

Dealer's Manual

ROAD	MTB	Trekking
City Touring/ Comfort Bike	URBAN SPORT	E-BIKE

Hydraulic Disc Brake

XTR

BR-M9100
BR-M9110
BR-M9120
BL-M9100
BL-M9120
RT-MT900

DEORE XT

BR-M8100
BR-M8110
BR-M8120
BL-M8100
BL-T8100
RT-MT800

SLX

BR-M7100
BR-M7110
BR-M7120
BL-M7100

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IMPORTANT NOTICE

- **This dealer's manual is intended primarily for use by professional bicycle mechanics.** Users who are not professionally trained for bicycle assembly should not attempt to install the components themselves using the dealer's manuals. If any part of the information on the manual is unclear to you, do not proceed with the installation. Instead, contact your place of purchase or a distributor for assistance.
- Make sure to read all manuals included with the product.
- Do not disassemble or modify the product other than as stated in the information contained in this dealer's manual.
- All manuals and technical documents are accessible online at <https://si.shimano.com>.
- For consumers who do not have easy access to the internet, please contact a SHIMANO distributor or any of the SHIMANO offices to obtain a hardcopy of the User's Manual.
- Please observe the appropriate rules and regulations of the country, state or region in which you conduct your business as a dealer.

For safety, be sure to read this dealer's manual thoroughly before use, and follow it for correct use.


The following instructions must be observed at all times in order to prevent personal injury and physical damage to equipment and surroundings.

The instructions are classified according to the degree of danger or damage which may occur if the product is used incorrectly.

 DANGER	Failure to follow the instructions will result in death or serious injury.
 WARNING	Failure to follow the instructions could result in death or serious injury.
 CAUTION	Failure to follow the instructions could cause personal injury or physical damage to equipment and surroundings.

TO ENSURE SAFETY

WARNING

- **Be sure to follow the instructions provided in the manuals when installing the product.** It is recommended that you use SHIMANO genuine parts. If bolts and nuts become loose or damaged, the bicycle may suddenly fall over, result in a serious injury.
-  Wear approved eye protection while performing maintenance tasks such as replacing components.

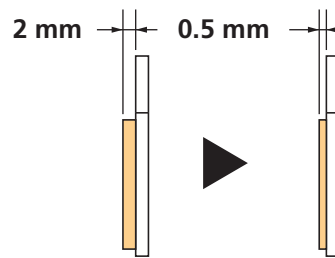
Be sure to also inform users of the following:

- Because each bicycle may handle slightly differently depending on the model, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. Improper use of your bicycle's brake system may result in a loss of control or a fall, which could lead to severe injury.
- Riders must become accustomed to the higher performance of this brake before riding the bicycle. The 203 mm and 180 mm disc brake rotors provide a higher braking force than the 160 mm disc brake rotors. If you ride the bicycle without becoming sufficiently familiar with the braking characteristics, braking may cause you to fall off the bicycle, potentially causing serious injury or a fatal accident.
- Please use extra caution to keep your fingers away from the rotating disc brake rotor. The disc brake rotor is sharp enough to inflict severe injury to your fingers if caught within the openings of moving rotor.



- Do not touch the calipers or disc brake rotor while riding or immediately after dismounting from the bicycle. The calipers and disc brake rotor will become hot when the brakes are operated, so you may get burned if you touch them.
- Be careful not to allow any oil or grease to get onto the disc brake rotor and brake pads. Riding the bicycle with oil or grease on the disc brake rotor and brake pads may prevent the brakes from operating and result in serious injury due to a fall or collision.

- Check the thickness of the brake pads and do not use them if they have a thickness of 0.5 mm or less. Doing so may prevent the brakes from operating and result in serious injury.

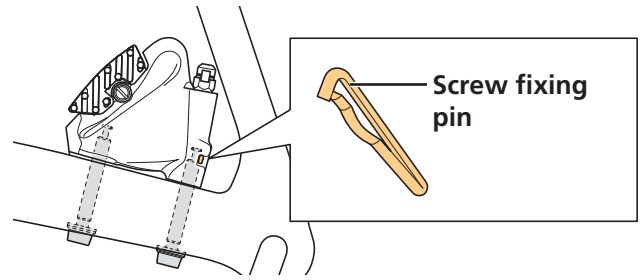


- Do not use the disc brake rotor if it is cracked or deformed. The disc brake rotor may break, and result in serious injury due to a fall.
- Do not use the disc brake rotor if its thickness is 1.5 mm or less. Also do not use it if the aluminum surface becomes visible. The disc brake rotor may break, and result in serious injury due to a fall.
- Do not continuously apply the brakes. Doing so may cause a sudden increase in the brake lever stroke, preventing the brakes from operating and resulting in serious injury.
- Do not use the brakes with fluid leaking. Doing so may prevent the brakes from operating and result in serious injury.
- Do not apply the front brake too strongly. If you do so, the front wheel may lock and the bicycle may fall forward, and serious injury may result.
- Because the required braking distance will be longer during wet weather, reduce your speed and apply the brakes early and gently. You may fall or collide and be seriously injured.
- A wet road surface may cause tires to skid; to avoid this, reduce your speed and apply the brakes early and gently. If the tires skid, you may fall and be seriously injured.
- If the quick release lever is on the same side as the disc brake rotor, confirm that it does not interfere with the disc brake rotor. Otherwise, the bicycle may fall forward, and serious injury may result.

For installation to the bicycle, and maintenance:

- Do not use oil other than SHIMANO genuine mineral oil. Doing so may prevent the brakes from operating and result in serious injury.
- Be sure to use only oil from a freshly-opened container. Doing so may prevent the brakes from operating and result in serious injury.
- Do not let water or air bubbles to get into the brake system. Doing so may prevent the brakes from operating and result in serious injury.
- Do not use with a tandem bicycle. Doing so may prevent the brakes from operating and result in serious injury due to a fall or collision.

- When installing the brake caliper using screw fixing pins, be sure to use mounting screws of the appropriate length. If not, the screw fixing pins may not be securely fastened, and the screws may fall out.

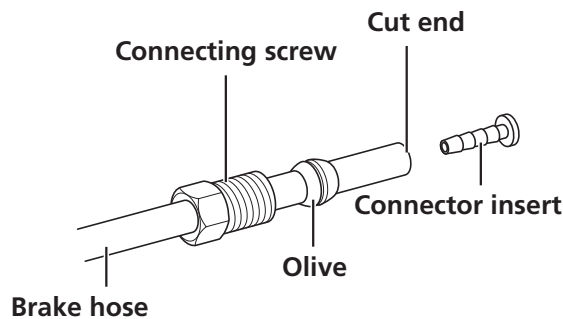


■ Brake hose

- Refer to the table below, and do not use an incorrect connector insert. Doing so may prevent the brakes from operating and result in serious injury.

Brake hose	Connector insert	
	Length	Color
SM-BH90	11.2 mm	Silver
SM-BH59/80	13.2 mm	Gold
YM-BH81	13.2 mm	Silver

- Do not reuse the olive piece or the connector insert when reinstalling. Doing so may prevent the brakes from operating and result in serious injury due to a fall.



■ When using TL-BH62

- Cut the brake hose so that the cut end is perpendicular to the length of the hose. If the brake hose is cut at an angle, fluid leaks may result.



- Read the TL-BH62 manual carefully, and keep it in a safe place for later reference.

⚠ CAUTION**Be sure to also inform users of the following:****■ Cautions on SHIMANO genuine mineral oil**

- Use appropriate eye protection when handling, and avoid contact with eyes. In the event of eye contact, flush with fresh water and seek medical assistance immediately. Contact with eyes may result in irritation.
- Use gloves when handling. In the event of skin contact, wash well with soap and water. Contact with eyes may result in irritation.
- Cover nose and mouth with a respirator type mask and use in a well ventilated area. Inhalation of mineral oil mist or vapors may cause nausea.
- If mineral oil mist or vapor is inhaled, go immediately to an area with fresh air. Cover up with a blanket. Stay warm and stable and seek professional medical advice.

■ Burn-in period

- Disc brakes have a burn-in period, and the braking force will gradually increase as the burn-in period progresses. Make sure that you are aware of any such increases in braking force when using the brakes during the burn-in period.
The same thing will happen when the brake pads or disc brake rotor are replaced.

For installation to the bicycle, and maintenance:

- When using the SHIMANO original tool (TL-FC36) to remove and install the disc brake rotor lock ring, wear gloves and be careful not to touch the outer edges of the disc brake rotor with your hands. Failure to do so may result in cuts to your hands.

■ Handling SHIMANO genuine mineral oil

- Do not drink. May cause vomiting or diarrhea.
- Keep out of reach of children.
- Do not cut, let near heat, weld or pressurize the SHIMANO genuine mineral oil container. Doing so may cause an explosion or fire.
- Disposal of Used Oil: Follow local county and/or state codes for disposal. Use caution when preparing the oil for disposal.
- Directions: Keep the container sealed to prevent foreign objects and moisture from getting inside, and store it in a cool, dark area away from direct sunlight or heat. Keep from heat or flame, Petroleum Class III, Danger level III

■ Brake hose

- When cutting the brake hose, handle the knife carefully so as not to cause injury.

- Be careful to avoid injury from the olive.

■ When using TL-BH62

- When cutting the hose, handle the knife carefully so as not to cause injury.
- Be careful to avoid pinching your fingers between the lever and the tool during operations.
- When replacing the knife blade, handle the knife carefully so as not to cause injury.
- If mineral oil adheres to the brake hose, use isopropyl alcohol to clean the hose and remove the oil.
- Keep the tool and the blades out of reach of children.
- Use isopropyl alcohol or a dry cloth when cleaning brake hoses and cleaning and maintaining tools. Do not use commercially available brake cleaners. Doing so may cause damage to plastic parts.

NOTICE

Be sure to also inform users of the following:

- When the bicycle wheel has been removed, it is recommended that pad spacers are installed. Do not depress the brake lever while the wheel is removed. If the brake lever is depressed without the pad spacers installed, the pistons will protrude further than normal. If that happens, consult a place of purchase.
- Use soapy water or a dry cloth when cleaning and carrying out maintenance of the brake system. Do not use commercially available brake cleaners or silencing agents. Such substances can cause damage to parts such as seals.
- In the case of carbon levers, wash them with a soft cloth using a neutral detergent. Otherwise, the material may be damaged and lose strength.
- Avoid leaving the carbon levers in areas of high temperature. Also keep them well away from fire.
- Products are not guaranteed against natural wear and deterioration from normal use and aging.
- For maximum performance we highly recommend SHIMANO lubricants and maintenance products.

For installation to the bicycle, and maintenance:















- The 203 mm and 180 mm disc brake rotors have a larger diameter than the 160 mm disc brake rotor for cross-country bicycles, and so the warping of these disc brake rotors is greater. As a result, they may interfere with the performance of the brake pads.

- If the brake caliper mounting boss and the dropout are not parallel, the disc brake rotor and caliper may touch.
- When the bicycle wheel has been removed, it is recommended that pad spacers are installed. The pad spacers will prevent the piston from coming out if the brake lever is depressed while the wheel is removed.
- If the brake lever is depressed without the pad spacers installed, the pistons will protrude further than normal. Use a flat-shaped tool to push back the brake pad, while being careful not to damage the surface of the brake pads. (If the brake pads are not installed, use a flat-shaped tool to push the pistons straight back in, while being careful not to damage them.) If it is difficult to push the brake pads or pistons back, remove the bleed screws and then try again. (Note that some oil may overflow from the reservoir tank at this time.)
- Use isopropyl alcohol, soapy water or a dry cloth when cleaning and carrying out maintenance of the brake system. Do not use commercially available brake cleaners or silencing agents. Such substances can cause damage to parts such as seals.
- Do not remove the pistons when disassembling and cleaning the calipers.
- If the disc brake rotor is worn, cracked or warped, it should be replaced.
- BL-M9100 is a magnesium component. Corrosion starts when these components come into contact with parts made of other types of metals, such as steel hardware. In the contact area, water residue, sweat, rain and other moisture particles may create a potential reaction. This forms an electrochemical cell, resulting in an electrochemical reaction. To prevent this problem, each part is treated with a special-purpose surface treatment. Use appropriate parts to prevent the progression of corrosion. For details, refer to "Designated small parts for magnesium components" in "MAINTENANCE."

The actual product may differ from the illustration because this manual is intended mainly to explain the procedures for using the product.

LIST OF TOOLS TO BE USED

The following tools are needed for installation/removal, adjustment, and maintenance purposes.

Tool	
	2 mm hexagon wrench
	2.5 mm hexagon wrench
	3 mm hexagon wrench
	4 mm hexagon wrench
	5 mm hexagon wrench
	8 mm spanner
	7 mm box wrench
	Adjustable wrench
	Slotted screwdriver
	Cross head screwdriver [#2]
	TL-BH62
	TL-FC36
	TL-LR15
	Micrometer

INSTALLATION/REMOVAL

Installing the brake lever

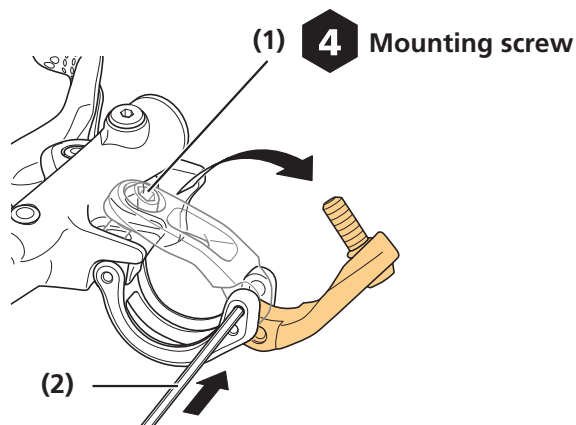
For the installation method when installing with an I-SPEC EV type shifting lever, refer to the dealer's manual of the shifting lever being used.

For information on how to install the BL-T8100, refer to the disc brake section of General Operations.

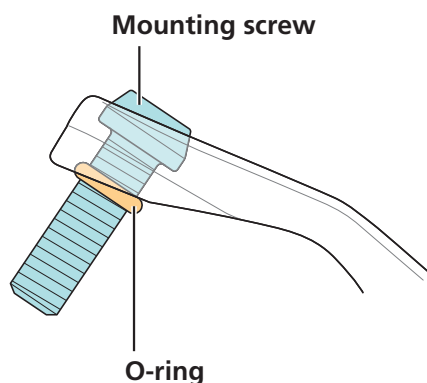
When installing parts onto a carbon frame/handlebar, confirm the recommended tightening torque with the carbon frame or handlebar manufacturer. This will prevent damage to the frame/handlebar due to over-torquing or inadequate securing of the components.

1. Open the clamp band of the brake lever.

- (1) Loosen the mounting screw.
- (2) Press the recessed area of the clamp band with a tool such as a 2 mm hexagon wrench to disengage the safety latch.

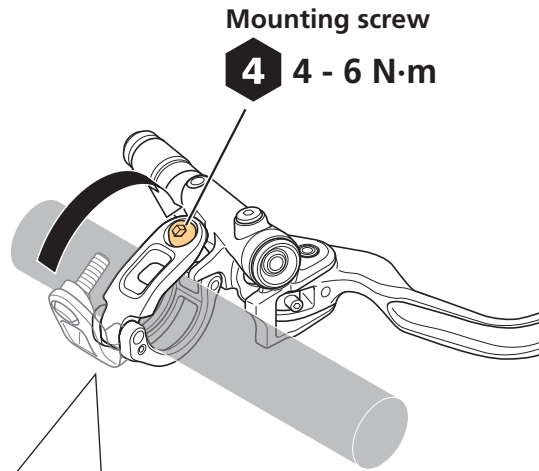


2. Pull an O-ring to the clamp band side as shown in the figure.

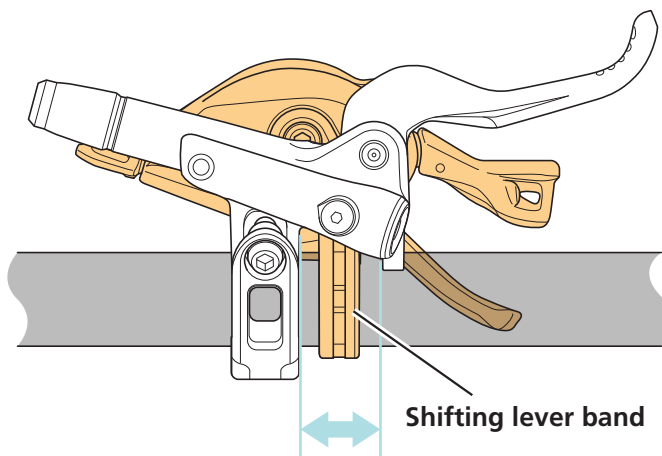


3. Attach the brake lever to the handlebar.

Secure the lever using the mounting screw.



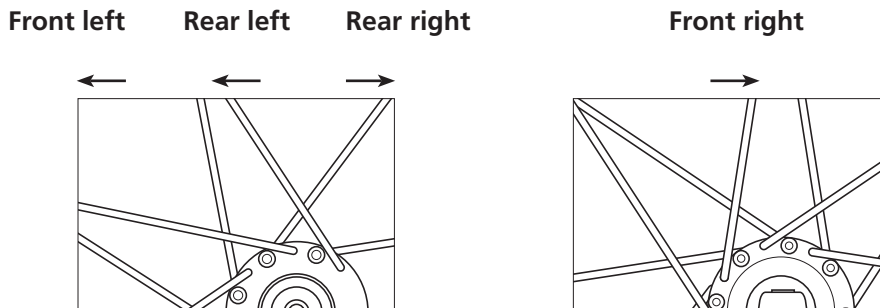
When installing the brake lever in combination with a standard type shifting lever, install the brake lever so that the position of the shifting lever band is within the range shown in the figure. After the shifting lever is installed, install the brake lever while checking its position.



Installing the disc brake rotor

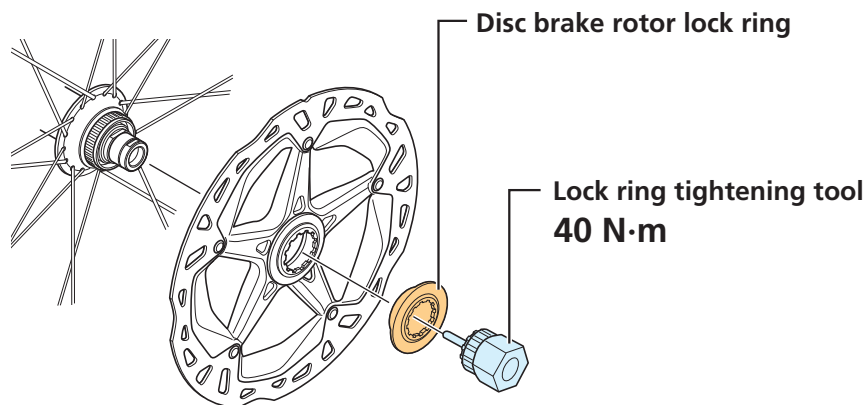
1. Check that the spokes are laced as shown in the figure.

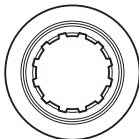

Radial lacing cannot be used.



2. Set the disc brake rotor on the hub, and then secure it with the disc brake rotor lock ring.

Secure with TL-LR15 and an adjustable wrench or TL-FC36.



	Internal spline type	External spline type
Disc brake rotor lock ring		
Lock ring tightening tool	TL-LR15 and adjustable wrench	TL-FC36

Removing the disc brake rotor

Perform the removal of the disc brake rotor in the reverse order from the installation procedure.

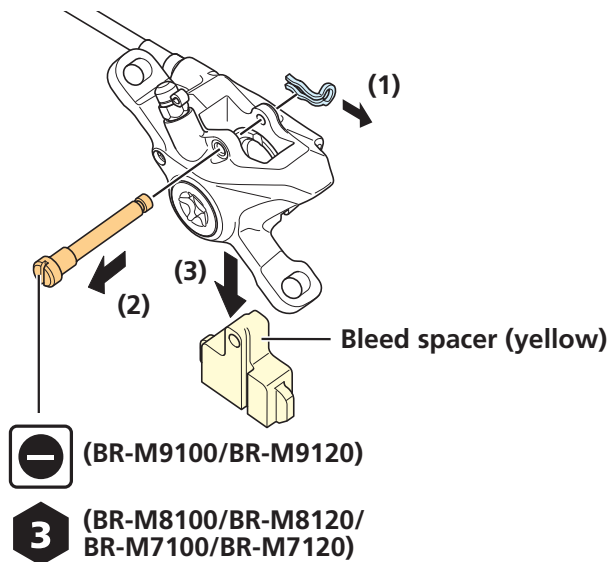
Installing the brake caliper

Post mount type

1. Install the wheel with an attached disc brake rotor onto the frame.

2. Remove the bleed spacer (yellow).

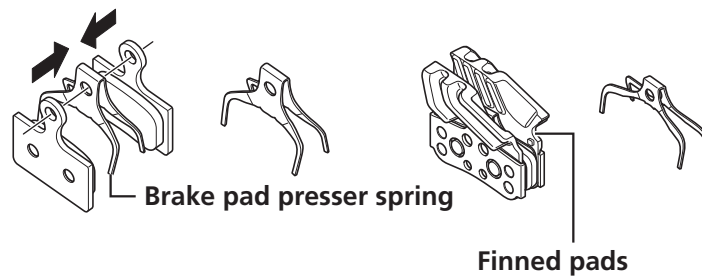
- (1) Remove the retaining clip.
- (2) Remove the pad axle.
- (3) Remove the bleed spacer (yellow).



3. Set the brake pad presser spring in the brake pads.

Since there are fins on the front and rear of the finned pads, set the pads as shown in the figure.

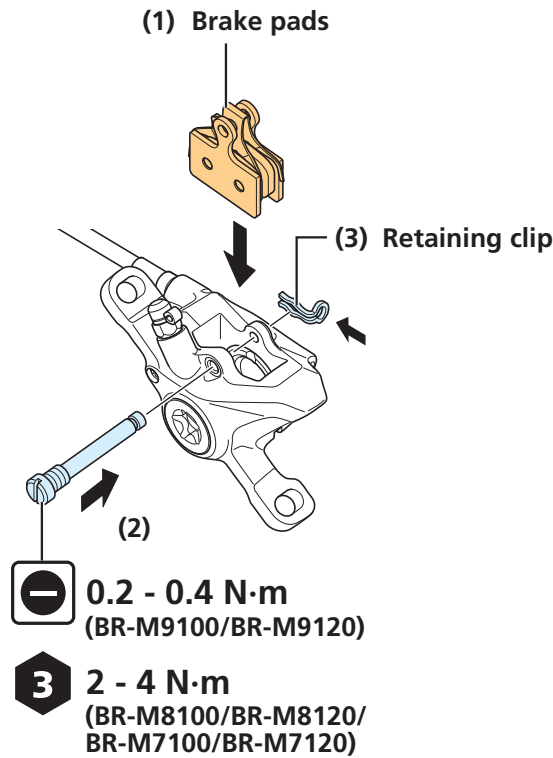
When a brake pad has markings, take note of the left (L) and right (R) markings to set it.



4. Install the brake pads.

- (1) Set the brake pads in the caliper.

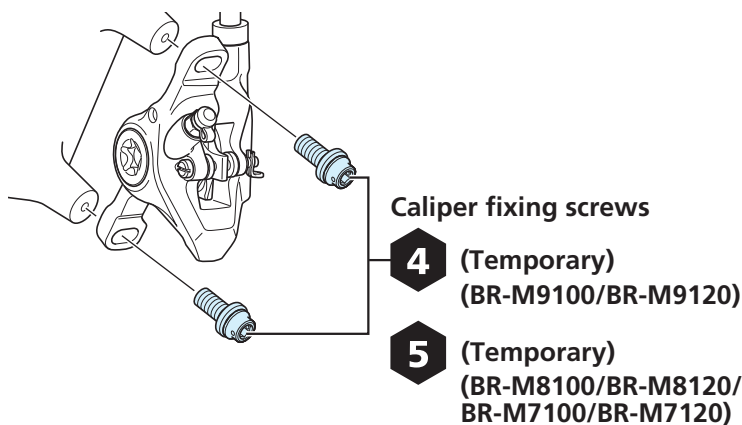
- (2) Insert the pad axle.
- (3) Install the retaining clip.



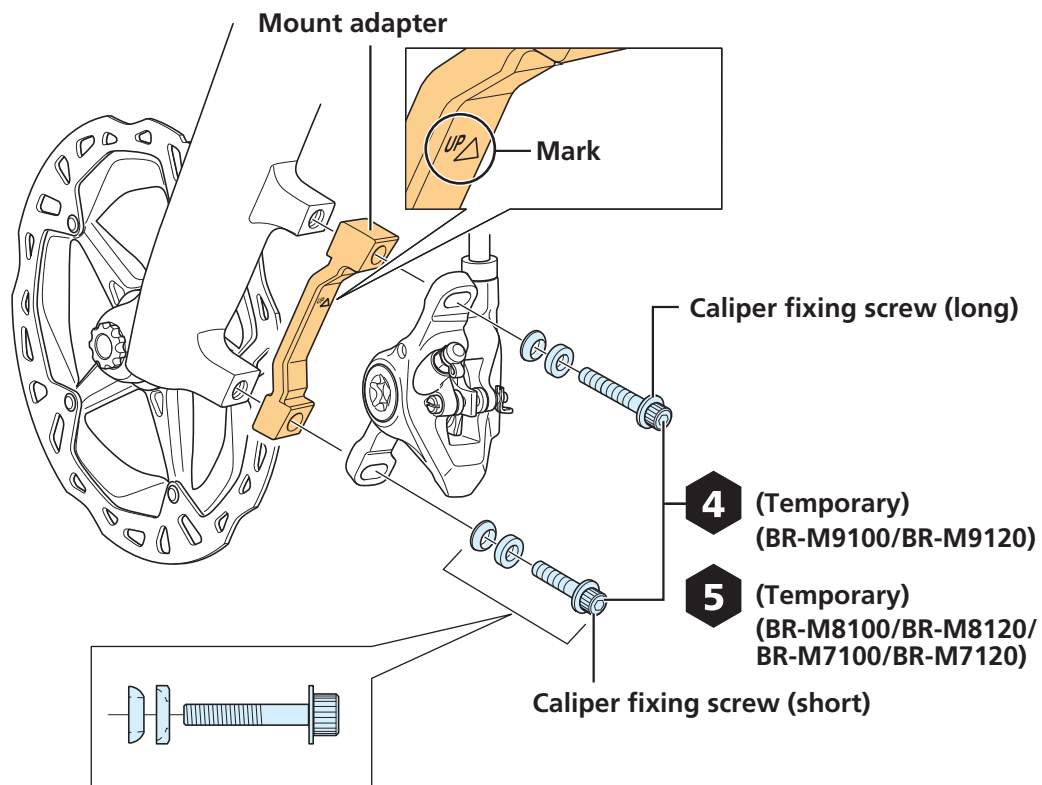
5. Temporarily install the caliper on the frame without fully tightening the fixing screws so that the caliper can still move horizontally.

If it is necessary to install a mount adapter, temporarily install the adapter after setting it on the caliper. Set the adapter so that the mark is facing up.

Without mount adapter

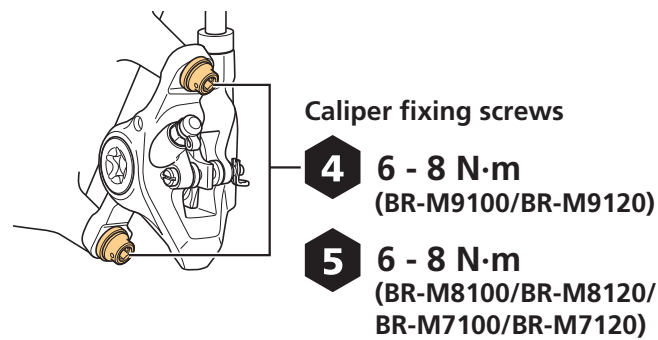


With mount adapter



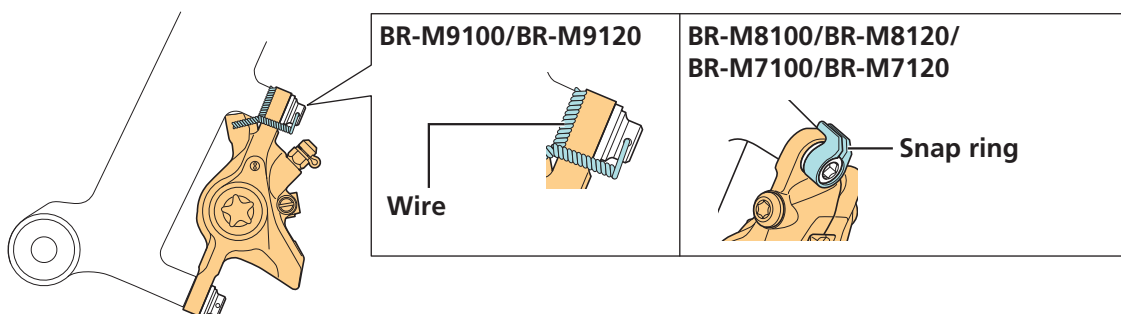
6. Depress the brake lever so that the disc brake rotor is held between the pads, and then tighten the caliper fixing screws.

If the brake hose is not already installed in the caliper, install the brake hose and then perform the step.



7. Secure the caliper fixing screw.

In order to prevent the screw from loosening, install a snap ring on the head of the screw. If there is a lock wire hole through head of the fixing screw, use lock wire to secure it.



NOTICE

- Use the supplied snap ring for BR-M8100/BR-M8120/BR-M7100/BR-M7120. Other models of snap rings cannot be installed.



International-standard mount type

NOTICE

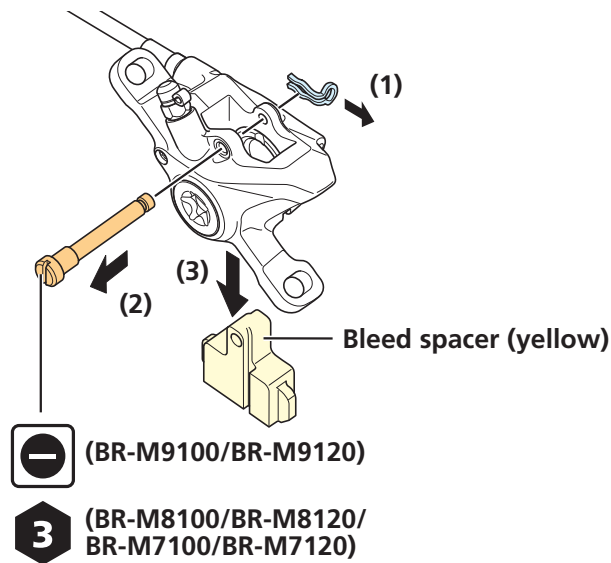
- For international-standard mounts, a dedicated adapter is required.

1. Install the wheel with an attached disc brake rotor onto the frame.

2. Remove the bleed spacer (yellow).

- (1) Remove the retaining clip.
- (2) Remove the pad axle.

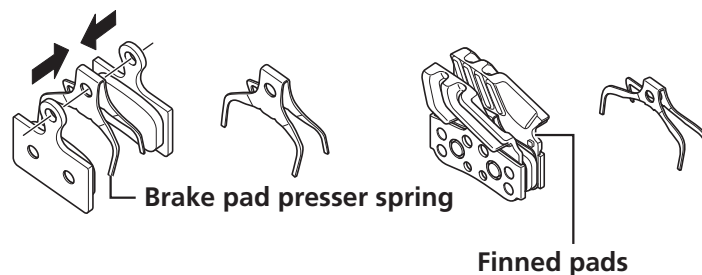
(3) Remove the bleed spacer (yellow).



3. Set the brake pad presser spring in the brake pads.

Since there are fins on the front and rear of the finned pads, set the pads as shown in the figure.

When a brake pad has markings, take note of the left (L) and right (R) markings to set it.

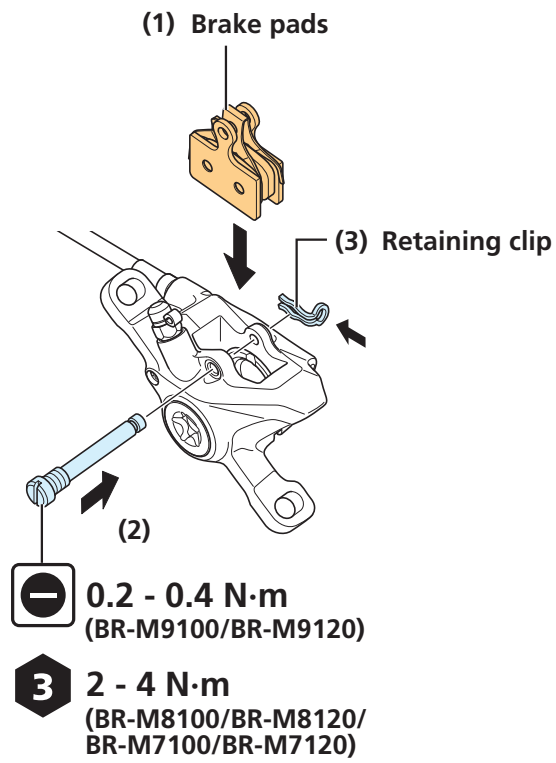


4. Install the brake pads.

(1) Set the brake pads in the caliper.

(2) Insert the pad axle.

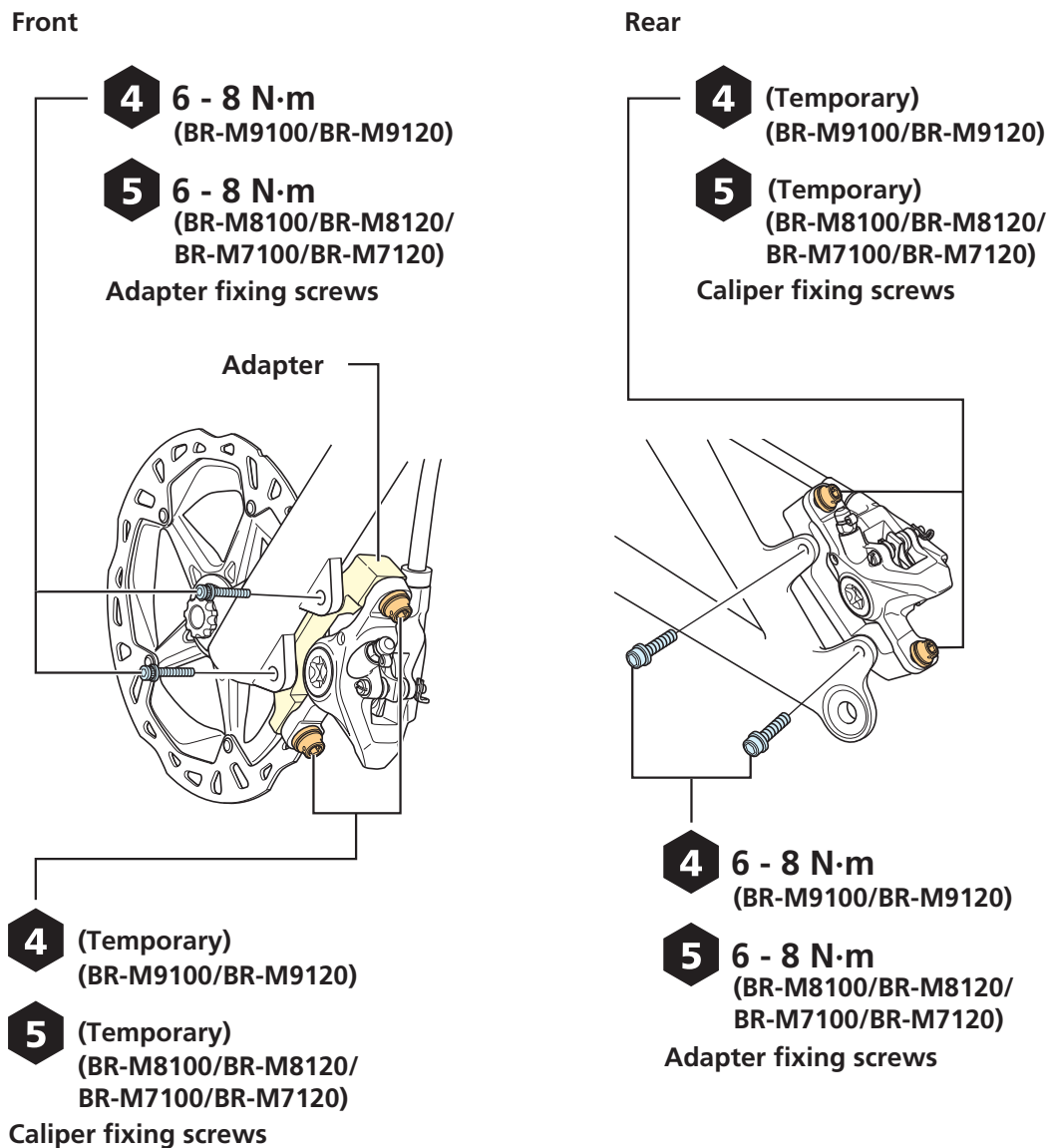
(3) Install the retaining clip.



5. Temporarily install the caliper on the adapter, and then install it onto the frame.

Tighten with the adapter fixing screws.

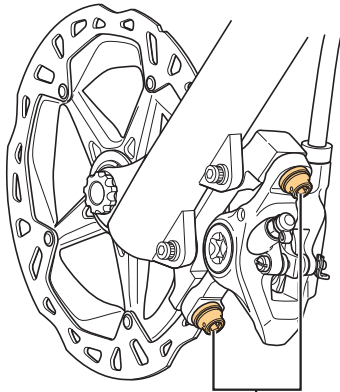
* Leave enough slack so that the caliper can still move horizontally.



6. Depress the brake lever so that the disc brake rotor is held between the pads, and then tighten the caliper fixing screws.

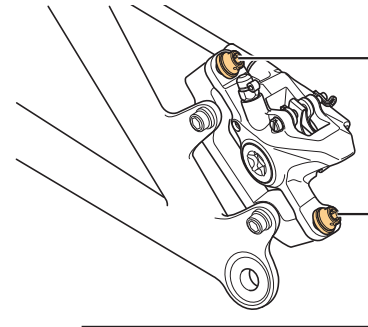
If the brake hose is not already installed in the caliper, install the brake hose and then perform the step.

Front



- 4** 6 - 8 N·m
(BR-M9100 / BR-M9120)
- 5** 6 - 8 N·m
(BR-M8100 / BR-M8120 /
BR-M7100 / BR-M7120)
Caliper fixing screws

Rear

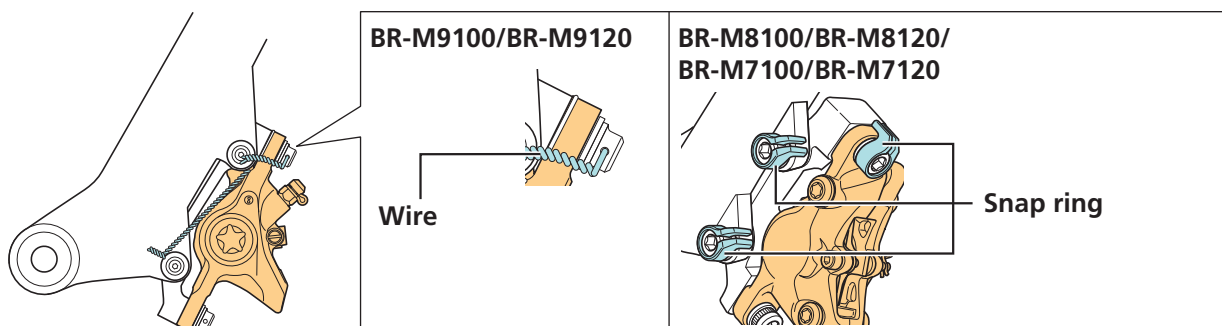


- 4** 6 - 8 N·m
(BR-M9100/BR-M9120)
- 5** 6 - 8 N·m
(BR-M8100/BR-M8120/
BR-M7100/BR-M7120)
Caliper fixing screws

7. Secure the caliper fixing screw.

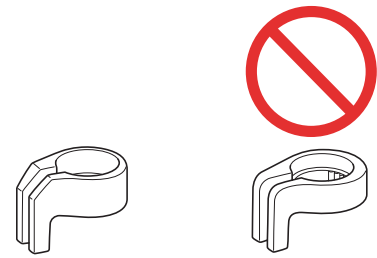
In order to prevent the screws from loosening, secure the caliper fixing screw and adapter fixing screws with snap rings or a wire.

* Install the snap rings or pass the wire through the holes in the heads of the fixing screws and twist as shown in the figure.



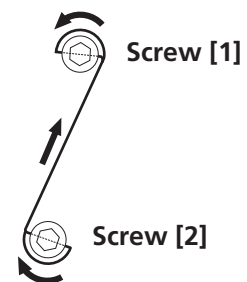
NOTICE

- Use the supplied snap ring for BR-M8100/BR-M8120/BR-M7100/BR-M7120. Other models of snap rings cannot be installed.



TECH TIPS

- If screw [1] loosens (turns counterclockwise), force is applied via the wire to turn screw [2] in the tightening direction (clockwise). However, screw [2] cannot turn any further in the tightening direction. Accordingly, this prevents screw [1] from turning in the loosening direction because it is also connected via the wire. If either screw begins to loosen, force will be applied to the other screw, thereby turning the loosened screw in the tightening direction. In other words, this system prevents the screws from loosening.



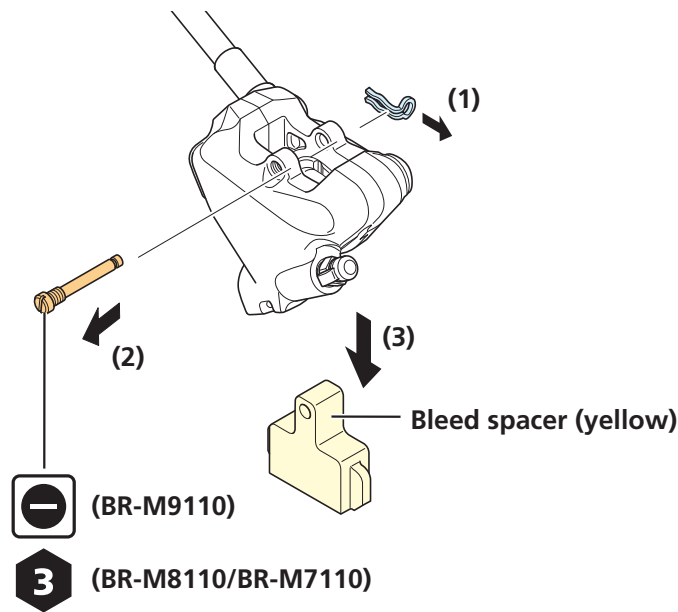
Installing the brake caliper (flat mount type)

Installing the brake pads

1. Remove the bleed spacer (yellow).

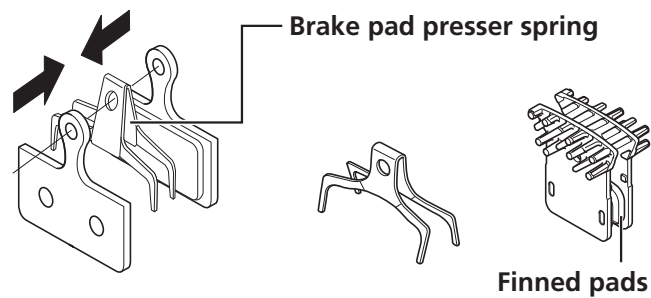
- (1) Remove the retaining clip.
- (2) Remove the pad axle.

(3) Remove the bleed spacer (yellow).



2. Set the pad presser spring in the brake pads.

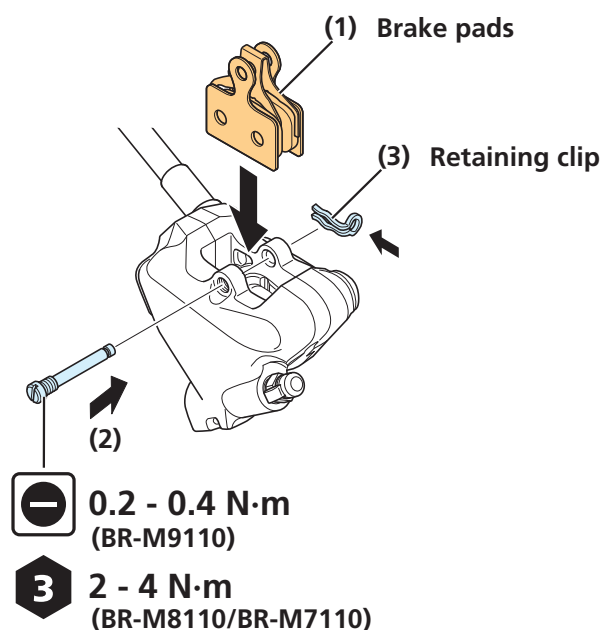
Since there are fins on the front and rear of the finned pads, set the pads as shown in the figure.



3. Install the brake pads.

- (1) Set the brake pads in the caliper.
- (2) Insert the pad axle.

(3) Install the retaining clip.



Installing to the frame

Install to the frame the caliper with attached brake pads. The installation method differs according to the disc brake rotor used.

NOTICE

- A special mount bracket may be required depending on the frame and disc brake rotor combination.

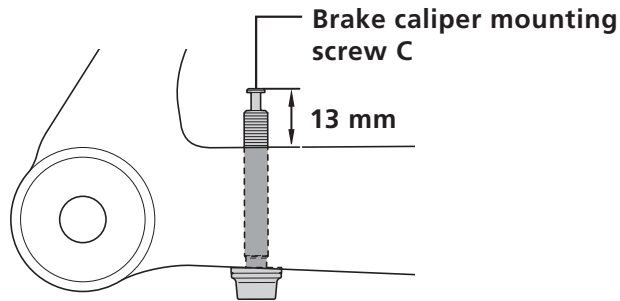
Fork and frame mount type		Disc brake rotor size		
		140 mm (SS)	160 mm (S)	180 mm (M)
Flat mount Ø140/160	Rear	Mount bracket not required	SM-MA-R160 D/D	-
Flat mount Ø160/180	Rear	-	Mount bracket not required	SM-MA-R160 D/D

* BR-M9110 is not compatible with rear 180 mm (M) rotor.

▶ For rear 140 mm disc brake rotor

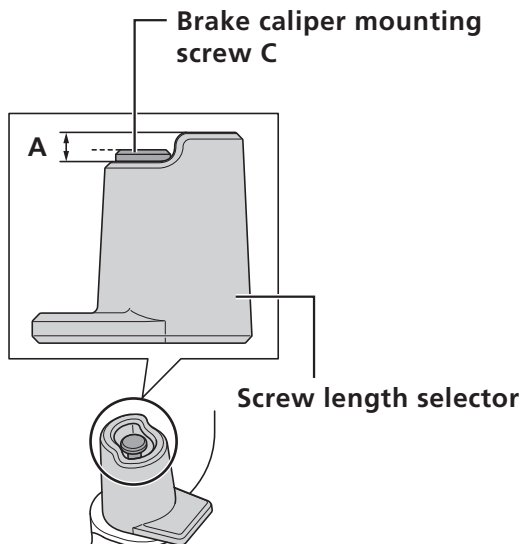
1. Insert the brake caliper mounting screw C into the frame mount area.

Make sure that the length of the protruding section of the brake caliper mounting screw C is 13 mm.

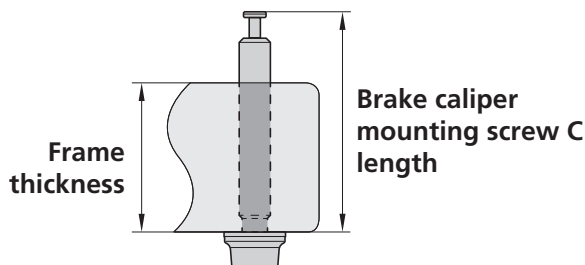


NOTICE

- When using a screw length selector, make sure the tip of the brake caliper mounting screw C is within the range A.

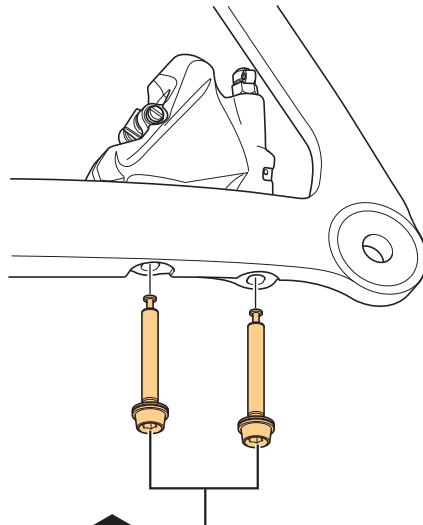


- Do not use a washer when checking the length of brake caliper mounting screw C.
- The length of brake caliper mounting screws C to be used varies depending on the thickness of the frame. Use brake caliper mounting screws C that are appropriate for the thickness of the frame.



Frame thickness	Brake caliper mounting screw C length	Y-part
10 mm	23 mm	Y8N208000
15 mm	28 mm	Y8N208050
20 mm	33 mm	Y8N208010
25 mm	38 mm	Y8N208020
30 mm	43 mm	Y8N208030
35 mm	48 mm	Y8N208040

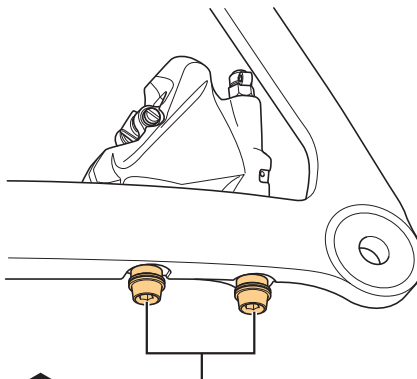
2. Temporarily install the brake caliper to the frame so that the brake caliper can still move horizontally.



4 (Temporary)

Brake caliper mounting screw C

3. Depress the brake lever so that the disc brake rotor is held between the pads, and then tighten the caliper mounting screw C.

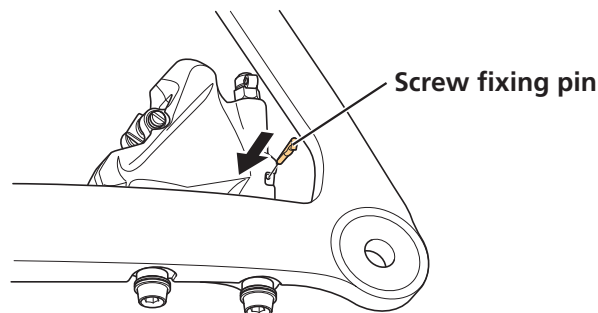


4 6 - 8 N·m

Brake caliper mounting screw C

4. Install the screw fixing pin.

Check that the screw fixing pin is fully inserted all the way to the back.



▶ For rear 160 mm and rear 180 mm disc brake rotors

1. Check the length of the brake caliper mounting screw C.

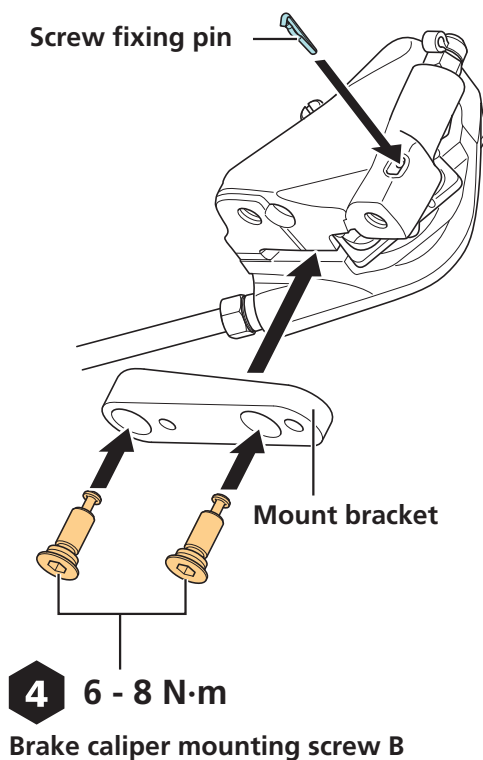
Refer to step 1 in "For a rear 140 mm disc brake rotor."

2. Attach the mount bracket to the brake caliper.

(1) Tighten it using the brake caliper mounting screw B.

(2) Install the screw fixing pin.

* Check that the screw fixing pin is fully inserted all the way to the back.



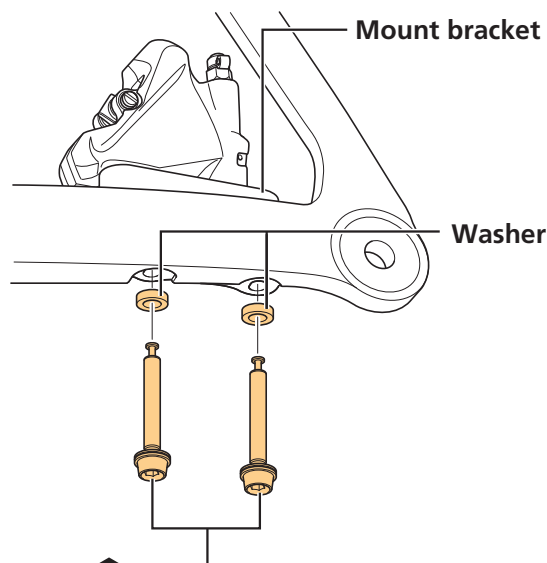
NOTICE

- Pay attention to the marking on the mount bracket when attaching it.



3. Temporarily install the mount bracket to the frame so that it can move left and right.

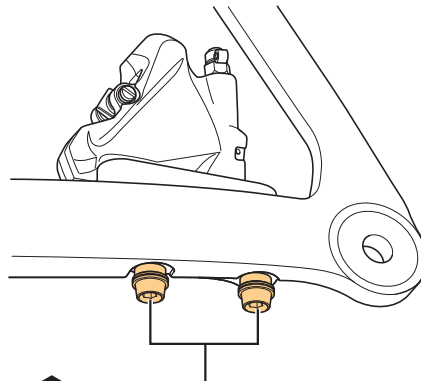
Temporarily install it using the brake caliper mounting screw C that has an attached washer.



4 (Temporary)

Brake caliper mounting screw C

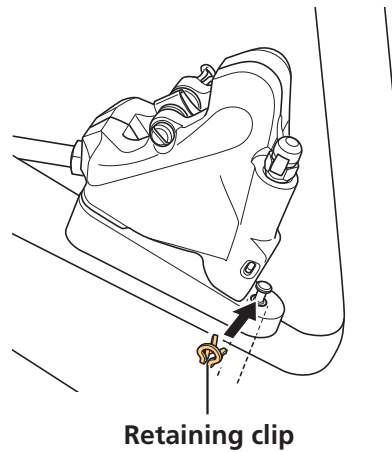
4. Depress the brake lever so that the disc brake rotor is held between the pads, and then tighten the caliper mounting screw C that has an attached washer.



4 6 - 8 N·m

Brake caliper mounting screw C

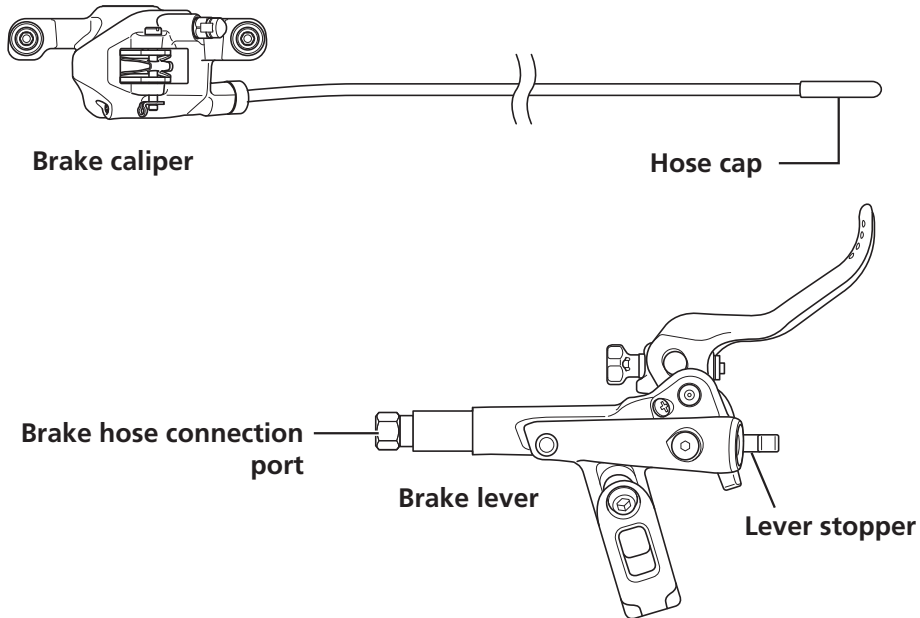
5. Install the retaining clip.



Retaining clip

Installing the brake hose

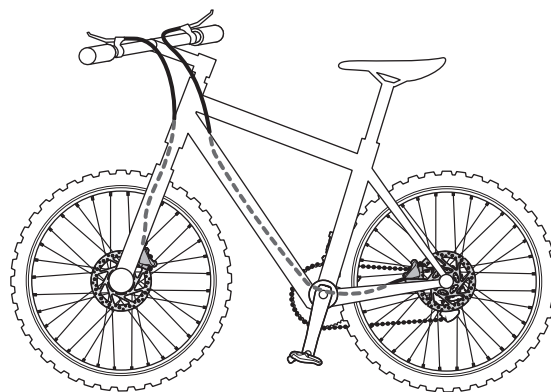
Overview of the easy hose joint system



Checking the length of the hose

1. Route the brake hose into the final installation position.

Do not remove the hose caps from the ends of the brake hoses.



NOTICE

- This figure is only for explanatory purposes. For details on how to route the brake hoses, consult the manufacturer of the bicycle or refer to the bicycle's manual.

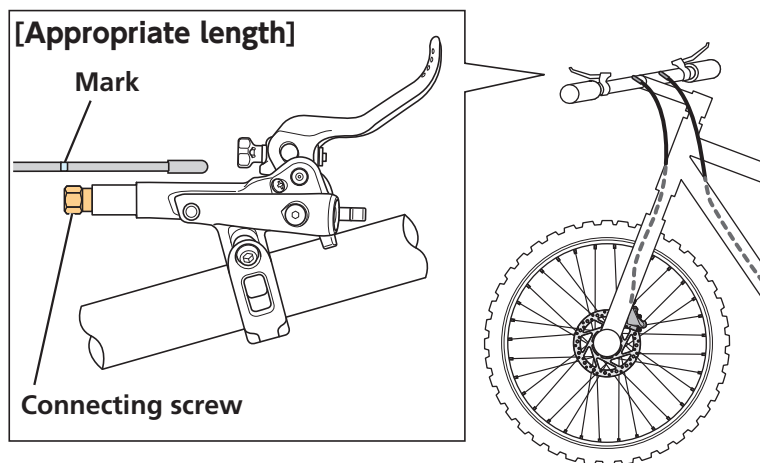
2. Check the appropriate length of the brake hose.

Secure the brake lever in the position used when riding.

(Since BL-M9100 cannot be secured on the handlebars unless the lever stopper is removed, place the lever in the position assumed to be used when riding, and then perform a check.)

Check the mark on the brake hose with the edge of the brake lever connecting screw.

- * If the hose is at the appropriate length, it is not necessary to cut the hose. Proceed to "Connecting the hose" section in "Installing the brake hose."
- * If the hose needs to be shortened, proceed to "Cutting the hose" in "Installing the brake hose."
- * If the hose length is insufficient, replace with a hose that has an appropriate length. Proceed to "Replacing the brake hose."

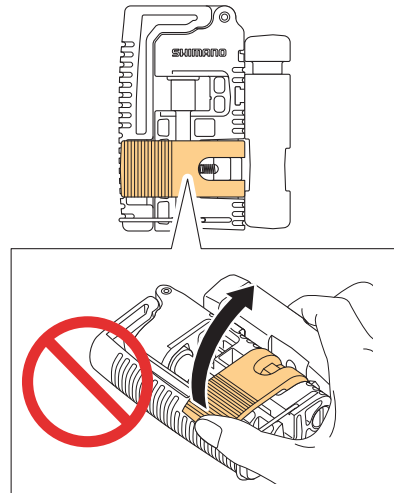


Cutting the hose

Use care when cutting the hose, as oil may leak when the hose is cut.

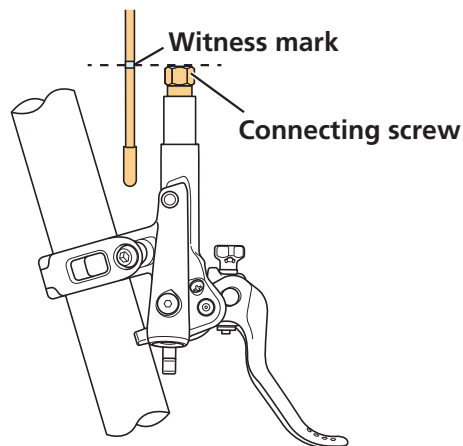
NOTICE

- Make sure to also refer to the manual for SHIMANO original tool TL-BH62.
- Do not move the lever indicated in the figure before disassembling SHIMANO original tool TL-BH62.



1. Determine the appropriate length and add a witness mark on the brake hose.

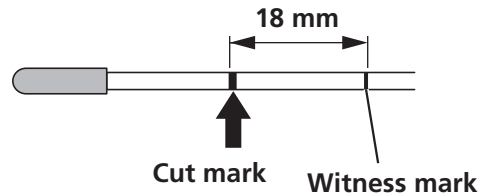
Add the mark so it is aligned with the edge of the connecting screw.



2. Add a cut mark.

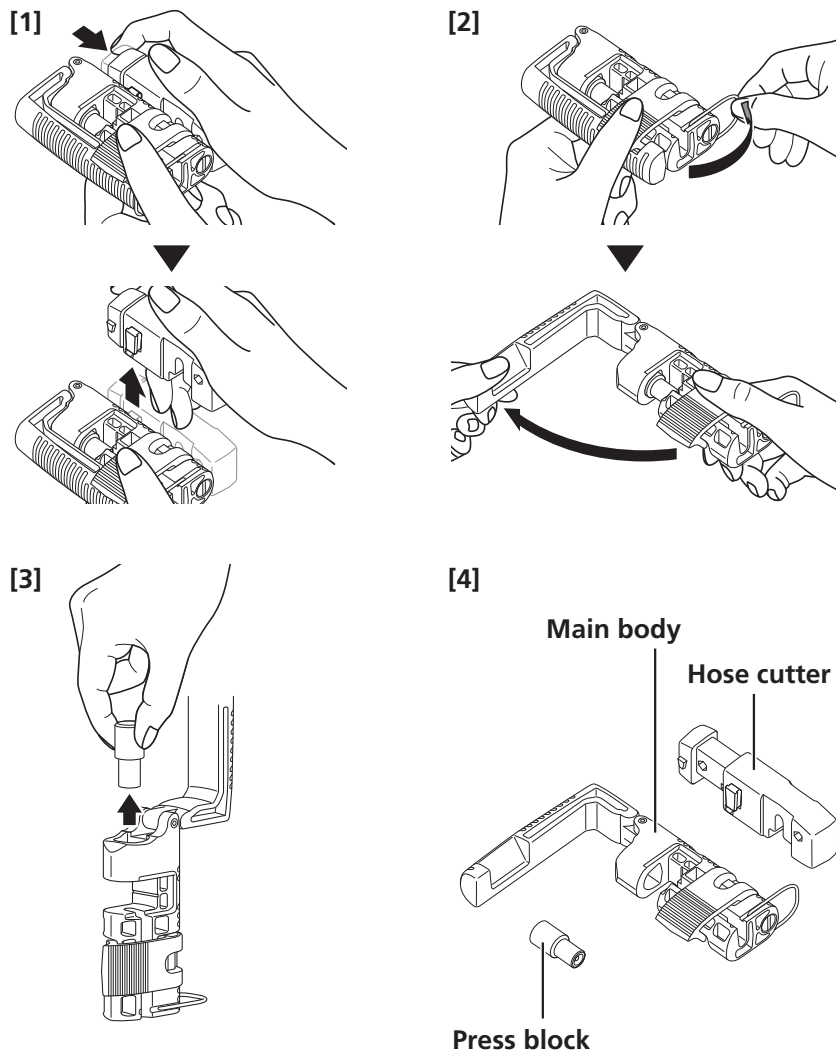
Add a cut mark 18 mm towards the end of the hose from the witness mark.

* When not using an easy hose joint system, add a cut mark 11 mm towards the end of the hose from the witness mark.



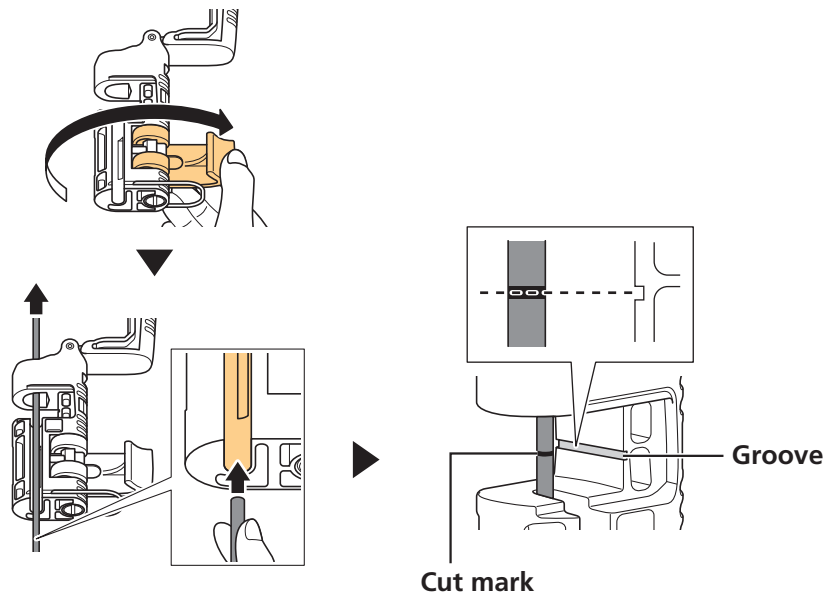
3. Prepare tool TL-BH62 for the cutting of the brake hose.

Disassemble the tool as shown in the figure.

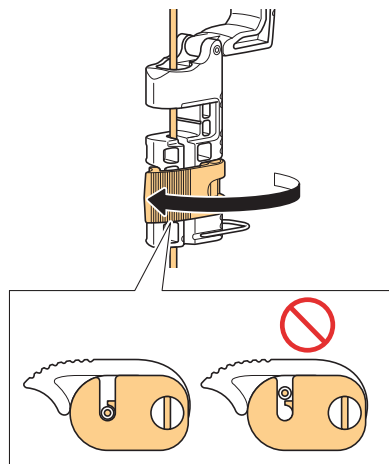


4. Place the brake hose in tool TL-BH62.

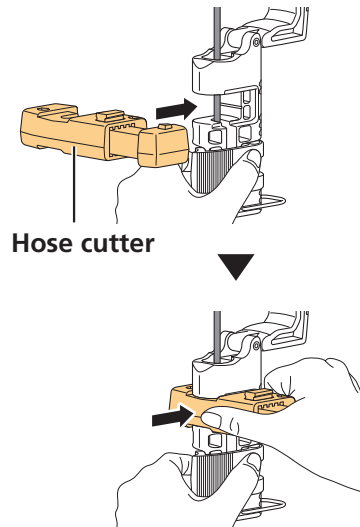
When inserting the brake hose, make sure that the cut mark is parallel with the groove in the tool.



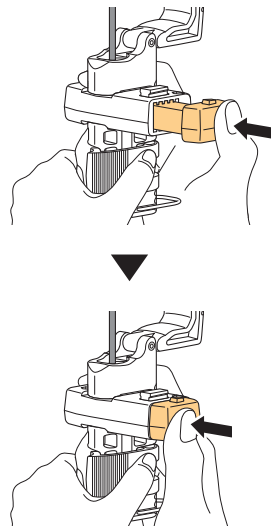
5. Check the cut location and secure the brake hose in place.



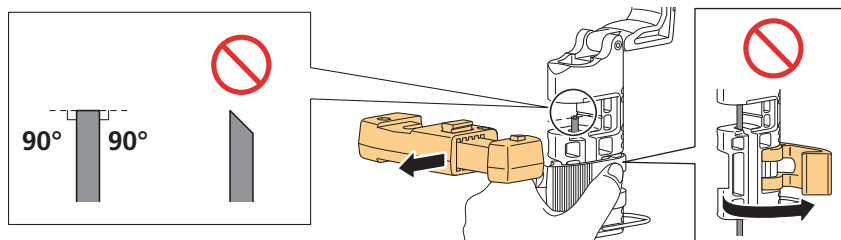
6. Check that the hose is secure, and then install the hose cutter.



7. Press the hose cutter as shown in the figure to cut the brake hose.

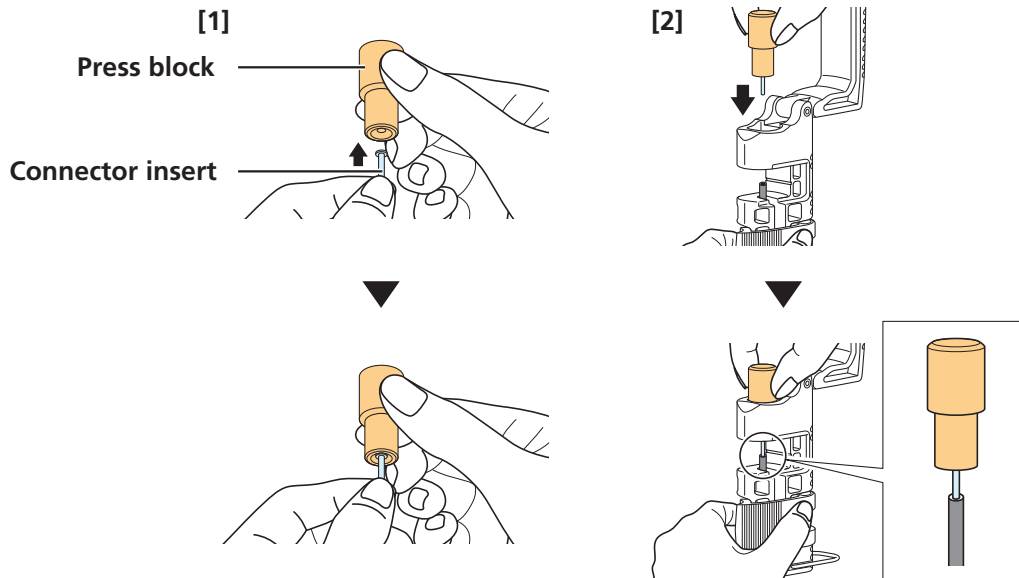


8. Remove the hose cutter and check that the cut end is even.



9. Install the connector insert in the press block, and then set the press block in tool TL-BH62.

Make sure that the tip of the connector insert is correctly positioned inside the opening of the brake hose.

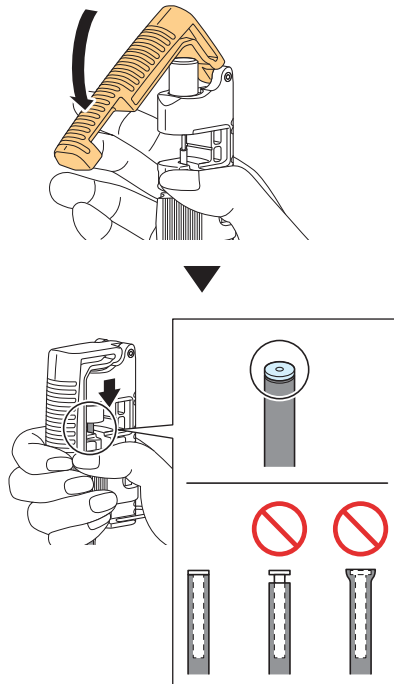


NOTICE

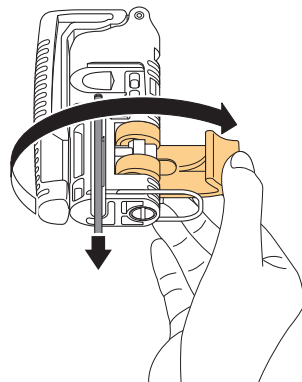
- When connecting with an easy hose joint system, a specialized connector insert (SHIMANO CODE No.: Y8JA98020/color: silver) must be used. Use of any connector insert other than the specified one may lead to oil leakage and other malfunctions.

10. Depress the lever on tool TL-BH62 to install the connector insert in the brake hose.

Check that the connector insert is installed correctly.



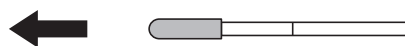
11. Remove the brake hose from tool TL-BH62.



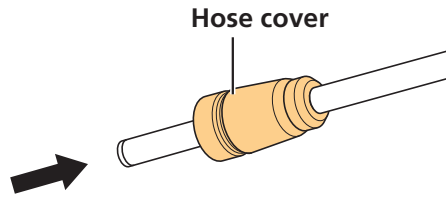
Connecting the hose

1. Remove the hose cap.

If the brake hose was cut, it is not necessary to remove the hose cap.

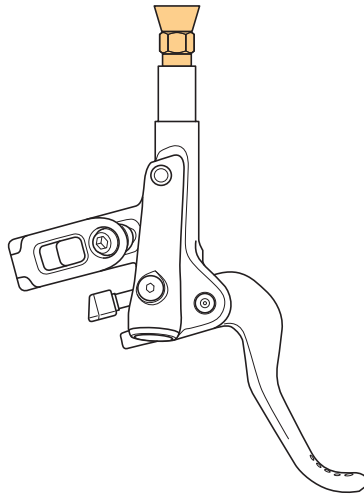


2. Pass the hose cover over the brake hose.



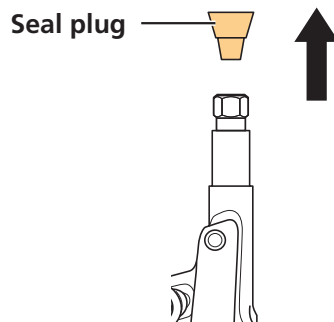
3. Secure the brake lever with a tool such as a vise.

Secure the hose connection port so that it is facing upward.



4. Remove the seal plug.

Use a clean rag to keep oil from dripping off the seal plug.

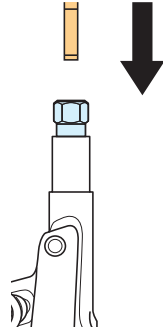


5. Insert the brake hose in the brake hose connection port.

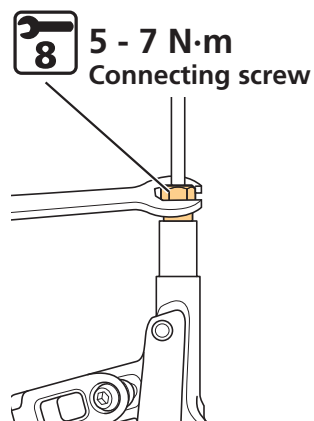
The lever comes with a pre-installed olive. When inserting the hose, ensure it does not snag on the olive.

Insert hose up to the witness mark on the outer hose casing.

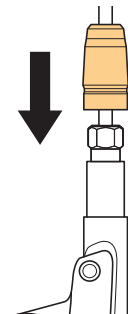
Cover with a clean rag while conducting this procedure as some of the internal oil may leak.



6. Tighten the connecting screw.



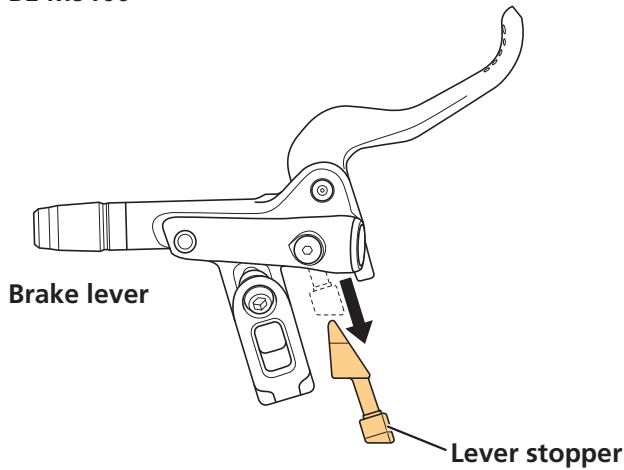
7. Wipe off any residual oil and install the hose cover.



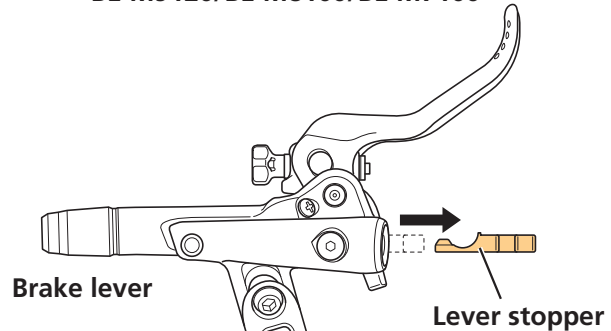
8. Remove the lever stopper from the brake lever.

Pull out the lever stopper by means of short back and forth movements while taking care not to depress the brake lever.

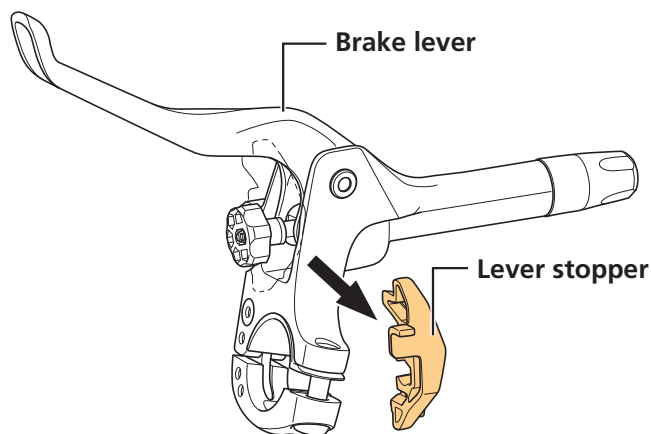
BL-M9100



BL-M9120/BL-M8100/BL-M7100



BL-T8100



9. Check that the pad spacer is installed on the caliper and that the disc brake rotor is between the two sides of the caliper.

10. Operate the brake lever several times and check that the brake pads grip the disc brake rotor and that the lever becomes stiff.

If the lever does not become stiff, refer to "Adding SHIMANO genuine mineral oil and bleeding air" and bleed the air from the system.

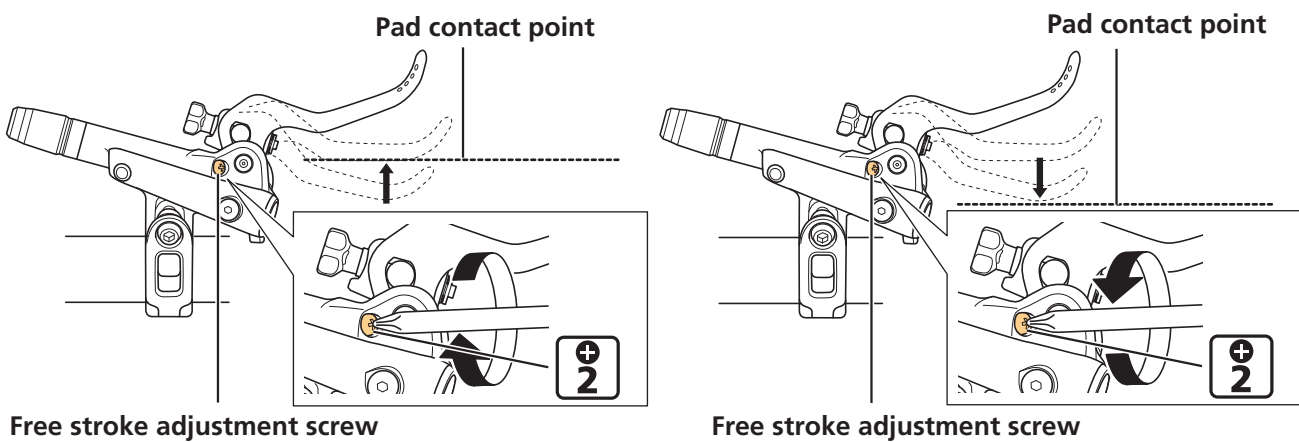
ADJUSTMENT

Adjusting the free stroke

Adjust the range of travel of the brake lever until the brake pad and disc brake rotor come into contact. The initial position of the brake lever changes when performing the free stroke adjustment. Therefore, also perform reach adjustment.

1. Turn the free stroke adjustment screw to adjust the stroke.

Tightening the free stroke adjustment screw (clockwise) narrows the range of travel of the brake lever, while loosening the screw (counterclockwise) widens it.



NOTICE

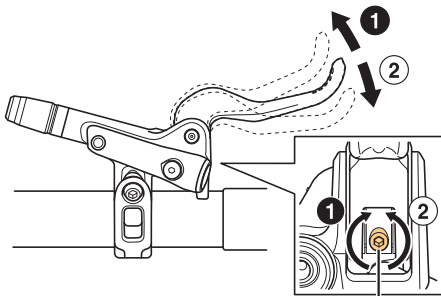
- Free stroke cannot be adjusted for BL-M9100 / BL-M7100 / BL-T8100.

Adjusting the reach

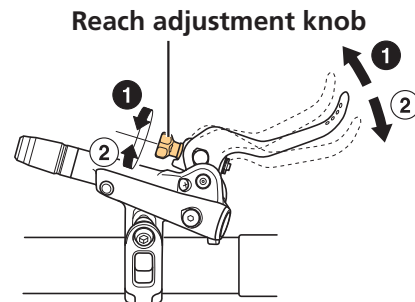
1. Turn the reach adjustment screw or reach adjustment knob to adjust.

Tightening the reach adjustment screw or reach adjustment knob (clockwise) widens the distance between the initial position of the brake lever and the handlebar, while loosening it (counterclockwise) narrows it.

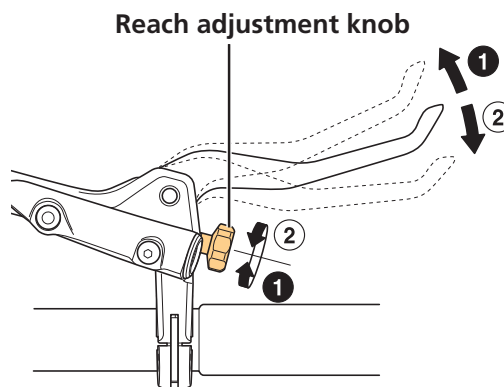
BL-M9100

**2** Reach adjustment screw

BL-M9120/BL-M8100/BL-M7100



BL-T8100



MAINTENANCE

Replacing the brake pads

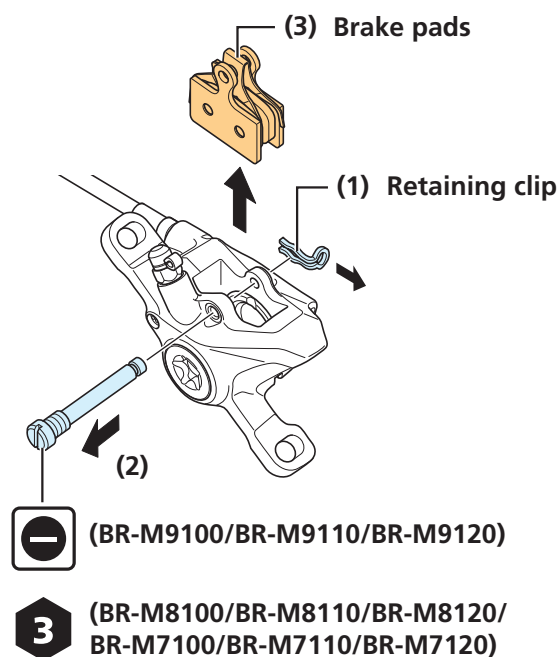
Replace the brake pads in the following circumstances.

- When oil adheres to the brake pads
- When the brake pads are worn down to a thickness of 0.5 mm
- When the brake pad presser spring is interfering with the disc brake rotor

1. Remove the wheel from the frame.

2. Remove the brake pads.

- (1) Remove the retaining clip.
- (2) Remove the pad axle.
- (3) Remove the brake pads from the caliper.

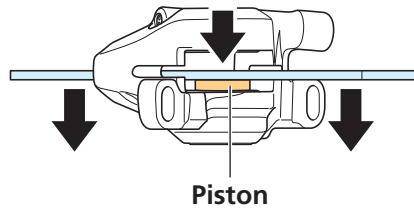


3. Clean the pistons and the surrounding area.

4. Push the pistons straight back as far as they will go.

This brake system is designed to automatically adjust the clearance between the disc brake rotor and the brake pads by the pistons gradually protruding in relation to the wear of the brake pads. As a result, when the brake pads are replaced, the pistons need to be pushed back into position.

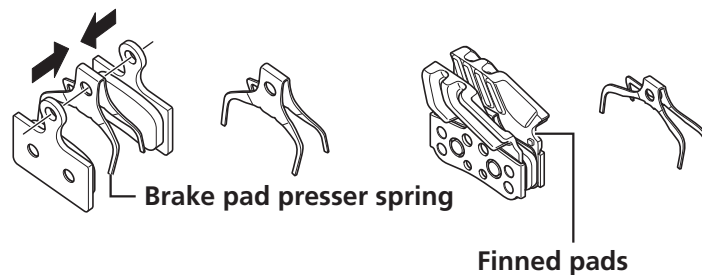
Use a flat-shaped tool to push the pistons back while being careful not to twist them. Do not push the pistons with a sharp tool. Doing so may damage the pistons.



5. Set a brake pad presser spring in the new brake pads.

Since there are fins on the front and rear of the finned pads, set the pads as shown in the figure.

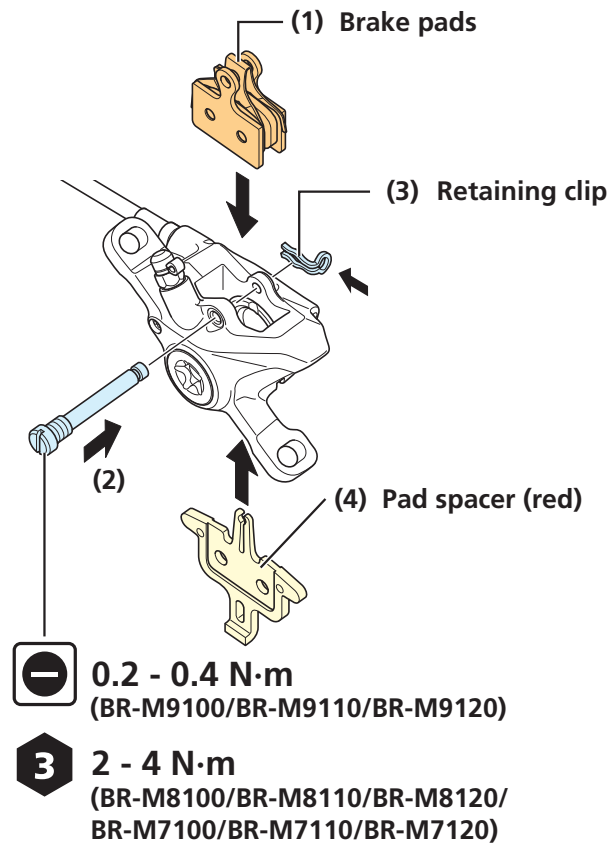
When a brake pad has markings, take note of the left (L) and right (R) markings to set it.



6. Install the brake pads.

- (1) Set the brake pads in the caliper.
- (2) Insert the pad axle.
- (3) Install the retaining clip.

(4) Install the pad spacer (red).



7. Depress the brake lever a few times and make sure that the lever operation becomes stiff.

8. Remove the pad spacer and install the wheel.

9. Check that the disc brake rotor does not interfere with the brake pads.

If there is interference, check if the wheel is installed correctly. If there is no problem with the installation position of the wheel, refer to "Installing the brake caliper" and adjust the position of the caliper.

SHIMANO genuine mineral oil replacement

It is recommended to change your oil when the oil in the reservoir tank becomes noticeably discolored.

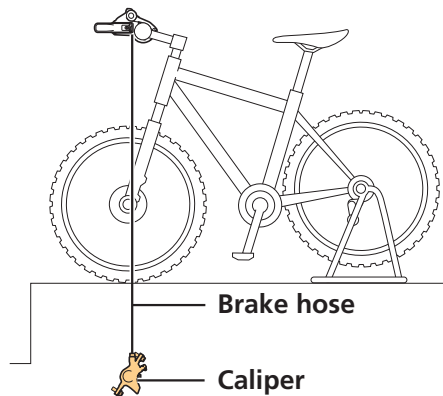
Draining the mineral oil

⚠ CAUTION

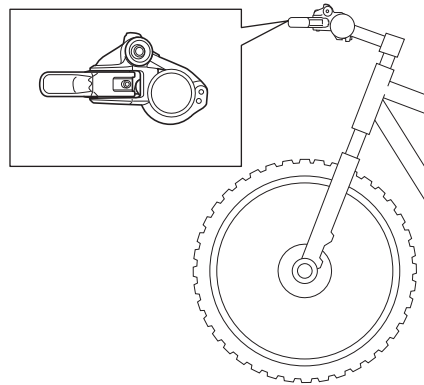
- Dispose of used oil according to proper country and/or state disposal regulations.

1. Position the bicycle as shown in the figure.

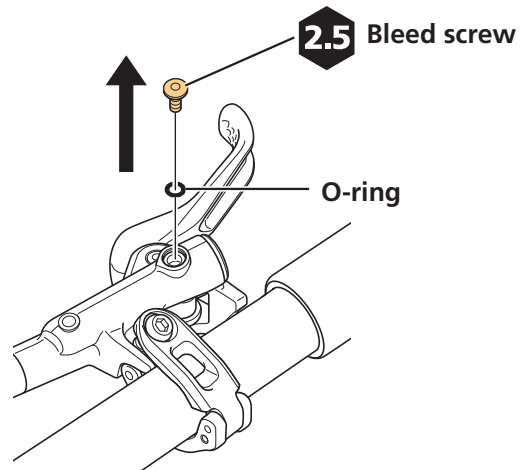
Install a bleed spacer (yellow) to the caliper and secure the bicycle with a stand, etc.



2. Set the brake lever so that it is parallel to the ground.

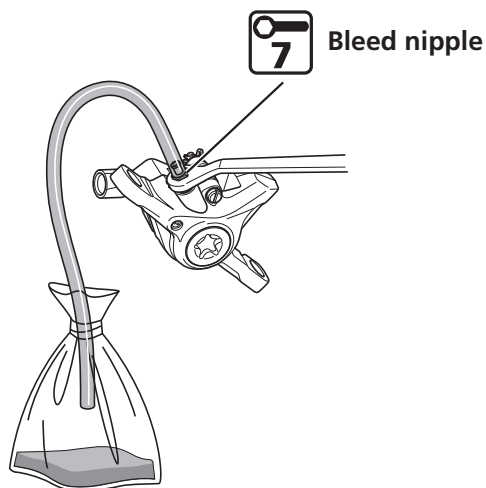


3. Remove the bleed screw and O-ring.



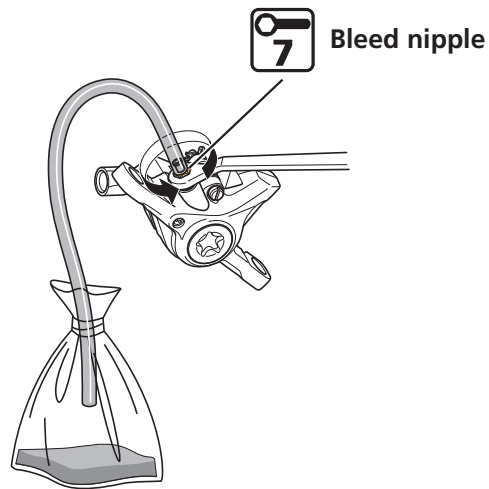
4. Install a bag and tube on the bleed nipple.

- (1) Place a 7 mm box wrench in the position shown in the figure.
- (2) Connect the tube with bag attached to the bleed nipple.



5. Loosen the bleed nipple.

The oil will begin to drain. Operating the brake lever while the oil drains will allow the oil to drain more easily.



Adding SHIMANO genuine mineral oil and bleeding air

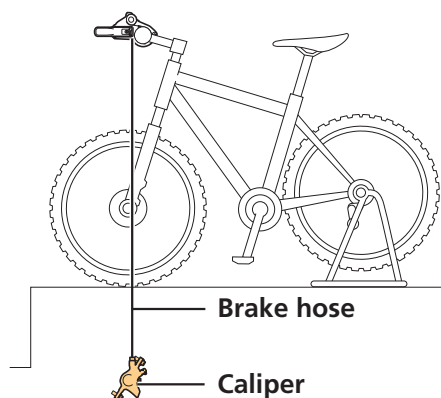
When bleeding the air out of the caliper, you will need the SM-DISC (oil funnel and oil stopper).

⚠ WARNING

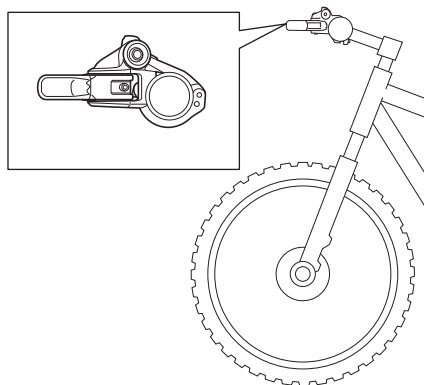
- Do not use oil other than SHIMANO genuine mineral oil when adding oil. Doing so may prevent the brakes from operating and result in serious injury.

1. Position the bicycle as shown in the figure.

Install a bleed spacer (yellow) to the caliper and secure the bicycle with a stand, etc.

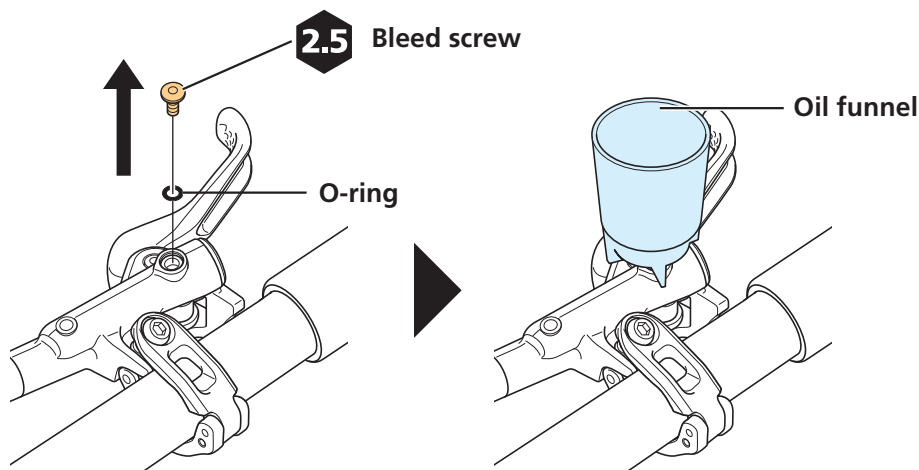


2. Set the brake lever so that it is parallel to the ground.



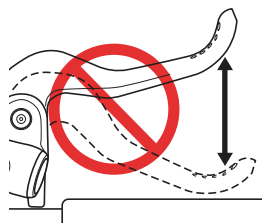
3. Remove the bleed screw and O-ring, and then insert the oil funnel.

Do not insert the oil stopper.



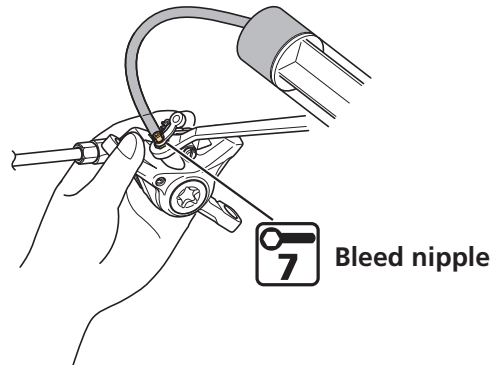
4. Add the oil through the bleed nipple.

Do not depress and release the lever repeatedly. Doing so will lengthen the amount of time needed to bleed the air as it will cause air bubbles to remain inside the brake caliper, even if no bubbles appear. (If the lever was depressed and released repeatedly, drain out all of the oil and then add the oil again.)



- (1) Place a 7 mm box wrench in the position shown in the figure.
- (2) Fill a syringe with oil, then connect the tube to the bleed nipple.
- (3) Loosen the bleed nipple by 1/8 of a turn.

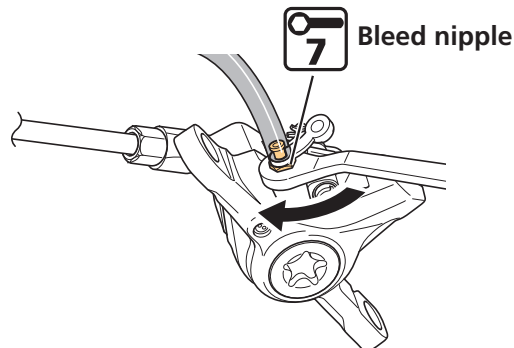
- (4) Push the piston of the syringe to add the oil.
- (5) Oil will start to come out from the oil funnel. Continue adding the oil until there are no more air bubbles in the oil that is coming out.



TECH TIPS

- If possible, secure the caliper body to prevent the tube from being accidentally disconnected.

5. Once there are no more air bubbles mixed in with the oil, temporarily tighten the bleed nipple.

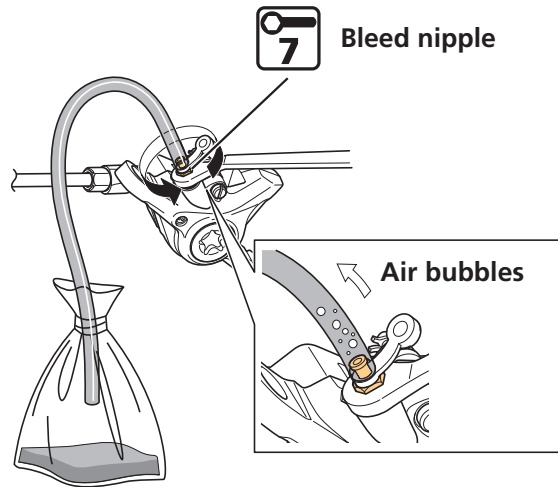


6. Bleed the air.

Most of the air bubbles remaining inside the brake system can be bled by performing the following operation.

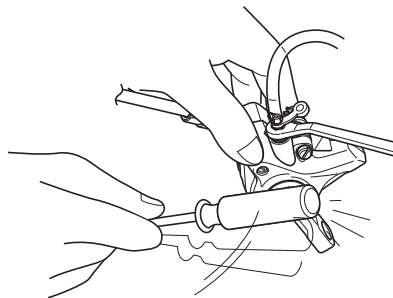
- (1) Place a 7 mm box wrench in the position shown in the figure.
- (2) Connect the tube with bag attached to the bleed nipple.
- (3) Loosen the bleed nipple.

- (4) After a little while, the oil and air bubbles will flow naturally from the bleed nipple into the tube.



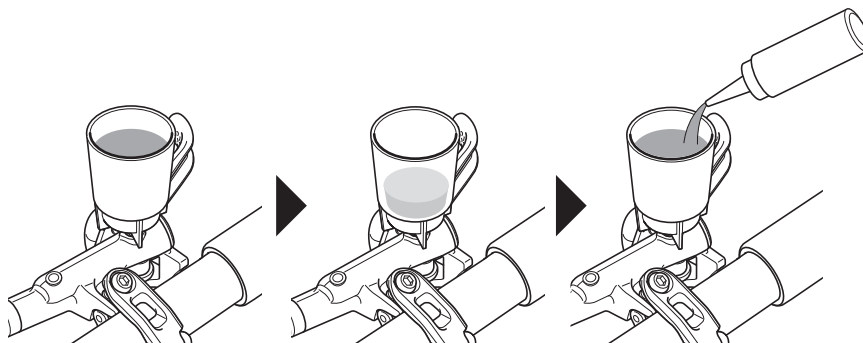
TECH TIPS

- It may help to gently shake the hose or lightly tap the reservoir tank or caliper with a non-marring screwdriver handle. Changing the caliper position may also improve results.

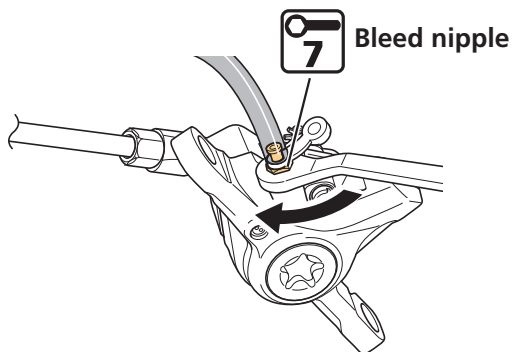


7. While bleeding the air, maintain the oil level by adding additional oil.

As the oil level in the funnel drops, add additional oil to maintain an oil level that keeps air from being sucked into the reservoir tank.

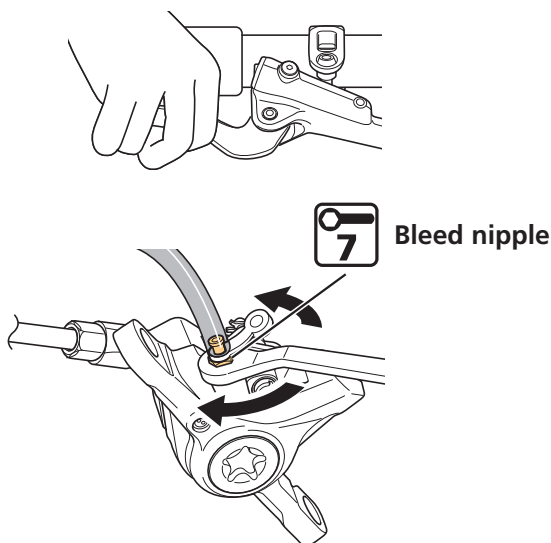


- 8.** Once no more air bubbles come out from the bleed nipple, temporarily tighten the bleed nipple.

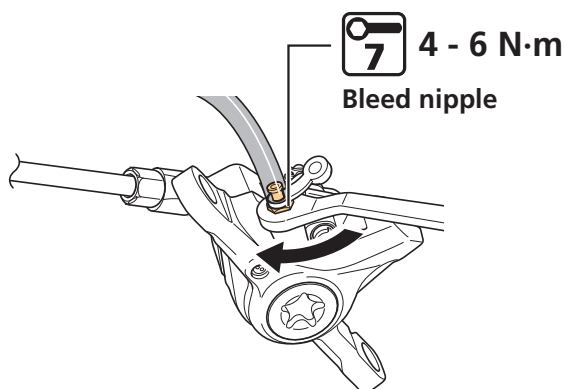


- 9.** With the brake lever depressed, loosen and tighten the bleed nipple in rapid succession.

Loosen and tighten for approximately 0.5 seconds each time to release any air bubbles inside the caliper.

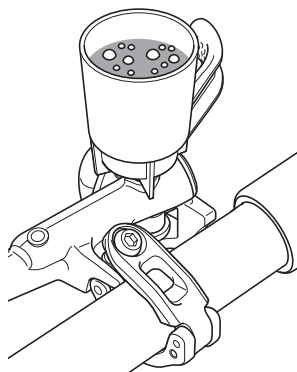


- 10.** Repeat step 9 two to three times, and then tighten the bleed nipple.



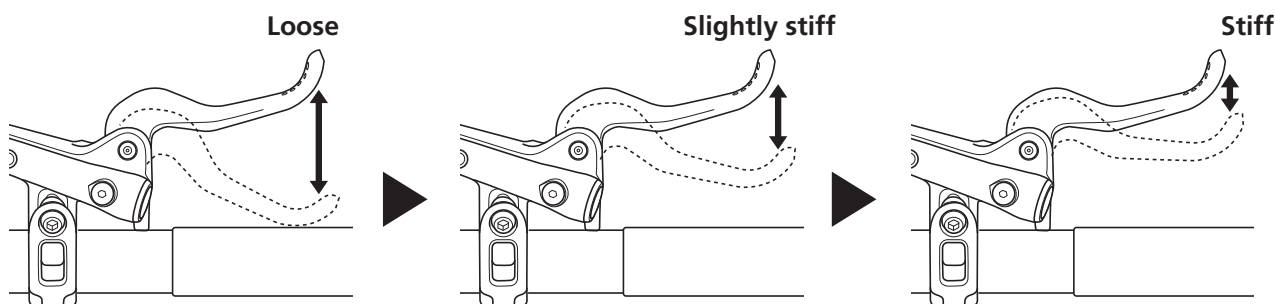
11. Operate the brake lever.

Air bubbles in the system will rise up through the port into the oil funnel. Continue operating the brake lever until no more bubbles appear.



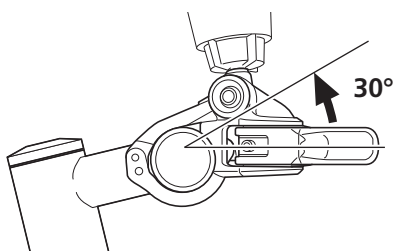
12. Check that the lever has become stiff.

If the lever does not become stiff, repeat the procedures from step 6.



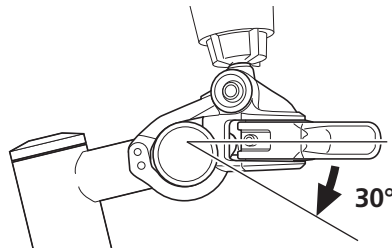
13. Tilt the brake lever upwards 30° from the ground and conduct step 11.

Check that there are no remaining air bubbles.



14. Tilt the brake lever downwards 30° from the ground and conduct step 11.

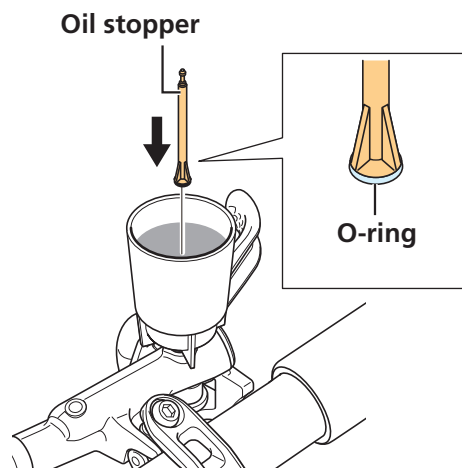
Check that there are no remaining air bubbles.



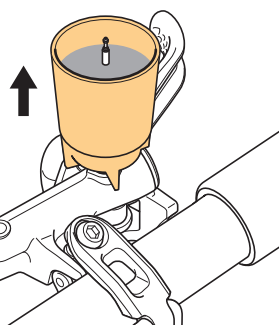
15. Set the brake lever so that it is parallel to the ground.

16. Plug the oil funnel with the oil stopper.

Make sure that the side of the oil stopper with the O-ring attached is facing downward.



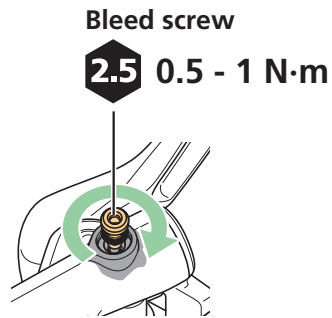
17. Remove the oil funnel while it is still plugged by the oil stopper.



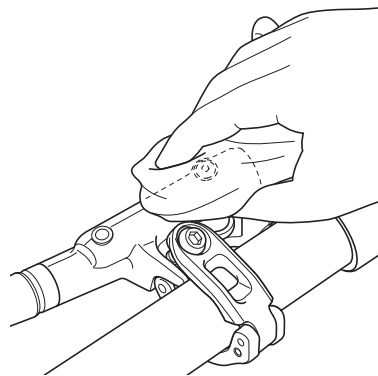
18. Tighten with a bleed screw to which an O-ring has been attached.

Tighten until oil flows out to make sure that no air bubbles remain inside the reservoir tank.

Do not operate the brake lever. If operated, there is a risk of air bubbles entering the cylinder.



19. Wipe away any oil that has overflowed.

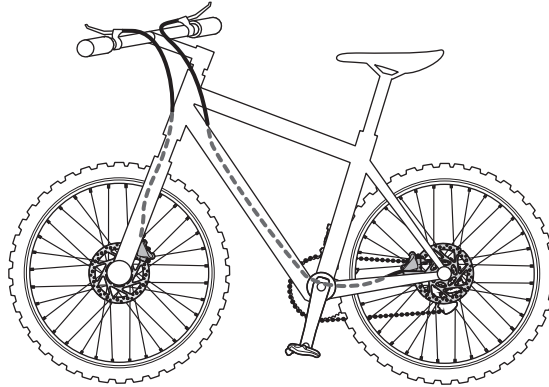


Replacing the brake hose

After replacing the brake hose, refer to "SHIMANO genuine mineral oil replacement" to inject the mineral oil and bleed the air from the system.

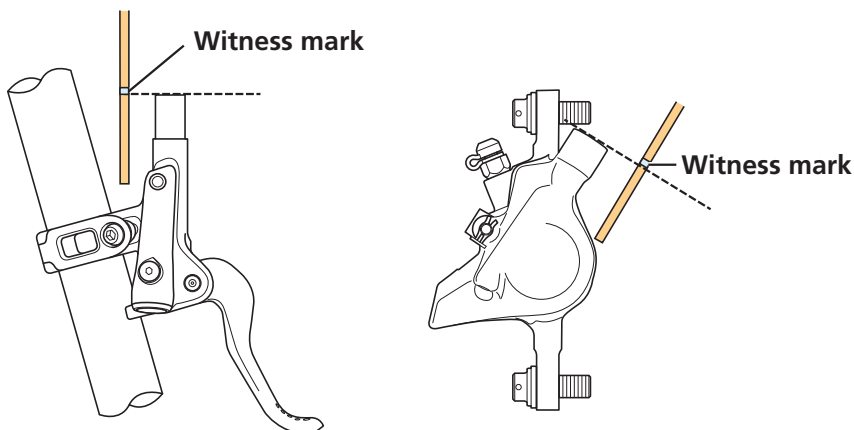
Checking the hose length and cutting the hose

1. Route the brake hose into the final installation position.



2. After determining the appropriate length, add a witness mark on the brake hose as shown in the figure.

Add marks to both the brake lever side and caliper side of the hose.

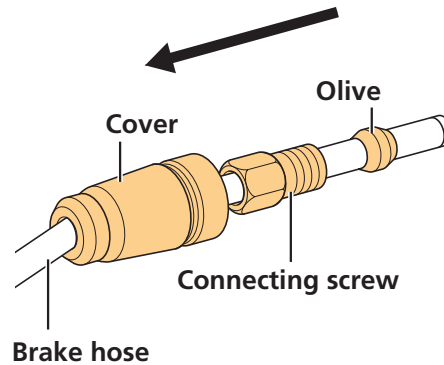


3. Cut the brake hose.

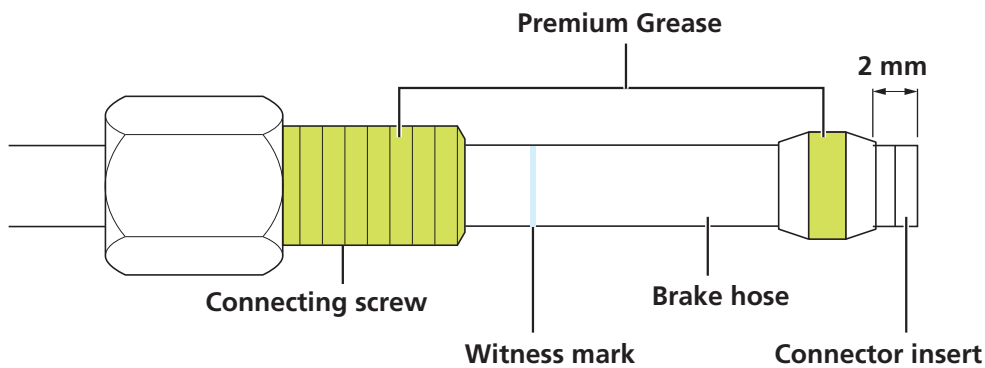
Refer to "Cutting the hose" in "Installing the brake hose."

Assembly to the brake lever

1. Pass the cover, connecting screw, and olive over the brake hose in the order shown below.

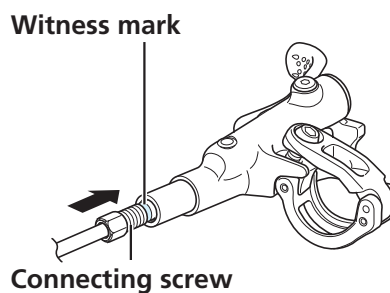


2. Check that the olive is in the position shown in the figure, and then apply Premium Grease to the threads of the connecting screw and outer surface of the olive.



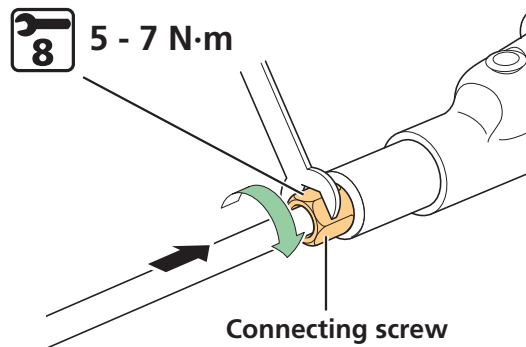
3. Install the brake hose in the brake lever.

Insert hose up to the witness mark on the outer hose casing.

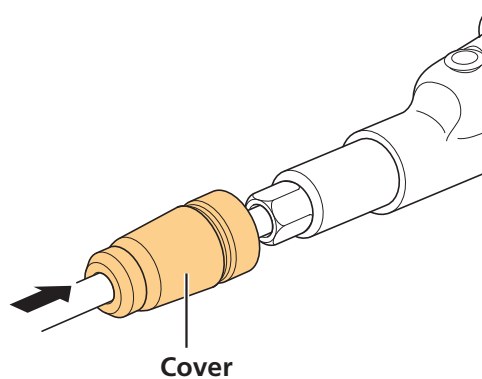


4. Tighten the connecting screw while pushing on the brake hose.

After tightening, install the cover.



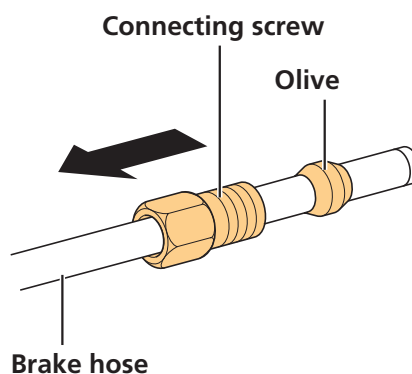
5. Install the cover.



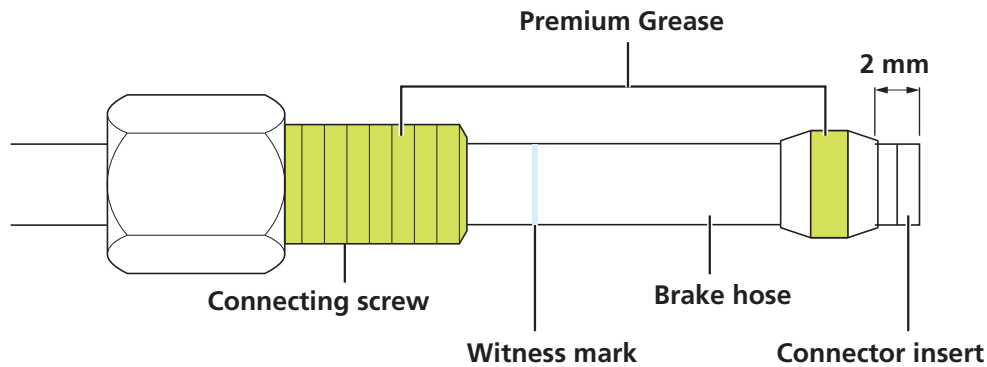
Assembly to the brake caliper

▶ **Straight type**

1. Pass the connecting screw and olive over the brake hose in the order shown below.

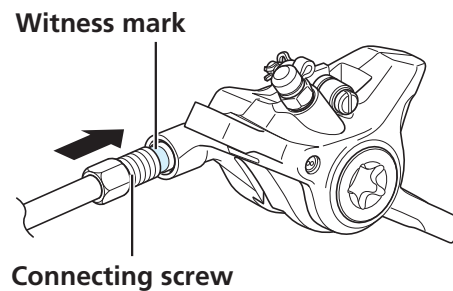


2. Check that the olive is in the position shown in the figure, and then apply Premium Grease to the threads of the connecting screw and outer surface of the olive.



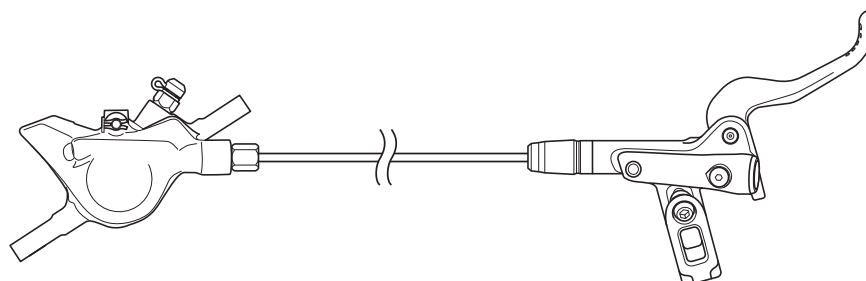
3. Install the brake hose in the caliper.

Insert hose up to the witness mark on the outer hose casing.

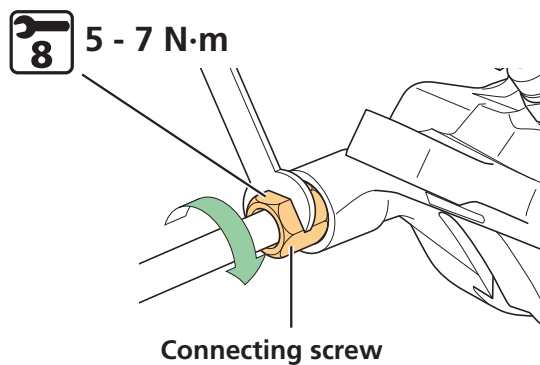


NOTICE

- Do not let the brake hose become twisted when installing it. When the caliper and brake lever are not installed on the bicycle, there is no twist in the hose if the caliper and brake lever are in the positions shown in the figure below.

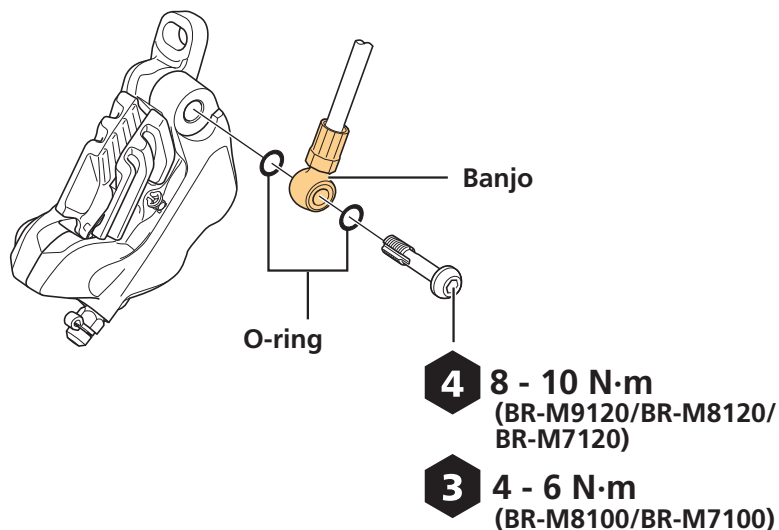


4. Tighten the connecting screw while pushing on the brake hose.



▶ Banjo type

Install the brake hose on the caliper as shown in the figure.



Caliper piston maintenance

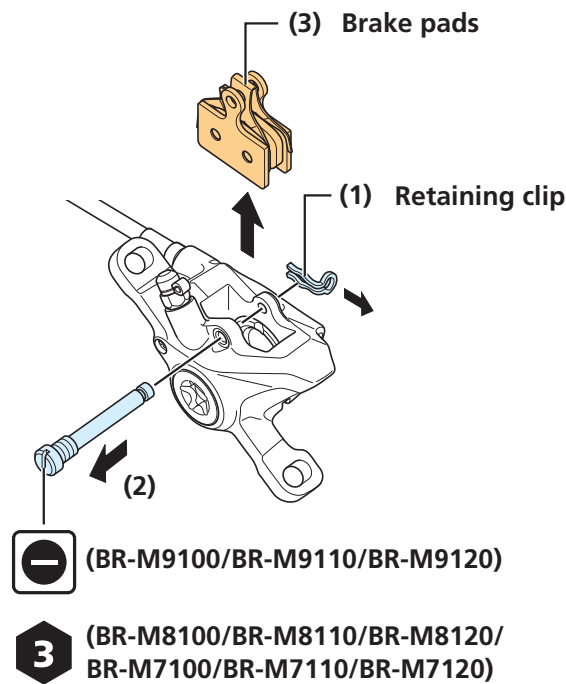
The caliper includes pistons. Adjust the pistons with the following procedures if these pistons do not operate properly, if they protrude unevenly, or if the brake pads remain in contact with the disc brake rotor.

1. Remove the wheel from the frame.

2. Remove the brake pads.

- (1) Remove the retaining clip.
- (2) Remove the pad axle.

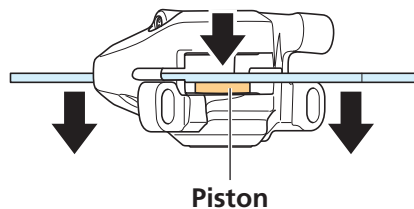
(3) Remove the brake pads from the caliper.



3. Clean the pistons and the surrounding area.

4. Push the pistons straight back as far as they will go.

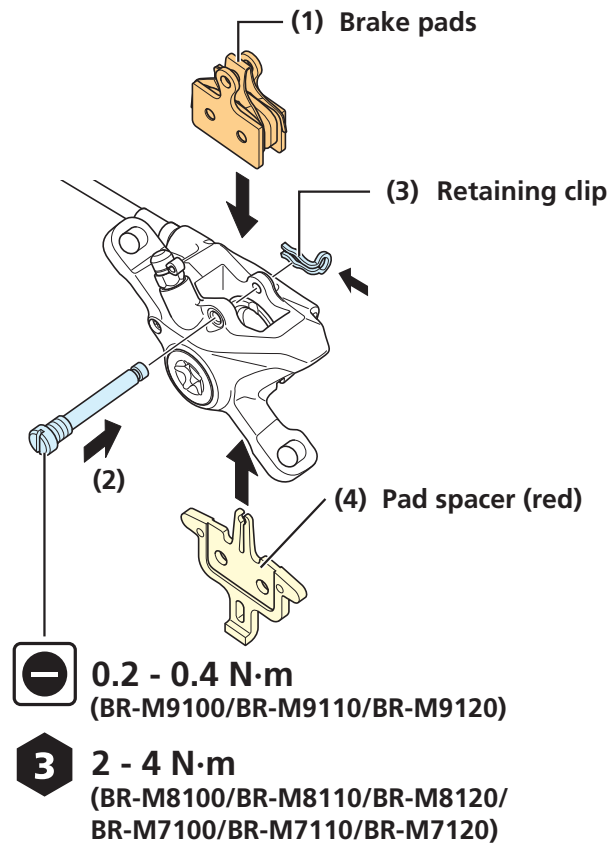
Use a flat-shaped tool to push the pistons back while being careful not to twist them. Do not push the pistons with a sharp tool. Doing so may damage the pistons.



5. Install the brake pads.

- (1) Set the brake pads in the caliper.
- (2) Insert the pad axle.
- (3) Install the retaining clip.

(4) Install the pad spacer (red).



6. Operate the brake lever through its full range of travel and depress it several more times so that the pistons move to their initial positions.

7. Remove the pad spacer and install the wheel.

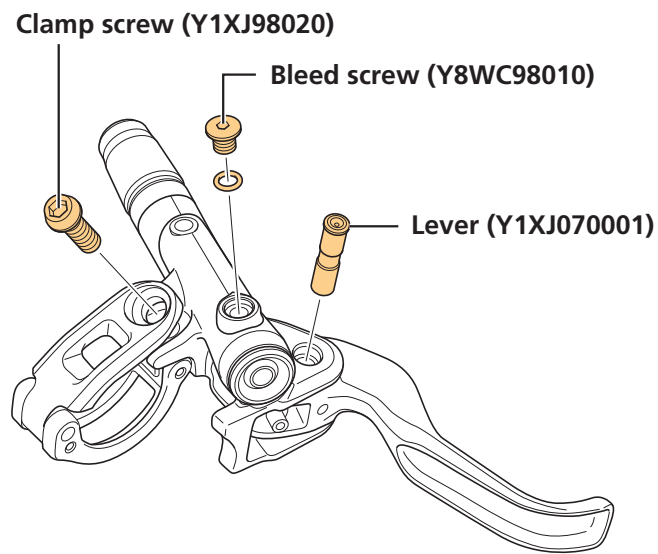
8. Check that the disc brake rotor does not interfere with the brake pads.

If there is interference, loosen the fixing screw and adjust until there is no more interference.

Designated small parts for magnesium components

The BL-M9100 is made of magnesium. Use small parts designated for use with magnesium components as shown in the following figure.

If parts other than those designated for use with magnesium components are used, the rusting process will accelerate.



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Please note: specifications are subject to change for improvement without notice. (English)

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