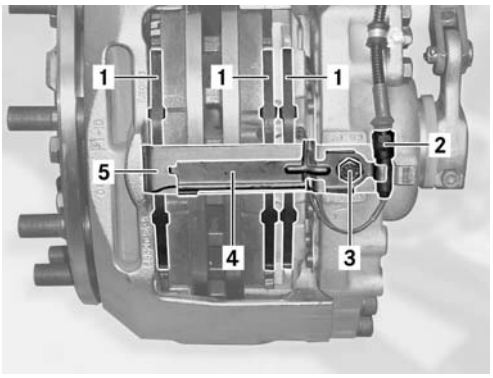
- Advance the adjuster with the engaged adjustment bolt (7) against the activation direction of the diaphragm cylinder, until both brake pads contact the brake disc.
- To ensure free-running of the brake disc, set back the adjuster using the engaged adjustment bolt by 3/4 of a turn in the activation direction of the membrane cylinder.
- Check for free-running of the brake disc, if necessary set the adjuster further back.



- Pull the adjustment bolt (7) completely out of the brake caliper housing and secure against the brake caliper housing using the lock nut (6).

Nm 13 Nm (9.5 Ft-lbs)

- Paint the adjustment bolt and lock nut with anti-corrosion agent and fit the protective cap.



- Place the pad retaining springs (1) on the pad backing plates and the pressure plate.

If new brake pads are fitted always use new pad retaining springs. If over-dimensioned brake pads are used, pad retaining springs of width 10 mm (dark colour) must be used on the brake pads. In addition, a pad retaining spring of normal width, 8 mm (light colour), must be used on the pressure plate.

Route the connection lines to the brake pad wear sensors under the brake pad retaining springs.

- Place the pad mounting bracket (5) on the brake caliper.
- Route the connection cable to the brake pad wear sensor beneath the cable guidance plate (4) and screw the cable guidance plate with the pad mounting bracket (5) to the brake caliper.

Ensure that the connection cable is free from rubbing and tension points. Route the connection cable in the guide grooves of the cable guidance plate (4) and not do not squash between the cable guidance plate the pad mounting bracket.

Nm 38 Nm (28 Ft-lbs)

- Connect the plug connection (2) of the connection cable and insert the plug connection in the retainer on the cable guidance plate.
- Activate the brakes several times to check the operation of the brakes and the diaphragm cylinder.