

## **Dealer's Manual**

# **Dual Pivot Caliper Brake**

BR-4600  
BR-3500  
BR-2400

BL-R780  
BL-4600  
BL-3500  
BL-2400

## 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 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:**

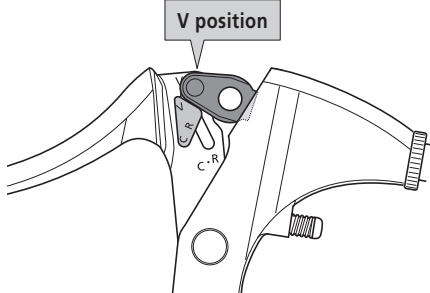
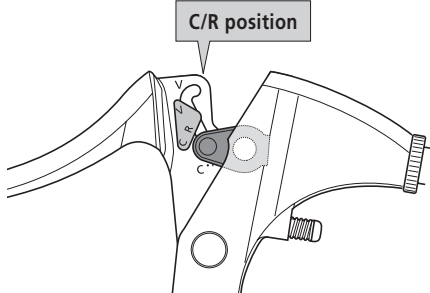
- It is important to completely understand the operation of your bicycle's brake system. Improper use of your bicycle's brake system may result in a loss of control or a fall, which could lead to severe injury. Because each bicycle may handle differently, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. This can be done by consulting your professional bicycle dealer and the bicycle's owners manual, and by practicing your riding and braking technique.
- 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 you ride 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. If this is not done, the brakes may not work correctly.

**For Installation to the Bicycle, and Maintenance:**


< BL-4600/3500/2400/R780 >

- 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.

**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 position	Applicable brake
 <p><b>V</b> : Mode position for compatibility with V-BRAKE</p>	<ul style="list-style-type: none"> <li>• V-BRAKE brakes</li> </ul>
 <p><b>C</b> : Mode position for compatibility with caliper brakes and cantilever brakes  <b>R</b> : Mode position for compatibility with road mechanical disc brakes</p>	<ul style="list-style-type: none"> <li>• Caliper brakes</li> <li>• Cantilever brakes</li> <li>• Road mechanical disc brakes</li> </ul>

- For BR-4600/3500/2400, use the dual control lever or brake lever according to the combination specified in the following table. Do not use the combinations with "NO" indication in the table. The brakes may be excessively effective, and you may fall.

Brake caliper	Combinations	Dual Control Lever	Brake lever
BR-4600 BR-3500 BR-2400	OK	ST-4600 ST-4603 ST-3500 ST-3503 ST-2400 ST-2403	BL-4600 BL-3500 BL-2400 BL-R780 (*)
		Dual control lever for road bikes other than the above	Brake lever for road bikes other than the above

(\*) Brake lever for flat handle



: The "NO!" symbols indicate combinations that should not be used under any circumstances.

- Securely tighten the caliper brake mounting nuts to the specified tightening torque.
  - Use lock nuts with nylon inserts (self-locking nuts) for nut-type brakes.
  - For sunken nut type brakes, use sunken nuts of the appropriate length which can be turned six times or more; when re-installing, apply sealant (locking adhesive) to the nut threads.

If the nuts become loose and the brakes fall off, they may get caught up in the bicycle and the bicycle may fall over. Particularly if this happens with the front wheel, the bicycle may be thrown forward and serious injury could result.

- Brakes designed for use as rear brakes should not be used as front brakes.

#### NOTE

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

- When combined with a ceramic rim, Shimano's 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 chiefly to explain the procedures for using the product.

# INSTALLATION

## List of tools to be used

The following tools are required to assemble the product.

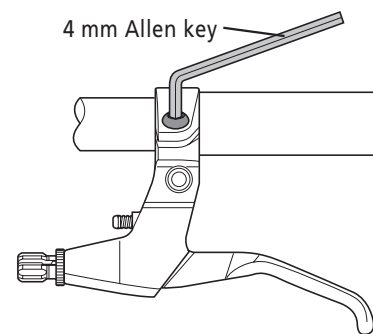
	Where to use	Tool
BR-4600 BR-3500 BR-2400	Pivot nut	5 mm Allen key
	Shoe fixing bolt	4 mm Allen key
	Cable fixing bolt	5 mm Allen key
	Centering adjustment screw	3 mm Allen key
BL-4600 BL-3500 BL-2400 BL-R780	Clamp bolt	4 mm Allen key
	Reach adjustment bolt	2 mm Allen key

## 1. Installation of the brake lever

Use a 4 mm Allen key to install.

When installing the components to carbon frame/handle bar surfaces, verify with the manufacturer of the carbon frame/parts for their recommendation on tightening torque in order to prevent over tightening that can cause damage to the carbon material and/ or under tightening that can cause lack of fixing strength for the components.

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

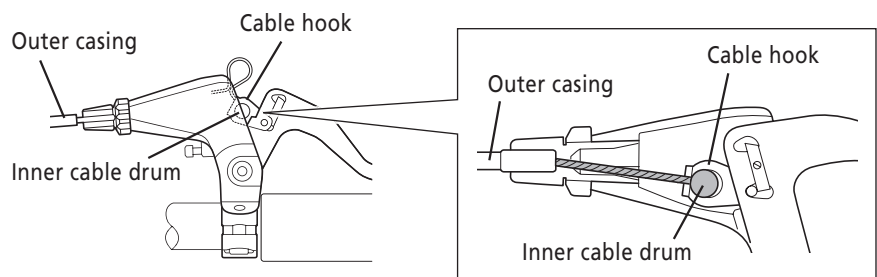
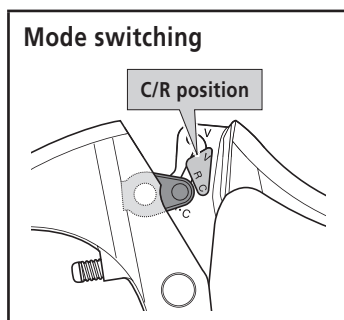


**Tightening torque:**  
6 - 8 N·m {53 - 69 in. lbs.}

## 2. Installation of the brake cable

### Note:

Cut the cable at the length at which it is not pulled tight when the handlebar is turned all the way to the left and right.

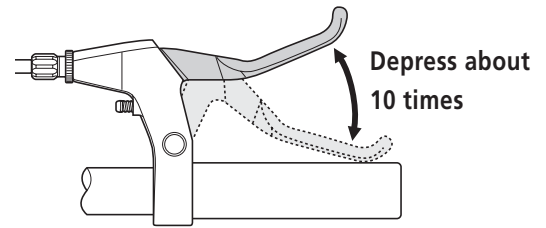


### 3. Installation of the caliper brake

Refer to the caliper brake section of General Operations for installation of the caliper brake.

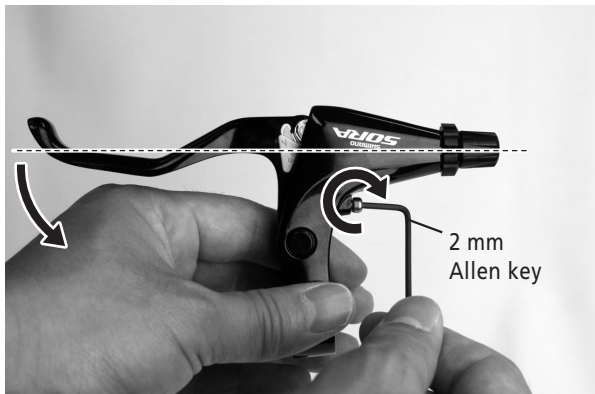
### 4. Check

After installing the brake cable on the side of the caliper brake, hold the brake lever until it touches the grip about ten times to check shoe clearance and each section for any abnormality before use.

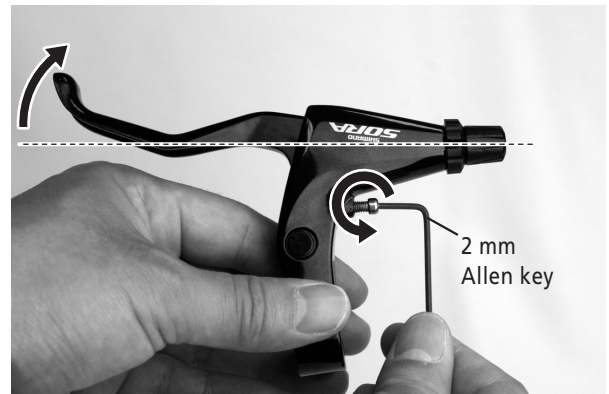


# MAINTENANCE

## Gripping width adjustment

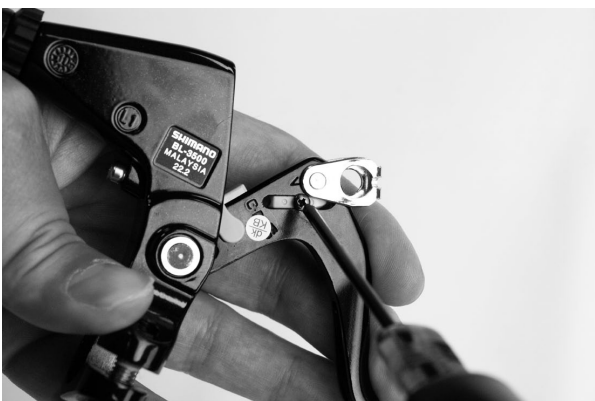


Turning clockwise causes the width to be narrower.



Turning counterclockwise causes the width to be wider.

## Mode switching



1. Use the #1 Phillips screwdriver to loosen the screw.



2. Align the mode switch with the position of the brake installed.



< V-BRAKE brakes >



< Caliper brakes >  
< Cantilever brakes >  
< Road mechanical disc brakes >



## Shoe characteristics

	Cartridge shoe	M-system	Length (mm)	Brake shoe characteristics
R55C4	X	—	55	Performs well in wet conditions. Compatible with BR-9010 cartridge
R55C4 for Carbon rim	X	—	55	For Carbon rim (21mm-24mm) Compatible with BR-9010 cartridge
R55C4-1 for Carbon rim	X	—	55	For Carbon wide width rim (24mm-28mm) Compatible with BR-9010 cartridge
R55C3	X	—	55	Performs well in dry and wet conditions.
R55C3 for Carbon rim	X	—	55	For Carbon rim
R55C for Carbon rim	X	—	55	For Carbon rim
R55C for Ceramic rim	X	X	55	For Ceramic rim only
R55C + 1	X	—	55	For BR-CX70
M50T	—	X	50	Performs well in wet conditions. But faster rim wear.
R50T	—	—	50	Performs well in dry conditions and tends to be low noise. Wears in rainy conditions.
R50T4	—	X	50	Demonstrate high braking force when wet only with sidewall machined rims; they may meet the EN standard. Less likely to cause noise; compared to the M50T, the rim wear is reduced and brake fade is less likely to occur.
R50T2	—	—	50	Performs well in dry conditions and tends to be low noise. Wears in rainy conditions. Toe-in adjust design.

X: Yes

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

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