34 11 519 Removing and installing/replacing left or right front brake caliper (Without break bleed)

Overview of Activities

Additional Information

Preliminary Work

1 Remove front left or right wheel

2 Remove brake pad wear sensor to the front

3 Removing the front brake pads (brake high)

4 Measure minimum brake disc thickness (front brake)

5 Install brake pedal tensioner

Main Work

6 Removing the front brake callipers (brake high)

7 Install the front brake calliper (brake high)

Postprocesses

8 Remove the brake pedal tensioner

9 Grease brake pads, caliper carrier and brake caliper w…

10 Installing the front brake pads (High brake)

11 Installing the front brake pad wear sensor

12 Install front left or right wheel

13 Connect bleeder unit for brake fluid

14 Flush and bleed the front axle brake circuit (brake, h…

15 Closing the bleeder unit for brake fluid

16 Start-up or bed in of new brake pads and discs (bra…

Additional information is available.

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 front left or right wheel

▶ 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 brake pad wear sensor to the front

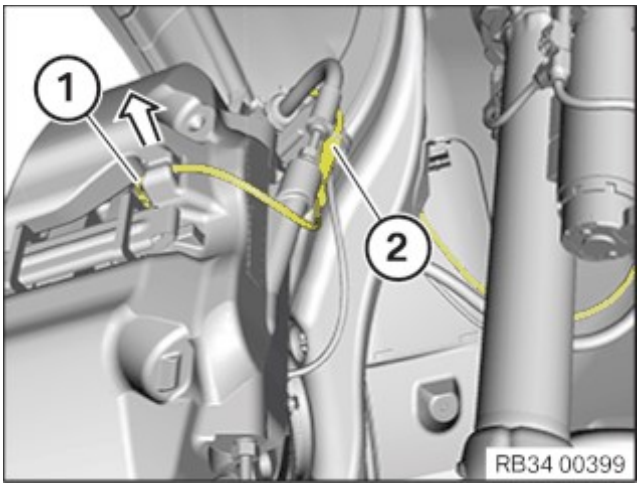
TECHNICAL INFORMATION

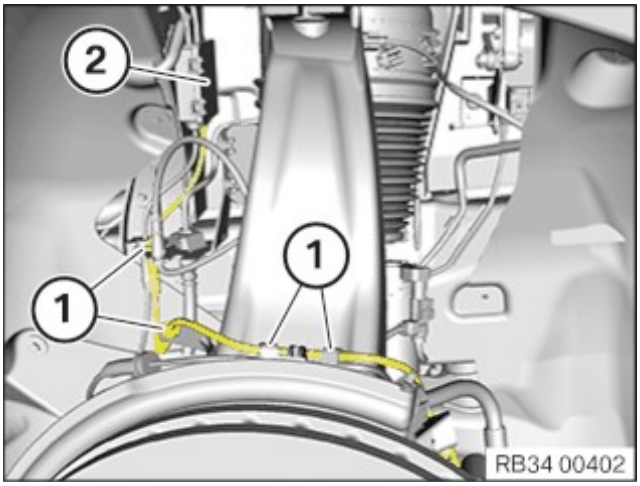
The brake pad wear sensor must be renewed immediately once it has been removed because the brake pad wear sensor loses its retention capacity in its brake pad.

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.

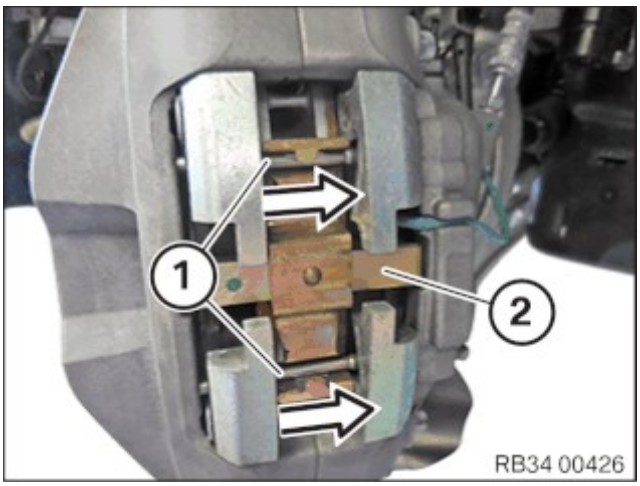
- Remove brake pad wear sensor (1) out of the brake pad in the direction of the arrow.
- Detach the cable of the brake pad wear sensor (1) from the bracket (2).





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

3–Removing the front brake pads (brake high)



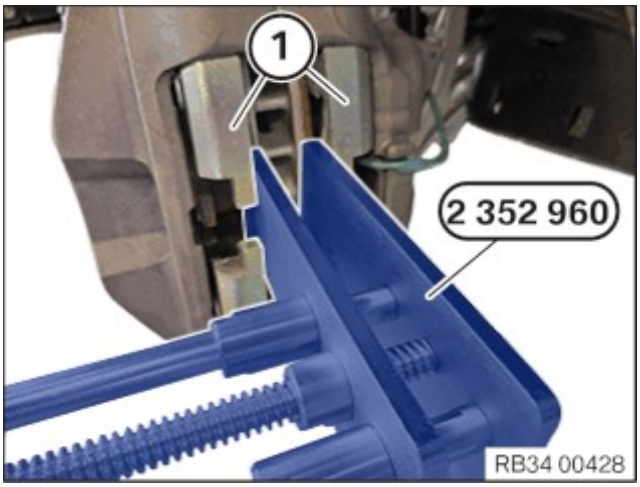
- Drive out locking pins (1) in direction of arrow.
- Take off the retaining clip (2).

TECHNICAL INFORMATION

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

Overflowing brake fluid will damage the paintwork.

- Press back the brake piston against the weights (1) with special tool **2 352 960**.



- Press back the brake piston up to the limit position.

TECHNICAL INFORMATION

Note the following for the removal of the brake pads:

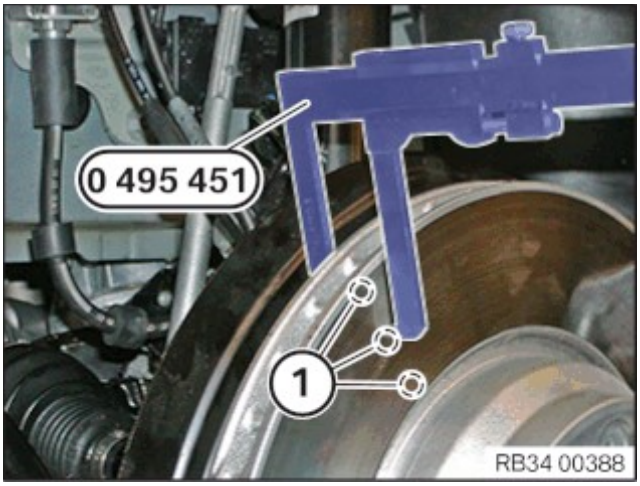
To prevent damage to the paintwork of the brake callipers: Do not remove the brake pads from the brake piston with a hammer or screwdriver.

Use plastic wedges to remove the brake pads.

- Remove brake pad from the brake caliper.
- **Do not re-use brake pads.**

  Once the brake pads have been released from the brake piston, the brake pads must not be reused.

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

Minimum brake disc thickness (nominal dimension 348x36)

Minimum brake disc thickness (brake disc 348x36)	34,4 mm

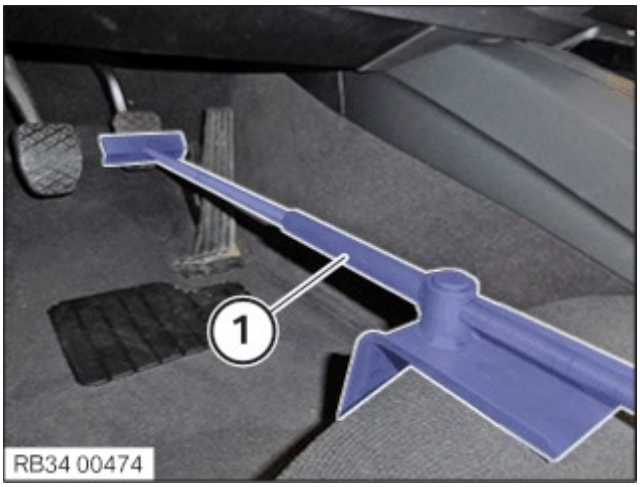
Minimum brake disc thickness (nominal dimension 330x24)

Minimum brake disc thickness (brake disc 330x24)	22,4 mm

5–Install brake pedal tensioner

- Press the brake pedal to the floor and fix the brake pedal tensioner (1).

  Do not release the brake pedal tensioner (1) until the brake lines have been reconnected. This prevents brake fluid from emerging from the expansion tank when the brake lines are opened.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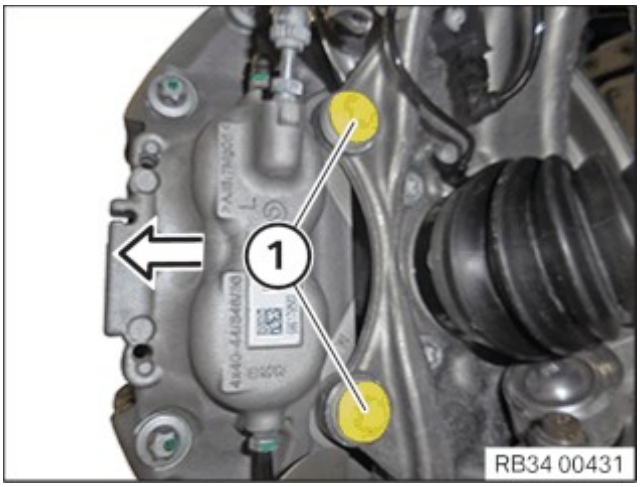
6–Removing the front brake callipers (brake high)

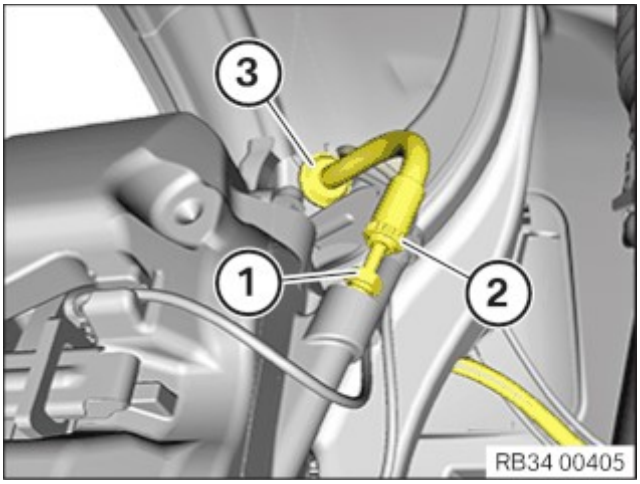
NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen screws (1).
- Detach the brake caliper in the direction of the arrow.
- Tie up the brake caliper .

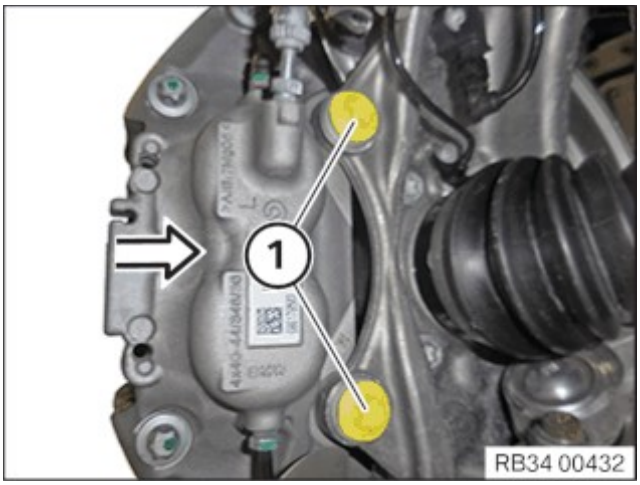
  The brake caliper must not hang on the brake hose.



- Detach brake hose (1) from brake caliper.

  If necessary, grip at knurling (2).
- If necessary, detach brake hose from the bracket (3).

7–Install the front brake calliper (brake high)



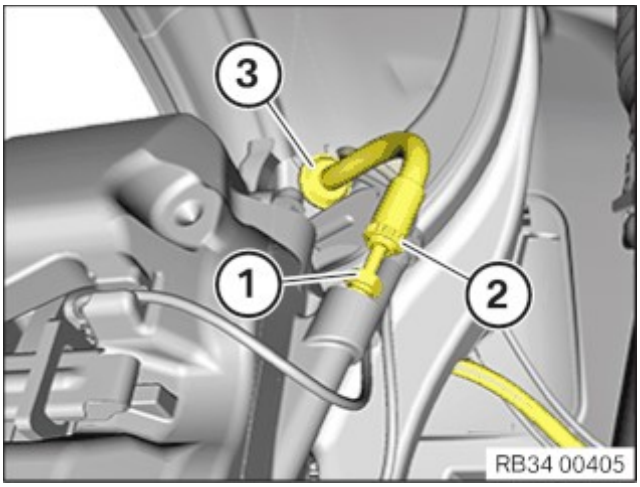
- Install brake caliper in direction of arrow.
- Renew screws (1).

  Parts: Bolts
- Tighten the screws (1).

Brake caliper / caliper carrier at front swivel bearing

M12	Renew screw.	Tightening torque	110 Nm

- Fit and tighten brake hose (1) on brake caliper.



If necessary, grip at knurling (2).

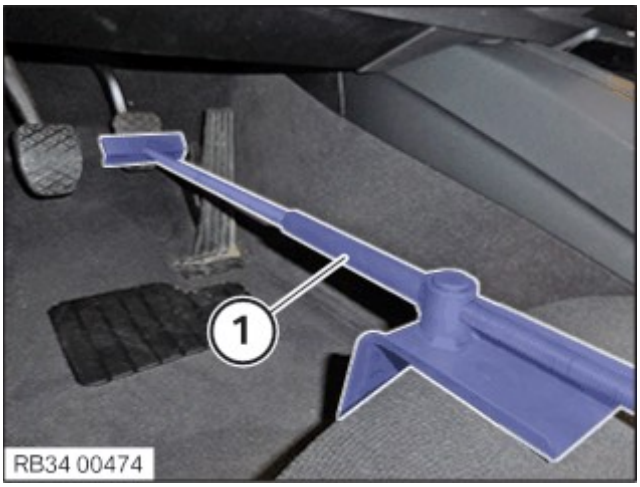
Brake hose to brake caliper, front

Tightening torque	17	Nm

- Make sure that the brake hose is **not** twisted and does not rest against the components fixed to the body.
- If required, attach brake hose to the bracket (3).

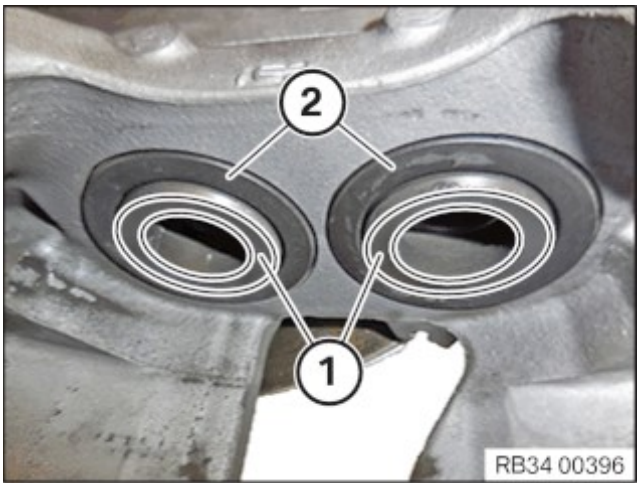
POSTPROCESSES

8–Remove the brake pedal tensioner

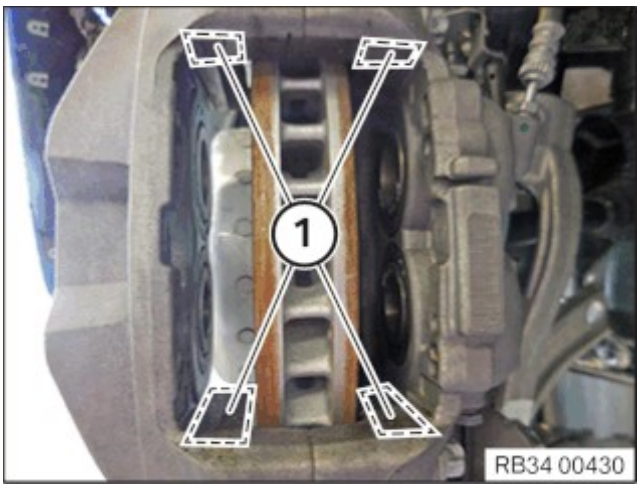


- Remove the brake pedal tensioner (1).

9–Grease brake pads, caliper carrier and brake caliper with brake pad paste (brake, high)



- Clean the contact surfaces (1) of the brake pistons (4 pieces) with brake cleaner.
- Completely remove the adhesive residue.
- Check the dust boots (2) for damage and renew if necessary.



- Clean the contact surfaces (1) for the brake pads on the brake caliper with brake cleaner.

  If possible, do not close the contact surfaces mechanically to prevent damage to the surface coating.
- Apply a thin coat of the brake pad paste to the contact surfaces (1).

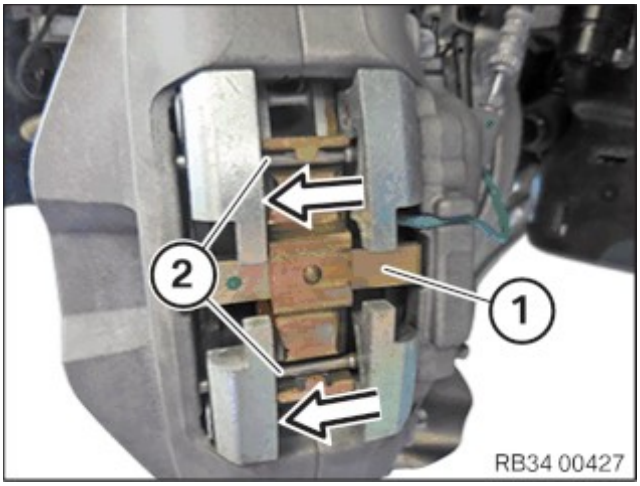
Expendable materials

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

10–Installing the front brake pads (High brake)

- Remove the protective film of the adhesive layer(1) at the brake pads.

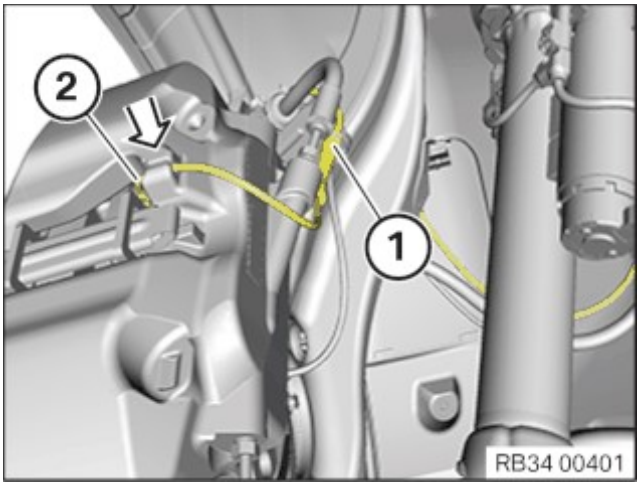
  The adhesive layer (1)must not be touched.



- Insert brake pads into the brake caliper.

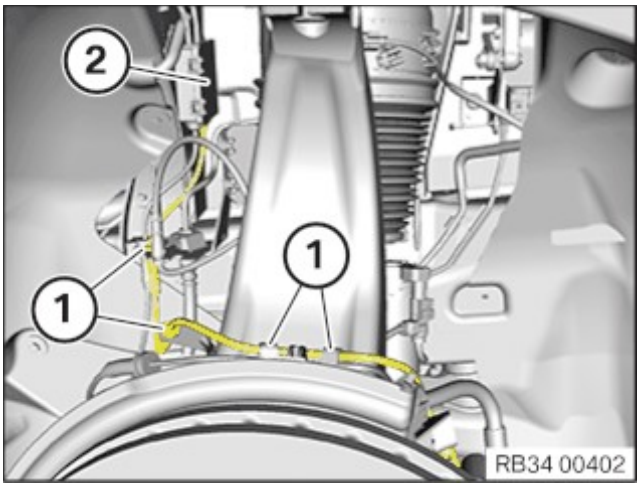
  The adhesive layer must not touch the brake piston.
- Position the retaining clip (1).
- Drive in locking pins (2) in the direction of the arrow.

11–Installing the front brake pad wear sensor



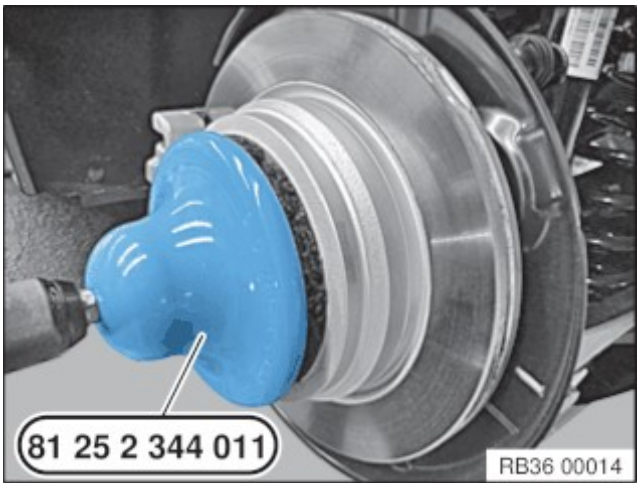
- Attach the cable of the brake pad wear sensor (2) in the bracket (1).
- Install the brake pad wear sensor (2) in the brake pad in the direction of the arrow.

  Ensure brake pad wear sensor fits correctly in brake pad.
- Attach cable of brake pad wear sensor in brackets (1).
- Connect the plug connection .
- Close sealing cap (2).



12–Install front left or right wheel

▶ Mounting the wheel



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.

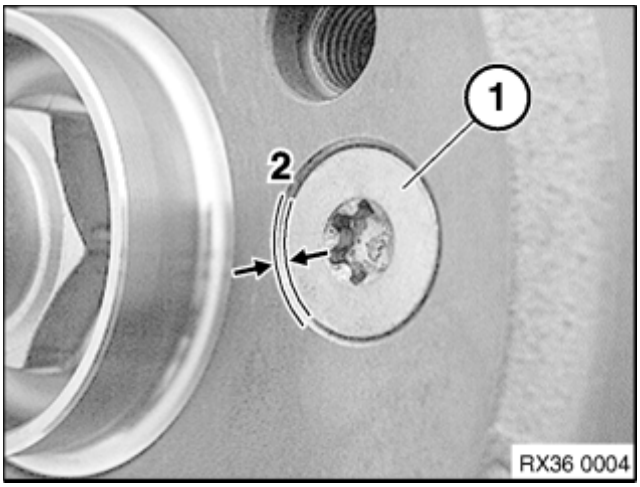
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.

  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.



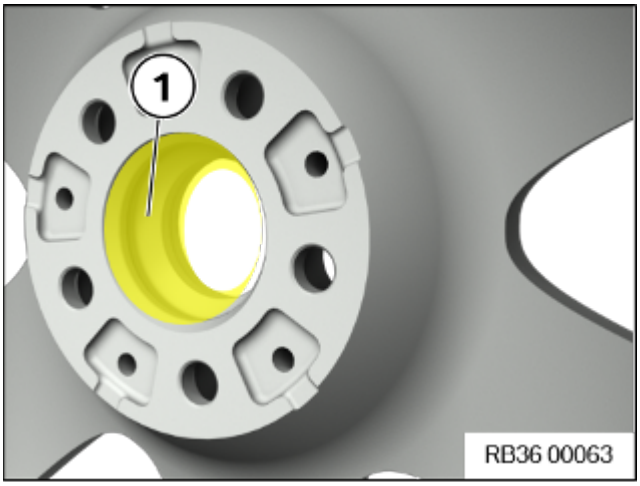
The mounting bolt (1) for the brake disc **may not** protrude on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub

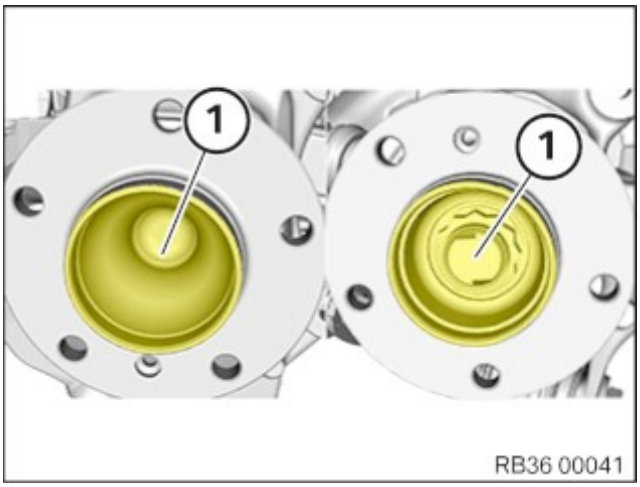
M8	Renew screw.	Tightening torque	16 Nm



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

Expendable materials

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



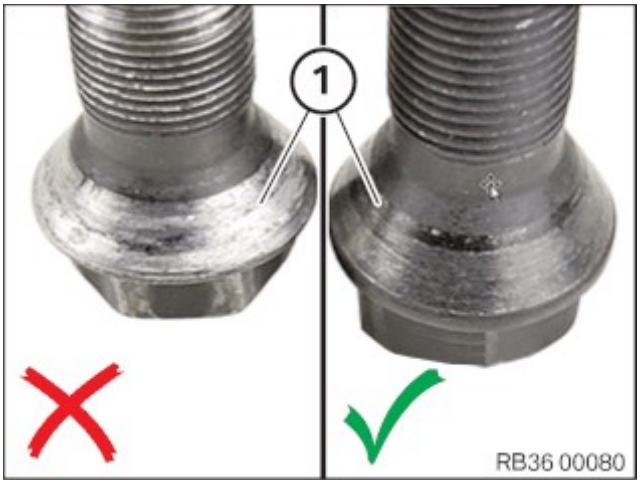
- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Expendable materials

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

- 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

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.	Tightening torque	140 Nm
	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.	Check	140 Nm

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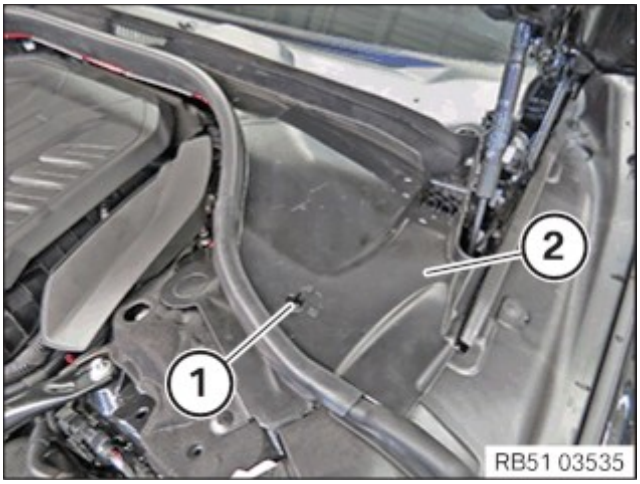
13–Connect bleeder unit for brake fluid

▶ Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2).

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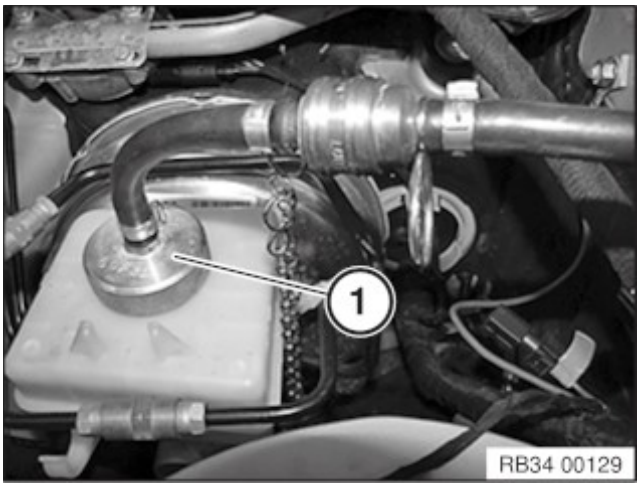


RISK OF DAMAGE

Paint damage.

Mechanical or chemical action may lead to paint damage.

- Cover up working area with specified covering material only.

TECHNICAL INFORMATION

Use only BMW-approved brake fluids, see operating fluids.

- Connect the bleeder unit (1) to the brake fluid expansion tank and switch it on.

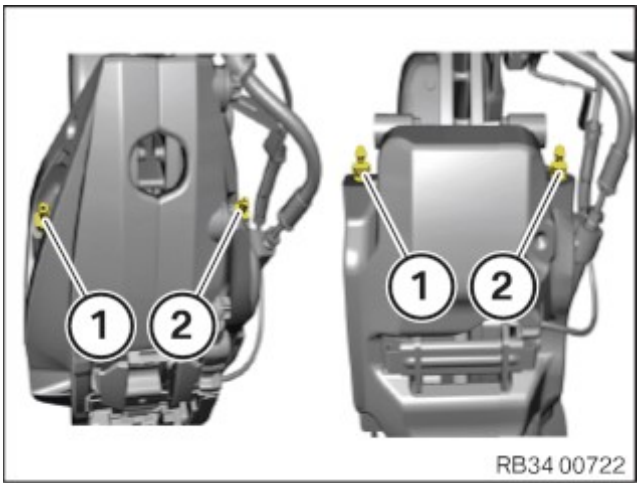
  Observe the operating instructions of the corresponding equipment manufacturer.

- **Do not exceed the filling pressure of** 2 bar **.**

14–Flush and bleed the front axle brake circuit (brake, high)

NOTICE

Description is for right component only. The procedure on the left side is identical.

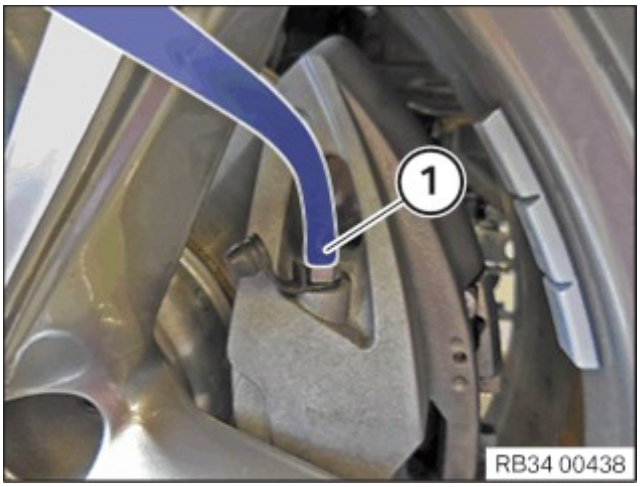


- Two fixed brake callipers are fitted!
- For both variants, first outer (1) must be bled. Then bleed inner (2).

- **Start flushing at the front right.**
- Connect the vent hose with the collecting vessel to the vent valve (1) on the front right brake caliper.
- Open the vent valve (1) and purge it until clear, bubble-free brake fluid emerges.
- Close vent valve (1).

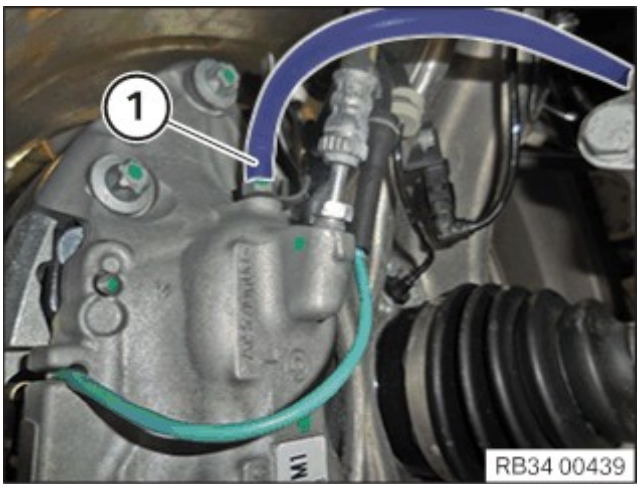
Front ventilation valve Brake calliper manufacturer Brembo

Vent valve	Tightening torque	18 Nm



Front ventilation valve fixed brake calliper Brake calliper manufacturer Continental

Vent valve	Tightening torque	15 Nm



- Connect the vent hose with the collecting vessel to the vent valve (1) on front right brake caliper.
- Open vent valve (1) and purge it until clear, bubble-free brake fluid emerges.
- Close vent valve (1).

Front ventilation valve Brake calliper manufacturer Brembo

Vent valve	Tightening torque	18 Nm

Front ventilation valve fixed brake calliper Brake calliper manufacturer Continental

Vent valve	Tightening torque	15 Nm

- Carry out the same procedure on the front left wheel brake.

15–Closing the bleeder unit for brake fluid

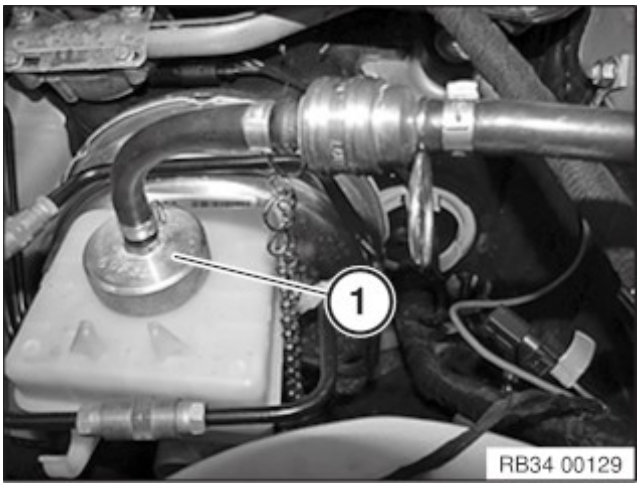
RISK OF DAMAGE

Paint damage.

Mechanical or chemical action may lead to paint damage.

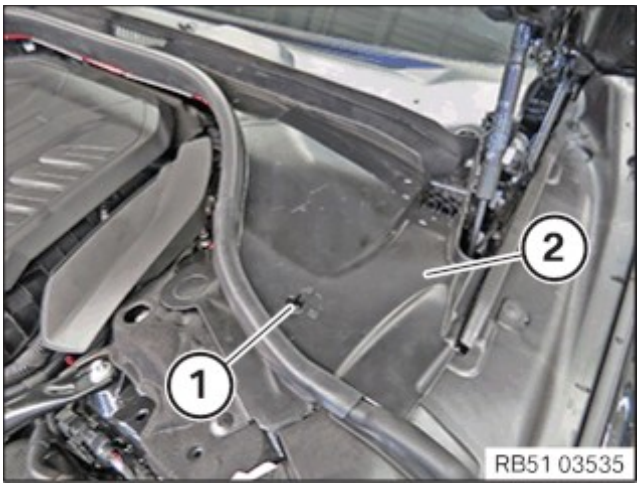
- Cover up working area with specified covering material only.

- Switch off bleeder unit (1) and remove from brake fluid expansion tank .
- Check the brake fluid level; if necessary, adjust to the maximum mark.



- Check the seal (1) of sealing cap for damage and renew it if necessary.
- Mount the sealing cap on the brake fluid expansion tank.

▶ Install the cover of the engine compartment on the rear left



- Install the cover (2).
- Lock the lock (1).

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16–Start-up or bed in of new brake pads and discs (brake, high)

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.