



ST-R220 ST-R224

Shifting lever

General Safety Information

WARNING

- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn, or damaged parts may cause injury to the rider. We strongly recommend only using genuine Shimano replacement parts.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

Note

- For smooth operation, use the specified outer casing and bottom bracket cable guide.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- Use a frame with internal cable routing is strongly discouraged as it has tendencies to impair the SIS shifting function due to its high cable resistance.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- Use an 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.
- Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- The ID-C050 gear indicator is available as separate item. Please ask your bicycle dealer for further details.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

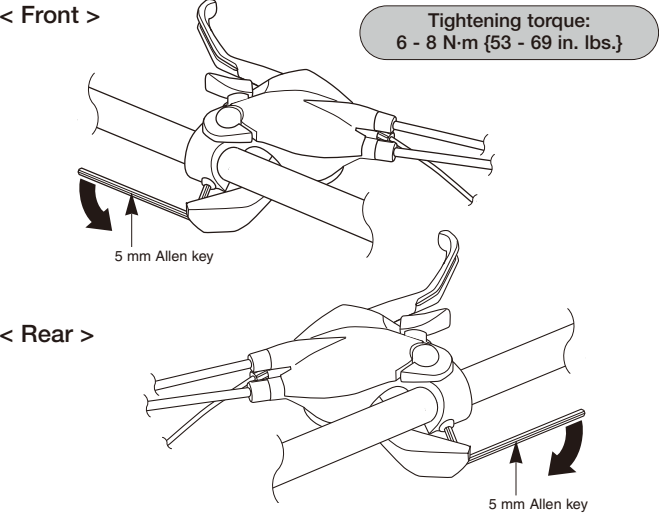
In order to realize the best performance, we recommend that the following combination be used.

Shifting lever	F : ST-R220 R : ST-R220
Outer casing	SP40
Gears	16
Front derailleur	FD-R440A
Front chainwheel	FC-2200
Bottom bracket	BB-UN25 (110mm)
Rear derailleur	RD-2200
Freehub	FH-2200
Cassette sprocket	CS-HG50-8
Chain	CN-HG50
Bottom bracket cable guide	SM-SP17

Shifting lever	F : ST-R224 R : ST-R220
Outer casing	SP40
Gears	24
Front derailleur	FD-R443A
Front chainwheel	FC-2203
Bottom bracket	BB-UN25 (113mm)
Rear derailleur	RD-2200
Freehub	FH-2200
Cassette sprocket	CS-HG50-8
Chain	CN-HG50
Bottom bracket cable guide	SM-SP17

Mounting the shifting lever

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



Gear shifting operation

Both lever (A) and lever (B) always return to the initial position when they are released after shifting.

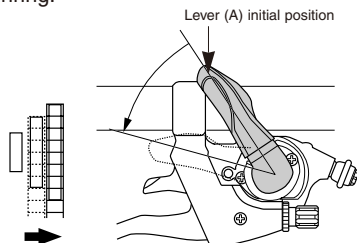
When operating one of the levers, always be sure to turn the crank arm at the same time.

< Front >

To shift from a small chainring to a larger chainring

When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.

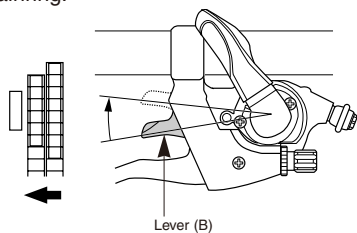
Example:
from intermediate chainring
to largest chainring.



To shift from a large chainring to a smaller chainring

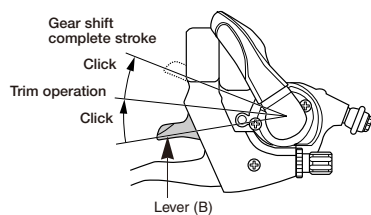
When lever (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.

Example:
from largest chainring
to intermediate chainring.



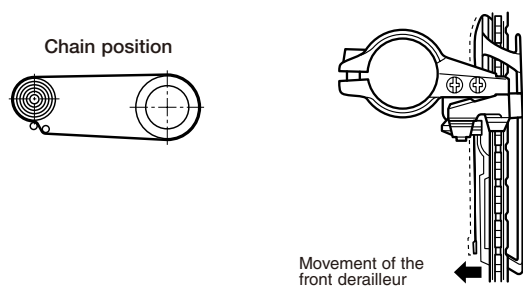
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When lever (B) is operated, there is one click where trimming (the noise prevention mechanism) engages, and a second stronger click when the gear shift stroke is completed. After trimming, the next push will complete the gear shift stroke.



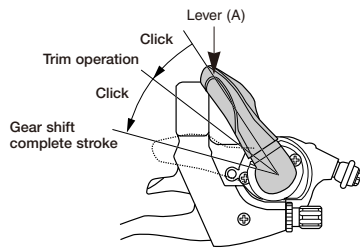
Trimming (noise prevention operation)

If the chain is on the large front chainring and the larger rear sprocket, the chain will rub in the front derailleur plate, producing a characteristic noise. When this happens, press lever (B) lightly (to the point where it clicks); this causes the front derailleur to move slightly towards the smaller chainring, thereby eliminating the noise.



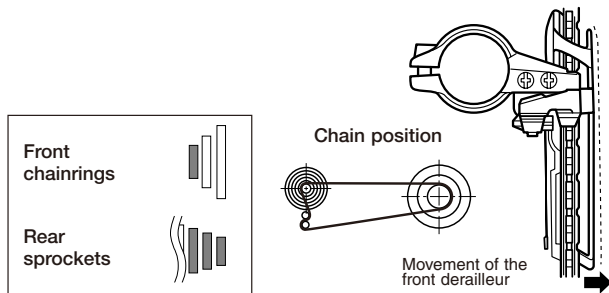
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When lever (A) is operated, there is one click where trimming (the noise prevention mechanism) engages, and a second stronger click when the gear shift stroke is completed. After trimming, the next push will complete the gear shift stroke.



Trimming (noise prevention operation)

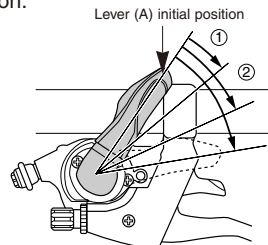
If the chain is on the smallest front chainring and a smaller rear sprocket, the chain will rub in the front derailleur plate, producing a characteristic noise. When this happens, press lever (A) lightly (to the point where it clicks); this causes the front derailleur to move slightly towards the larger chainring, thereby eliminating the noise.



< Rear >

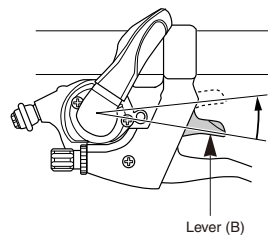
To shift from a small sprocket to a larger sprocket

To shift one step only, press lever (A) to the (1) position. To shift two steps at one time, press to the (2) position. A maximum three-step shift can be made in this manner.



To shift from a large sprocket to a smaller sprocket

Press lever (B) once to shift one step from a larger to a smaller sprocket.



Installing the shifting cable

Inserting the inner cable

Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.

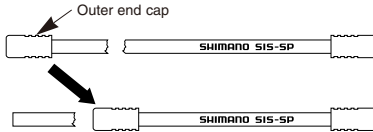


Cutting the outer casing

When cutting the outer casing, cut the opposite end to the end with the marking. 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.

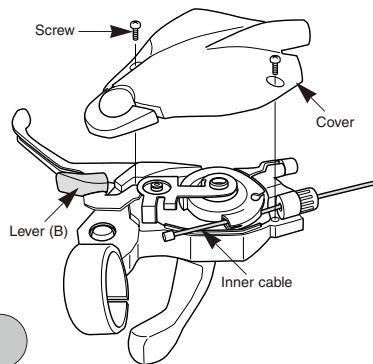


Installing the inner cable < Front >

Operate lever (B) two times or more to set the lever to the lowest position.

Remove the screw, and then remove the cover.

Pull out the inner cable as shown in Figure, and then install the new inner cable.



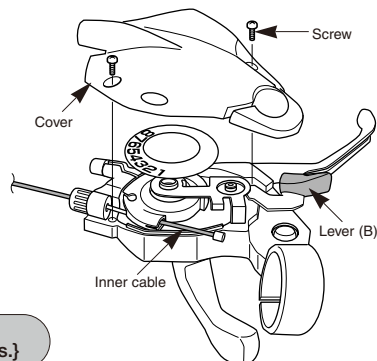
Tightening torque :
0.3 - 0.5 N·m {3 - 4 in. lbs.}

Installing the inner cable < Rear >

Operate lever (B) at least eight times to set the lever to the highest position.

Remove the screw, and then remove the cover.

Pull out the inner cable as shown in Figure, and then install the new inner cable.



Tightening torque :
0.3 - 0.5 N·m {3 - 4 in. lbs.}

Replacement of the indicator cable

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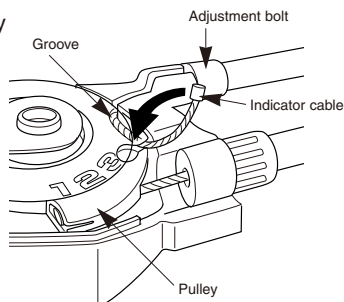
Operate lever (B) two times or more to set the lever to the lowest position.

Remove the cover fixing screws, and then remove the cover as shown in the illustration.

Pull the end of the new cable until it is positioned in the pulley as shown in the illustration.

Check that the cable is securely in the groove at this time.

Tighten the adjustment bolt, install the cover and secure it with the screws.



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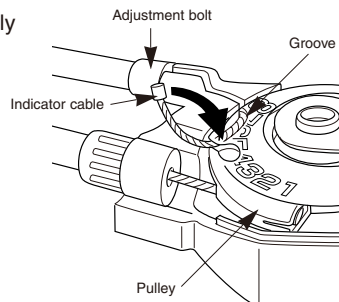
Operate lever (B) at least eight times to set the lever to the highest position.

Remove the cover fixing screws, and then remove the cover as shown in the illustration.

Pull the end of the new cable until it is positioned in the pulley as shown in the illustration.

Check that the cable is securely in the groove at this time.

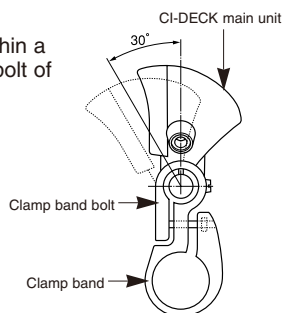
Tighten the adjustment bolt, install the cover and secure it with the screws.



Installing the CI-DECK

1. Install to a handlebar with a diameter of 25 mm. (Use an adapter if the handlebar diameter is 22 mm.)

2. The CI-DECK can be adjusted within a range of 30 degrees. Loosen the bolt of the clamp band to adjust.

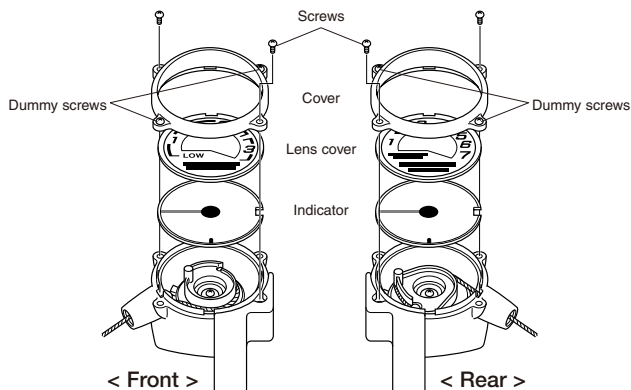


3. The length of the cable which connects the CI-DECK and the shifting lever unit will vary depending on the handlebars being used. If the cable is too long or too short, the indicator display will not be correct.

4. Replacement of the indicator cable

< At the CI-DECK side >

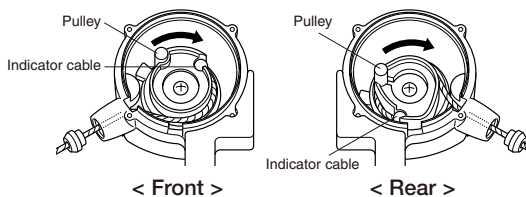
Remove the cover fixing screws and then remove the cover, lens cover and indicator as shown in the illustration.



Turn the pulley and remove the cable as shown in the illustration.

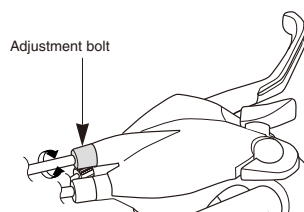
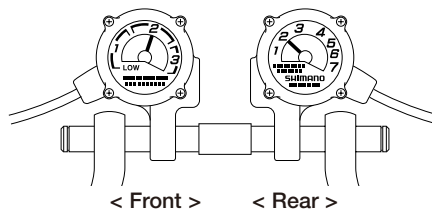
Turn the pulley clockwise, and then insert the end of the new cable until it is in the position shown in the illustration.

Install the indicator, lens cover and cover in that order.



5. Making fine adjustments to the indicator cable

The indicator cable is equipped with an adjustment bolt. Turn the adjustment bolt to adjust to the optimum setting so that the needle points to "2" (at both front and rear).



Tightening torque:
0.1 N·m {1 in. lbs.}

