

Dealer's Manual

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

Hydraulic Disc Brake/ DUAL CONTROL LEVER

ST-RS505
ST-RS685
BR-RS505
BR-RS785
BR-RS805

This manual does not cover the assembly of ST-R785 with brakes.
For the assembly of ST-R785 with brakes, refer to "DM-BR0004".

CONTENTS

IMPORTANT NOTICE.....	3
TO ENSURE SAFETY.....	4
LIST OF TOOLS TO BE USED.....	10
INSTALLATION	12
Installation of the brake hose	12
Installation of the brake hose (easy hose joint system).....	18
Installation to the handlebar	24
Adding Shimano genuine mineral oil and bleeding air	26
Installing the brake caliper.....	41
Temporary tightening of the frame fixing bolts.....	52
Installing the shifting cable	53
ADJUSTMENT	62
Free stroke and reach adjustment	62
MAINTENANCE	67
Replacing the brake pads	67
Replacement of the nameplate.....	69
Shimano genuine mineral oil replacement	70
Replacing the bracket cover	70
Replacing the main lever support.....	72
Replacing the cable cover.....	74
How to pull out a disconnected inner end (shifting cable).....	75
Replacement of the SL cable guide.....	78

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 local bicycle dealer for their assistance.
- Make sure to read all instruction 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 dealer's manuals and instruction manuals can be viewed on-line on our website (<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

- **When installing components, be sure to follow the instructions that are given in the instruction manuals.**

It is recommended that you use only genuine Shimano parts. If parts such as bolts and nuts become loose or damaged, the bicycle may suddenly fall over, which may cause serious injury.

In addition, if adjustments are not carried out correctly, problems may occur, and the bicycle may suddenly fall over, which may cause serious injury.

-  Be sure to wear safety glasses or goggles to protect your eyes while performing maintenance tasks such as replacing parts.
- After reading the dealer's manual thoroughly, keep it in a safe place for later reference.

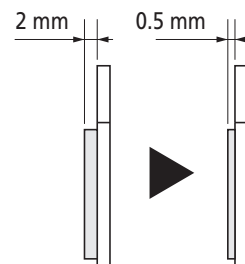
Be sure to also inform users of the following:

■ Brake

- Each bicycle may handle slightly differently depending on the model. Therefore, 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. For proper operation, consult your professional bicycle dealer or the bicycle's owner's manual. It is also important to practice riding as well as braking operation, etc.
- Please make sure 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 disc brake rotor.



- The calipers and disc brake rotor will become hot when the brakes are operated; do not touch them while riding or immediately after dismounting from the bicycle. Otherwise you may get burned.
- Be careful not to allow any oil or grease to get onto the disc brake rotor and brake pads. There is the danger that the brakes may not work correctly.
- If any oil or grease does get on the brake pads, you should consult a dealer or an agency. There is the danger that the brakes may not work correctly.
- If noise occurs during brake operation, the brake pads may have been worn down to the usable limit. Check that the brake system temperature has been cooled down sufficiently, check the thickness of the brake pad. If the thickness is 0.5 mm or below, the brake pad needs to be replaced with a new one. Consult a dealer or an agency.



- If the disc brake rotor is cracked or deformed, immediately stop using the brakes and consult a dealer or an agency.
- If the disc brake rotor becomes worn down to a thickness of 1.5 mm or less, or if the aluminum surface appears, immediately stop using the brakes and consult a dealer or an agency. The disc brake rotor may break, and you may fall off the bicycle.
- Vapor lock may occur if the brakes are applied continuously. To solve this problem, momentarily release the lever.

Vapor lock is a phenomenon in which the oil inside the brake system becomes heated, which causes any water or air bubbles inside the brake system to expand. This can then result in a sudden increase in the brake lever stroke.

- The disc brake is not designed to work when the bicycle is upside down. If the bicycle is turned upside down or on its side, the brake may not work correctly, and a serious accident could occur. Before riding the bicycle, be sure to operate the brake lever a few times to check that the brakes operate normally. If the brakes do not operate normally, stop using the brakes and consult a dealer or an agency.
- If you feel no resistance when depressing the brake lever, immediately stop using the brakes and consult a dealer or an agency.
- If fluid leaks occur, immediately stop using the brakes and consult a dealer or an agency.
- If the front brake is applied too strongly, the wheel may lock and the bicycle may fall forward, and serious injury may result.
- Always make sure that the front and rear brakes are working correctly before riding the bicycle.
- The required braking distance will be longer during wet weather. Reduce your speed and apply the brakes early and gently.
- If the road surface is wet, the tires will skid more easily. If the tire skids, the bicycle may fall over, resulting in danger. Reduce your speed and apply the brakes early and gently.
- The lever should never be altered. Otherwise, the lever may break, and braking may become disabled.
- Check before riding that there is no damage such as carbon peeling or cracking. If there is any damage, stop using the bicycle and consult a dealer or an agency. Otherwise, the lever may break, and braking may become disabled.

For Installation to the Bicycle, and Maintenance:

- Please make sure to keep your fingers away from the rotating disc brake rotor during installation or maintenance of the wheel.
The disc brake rotor is sharp enough to inflict severe injury to your fingers if caught within the openings of moving disc brake rotor.



- If the disc brake rotor is worn, cracked or warped, it should be replaced.
- If the disc brake rotor becomes worn down to a thickness of 1.5 mm or so that the aluminum surface becomes visible, be sure to replace the disc brake rotor with a new one.
- Check that the brake components have cooled down sufficiently before attempting to adjust the brakes.
- Use only Shimano genuine mineral oil. If other types of oil are used, it may cause problems with brake operation, and cause the system to be unuseable.
- Be sure to use only oil from a freshly-opened container, and do not re-use oil which has been drained from the bleed nipple. Old or reused oil may contain water, which could cause vapor lock in the brake system.
- Be careful not to let water or air bubbles get into the brake system. Otherwise, vapor lock may occur. Be particularly careful when removing the cover of the reservoir tank.
- If cutting the brake hose in order to adjust the length of the hose, or when changing over the brake hose from left to right or vice versa, be sure to bleed the air from the hose according to steps given in "Adding Shimano genuine mineral oil and bleeding air".
- When turning the bicycle upside down or on its side, the brake system may have some air bubbles inside the reservoir tank which are still there when the bleed screw is closed, or which accumulate in various parts of the brake system when it is used for long periods. This disc brake system is not designed to work with the bicycle upside down. If the bicycle is turned upside down or on its side, the air bubbles inside the reservoir tank may move in the direction of the calipers. If the bicycle has been turned upside down or on its side, be sure to operate the brake lever a few times to check that the brakes operate normally before riding the bicycle. If the brakes do not operate normally, adjust them according to the following procedure.

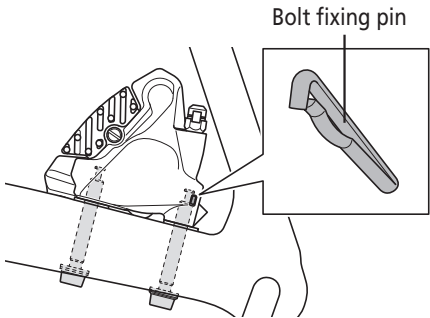
If brake does not seem to work (feels sluggish) when the lever is depressed

Set the bleed section of the brake lever so that it is parallel to the ground, and then gently depress the brake lever several times and wait for the bubbles to return to the reservoir tank.

If the brakes still operate sluggishly, bleed the air from the brake system. (Refer to "Adding Shimano genuine mineral oil and bleeding air")

TO ENSURE SAFETY

- If the quick release lever on the hub is on the same side as the disc brake rotor, they may interfere with each other, which is dangerous, so check that they do not.
- Shimano disc brake systems are not compatible with tandem bicycles. Because tandem bicycles are heavier, the stress on the brake system increases during brake operation. If hydraulic disc brakes are used with tandem bicycles, the oil temperature will become too high and vapor locks or ruptures in the brake hoses may occur, and this will cause the brakes to fail.
- When installing the brake caliper using bolt fixing pins, be sure to use mounting bolts of the appropriate length. If not, the bolt fixing pins may not be securely fastened, and the bolts may fall out.

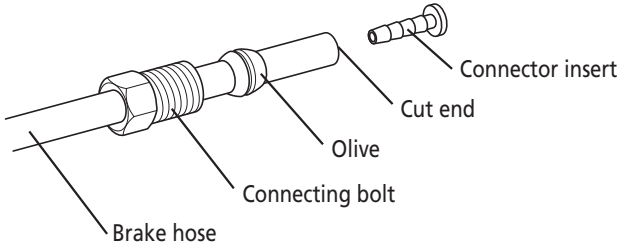


■ Brake hose

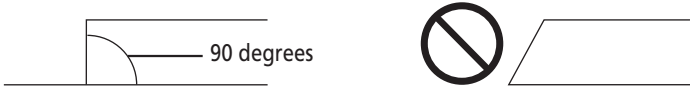
- After installing the brake hose to the brake unit, adding Shimano genuine mineral oil and bleeding air bubbles, depress the lever again several times to check that the brakes are operating normally and there are no fluid leaks from the hose or the system.
- The connector insert is for this brake hose only. Use an appropriate connector insert according to the following table. Use of a connector insert incompatible with the brake hose may cause fluid leaks.

Model No.	Length	Color
SM-BH59-JK-SS	13.2 mm	Gold

- Do not reuse the olive piece or the connector insert when reinstalling. A damaged or reused olive or the connector insert may not provide secure brake hose connection, possibly causing the brake hose to disconnect from the brake calipers or brake lever. If the brake hose becomes disconnected, there is danger that the brakes may suddenly stop working.



- 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.





Be sure to also inform users of the following:

■ **Cautions on the Shimano genuine mineral oil**

- Contact with eyes may result in irritation. In the event of contact with eye, wash with water and seek medical attention immediately.
- Contact with skin may cause a rash and discomfort. In the event of contact with skin, wash well with soap and water.
- Inhalation of Shimano genuine mineral oil mist or vapors may cause nausea. Cover nose and mouth with a respirator type mask and use in a well ventilated area. If Shimano genuine mineral oil vapor is inhaled, go immediately to an area with fresh air and cover up with a blanket. Lay down and keep warm, and seek professional medical attention if required.

■ **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.

For Installation to the Bicycle, and Maintenance:

■ **Handling the Shimano genuine mineral oil**

- Contact with eyes may result in irritation. Use safety glasses when handling, and avoid contact with eyes. In the event of contact with eye, wash with water and seek medical attention immediately.
- Contact with skin may cause a rash and discomfort. Use gloves when handling. In the event of contact with skin, wash well with soap and water.
- Do not drink. May cause vomiting or diarrhea.
- Keep out of reach of children.
- Do not cut, let near heat, weld or pressurize the oil container, as this may cause explosion or fire.
- Disposal of Used Oil: Follow local county and/or state codes 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

■ **When cleaning with a compressor**

- If disassembling the caliper body to clean the internal parts using a compressor, note that moisture from the compressed air may remain on the caliper components. Let the caliper components dry sufficiently before reassembling the calipers.

■ **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.

NOTICE

Be sure to also inform users of the following:

- Be sure to keep turning the crank during the gear shifting.
- Handle the products carefully, and avoid subjecting them to any strong shocks.
- Do not use thinners or similar substances to clean the products. Such substances may damage the surfaces.
- In the case of carbon levers, wash them with a soft cloth using a neutral detergent. Otherwise, the material may get damaged, and the strength may be affected.
- Avoid leaving the carbon levers in places where high temperatures are present. Also, keep them far away from fire.
- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- 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 dealer.
- Use soapy water and a dry cloth when cleaning and carrying out maintenance of the brake system. Do not use commercially available brake cleaners or silencing agents, as they can cause damage to parts such as seals.
- 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:

- Use a brake hose / outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Use an OT-SP cable and cable guide for smooth operation.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly. Do not let dust adhere on the inner cable. If the grease on the inner cable is wiped off, the application of SIS SP41 grease (Y04180000) is recommended.
- A special grease is used for the gear shifting cable. Do not use premium grease or other types of grease, otherwise they may cause deterioration in gear shifting performance.
- If gear shifting adjustments cannot be carried out, check that the rear fork ends are aligned. Also check if the cable is lubricated and if the outer casing is too long or too short.
- Do not remove the lever unit.

■ Disc brake















- If the brake caliper mounting boss and the dropout are not of standard dimensions, 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 is normal. Use a slotted screwdriver or similar tool to push back the brake pads, while being careful not to damage the surfaces 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. They can cause damage to parts such as seals.
- Do not remove the pistons when disassembling the brake calipers.
- If the disc brake rotor is worn, cracked or warped, it should be replaced.

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

LIST OF TOOLS TO BE USED

LIST OF TOOLS TO BE USED

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

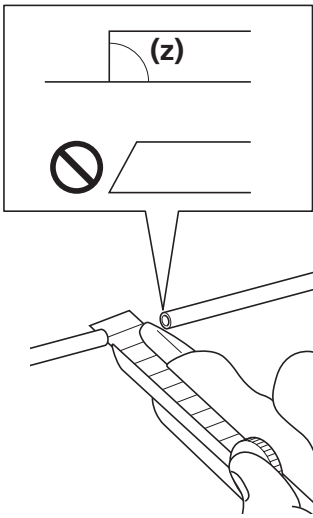
Tool		Tool		Tool	
	2 mm hexagon wrench		8 mm spanner		TL-BH61
	2.5 mm hexagon wrench		7 mm socket wrench		TL-CT12
	3 mm hexagon wrench		Screwdriver[#1]		SM-DISC (Oil funnel and oil stopper)
	4 mm hexagon wrench		Slotted screwdriver (nominal dia. 0.8 x 4)		TL-BT03/TL-BT03-S
	5 mm hexagon wrench		Utility knife		

INSTALLATION

INSTALLATION

■ Installation of the brake hose

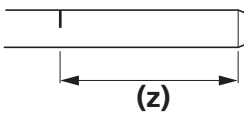
1



Use a utility knife or other cutting tool to cut the brake hose.

(z) 90 degrees

2



Put a mark on the brake hose beforehand as shown in the illustration so that you can check if the ends of the brake hose are secured to the hose mounts of the brake caliper and the dual control lever.

(As a guide, the length of the portion of the brake hose that is inside the mount is approximately 11 mm.)

(z) 11 mm

NOTICE

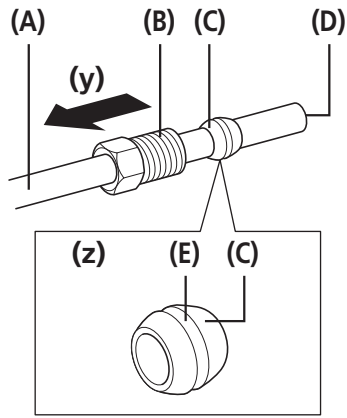
Use the utility knife safely and correctly in accordance with its instruction manual.

 **TECH TIPS**

If you are using TL-BH62, refer to the Service instruction accompanying the product.

INSTALLATION

▶▶ Installation of the brake hose

3

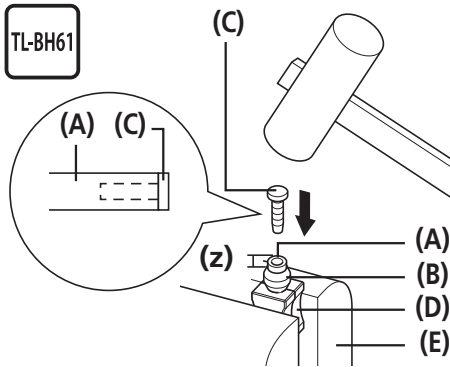
Pass the brake hose through the connecting bolt and olive, as shown in the illustration.

- (y) Direction of insertion
- (z) Grease the outside of the olive.

- (A) Brake hose
- (B) Connecting bolt
- (C) Olive
- (D) Cut end
- (E) Grease

NOTICE

For installation to the built-in type frame, first connect to the frame caliper the end of the brake hose to which the banjo is not attached.

4

Use a tapered tool to smooth out the inside of the cut end of the brake hose, and mount the connector insert.

Connect the brake hose to TL-BH61 and secure TL-BH61 in a vise, as shown in the illustration.

Then, hammer down the connector insert until the connector insert mount comes into contact with the end of the brake hose.

- (z) SM-BH59-JK-SS: 1 mm

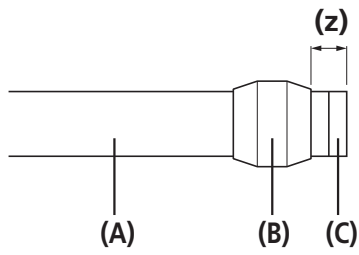
- (A) Brake hose
- (B) Olive
- (C) Connector insert
- (D) TL-BH61
- (E) Vise

NOTICE

If the end of the brake hose is not in contact with the connector insert mount, the brake hose may be disconnected or cause fluid leaks.

INSTALLATION

▶▶ Installation of the brake hose

5

After checking that the olive is positioned as shown in the illustration, grease the screw threads of the connecting bolt.

(z) 2 mm

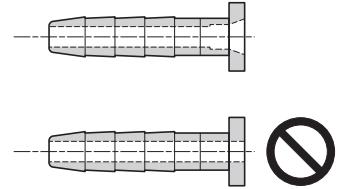
Model No.	Length	Color
SM-BH59-JK-SS	13.2 mm	Gold

- (A)** Brake hose
- (B)** Olive
- (C)** Connector insert

NOTICE

Use the dedicated connector insert supplied with SM-BH59-JK-SS.

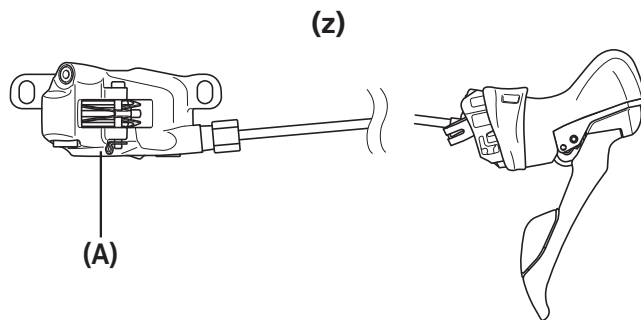
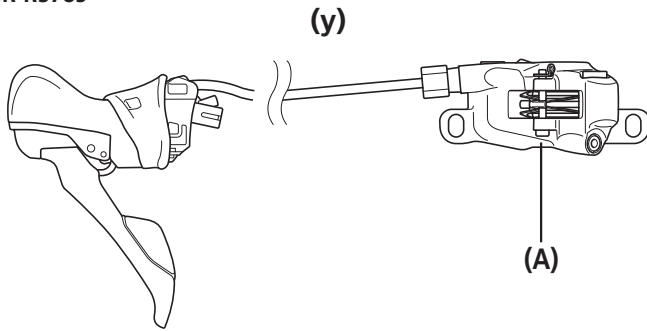
Use of any connector insert other than the one supplied may produce a loose assembly, leading to oil leaks or other problems.



Make sure that the brake hose is not twisted.

Make sure that the brake calipers and dual control levers are in the positions shown in the illustrations.

ST-RS685/BR-RS785



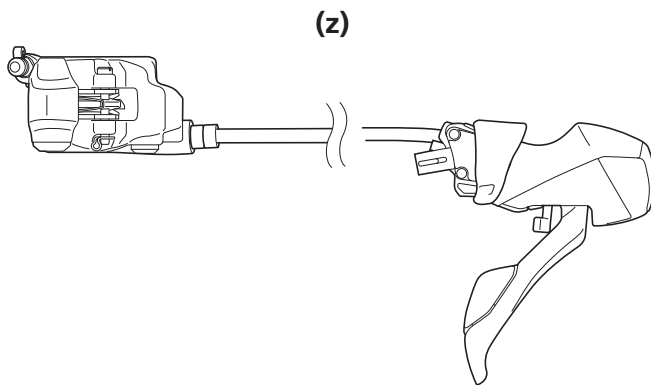
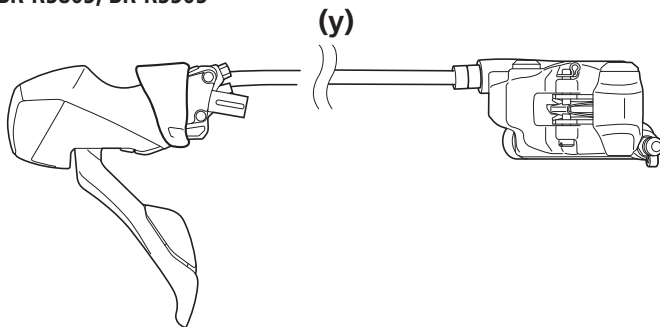
(y) Left lever

(z) Right lever

(A) Brake caliper

6

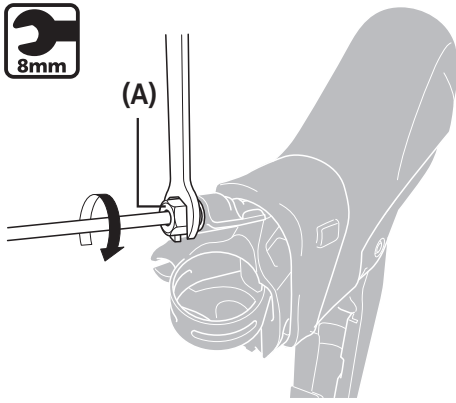
ST-RS505/BR-RS805, BR-RS505



INSTALLATION

► Installation of the brake hose

7



Secure the dual control lever to the handlebar or in a vise and insert the brake hose straight.

Tighten the connecting bolt with a spanner while pushing the brake hose.

(A) Connecting bolt

Tightening torque

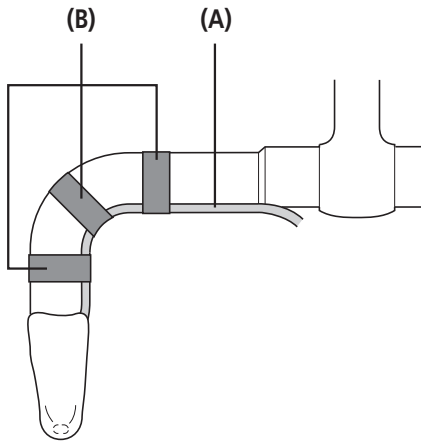


5 - 7 N·m

NOTICE

- At this point, make sure the brake hose is straight when pushing.
- When installing the brake hose with the dual control lever secured to the handlebar, adjust the angle of the bracket to make it easier to turn the spanner. At that time, be careful not to damage the handlebar and other parts.

8



Temporarily secure the brake hose to the handlebar (by using tape or similar material).

(A) Brake hose

(B) Tape

INSTALLATION

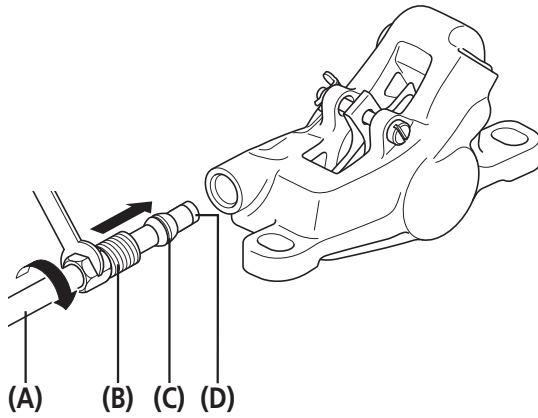
► Installation of the brake hose

End of the brake hose on the brake caliper side

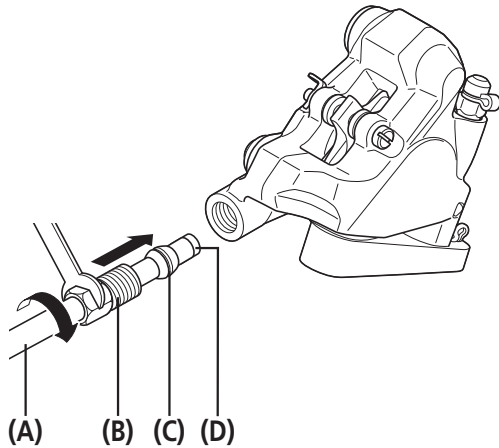
Attach the connector insert to the brake hose.

After that, while pushing the brake hose, tighten the connecting bolt.

BR-RS785



BR-RS805/BR-RS505



- (A) Brake hose
- (B) Connecting bolt
- (C) Olive
- (D) Connector insert

Tightening torque



5 - 7 N·m

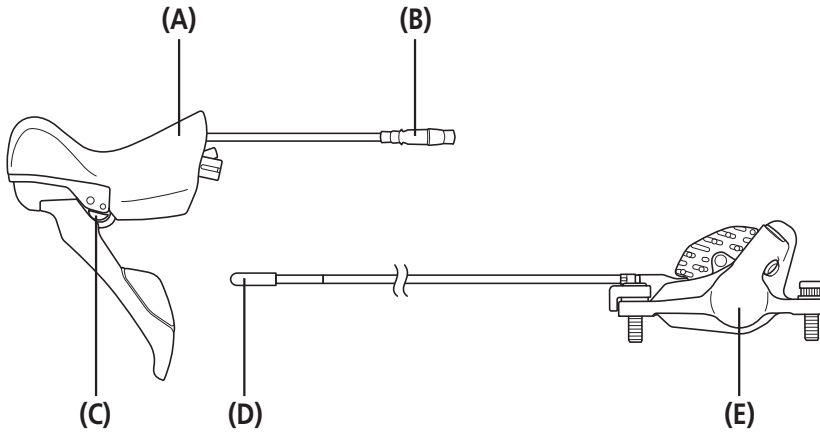
INSTALLATION

►► Installation of the brake hose (easy hose joint system)

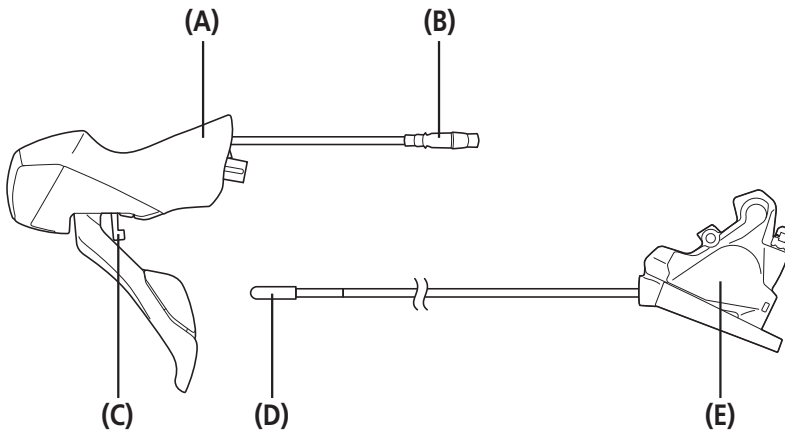
■ Installation of the brake hose (easy hose joint system)

Overview of the easy hose joint system

ST-RS685/BR-RS785



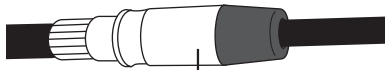
ST-RS505/BR-RS805, BR-RS505



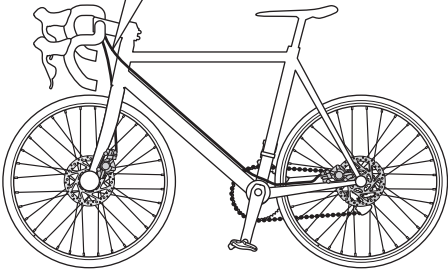
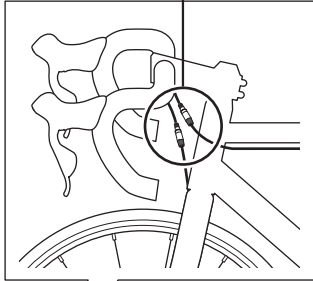
INSTALLATION

▶▶ Installation of the brake hose (easy hose joint system)

About the easy hose joint system



(A)



This is a component of the easy hose joint system.

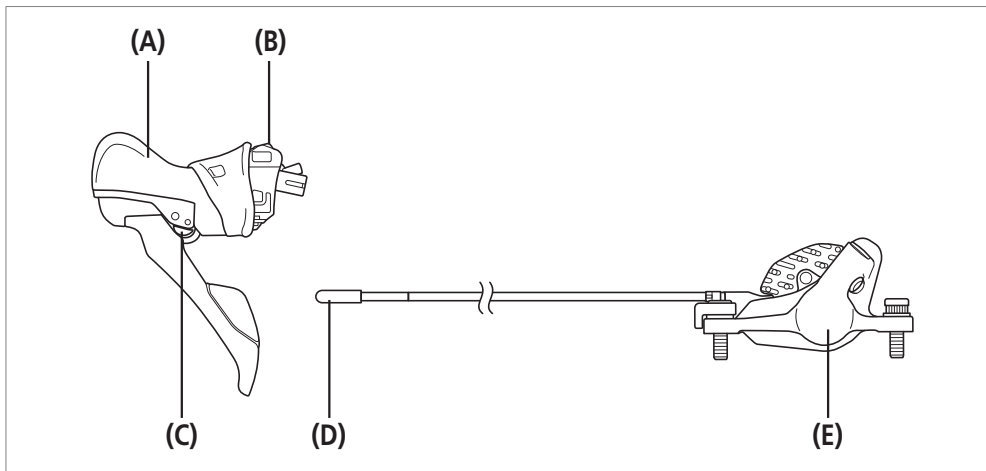
For information on how to install and replace the brake hose, refer to the brake section of General Operations.

(A) Joint sleeve

INSTALLATION


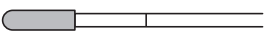
▶ Installation of the brake hose (easy hose joint system)

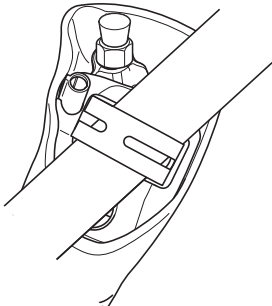
About the easy hose joint system (Direct) (ST-RS685/BR-RS785)



- (A) Dual control lever
- (B) Joint sleeve
- (C) Lever stopper
- (D) Hose cap
- (E) Brake caliper

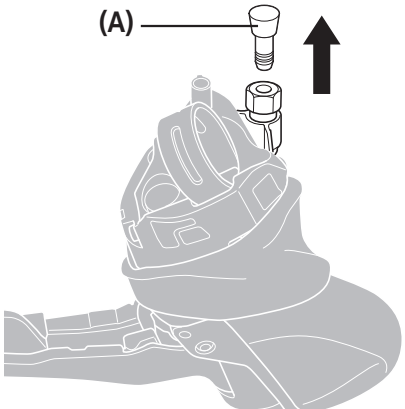
1 Pass the brake hose through each hole in the built-in frame.

2   Remove the hose cap.

3  Secure the dual control lever to the handlebar or in a vise.
At this time, point the dual control lever hose connection port upward and fix it in place.

NOTICE

When installing the brake hose with the dual control lever secured to the handlebar, adjust the angle of the bracket to make it easier to turn the spanner.
At that time, be careful not to damage the handlebar and other parts.

4  Remove the seal plug.

- (A) Seal plug

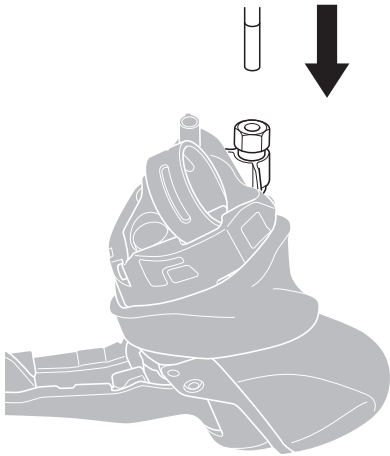
NOTICE

Cover the seal plug with a waste cloth as the oil applied to the seal plug may leak.

INSTALLATION

▶ Installation of the brake hose (easy hose joint system)

5



Insert the brake hose into the joint component.



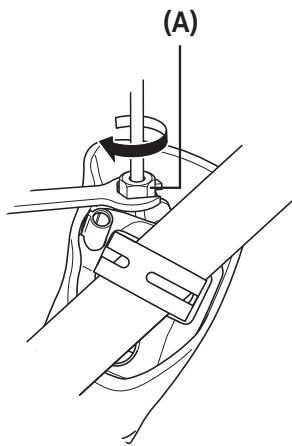
TECH TIPS

It comes with a built-in olive. Insert it while making sure that it will not get snagged on the olive.

Check that the brake hose is inserted up to the line printed on the hose.

Use a waste cloth when inserting the brake hose as some oil inside may leak.

6



Tighten the connecting bolt with an 8 mm spanner.

Then, wipe off any oil residue.

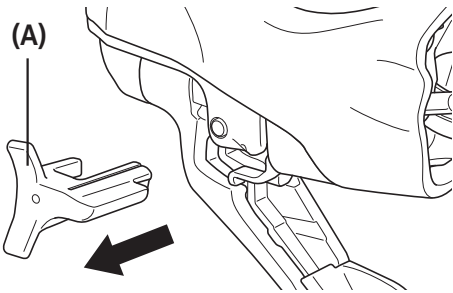
(A) Connecting bolt

Tightening torque



5 - 7 N·m

7



Remove the brake lever stopper.

(A) Lever stopper

NOTICE

After removing the lever stopper, check that the pad spacer is installed on the caliper side or that the caliper is installed to the bicycle and the disc brake rotor is between the two sides of the caliper, before depressing the lever.

After installation to the bicycle, make sure to check that the lever stopper is removed.



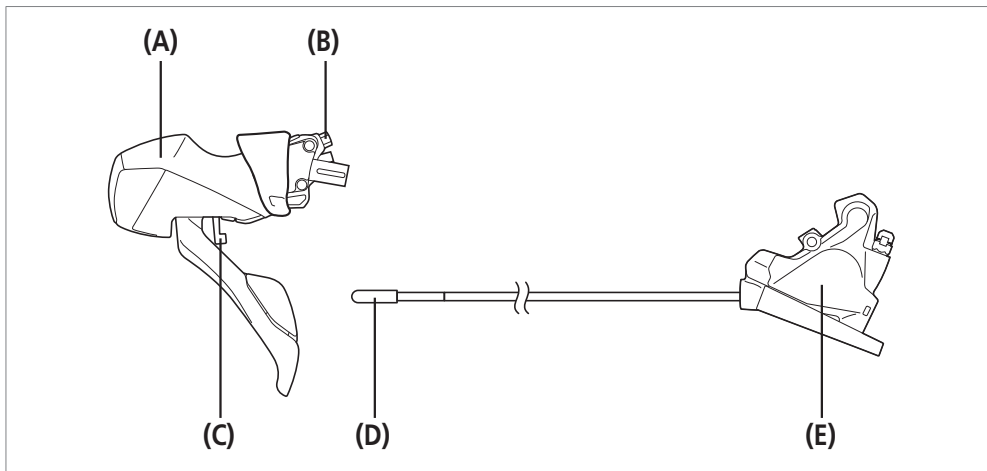
TECH TIPS

Move and pull on the lever stopper to remove it while being careful not to depress the lever.

INSTALLATION

▶ Installation of the brake hose (easy hose joint system)

About the easy hose joint system (Direct) (ST-RS505/BR-RS805, BR-RS505)



- (A) Dual control lever
- (B) Joint sleeve
- (C) Lever stopper
- (D) Hose cap
- (E) Brake caliper

1 Pass the brake hose through each hole in the built-in frame.

2   Remove the hose cap.

3  Secure the dual control lever to the handlebar or in a vise.
At this time, point the dual control lever hose connection port upward and fix it in place.

NOTICE

When installing the brake hose with the dual control lever secured to the handlebar, adjust the angle of the bracket to make it easier to turn the spanner.
At that time, be careful not to damage the handlebar and other parts.

4  Remove the seal plug.

- (A) Seal plug

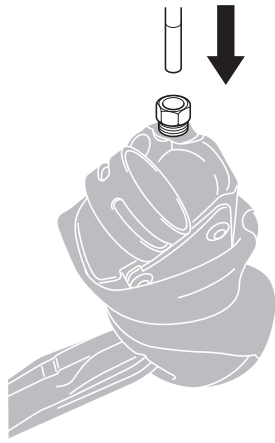
NOTICE

Cover the seal plug with a waste cloth as the oil applied to the seal plug may leak.

INSTALLATION

▶ Installation of the brake hose (easy hose joint system)

5



Insert the brake hose into the joint component.



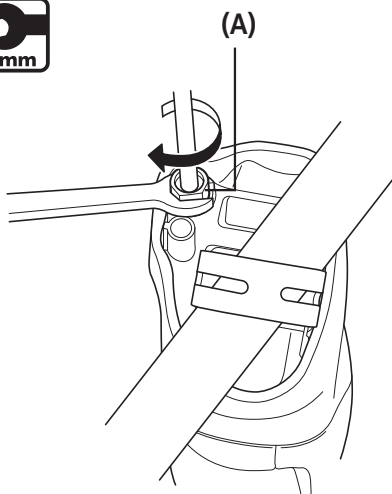
TECH TIPS

It comes with a built-in olive. Insert it while making sure that it will not get snagged on the olive.

Check that the brake hose is inserted up to the line printed on the hose.

Use a waste cloth when inserting the brake hose as some oil inside may leak.

6



Tighten the connecting bolt with an 8 mm spanner.

Then, wipe off any oil residue.

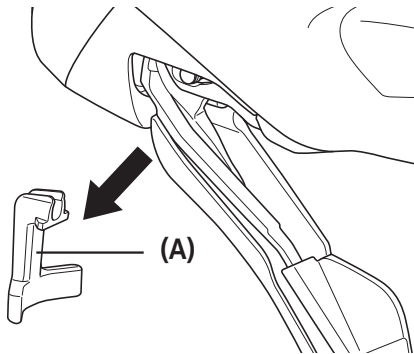
(A) Connecting bolt

Tightening torque



5 - 7 N·m

7



Remove the brake lever stopper.

(A) Lever stopper

NOTICE

After removing the lever stopper, check that the pad spacer is installed on the caliper side or that the caliper is installed to the bicycle and the disc brake rotor is between the two sides of the caliper, before depressing the lever.

After installation to the bicycle, make sure to check that the lever stopper is removed.



TECH TIPS

Move and pull on the lever stopper to remove it while being careful not to depress the lever.

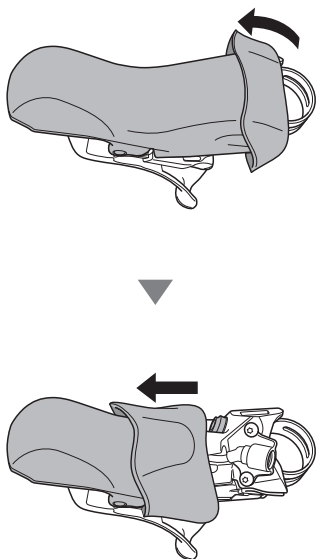
INSTALLATION

► Installation to the handlebar

■ Installation to the handlebar

ST-RS685

1



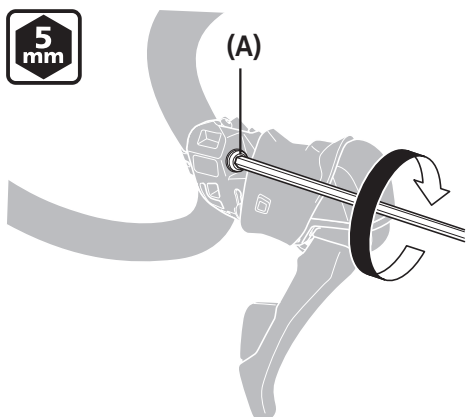
Turn over the bracket cover from the back side.

Gently turn over the ends of the bracket cover with both hands and slowly push them down.

NOTICE

Forcibly pulling it may cause damage to the bracket cover because of its material properties.

2



Use a 5 mm hexagon wrench to loosen the clamp bolt at the upper section of the bracket then tighten it after setting it on the handlebar.

(A) Clamp bolt

Tightening torque



6 - 8 N·m

NOTICE

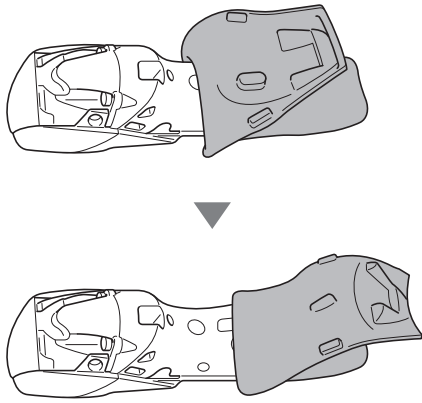
When mounting the shifting lever to a drop handlebar, loosen the clamp bolt sufficiently. Otherwise, the handlebar may be damaged.

INSTALLATION

► Installation to the handlebar

ST-RS505

1



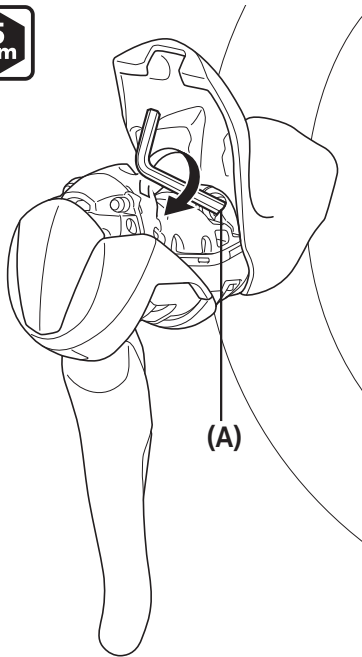
Turn over the bracket cover from the front side.

Gently turn over the ends of the bracket cover with both hands and slowly push them down.

NOTICE

Forcibly pulling it may cause damage to the bracket cover because of its material properties.

2



Use a 5 mm hexagon wrench to loosen the clamp bolt at the upper section of the bracket then tighten it after setting it on the handlebar.

(A) Clamp bolt

Tightening torque



6 - 8 N·m

NOTICE

When mounting the shifting lever to a drop handlebar, loosen the clamp bolt sufficiently. Otherwise, the handlebar may be damaged.

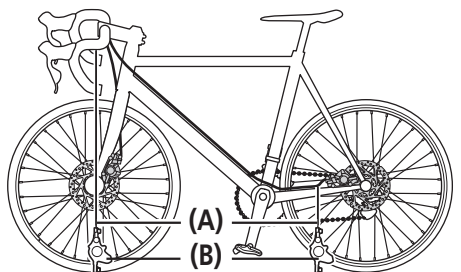
INSTALLATION

▶▶ Adding Shimano genuine mineral oil and bleeding air

■ Adding Shimano genuine mineral oil and bleeding air

ST-RS685/BR-RS785

With the bleed spacer (yellow) attached to the brake caliper, place the bicycle in the work stand as shown in the illustration.

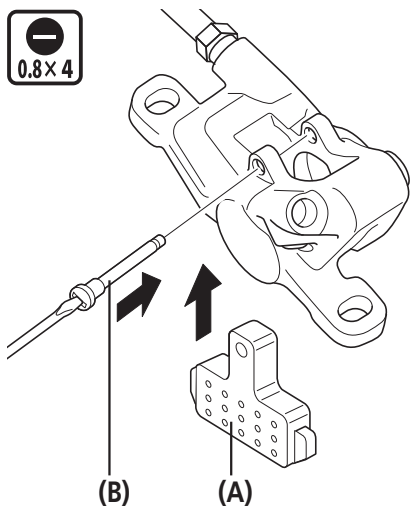


- (A) Brake hose
- (B) Brake caliper

NOTICE

When bleeding the brake caliper, you need SM-DISC (oil funnel and oil stopper).

1



Mount the bleed spacer (yellow).

- (A) Bleed spacer
- (B) Pad axle

Tightening torque



0.1 - 0.3 N·m

2

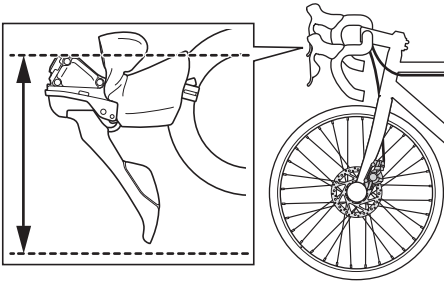


Turn over the bracket cover from the front side.

INSTALLATION

▶ Adding Shimano genuine mineral oil and bleeding air

3

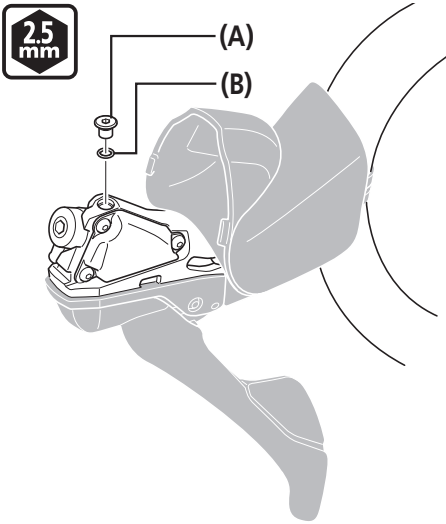


Adjust the position of the bleed screw so that its surface is parallel to the ground.

NOTICE

When tilting, be careful not to forcibly pull on the brake hose or shifting cable.

4



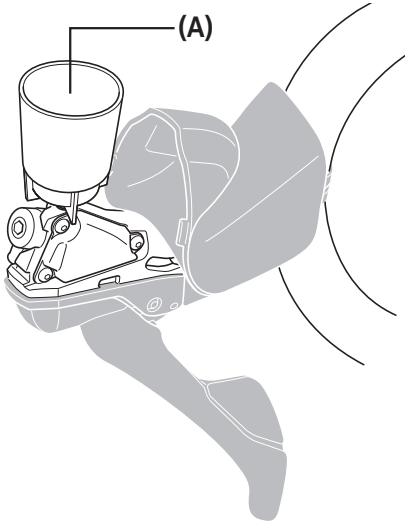
Remove the bleed screw and O-ring.

- (A) Bleed screw
- (B) O-ring

NOTICE

Be careful not to drop the bleed screw and O-ring.

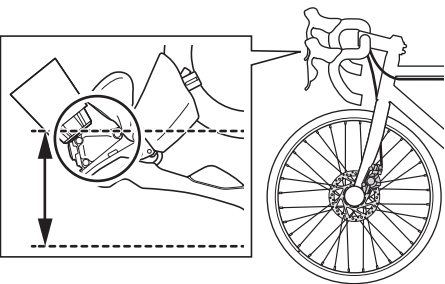
5



Mount the oil funnel.

- (A) Oil funnel

6

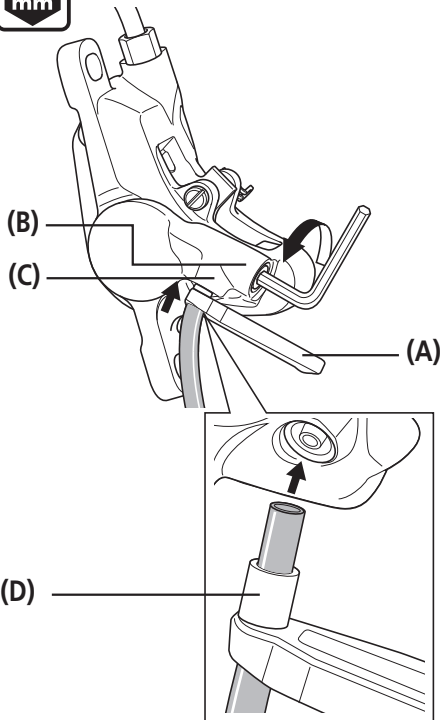


As shown in the illustration, tilt the handle so that side of the bracket shown in the illustration is parallel to the ground.

NOTICE

When tilting, be careful not to forcibly pull on the brake hose or shifting cable.

7 Secure the brake caliper in a vise while bleeding.



Fill the syringe with sufficient oil.

Attach the adapter provided with this product or Shimano original tool to the end of the tube, connect the tube to the bleed boss, and fasten it with the tube holder so that the tube will not be disconnected.

Loosen the bleed screw by 1/8 of a turn to open it.

Push the piston of the syringe to add oil.

The oil then starts coming out from the oil funnel.

Continue adding oil until there are no more air bubbles mixed in with the oil that is coming out.

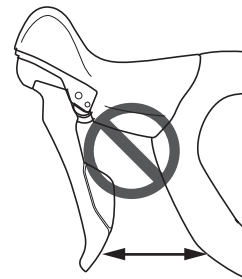
- (A) Tube holder
- (B) Bleed screw
- (C) Bleed boss
- (D) Adapter

NOTICE

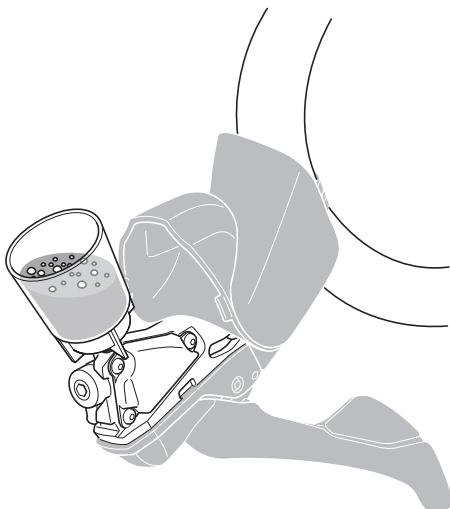
Secure the brake caliper in a vise to prevent the tube from being accidentally disconnected.

Do not depress and release the lever repeatedly.

Oil without air bubbles may come out as a result of such operation, but air bubbles may remain in the oil inside the brake caliper, and it will take longer to bleed the air. (If you have depressed and released the lever repeatedly, drain out all of the oil and then add oil again.)



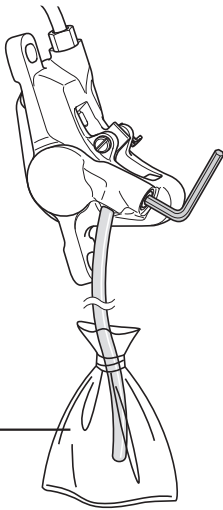
9



Once there are no more air bubbles in the oil in the funnel, temporarily close the bleed screw.

Remove the syringe while covering the end of the syringe tube with a waste cloth to prevent oil from spattering.

10

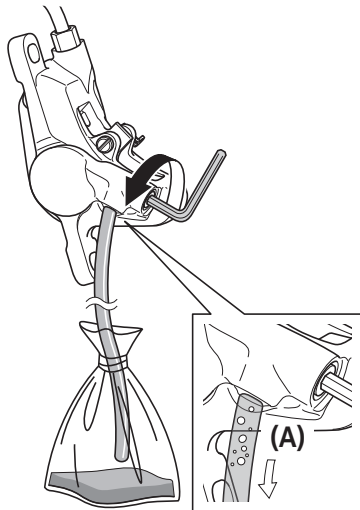


(A)

Tie the supplied tube and bag with rubber bands, set a 3 mm hexagon wrench as shown in the illustration, and connect the tube to the bleed boss.

(A) Bag

11



Loosen the bleed screw.

At this point, make sure that the tube is secured to the bleed boss.

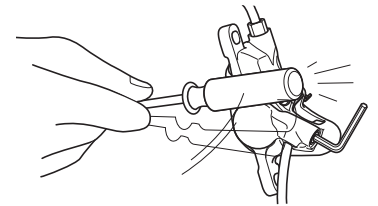
After a little while, the oil and air bubbles will flow naturally from the bleed boss into the tube.

In this way it will be possible to easily extract the greater part of the air bubbles remaining inside the brake system.

(A) Air bubbles

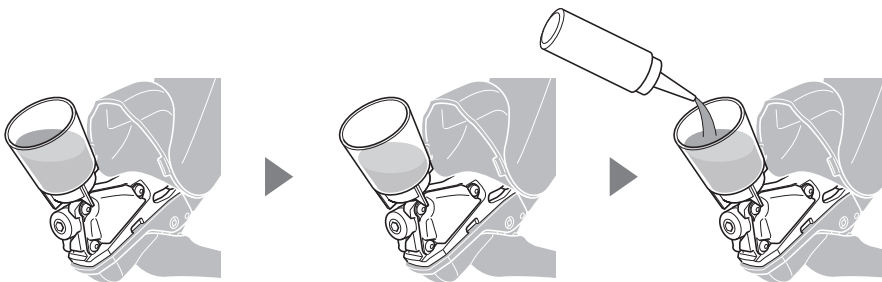


It may be effective to shake the brake hose gently, to tap the lever bracket or brake calipers gently with a screwdriver, or to move the position of the calipers at this time.



12

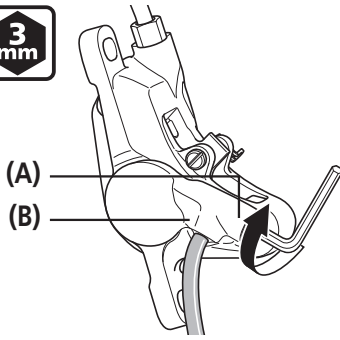
The level of liquid inside the oil funnel drops at this time, so keep filling the funnel with oil to maintain the level of liquid so that air is not drawn in.



INSTALLATION

▶▶ Adding Shimano genuine mineral oil and bleeding air

13

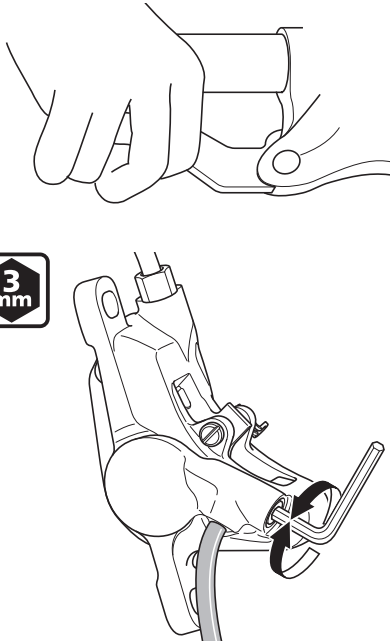


Once no more air bubbles come from the bleed boss, temporarily close the bleed screw.

(A) Bleed screw

(B) Bleed boss

14



With the brake lever depressed, open and close the bleed screw in rapid succession (for approximately 0.5 seconds each time) to release any air bubbles which may be in the brake calipers.

Repeat this procedure about 2 to 3 times.

Then tighten the bleed screw again.

Tightening torque

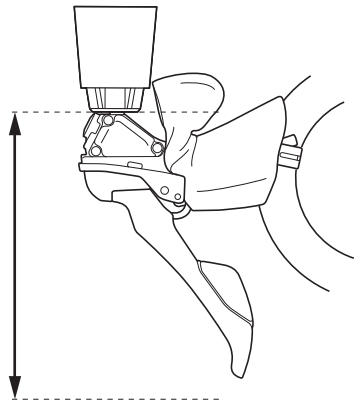


4 - 7 N·m

INSTALLATION

▶▶ Adding Shimano genuine mineral oil and bleeding air

15



By raising the handlebar, adjust the position of the bleed screw so that its surface is parallel to the ground and check that no air bubbles remain.

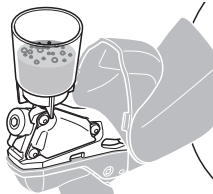
NOTICE

Secure the handlebar when conducting the check.

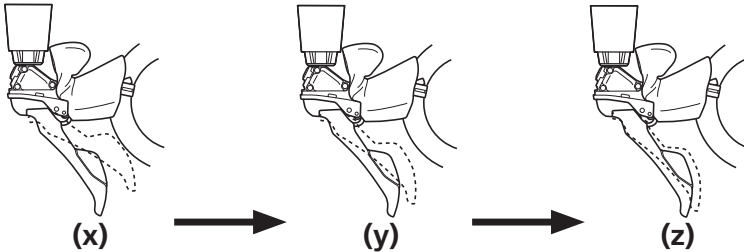
16

If the brake lever is then operated, air bubbles in the system will rise up through the port into the oil funnel. Once the bubbles stop appearing, depress the brake lever as far as it will go.

Under the normal condition, the lever action should feel stiff at this point.

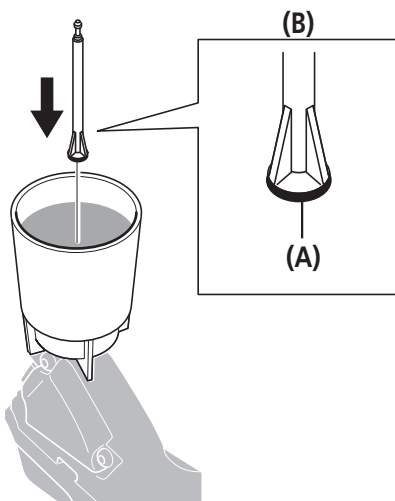


Lever operation



- (x) Loose
- (y) Slightly stiff
- (z) Stiff

17



Plug the oil funnel with the oil stopper so that the O-ring mounted side is facing downward.

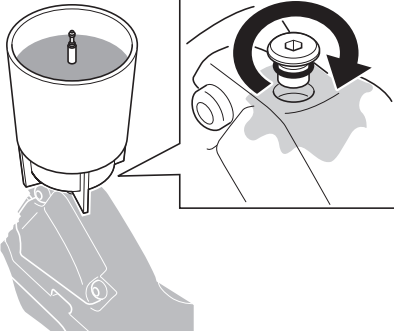
- (A) O-ring
- (B) Oil stopper

INSTALLATION

▶▶ Adding Shimano genuine mineral oil and bleeding air

18

2.5
mm



Remove the oil funnel while it is still being plugged with the oil stopper, and then attach the O-ring to the bleed screw and tighten it while letting oil flow out to make sure that there are no air bubbles remaining inside the reservoir tank.

At this point, use a waste cloth to prevent oil from flowing out to the surrounding areas.

Tightening torque

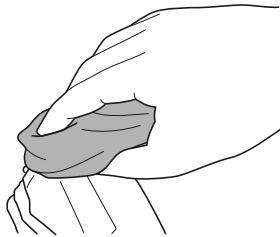
2.5
mm

0.5 - 1 N·m

NOTICE

Do not operate the brake lever. Otherwise, air bubbles may enter the cylinder.

19



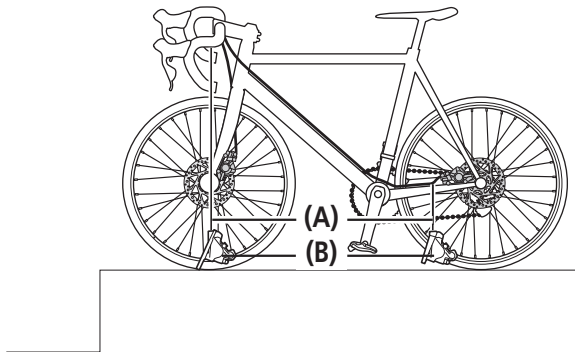
Wipe away any oil which has flowed out.

INSTALLATION

▶ Adding Shimano genuine mineral oil and bleeding air

ST-RS505/BR-RS805, BR-RS505

With the bleed spacer (yellow) attached to the brake caliper, place the bicycle in the work stand as shown in the illustration.

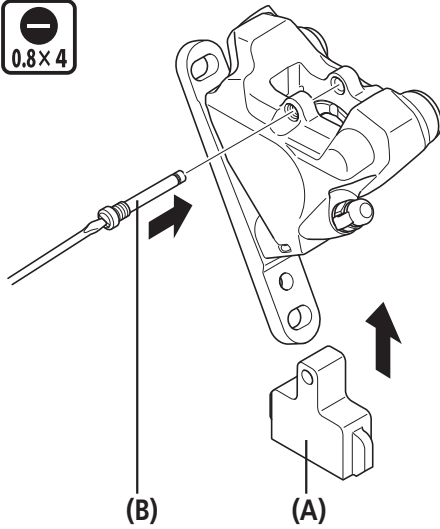


- (A) Brake hose
- (B) Brake caliper

NOTICE

When bleeding the brake caliper, you need SM-DISC (oil funnel and oil stopper).

1



Mount the bleed spacer (yellow).

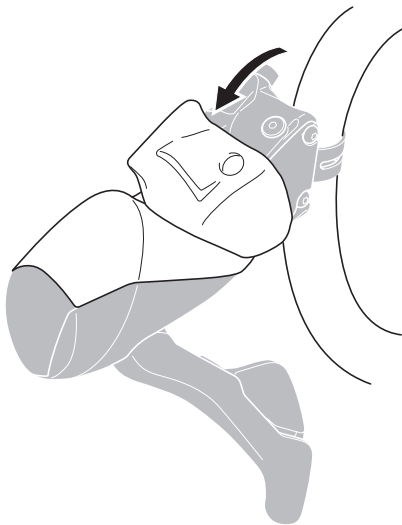
- (A) Bleed spacer
- (B) Pad axle

Tightening torque



0.1 - 0.3 N·m

2

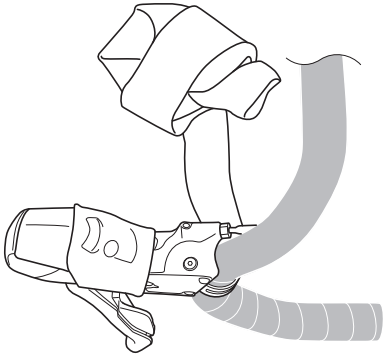


Turn over the bracket cover from the back side.

INSTALLATION

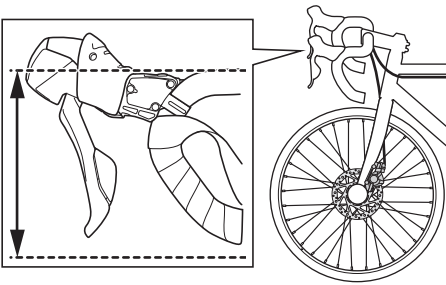
▶▶ Adding Shimano genuine mineral oil and bleeding air

3



Remove the handlebar tape.

4

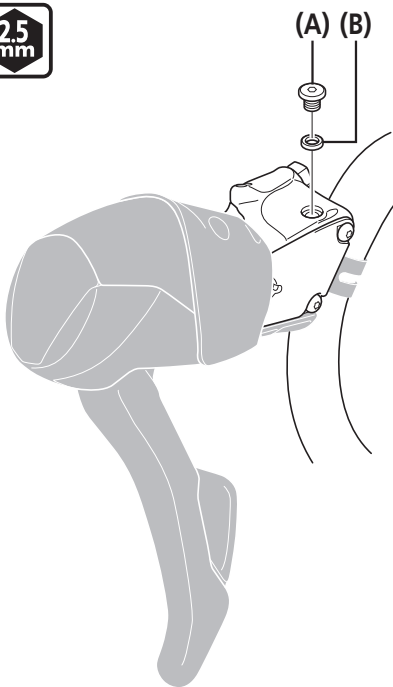


Adjust the position of the bleed screw so that its surface is parallel to the ground.

NOTICE

When tilting, be careful not to forcibly pull on the brake hose or shifting cable.

5



Remove the bleed screw and O-ring.

(A) Bleed screw

(B) O-ring

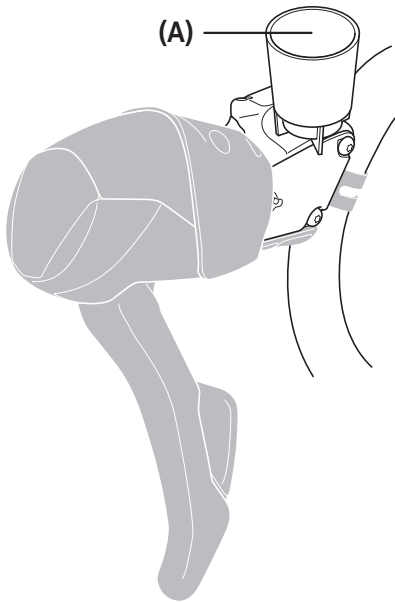
NOTICE

Be careful not to drop the bleed screw and O-ring.

INSTALLATION

▶▶ Adding Shimano genuine mineral oil and bleeding air

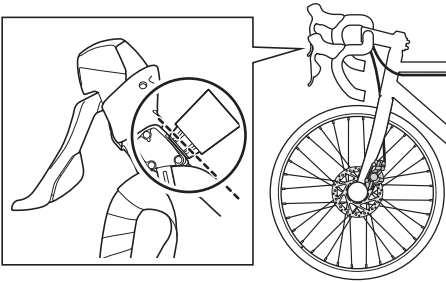
6



Mount the oil funnel.

(A) Oil funnel

7



As shown in the illustration, tilt the handle so that the top of the bracket bleed screw is at a 45° angle to the ground.

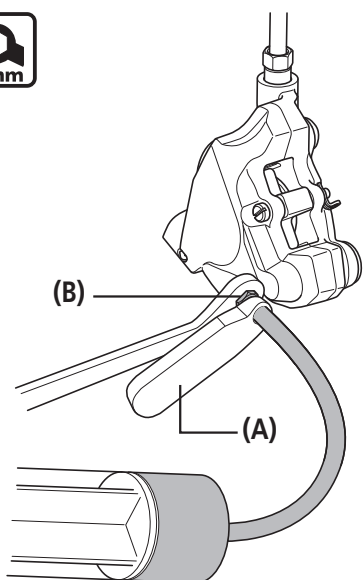
NOTICE

When tilting, be careful not to forcibly pull on the brake hose or shifting cable.

8

Secure the brake caliper in a vise while bleeding.

9



Set a 7 mm socket wrench in place.

Fill the syringe with sufficient oil, connect the syringe tube to the bleed nipple, and fasten it with the tube holder so that the tube will not be disconnected.

Loosen the bleed nipple by a 1/8 of a turn to open it.

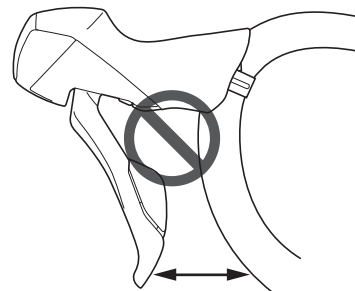
- (A) Tube holder
- (B) Bleed nipple

NOTICE

Secure the brake caliper in a vise to prevent the tube from being accidentally disconnected.

Do not depress and release the lever repeatedly.

Oil without air bubbles may come out as a result of such operation, but air bubbles may remain in the oil inside the brake caliper, and it will take longer to bleed the air. (If you have depressed and released the lever repeatedly, drain out all of the oil and then add oil again.)



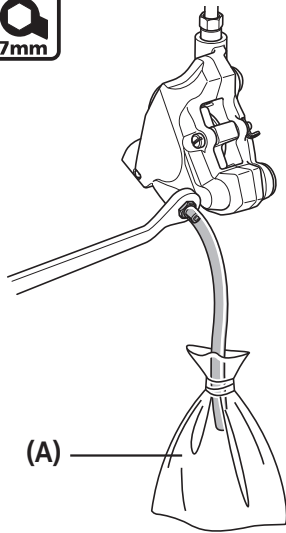
10



Once there are no more air bubbles in the oil in the funnel, temporarily close the bleed screw.

Remove the syringe while covering the end of the syringe tube with a waste cloth to prevent oil from spattering.

11

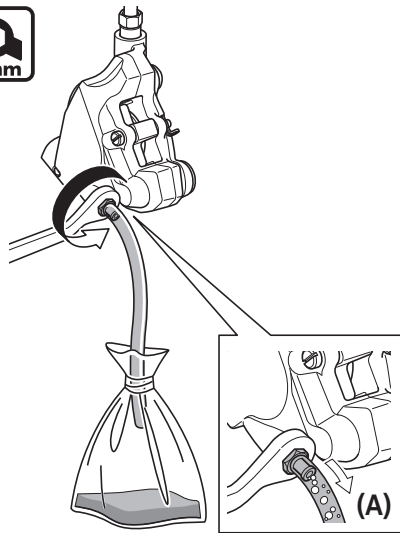


Tie the supplied tube and bag with rubber bands.

Set a 7 mm socket wrench as shown in the illustration, and connect the tube to the bleed nipple.

(A) Bag

12



Loosen the bleed nipple.

At this point, make sure that the tube is secured to the bleed nipple.

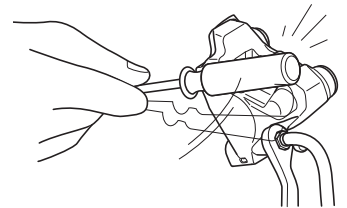
After a little while, the oil and air bubbles will flow naturally from the bleed nipple into the tube.

In this way it will be possible to easily extract the greater part of the air bubbles remaining inside the brake system.

(A) Air bubbles

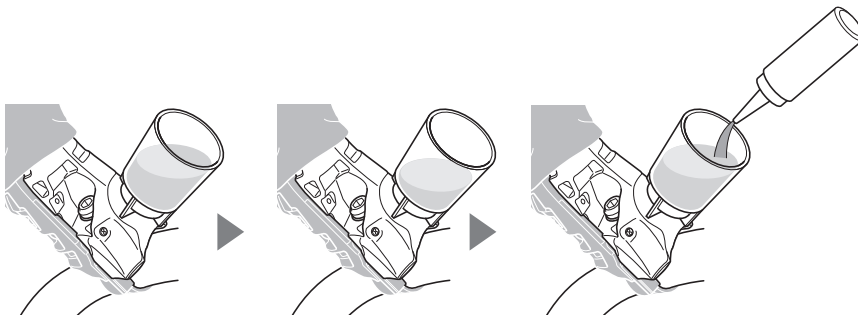
TECH TIPS

It may be effective to shake the brake hose gently, to tap the lever bracket or brake calipers gently with a screwdriver, or to move the position of the calipers at this time.

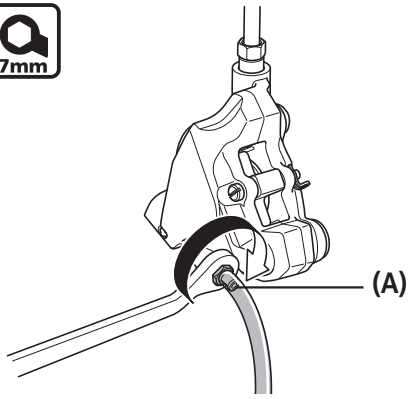


13

The level of liquid inside the oil funnel drops at this time, so keep filling the funnel with oil to maintain the level of liquid so that air is not drawn in.



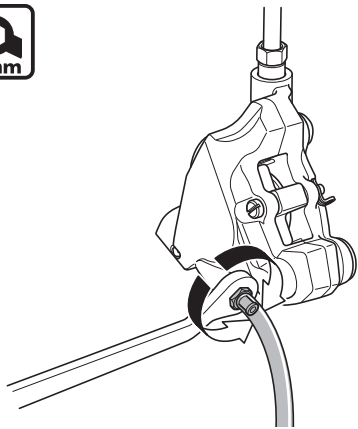
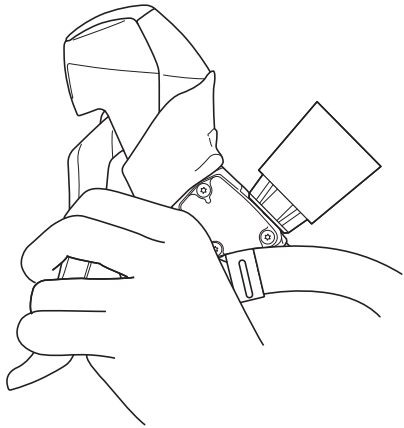
14



Once no more air bubbles come from the bleed nipple, temporarily close the bleed nipple.

(A) Bleed nipple

15



With the brake lever depressed, open and close the bleed nipple in rapid succession (for approximately 0.5 seconds each time) to release any air bubbles which may be in the brake calipers.

Repeat this procedure about 2 to 3 times.

Then tighten the bleed nipple.

Tightening torque

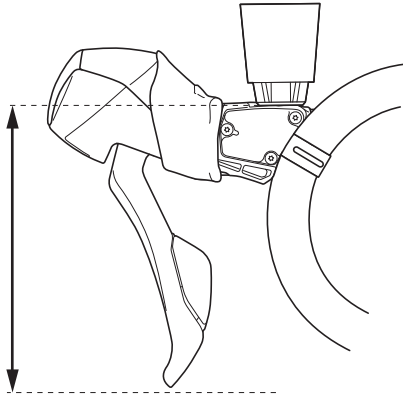


4 - 7 N·m

INSTALLATION

▶▶ Adding Shimano genuine mineral oil and bleeding air

16



By raising the handlebar, adjust the position of the bleed screw so that its surface is parallel to the ground and check that no air bubbles remain.

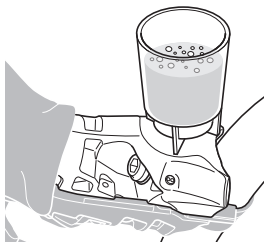
NOTICE

Secure the handlebar when conducting the check.

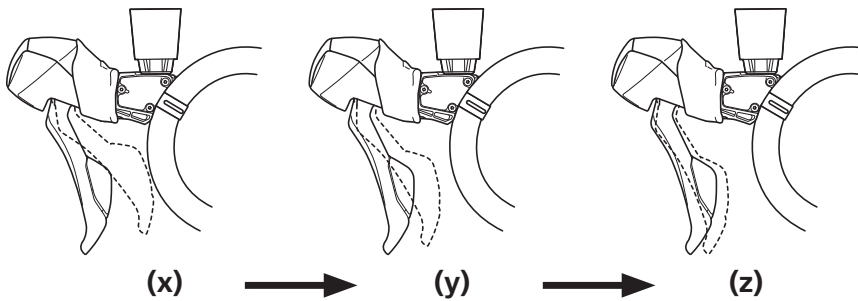
17

If the brake lever is then operated, air bubbles in the system will rise up through the port into the oil funnel. Once the bubbles stop appearing, depress the brake lever as far as it will go.

Under the normal condition, the lever action should feel stiff at this point.



Lever operation

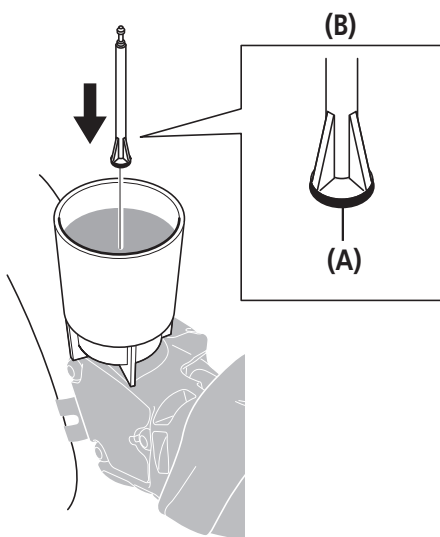


- (x) Loose
- (y) Slightly stiff
- (z) Stiff

INSTALLATION

▶ Adding Shimano genuine mineral oil and bleeding air

18



Plug the oil funnel with the oil stopper so that the O-ring mounted side is facing downward.

- (A) O-ring
- (B) Oil stopper

19



Remove the oil funnel while it is still being plugged with the oil stopper, and then attach the O-ring to the bleed screw and tighten it while letting oil flow out to make sure that there are no air bubbles remaining inside the reservoir tank.

At this point, use a waste cloth to prevent oil from flowing out to the surrounding areas.

Tightening torque

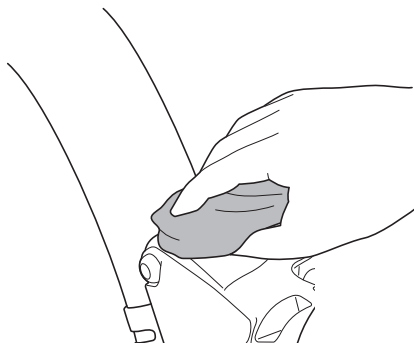


0.5 - 1 N·m

NOTICE

Do not operate the brake lever. Otherwise, air bubbles may enter the cylinder.

20



Wipe away any oil which has flowed out.

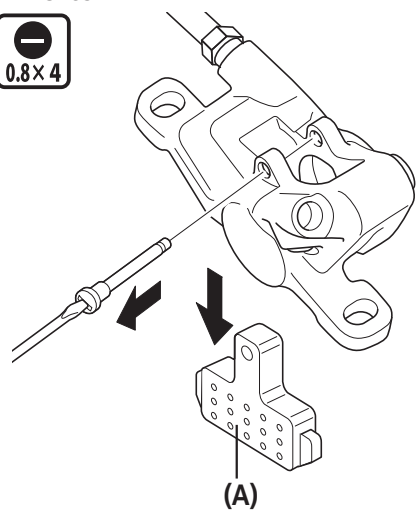
INSTALLATION

►► Installing the brake caliper

■ Installing the brake caliper

1

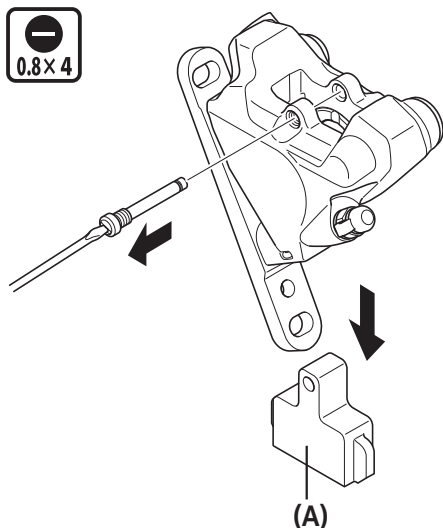
BR-RS785



Remove the bleed spacer (yellow).

(A) Bleed spacer

BR-RS805/RS505



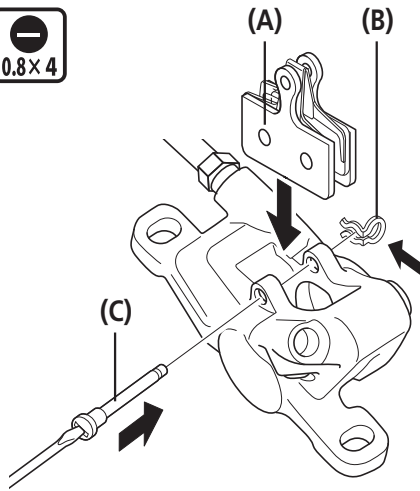
Remove the bleed spacer (yellow).

INSTALLATION

▶▶ Installing the brake caliper

2

BR-RS785



Install the new brake pads and bolts.

At this point, make sure to install the snap retainer as well.

Install the pads as shown in the illustration.

- (A) Brake pads
- (B) Snap retainer
- (C) Pad axle

Tightening torque

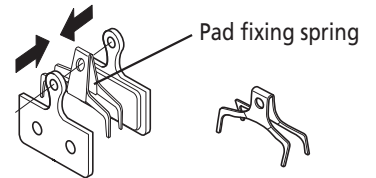


0.1 - 0.3 N·m

NOTICE

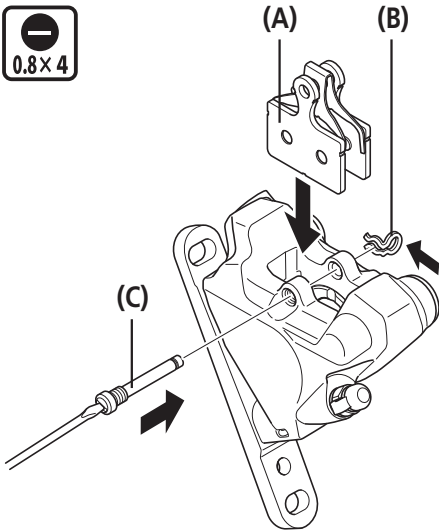
When using a pad with fins, take note of the left (L) and right (R) markings to set it.

TECH TIPS



Install the pad fixing spring as shown in the illustration. (The spring of the BR-RS785 has markings on the left side (L) and the right side (R).)

BR-RS805/RS505



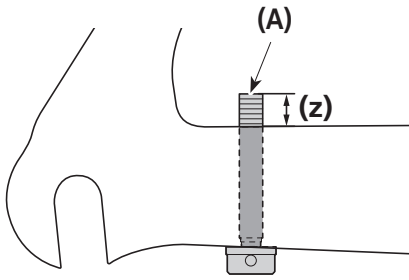
Install the new brake pads and bolts.

At this point, make sure to install the snap retainer as well.

Install the pads as shown in the illustration.

Converter fixing bolt length confirmation (BR-RS785)

Same for both 140 mm and 160 mm



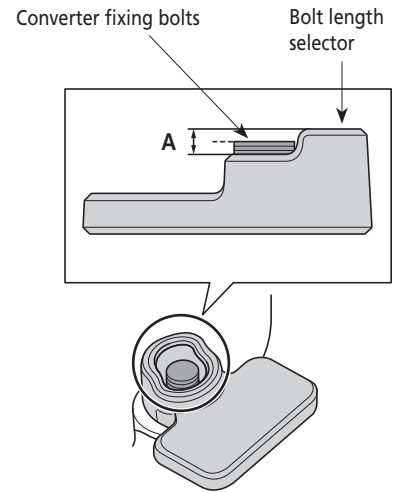
Insert the converter fixing bolts into the frame mount area, and make sure that the lengths of the protruding sections of the bolts are 6.8 mm.

(z) 6.8 mm

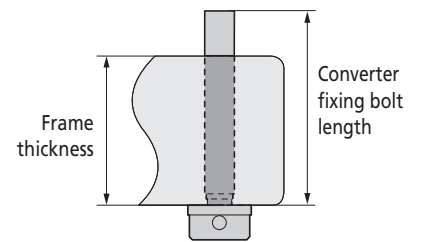
(A) Converter fixing bolts

NOTICE

- When using a bolt length selector, make sure the tip of the converter fixing bolt is within the range **A**.



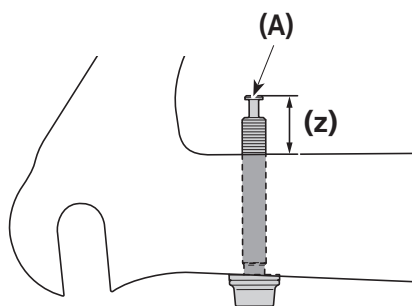
- Do not use a washer when checking the length of the converter fixing bolt.
- The length of the converter fixing bolts used varies depending on thickness of the frame.
Use converter fixing bolts that are suitable for the thickness of the frame.



Frame thickness	Converter fixing bolt length	Y-part
10 mm	16.8 mm	Y81743100
15 mm	21.8 mm	Y81743150
20 mm	26.8 mm	Y81743200
25 mm	31.8 mm	Y81743250
30 mm	36.8 mm	Y81743300
35 mm	41.8 mm	Y81743350

Check the length of brake caliper mounting bolt C (BR-RS805/RS505)

Same for both 140 mm and 160 mm



Insert the brake caliper mounting bolts C into the frame mount area, and make sure that the lengths of the protruding sections of the bolts are 13 mm.

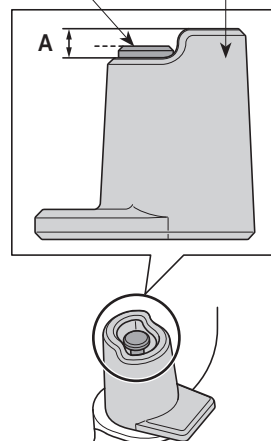
(z) 13 mm

(A) Brake caliper mounting bolt C

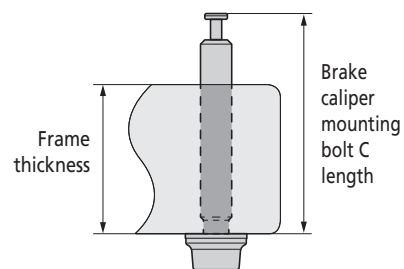
NOTICE

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

Brake caliper mounting bolt C Bolt length selector



- Do not use a washer when checking the length of brake caliper mounting bolt C.
- The length of the brake caliper mounting bolt C used varies depending on thickness of the frame.
Use brake caliper mounting bolt C that is suitable for the thickness of the frame.



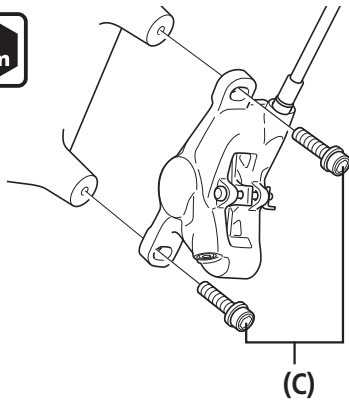
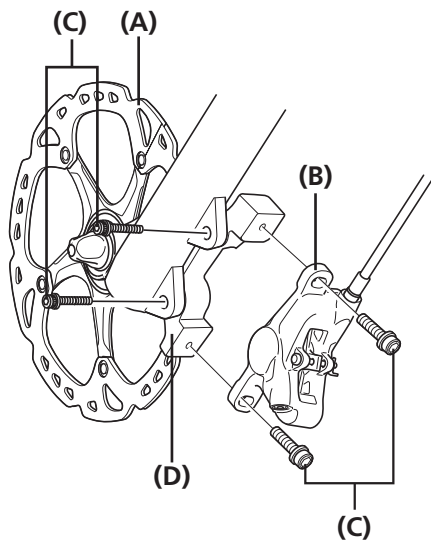
Frame thickness	Brake caliper mounting bolt C length	Y-part
10 mm	23 mm	Y8N208000
15 mm	28 mm	Y8N208050
20 mm	33 mm	Y8N208010
25 mm	38 mm	Y8N208020
30 mm	43 mm	Y8N208030
35 mm	48 mm	Y8N208040

INSTALLATION

▶▶ Installing the brake caliper

BR-RS785

Front/Rear



Temporarily install the brake caliper to the frame.

Depress the brake lever, and tighten the brake caliper fixing bolts while pressing the brake pads against the disc brake rotor.

- (A) Disc brake rotor
- (B) Brake caliper
- (C) Brake caliper fixing bolts
- (D) Mount bracket

Tightening torque



6 - 8 N·m



TECH TIPS

Make sure that the brake caliper can move sideways before installing it.

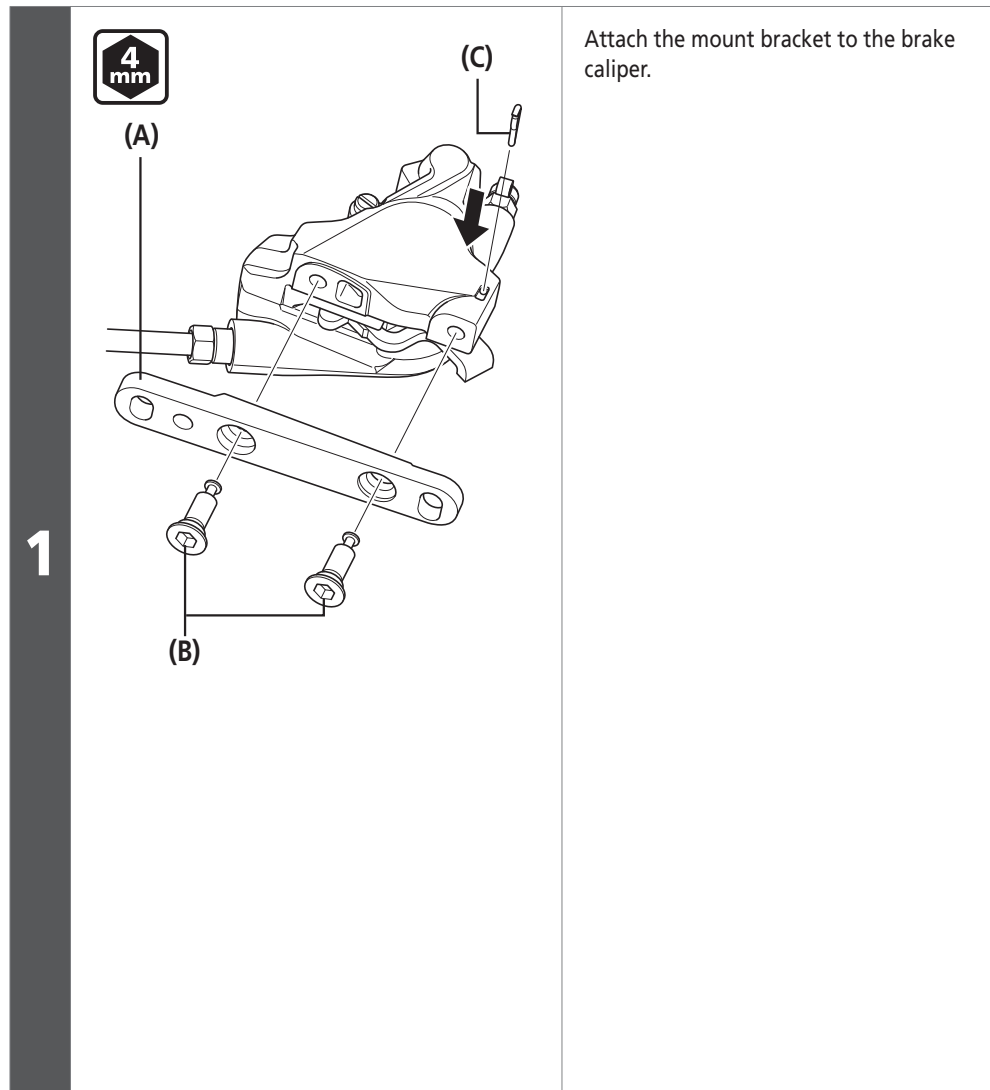
NOTICE

Be sure to attach snap rings when attaching the brake caliper fixing bolts.



BR-RS805/RS505

**When using a mount bracket
(140 mm disc brake rotor)**

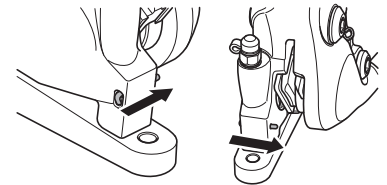


- (A) Mount bracket
- (B) Brake caliper mounting bolt B
- (C) Bolt fixing pin

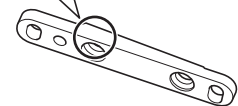
Tightening torque	
4 mm	6 - 8 N·m

NOTICE

- Be sure to attach the bolt fixing pin. Check that the bolt fixing pin is fully inserted all the way to the rear.



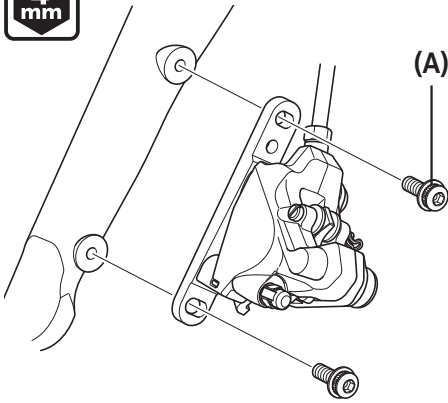
- Observe the direction indicated on the mount bracket when installing it.



INSTALLATION

▶▶ Installing the brake caliper

2



Temporarily attach the mount bracket to the frame.

Depress the brake lever, and tighten the brake caliper mounting bolts A while pressing the brake pads against the disc brake rotor.

(A) Brake caliper mounting bolt A

Tightening torque

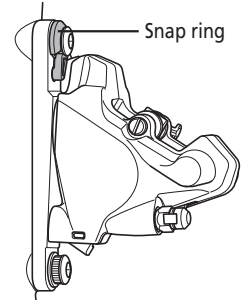


6 - 8 N·m

NOTICE

Be sure to attach a snap ring when installing the brake caliper mounting bolts A.

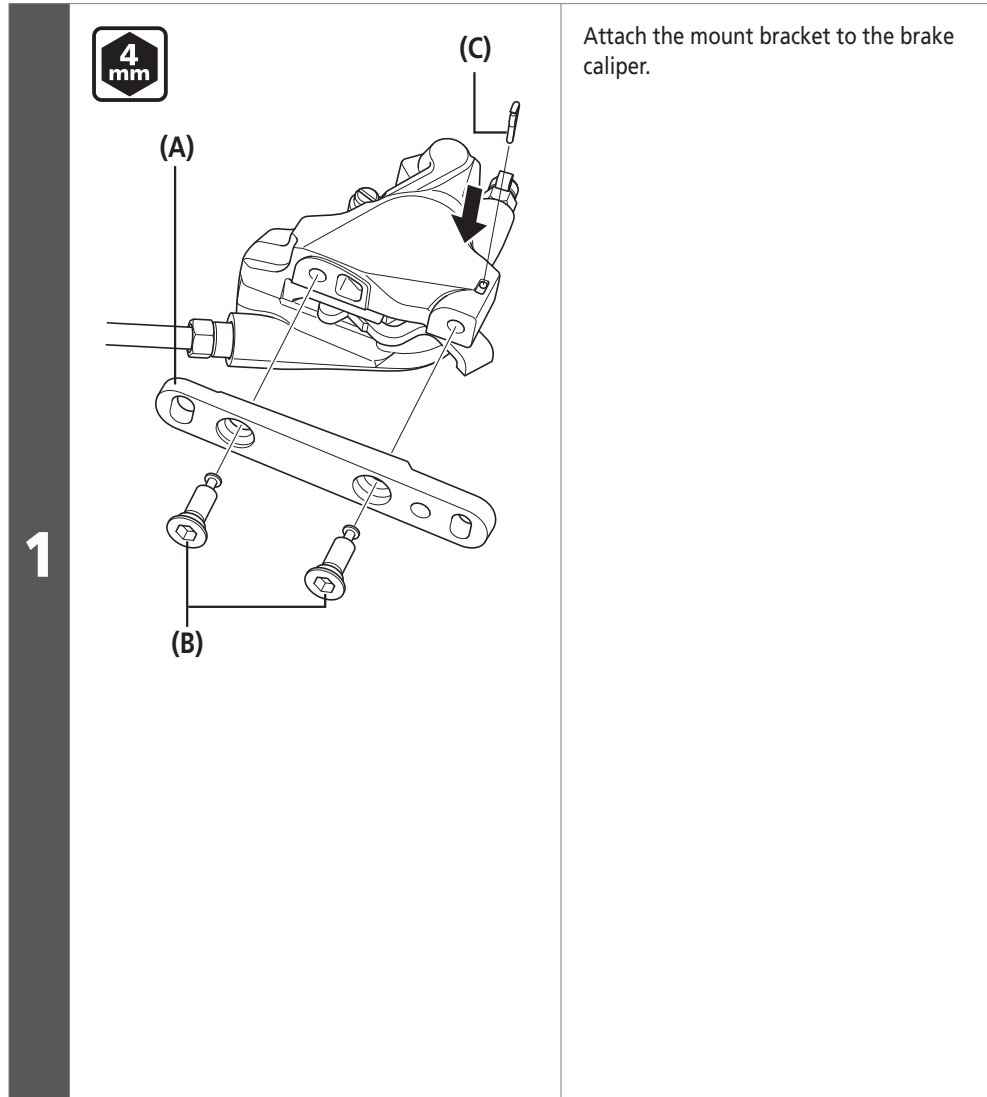
* The snap ring installation position is different for 140 mm and 160 mm. (The illustration shows a 140 mm rotor.)



INSTALLATION

▶▶ Installing the brake caliper

When using a mount bracket (160 mm disc brake rotor)



- (A) Mount bracket
- (B) Brake caliper mounting bolt B
- (C) Bolt fixing pin

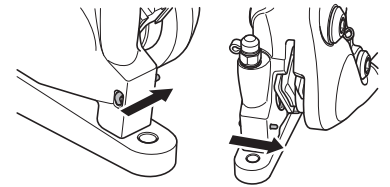
Tightening torque



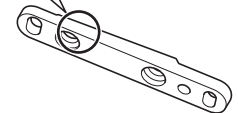
6 - 8 N·m

NOTICE

- Be sure to attach the bolt fixing pin. Check that the bolt fixing pin is fully inserted all the way to the rear.



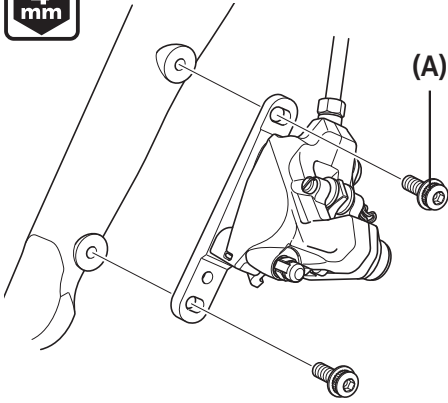
- Observe the direction indicated on the mount bracket when installing it.



INSTALLATION

▶▶ Installing the brake caliper

2



Temporarily attach the mount bracket to the frame.

Depress the brake lever, and tighten the brake caliper mounting bolts A while pressing the brake pads against the disc brake rotor.

(A) Brake caliper mounting bolt A

Tightening torque

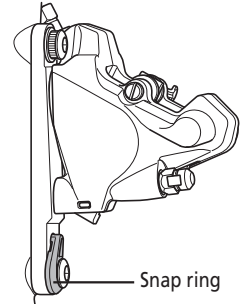


6 - 8 N·m

NOTICE

Be sure to attach a snap ring when installing the brake caliper mounting bolts A.

* The snap ring installation position is different for 140 mm and 160 mm. (The illustration shows a 160 mm rotor.)

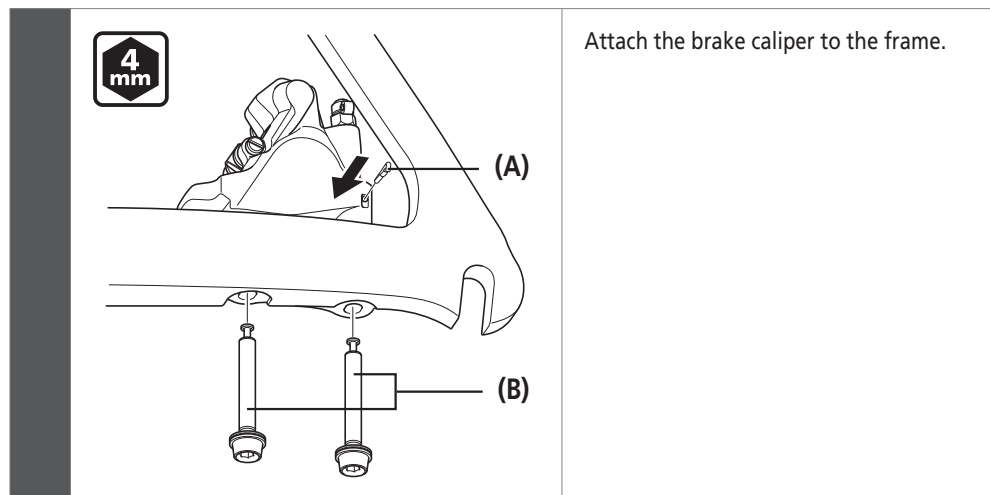


Snap ring

INSTALLATION

▶▶ Installing the brake caliper

When using a brake caliper mounting bolt C (140 mm disc brake rotor)



- (A) Bolt fixing pin
- (B) Brake caliper mounting bolt C

Tightening torque

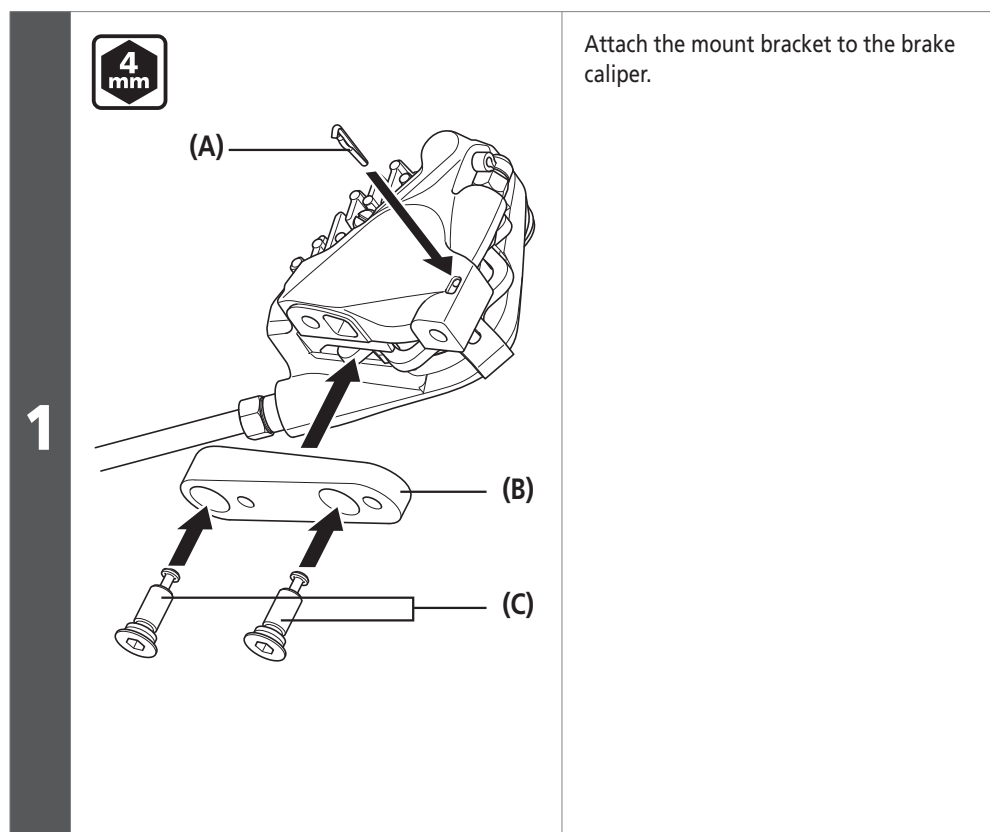


6 - 8 N·m

NOTICE

Be sure to attach the bolt fixing pin.

When using a brake caliper mounting bolt C (160 mm disc brake rotor)



- (A) Bolt fixing pin
- (B) Mount bracket
- (C) Brake caliper mounting bolt B

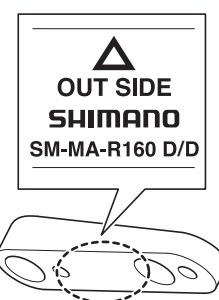
Tightening torque



6 - 8 N·m

NOTICE

- Be sure to attach the bolt fixing pin.
- Observe the direction indicated on the mount bracket when installing it.

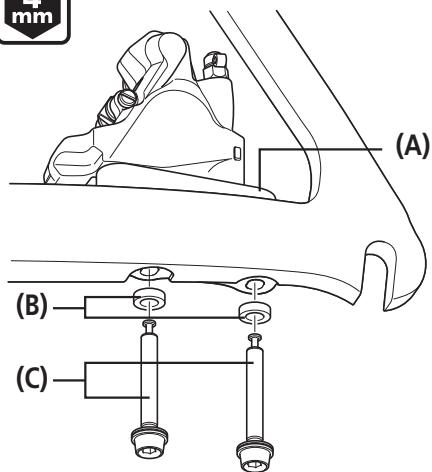


INSTALLATION

▶▶ Installing the brake caliper

2

4
mm



Attach the mount bracket to the frame.

- (A) Mount bracket
- (B) Washers
- (C) Brake caliper mounting bolt C

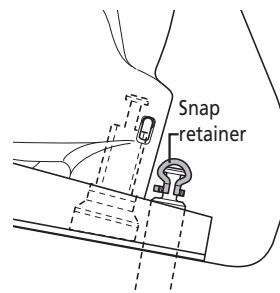
Tightening torque

4
mm

6 - 8 N·m

NOTICE

- Be sure to use the washers when installing the mount bracket.
- Be sure to attach a snap retainer when installing brake caliper mounting bolts C.



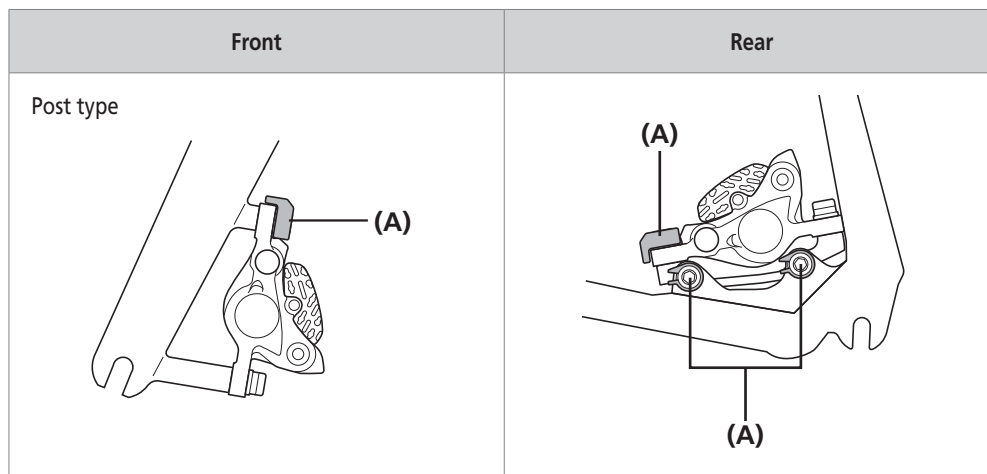
INSTALLATION

▶▶ Temporary tightening of the frame fixing bolts

■ Temporary tightening of the frame fixing bolts

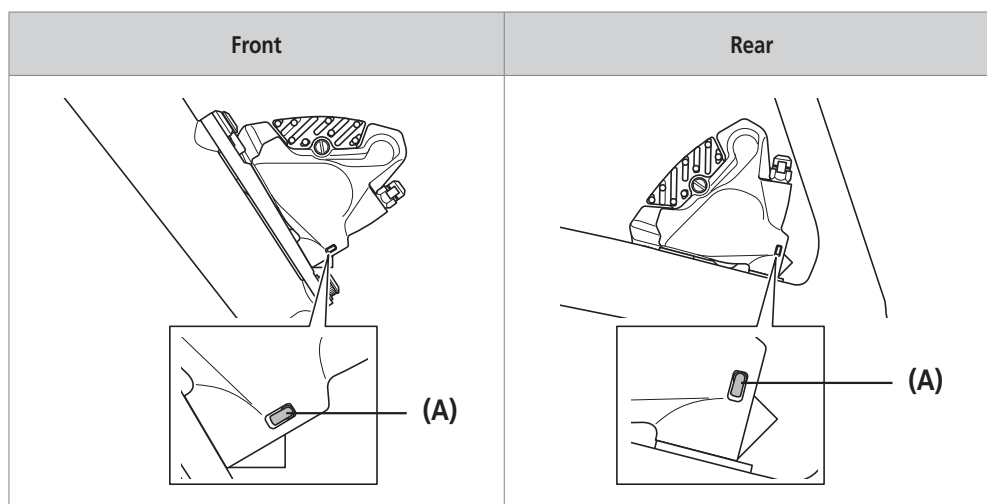
The snap ring method, the fixing pin insertion method, or the wiring method can be used to prevent loosening of the bolts. Choose whichever method is suitable for the model, front fork and frame.

Snap ring method



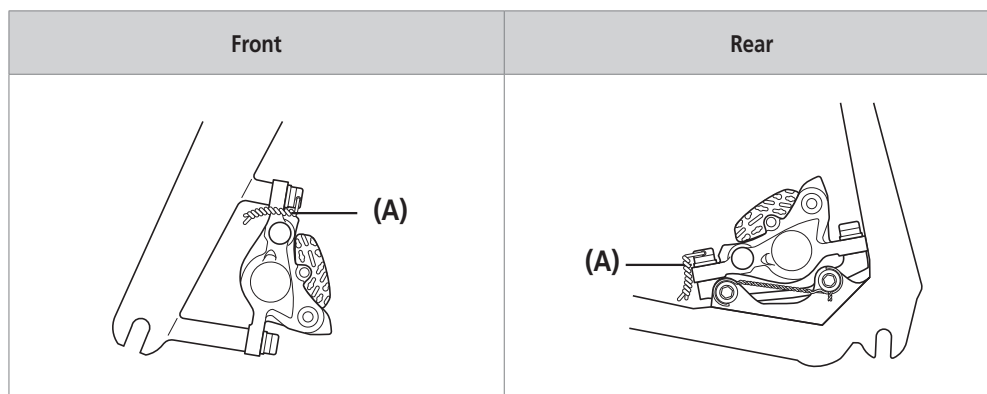
(A) Snap ring

Fixing pin insertion method



(A) Bolt fixing pin

Wiring method



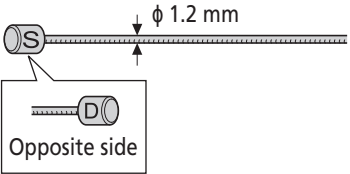
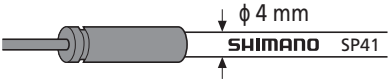
(A) Wire

INSTALLATION

▶▶ Installing the shifting cable

■ Installing the shifting cable

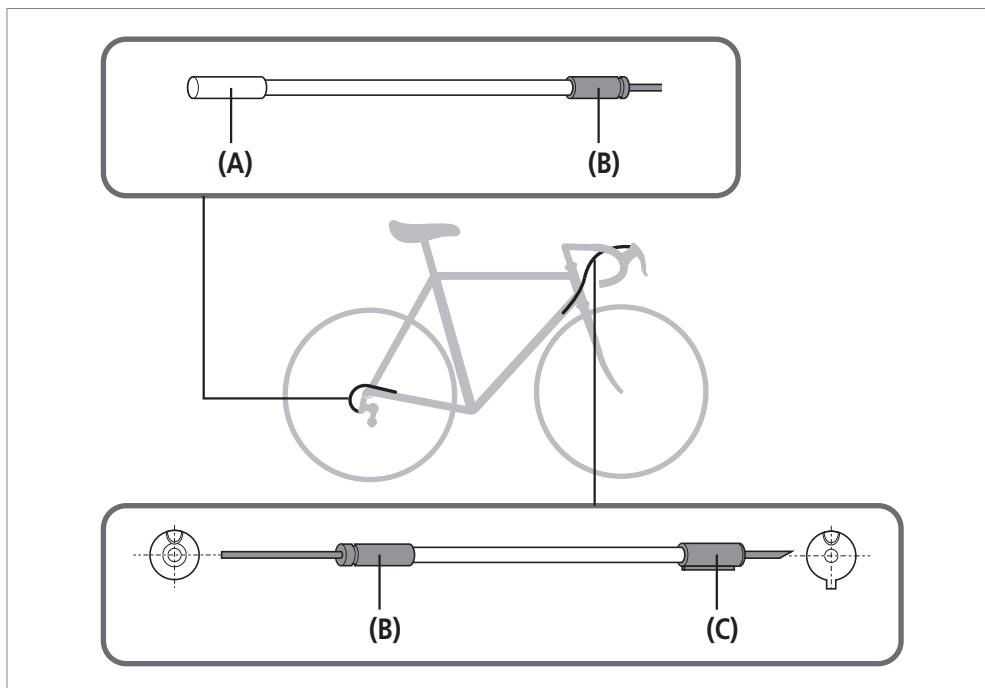
Cable used

Designated inner cable	Outer cap with tongue/ SP41 outer casing
	

NOTICE

Do not let dust adhere on the inner cable. If the grease on the inner cable is wiped off, the application of SIS SP41 grease (Y04180000) is recommended.

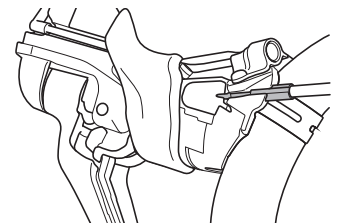
Outer cap with tongue installation position



- (A) Aluminum cap (derailleur side)
- (B) Cap with long tongue
- (C) Cap with short tongue (shifting lever side)

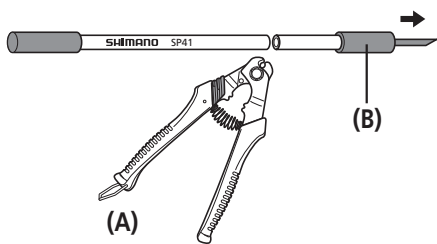
TECH TIPS

Be sure to insert the convex shape on the cap with short tongue into the groove in the bracket.



Cutting the outer casing

1



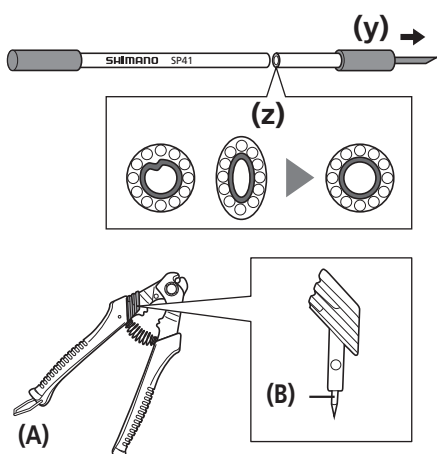
Use the cable cutter (TL-CT12) or an equivalent tool to cut the side opposite of the inscription.

- (A) TL-CT12
- (B) Outer cap with tongue

NOTICE

- Use a cable which still has some length to spare even when the handlebars are turned all the way to both sides.
- Be careful not to get your hand injured by the TL-CT12 needle section.

2

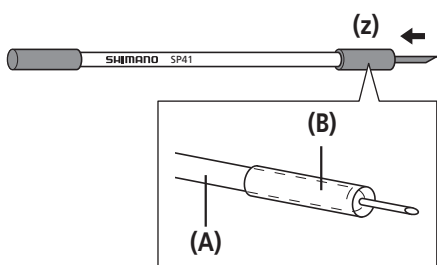


After cutting, expand the tip of the liner (ϕ 2.2 or more) with TL-CT12 or other narrow tool.

- (y) Removing the outer cap with tongue
- (z) Arrange the cut end into a perfect circle

- (A) TL-CT12
- (B) TL-CT12 needle

3



Insert the outer casing until it closely contacts with the end of the outer cap with tongue.

- (z) Install the outer cap with tongue

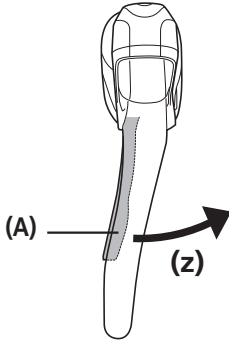
- (A) Outer casing
- (B) Outer cap with tongue

NOTICE

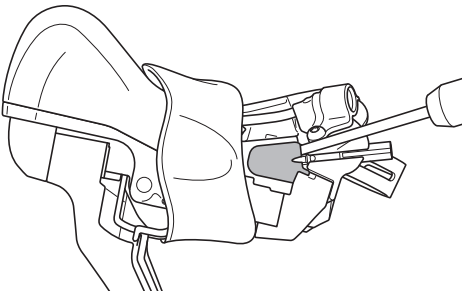
- Be careful not to crush the tip of the convex part of the outer cap with tongue when inserting the outer casing.

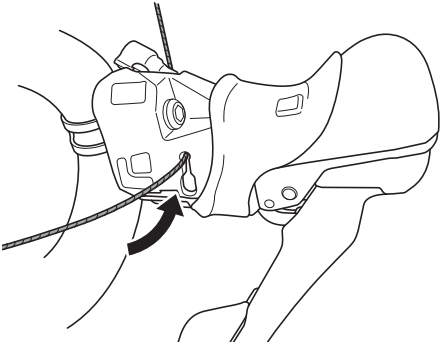
Passing through the shifting inner cable (ST-RS685)

The illustration shows the rear lever.

1		<p>Operate the release lever 10 or more times and set the lever to the top position.</p> <p>(z) Operate at least 10 times</p>
---	---	--

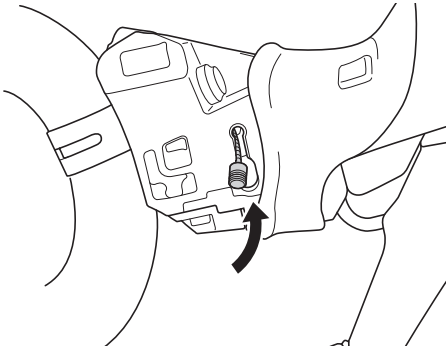
(A) Release lever

2		<p>Remove the cable cover from the bracket using a screwdriver.</p>
---	--	---

3		<p>Put the inner cable through as shown in the illustration.</p>
---	---	--

NOTICE

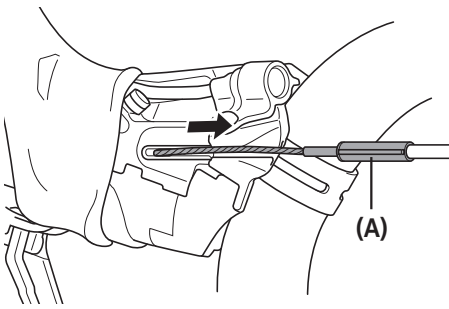
Insert the cable while being careful not to allow coating on the inner cable to be damaged.

4		<p>Insert the cable in such a manner that the inner end is housed in the unit.</p>
---	---	--

INSTALLATION

▶ Installing the shifting cable

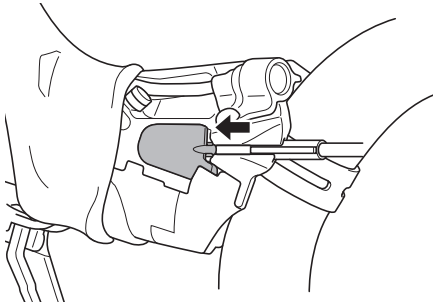
5



Put the inner cable through as shown in the illustration.

(A) Cap with short tongue

6



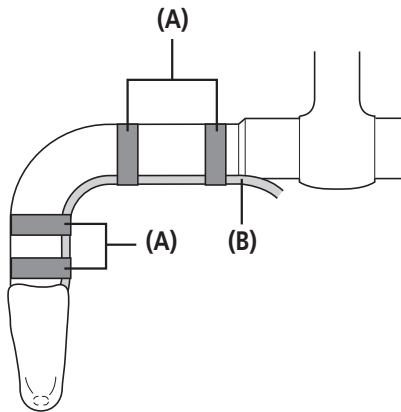
Finally, reinstall the cable cover.



TECH TIPS

When the inner cable is installed, coating may be damaged and become fluffy; however, it will not affect the function.

7



Temporarily secure the outer casing to the handlebar (by using tape or similar material).

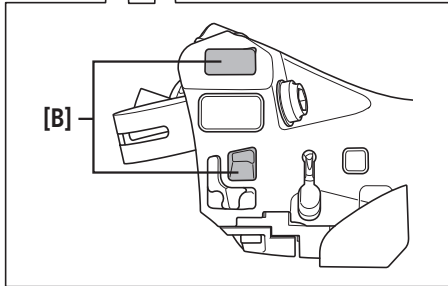
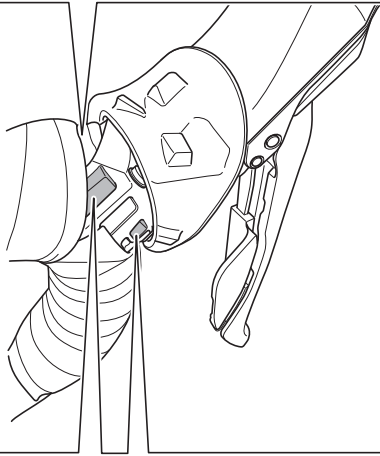
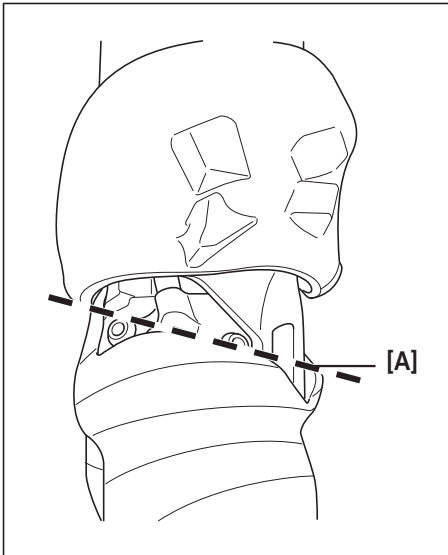
(A) Tape

(B) Outer casing

INSTALLATION

▶▶ Installing the shifting cable

8



Wrap the handlebar tape so that the bracket cover protrusion fits into the bracket, as shown in the figure.

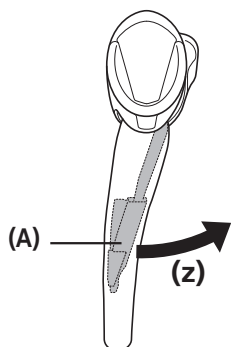
Do not wrap the handlebar tape further than part [A].

Do not wrap the handlebar tape around part [B].

Passing through the shifting inner cable (ST-RS505)

The illustration shows the rear lever.

1

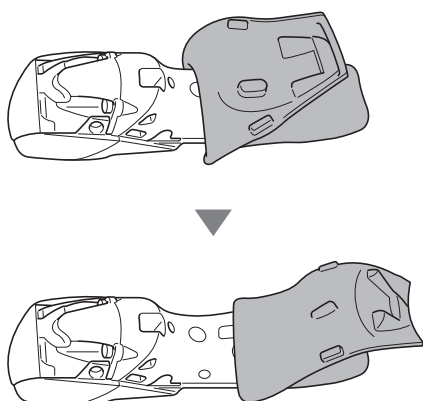


Operate the release lever 10 or more times and set the lever to the top position.

(z) Operate at least 10 times

(A) Release lever

2



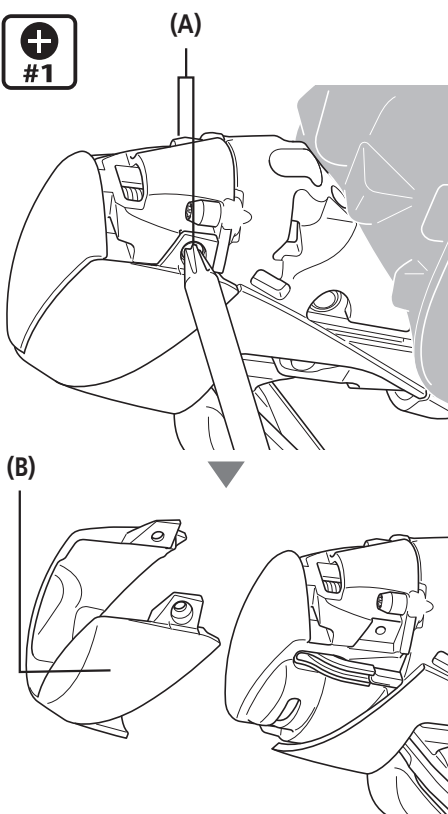
Turn over the bracket cover from the front side.

Gently turn over the ends of the bracket cover with both hands and slowly push them down.

NOTICE

Forcibly pulling it may cause damage to the bracket cover because of its material properties.

3



Loosen the screws (2 places) and remove the nameplate.

(A) Screw

(B) Name plate

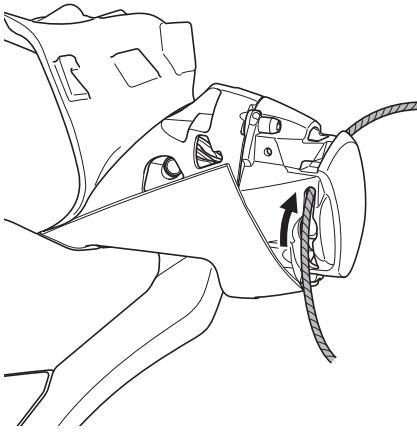
NOTICE

As the screws are small, be careful not to drop them.

INSTALLATION

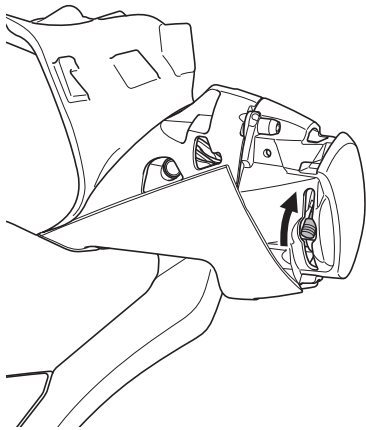
▶▶ Installing the shifting cable

4



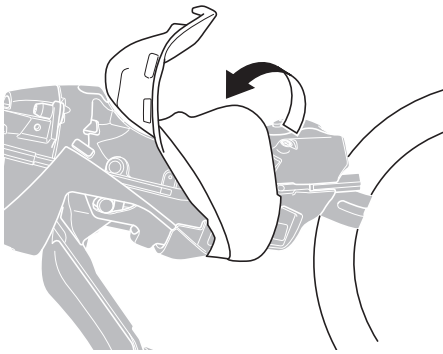
Put the inner cable through as shown in the illustration.

5



Insert the cable in such a manner that the inner end is housed in the unit.

6



Turn over the bracket cover from the back side.

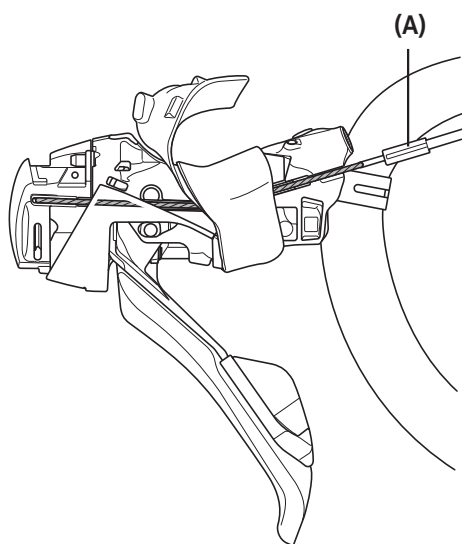
NOTICE

Insert the cable while being careful not to allow coating on the inner cable to be damaged.

INSTALLATION

▶▶ Installing the shifting cable

7

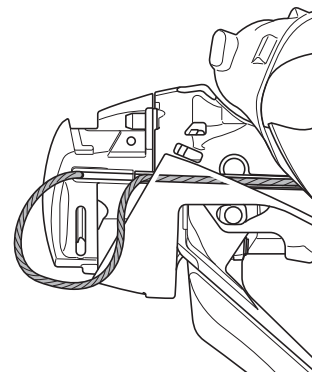


Put the inner cable through as shown in the illustration.

(A) Cap with short tongue

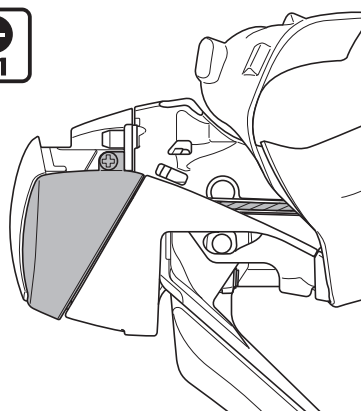
NOTICE

- Make sure not to leave a crease by bending the inner cable.



- When the inner cable is installed, coating may be damaged and become fluffy; however, it will not affect the function.

8



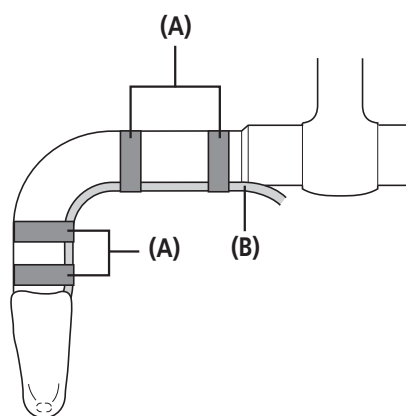
Lastly, install the nameplate.

Tightening torque



0.1 - 0.15 N·m

9



Temporarily secure the outer casing to the handlebar (by using tape or similar material).

(A) Tape

(B) Outer casing

10

Lastly, return the bracket cover to its original position.

* For details on installing the bracket cover, refer to "Replacing the bracket cover".

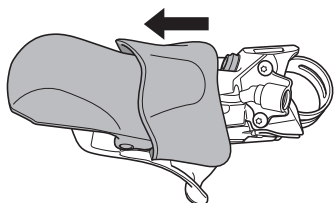
ADJUSTMENT

ADJUSTMENT

■ Free stroke and reach adjustment

ST-RS685

1

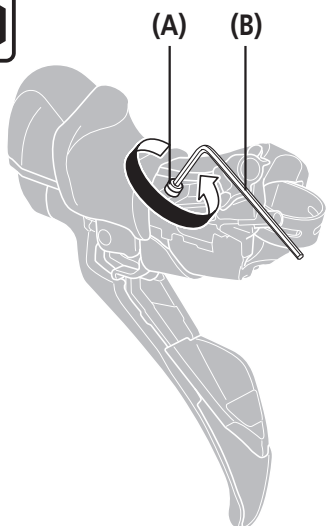


Turn over the bracket cover from the back side.



When adjusting only the reach, perform step 3.

2



Turn the free stroke adjustment screw to adjust the stroke.

Turning in the direction shown in the illustration increases the free stroke.

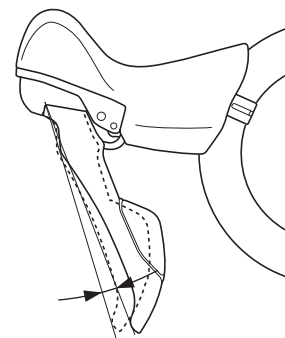
- (A) Free stroke adjustment screw
- (B) 2 mm hexagon wrench

NOTICE

- Stop loosening the free stroke adjustment screw when the free stroke stops increasing. Loosening the free stroke adjustment screw excessively may cause the screw to be removed from the bracket unit. Do not forcibly tighten the free stroke adjustment screw. Otherwise, the adjustment screw may be damaged.
- Do not remove the washer from the free stroke adjustment screw.
- Position the free stroke adjustment screw so that it does not interfere with the bracket cover.



The lever has a 2.5 mm adjustable area in free stroke at the point 25.4 mm (1 inch) from the tip.



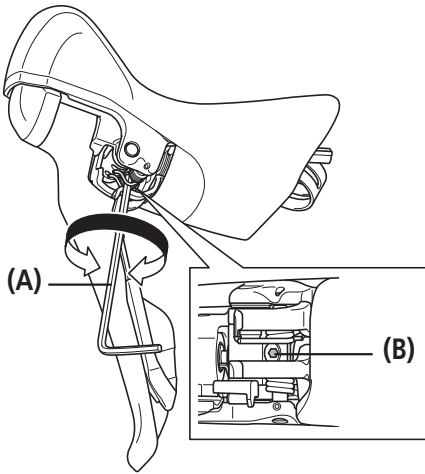
Adjustable range: 2.5 mm

ADJUSTMENT

► Free stroke and reach adjustment

3

2
mm



Turn the reach adjustment screw to position the lever unit.

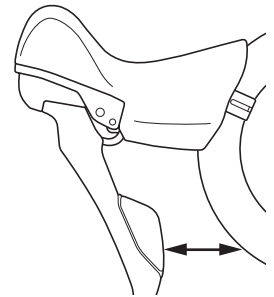
- (A) 2 mm hexagon wrench
- (B) Reach adjustment screw

NOTICE

- Make sure that the braking operates after the adjustment.
- Stop tightening the reach adjustment screw when you feel no more click. Observe the tightening torque upper limit (1 N·m). The adjustable area may be damaged.

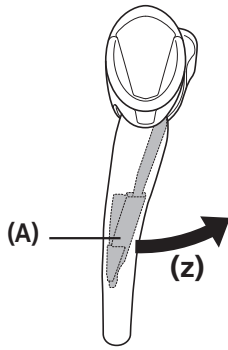


Clockwise: The grip width becomes wider
Counterclockwise: The grip width becomes narrower



ST-RS505

1



Operate the release lever 10 or more times and set the lever to the top position.

(z) Operate at least 10 times

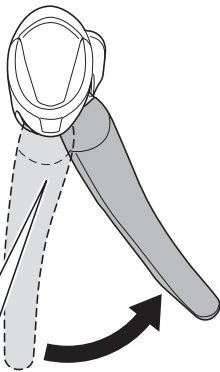
(A) Release lever



When adjusting only the reach, perform step 3.

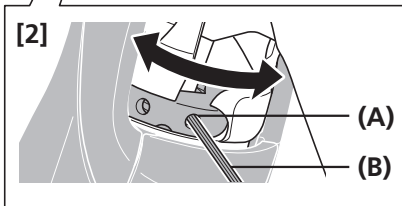
2

[1]



Move the main lever inward, as shown in illustration [1], to uncover the free stroke adjustment holes.

[2]



The free stroke can be adjusted by inserting a hexagon wrench or similar tool into one of the free stroke adjustment holes and moving the tool, as shown in illustration [2]. (Moving the hexagon wrench or similar tool in the direction indicated in illustration [3] increases the free stroke.)

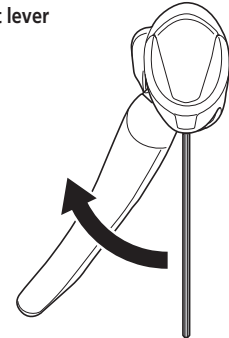
(A) Free stroke adjustment hole

(B) 2 mm hexagon wrench or similar tool



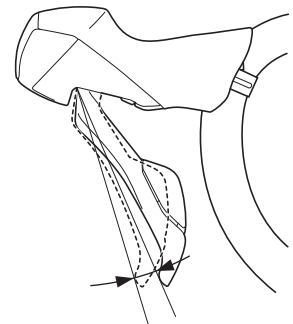
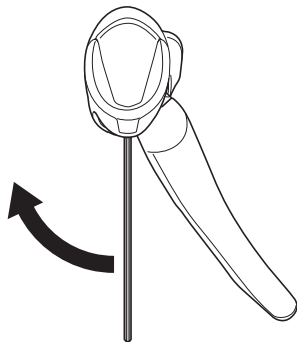
- Illustration [3] is of the right lever, however, moving a tool inserted into the left lever in the same direction also increases the free stroke for the left lever.

Left lever



- The lever has a 8 mm adjustable area in free stroke at the point 25.4 mm (1 inch) from the tip.

[3]

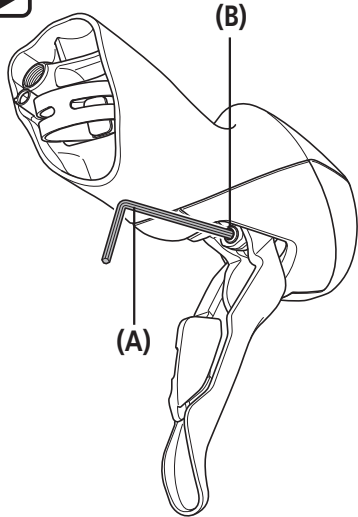


Adjustable range: 8 mm

ADJUSTMENT

► Free stroke and reach adjustment

3



Turn the reach adjustment screw to position the lever unit.

- (A) 2 mm hexagon wrench
- (B) Reach adjustment screw

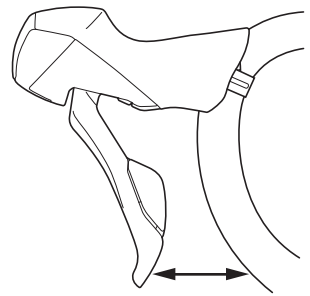
NOTICE

- Make sure that the braking operates after the adjustment.
- Observe the tightening torque upper limit (0.8 N·m).
The adjustable area may be damaged.



TECH TIPS

Clockwise: The grip width becomes wider
Counterclockwise: The grip width becomes narrower



MAINTENANCE

MAINTENANCE

■ Replacing the brake pads

1	<p>BR-RS785</p>	<p>Remove the wheel from the frame, and remove the brake pads as shown in the illustration.</p>
	<p>BR-RS805/RS505</p>	<p>Remove the wheel from the frame, and remove the brake pads as shown in the illustration.</p>

- (A)** Brake pads
- (B)** Snap retainer

NOTICE

- This brake system is designed to automatically adjust the clearance between the disc brake rotor and the brake pads by the piston gradually protruding according to the wear of the brake pads. When you replace the brake pads, you need to push back the piston.
- If oil adheres to the brake pads after oil is added, or if the brake pads are worn down to a thickness of 0.5 mm, or if the brake pad presser springs are interfering with the disc brake rotor, replace the brake pads.
- The brake pads in the BR-RS785 and BR-RS805/RS505 are not compatible. Use a compatible brake pad when replacing it.
- When using a pad with fins, take note of the left (L) and right (R) markings to set it.

2 Clean the pistons and surrounding area.

3		<p>Use a flat-shaped tool to push the pistons straight back in as far as they will go, while being careful not to twist the pistons.</p> <p>Do not push the pistons with a sharp tool.</p> <p>The pistons may be damaged.</p>
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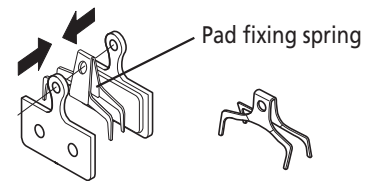
- (A)** Piston

<p>4</p>	<p>BR-RS785</p>	<p>Install the new brake pads, the bolt, and the pad spacer (red). At this point, make sure to install the snap retainer as well.</p>
<p>4</p>	<p>BR-RS805/RS505</p>	<p>Install the new brake pads, the bolt, and the pad spacer (red). At this point, make sure to install the snap retainer as well.</p>

- (A) Brake pads
- (B) Snap retainer
- (C) Pad axle
- (D) Pad spacer (red)

Tightening torque	
	<p>0.1 - 0.3 N·m</p>

TECH TIPS



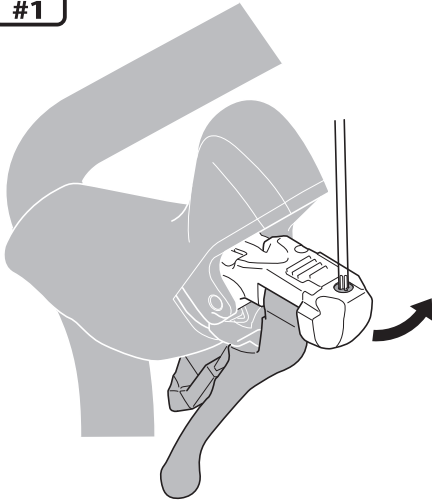
Install the pad fixing spring as shown in the illustration. (The spring of the BR-RS785 has markings on the left side (L) and the right side (R).)

5 Depress the brake lever several times to check that the operation becomes stiff.

6 Remove the pad spacer, install the wheel, and then check that there is no interference between the disc brake rotor and caliper. If they are touching, adjust in accordance with section "Installing the brake caliper".

■ Replacement of the nameplate

ST-RS685



A screw is exposed if the brake is operated while performing shifting operation.

Remove the screws and then replace the nameplate.

Tightening torque

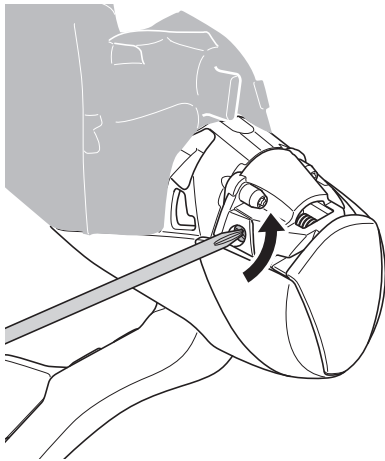


0.15 - 0.2 N·m

NOTICE

As the screws are small, be careful not to drop them.

ST-RS505



Turn over the bracket cover to expose the screws.

Remove the screws and then replace the nameplate.

Tightening torque



0.1 - 0.15 N·m

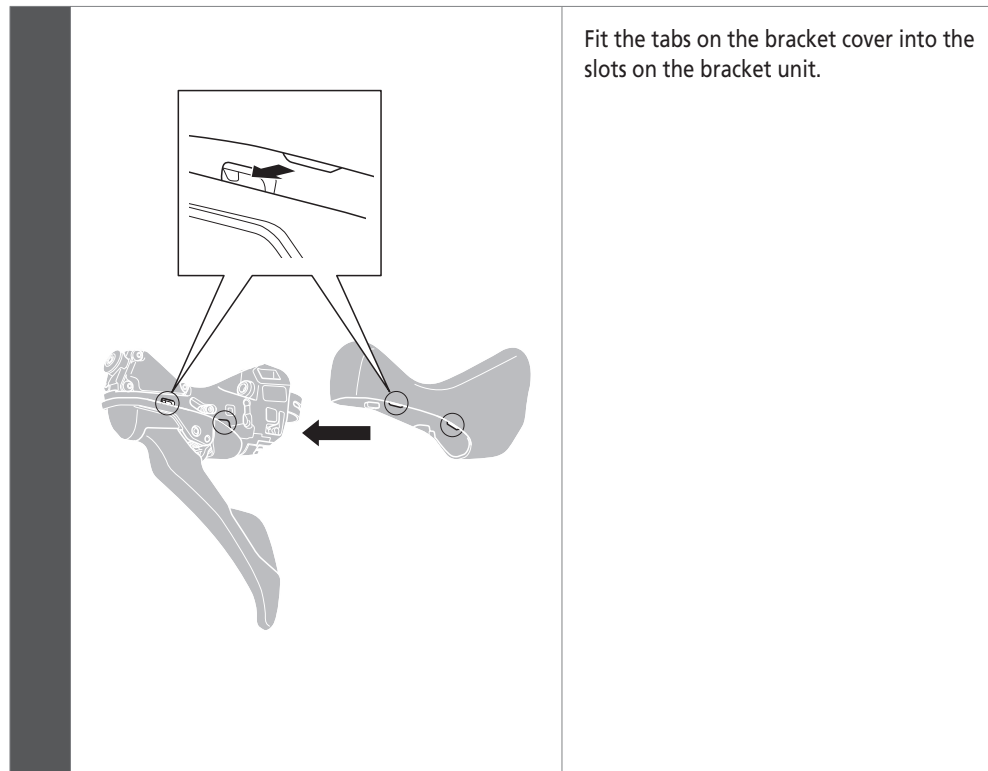
■ Shimano genuine mineral oil replacement

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

After attaching the bag and tube to the bleed nipple, open the bleed nipple and drain the oil. At this time, operate the dual control lever to make draining the oil easier. After draining the oil, refer to "Adding Shimano genuine mineral oil and bleeding air", then lubricate with oil from a newly opened container. Use only Shimano genuine mineral oil.

When disposing of used oil, follow local county and/or state codes and ordinances.

■ Replacing the bracket cover

ST-RS685

Fit the tabs on the bracket cover into the slots on the bracket unit.

NOTICE**Note the markings**

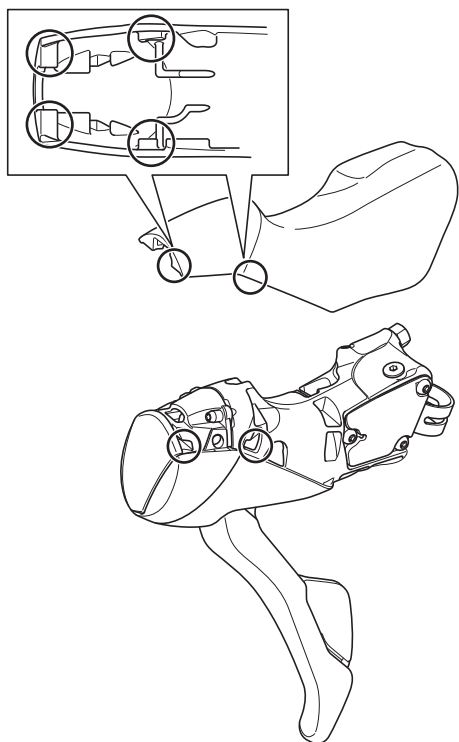
R: for right
L: for left

- The markings can be found on the inner surface of the bracket cover.
- Replace the bracket cover with the dual control lever and brake hose removed from the bicycle as shown in the illustration. Alternatively, remove the brake caliper from the frame and pass the bracket cover from the caliper side.
- Perform bleeding after removing the brake hose.

TECH TIPS

- Wipe a little rubbing alcohol inside the bracket cover to make fitting it easier.
- The tabs on the bracket cover each fit to a matching slot on the bracket.

ST-RS505



Fit the tabs on the bracket cover into the slots on the bracket unit.

NOTICE

Note the markings
R: for right
L: for left

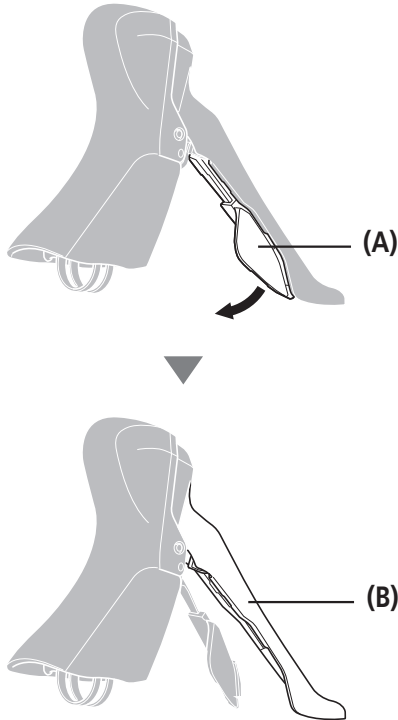
- The markings can be found on the inner surface of the bracket cover.
- Always replace the bracket cover with the dual control lever and brake hose removed from the bicycle as shown in the illustration.
- Perform bleeding after removing the brake hose.
- Be careful not to let oil adhere to the bracket cover.

 **TECH TIPS**

- Wipe a little rubbing alcohol inside the bracket cover to make fitting it easier.
- The tabs on the bracket cover each fit to a matching slot on the bracket.

■ Replacing the main lever support

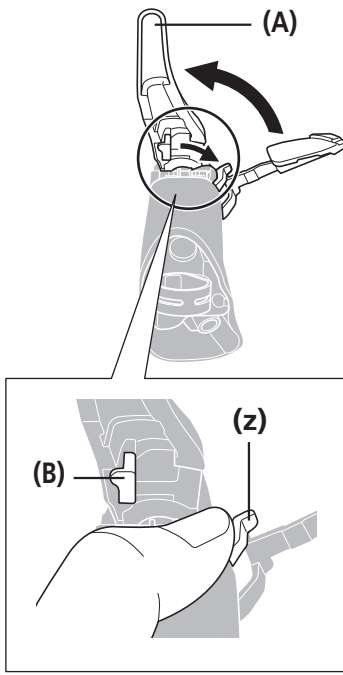
1



Operate the release lever 2 or more times, and then shift the main lever by 2 gears.

(A) Release lever
(B) Main lever

2

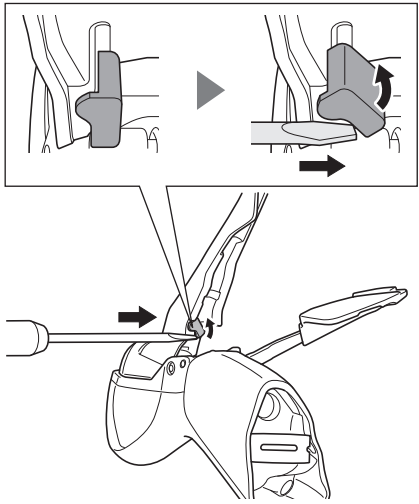


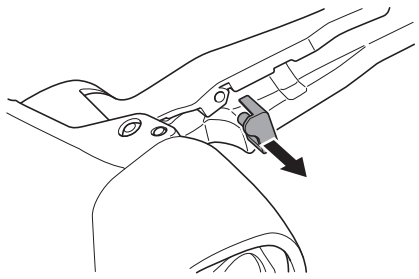
Hold the base of the main lever with the hands and then return only the main lever to the original position.

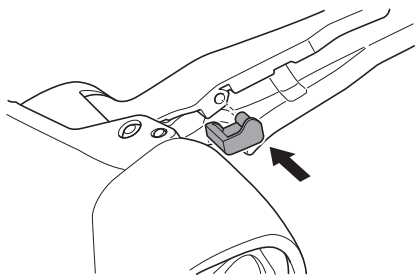
(z) Hold with fingers.

(A) Main lever
(B) Main lever support

▶▶ Replacing the main lever support

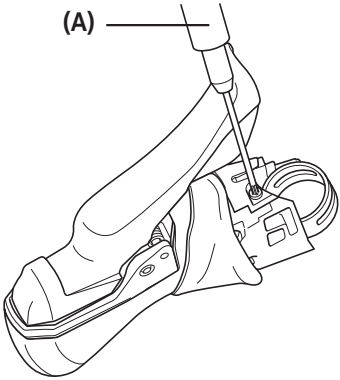
<p>3</p>		<p>Rotate the main lever support in the direction of the arrow with a slotted screwdriver or an equivalent tool, and then remove the stopper.</p>
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<p>4</p>		<p>Pull out the main lever support.</p>
-----------------	--	---

<p>5</p>		<p>Insert a new main lever support.</p>
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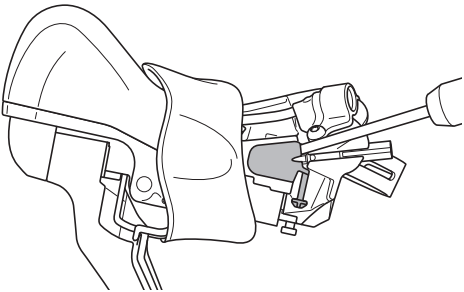
■ Replacing the cable cover

1



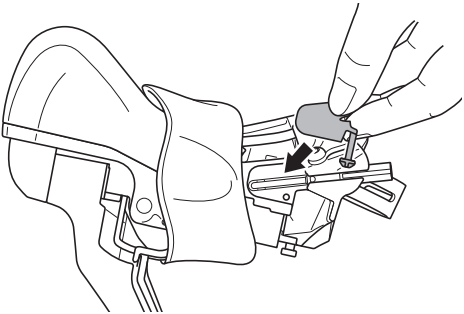
Remove the screws located at the bottom of the bracket, and then remove the lower cover.

2



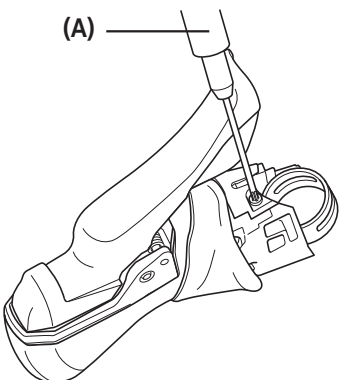
Remove the cable cover from the bracket using a screwdriver.

3



Install a new cable cover.

4

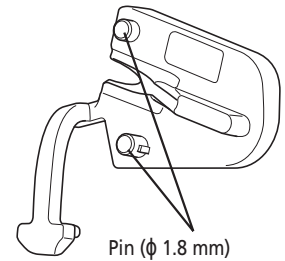


Install the lower cover to the bracket.

(A) Screwdriver #1

 **TECH TIPS**

Insert the pins on the back of the cable cover into the holes in the bracket.



(A) Screwdriver #1

■ How to pull out a disconnected inner end (shifting cable)

ST-RS685

If it is hard to pull out the inner end, follow the procedure below to pull out the inner end.

1

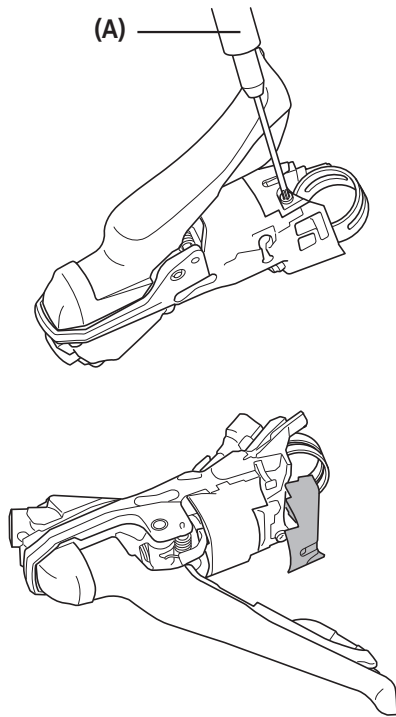
Remove the lever from the handle, and then remove the bracket cover.



TECH TIPS

In order to maintain smooth shifting, it is recommended to also replace the cable guide when replacing a disconnected inner cable.

2



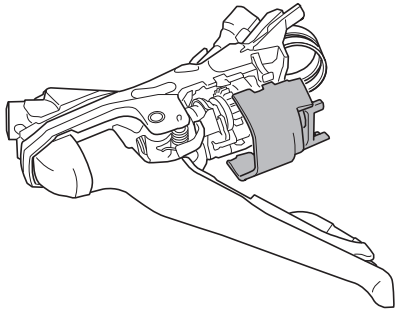
Remove the screws located at the bottom of the bracket, and then remove the two covers (unit cover and lower cover).

(A) Screwdriver #1

MAINTENANCE

▶▶ How to pull out a disconnected inner end (shifting cable)

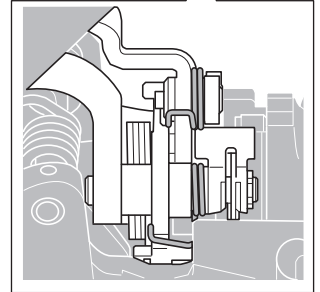
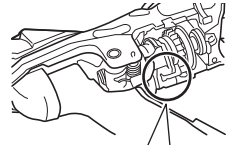
3



Pull out the inner end stayed on the cable hook of the winding body.

NOTICE

At this point, be careful not to touch the spring accidentally. Doing so could cause a functional trouble.



4

Restore the two covers and then tighten the screws.

Tightening torque



0.2 - 0.25 N·m

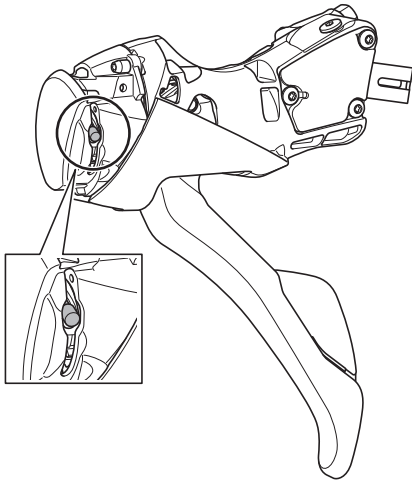
ST-RS505

If it is hard to pull out the inner end, follow the procedure below to pull out the inner end.

1

Turn over the bracket cover from the front side and remove the nameplate.

2



Pull out the inner end stayed on the cable hook of the winding body.

3

Install the nameplate and return the bracket cover to its original position.



TECH TIPS

In order to maintain smooth shifting, it is recommended to also replace the cable guide when replacing the disconnected inner cable.

Tightening torque



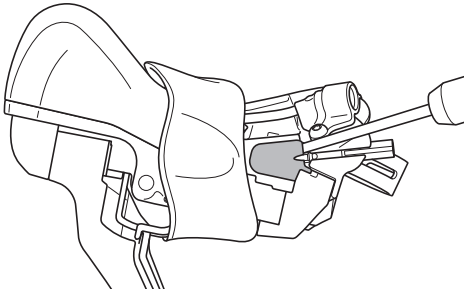
0.1 - 0.15 N·m

■ Replacement of the SL cable guide

ST-RS685

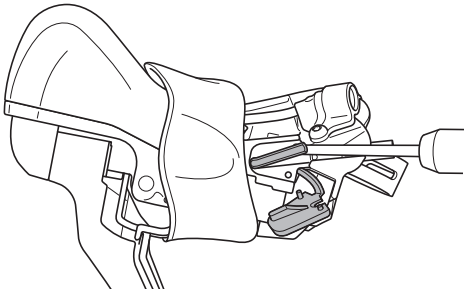
1 Remove the lever from the handle, and then remove the bracket cover.

2



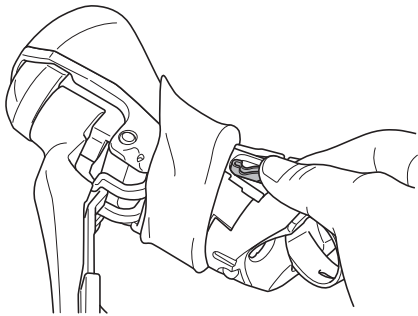
Remove the cable cover from the bracket using a screwdriver.

3



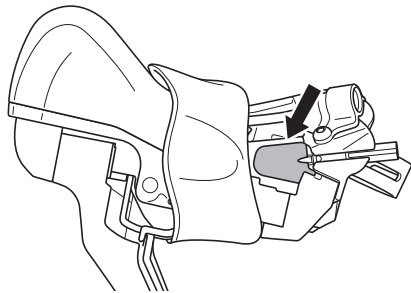
Use a pointed tool to pry out the SL cable guide.

4



Push in the new cable guide with hands.

5

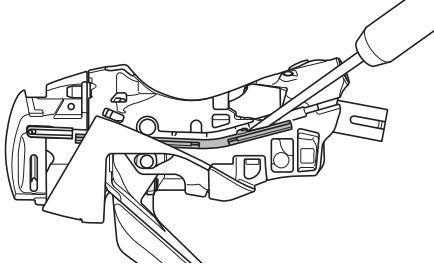


Install the cable cover.

ST-RS505

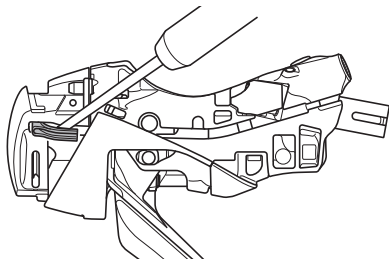
1 Remove the lever from the handle, and then remove the bracket cover, nameplate and the bracket cover block.

2



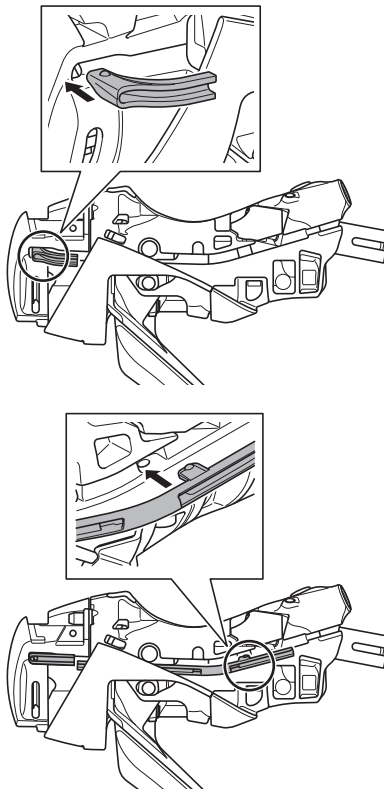
Remove cable guide B using a screwdriver.

3



Remove cable guide A using a screwdriver.

4



Push in the new cable guides A and B by hand.

5

Install the bracket cover block, nameplate, and bracket cover.
* For details on installing the bracket cover, refer to "Replacing the bracket cover".

SHIMANO

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

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