

Dealer's Manual

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

Cantilever Brake

- BR-CX70
- BR-CX50
- BL-4700
- BL-4600
- BL-R780
- BL-R3000
- ST-7900
- ST-6700
- ST-5700
- ST-4600

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## IMPORTANT NOTICE

- This dealer's manual is intended primarily for use by professional bicycle mechanics.

Users who are not professionally trained for bicycle assembly should not attempt to install the components themselves using the dealer's manuals. If any part of the information on the manual is unclear to you, do not proceed with the installation. Instead, contact your place of purchase or a 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(<http://si.shimano.com>).
- 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 to use genuine Shimano parts only. 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:**

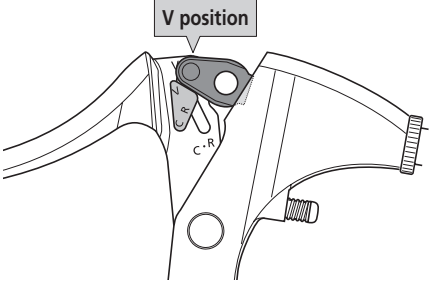
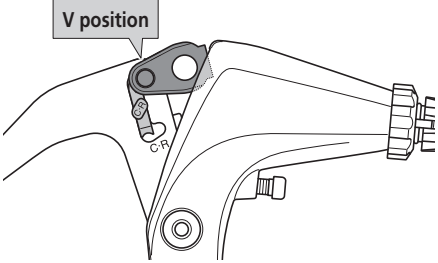
- Each bicycle may handle differently depending on the product. Therefore, it is important to completely understand and get used to the operation of your bicycle's brake system (including brake lever pressure and bicycle control characteristics). Improper use of your bicycle's brake system may result in a loss of control or a fall, which could lead to severe injury. For proper operation please consult a professional bicycle dealer, or read the owner's manual. It is important to ride your bicycle and practice braking operation and other basic features, etc.
- 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 tires skid, you may fall off the bicycle. To avoid this, reduce your speed and apply the brakes early and gently.
- Be careful not to allow any oil or grease to get onto the brake shoes. If any oil or grease does get on the shoes, contact the place of purchase or a bicycle dealer. Otherwise the brakes may not work correctly.
- Check the brake cable for rust, fraying, and cracks, and contact the place of purchase or a bicycle dealer if any such problems are found. Otherwise, the brakes may not work correctly.
- Because of the characteristics of the carbon fiber material, you must never modify the levers, otherwise the lever may break and the brakes may no longer work as a result.
- Check before riding that there is no damage such as carbon separation or cracking. If there is any damage, stop using the bicycle and contact the place of purchase or a bicycle dealer. Otherwise, the lever may break, and braking may become disabled.
- Brakes designed for use as rear brakes should not be used as front brakes.

For Installation to the Bicycle, and Maintenance:

■ BL-4700/4600/R780/R3000

- The brake levers are equipped with a mode switching mechanism to make them compatible with V-BRAKE brakes, caliper brakes, cantilever brakes and road mechanical disc brakes.
  - \* The mode switching mechanism differs depending on the model. Refer to page 10 for details on the mode switching method.
- If the incorrect mode is selected it may cause either excessive or insufficient braking force to occur, which could result in dangerous accidents. Be sure to select the mode in accordance with the instructions given in the mode switching table.

Mode switching table

Mode position	Applicable brake
<div></div>	<ul style="list-style-type: none"><li>• V-BRAKE</li></ul>
<div></div>	<ul style="list-style-type: none"><li>• Caliper brakes</li><li>• Cantilever brakes</li><li>• Road mechanical disc brakes</li></ul> <p>Please use BR-CX70 and CX50 in this mode.</p>

- Refer to page 10 for details on the mode switching method.

NOTE

**Be sure to also inform users of the following:**








- When combined with a ceramic rim, Shimano standard brake shoes wear down more quickly.
- If the brake shoes have worn down until the grooves are no longer visible, consult a dealer or an agency.
- Different brake shoes have their own characteristics. Ask the dealer or the agency for details when purchasing the brake shoes.
- 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.

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

## **LIST OF TOOLS TO BE USED**

## LIST OF TOOLS TO BE USED

The following tools are required to assemble the product.

	Tool		Where to use
BR-CX70 BR-CX50		5 mm Hexagon wrench	<ul style="list-style-type: none"> <li>• Main unit mounting bolt</li> <li>• Cable mounting bolt</li> </ul>
		4 mm Hexagon wrench	<ul style="list-style-type: none"> <li>• Shoe holder mounting bolt</li> </ul>
		Screwdriver[#2]	<ul style="list-style-type: none"> <li>• Spring adjusting screw</li> </ul>
BL-4700 BL-4600 BL-R780 BL-R3000		4 mm Hexagon wrench	<ul style="list-style-type: none"> <li>• Clamp bolt</li> </ul>
		2 mm Hexagon wrench	<ul style="list-style-type: none"> <li>• Reach adjustment bolt</li> </ul>
		Screwdriver[#1]	<ul style="list-style-type: none"> <li>• Adjustment block mounting screw</li> </ul>
ST-7900 ST-6700 ST-5700 ST-4600		5 mm Hexagon wrench	<ul style="list-style-type: none"> <li>• Clamp bolt</li> </ul>



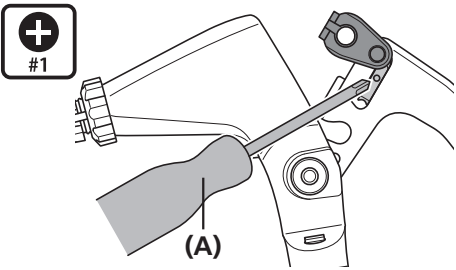
# INSTALLATION

INSTALLATION

■ Mode switching

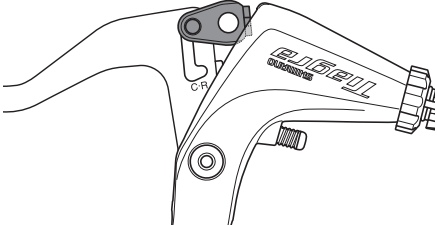
- \* The mode switching mechanism differs depending on the model.  
Refer to the mode switching table.
- \* If the cable hook is in the V position, use the following procedure to switch modes.
- \* This operation is not necessary if the cable hook is in the C/R position.

1



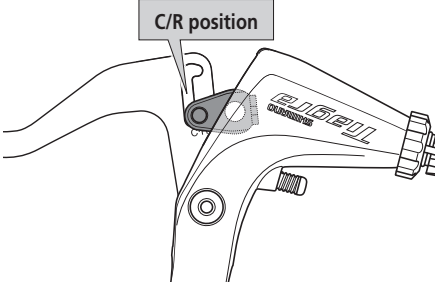
Use the screwdriver #1 to loosen the screw.

2



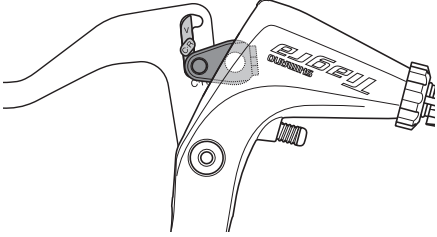
Manually remove the adjustment block from the front side.

3



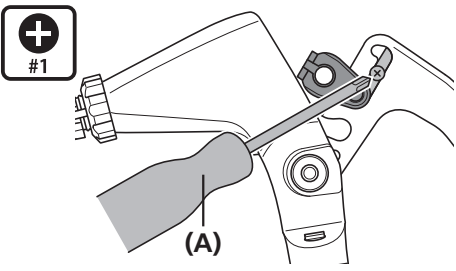
Align the cable hook with the C/R position.

4



Install the adjustment block from the front side.

5



Use the screwdriver #1 to tighten the screw from the rear side.

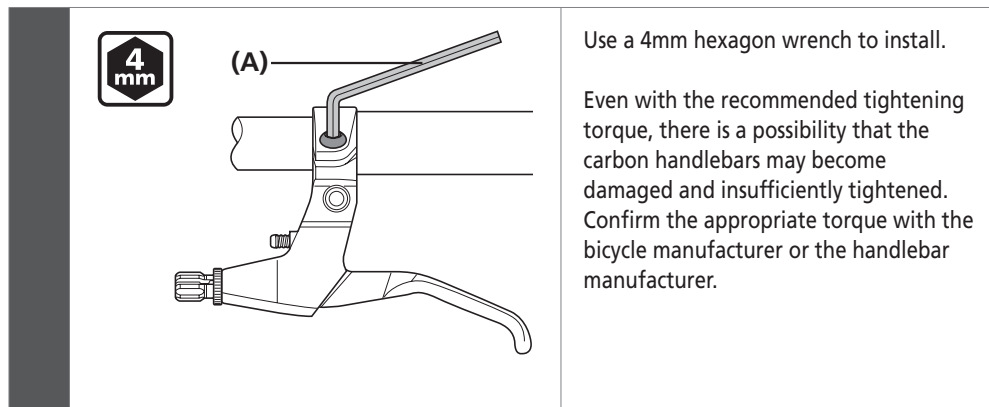
(A) Screwdriver[#1]

Tightening torque	
	0.2 N·m

## INSTALLATION

►► Installation of the brake lever (BL-4700/4600/R780/R3000)

### ■ Installation of the brake lever (BL-4700/4600/R780/R3000)



(A) 4 mm hexagon wrench

#### NOTE

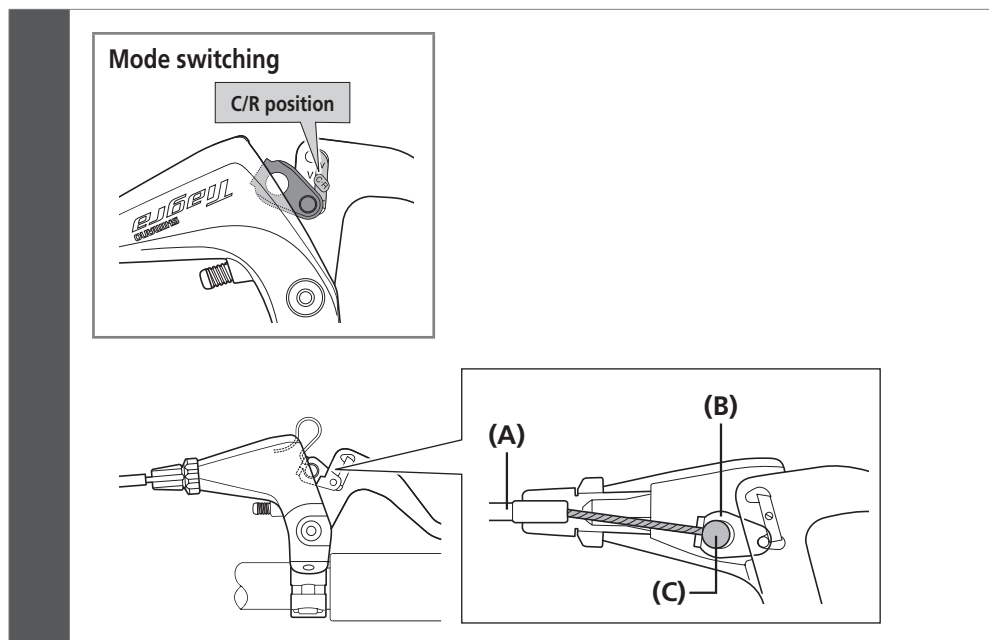
Use a handlebar grip with a maximum outer diameter of  $\Phi$  32 mm.

#### Tightening torque



6 - 8 N·m

### ■ Installation of the brake cable (BL-4700/4600/R780/R3000)



(A) Outer casing

(B) Cable hook

(C) Inner cable drum

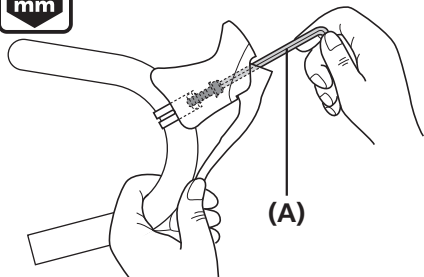
#### NOTE

Cut the cable to a length at which it has some length to spare even when the handlebars are turned all the way to both sides.

## INSTALLATION

►► Installation of the dual control lever (ST-7900/6700/5700/4600)

### ■ Installation of the dual control lever (ST-7900/6700/5700/4600)



Use a 5 mm hexagon wrench to install.

Even with the recommended tightening torque, there is a possibility that the carbon handlebars may become damaged and insufficiently tightened. Confirm the appropriate torque with the bicycle manufacturer or the handlebar manufacturer.

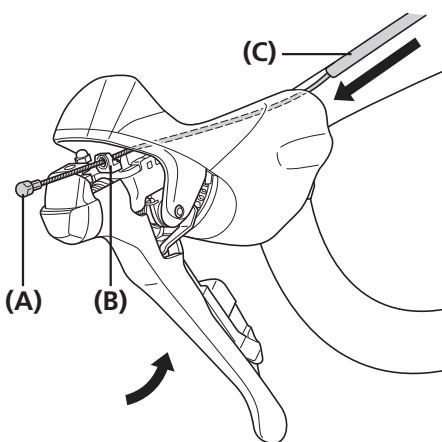
(A) 5 mm hexagon wrench

#### Tightening torque



6 - 8 N·m

### ■ Installation of the brake cable (ST-7900/6700/5700/4600)

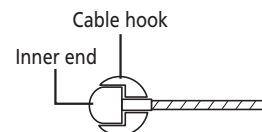


Depress the lever as if to brake and pass the brake cable through.

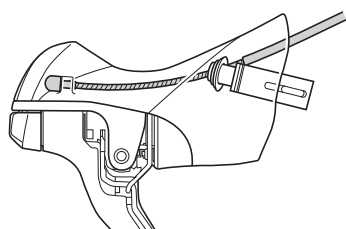
- (A) Inner end
- (B) Cable hook
- (C) Outer casing

#### NOTE

Make sure that the inner end is firmly set in the cable hook.



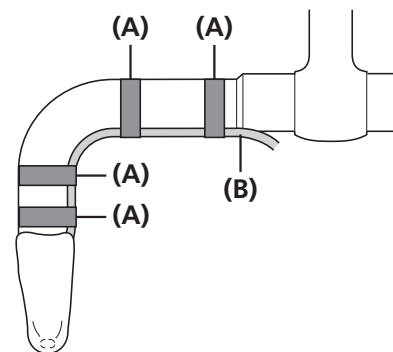
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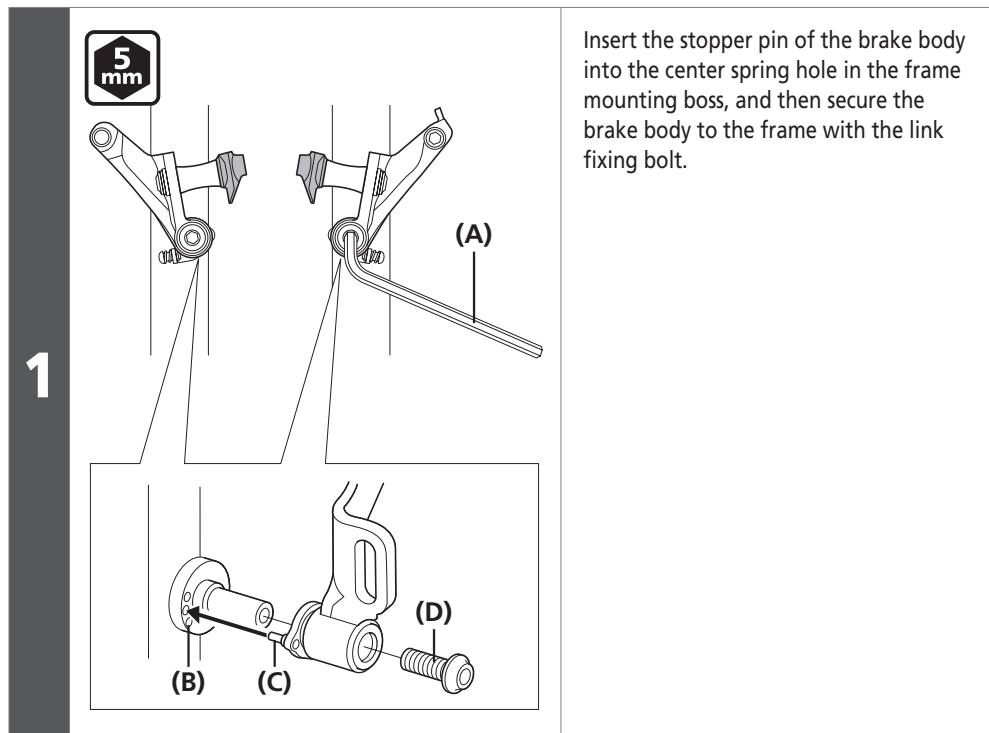
Temporarily secure the outer casing to the handlebar (by using tape or a similar material).

- (A) Tape
- (B) Outer casing

2



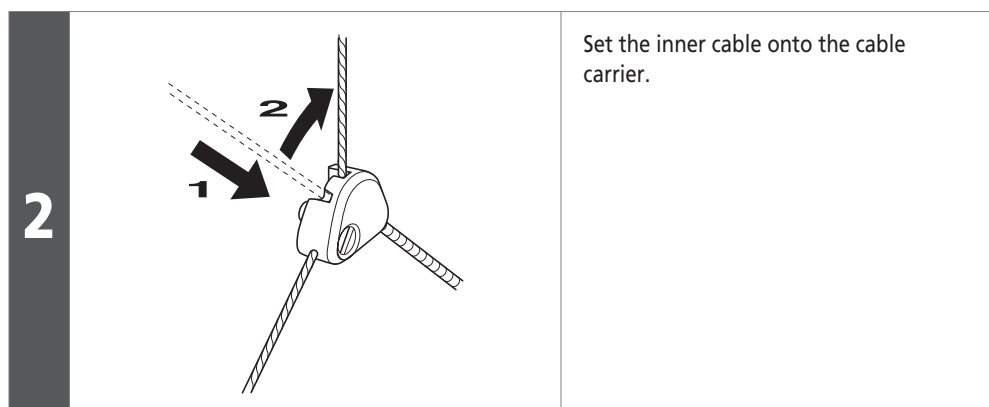
## ■ Installation of the cantilever brake



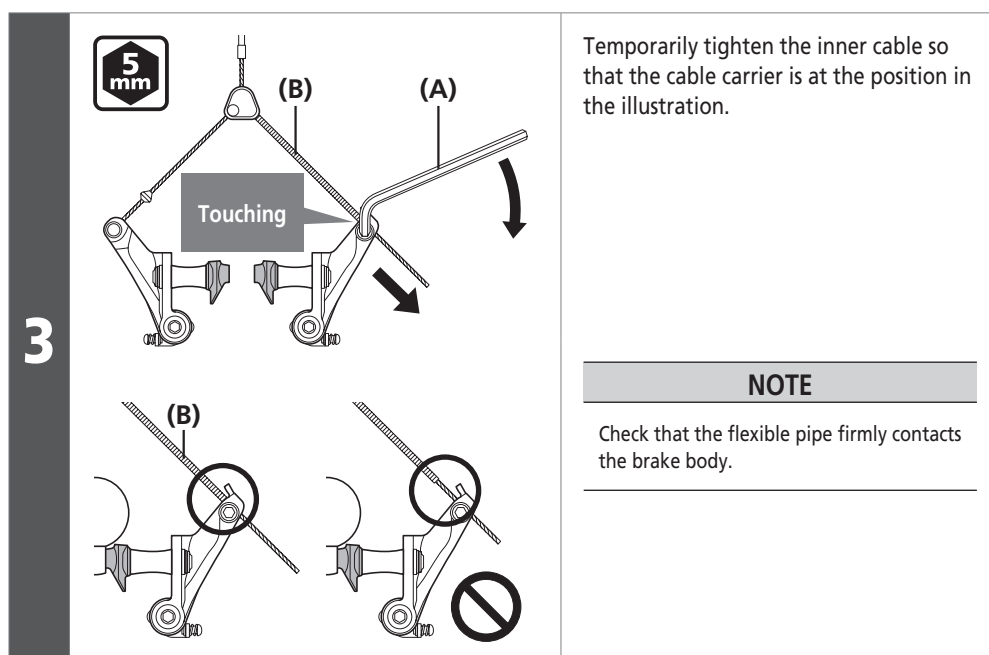
Insert the stopper pin of the brake body into the center spring hole in the frame mounting boss, and then secure the brake body to the frame with the link fixing bolt.

- (A) 5 mm Hexagon wrench
- (B) Spring hole
- (C) Stopper pin
- (D) Link fixing bolt

Tightening torque	
5 mm	5 – 7 N·m



Set the inner cable onto the cable carrier.

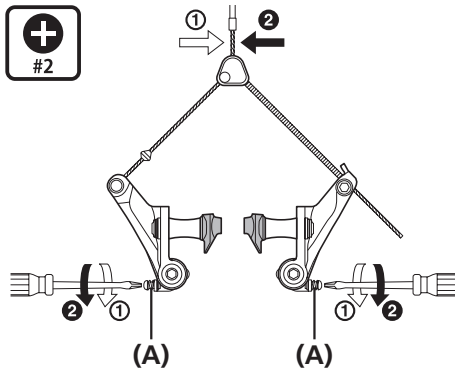


Temporarily tighten the inner cable so that the cable carrier is at the position in the illustration.

- (A) 5 mm Hexagon wrench
- (B) Flexible pipe

Cable fixing bolt temporary tightening torque	
5 mm	0.5 – 1 N·m

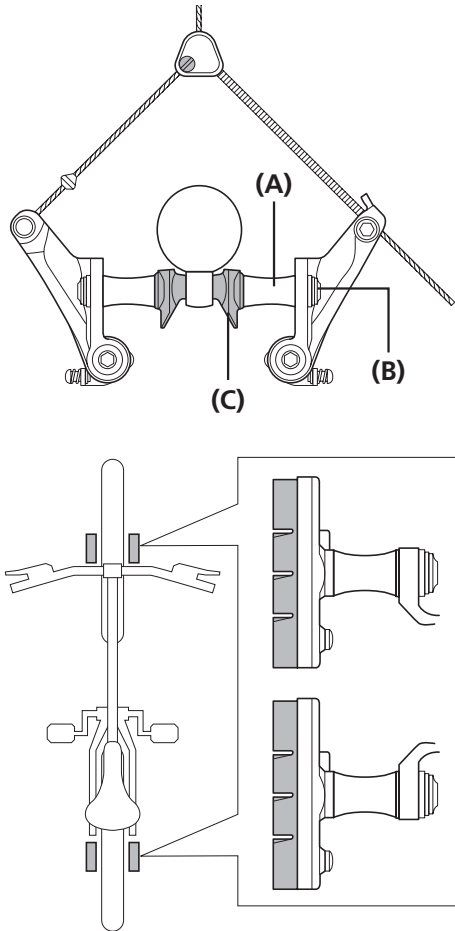
4



Turn the spring tension adjustment screw so that the cable carrier comes to a position directly below the outer casing holder.

(A) Spring tension adjustment screw

5



While holding the shoe against the rim as shown in the illustration, adjust the amount of shoe protrusion using suitable the washer R, shoe holder fixing bolt or 2 mm washer.

★ Refer to the "page 17 Washer combination chart" for details on the adjustment method.

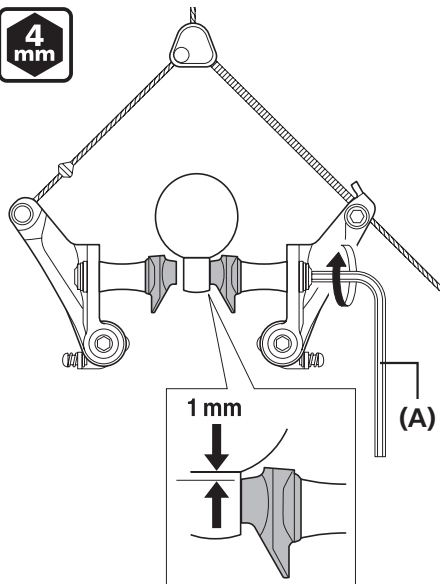
(A) Washer R  
(B) Shoe holder fixing bolt / Washer  
(C) Shoe

## INSTALLATION

### ►► Installation of the cantilever brake

6

4 mm



While holding the shoe against the rim, tighten the shoe holder fixing bolt

(A) 4 mm Hexagon wrench

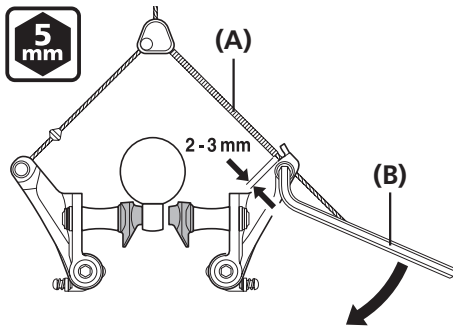
Tightening torque

4 mm

6 - 8 N·m

7

5 mm



Loosen the cable fixing bolt, move the brake body so that the clearance is 2 - 3 mm, and then secure the inner cable.

(A) Flexible pipe

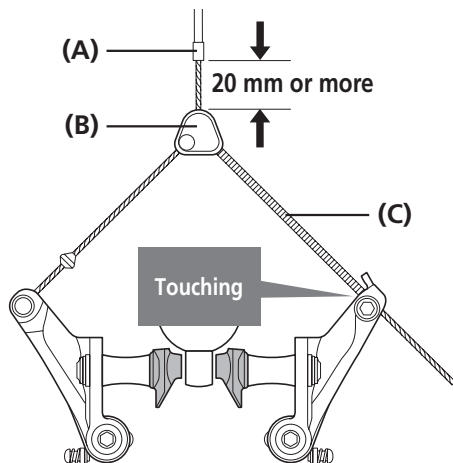
(B) 5 mm Hexagon wrench

Tightening torque

5 mm

6 - 8 N·m

8



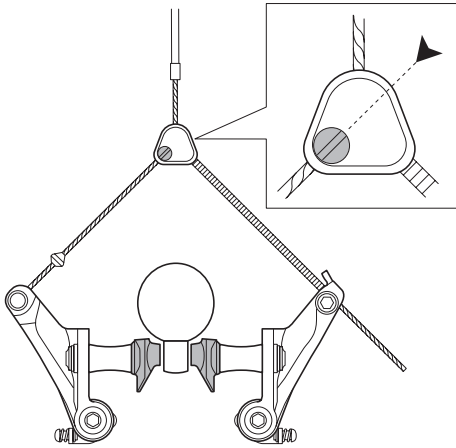
Adjust the flexible pipe so that it touches the cantilever brake body.

(A) Outer casing holder

(B) Cable carrier

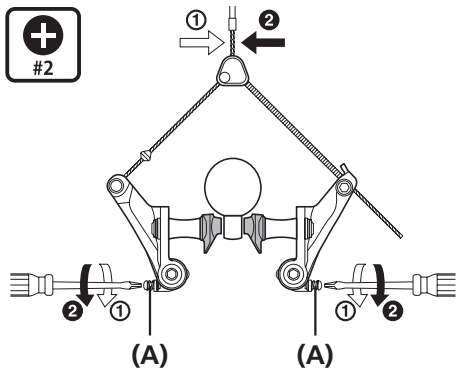
(C) Flexible pipe

9



If the cable carrier is in the position in the illustration, then setting is complete. Check to be sure that there is a clearance of 20 mm or more between the outer casing holder and the cable carrier as shown in the illustration for step 8. This is to ensure that the cable carrier does not touch the outer casing holder. If it does touch, the brakes will not work.

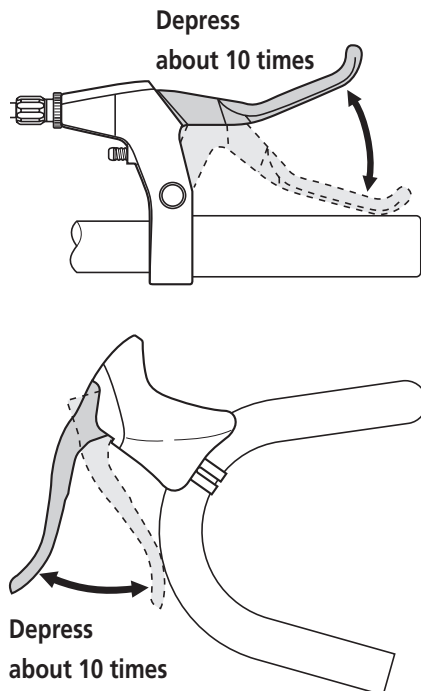
10



If balance adjustment is necessary, adjust with the spring tension adjustment screw.

(A) Spring tension adjustment screw

11

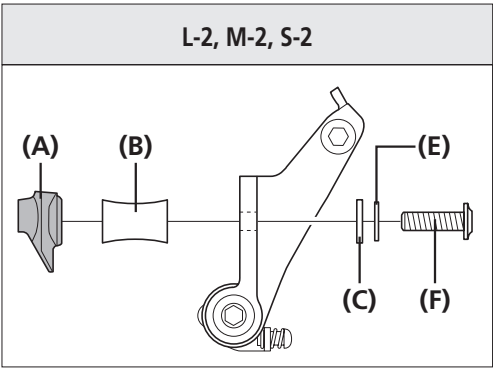
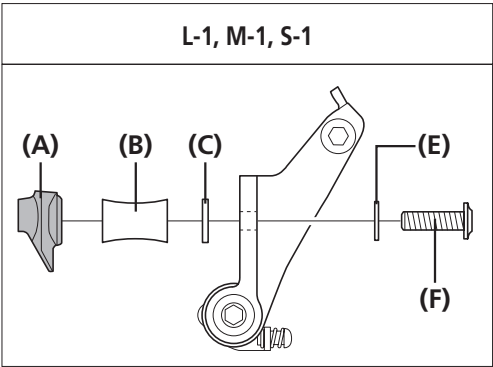
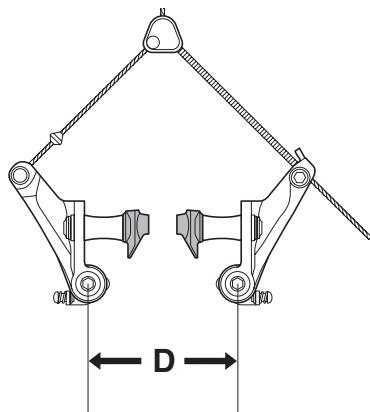


Squeeze the brake lever until it touches the grip about ten times to check shoe clearance and each section for any abnormalities before use.



# Washer combination chart

	Rim width (mm)						
D (mm)	19	19.5	20	20.5	21	21.5	22
85							
84		L-1					
83							
82							
81							
80			L-2				
79							
78							
77				M-1			
76							
75							
74							
73					M-2		
72							
71							
70							
69						S-1	
68							
67							
66							S-2
65							

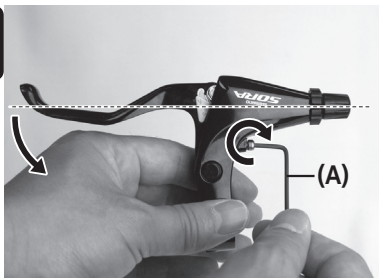


- (A) Shoe
- (B) Washer R (L, M, S)
- (C) 2 mm washer
- (E) 1 mm washer
- (F) Shoe holder fixing bolt (L, M, S)

# ADJUSTMENT

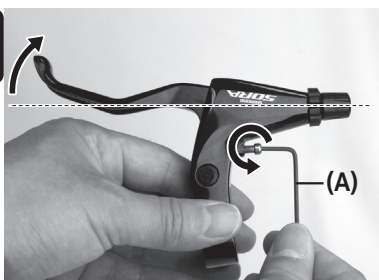
## ADJUSTMENT

### ■ Reach adjustment



Turning clockwise causes the width to become more narrow.

(A) 2 mm Hexagon wrench



Turning counterclockwise causes the width to become wider.

(A) 2 mm Hexagon wrench

#### NOTE

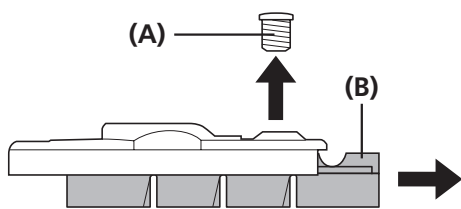
Make sure that braking operates properly after the adjustment.

# MAINTENANCE

## MAINTENANCE

### ■ Replacement of the cartridge shoe

1



Remove the shoe fixing bolts, and then slide the shoes along the grooves to remove them from the shoe holders.

(A) Shoe fixing bolt

(B) Shoe

2

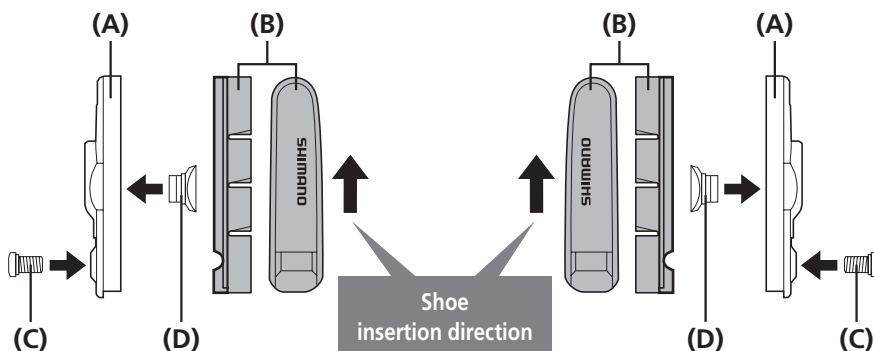
There are two different types of shoe holder and shoe to be used in the left and right positions respectively.  
Slide the new shoes into the grooves on the shoe holders while taking note of the correct directions and shoe fixing bolt hole positions.

For the left
Same at front and rear

For the right
Same at front and rear

Front

Front



(A) Shoe holder

(B) Shoe

(C) Shoe fixing bolt

(D) Shoe holder fixing nut

3

Use a 2 mm Hexagon wrench to tighten the shoe fixing bolts.

Tightening torque



1 - 1.5 N·m

# SHIMANO

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

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