WARNING

It is a requirement to install the wheel, install the quick release lever on the rotor side.

Check to ensure that the quick release lever does not interfere with the rotor and that it does not touch the tire.

Use neutral detergent to clean the chain. Do not use acid-based or base-based detergent such as rust cleaners as it may result in damage and/or failure of the chain.

Use the reinforced connecting pin only for connecting the narrow type of chain.

There are two different types of reinforced connecting pins available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or an end pin is used, the chain will be damaged. It is not a place to use where a chain has a different group mark.

Check that the tension of the chain is correct and that the chain is not damaged. If the tension is not correct or the chain is damaged, the chain should be replaced. If this is not done, the chain may break and cause serious injury.

Obtain and read the service instructions carefully prior to installing the parts. Loose, worn, or damaged parts may cause the bicycle to fall over and serious injury may occur as a result. We strongly recommend only using genuine Shimano replacement parts.

Obtain and read the service instructions carefully prior to installing the parts. If adjustments are not carried out correctly, the chain may come off and this may cause you to fall off the bicycle which could result in serious injury.

Re-read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

Note

If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.

If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.

You should periodically clean the derailleur and lubricate all moving parts (mechanism and pulleys).

If gear shifting adjustment cannot be carried out, check the degree of parallelism of the rear end of the bicycle. Also check if the cable is lubricated and if the outer casing is too long or too short.

If you hear abnormal noise as a result of looseness in a pulley, you should replace the pulley.

If the chain keeps coming off the sprockets during use, replace the sprockets and cables. Be sure to use the SIS-SP41 pulley to remove the roughness in the feel. This is due to the SIS shift function due to its high cable resistance.

Always be sure to use the special extension bearing the same group mark. Never use in combination with a sprocket bearing a different group mark.

An outer casing which will have some length to space even when the handles are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handles are turned all the way to both sides.

A special grease is used for the gear shifting cable (SIS-SP41). Do not use DURA-ACE grease in other types of grease, otherwise they may cause deterioration in gear shifting performance.

Oiling the inner cable and the inside of the outer casing before use to prevent rust damage.

For smooth operation, use the specified outer casing and the bottom brake cable guide.

Operation of the levers related to gear shifting should be made only when the front (chainwheel) is turned.

Parts are not guaranteed against natural wear or deterioration resulting from normal use.

For maximum performance, shift lever products.

For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

Specifications

<table>
<thead>
<tr>
<th>Rear Derailleur</th>
<th>RD-M972</th>
<th>RD-M772</th>
<th>RD-M662</th>
<th>RD-M592</th>
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<tbody>
<tr>
<td>Type</td>
<td>SIS</td>
<td>SIS</td>
<td>SIS</td>
<td>SIS</td>
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<tr>
<td>Gear</td>
<td>22T</td>
<td>22T</td>
<td>22T</td>
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<tr>
<td>Chain</td>
<td>FH-M972</td>
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<tr>
<td>Cassette</td>
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<tr>
<td>Bottom bracket</td>
<td>SL-M970</td>
<td>SL-M970</td>
<td>SL-M970</td>
<td>SL-M970</td>
</tr>
</tbody>
</table>

Installation of the rear derailleur

Note: Periodically check that there is no gap between the dropout and the bracket as shown in the illustration. If there is a gap between these two parts, problems with gear shifting performance may occur.

3. Chain length on bicycles with rear suspension

The length of A will vary depending on the movement of the rear suspension. Because of this, an excessive load may be placed on the chain when the chain length is too short. Set the length of the chain by adding two links to the chain when the rear suspension is in a position where dimension “A” is known as a large link in the chain is on the largest sprocket and the largest chain. If the amount of movement of the rear suspension is large, the length of the chain may not be made up properly when the chain is on the smallest sprocket and smallest link.

4. Outer casing length

(1) Loosen the 8- / 7- / 6-speed adjustment screw until it is in the position shown in the illustration.

(2) Check that there is enough slack in the outer casing. Next, adjust the outer casing with the bottom edge of the casing at the point where the inner casing is at its greatest width when the rear derailleur is in the smallest chainring and smallest sprocket.

(3) Adjust the outer casing with the bottom edge of the casing at the point where the inner casing is at its greatest width when the rear derailleur is in the largest chainring and largest sprocket.

CUTTING THE OUTER CASING

After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

Attach the same outer end cap to the cut end of the outer casing.

The sealed cap with the rubber and the rubber plug are installed to the outer casing stopper of the frame.

RD-M972 / RD-M772

If the rear derailleur moves to a large degree, such as in bicycles with a long suspension, it is recommended that you replace the cap with the accessory aluminum stopper cap.

The end of the outer casing which has the aluminum cap should be at the derailleur side.

Connect the cable to the rear derailleur and, after taking up the slack in the cable, re-secure to the rear derailleur as shown in the illustration.

Note: Be sure that the cable is securely re-secured to the rear derailleur.

Chain length on bicycles with rear suspension

<Jumping the distance between the largest sprocket and the guide pulley>

Set the rear derailleur to the lowest gear position, stop the wheel from turning and, then check the distance from the edge of the guide pulley to the edge of the largest sprocket is within the range of 5 – 6 mm. Turn the crank arm to shift gears and check that there is no roughness in the feel. If the number of teeth of the cassette sprocket is changed, carry out this setting again.

6. SIS Adjustment

Operate the shifting lever several times to move the chain to the 2nd sprocket. Then, while pressing the lever just enough to open up the play in the lever, turn the crank arm.

When shifting to 3rd:

When no sound at all is heard:

When shifting to 3rd:

When no sound at all is heard:

Locations for re-balancing adjustment barrel until the chain returns to the 2nd sprocket (clockwise) and note for re-balancing adjustment barrel until the chain returns to the 3rd sprocket and makes noise (counter clockwise)

Best setting

The best setting is when the shifting lever is operated just enough to take up the play and the chain touches the 3rd sprocket and makes noise.

Turn the lever to its original position (the position where the chain touches the 3rd sprocket and makes noise) and turn the crank arm clockwise. If the chain is touching the 3rd sprocket and making noise turn the outer casing adjusting barrel clockwise slightly to tighten it until the noise stops and chain smartly.

Operate lever to change gears, and check that no noise occurs in any of the gear positions.

For the best SIS performance, periodically lubricate all power-transmission parts.

Replacing the rear derailleur (RD-M972)

Note: When removing the tension pulley or inner cable, remove the E-clip first.

Note: When replacing the rear derailleur, use a new E-clip.

Guide pulley / Tension pulley

Tightening torque: 2.45 - 4.93 N·m (±0.25 - ±0.5 N·m)

Guide pulley

Tension pulley

Tightening torque: 0.7 - 1.1 N·m (±0.1 - ±0.2 N·m)

Guide pulley / Tension pulley

Tightening torque: 2.45 - 4.93 N·m (±0.25 - ±0.5 N·m)

Guide pulley

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