

34 21 320 Removing and installing/renewing both brake discs

Overview of Activities

Additional Information

Preliminary Work

- 1 Removing the rear left and right wheels
- 2 Remove rear brake pad wear sensor
- 3 Remove rear brake pads
- 4 Measure minimum brake disc thickness (rear brake)

Main Work

- 5 Remove rear brake disc
- 6 Installing the rear brake disc

Postprocesses

- 7 Grease brake pads, caliper carrier and brake caliper w...
- 8 Install rear brake pads
- 9 Installing the rear brake pad wear sensor
- 10 Installing the rear wheel on the left and right
- 11 Start-up or bedding-in of new brake pads and discs...

General information

WARNING

Vehicle may slip off the vehicle hoist if the vehicle hoist is handled incorrectly.

Danger! Life-threatening injuries!

- Observe safety information on raising the vehicle using a vehicle hoist.
- For additional information see: 00 ... Raise the vehicle using a vehicle lift.

CAUTION

Effects on other persons.

Danger of injury! Risk of damage!

- Make sure that no other persons are in or around the vehicle.

TECHNICAL INFORMATION

During work on the rear brake, it must be ensured that the button for the electromechanical parking brake cannot be pressed.

TECHNICAL INFORMATION

General information on changing the brake pads:

For vehicles older than 48 months it is recommended to replace the retaining spring or expanding spring.

The brake pad wear sensor must be replaced once it has been removed because the brake pad wear sensor loses its retention capability in the brake pad.

A CBS reset must be done after every brake pad exchange:

A CBS reset in the vehicle is possible in the event of a **partially ground down** brake pad wear sensor. The CBS display in the Central Information Display (CID) is active.

In the event of a brake pad wear sensor that is **not partially ground down**, a CBS reset is only possible with the diagnosis system. No CBS display in the Central Information Display (CID).

If bonded brake pads are installed, the brake pads must be renewed after releasing the adhesive strip.

TECHNICAL INFORMATION

To prevent damage to the surface coating: With floating callipers on the brake caliper mounting bracket or with fixed callipers in the brake caliper housing, do not clean the contact surfaces for the brake pads to the extent that it is possible.

Clean the contact surfaces with brake cleaner (BMW part number 83 19 2 154 780). Next, apply a thin coat of brake pad paste (BMW part number 83 19 2 158 851 for 3 g) or 83 19 2 158 852 for 100 g).

Spread brake pad paste on the marked surfaces with a brush.

For additional information see: 34 00 ... brake pad paste

1-Removing the rear left and right wheels

NOTICE

Perform the operations on the left and right side.

► Removing the wheel

- In vehicles with M Carbon ceramic brake: The wheel assembly jack must be used to remove the wheel (see workshop equipment).

This process is intended to prevent damage to the brake disc.



- If several wheels are removed at the same time: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use a suitable adapter from the tool set **0 492 518 (36 1 300)**.



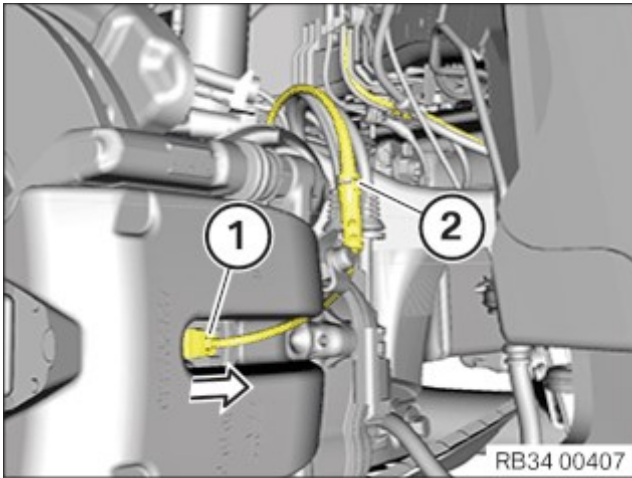
2-Remove rear brake pad wear sensor

i TECHNICAL INFORMATION

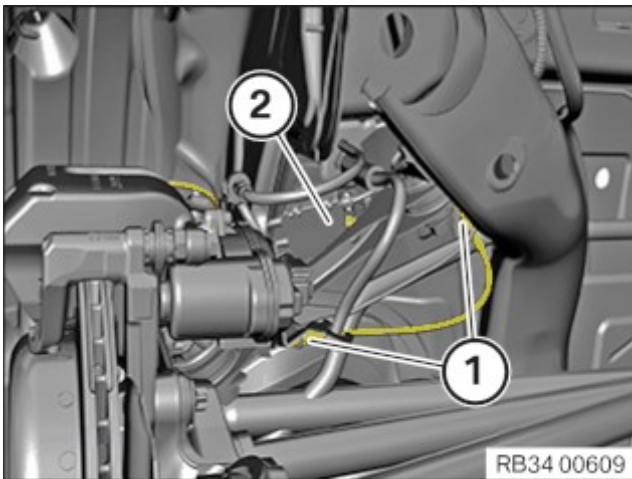
The brake pad wear sensor must be renewed immediately once it has been removed because the brake pad wear sensor loses its retention capacity in its brake pad.

If a brake pad wear sensor that has already been ground has to be replaced even though the minimum brake pad thickness has not yet been reached, you must observe the following:

The new sliding contact must be filed down with a file to the same length as the sanded sliding contact.



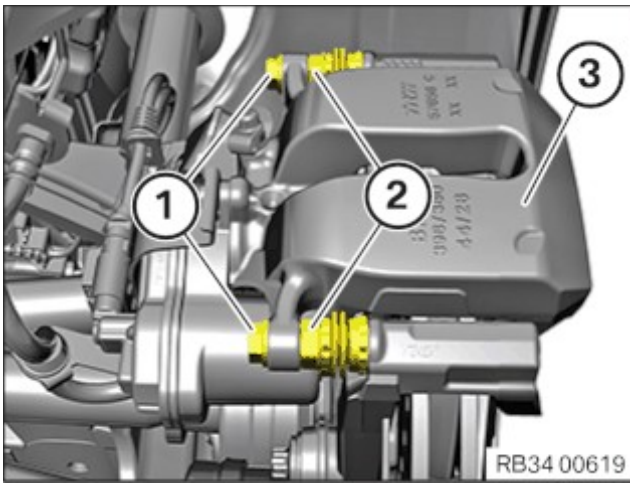
- Remove the brake pad wear sensor (1) out of the brake pad in the direction of the arrow.
- Detach the brake pad wear sensor cable (1) from the holder (2).



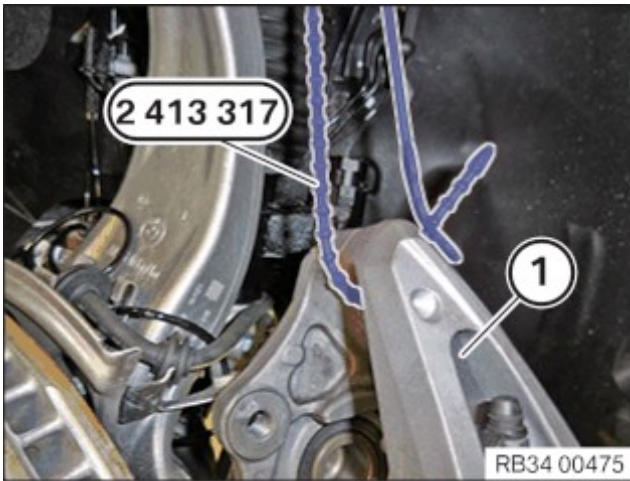
- Detach the brake pad wear sensor from the holders (1).
- Open the cover (2) and unlock and disconnect the plug connection.

3-Remove rear brake pads

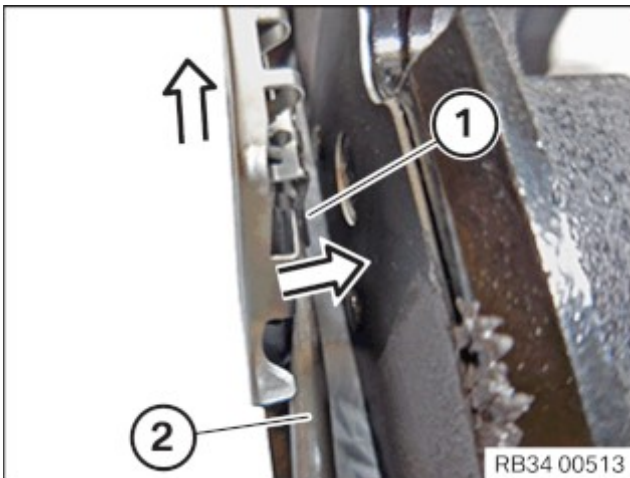
- Release the screws (1); if necessary use the hexagon head (2) for counter support.
- Remove brake caliper (3).



- Tie up brake calliper (1) using special tool (cable strap) **2 413 317**.
The brake caliper must not hang on the brake hose.

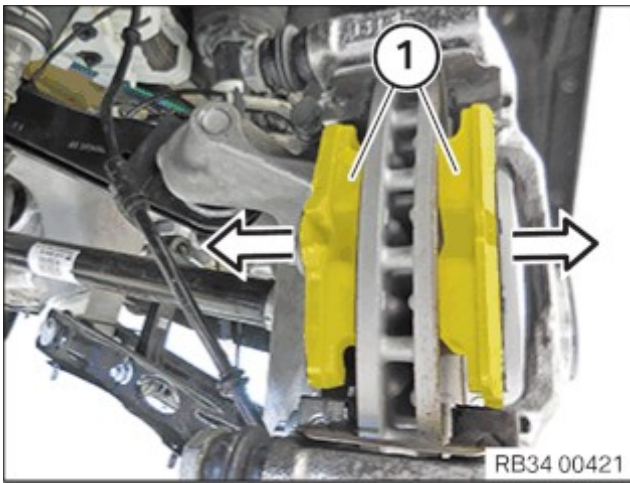


- **Equipment specification with design clip:**
- Lift retaining tab (1) with a screwdriver (2) and remove the design clip in the direction of arrow.

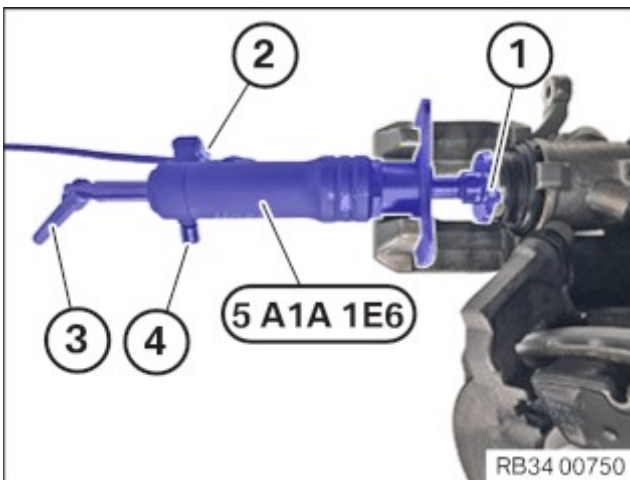
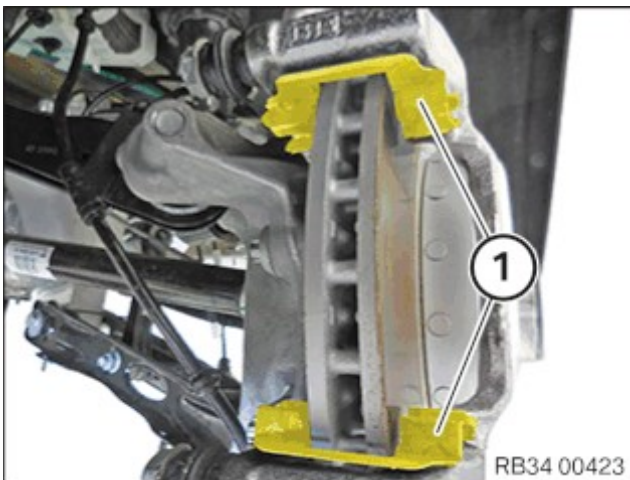


- Remove the brake pads (1) from the brake caliper in direction of arrow.
- Mark any worn brake pads.

If the brake pad wear exists on one side, they must not be mixed up.



- Remove the sliding plates (1).



i TECHNICAL INFORMATION

When pressing the brake piston back, note the brake fluid level in the expansion tank.

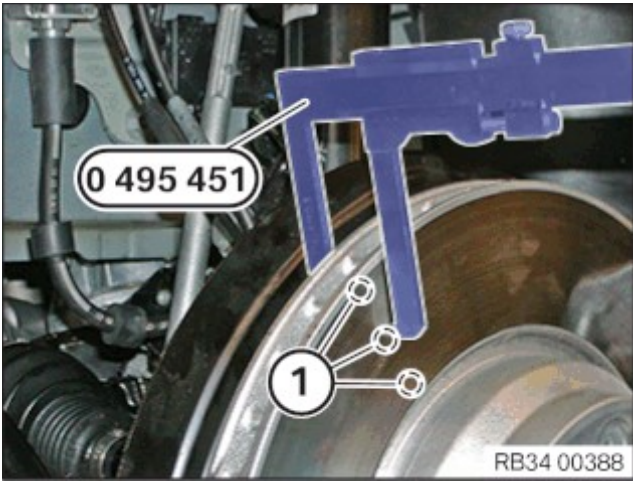
Overflowing brake fluid will damage the paintwork.

- Position the brake reset **5 A1A 1E6** in the brake caliper and hook the adapter plate (1) in the brake piston.
- Bring the brake reset **5 A1A 1E6** to the limit position by pressing the release button (2).
- Press and hold the release button (2) and turn the operating lever (3) in a clockwise direction until the brake piston is completely turned back.
- Release the brake reset **5 A1A 1E6** by pressing the release button (4) and remove it from the brake caliper.

4-Measure minimum brake disc thickness (rear brake)

- Check minimum brake disc thickness:

Place the special tool **0 495 451 (34 1 280)** at three measuring points in area (1) and measure.



Compare measuring result and lowest value with setpoint value.

New brake pads may only be installed if the brake disc thickness is greater than the minimum brake disc thickness.

Minimum brake disc thickness (nominal dimension 330x20)

Minimum brake disc thickness (brake disc 330x20)	18,4 mm
---	---------

Minimum brake disc thickness (nominal dimension 345x24)

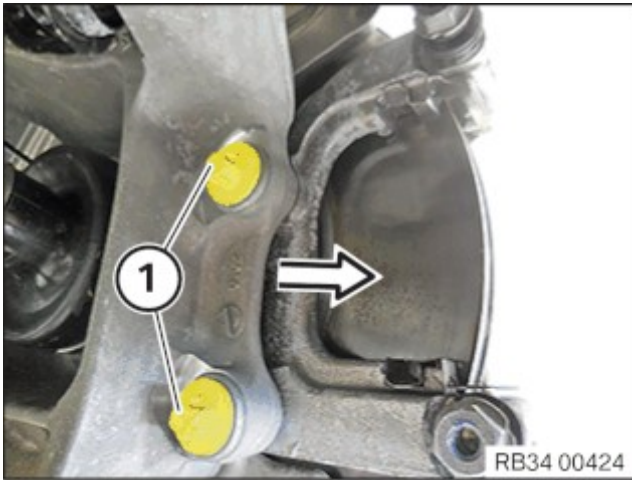
Minimum brake disc thickness (brake disc 345x24)	22,4 mm
---	---------

Minimum brake disc thickness (nominal dimension 370x24)

Minimum brake disc thickness (brake disc 370x24)	22,4 mm
---	---------

MAIN WORK

5-Remove rear brake disc



- Loosen the screws (1) and remove the caliper carrier.



- Loosen screw (1).

i TECHNICAL INFORMATION

Note the following for the removal of the brake disc:

Do not strike the friction ring with a tool under any circumstance (for example, hammer). If required, **carefully** tap with a rubber mallet against the brake disc chamber.

- Remove brake disc (2).

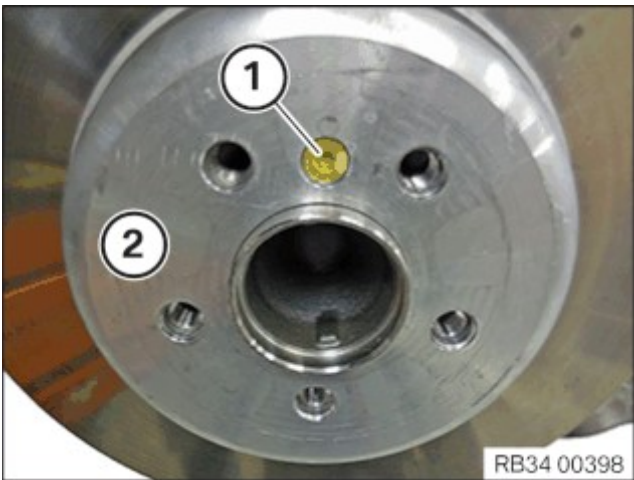
6-Installing the rear brake disc

i TECHNICAL INFORMATION

Brake discs must only be replaced in pairs (per axle).
Fit new brake discs only together with new brake pads.



- If the arrow 1 is engraved on the brake disc, then it must be shown in the direction of travel.
- In this case the brake discs on the left and the right are different!

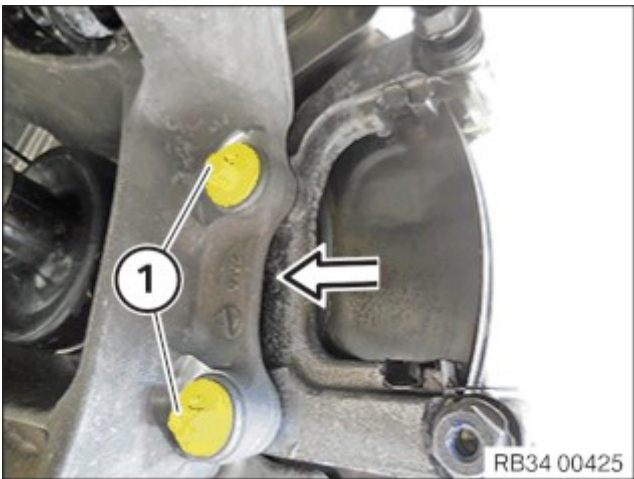


- Thoroughly clean the contact surface of the wheel hub and remove traces of corrosion if necessary.
- Irregularities in the contact surface can cause distortion in the brake disc!
- Mount brake disc (2).
 - Position and tighten the screw (1).
 - Renew screw.

Parts: Screw

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm
----	--------------	-------------------	-------



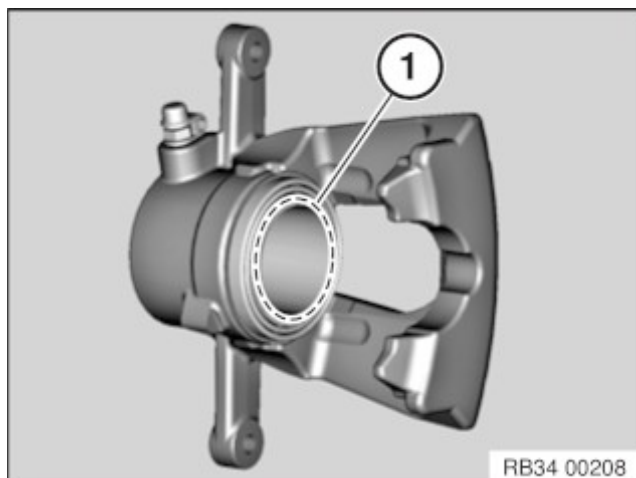
- Mount caliper carrier.
- Insert screws (1) and tighten.
- Renew screws.

Parts: Bolts

Brake caliper to wheel carrier, rear

Renew screw.	Tightening torque	110 Nm
--------------	-------------------	--------

7-Grease brake pads, caliper carrier and brake caliper with brake pad paste



i TECHNICAL INFORMATION

If brake pads are installed with an adhesive film, this area may only be cleaned and must **not** be greased with brake pad paste!

- Clean contact surface (1) of the brake piston with brake cleaner and apply a thin coat of brake pad paste.

Expendable materials

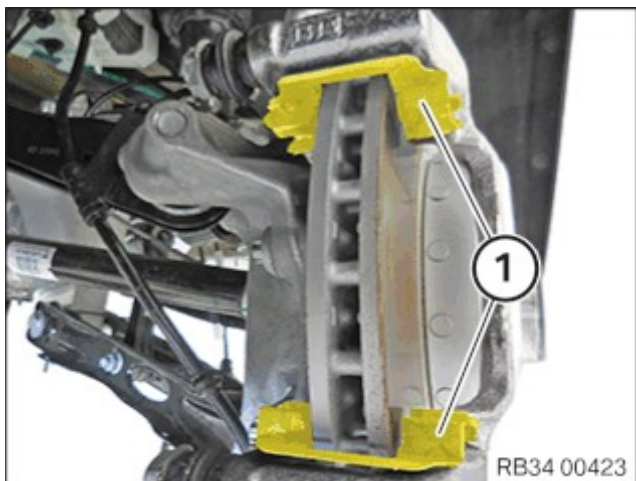
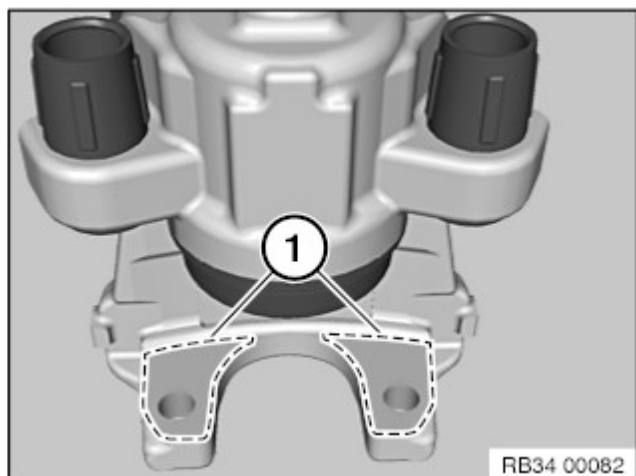
Brake block paste	3 g,	83 19 2 158 851
* TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	Bag	
	100 g,	83 19 2 158 852
	Tube	
	5 g,	83 23 0 140 233
	TU*	

- Check dust boots for damage; renew if necessary.

i TECHNICAL INFORMATION

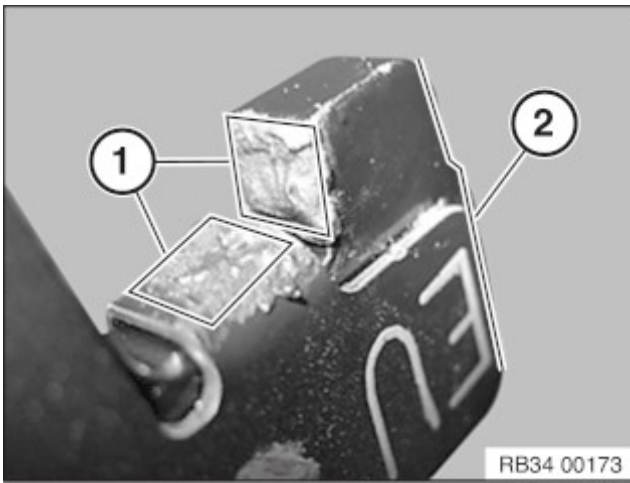
If brake pads are installed with an adhesive film, this area may only be cleaned and must **not** be greased with brake pad paste!

- Clean contact surface (1) of the brake piston with brake cleaner and apply a thin coat of brake pad paste.

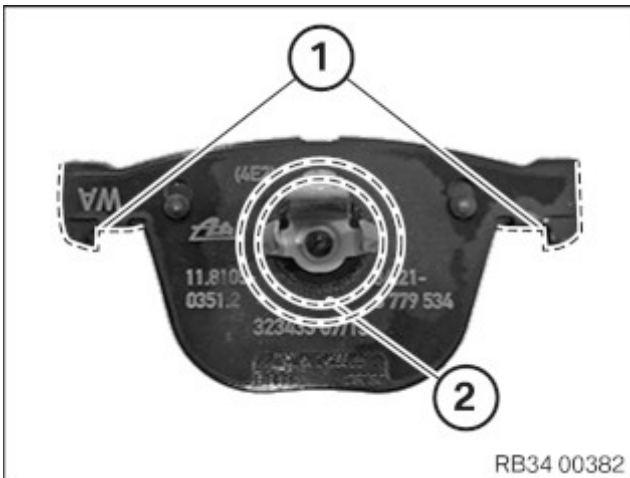
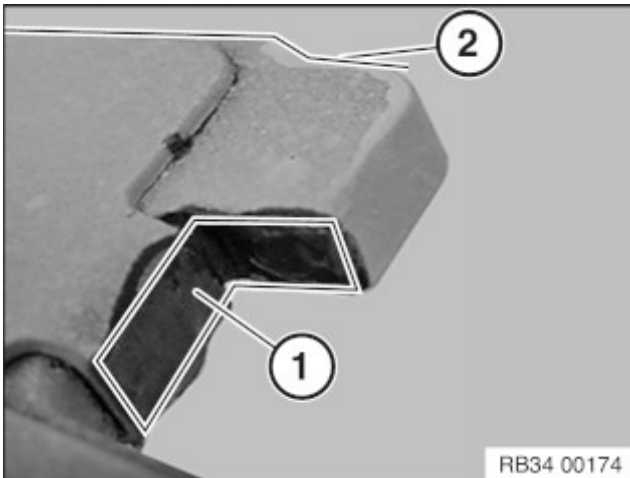


- Mount the sliding plates (1).

- Apply a thin coat of brake pad paste to the T-head of the inner brake pad in the areas (1) and (2).



- Apply a thin coat of brake pad paste to the T-head of the inner brake pad in the areas (1) and (2).



i TECHNICAL INFORMATION

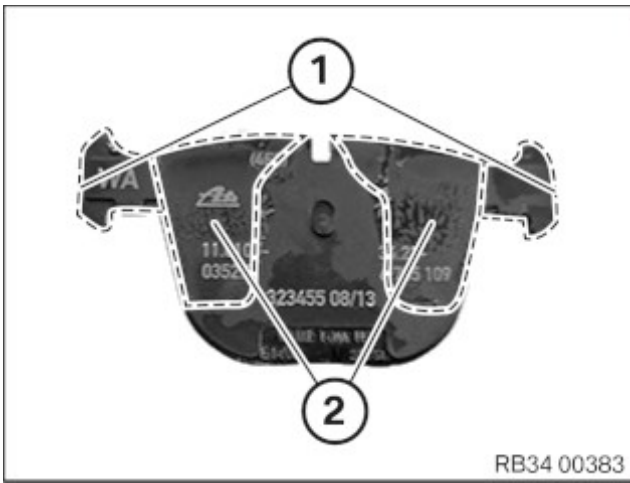
If brake pads are installed with an adhesive film, position 2 must **not** be greased with brake pad paste!

- Apply a thin coat of brake pad paste to the contact surface in the areas (1) and (2).

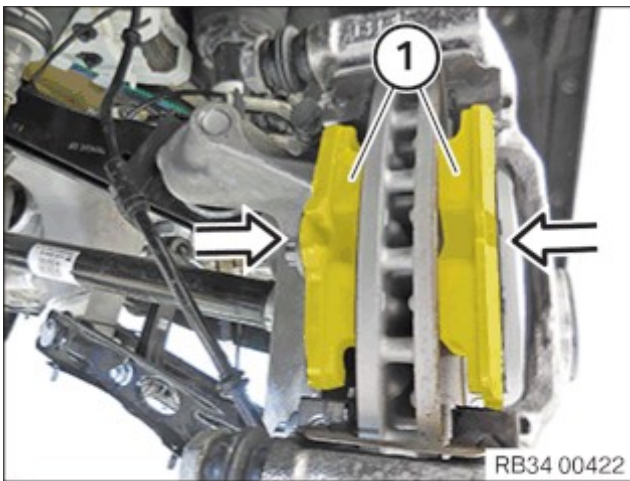
i TECHNICAL INFORMATION

If brake pads are installed with an adhesive film, position 2 must **not** be greased with brake pad paste!

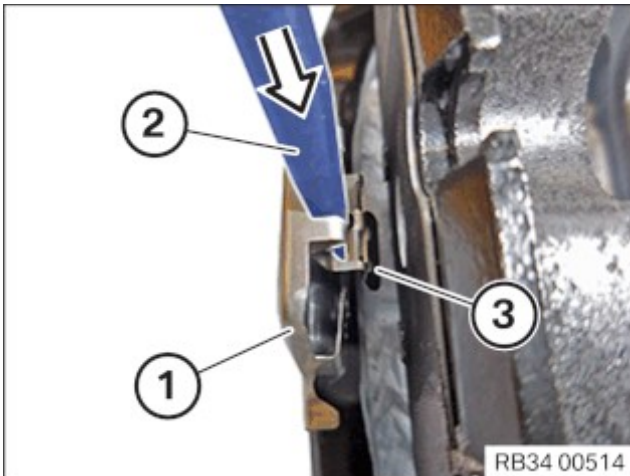
- Apply a thin coat of brake pad paste to the contact surface in the areas (1) and (2).



8–Install rear brake pads

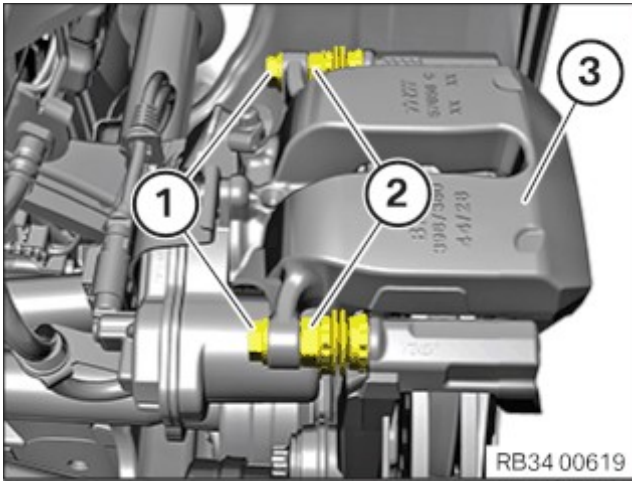


- Install the brake pads (1) in the direction of the arrow.
- If necessary for brake pads with adhesive film, pull off protective film.



- **Equipment specification with design clip:**
- Renew the design clip (1).
- **Parts:** Design clip
- The design clip (1) must be renewed after every disassembly.
- Fit the design clip (1) and engage it with a screwdriver (2) in the direction of the arrow.
- Ensure that the retaining tab (3) is correctly engaged.

- Remove the special tool (cable strap) **2 413 317**.
- Mount brake caliper (3).
- Renew screws (1).
- **Parts:** Screws
- Tighten the screws (1), if applicable, hold against the hexagon head (2).

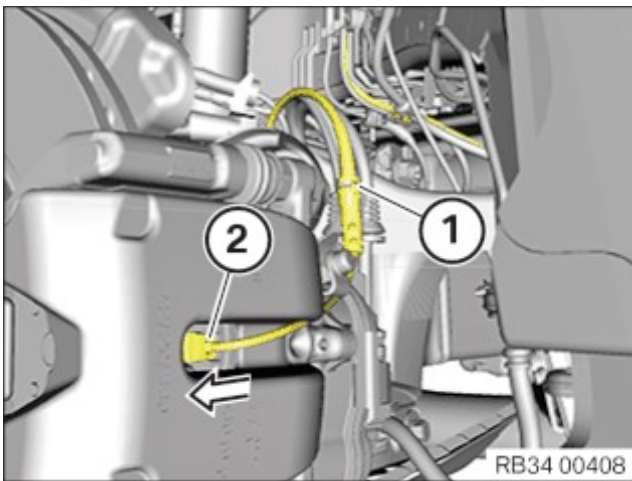


Guide bolt (brake caliper on caliper carrier)

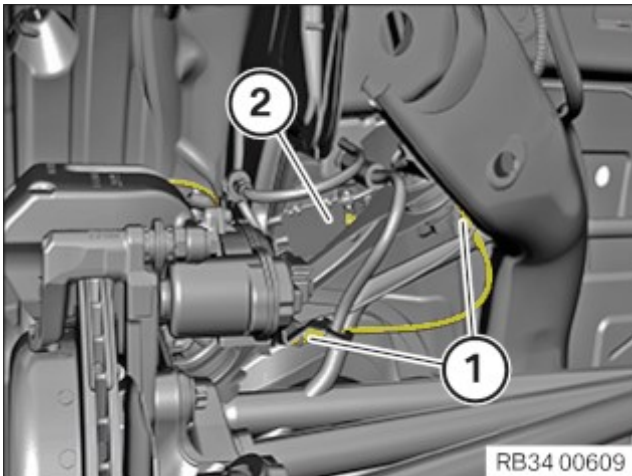
M8

35 Nm

9–Installing the rear brake pad wear sensor



- Install the brake pad wear sensor (2) in the direction of arrow in the brake pad and ensure its correct fit.
- Attach the cable of the brake pad wear sensor (2) in the holder (1).



- Attach cable of brake pad wear sensor in brackets (1).
- Connect the connector and lock it and close the cover (2).

10–Installing the rear wheel on the left and right

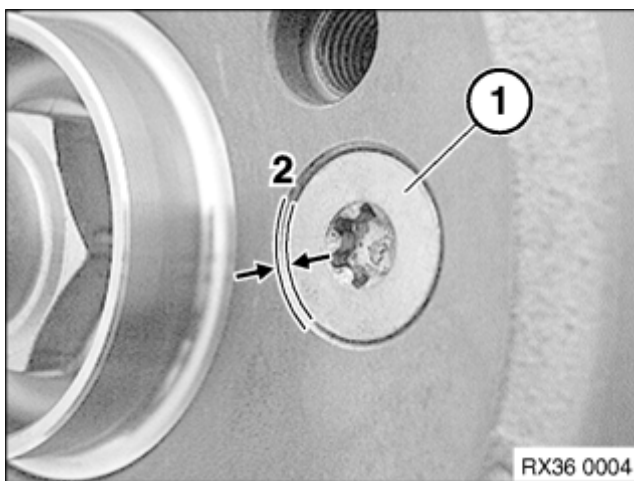
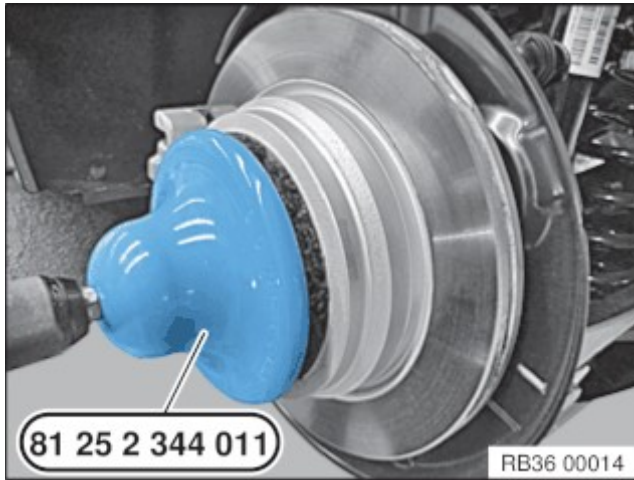
NOTICE

Perform the operations on the left and right side.

► Mounting the wheel

i TECHNICAL INFORMATION

The contact surface between the brake disc and the wheel rim must be clean and free from oil and grease. There is otherwise a risk of the wheel becoming loose at a later time.



- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.
Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).
- In the event of grease residue in the area of the wheel bolt holes, remove and clean the brake disc.
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.
Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).
- Check that the mounting bolt (1) for the brake disc is securely seated.
The mounting bolt (1) for the brake disc **may not** protrude on the contact surface (2) between the brake disc and the wheel rim.

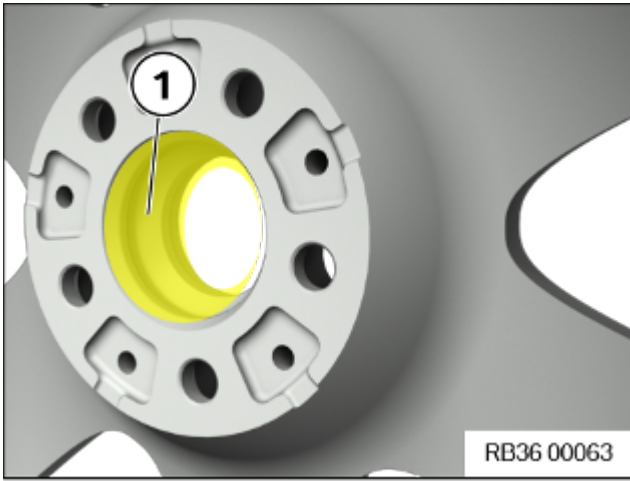
Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm
----	--------------	-------------------	-------

Brake disc to rear wheel hub

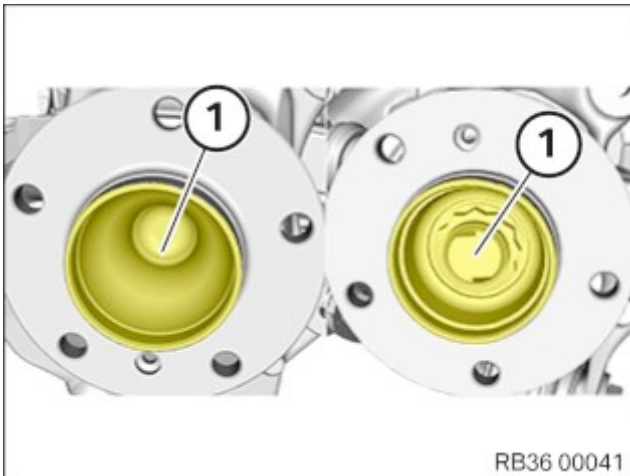
M8	Renew screw.	Tightening torque	16 Nm
----	--------------	-------------------	-------

- Thinly grease the wheel centring (1) in the wheel rim.



Expendable materials

Brake block paste	3 g,	83 19 2 158 851
* TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	Bag	
	100 g,	83 19 2 158 852
	Tube	
	5 g,	83 23 0 140 233
	TU*	



- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Expendable materials

Brake block paste	3 g,	83 19 2 158 851
* TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	Bag	
	100 g,	83 19 2 158 852
	Tube	
	5 g,	83 23 0 140 233
	TU*	

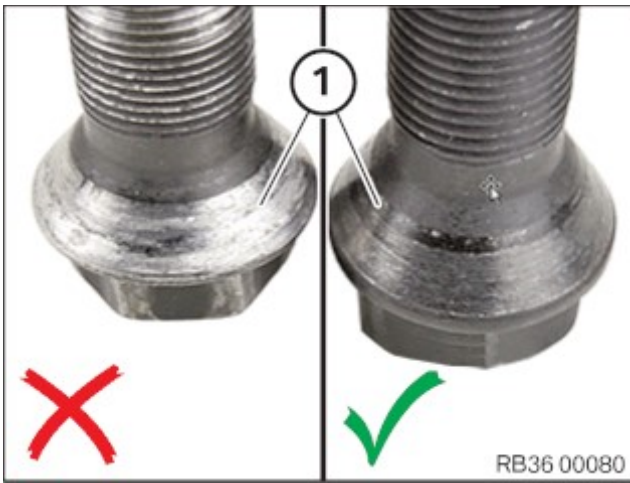


- In vehicles with M Carbon ceramic brake: The wheel assembly jack must be used to install the wheel (see workshop equipment).

This process is intended to prevent damage to the brake disc.

Check

- Check wheel bolts for wear.



Result

» Places (> 30 %) of the bearing surface (1) of the taper on the screw head show silver wear.

Measure

- Replace wheel bolts.

Parts: Wheel bolts



i TECHNICAL INFORMATION

Never use impact screwdrivers or electric screwdrivers to screw in and tighten the wheel bolts.

The wheel rim must rest uniformly against the brake disc.

In the case of non-original BMW wheel bolts/wheel rims, it may be necessary to retighten the wheel bolts on account of setting properties (refer to the documentation from the manufacturer).

Do not apply oil to new wheel bolts.

- Renew corroded wheel bolts (arrows).

Parts: Wheel bolts

- Clean wheel bolts (arrows).
- Check wheel bolts (arrows) and threads for damage, renew the wheel bolts if (arrows) necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M14 / SW 17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Tightening torque Check	140 Nm 140 Nm
-------------	--	--	--------------------------------------



11–Start-up or bedding-in of new brake pads and discs (rear brake)

i TECHNICAL INFORMATION

When exchanging brake pads, reset the CBS display in accordance with factory specification (CBS reset).

Carry out test braking while driving at low speed because the effectiveness of the brakes may be reduced during the initial braking operations.

Exaggerated emergency and continuous braking operations for faster bedding-in are not permitted.

Advise the customer not to perform intentional emergency braking operations for the first 200 km after the brakes have been replaced.

- Fully depress brake pedal several times so that brake pads contact brake discs.
- Switch the ignition on.

Use the parking brake button to open, close and open the parking brake again.
- Switch off ignition.
- Adjust the brake fluid level to the maximum mark.
- Perform a functional check on the brake test stand to ensure compliance of the brake system with statutory guidelines.
- Attach mirror tag to inside mirror.