

34 00 010 Change brake fluid in entire system

+ 34 00 504

Preparatory work

Remove the seat

Removing tank rail

Removing left-hand trim panel

Removing left fuel-tank cover

Removing right-hand trim panel

Removing storage compartment lid

Removing right fuel-tank cover

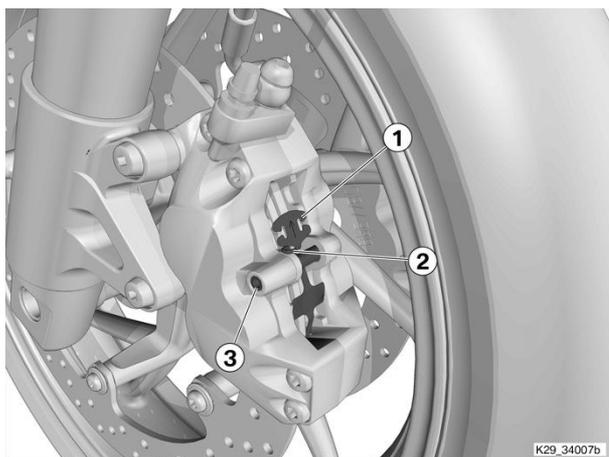
Removing fuel tank

Core activity

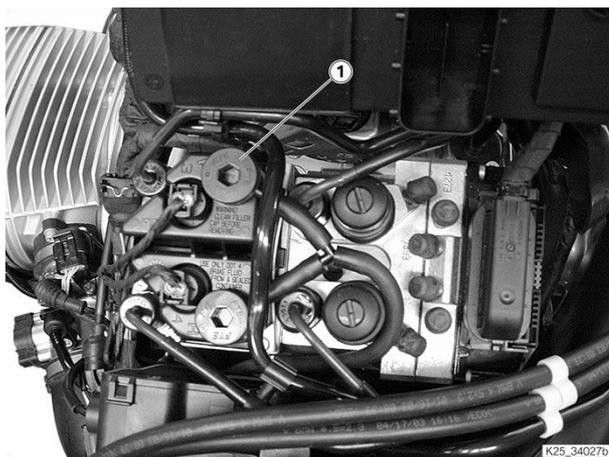
(-) Changing brake fluid, front wheel circuit

► Removing front brake pads

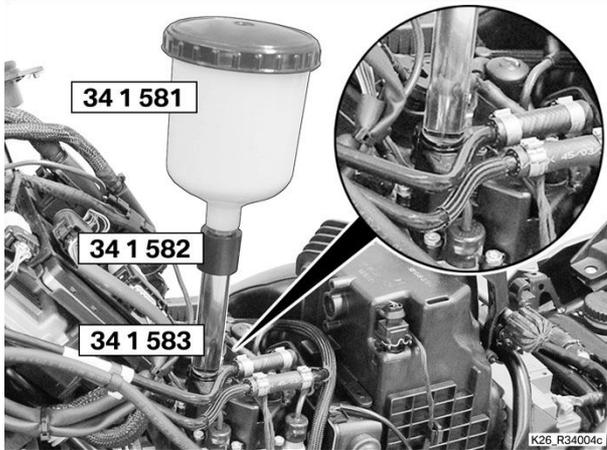
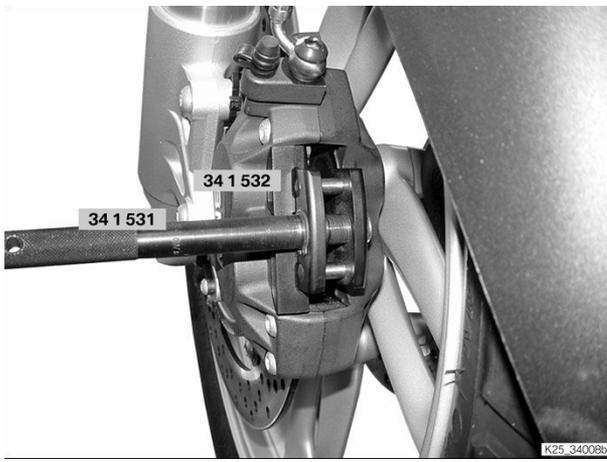
- Remove retainer (2).
- Remove screw (3).
- Remove spring (1).
- Remove the brake pads.



- Open front wheel-circuit reservoir (1).



- Wrap cloths round the left and right brake calipers.
- Use the piston resetting device (No. 34 1 531) and locators (No. 34 1 532) to force the pistons in the left and right brake calipers all the way back and hold them in this position.



- Secure container (No. 34 1 581) with threaded adapter (No. 34 1 582) and sight glass (No. 34 1 583) on to the front wheel-circuit reservoir.
- Slowly pour fresh brake fluid into the container until it is approximately 1/2 full.

 Hydraulic fluid	
Brake fluid, DOT4	

- Connect the brake bleeding device to the bleed screw of the right brake caliper, but **do not switch it on**.
- Secure the hose of the brake bleeding device to the bleed screw with a cable tie.

⚠ WARNING

Brake lever operated without self-diagnosis having completed.
Only residual braking function available.

- Do not operate the brake levers before or during self-diagnosis.

- Switch on the ignition.

⚠ ATTENTION

Operation of the front brake with brake calipers and brake pads removed (the front brake also operates the rear brake (Integral brakes))

Brake pistons pushed out

- Do not operate the brakes while a brake caliper has been removed.
- Install brake caliper with brake pads or insert the piston resetting device.

- Very gently pull the handbrake lever until the pump is only just running.
- Open the bleed screw and at the same time top up the container with fresh brake fluid.

 Hydraulic fluid	
Brake fluid, DOT4	

 **WARNING****Low fluid level in wheel-circuit reservoir.**

Ingress of air into brake system. Bleeding procedure has to be repeated.

- The brake fluid must always be visible in the container, because the piston in the wheel-circuit reservoir must always be covered by the fluid.

- Start by pumping off the brake fluid with virtually no pressure whatsoever, then vary the brake pressure.

 **NOTICE**

The higher the brake pressure the faster the fluid is pumped through the system, which means that the level in the wheel-circuit reservoir drops all the more rapidly.

- Pump off brake fluid until it emerges clear and free from air bubbles.
- Close the bleed screw.

 Tightening torques		
Bleed screw, brake caliper, front		
	10 Nm	

- Release the brake lever.
- Disconnect the brake bleeding device from the bleed screw.
- Connect the brake bleeding device to the bleed screw of the left brake caliper, but **do not switch it on**.
- If necessary, secure the hose of the brake bleeding device to the bleed screw with a cable tie.
- Carry out the brake-fluid change procedure for the left brake caliper and the right brake caliper.
- When the brake fluid emerges clear and free from bubbles, continue pumping it off until the container is just on the point of being draining empty.
- Close the bleed screw.

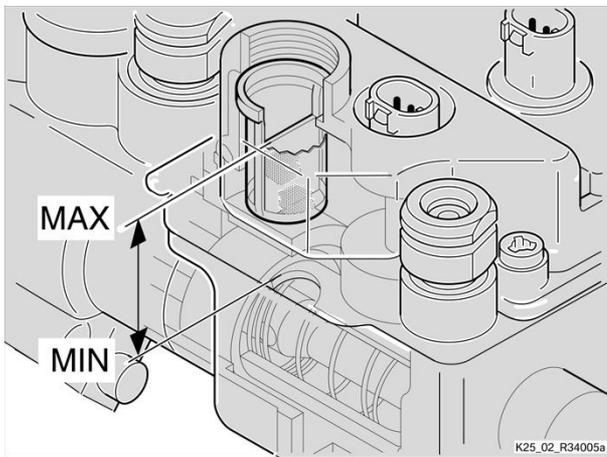
 Tightening torques		
Bleed screw, brake caliper, front		
	10 Nm	

- Release the brake lever and switch off the ignition.
- Disconnect the brake bleeding device from the bleed screw.
- Disconnect the container from the wheel-circuit reservoir.

 **WARNING****Undefined fluid level in wheel circuits after fluid change or bleeding procedure.**

Not enough or too much fluid in the wheel circuit.

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Always correct the fluid level in the wheel circuits in accordance with the "Instructions for filling reservoir" after every fluid change or bleeding procedure.

- Top up the fluid in the wheel-circuit reservoir to the (MAX) mark.

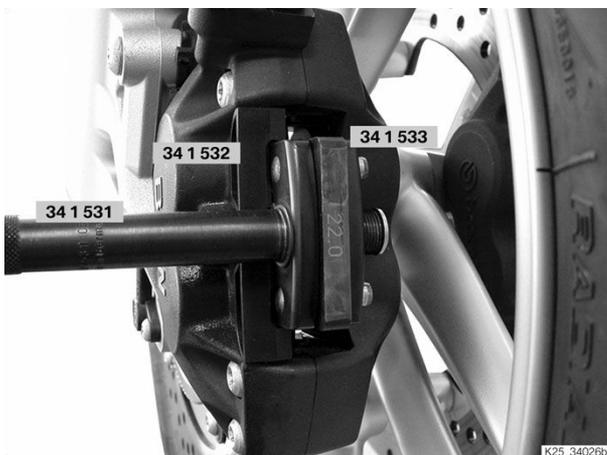
► Instructions for filling front wheel-circuit reservoir

ATTENTION

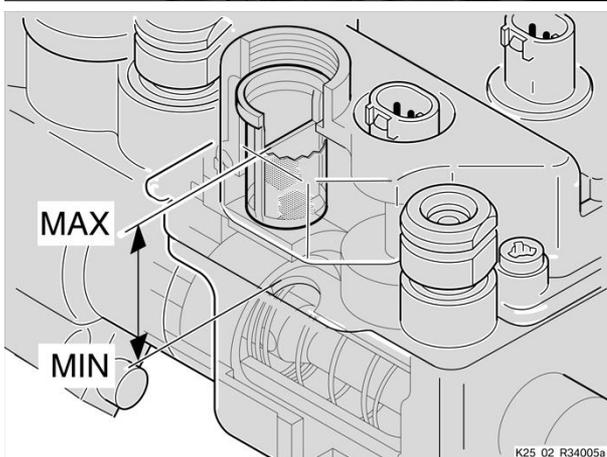
Operation of the front brake with brake calipers and brake pads removed (the front brake also operates the rear brake (Integral brakes))

Brake pistons pushed out

- Do not operate the brakes while a brake caliper has been removed.
- Install brake caliper with brake pads or insert the piston resetting device.



- Make sure that the front wheel-circuit reservoir is filled to the MAX mark.
- Insert adapter 22 (No. 34 1 533) in piston resetting device (No. 34 1 531) and locator (No. 34 1 532) in both front brake calipers and **fully screw together** piston resetting device until the adapter is secured.
- Switch on the ignition.
- Pull handbrake lever until the pistons of the front brake calipers are in contact with piston resetting device (No. 34 1 531).



- Top up the brake fluid in the wheel-circuit reservoir until the (MAX) mark in the filler aperture is just touching the surface of the fluid.

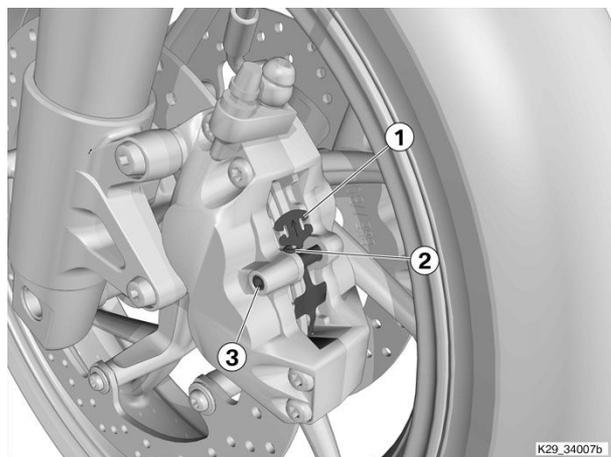


Hydraulic fluid

Brake fluid, DOT4

- Engage the cap of the wheel-circuit reservoir on the threads and tighten until hand-tight.
- Force back the brake pistons with piston resetting device (No. 34 1 531) and remove together with adapter 22 (No. 34 1 533).
- Replace the front brake pads with new pads, if necessary.

▷ Installing front brake pads



- Install the brake pads.
- Install spring (1) with the arrow pointing in the forward direction of travel.
- Install screw (3).
- Install retainer (2).



⚠ WARNING

Brake lever operated without self-diagnosis having completed.

Only residual braking function available.

- Do not operate the brake levers before or during self-diagnosis.

- Check operation of the brake system with the ignition switched on.



(-) Changing brake fluid in front control circuit

- Turn the handlebars all the way to the left.
- Repeatedly and slowly pull front brake lever lightly to expel air from the brake master cylinder.
- Turn the front wheel to a position in which the brake fluid reservoir is horizontal and secure the front wheel in this position.

⚠ ATTENTION

Brake fluid on painted surfaces, plastic and rubber components

Material damage

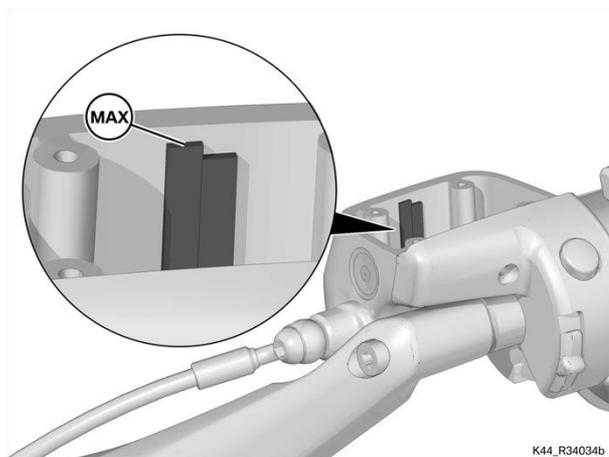
- Do not allow brake fluid to come into contact with painted surfaces, plastic or rubber components.
- Wash components immediately with clear water if required.

- Wrap cloths around the reservoir.
- Remove front reservoir cap with diaphragm, draw off the old brake fluid and clean the reservoir.
- Top up the brake fluid level to the (MAX) mark.

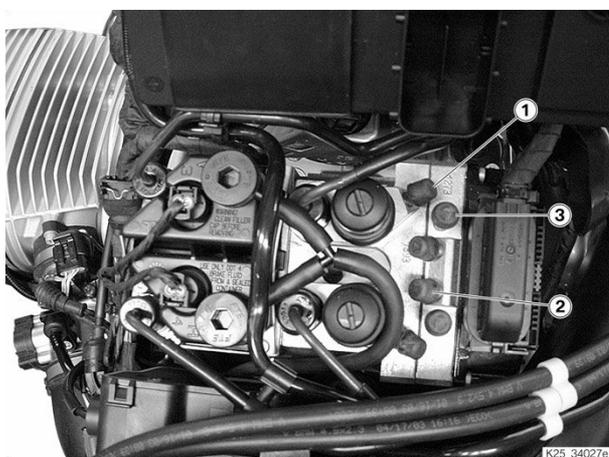


Hydraulic fluid

Brake fluid, DOT4



K44_R34034b



K25_34027e

- Set the handbrake lever to the position for maximum span.

⚠ ATTENTION

Disengagement of plug connections at pressure modulator

Damage due to ingress of dirt and brake fluid

- Do not disengage plug connections at pressure modulator.

- Connect the brake bleeding device to bleed screw (1) of the front metering cylinder, but **do not switch on**.

⚠ WARNING

Bleeding of the control circuits by vacuum extraction with conventional equipment.

Inadequate bleeding of the system.

- Do not attempt to draw off the fluid by vacuum extraction when changing the fluid or bleeding the control circuits.

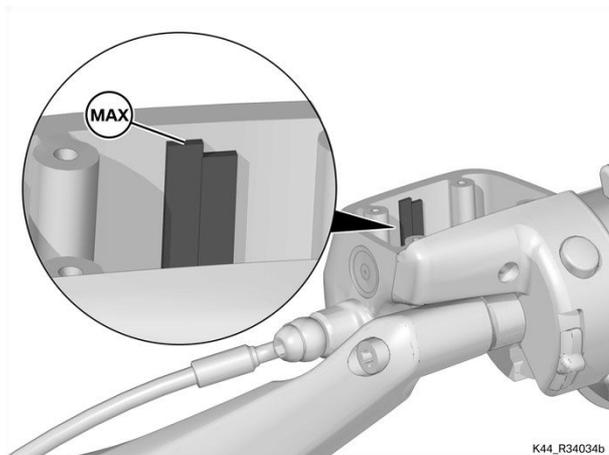
- In the following sequence, bleed:
 - Front metering cylinder (1)
 - Front integral circuit (2)
 - Front control circuit (3) and
 - Front metering cylinder (1) again in accordance with instructions for bleeding and using special ring spanner (No. 34 2 532).

► Instructions for bleeding

- In the following sequence, bleed:
 - 1. Slowly operate brake lever until brake light switch clicks (blow-by bore closed).
 - 2. Open the bleed screw.
 - 3. Slowly operate brake lever to full extent of its travel and close the bleed screw.
 - 4. Slowly release the brake lever.
 - 5. Repeat steps 1 to 4 until the brake fluid emerges clear and free of bubbles.

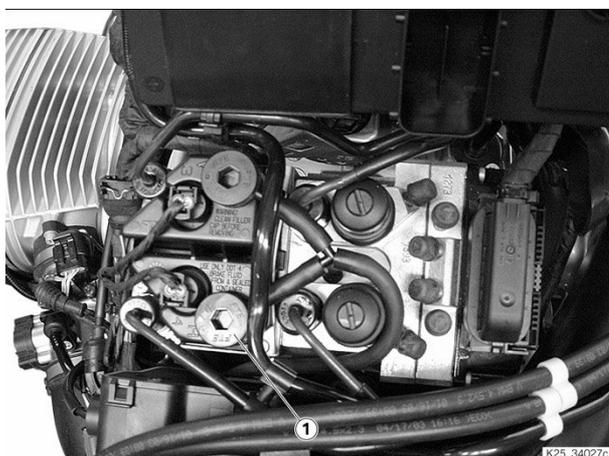


- Fit the protective caps on the bleed screws.



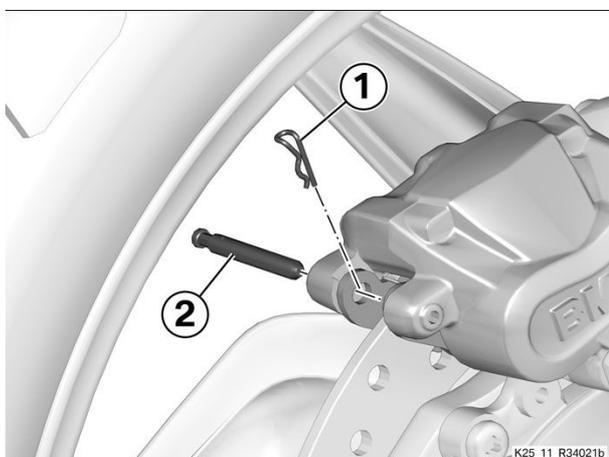
- Top up the brake fluid to the (MAX) mark.
- Wipe the rim of the reservoir, the diaphragm and the cover to remove brake fluid, and carefully re-assemble the components.

(-) Changing brake fluid in wheel circuit, rear



- Open rear wheel-circuit reservoir (1).

► Removing rear brake pads



- Remove retainer (1).
- Drive retaining pin (2) out toward the wheel side.
- Remove the brake pads.

▷ Removing rear brake caliper

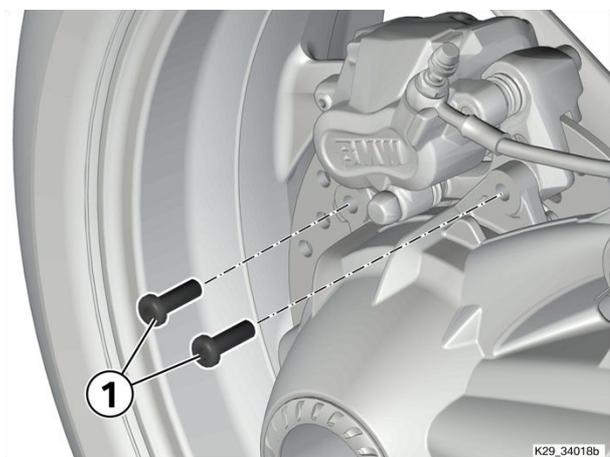
- Remove screws (1).

⚠ ATTENTION

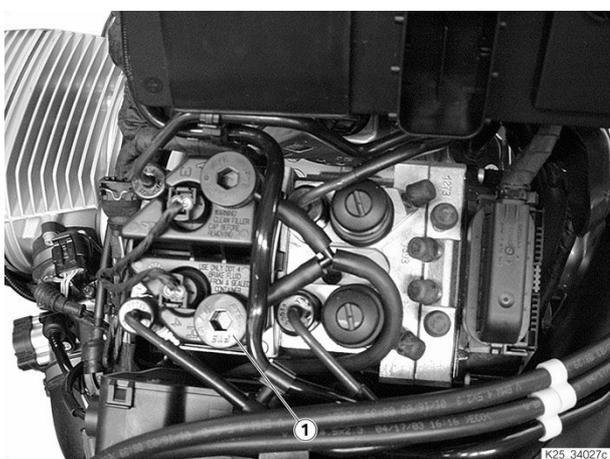
Operation of the front brake with brake calipers and brake pads removed (the front brake also operates the rear brake (Integral brakes))

Brake pistons pushed out

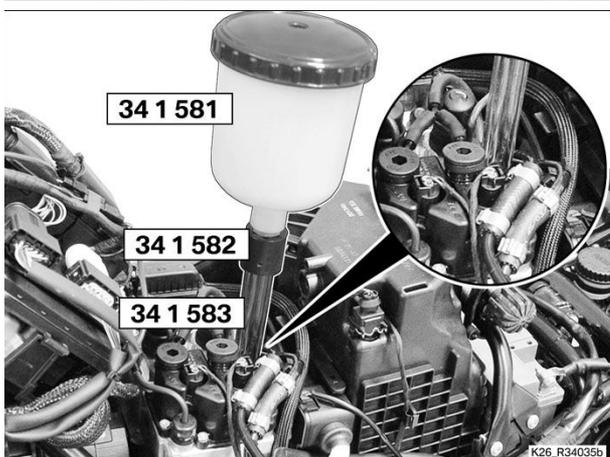
- Do not operate the brakes while a brake caliper has been removed.
- Install brake caliper with brake pads or insert the piston resetting device.



- Remove the brake caliper.



- Install piston resetting device (No. 34 1 531) and adapter (No. 34 1 536) and force the pistons all the way back.
- Wrap a cloth around the brake caliper.



- Connect container (No. 34 1 581) to the rear wheel-circuit reservoir with threaded adapter (No. 34 1 582) and sight glass (No. 34 1 583).
- Slowly fill the container with fresh brake fluid until it is approximately 1/3 full.

 Hydraulic fluid	
Brake fluid, DOT4	

- Connect the brake bleeding device to the bleed screw, but **do not switch on**.
- Use a cable tie to secure the hose of the brake bleeding device to the bleed screw.

 **WARNING**

Brake lever operated without self-diagnosis having completed.

Only residual braking function available.

- Do not operate the brake levers before or during self-diagnosis.

- Switch on the ignition.
- Very gently press the footbrake lever until the pump just starts up.
- Open the bleed screw, while topping up the container with new brake fluid if necessary.

 Hydraulic fluid	
Brake fluid, DOT4	

 **WARNING**

Low fluid level in wheel-circuit reservoir.

Ingress of air into brake system. Bleeding procedure has to be repeated.

- The brake fluid must always be visible in the container, because the piston in the wheel-circuit reservoir must always be covered by the fluid.

- Pump out the brake fluid with virtually no pressure to begin with, then vary the brake pressure.

 **NOTICE**

The higher the brake pressure the faster the fluid is pumped through the system, which means that the level in the wheel-circuit reservoir drops all the more rapidly.

- When the emerging brake fluid is clear and free of bubbles, continue pumping until the fluid in the container just disappears from view.
- Close the bleed screw.

 Tightening torques	
Brake caliper, rear, bleed screw	
	5 Nm

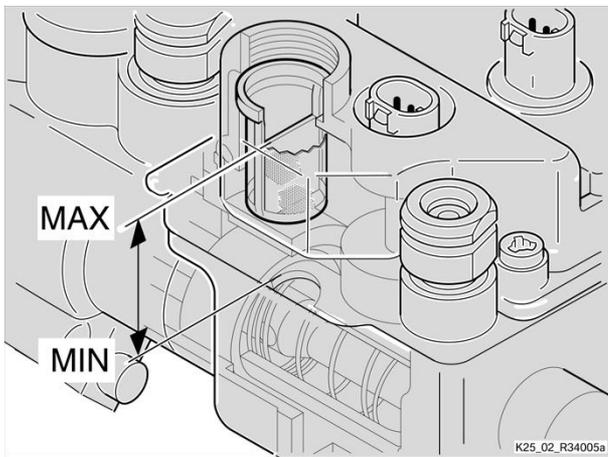
- Release the footbrake lever and switch off the ignition.
- Disconnect the brake bleeding device from the bleed screw.
- Disconnect the container from the wheel-circuit reservoir.

 **WARNING**

Undefined fluid level in wheel circuits after fluid change or bleeding procedure.

Not enough or too much fluid in the wheel circuit.

- Always correct the fluid level in the wheel circuits in accordance with the "Instructions for filling reservoir" after every fluid change or bleeding procedure.



- Top up the fluid in the wheel-circuit reservoir to the (MAX) mark.

► Instructions for filling rear wheel circuit reservoir

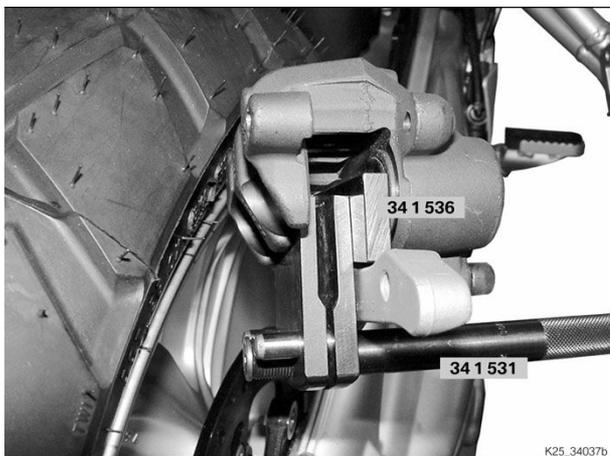
- Make sure that the rear wheel-circuit reservoir is topped up to the MAX mark.
- Fully compress piston resetting device (No. 34 1 531) and insert it together with adapter for rear brakes, (No. 34 1 536), in the rear brake caliper.

⚠ WARNING

Low fluid level in wheel-circuit reservoir.

Ingress of air into brake system. Bleeding procedure has to be repeated.

- The brake fluid must always be visible in the container, because the piston in the wheel-circuit reservoir must always be covered by the fluid.



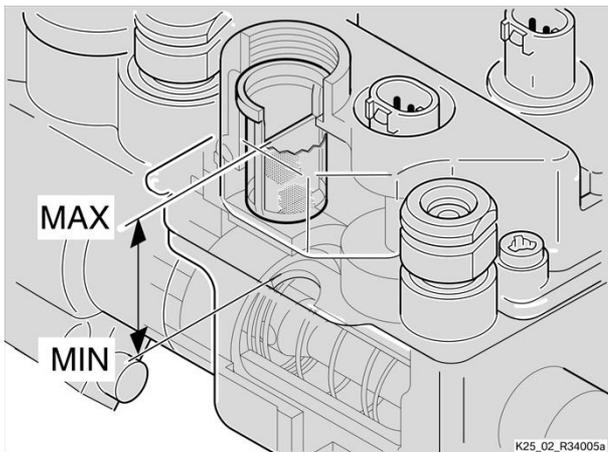
- Switch on the ignition.
- Operate the footbrake lever until the pistons of the rear brake caliper are in contact with piston resetting device (No. 34 1 531) and adapter for rear brakes (No. 34 1 536).
- Top up the brake fluid in the wheel-circuit reservoir until the (MAX) mark in the filler neck is just touching the surface of the fluid.



Hydraulic fluid

Brake fluid, DOT4

- Hand-tighten the cap of the rear wheel-circuit reservoir.



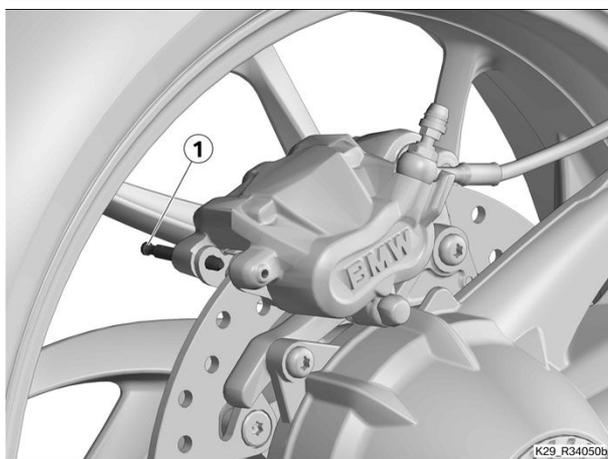
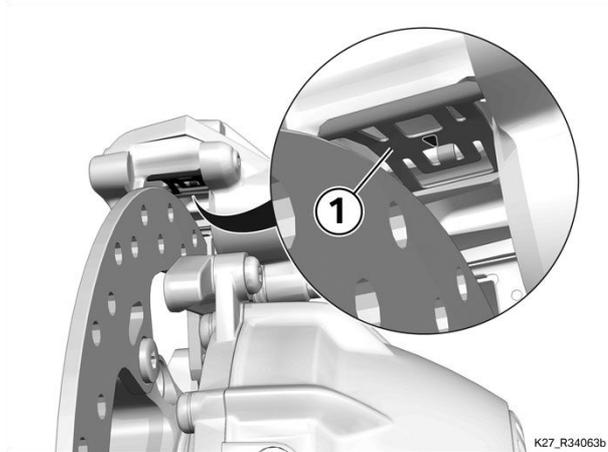
- Remove piston resetting device for integral brakes (No. 34 1 531) and adapter for rear brakes (No. 34 1 536).

- Replace the rear brake pads after removal, if necessary

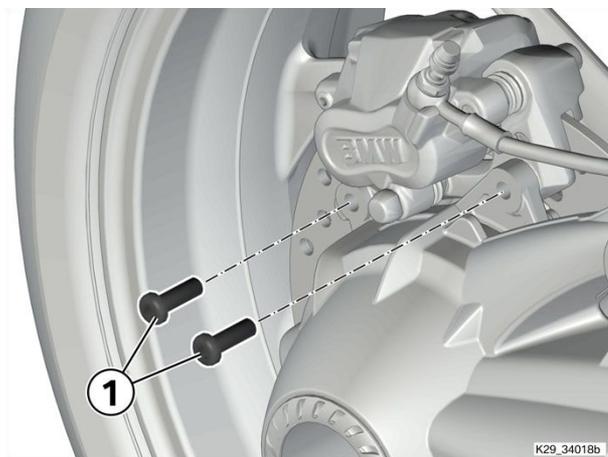
▷ Installing rear brake pads

- Check that spring (1) is correctly seated and installed right way round.

» The engraved arrow points in the forward direction of travel.



- Install the brake pads.
- Manually install retaining pin (1).



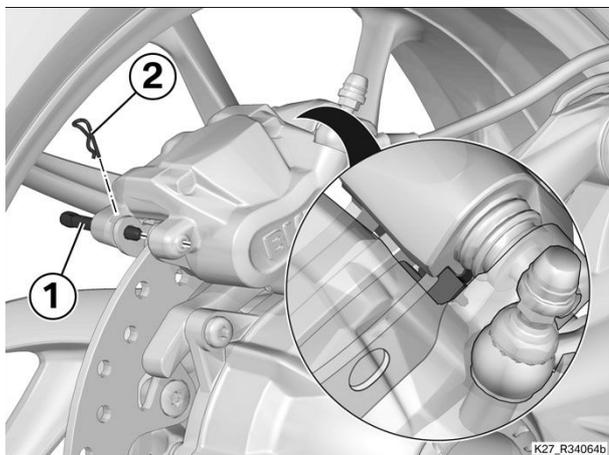
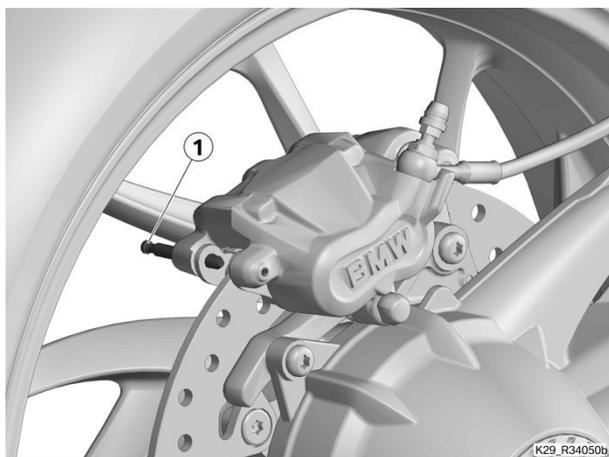
▷ **Securing rear brake caliper**

- Hold the brake caliper in position and secure with screws (1).

 Tightening torques		
Brake caliper to bevel gears		
M8 x 25 - 10.9	28 Nm	

- Once the work has been completed, seat the pads against the brake discs and check operation of the brake system.





- Drive in retaining pin (1) until seated.
- Install retainer (2).
- Bed in the brake pads.



⚠ WARNING

Brake lever operated without self-diagnosis having completed.
Only residual braking function available.

- Do not operate the brake levers before or during self-diagnosis.

- Check operation of the brake system with the ignition switched on.



(-) Changing brake fluid in rear control circuit

- Remove rear reservoir cap with diaphragm, draw off the old brake fluid and clean the reservoir.
- Top up the brake fluid level to the (MAX) mark.

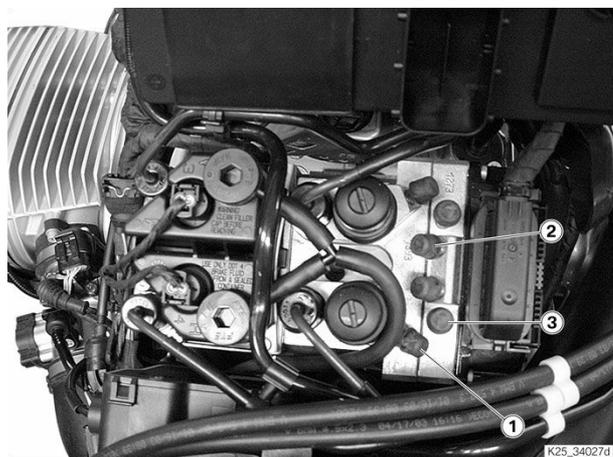


Hydraulic fluid

Brake fluid, DOT4

⚠ ATTENTION

Disengagement of plug connections at pressure modulator
Damage due to ingress of dirt and brake fluid



- Do not disengage plug connections at pressure modulator.

- Connect the brake bleeding device to bleed screw (1) of the rear metering cylinder, **but do not switch on.**

⚠ WARNING

Bleeding of the control circuits by vacuum extraction with conventional equipment.

Inadequate bleeding of the system.

- Do not attempt to draw off the fluid by vacuum extraction when changing the fluid or bleeding the control circuits.

- In the following sequence, bleed:
 - Bleed screw (1) rear metering cylinder
 - Bleed screw (2) rear integral circuit
 - Bleed screw (3) rear control circuit, and
 - for the second time, bleed screw (1) rear metering cylinder in accordance with instructions for bleeding and using special ring spanner (No. 34 2 532).

► Instructions for bleeding

- In the following sequence, bleed:
 - 1. Slowly operate brake lever until brake light switch clicks (blow-by bore closed).
 - 2. Open the bleed screw.
 - 3. Slowly operate brake lever to full extent of its travel and close the bleed screw.
 - 4. Slowly release the brake lever.
 - 5. Repeat steps 1 to 4 until the brake fluid emerges clear and free of bubbles.



- Fit the protective caps on the bleed screws.
- Top up the brake fluid level to the (MAX) mark.
- Wipe the rim of the reservoir, the diaphragm and the cap to remove brake fluid, and carefully re-assemble the components.

Follow-up work

Connecting **BMW Motorrad** diagnostic system to vehicle

Performing bleed test with **BMW Motorrad** diagnostic system

Installing fuel tank

Reading fault memory with **BMW Motorrad** diagnostic system

Disconnecting **BMW Motorrad** diagnostic system from vehicle

Install the right fuel-tank cover

Installing storage compartment lid

Installing right-hand trim panel

Installing left fuel-tank cover

Installing left-hand trim panel
Installing tank rail
Install the seat
Final check of work performed