

Dealer's Manual

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

Front derailleur

ALIVIO

FD-M4000

FD-M4020

Non-Series

FD-MT400

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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.



Failure to follow the instructions will result in death or serious injury.




Failure to follow the instructions could result in death or serious injury.



Failure to follow the instructions could cause personal injury or physical damage to equipment and surroundings.

TO ENSURE SAFETY

WARNING

- **Be sure to follow the instructions provided in the manuals when installing the product.**
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.


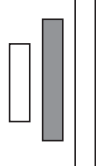
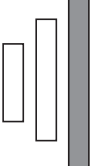
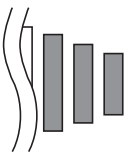
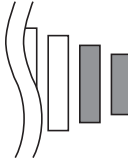
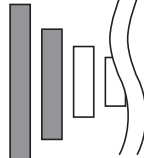
Be sure to also inform users of the following:

- Be careful not to let the hemming of your clothes get caught in the chain while riding. Otherwise you may fall off the bicycle.

NOTE

Be sure to also inform users of the following:

- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- When the chain is in any of the positions shown in the illustration, the chain may come into contact with the front chainring or front derailleur and generate noise. If noise is a problem, shift the chain onto the next largest rear sprocket or the one after if the chain is in the position shown in Figure 1. Shift the chain onto the next smallest sprocket or the one after if it is in the position shown in Figure 2.

	Figure 1		Figure 2
	Double	Triple	
Front chainring			
Rear sprocket			

For Installation to the Bicycle, and Maintenance:





- A triple front derailleur cannot be used with a double crankset because the shifting points do not match. Similarly, a double front derailleur cannot be used with a triple crankset.
- For frames with suspension, the chainstay angle will vary depending on whether the bicycle is being ridden or not being ridden.
- When the bicycle is not being ridden and the chain is positioned on the largest chainring and on the smallest sprocket, the chain guide outer plate of the front derailleur may touch the chain.
- Use an outer casing [OT-SP40] and a cable guide (SM-SP17/SP18) for smooth operation.
- If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.
- 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 needed for installation, adjustment, and maintenance purposes.

Tool		Tool	
	2 mm hexagon wrench		Hexalobular[#10]
	5 mm hexagon wrench		Screwdriver[#2]

INSTALLATION

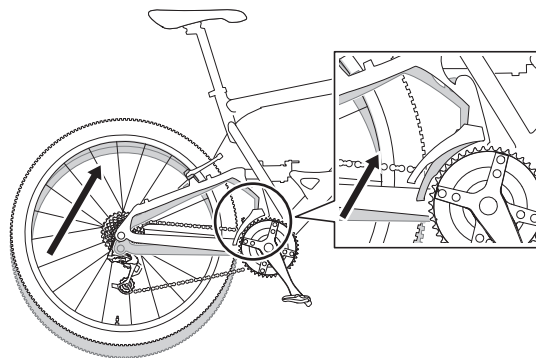
INSTALLATION

NOTE

When installing components to a carbon frame/handlebar, check the tightening torque recommended by the carbon frame or component manufacturer to avoid carbon material damage due to excessive tightening or insufficient component holding force resulting from insufficient tightening torque.

TECH TIPS

Bicycles with rear suspensions may be positioned differently when a rider is off the bicycle and on the bicycle. Perform installation and SIS adjustment while seated on the bicycle.



■ Installation of the front derailleur (Front triple)

Band type

Side swing

1

Temporarily attach the clamp bolt.

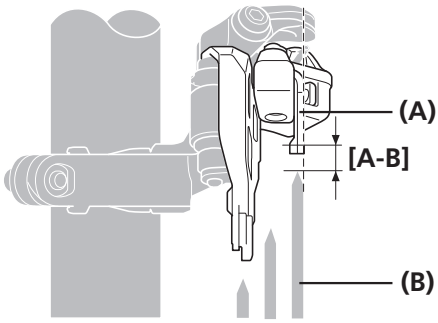
(z) 5 mm hexagon wrench

(A) Clamp bolt

INSTALLATION

Installation of the front derailleur (Front triple)

2



Align the flat portion of the chain guide outer plate in parallel with the flat surface of the largest chainring. Make sure that distance [A-B] from the chain guide to the tip of the teeth of the largest chainring is 1 to 3 mm.

[A-B] 1 – 3 mm

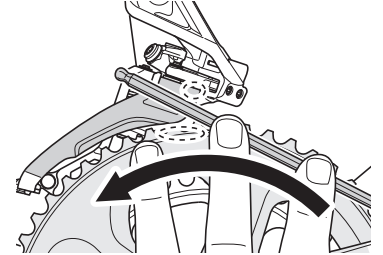
(A) Chain guide outer plate

(B) Largest chainring



TECH TIPS

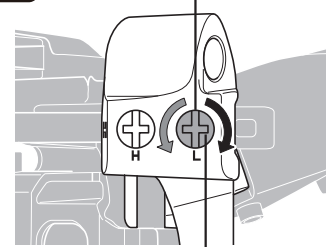
- Check by holding a hexagon wrench against the flat surface of the largest chainring as shown in the illustration.



- When performing a readjustment etc., without a pro-set alignment block, align the flat surface of the largest chainring using the low adjustment bolt.



Low adjustment bolt



Screwdriver[#2]

3

When adjustment is complete, tighten the clamp bolt.

Tightening torque

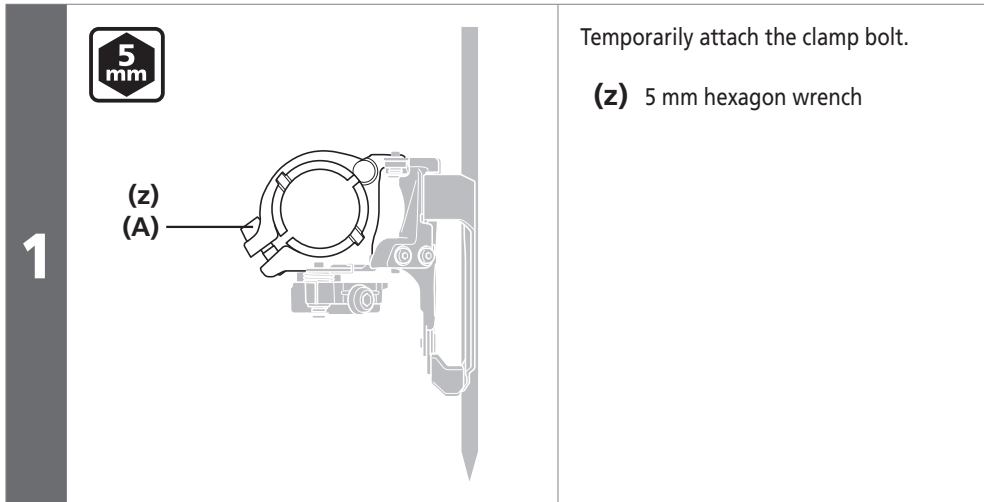


5 - 7 N·m

INSTALLATION

▶▶ Installation of the front derailleur (Front triple)

Top swing/Down swing

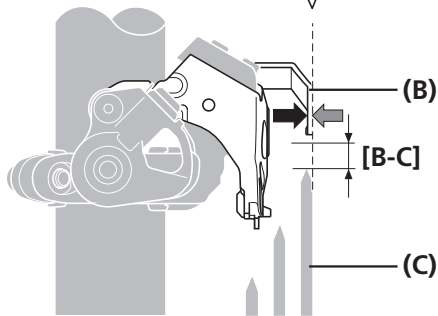
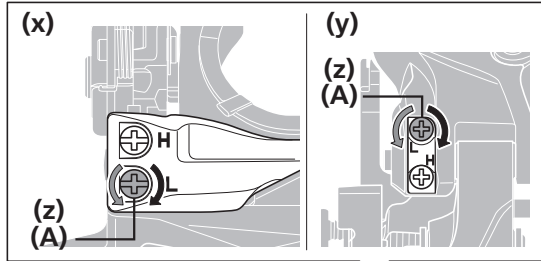


(A) Clamp bolt

INSTALLATION

Installation of the front derailleur (Front triple)

Adjust the low adjustment bolt and align the flat portion of the chain guide outer plate parallel to the flat surface of the largest chainring.
Make sure that distance [B-C] from the chain guide to the tip of the teeth of the largest chainring is 1 to 3 mm.



2

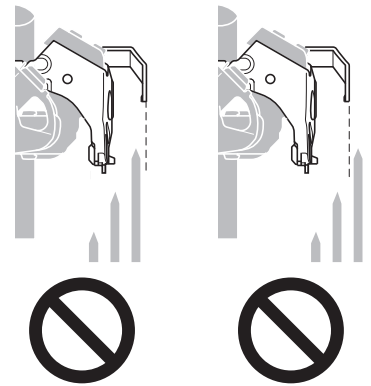
[B-C] 1 - 3 mm

- (x) Top swing
- (y) Down swing
- (z) Screwdriver[#2]

- (A) Low adjustment bolt
- (B) Chain guide outer plate
- (C) Largest chainring

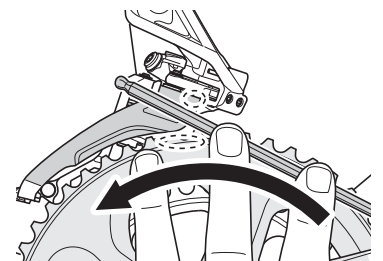
NOTE

When confirming the installation position, make sure not to position the chain guide as shown in the illustration.



TECH TIPS

Check by holding a hexagon wrench against the flat surface of the largest chainring as shown in the illustration.



When adjustment is complete, tighten the clamp bolt.

3

Tightening torque



5 - 7 N·m

■ Installation of the front derailleur (Front double)

Band type

1

5 mm

(z) 5 mm hexagon wrench

(A) Clamp bolt

2

#2

(z) Screwdriver[#2]

(A) Low adjustment bolt

(B) Chain guide outer plate

(C) Largest chainring

[B-C] 1 - 3 mm

Adjust the low adjustment bolt and align the flat portion of the chain guide outer plate parallel to the flat surface of the largest chainring. Make sure that distance [B-C] from the chain guide to the tip of the teeth of the largest chainring is 1 to 3 mm.

(A) Clamp bolt

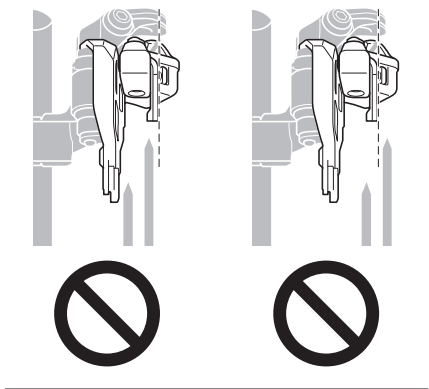
(A) Low adjustment bolt

(B) Chain guide outer plate

(C) Largest chainring

NOTE

When confirming the installation position, make sure not to position the chain guide as shown in the illustration.



3

When adjustment is complete, tighten the clamp bolt.

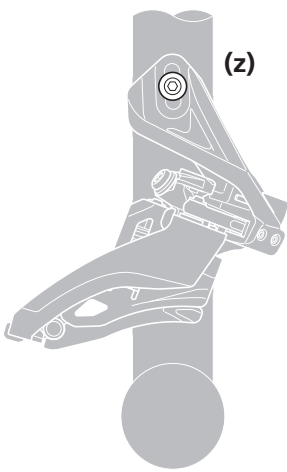
Tightening torque

5 mm

5 - 7 N·m

Direct mount type

1



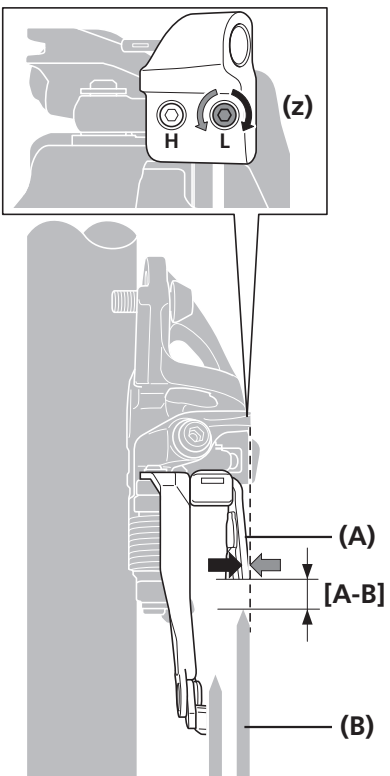
5 mm

(z)

Temporarily attach the front derailleur to the frame.

(z) 5 mm hexagon wrench

2



2 mm

#2

(z)

H L

(A)

[A-B]

(B)

Adjust the low adjustment bolt and align the flat portion of the chain guide outer plate parallel to the flat surface of the largest chainring. Make sure that distance [A-B] from the chain guide to the tip of the teeth of the largest chainring is 1 to 3 mm.

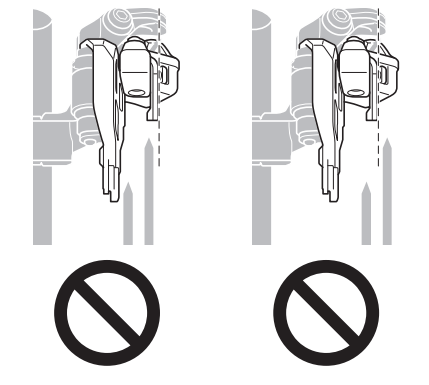
[A-B] 1 - 3 mm

(z) 2 mm hexagon wrench/
Screwdriver[#2]

- (A) Chain guide outer plate
- (B) Largest chainring

NOTE

When confirming the installation position, make sure not to position the chain guide as shown in the illustration.



3

When adjustment is complete, secure the front derailleur to the frame.

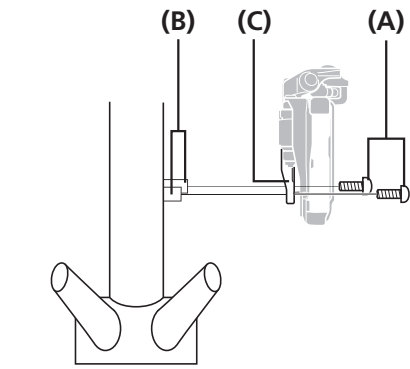
Tightening torque

5 mm

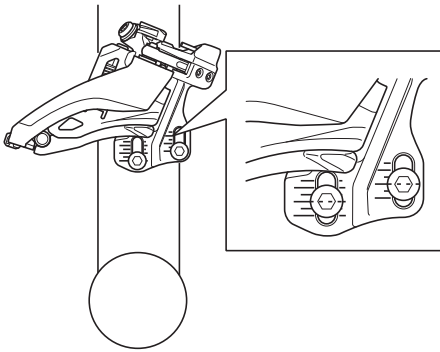
5 - 7 N·m

Type E

1



Fixing position



Secure with bottom bracket mount fixing bolts.
Fixing position varies depending on the number of gear teeth used.
Refer to the illustration for fixing position.

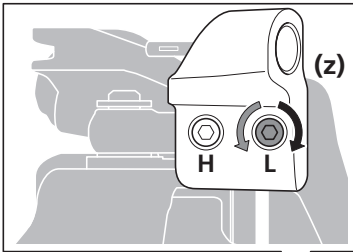
- (A) Bottom bracket mount fixing bolt
- (B) Bottom bracket mount
- (C) Bracket

NOTE

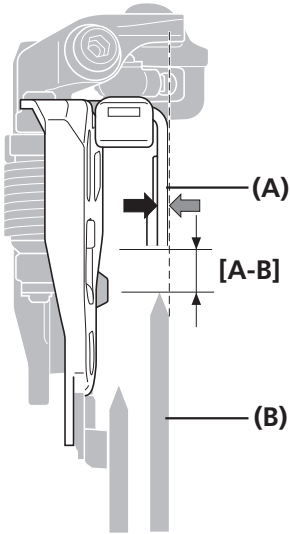
Shimano does not provide the bottom bracket mount fixing bolts.

INSTALLATION

Installation of the front derailleur (Front double)



2



Adjust the low adjustment bolt and align the flat portion of the chain guide outer plate parallel to the flat surface of the largest chainring.

Make sure that distance [A-B] from the chain guide to the tip of the teeth of the largest chainring is 1 to 3 mm after installing the front chainwheel.

If the clearance does not fall within the range, adjust the fixing position with the elongated hole and fix the fixing bolt again.

[A-B] 1 – 3 mm

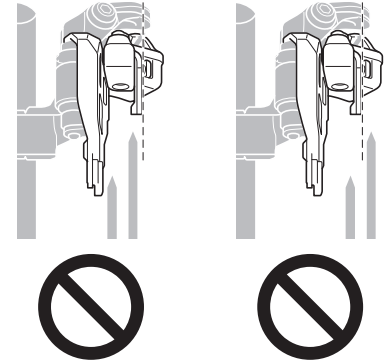
(z) 2 mm hexagon wrench/
Screwdriver[#2]

(A) Chain guide outer plate

(B) Largest chainring

NOTE

When confirming the installation position, make sure not to position the chain guide as shown in the illustration.



ADJUSTMENT

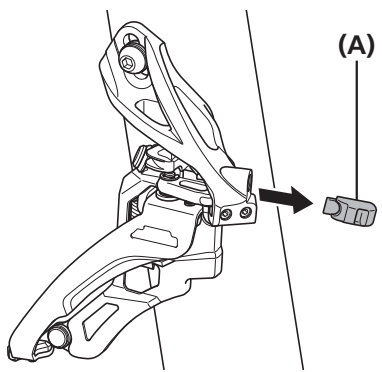
ADJUSTMENT

Adjustment procedures differ depending on whether the bicycle features front triples or front doubles. Before making adjustments, check the specifications of the bicycle.

■ Installing the cable and adjusting shifting operation (Front triple)

Position adjustment of the low side

1



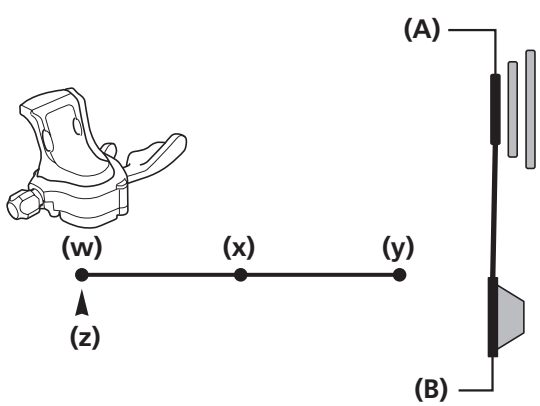
(A)

Remove the Pro-Set alignment block.

(A) Pro-Set alignment block

2

Adjust the chain position to the smallest chainring and the largest sprocket as shown in the illustration.



(w) (x) (y)

(z)

(A)

(B)

(w) Low

(x) Middle

(y) Top

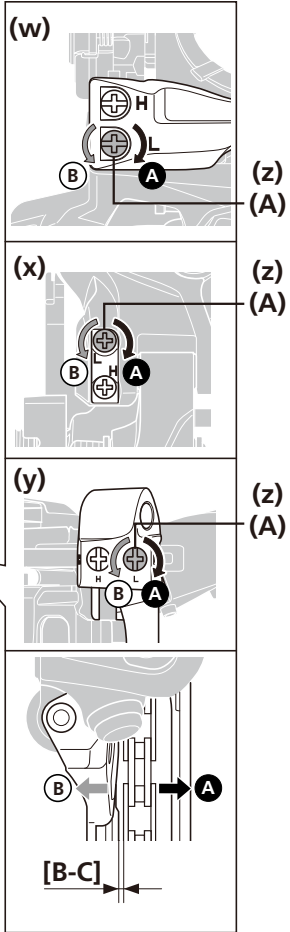
(z) Cable index point

(A) Smallest chainring

(B) Largest sprocket

▶▶ Installing the cable and adjusting shifting operation (Front triple)

3



Adjust the position of the chain guide with the low adjustment bolt.
Adjust the clearance [B-C] between the chain guide inner plate and the chain to be 0 to 0.5 mm.

[B-C] 0 – 0.5 mm

(w) Top swing

(x) Down swing

(y) Side swing

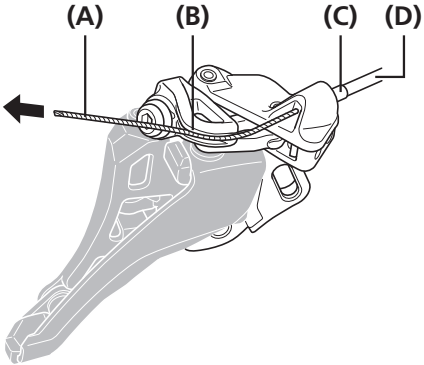
(z) Screwdriver[#2]

- (A) Low adjustment bolt
- (B) Chain guide inner plate
- (C) Chain

Securing the cable

Side swing

1

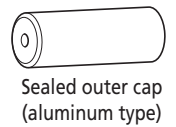
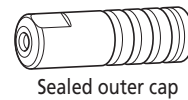


Adjust the shifting lever to the low position.
Run the cable through the front derailleur.
Run the inner cable along the cable guide.

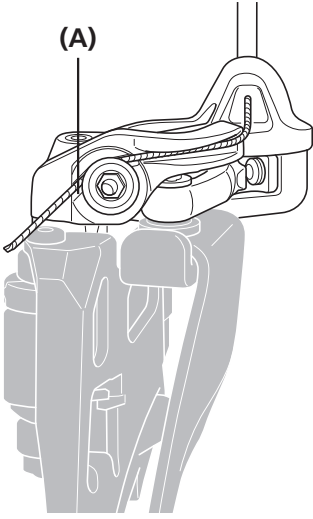
- (A)** Inner cable
- (B)** Cable guide
- (C)** Sealed outer cap
- (D)** Outer casing

NOTE

- Fuzz may be generated when the inner cable is installed or when the coating is damaged during use, but this will not affect its functions.
- If the outer casing moves to a large degree, such as in bicycles with suspension, it is recommended that you use an aluminum type sealed outer cap.



2

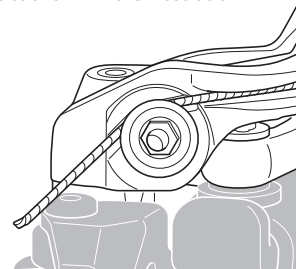


Pass the inner cable through along the cable guide on the top of the fixing bolt.

- (A)** Cable guide

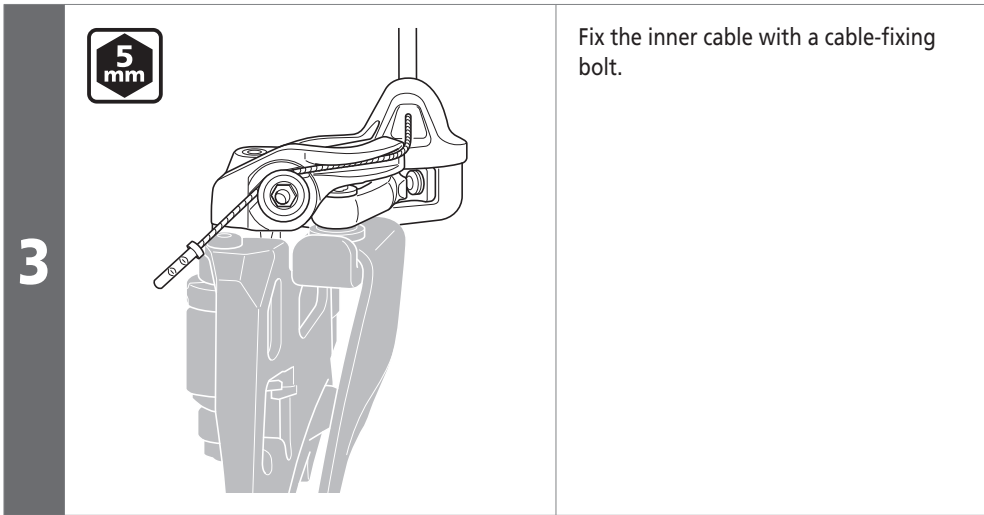
NOTE


Be sure to run the inner cable along the cable guide as shown in the illustration.



ADJUSTMENT

▶▶ Installing the cable and adjusting shifting operation (Front triple)



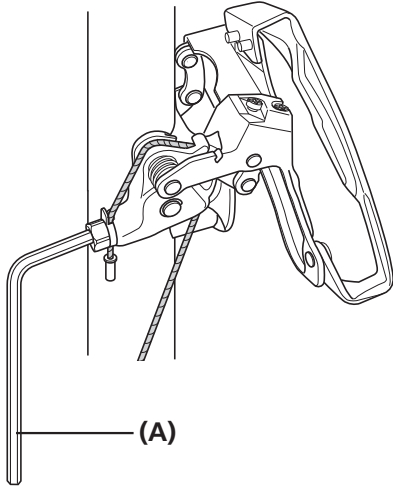
Tightening torque	
	6 - 7 N·m

ADJUSTMENT

▶▶ Installing the cable and adjusting shifting operation (Front triple)

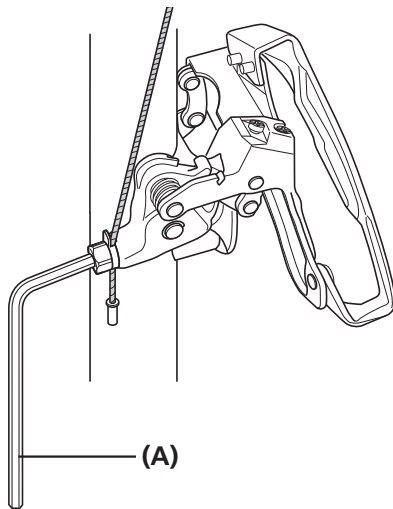
Top Swing

Down pull



Fix the inner cable with a cable-fixing bolt.

Top pull



(A) 5 mm hexagon wrench

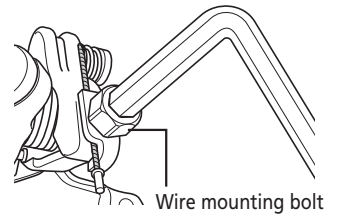
Tightening torque



5 - 7 N·m

NOTE

Run the cable through as shown in the illustration.

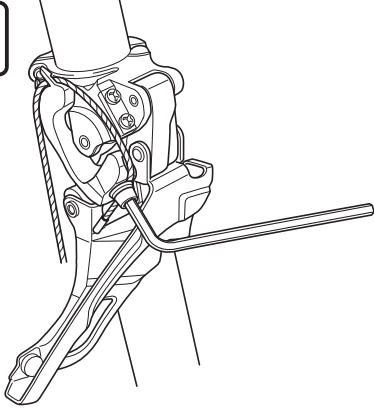


ADJUSTMENT

▶▶ Installing the cable and adjusting shifting operation (Front triple)

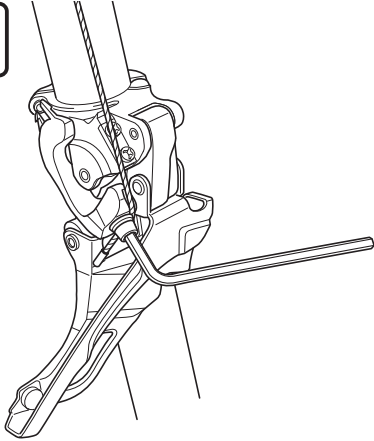
Down swing

Down pull



Use a hexagon wrench to tighten the wire mounting bolt.

Top pull



Use a hexagon wrench to tighten the wire mounting bolt.

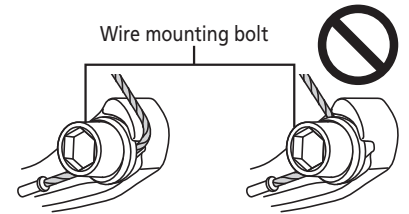
Tightening torque



5 - 7 N·m

NOTE

Run the cable through as shown in the illustration.



Tightening torque

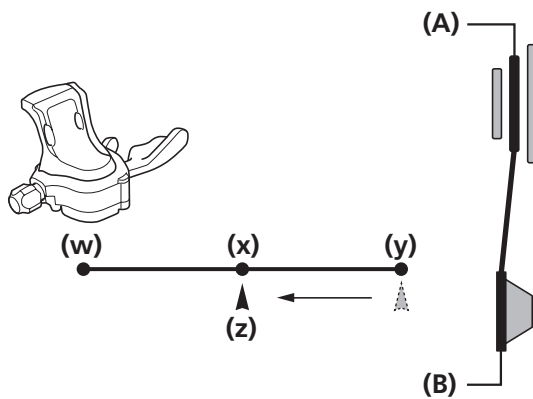


5 - 7 N·m

Adjustment of the cable tension

1

Adjust the chain position to the middle chainring and the largest sprocket as shown in the illustration.



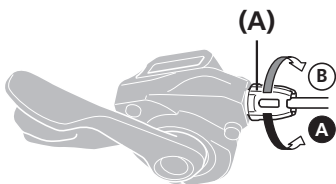
- (w)** Low
- (x)** Middle
- (y)** Top
- (z)** Cable index point

- (A)** Middle chainring
- (B)** Largest sprocket

NOTE

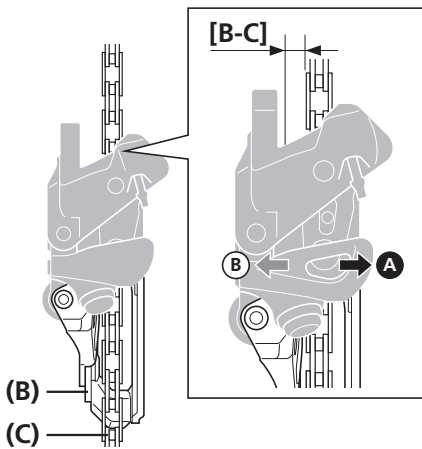
Adjust the lever after operating it from top to middle, not low to middle.

2



Adjust the position with the cable adjuster.
Adjust the clearance [B-C] between the chain guide inner plate and the chain to be 0 to 0.5 mm.

[B-C] 0 – 0.5 mm



- (A)** Cable adjuster
- (B)** Chain guide inner plate
- (C)** Chain

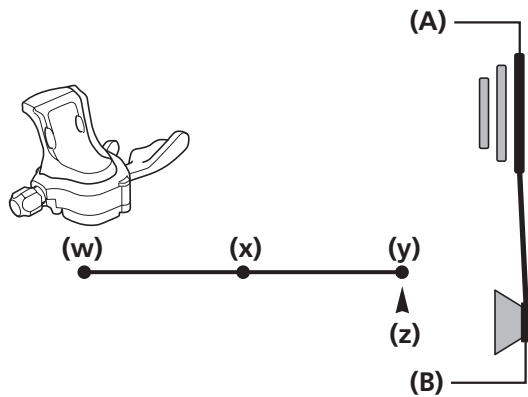


After adjusting the position with the cable adjuster, operate the lever once and check the clearance again.

Top adjustment

1

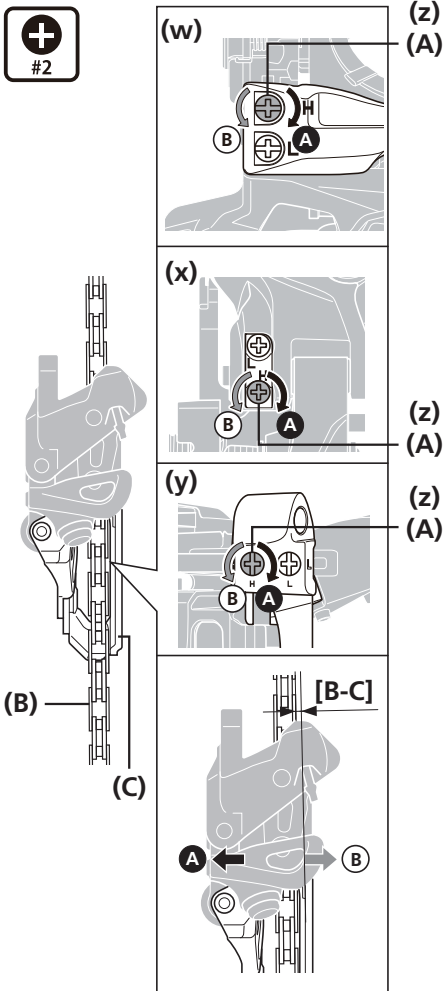
Adjust the chain position to the largest chainring and the smallest sprocket as shown in the illustration.



- (w)** Low
- (x)** Middle
- (y)** Top
- (z)** Cable index point

- (A)** Largest chainring
- (B)** Smallest sprocket

2



Adjust the position of the chain guide with the top adjustment bolt.
Adjust the clearance [B-C] between the chain guide outer plate and the chain to be 0 to 0.5 mm.

[B-C] 0 – 0.5 mm

- (w)** Top swing
- (x)** Down swing
- (y)** Side swing
- (z)** Screwdriver[#2]

- (A)** Top adjustment bolt
- (B)** Chain
- (C)** Chain guide outer plate

ADJUSTMENT

▶▶ Installing the cable and adjusting shifting operation (Front double)

Checking gear shifting and minor adjustments

After the cable is installed and adjusted, check the gear-shift by operating the shifting lever.
(This also applies if shifting becomes difficult during use.)

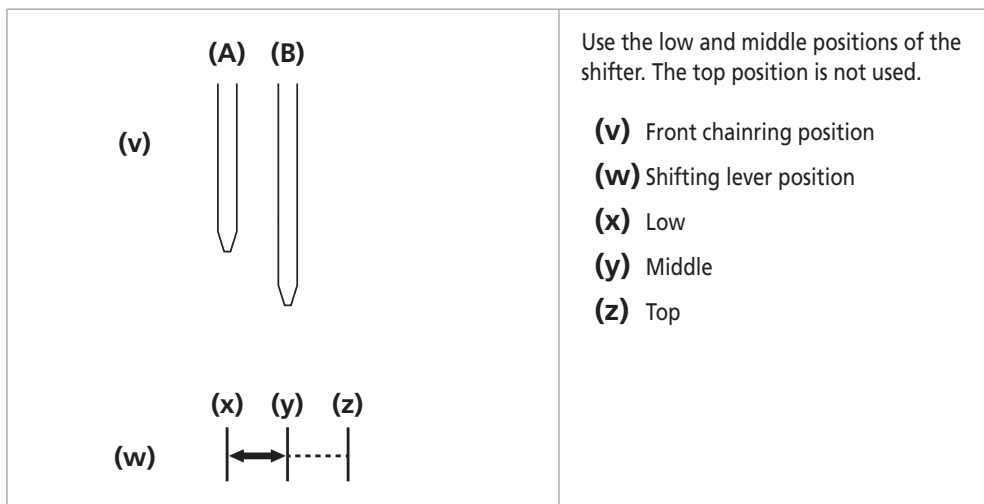
Use the table as a reference when adjusting the bolts. Turn the bolt by 1/8th turn for each adjustment.

If the chain falls to the crank side.	Turn the top adjustment bolt clockwise.
If shifting is difficult from the middle chainring to the largest chainring.	Tighten the cable. If this does not improve the situation, turn the top adjustment bolt counterclockwise.
If shifting is difficult from the largest chainring to the middle chainring.	Loosen the cable.
If the chain falls to the bottom bracket side.	Turn the low adjustment bolt clockwise.
If the middle chainring is skipped when shifting from the largest chainring.	Tighten the cable.
If shifting is difficult from the middle chainring to the smallest chainring.	Turn the low adjustment bolt counterclockwise.

■ Installing the cable and adjusting shifting operation (Front double)

Note: Number of front chainring positions and lever position

For front triple-compatible shifting levers, the procedure for shifting lever operation is as follows.

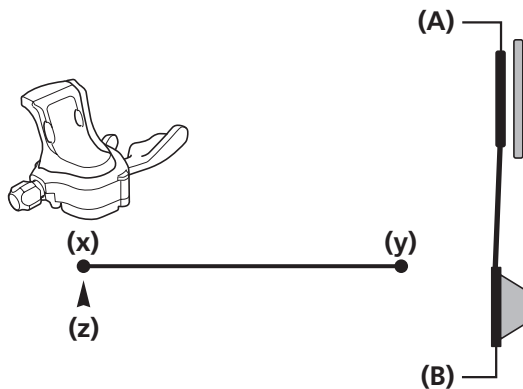


(A) Smallest chainring
(B) Largest chainring

Position adjustment of the low side

1

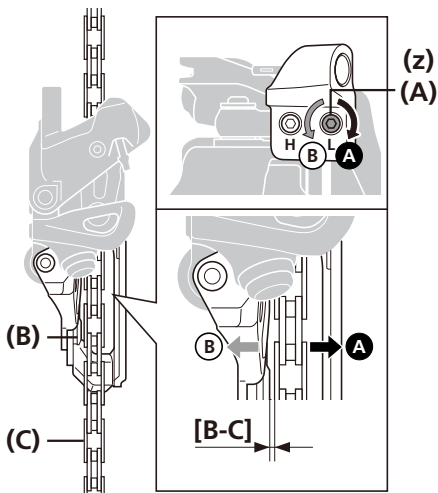
Adjust the chain position to the smallest chainring and the largest sprocket as shown in the illustration.



- (x) Low
- (y) Top
- (z) Cable index point

- (A) Smallest chainring
- (B) Largest sprocket

2



Adjust the position of the chain guide with the low adjustment bolt. Adjust the clearance [B-C] between the chain guide inner plate and the chain to be 0 to 0.5 mm.

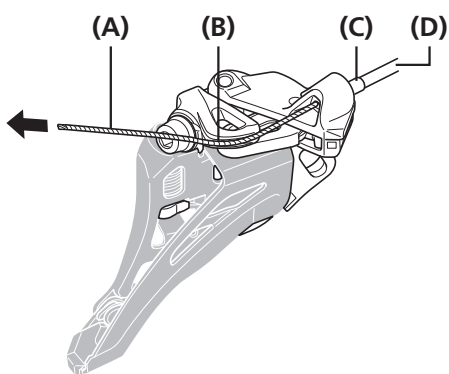
[B-C] 0 - 0.5 mm

(z) 2 mm hexagon wrench / Screwdriver[#2]

- (A) Low adjustment bolt
- (B) Chain guide inner plate
- (C) Chain

Securing the cable

1

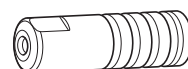


Adjust the shifting lever to the low position.
Run the cable through the front derailleur.
Run the inner cable along the cable guide.

- (A) Inner cable
- (B) Cable guide
- (C) Sealed outer cap
- (D) Outer casing

NOTE

- Fuzz may be generated when the inner cable is installed or when the coating is damaged during use, but this will not affect its functions.
- If the outer casing moves to a large degree, such as in bicycles with suspension, it is recommended that you use an aluminum type sealed outer cap.

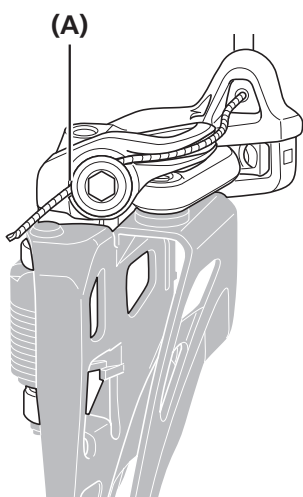


Sealed outer cap



Sealed outer cap (aluminum type)

2

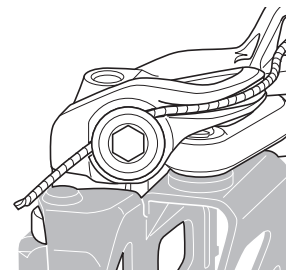


Pass the inner cable through along the cable guide on the top of the fixing bolt.

- (A) Cable guide

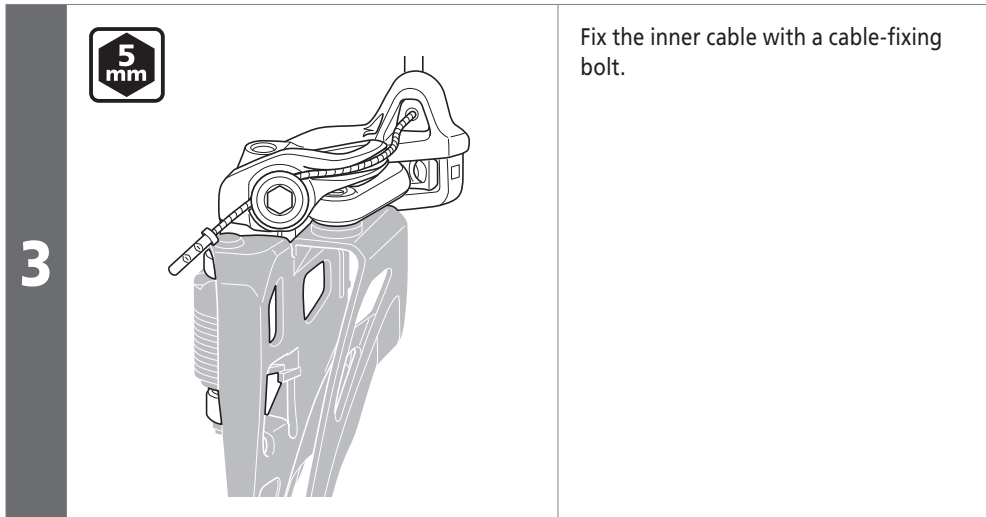
NOTE


Be sure to run the inner cable along the cable guide as shown in the illustration.



ADJUSTMENT

▶▶ Installing the cable and adjusting shifting operation (Front double)

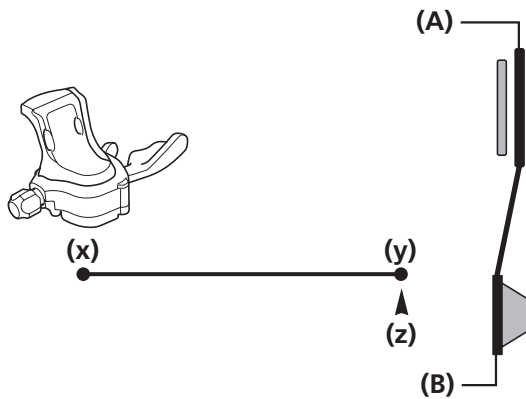


Tightening torque	
	6 - 7 N·m

Adjustment of the cable tension

1

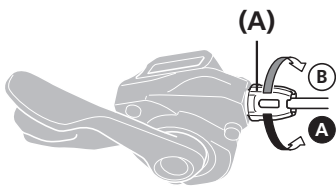
Adjust the chain position to the largest chainring and the largest sprocket as shown in the illustration.



- (x) Low
- (y) Top
- (z) Cable index point

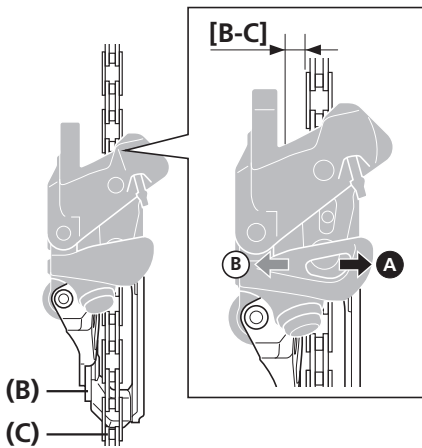
- (A) Largest chainring
- (B) Largest sprocket

2



Adjust the position with the cable adjuster.
Adjust the clearance [B-C] between the chain guide inner plate and the chain to be 0 to 0.5 mm.

[B-C] 0 – 0.5 mm



- (A) Cable adjuster
- (B) Chain guide inner plate
- (C) Chain

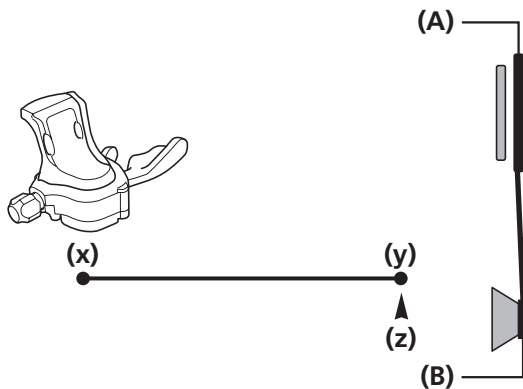


After adjusting the position with the cable adjuster, operate the lever once and check the clearance again.

Top adjustment

1

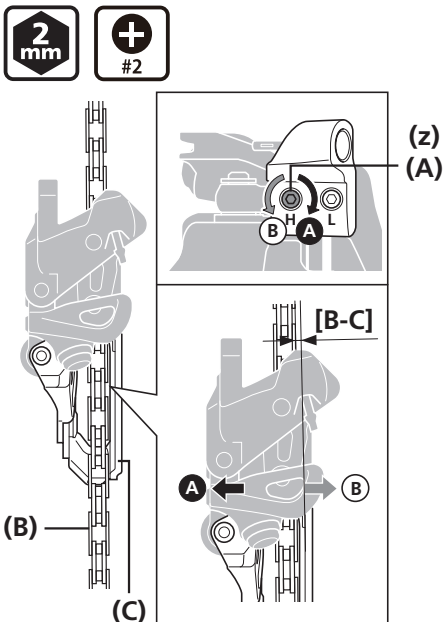
Adjust the chain position to the largest chainring and the smallest sprocket as shown in the illustration.



- (x)** Low
- (y)** Top
- (z)** Cable index point

- (A)** Largest chainring
- (B)** Smallest sprocket

2



Adjust the position of the chain guide with the top adjustment bolt.
Adjust the clearance [B-C] between the chain guide outer plate and the chain to be 0 to 0.5 mm.

[B-C] 0 – 0.5 mm

(z) 2 mm hexagon wrench / Screwdriver[#2]

- (A)** Top adjustment bolt
- (B)** Chain
- (C)** Chain guide outer plate

Checking gear shifting and minor adjustments

After the cable is installed and adjusted, check the gear-shift by operating the shifting lever.
(This also applies if shifting becomes difficult during use.)

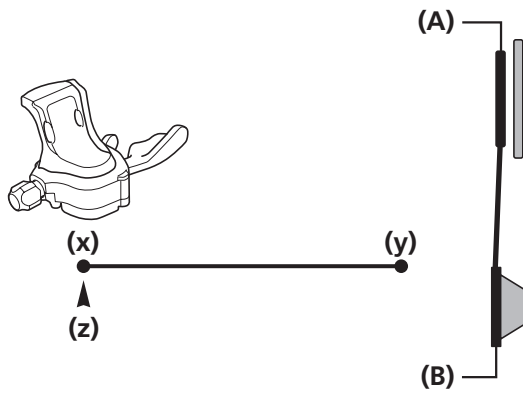
Use the table as a reference when adjusting the bolts. Turn the bolt by 1/8th turn for each adjustment.

If the chain falls to the crank side.	Turn the top adjustment bolt clockwise.
If shifting is difficult from the smallest chainring to the largest chainring.	Tighten the cable. If this does not improve the situation, turn the top adjustment bolt counterclockwise.
If shifting is difficult from the largest chainring to the smallest chainring.	Loosen the cable.
If the chain falls to the bottom bracket side.	Tighten the cable. If this does not improve the situation, turn the low adjustment bolt clockwise.

Fine adjustment of contact between chain and chain guide inner plate

1

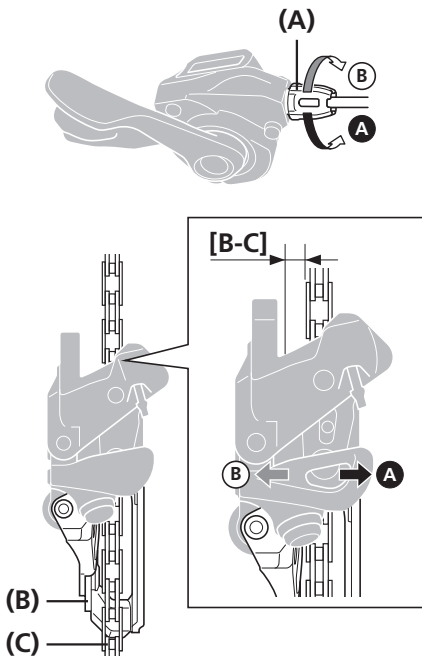
After installing and adjusting the cable, adjust the chain to the smallest chainring and the largest sprocket as shown in the illustration, and then check whether or not contact is made.



- (x) Low
- (y) Top
- (z) Cable index point

- (A) Smallest chainring
- (B) Largest sprocket

2



If contact is made, adjust the position with the cable adjuster so that the [B-C] gap is 0 mm.

- (A) Cable adjuster
- (B) Chain guide inner plate
- (C) Chain

 TECH TIPS

After adjusting the position with the cable adjuster, operate the lever once and check the clearance again.

MAINTENANCE

MAINTENANCE

■ Replacing the chain catcher

Depending on the specifications, there are also models where the chain catcher cannot be replaced.

Removal

#10

Remove the fixing bolt.

- (A) Hexalobular[#10]
- (B) Fixing bolt

Installation

1

Temporarily attach the chain catcher to the chain guide.

- (A) Chain guide
- (B) Chain catcher
- (C) Arm of the chain catcher

2

Securely attach the arm of the chain catcher as shown in the illustration.

- (A) Arm of the chain catcher

3

#10

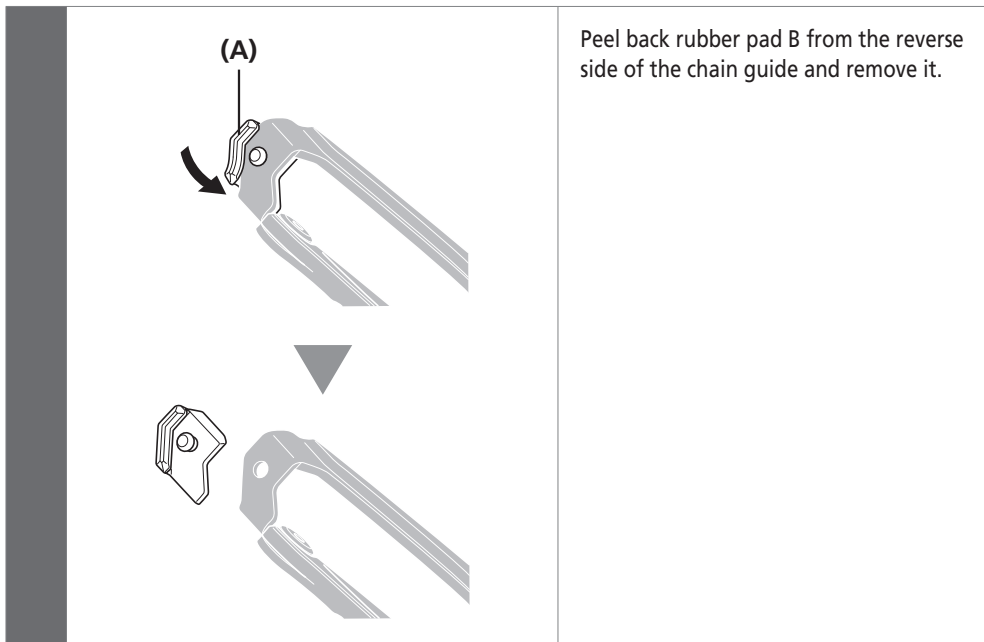
Fix the chain catcher to the chain guide inner plate.

- (A) Hexalobular[#10]
- (B) Fixing bolt
- (C) Chain guide inner plate

Tightening torque	
	1 - 2 N·m

■ Replacing rubber pad B

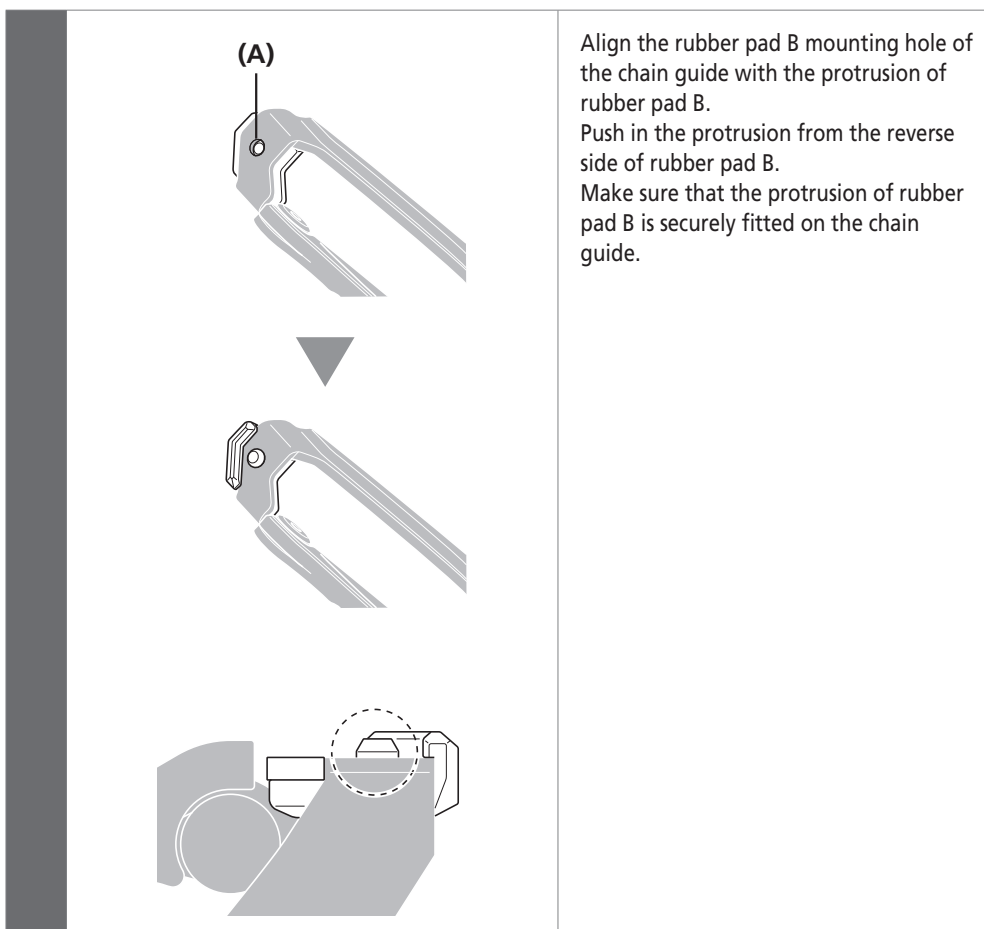
Removal



Peel back rubber pad B from the reverse side of the chain guide and remove it.

(A) Rubber pad B

Installation



Align the rubber pad B mounting hole of the chain guide with the protrusion of rubber pad B.
Push in the protrusion from the reverse side of rubber pad B.
Make sure that the protrusion of rubber pad B is securely fitted on the chain guide.

(A) Rubber pad B mounting hole

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

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