

# 34 11 220 Removing and installing/replacing both front brake discs

## Overview of Activities

### Preliminary Work

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- 1 Remove the front left and right wheels
- 2 Removing the front brake pad wear sensor (16 inch...
- 3 Remove front brake pads
- 4 Measure minimum brake disc thickness (front brake)
- 5 Remove the front caliper carrier

### Main Work

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- 6 Remove front brake discs
- 7 Installing the front brake discs

### Postprocesses

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- 8 Install the front caliper carrier
- 9 Grease the brake pads, caliper carriers and brake...
- 10 Installing the front brake pads
- 11 Installing the front brake pad wear sensor (16 inch brake)
- 12 Mount the front left and right wheels
- 13 Commissioning/bedding in new brake pads and brake...

## 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.

### 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 fr 100 g).

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

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

## PRELIMINARY WORK

### 1-Remove the front left and right wheels

#### NOTICE

Perform the operations on the left and right side.



- 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–Removing the front brake pad wear sensor (16 inch brake)

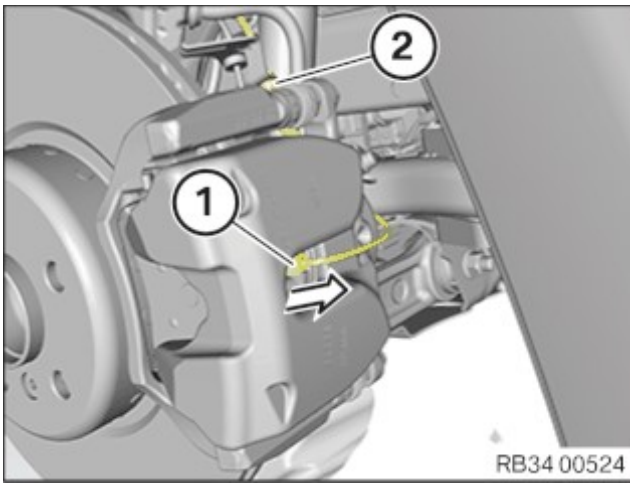
### **i** TECHNICAL INFORMATION

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.

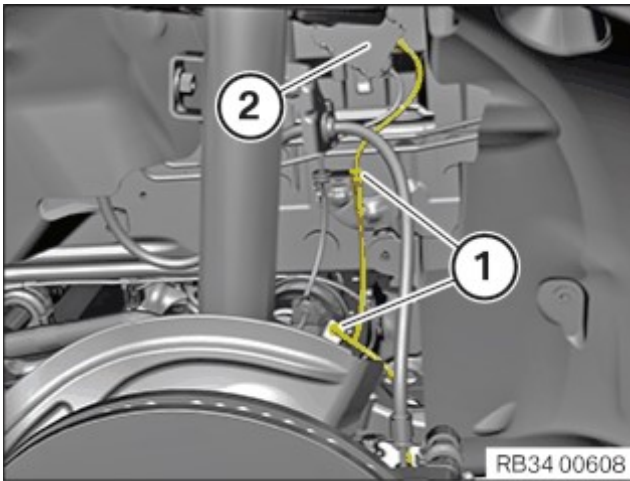
If a brake pad wear sensor that has already been ground has to be replaced even though the minimum brake pad thickness has not yet been reached, you must observe the following:

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

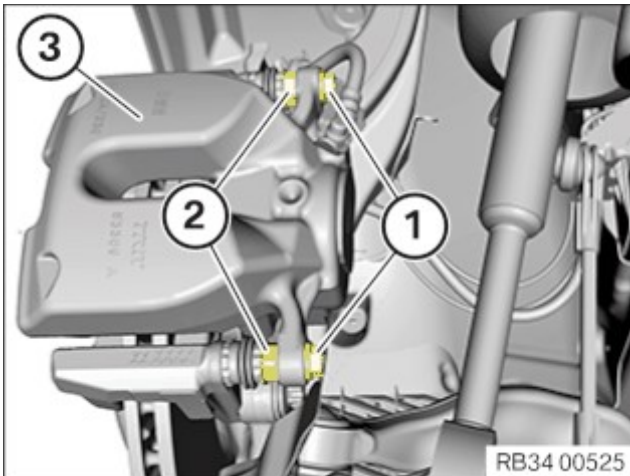
- Remove the brake pad wear sensor (1) out of the brake pad in the direction of the arrow.
- Detach the cable of the brake pad wear sensor from the bracket (2).



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



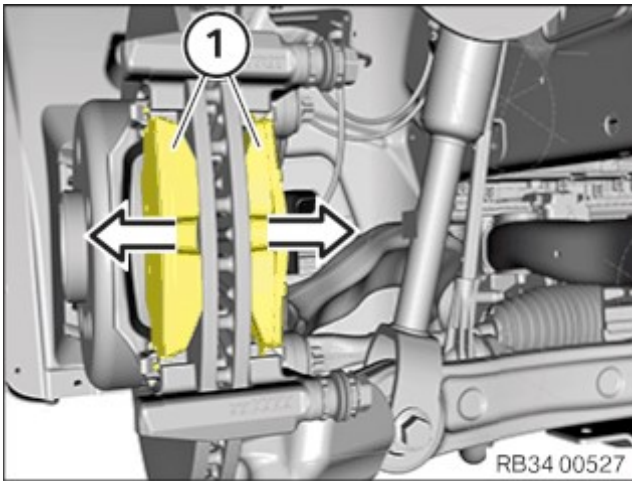
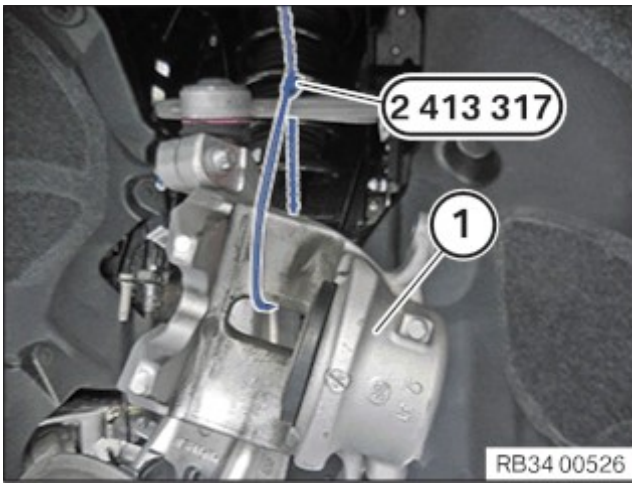
### 3-Remove front brake pads



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

- Tie up the brake caliper (1) using the special tool (cable strap) **2 413 317**.

The brake caliper must not hang on the brake hose.



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

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

### **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.

- Push the brake pistons (1) back with the special tool **2 352 960**.

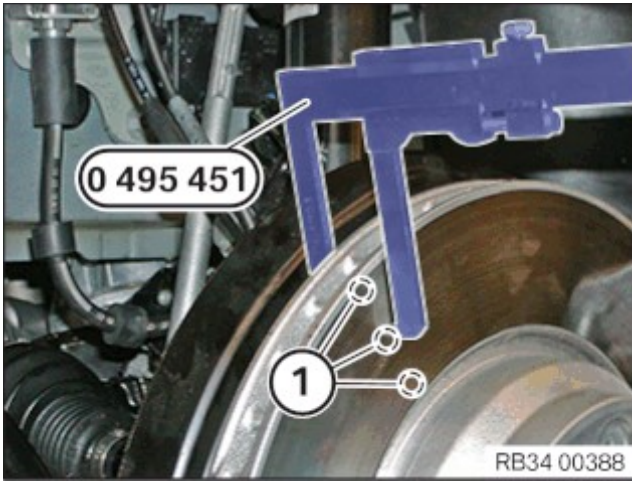
## **4-Measure minimum brake disc thickness (front brake)**

- 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 must only be installed if the brake disk thickness is greater than the minimum brake disc thickness.**



#### Minimum brake disc thickness (nominal dimension 348x30)

Minimum brake disc thickness (brake disc 348x30)	28,4 mm
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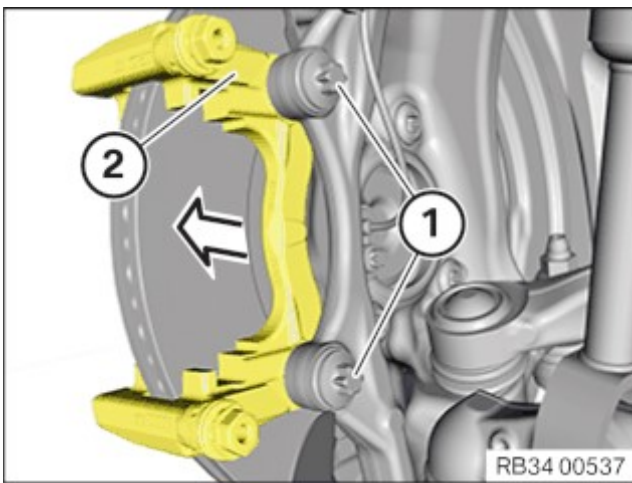
#### Minimum brake disc thickness (nominal dimension 348x36)

Minimum brake disc thickness (brake disc 348x36)	34,4 mm
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#### Minimum brake disc thickness (nominal dimension 330x24)

Minimum brake disc thickness (brake disc 330x24)	22,4 mm
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### 5-Remove the front caliper carrier

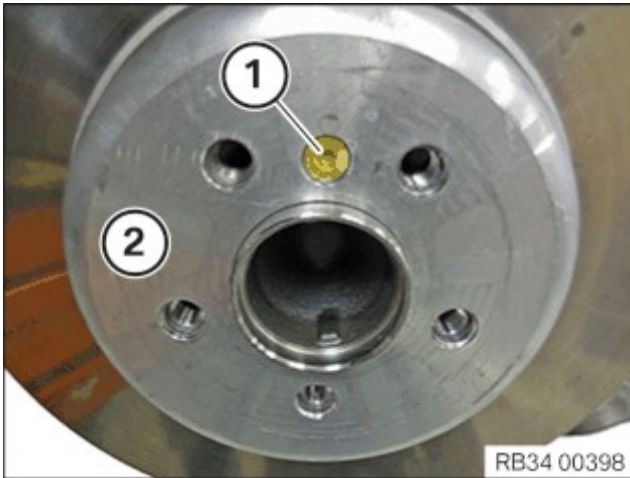


- Loosen screws (1).
- Remove the caliper carrier (2) in the direction of the arrow.



## MAIN WORK

### 6-Remove front brake discs



- 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).

### 7-Installing the front brake discs

#### **i** TECHNICAL INFORMATION

Brake discs must only be replaced in pairs (per axle).

Fit new brake discs only together with new brake pads.



- If an arrow 1 is engraved on the brake discs, then it must show the direction of travel!

In this case the brake discs on the left and right are different!



- Clean contact surface of wheel hub thoroughly and remove any traces of rust 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

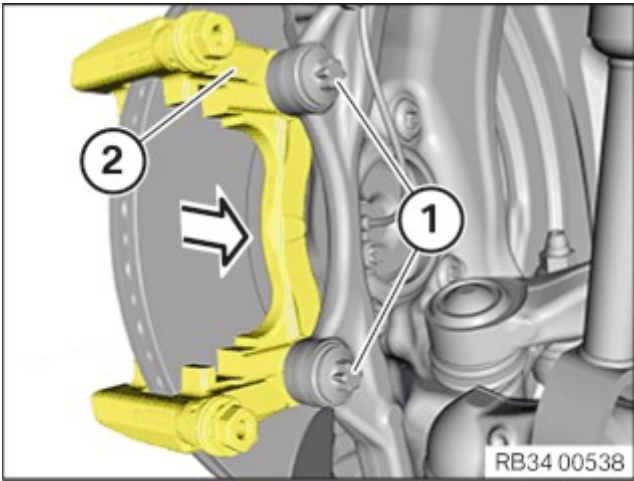
**Brake disc to front wheel hub**

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M8	Renew screw.	Tightening torque	16 Nm
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8–Install the front caliper carrier



- Install the caliper carrier (2) in the direction of the arrow.
- Renew screws.

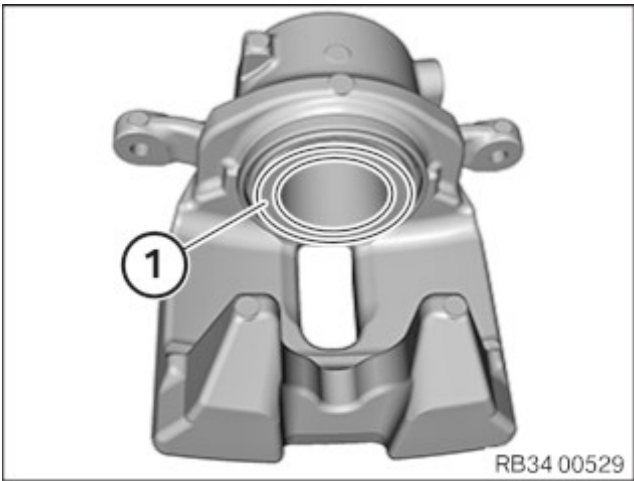
**Parts:** Bolts

- Insert screws (1) and tighten them.

**Brake caliper / caliper carrier at front swivel bearing**

M12	Renew screw.	Tightening t orque	110 Nm
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9–Grease the brake pads, caliper carriers and brake calipers with brake pad paste (17-inch brake)

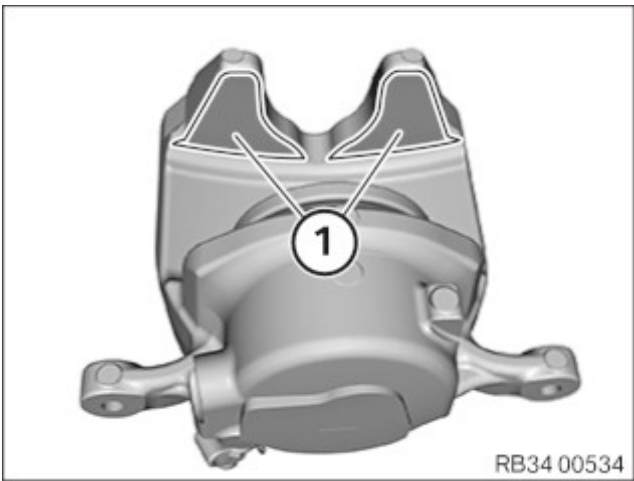


- Clean the contact surfaces (1) of the brake piston using brake cleaner.

**Expendable materials**

Brake cleaner2.0	500 ml, Spray can	83 19 2 365 214
	20 , Canister	83 19 2 365 215

- Check dust boots for damage; renew if necessary.

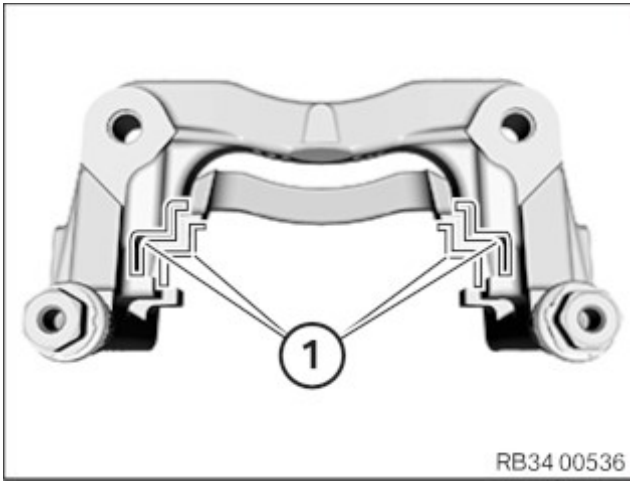


- Clean contact surfaces (1) of the brake caliper with brake cleaner and apply a thin layer of brake pad paste.

**Expendable materials**

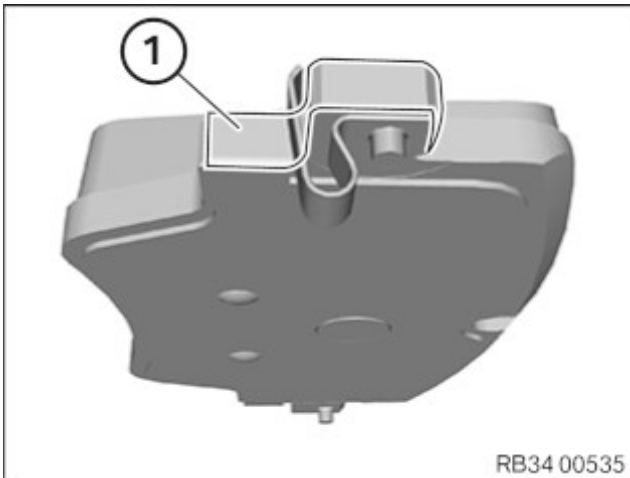
Brake block paste	3 g,	83 19 2 158 851
* TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	Bag	
	100 g, Tube	83 19 2 158 852
	5 g, TU*	83 23 0 140 233

- Clean contact surfaces with brake cleaner.



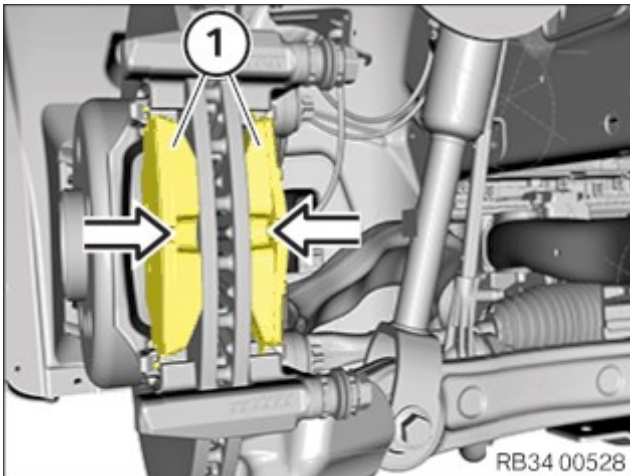
The contact surfaces (1) for the brake pads should not be cleaned mechanically if possible in order to avoid damaging the surface coating.

- Carefully clean highly contaminated contact surfaces (1) using a suitable tool (e.g. brass wire brush, nylon brush).
- Coat contact surfaces (1) thinly with brake pad paste.



- Apply a thin coating of brake pad paste to both sides of the T-head of the brake pad in area (1).

## 10-Installing the front brake pads

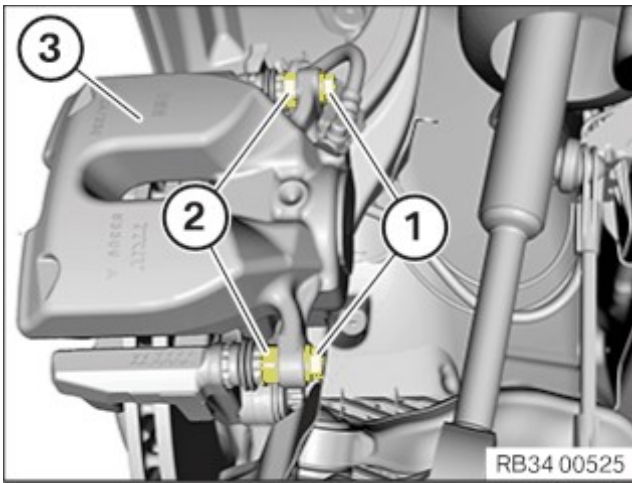


- If applicable, observe the identification of the removed brake pads.  
If the brake pads are worn on one side, they must not be mixed up.
- Install the brake pads (1) in the brake caliper in the direction of the arrow.

- Remove the special tool (cable strap) **2 413 317**.
- Install the brake caliper (3).
- Renew screws.

**Parts:** Bolts

- Tighten the screws (1), if applicable, hold against the hexagon head (2).



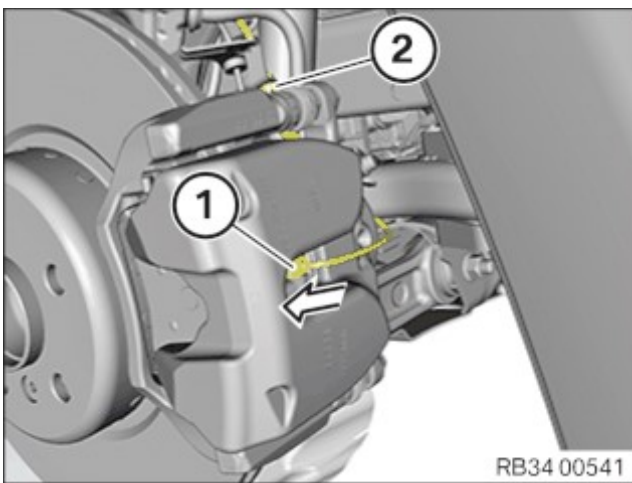
#### Guide bolt (brake caliper on caliper carrier)

M8

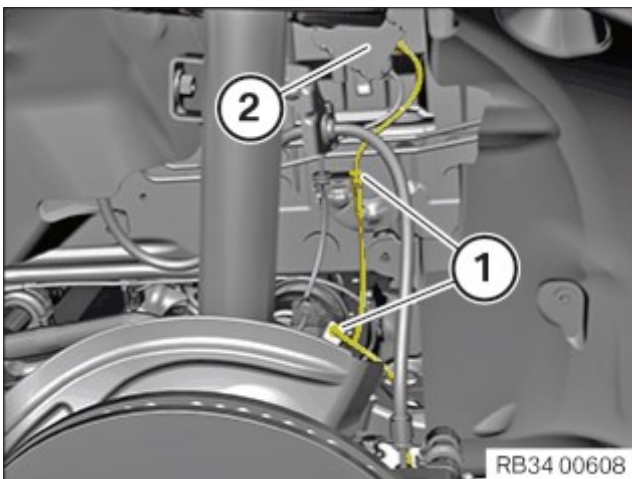
Renew screws.

35 Nm

### 11–Installing the front brake pad wear sensor (16 inch brake)



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



- Hook the brake pad wear sensor cable to the holders (1).
- Connect connectors and lock.
- Close sealing cap (2).

### 12–Mount the front left and right wheels

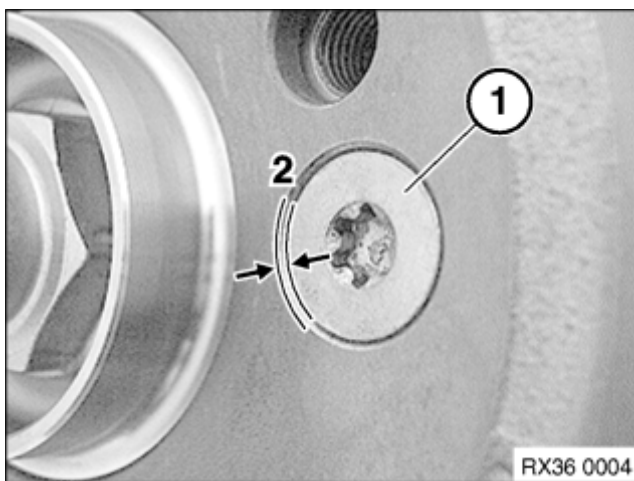
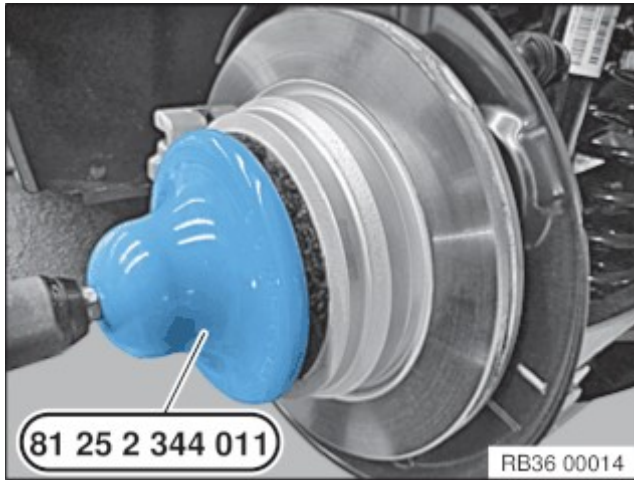
#### NOTICE

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.

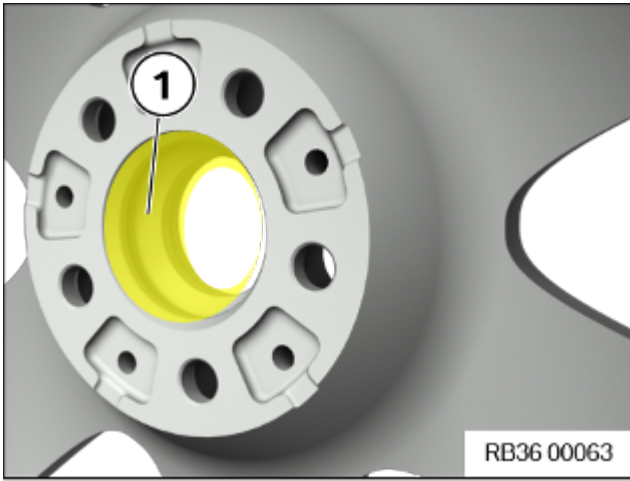
#### Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm
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#### Brake disc to rear wheel hub

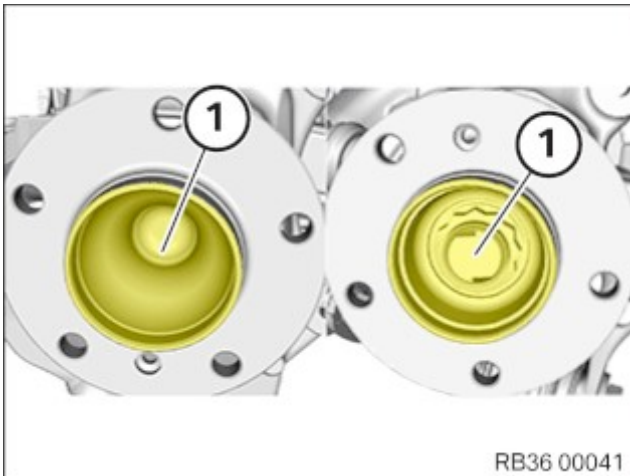
M8	Renew screw.	Tightening torque	16 Nm
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- Thinly grease the wheel centring (1) in the wheel rim.



#### 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*	



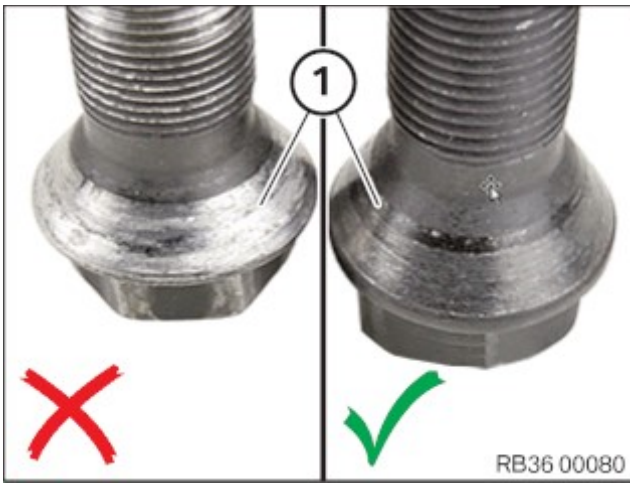
- In vehicles with M Carbon ceramic brake: The wheel assembly jack must be used to install the wheel (see workshop equipment).

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
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## 13–Commissioning/bedding in new brake pads and brake discs

### **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.
- 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.