General Safety Information

⚠ WARNING

- The calipers and rotor will become hot when the brakes are operated, so do not touch them while riding or immediately after dismounting from the bicycle, otherwise you may get burned. Check that the brake components have cooled down sufficiently before attempting to adjust the brakes.
- Always make sure that the front and rear brakes are working correctly before you ride the bicycle.
- Before riding the bicycle, check that the pad thicknesses are 0.5 mm or more.
- If noise occurs when the brakes are operated, it may indicate that the brake pads have worn down to their usage limit. After checking that the brake system has cooled down sufficiently, check the brake pad thicknesses.
  Replace the brake pads if the pad wear indicators are visible.
- Be careful not to allow any oil or grease to get onto the rotor and brake pads, otherwise the brakes may not work correctly.
- If any oil or grease do get on the pads, you should replace the pads. If any oil or grease gets on the rotor, you should clean the rotor. If this is not done, the brakes may not work correctly.
- Check the brake cable for rust and fraying, and replace the cable immediately if any such problems are found. If this is not done, the brakes may not work correctly.
- 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.
- Check that the quick release lever is on the right side (the opposite side to the rotor). If the quick release lever is on the same side as the rotor, there is the danger that it may interfere with the rotor, so check that it does not interfere.
- 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 an accident, 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.
- The M475 disc brakes are designed for optimum performance when used in combination with the BR-M475 (calipers), BL-M510/ST-M510 (brake lever), SM-RT61/50 (rotor) and Shimano pad unit (M08). The brake lever used should be a two-finger lever for V-brakes, such as the BL-M510/ST-M510. If using in combination with 4-finger levers such as the BL-T400/ST-T400, the braking force will be higher. Accordingly, under some conditions such as certain riding positions or overall weight, the bicycle may fall over and injury may result if proper care is not taken.
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

⚠ CAUTION

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

Note

- **The SM-RT50 rotor should be used together with resin pads. If it is used with metal pads, the pads will wear out very rapidly.**
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.

Technical Service Instructions **SI-8C90B**

Disc Brake System
(For Cross-Country)

In order to realize the best performance, we recommend that the following combination be used.

Caliper	BR-M475
Brake Lever	BL-M510 / ST-M510
Rotor	SM-RT61 / 50
Brake pad unit (Resin pads)	M08
Brake cable	

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle.
For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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

■ Wheel spoke lacing

Check that the spokes have been laced as shown in the illustration.
A radial assembly cannot be used.

Lace the spokes as shown in Figure 1 below for the left side of the front wheel (the side where the roter is installed), and the left and right sides of the rear wheel, and as shown in Figure 2 below for the right side of the front wheel.

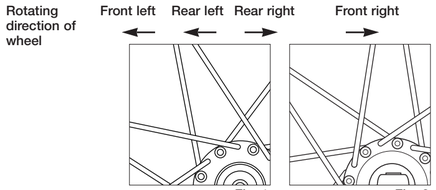
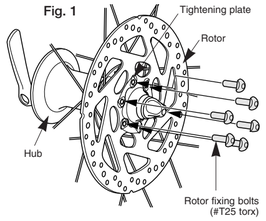


Fig. 1 Fig. 2

■ Installation of the rotor (SM-RT61/50)

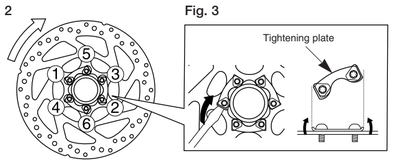
Install the rotor and the rotor tightening plate to the hub, and then install and tighten the bolts as shown in Fig. 1.



While wearing gloves, apply a force to the rotor to turn it in a clockwise direction as shown in Fig. 2. While doing this, tighten the rotor fixing bolts in the order shown in the illustration.

Tightening torque: 2 - 4 Nm {18 - 35 in. lbs.}

Use a flat-tipped screwdriver or similar tool to bend the edges of the tightening plate over the heads of the bolts as shown in Fig. 3.

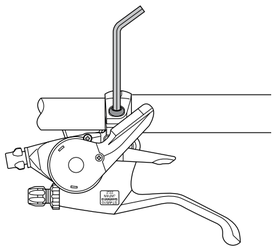


■ Installation of the brake lever

Use a 5 mm Allen key to install.

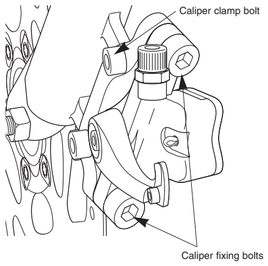
Use a handlebar grip with a maximum outer diameter of 32 mm.

Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

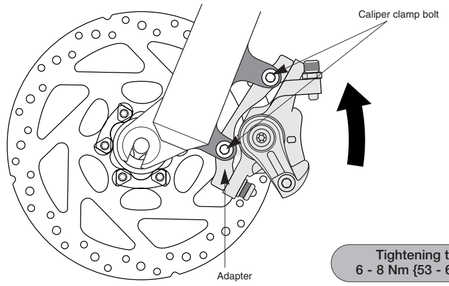


■ Installing the calipers

1. Install the bicycle wheel. Loosen the caliper fixing bolts, and then install the calipers to the frame so that the calipers work at the left and right.

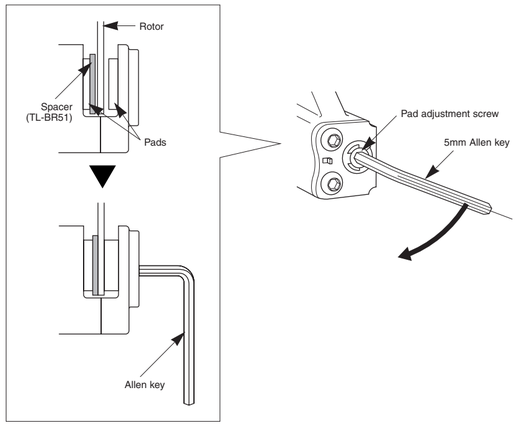


2. While wearing protective gloves, apply pressure to the adapter in the counterclockwise direction while tightening the caliper clamp bolt.



Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

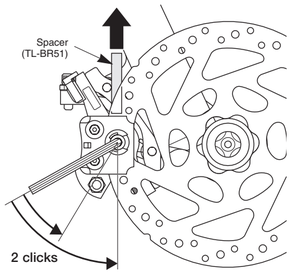
3. Place the spacer (TL-BR51 T=0.2mm) in the position shown in the illustration, and then tighten the pad adjustment screw (turn clockwise) until the rotor touches the spacer.



4. Secure the caliper with the caliper fixing bolt.

Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

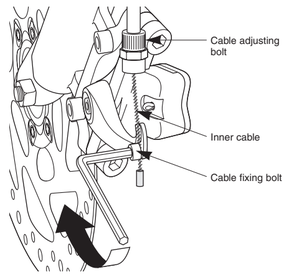
5. Loosen the pad adjustment screw by two clicks, and then remove the spacer.



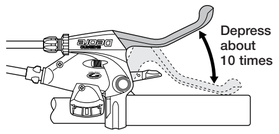
6. Securing the cable

   Pass the inner cable through the cable adjusting bolt, and then tighten the cable fixing bolt.

Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

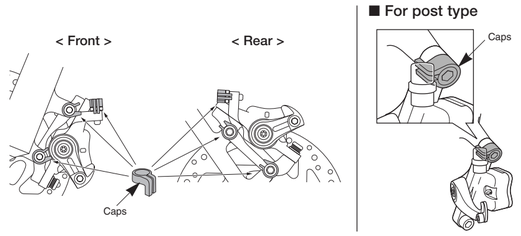


7. Depress the brake lever about 10 times until it touches the grip, and check that there are no problems with any components, and also that the rotors and the pads do not interfere with each other when the wheel is rotated.



8. Turn the cable adjusting bolt to take up any slack in the cable.

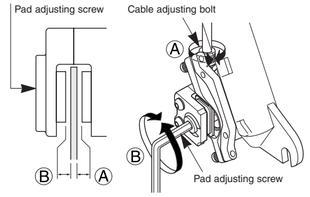
Secure the three bolts with a cap as shown in the illustration in order to prevent the bolts from coming loose.



■ Adjusting when the pads are worn

Use the cable adjusting bolts at the brake lever and the caliper body and also the pad adjusting screws to adjust the clearance for pads which are worn. The pads can still be used as long as the thickness of the pad lining is 0.5 mm or more.

Adjust so that clearances A and B are both 0.2 -- 0.4 mm.



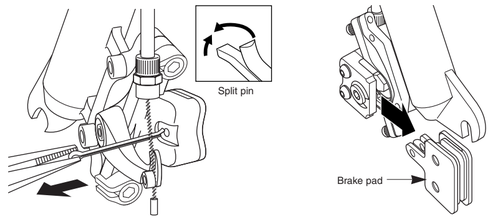
< B side >
Tighten the pad adjusting screw to adjust.
< A side >
Turn the cable adjusting bolt at the brake lever or the caliper body to adjust.

- When making the adjustment when the pad is worn, use both the cable adjusting bolt and the pad adjusting screw. If only the cable adjusting bolt is used, it will not be possible to use the pad down to the standard replacement thickness of 0.5 mm. Moreover, the pad and rotor may interfere with each other even when the brakes are not being operated.

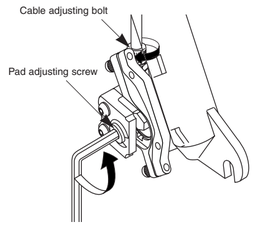
Replacing the brake pads

If the brake pads are worn down to a thickness of 0.5 mm, replace the brake pads.

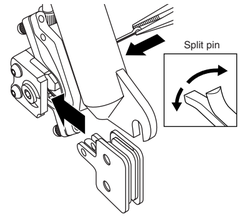
1. Remove the bicycle wheel from the frame, and then remove the brake pads as shown in the illustration.



2. Loosen the pad adjusting screw and turn the cable adjusting bolts at the brake lever and caliper body clockwise to loosen them.



3. Install the new brake pads. After this, bend open the split pin. Tighten the pad adjusting screw so that the clearance between the brake pad and the rotor is 0.2--0.4 mm.



4. After checking that the brake pad and the rotor are not touching each other, check that there are no problems when the brake lever is depressed.