(English) DM-XTR001-01

Dealer's Manual

XTR Di2 M9050 series

MTB

XTR

RD-M9050 FD-M9050

FD-M9070

SM-FD905

SW-M9050

SM-BTC1

SC-M9050

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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.



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

A DANGER

Be sure to also inform users of the following:

■ Lithium ion battery

Be sure to observe the following in order to avoid burns or other injury from fluid leakages, overheating, fire or explosions.

- Use the designated charger to charge the battery. If any non-specified items are used, fire, overheating or leakages may occur.
- Do not heat the battery or throw it into fire. If this is not observed, fire or bursting may occur.
- Do not disassemble or modify the battery or apply solder directly to the battery terminals. Do not leave the battery in places which may exceed 60°C in temperature, such as places which are exposed to direct sunlight inside vehicles on hot days or near stoves. If this is not observed, leakages, overheating or bursting may cause fire, burns or other injury to occur.
- Do not connect the (+) and (-) terminals with metallic objects. Do not carry or store the battery together with metallic objects such as necklaces or hairpins. If this is not observed, short-circuits, overheating, burns or other injury may occur.
- If any liquid leaking from the battery gets into the eyes, immediately wash the affected area with clean water without rubbing the eyes, and then seek medical attention. If this is not done, blindness may occur.

■ Battery charger / Battery charger cord

Be sure to observe the following in order to avoid burns or other injury from fluid leakages, overheating, fire or explosions.

- Do not get the charger wet or use it while it is wet, and do not touch or hold it with wet hands. If this is not observed, problems with operation or electric shocks may occur.
- Do not cover the charger with a cloth or similar while it is in use. If this is not observed, heat may build up and the case may become deformed, or fire or overheating may occur.
- Do not disassemble or modify the charger. If this is not observed, electric shocks or injury may occur.
- Use the charger at the specified power supply voltage only. If a power supply voltage other than that specified is used, fire, explosions, smoke, overheating, electric shocks or burns may occur.
- Do not touch metallic parts of the charger or the AC adapter if there is a lighting storm. When lightning strikes, an electric shock may be caused.

SM-BCR2: Battery charger for SM-BTR2

• Use an AC adapter with a USB port with a voltage of 5.0 VDC and with a current equal to or higher than 1.0 ADC. If the one with a current lower than 1.0 A is used, the AC adapter may heat up, potentially causing a fire, smoke, overheating, destruction, electric shock, or burns.



MARNING

• 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:

- Maintenance interval depends on the usage and riding circumstances. Clean the chain regularly with an appropriate chain cleaner. Never use alkali based or acid based solvents such as rust cleaners. If those solvents are used the chain might break and cause serious injury.
- When the shifting switch is operated, the powerful motor which drives the front or rear derailleur will operate to the shifting lever position without stopping, so be careful not to get your fingers caught.
- Before riding, check that the wheels are secured. Failure to do so may result in serious injury.
- Check the chain for any damage (deformation or crack), skipping, or other abnormalities such as unintended gear shifting. If any problems are found, consult a dealer or an agency. The chain may break, and you may fall.
- Be careful not to let the cuffs of your clothes get caught in the chain while riding, otherwise you may fall off the bicycle.

■ About the multi-shift function

On this system, the multi-shift function can be configured using E-tube Project. The gears will continue to shift when the shifting switch is pressed using the multi-shift function. Shifting speed setting for multi-shift can also be modified. When modifying the shifting speed settings for multi-shift, carefully read "Settings customizable in E-tube Project" in this dealer's manual.

If crank revolutions are set to low under faster setting of the multi-shift shifting speed, the chain will be unable to follow the movement of the rear derailleur, possibly leading to issues such as the chain slipping over the tip of the cassette sprocket teeth, the cassette sprocket deforming, or the chain breaking.

Item	Multi-shift speed	Features	Usage notes	Crank revolution speed when operating multi-shift
Very Fast	High speed	Quick multi-shifting is possible • The crank rotation speed can be adjusted quickly depending on changes in riding conditions. • The speed can be adjusted quickly.	Over-shifting occurs easily. If the rotation speed of the crank is low, the chain will be unable to follow the movement of the rear derailleur. The chain may therefore slip over the tip of the cassette sprocket teeth.	High crank rotation speed
Fast				
Normal	Default setting			
Slow				
Very Slow	Slow speed	Accurate multi-shifting is possible	Multi-shifting takes some time	

By default it is set to Normal.

Fully understand the features of the multi-shift shifting speed, and choose a multi-shift shifting speed setting according to the riding conditions (terrain, riding method, etc.).

■ Lithium ion battery

- Do not place the battery into fresh water or sea water, and do not allow the battery terminals to get wet. If this is not observed, fire, bursting or overheating may occur.
- Do not use the battery if it has any noticeable scratching or other external damage. If this is not observed, bursting, overheating or problems with operation may occur.
- Do not subject the battery to strong shocks or throw it. If this is not observed, bursting, overheating or problems with operation may occur.
- Do not use the battery if leakages, discoloration, deformation or any other abnormalities occur. If this is not observed, bursting, overheating or problems with operation may occur.
- If any leaked fluid gets on your skin or clothes, wash it off immediately with clean water. The leaked fluid may damage the skin.
- The operating temperature ranges for the battery are given below. Do not use the battery in temperatures outside these ranges. If the battery is used or stored in temperatures which are outside these ranges, fire, injury or problems with operation may occur.
- 1. During discharge: -10 °C 50 °C
- 2. During charging: 0 °C 45 °C

SM-BTR1: Lithium ion battery

• If charging is not complete after 1.5 hours of charging, stop charging. If this is not observed, fire, bursting or overheating may occur.

SM-BTR2: Lithium ion battery

• If the battery does not become fully charged after 4 hours of charging, stop charging. If this is not observed, fire, bursting or overheating may occur.

■ Battery charger / Battery charger cord

- Be sure to hold the power cable by the power plug when connecting and disconnecting the power plug from the electrical outlet. If you do not hold the power cable by the power plug, fire or electric shocks may occur.
- If the following symptoms are observed, stop using the device and contact a dealer. A fire or electric shock may be caused.
- * If heat or acrid-smelling smoke is coming out from the power plug.
- * There may be a bad connection inside the power plug.
- Do not overload the electrical outlet with appliances beyond its rated capacity, and use only a 100 240 V AC electrical outlet. If the electrical outlet is overloaded by connecting too many appliances using adapters, overheating resulting in fire may occur.
- Do not damage the power cord or power plug. (Do not damage, process, forcibly bend, twist or pull them, bring them near hot objects, place heavy objects on them or bundle them tightly together.) If they are used while damaged, fire, electric shocks or short-circuits may occur.
- Do not use the charger with commercially-available electrical transformers designed for overseas use, as they may damage the charger.
- Always be sure to insert the power plug as far as it will go. If this is not observed, fire may occur.

SM-BCR2: Battery charger for SM-BTR2

- Do not use any USB cable other than the USB cable which is supplied with the PC linkage device. This may cause a charge error, fire, or failure of the connected PC due to heating.
- Do not connect the charger to PC when it is on standby. This may cause a failure of PC depending on its specifications.
- When connecting or disconnecting the USB cable or the charging cable, be sure to hold the plug of the cable. Failure to do so may cause a fire or electric shock.
- If the following symptoms are observed, stop using the device and contact a dealer. A fire or electric shock may be caused.
 - * If heat or acrid-smelling smoke is coming out from the power plug.
 - * There may be a bad connection inside the power plug.
- If it thunders while charging with an AC adapter with a USB port, do not touch the device, bicycle, or the AC adapter. When lightning strikes, an electric shock may be caused.
- Use an AC adapter with a USB port with a voltage of 5.0 VDC and with a current equal to or higher than 1.0 ADC. If the one with a current lower than 1.0 ADC is used, a charge error may occur or the AC adapter may heat up, leading to a fire.
- Do not use a USB hub when connecting the cable to a PC USB port. This may cause a charge error or fire due to heating.
- Be careful not to damage the charging cable. (Do not damage, process, forcibly bend, twist or pull them, bring them near hot objects, place heavy objects on them or bundle them tightly together.) If they are used while damaged, fire, electric shocks or short-circuits may occur.

TO ENSURE SAFETY

■ Brake

- Each bicycle may handle slightly differently depending on the model. Therefore, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. Improper use of your bicycle's brake system may result in a loss of control or a fall, which could lead to severe injury. For proper operation, consult your professional bicycle dealer or the bicycle's owner's manual. It is also important to practice riding and your braking technique, etc.
- 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 riding 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.

A CAUTION

Be sure to also inform users of the following:

■ Lithium ion battery

• Store the battery in a safe place away from the reach of infants and pets.

SM-BTR1: Lithium ion battery

• When you do not use the battery for a long period, remove and charge the battery before storage.

SM-BTR2: Lithium ion battery

• When you do not use the battery for a long period, charge the battery before storage.

■ Battery charger / Battery charger cord

SM-BCR2: Battery charger for SM-BTR2

• Disconnect the USB cable or the charging cable when performing maintenance.

NOTE

Be sure to also inform users of the following:

- Be careful not to let water get into the terminal.
- Be sure to attach dummy plugs to any unused terminals. If water gets into any of the components, operating problems or rusting may result.
- Be sure to rotate the crank when carrying out switch operations which are related to gear shifting.
- This is a small waterproof connector. Do not repeat connecting and disconnecting it. The waterproof section or the connecting section may become worn or deformed, and the function may be affected.
- The components are designed to be fully waterproofed to withstand wet weather riding conditions; however, do not deliberately place them into water
- Do not clean the bicycle in a high-pressure car wash or deliberately place it in water. If water gets into any of the components, operating problems or rusting may result.
- Handle the products carefully, and avoid subjecting them to any strong shocks. The internal battery may be damaged. If the product has been subjected to a shock, consult a dealer.
- Do not use thinners or similar substances to clean the products. Such substances may damage the surfaces.
- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- Contact the place of purchase for updates of the product software. The most up-to-date information is available on the Shimano website.
- Products are not guaranteed to resist natural wear and deterioration from normal use and aging.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.

■ Lithium ion battery

- Lithium ion batteries are recyclable, valuable resources.
 For information on used batteries, contact the place of purchase or a bicycle dealer.
- Charging can be carried out at any time regardless of the amount of charge remaining. Always be sure to use the special battery charger to charge the battery until it is fully recharged.
- The battery is uncharged at the time of purchase. Before riding, be sure to charge the battery until it is fully charged.
- If the battery has become fully spent, charge it as soon as possible. If you leave the battery without charging it, it will cause the battery to deteriorate.
- The battery is a consumable item. The battery will gradually lose its capacity for charging after repeated use and after time has passed. If the length of time that the battery can be used becomes extremely short, it has probably reached the end of its life, and so you will need to purchase a new battery.
- The life of the battery will vary depending on factors such as the storage method, the usage conditions, the surrounding environment and the characteristics of the individual battery pack.
- If storing the battery away for a long period, remove it when the battery level is 50% or higher or when the green indicator is illuminating in order to prolong its useful life. It is recommended that you charge the battery about once every half a year.
- If the storage temperature is high, the performance of the battery is reduced, and its available time will be shorter. When you use the battery after a long storage period, store the battery indoors where the battery will not be exposed to direct sunlight or rain.
- If the ambient temperature is low, the available time of the battery will be shorter.

SM-BTR1: Lithium ion battery

- When storing the battery away, remove the battery from the bicycle and install the terminal cover first.
- The charging time is approximately 1.5 hours. (Note that the actual time will vary depending on the amount of charge remaining in the battery.)
- If the battery feels difficult to insert or remove, apply specified grease (premium grease) to the part that touches the O-ring at the side.

SM-BTR2: Lithium ion battery

- After removing the battery from the bicycle for storage, install a dummy plug.
- The charging time of an AC adapter with a USB port is about 1.5 hours, and that of computer USB port type about 3 hours. (Note that the actual time will vary depending on the amount of charge remaining in the battery. Depending on the specifications of the AC adapter, recharging via the AC adapter requires as many hours (about 3 hours) as recharging via PC.

■ Battery charger / Battery charger cord

- Use this instrument under the direction of a safety supervisor or the direction for use. Do not allow physically, sensory, or mentally impaired persons, inexperienced persons, or persons with no required knowledge including children to use this instrument.
- Do not allow children to play near this instrument.



Disposal information for countries outside the European Union

This symbol is only valid within the European Union.

Contact the place of purchase or your nearest Shimano agent for advice on disposing of used batteries.

- Charge the battery in indoor places to avoid exposure to rain or wind.
- Do not use the battery charger outdoors or in humid surroundings.
- Do not place the battery charger on dusty floors when using it.
- Place the battery charger on a stable surface such as a table when using it.
- Do not place any objects on top of the battery charger or its cables.
- Do not use the battery charger with the cables tied in a bundle.
- Hold the battery charger by its body, not by the cables, when carrying it.
- Do not apply excessive tension to the cables.
- Do not wash the battery charger or wipe it with detergents.

SM-BCR2: Battery charger for SM-BTR2

- Connect the battery charger directly to a USB port on the PC, without using a USB hub or other similar devices.
- Remove the battery charger and cables before riding the bicycle.
- Do not connect two or more of the same products to the same connection point. This may cause abnormal operation of the products.
- Do not connect or disconnect additional products while other products are being recognized or after they are recognized. This may cause abnormal operation of the products.

For information on how to connect or disconnect additional products, refer to the operation manual for E-tube Project.

- The tightness of the PC link cable will tend to drop after repeated connections and disconnections. If this happens, replace the cable.
- Do not connect two or more PC linkage devices at the same time. They will not operate normally. In addition, operating errors may occur at the PC and it may require the PC to be restarted.
- PC linkage devices cannot be used while the charger is connected.

■ Front derailleur

• Make sure that the plug cover is attached to the terminal when using the product.

■ Rear derailleur

- Be sure to check that the plate body cover and cap are installed before riding the bicycle.
- Make sure that the plug cover is attached to the terminal when using the product.
- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- If there is a large amount of play in the pulleys which causes a lot of annoying noise, ask the place of purchase to replace the pulleys.
- If the chain keeps skipping, ask the place of purchase to replace the chainrings, sprockets and/or the chain.
- You should periodically wash the chainrings in a neutral detergent. In addition, cleaning the chain with neutral detergent and lubricating it can be an effective way of extending the useful life of the chainrings and the chain.
- If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.

For Installation to the Bicycle, and Maintenance:

- Be sure to attach dummy plugs to any unused terminals.
- Be sure to use Shimano original tool TL-EW02 to remove the electric wires.
- The motors of the motor unit cannot be repaired.
- Contact Shimano for information regarding the shipment of the battery charger to South Korea and Malaysia.
- Use an electric wire 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.
- Use the specified cable and cable guide to obtain smooth operation.
- When replacing the brake oil, be careful not to let the oil splash onto the system information display. This may damage the product.

■ Electric wires / Electric wire covers

- Secure the electric wires with binding band so that they do not interfere with the chainrings, sprockets and tires.
- The strength of the adhesive is fairly weak, to prevent the paint on the frame from being peeled off at the same time when removing the electric wire cover for reasons such as replacing the electric wires. If the electric wire cover is peeled off, replace it with a new one. When removing the electric wire cover, do not peel it off too vigorously. If this is not observed, the paint on the frame will peel off too.
- Do not remove the wire holders which are attached to the built-in type electric wires (EW-SD50-I). The wire holders prevent the electric wires from moving inside the frame.
- When installing to the bicycle, do not forcibly bend the electric wire plug. It may result in a poor contact.

■ Shifting switch

- Dummy plugs are installed at the time of shipment from the factory. Do not remove them except when necessary.
- When routing the electric wires, take care to ensure that they do not interfere with the brake levers.

■ Rear derailleur

- Always be sure to adjust the top adjustment bolt and the low adjustment bolt according to the instructions given in the adjustment section.

 If these bolts are not adjusted, the chain may become clamped between the spokes and the large sprocket and the wheel may lock, or the chain may slip onto the small sprocket.
- You should periodically clean the derailleur and lubricate all moving parts (mechanism and pulleys).
- If gear shifting adjustments cannot be carried out, check the degree of parallel of the rear dropouts.
- The pulley has an arrow on it to indicate the direction of rotation. Make sure that the arrow points in the direction of movement of the chain.

The actual product may differ from the illustration because this manual is intended chiefly to explain the procedures for using the product.

For Installation to the Bicycle, and Maintenance:

■ Notes when reinstalling and replacing components

- When the product is reassembled or replaced, it is automatically recognized by the system to allow operation according to the settings.
- If the system does not operate after reassembly and replacement, follow the system power reset procedure above to check the operation.
- If the component configuration changes or malfunction is observed, use the E-tube Project software to update the firmware of each component to the latest version and perform a check again. Also make sure that the E-tube Project software is the latest version. If the software is not the latest version, the component compatibility or the product functions may not be sufficiently available.

Be sure to also inform users of the following:

■ About used batteries

Lithium ion batteries are recyclable, valuable resources.
 For information on used batteries, contact the place of purchase or a bicycle dealer.

■ About system power reset

- When the system fails to operate, the system may be recovered by resetting the system power.
- After the battery is removed, about one minute is usually required for the system power to reset.

SM-BTR1

• Remove the battery from the battery mount. After about one minute, install the battery.

SM-BTR2

• Disconnect the plug from SM-BTR2. After about one minute, insert the plug.

Connection and communication with the PC

• PC linkage devices can be used to connect a PC to the bicycle (system or components), and an E-tube Project can be used to carry out tasks such as customizing single components or the whole system and updating their firmware.

If your versions of E-tube Project software and firmware for each component are not up to date there could be problems operating the bicycle. Check the software version and update it to the latest one.

- PC linkage device: SM-PCE1/SM-BCR2
- E-tube Project: the PC application must be version 2.6 or later
- Firmware: the software inside each component must be version 3.0 or later

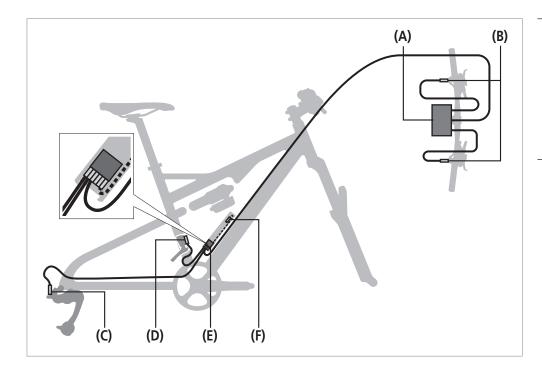


INSTALLATION

■ Electrical wiring diagram

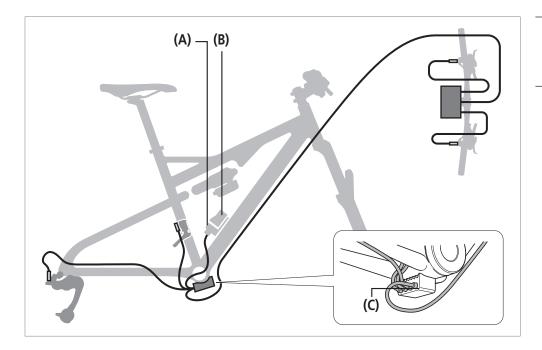
The connections shown below are only examples. The wiring method may differ depending on the type of frame. For details, contact a manufacturer of completed bicycles.

External battery type (without suspension connection/SM-BTC1)



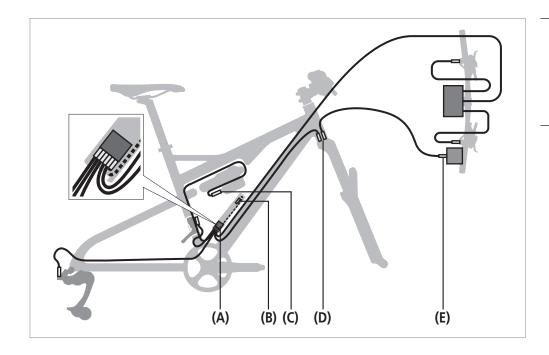
- (A) System information display / junction (A)
- **(B)** Shifting switch
- (C) Rear derailleur
- (D) Front derailleur
- **(E)** Battery case SM-BTC1
- (F) Battery SM-BTR2

External battery type (without suspension connection/SM-JC40)



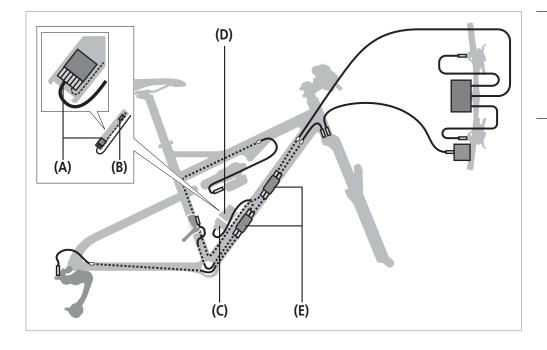
- (A) Battery mount SM-BMR2
- (B) Battery SM-BTR1
- **(C)** Junction (B) SM-JC40

External battery type (with suspension connection/SM-BTC1)



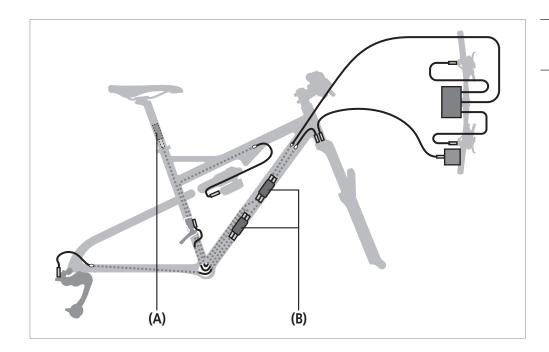
- (A) Battery case SM-BTC1
- (B) Battery SM-BTR2
- **(C)** Rear suspension motor unit
- **(D)** Front suspension motor unit
- **(E)** Suspension lock switch

External battery type (with suspension connection/SM-JC41)



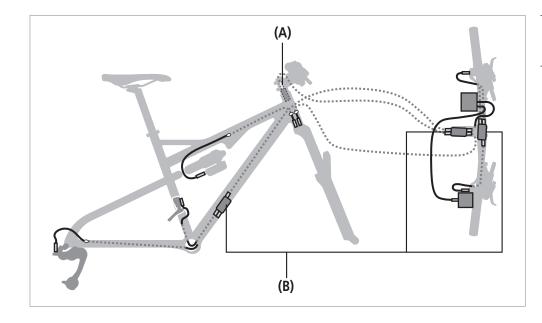
- (A) Battery case SM-BTC1
- (B) Battery SM-BTR2
- **(C)** Battery mount SM-BMR2
- (D) Battery SM-BTR1
- (E) Junction (B) SM-JC41

Built-in battery type (seat post type)



- (A) Battery SM-BTR2
- (B) Junction (B) SM-JC41

Built-in battery type (head tube type)



- (A) Battery SM-BTR2
- (B) Junction (B) SM-JC41

■ List of tools to be used

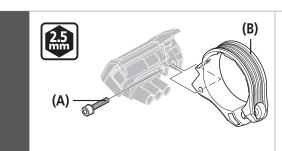
The following tools are required to assemble the product.

	Tool		Tool
2	2 mm Allen key	#8	Hexalobular #8
25	2.5 mm Allen key	#30	Hexalobular #30
3	3 mm Allen key	#2	Screwdriver #2
4	4 mm Allen key	TL-EW02	TL-EW02
5	5 mm Allen key	TL-FDM905	TL-FDM905

■ Installing the system information display

Install the system information display or junction (A) first.

Replacing the clamp band



If using a handlebar with a thick diameter, reinstall it using the included ϕ 35 clamp band.

Remove the case fixing bolt **(A)** with an Allen key and replace the clamp band **(B)**.

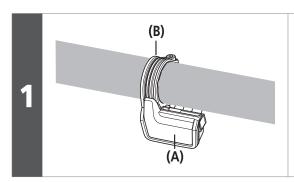
- (A) Case fixing bolt
- (B) Clamp band

Tightening torque



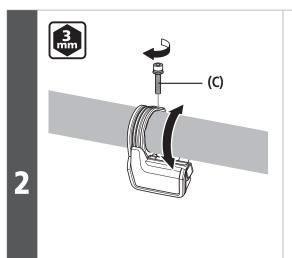
0.6 N·m {5.3 in. lbs.}

Installing to the handlebar



Insert the clamp band **(B)** of the system information display **(A)** into the handlebar.

- (A) System information display
- (B) Clamp band



Adjust the angle of the system information display so that it is easy to see, and then use an Allen key to tighten the clamp bolt **(C)**.

(C) Clamp bolt

3

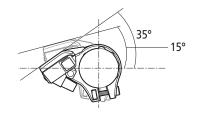
Tightening torque

0.8 N·m {7.0 in. lbs.}

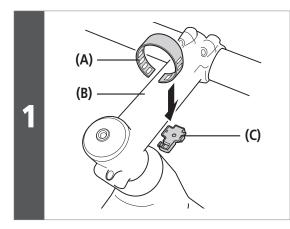
NOTE

Recommended installation angle of the information display:

The angle of the display is between 15° to 35° to the horizontal.

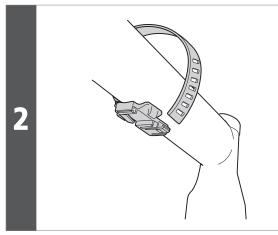


■ Installation of junction (A)



Using band (A) and hook (C) included with SM-EW90, attach to stem (B).

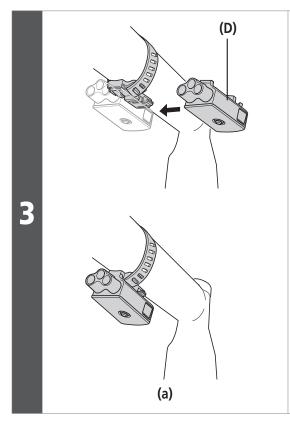
- (A) Band
- (B) Stem
- (C) Hook



Adjust according to the length of the band and the thickness of the stem.

Hook the band on the hook and wind it around the stem.

Pull on and secure the band.



Slide junction (A) **(D)** of SM-EW90 into the rail section of the hook to install it.

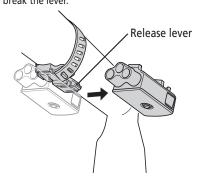
(a) Finished image

(D) SM-EW90 Junction (A)



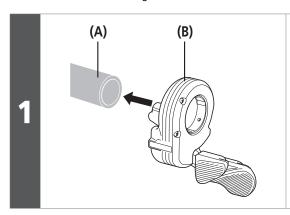
Removal

Pull up the release lever to slide junction (A) in the direction of the arrow for removal. Forcibly pulling up the release lever may break the lever.



■ Installation of the shifting switch

The illustration shows the right-side lever.

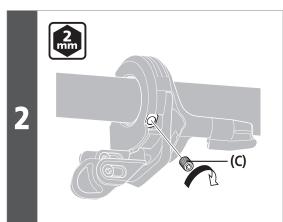


Pass the handlebar (A) through the shifting switch (B).

- (A) Handlebar
- (B) Shifting switch



Applicable handlebars: \$22.2 - \$22.5



Adjust the attachment position and angle, and then use an Allen key to tighten the unit fixing bolt **(C)**.

(C) Unit fixing bolt

Tightening torque



0.9 N·m {7.9 in. lbs.}

NOTE

Attach the lever in a position where it will not touch the brake lever when pushed all the way in.

Adjust the positions of lever X and lever Y.

Loosen the lever fixing bolt (D) using an

Loosen the lever fixing bolt **(D)** using an Allen key, and adjust the lever's position so that it is easy to push.

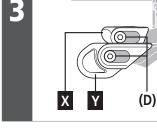
After determining the position, tighten to the designated torque.

(D) Lever fixing bolt

Tightening torque



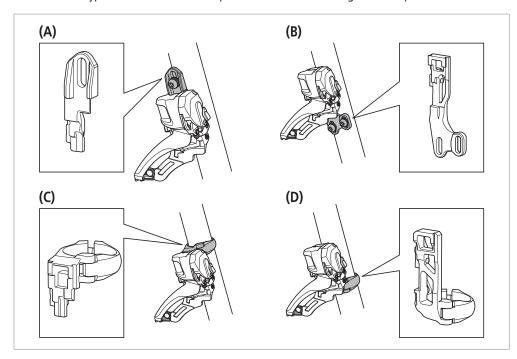
0.5 - 0.7 N·m {4.4 - 6.1 in. lbs.}



■ Installation of the front derailleur

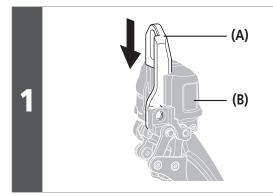
Types of adapters

There are four types of front derailleur adapters. Choose one according to the shape of the frame.



- (A) Type D
- (B) Type E
- (C) High clamp
- (D) Low clamp

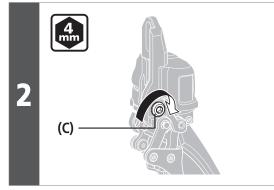
Installing the adapter



Slide the adapter (A) onto the front derailleur (B) and insert it.

(A) Adapter

(B) Front derailleur



Install the bracket fixing bolt **(C)** at the position specified in the illustration, and tighten it with an Allen key.

- * Although the illustration shows a type D adapter, the installation method is the same for all adapters.
- * When replacing, reverse the procedure.

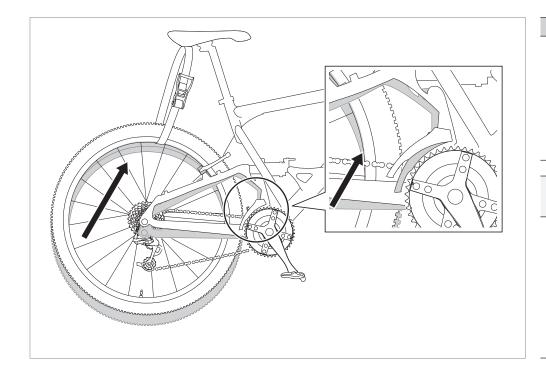
(C) Bracket fixing bolt

Tightening torque



5 - 7 N·m {44 - 61 in. lbs.}

Installation on rear suspension types



NOTE

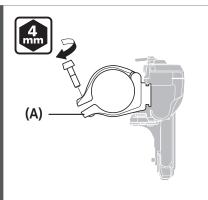
When installing components on the surface of a carbon frame/handlebar, check the tightening torque recommended by the carbon frame or component manufacturer to avoid carbon material damage due to excessive tightening or insufficient component holding force resulting from insufficient tightening torque.



Adjust so that there is a clearance of 1 - 3 mm between the chain guide outer plate and the largest chainring. (Common to all types)

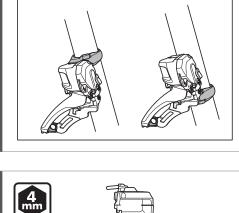
* Bicycles with rear suspensions may be positioned differently between when a rider is off the bicycle and on the bicycle. By referring to the illustration, perform installation and SIS adjustment with the bicycle fixed in a riding condition.

Band type



Install the front derailleur to the frame. Temporarily fix the clamp bolt (A) with an Allen key.

(A) Clamp bolt



Position the front derailleur so that the flat part of the chain guide outer plate (B) is directly above and parallel to the largest chainring (C).

Check that the distance (a) from the tip of the teeth of the largest chainring is 1 to 3 mm.

After adjusting the position, tighten the clamp bolt to the designated torque.

(B) Chain guide outer plate

(C) Largest chainring

Tightening torque



5 - 7 N·m {44 - 61 in. lbs.}

NOTE

Do not position the chain guide as shown in the illustration.

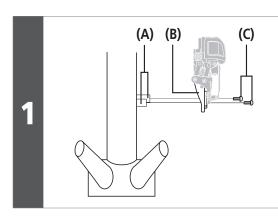






(B) (C)

Type E



Install the front derailleur with the bottom bracket mount fixing bolt (C).

Temporarily fix the bottom bracket mount fixing bolt.

The fixing position varies with the number of gear teeth used.

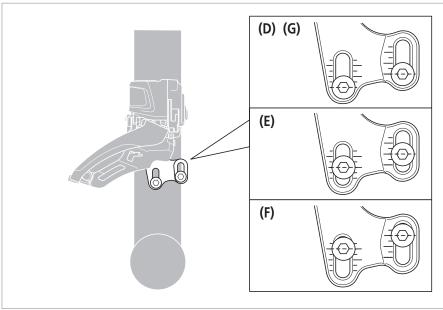
See below for the fixing position.

- (A) BB mount
- (B) Adapter
- (C) BB mount fixing bolt

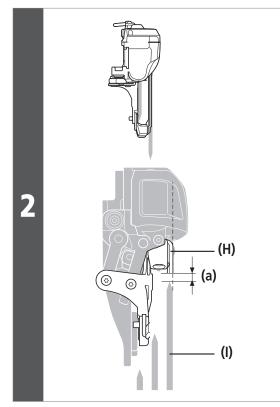
NOTE

Bottom bracket mount fixing bolts are not supplied with Shimano products.

< Fixing position >



- (D) Double: largest chainring 38T
- (E) Double: largest chainring 36T
- (F) Double: largest chainring 34T
- **(G)** Triple: largest chainring 40T



Position the front derailleur so that the flat part of the chain guide outer plate (H) is directly above and parallel to the largest chainring (I).

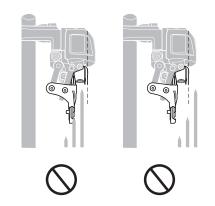
Make sure that distance (a) from the tip of the teeth of the largest chainring is 1 to 3 mm, then mount the fixing bolt.

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

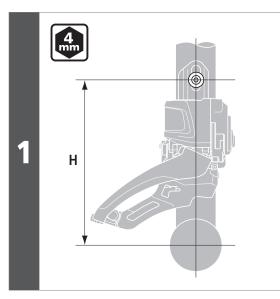
- (H) Chain guide outer plate
- (I) Largest chainring

NOTE

Do not position the chain guide as shown in the illustration.



Type D



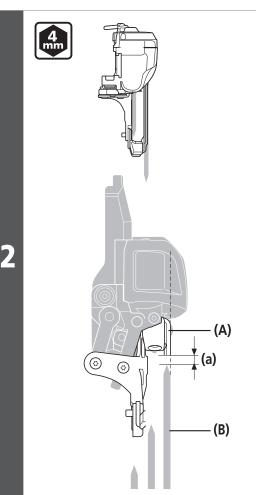
Temporarily fix the front derailleur to the frame.

NOTE

Compatible chainrings vary depending on mount height H. Be sure to check the frame dimensions.

Н	Compatible largest chainring
155.5 mm	34T - 38T
159.5 mm	36T - 38T

* For triple chainrings, the front derailleur can be mounted to both bases.



Position the front derailleur so that the flat part of the chain guide outer plate (A) is directly above and parallel to the largest chainring (B).

Check that the distance (a) from the tip of the teeth of the largest chainring is 1 to 3 mm.

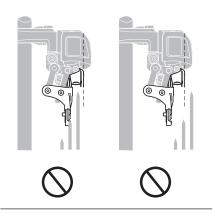
After adjusting the position, tighten the clamp bolt to the designated torque.

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

Tightening torque 5 - 7 N·m {44 - 61 in. lbs.}

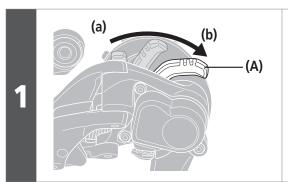
NOTE

Do not position the chain guide as shown in the illustration.



■ Installation of the rear derailleur

Standard type

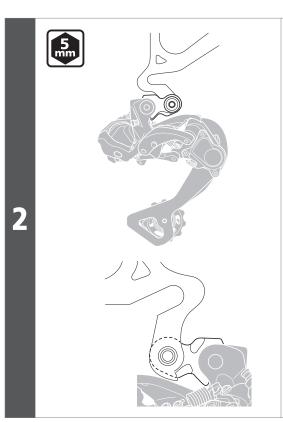


Make sure that the lever switch **(A)** is in the OFF position.

If the lever switch is in the ON position, be sure to move it to the OFF position.

- (a) ON
- **(b)** OFF

(A) Lever switch



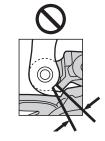
Install the rear derailleur.



8 - 10 N·m {70 - 87 in. lbs.}

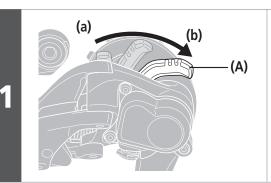
NOTE

Periodically check that there is no gap between the rear dropout and bracket as shown in the illustration. Any gap between them may interfere with shifting performance.





Direct mount type

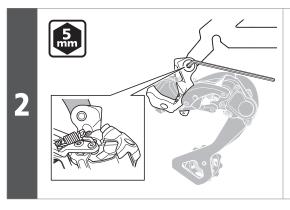


Make sure that the lever switch **(A)** is in the OFF position.

If the lever switch is in the ON position, be sure to move it to the OFF position.

- (a) ON
- (b) OFF

(A) Lever switch

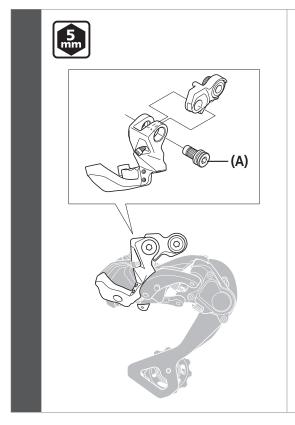


Install the direct-mount rear derailleur.

Direct-mount rear derailleurs can only be installed to frames supporting direct mounting.

8 - 10 N·m {70 - 87 in. lbs.}

< Replacing with a direct mount type >



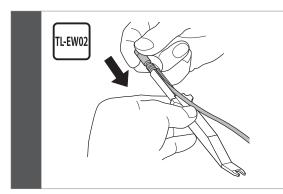
Remove the bracket axle (A).

(A) Bracket axle

■ Connection of the electric wires

Precautions for connecting electric wires

Use the Shimano original tool for installation and removal of the electric wire. When installing electric wires, do not forcibly bend the plug part. It may result in a poor contact. When connecting electric wires, push them in until you feel and hear a click.

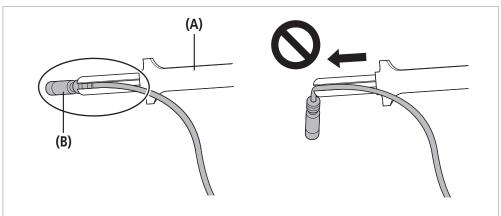


Set so that the projection on the connector is aligned with the groove on the narrow end.

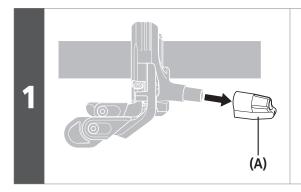
- (A) Shimano original tool TL-EW02
- (B) Plug

NOTE

This is a small waterproof connector. Do not repeat connecting and disconnecting it. The waterproof section or the connecting section may become worn or deformed, and the function may be affected.

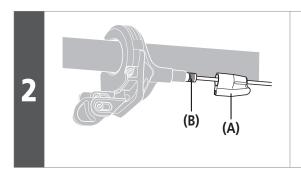


Connecting the shifting switch



Remove the cable cap (A) from the shifting switch.

(A) Cable cap

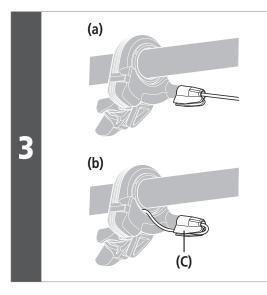


Pass the electric wire **(B)** through the cable cap **(A)**, and connect it to the shifting switch.

- (A) Cable cap
- (B) Electric wires

NOTE

Make sure the electric wire is connected through the cable cap. If the wire is not passed through the cable cap, the electric wire connector may be damaged.



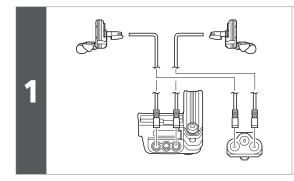
Install the cable cap.

When routing the electric wire along a cable built-in handlebar, run the wire along the guide **(C)** of the cable cap then the handlebar.

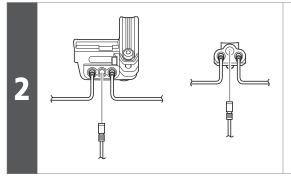
- (a) When routing the electric wire in the direction of the stem
- **(b)** When using a cable-routed handlebar

(C) Guide

Installing the system information display/junction (A)

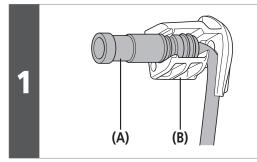


Connect the electric wire of the shifting switch to the system information display or to junction (A).



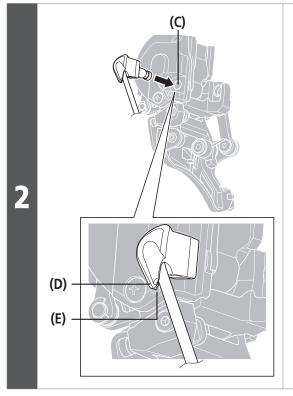
Connect the electric wire that connects to the battery.

Connecting the front derailleur



Install the electric wire (A) to the plug cover (B) as shown in the illustration.

- (A) Electric wires
- (B) Plug cover



Align the plug cover arm **(D)** with the front derailleur groove **(E)**, and push the electric wire connector into the port section **(C)**.

Be sure to push them in until you feel and hear a click.

(C) Port

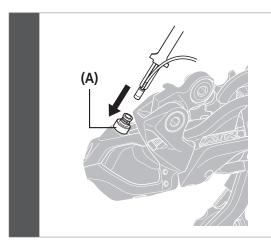
(D) Arm

(E) Groove

NOTE

Be sure to install the plug cover.

Connecting the rear derailleur



Connect the electric wire to the rear derailleur.

When connecting electric wires, push them in until you feel and hear a click.

(A) Plug cover

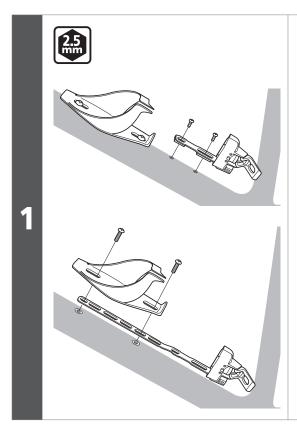
NOTE

Be sure to install the plug cover.

■ Installation of the battery

In the case of an external battery (SM-BTR1)

< Installation of the battery mount >



Set the battery mount into position.

Use the bottle cage fixing bolt to provisionally install the battery mount to the bottom of the bottle cage.

Use the included M4 bolts to secure the short type.

For the long type, secure it with the bolts supplied with the frame or the bottle cage.

Refer to the Service Instructions for the bottle cage for details on the tightening torques.

Tightening torque



1.2 - 1.5 N·m {11 - 13 in. lbs.}

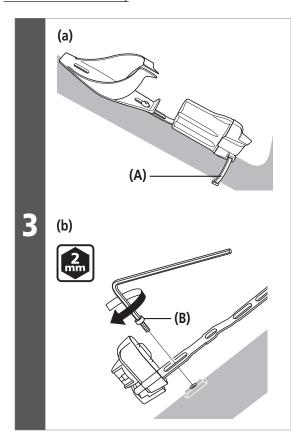
2

Leave a space of 108 mm or more at the end of the battery mount.

Check that the battery can be inserted and removed while the bottle cage is installed.

a. 108 mm

Installation of the battery



Tighten the bolt of the bottle cage to secure the battery mount.

For a long type, use the accessory zip tie (A) to secure the battery mount to the frame.

If there is a mounting boss on the frame, the battery mount can be secured to the frame with a bolt.

- (a) When fixing with a zip tie
- **(b)** If there is a mounting boss on the frame

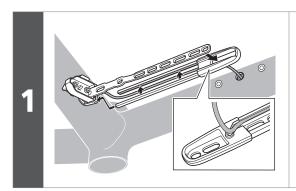
- (A) Zip tie
- **(B)** Battery mount fixing bolt (M4 x 15 mm)

Tightening torque

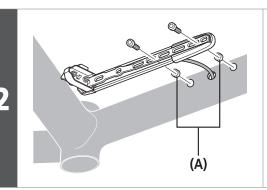


1.2 - 1.5 N⋅m {11 - 13 in. lbs.}

< Installation of the battery cable cover >



Set the electric wire for the battery mount into the groove in the electric wire cover for the battery mount.



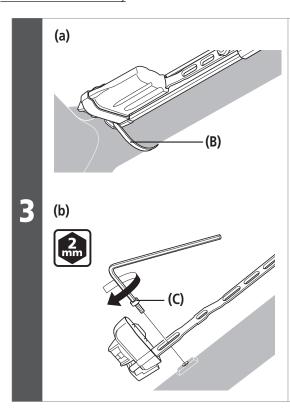
Place the accessory spacers (A) in between the battery mount and the frame and then secure them by tightening the bolts. (A) Spacers



If installing the bottle cage, it is easier to install it at this stage.

Refer to the Service Instructions for the bottle cage for details on the tightening torques.

Installation of the battery



Use the accessory zip tie **(B)** to secure the battery mount to the frame.

If there is a mounting boss on the frame, the battery mount can be secured to the frame with a bolt.

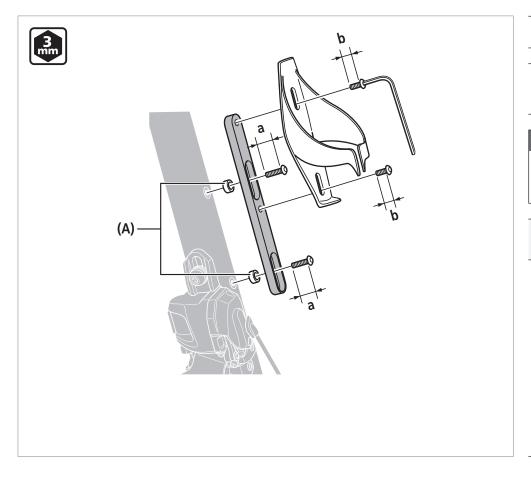
- (a) When fixing with a zip tie
- **(b)** If there is a mounting boss on the frame
- (B) Zip tie
- (C) Battery mount fixing bolt (M4 x 15 mm)

Tightening torque



1.2 - 1.5 N·m {11 - 13 in. lbs.}

< Installation of the bottle cage adapter >



(A) Spacers

a. 15 mm

b. 10 mm

Tightening torque



3 N·m {27 in. lbs.}

TECH TIPS

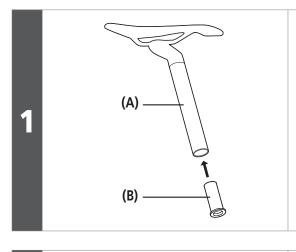
- If the bottle cage which is installed to the seat tube interferes with the battery, move the position of the bottle cage upward.
 The installation position for the bottle cage can be moved upward by a minimum of 32 mm and a maximum of 50 mm from the original installation position.
- If it interferes with the mounting boss for the front derailleur, use the accessory spacer.

Refer to the Service Instructions for the bottle cage for details on the tightening torques.

In the case of a lithium ion battery (built-in type) (SM-BTR2)

< Installation of the lithium ion battery (built-in type) >

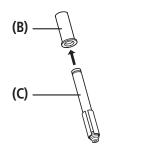
- Depending on the type of frame, the way the lithium ion battery (built-in type) is installed may differ. For details, contact a manufacturer of completed bicycles.
- Prepare a seat post that is compatible with Di2 (SM-BTR2).
 - * If you have any questions, consult with the seat post manufacturer.



Attach seat post collar **(B)** to seat post **(A)**.

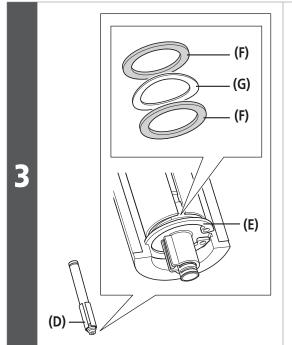
- (A) Seat post
- **(B)** Seat post collar

2



Insert the lithium ion battery (built-in type) **(C)** into the seat post collar from the bottom of the seat post.

- **(B)** Seat post collar
- (C) Lithium ion battery (built-in type) (SM-BTR2)



Mount the washer (F), wave washer (G), and washer (F), in that order, to the groove of the battery adapter (D), and fix them with a snap ring (E).

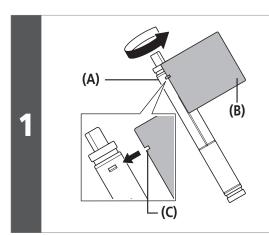
- (D) Battery adapter
- (E) Snap ring
- (F) Washer
- (G) Wave washer



Use snap ring pliers (with a claw diameter of 2.0 mm or less) to mount the snap ring.

In the case of an external battery (SM-BTR2 / SM-BTC1)

< Preparing to install >



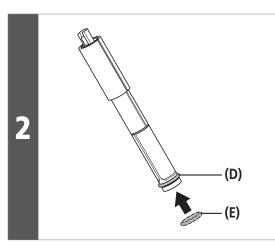
Affix the protective sheet **(B)** to the battery **(A)**.

Remove the back sheet from the back of the protective sheet and wrap the protective sheet around the battery for one turn with the groove (C) in the protective sheet aligned with the groove in the battery as shown in the illustration.

- (A) Battery SM-BTR2
- (B) Protective sheet
- (C) Groove

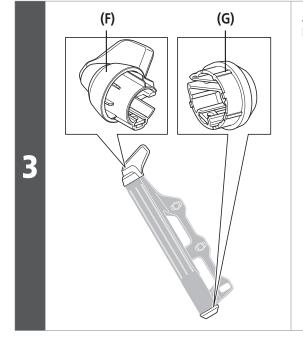
NOTE

Wipe off any dirt or oil from the battery before affixing the protective sheet.



Insert the O-ring **(E)** included with the battery case into the groove **(D)** from below the battery.

- (D) Groove
- (E) O-ring

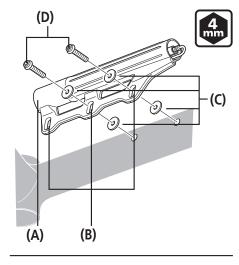


Attach cap A **(G)** and cap B **(F)** of the battery case.

- **(F)** Cap B
- (**G**) Cap A

Installation of the battery

< Installing the battery case and connecting the electric wires >



Use the mounting bolts (D) to mount the battery case (A) to the frame at one of the mounting points so that bolts are in the center of the frame installation holes (B) of the battery case as shown in the illustration.

- (A) Battery case
- **(B)** Frame installation hole
- (C) Washer
- (D) Mounting bolt (M5)

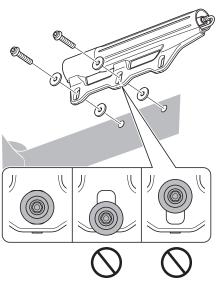
Tightening torque



2.5 - 3 N·m {22 - 26 in. lbs.}

NOTE

When installing the bottle cage, do so using whichever torque is the lowest among the battery case, the frame, or the bottle cage's respective tightening torque upper limits.



(E) (H) (F) (G)

TI-EW02

Connect the electric wires (F).

Connect the electric wires from each component to an empty port in the junction assembly **(E)**.

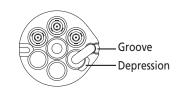
Use the Shimano original tool **(G)** for connection.

Be sure to connect dummy plugs **(H)** to any unused ports.

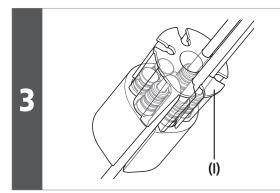
- (E) Junction assembly
- (F) Electric wires
- (G) Shimano original tool TL-EW02
- (H) Dummy plug



The electric wires for battery connection are connected by default. If the electric wires are disconnected, insert the connector into the port with a depression in it, and fix the electric wire to the groove on the side.



Installation of the battery

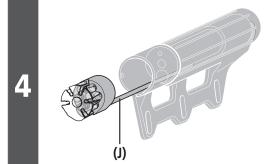


Install the junction spacer (I).

Install the junction spacer and junction assembly so that their directions are aligned as shown in the illustration.

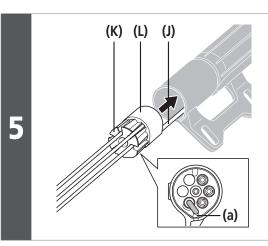
After installation, pass the electric wire through the junction spacer and fix it in place.

(I) Junction spacer



Pass the electric wires for battery connection (J) through the holes on the inside of the battery case, so that the wires come out the top of the battery case.

(J) Electric wire for battery connection



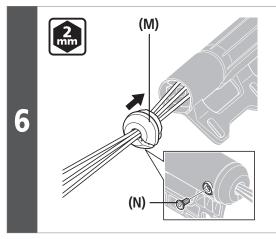
Insert the junction assembly **(L)** and junction spacer **(K)** from below the battery case.

Insert the tab (a) on the junction spacer in the direction shown in the illustration.

(a) Junction spacer tab

- (J) Electric wire for battery connection
- **(K)** Junction spacer

(L) Junction assembly



Pass the electric wires connected to the junction assembly through the hole in cap A (M).

Mount cap A to the battery case as shown in the illustration.

Fix to the battery case using the supplied mounting bolt **(N)**.

(M) Cap A

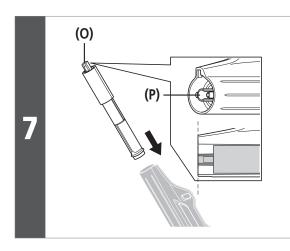
(N) Mounting bolt (M3)

Tightening torque



0.26 - 0.4 N·m {2.3 - 3.5 in. lbs.}

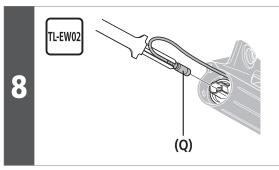
Installation of the battery



With the connecting terminal **(O)** side facing up, insert the battery from the upper part of the battery case.

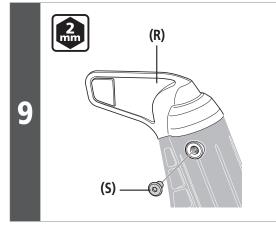
Install so that the connecting terminal opening **(P)** is oriented as shown in the illustration.

- (O) Connecting terminal
- (P) Connecting terminal opening



Connect the electric wire to the battery connecting terminal using the Shimano original tool (Q).

(Q) Shimano original tool TL-EW02



Install cap B (R) to the battery case, and fix it in place using the supplied mounting bolt (S).

(R) Cap B

(S) Mounting bolt (M3)

Tightening torque

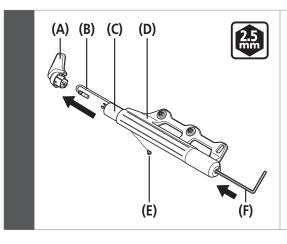


0.35 - 0.45 N·m {3.1 - 3.9 in. lbs.}

NOTE

Make sure that the electric wire is not pinched by the cap.

< Removing the battery >



Remove the mounting bolt **(E)** and cap B **(A)** from the battery case **(D)**.

Disconnect the electric wire **(B)** from the battery **(C)** using the Shimano original tool.

Insert a 2.5 mm Allen key **(F)** into the hole in the cap A on the opposite side and push out the battery.

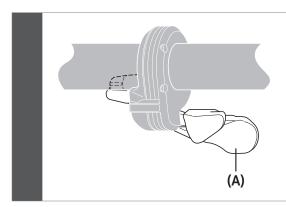
- (A) Cap B
- (B) Electric wires
- (C) Battery
- (D) Battery case
- (E) Mounting bolt (M3)
- (F) 2.5 mm Allen key

■ Connecting the suspension

When connecting the suspension, use one that is compatible with the system. For details on how to connect it, contact the manufacturer of the suspension.

■ Checking connections

Connect the electric wires to all of the components, install the battery, and then check the operation.



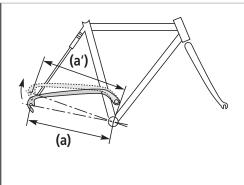
Operate the shifting switches (A) and check that the front derailleur and rear derailleur both operate.

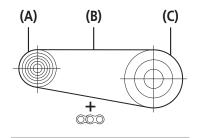
* If the front or rear derailleur does not operate properly, refer to the "Connection and communication with the PC" section.

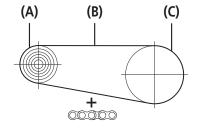
(A) Shifting switch

Installation of the chain

Chain length







The length (a) of will vary depending on the movement of the rear suspension.

Because of this, excessive stress may be placed on the drive system if the chain **(B)** length is too short.

The rear suspension operates and stops when dimension (a) is at its greatest extension.

< In the case of triple and double front chainrings >

The chain **(B)** is engaged with the largest sprocket **(A)** and the largest chainring **(C)**.

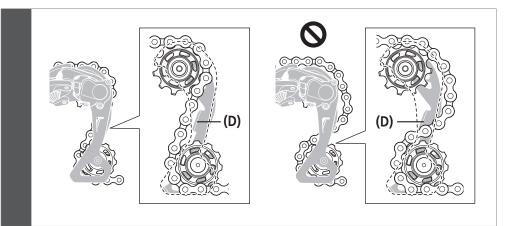
Then, set the length of the chain to the one with two additional links.

< In the case of single front chainrings > The chain (B) is engaged with the largest sprocket (A) and the front chainring. Then, set the length of the chain to the one with four additional links.

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

NOTE

If the amount of movement of the rear suspension is large, the slack in the chain may not be taken up properly when the chain is on the smallest chainring and smallest sprocket. Add 2 links (with the chain on both the largest sprocket and the largest chainring).

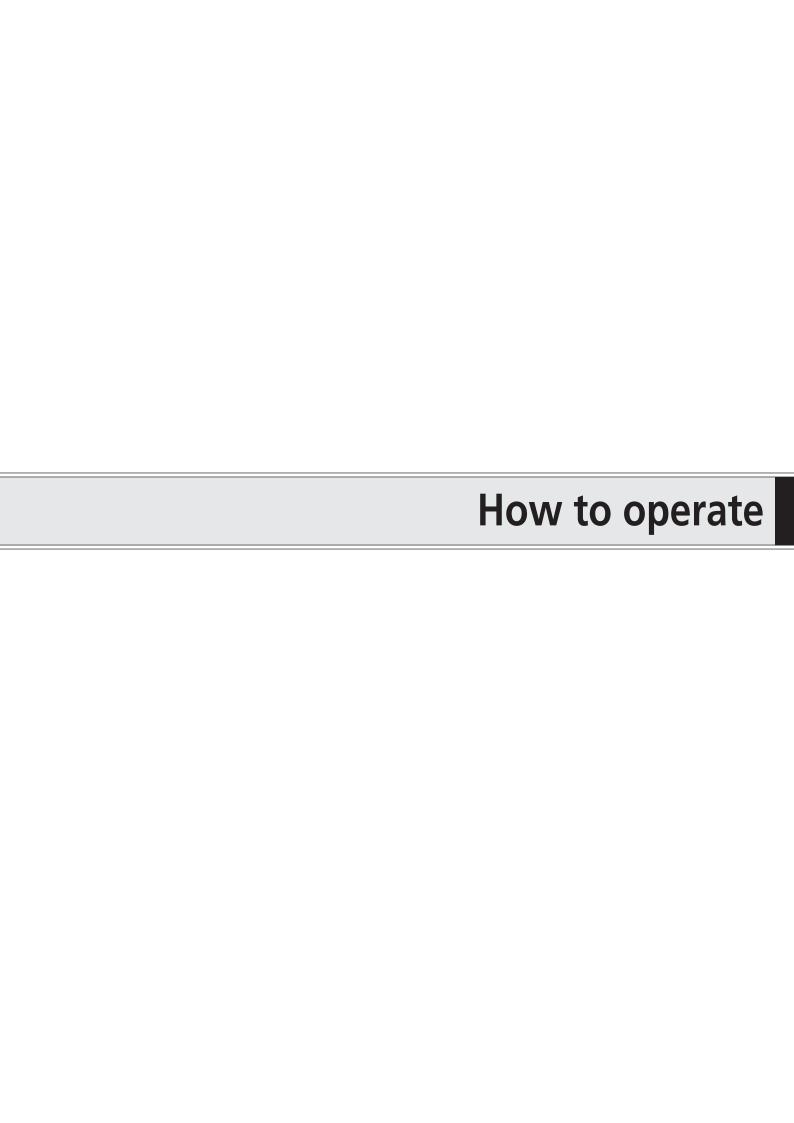


(D) Chain derailment prevention plate

NOTE

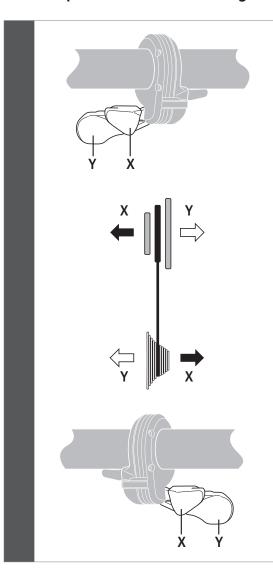
The rear derailleur plate assembly is equipped with a pin or plate that prevents the chain from derailing.

When passing the chain through the rear derailleur, pass it through the rear derailleur body from the side of the chain derailment prevention plate as shown in the illustration. If the chain is not passed through the correct position, damage may be caused to the chain or rear derailleur.



How to operate

■ Basic operations of the shifting switch



Factory default setting of the shifting switch:

The shifting switch is set at default to shift the gear in the directions shown in the illustration.

NOTE

Check the firmware version of the system before use

Check the version compatibility of the firmware according to the "Connection and communication with the PC" section. If the firmware is old, update it to the latest version.



You can configure the settings in E-tube Project. For details, refer to "Connection and communication with the PC"-"Settings customizable in E-tube Project".

Gear position control

Gear position control

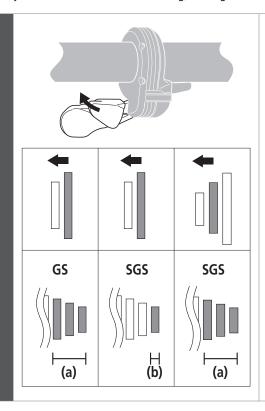
This gear-shifting system is programmed to prevent shifting into gears that would lower the chain tension.

Therefore, if you try to shift into such gears, shifting may function differently from the basic operations.

The illustration below shows the gear positions that would lower the chain tension and the shifting operations performed when you shift into those gears.

< Points to remember when shifting the front derailleur >

When you shift into the smallest chainring, shifting is controlled as follows.



When the chain is in the range specified in (a) or (b), operating the shifting switch does not shift the front derailleur. Instead, the rear derailleur is shifted down through two gears.

When the chain position is outside the range specified in (a) or (b), operating the shifting switch shifts the front derailleur to the smallest chainring.

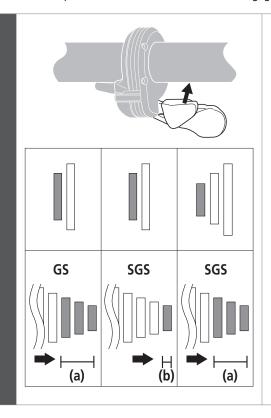
- (a) From the smallest to the third sprocket.
- (b) Smallest sprocket

NOTE

- It is not recommended to use triple front chainrings with a GS rear derailleur.
- If you use combinations of front and rear derailleurs besides those recommended, the shifting-restricted range may become larger.

< Points to remember when shifting the rear derailleur >

When the chain position is in the smallest front chainring, gear shifting is controlled as follows.

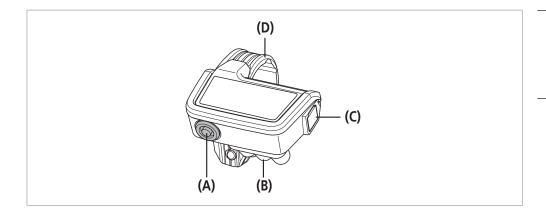


When you try to shift into a smaller rear sprocket, operating the shifting switch does not shift the rear derailleur into the range specified in (a) or (b).

- (a) From the smallest to the third sprocket.
- **(b)** Smallest sprocket

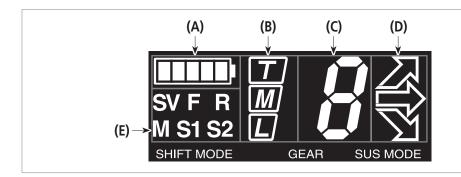
■ Displaying and operating the system information display

Names of parts



- (A) Mode switch
- (B) Terminal section
- (C) Charging port
- (D) Clamp band

Basic screen display



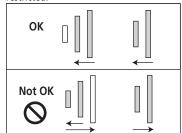
- (A) Battery level
- (B) Front derailleur Gear position
- (C) Rear derailleur Gear position / Adjustment level
- (D) Suspension setting
- (E) Operation mode

< (A) Battery level >

Display	Battery level
	81% - 100%
	61% - 80%
	41% - 60%
	26% - 40%
	1% - 25% *1*2*3
	0% *3



- * 1 When the battery level is low, the operation of the suspension will be limited to the lock release. The operation of the rear suspension is restricted first, then that of the front suspension.
- * 2 When the battery level drops below 5%, the operation of the front derailleur is restricted.



* 3 When the battery level decreases further, both the suspensions and derailleurs cease operating, with the derailleurs fixed at the last shifted position. The battery indicator blinks for 2 seconds at the time of input operation. It is recommended to charge the battery as soon as possible.

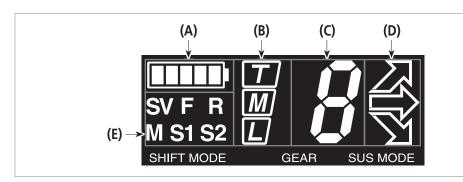
< (B) Front derailleur Gear position >

Display	Gear position
T	Largest chainring
M	Middle chainring
	Smallest chainring



The gear position of the front derailleur is displayed.

* In the case of double specification, only the largest chainring and smallest chainring are displayed.



- (A) Battery level
- **(B)** Front derailleur Gear position
- (C) Rear derailleur Gear position / Adjustment level
- (D) Suspension setting
- (E) Operation mode

< (C) Rear derailleur Gear position / Adjustment level >

Setting mode	Details	
Shift mode	The gear position of the rear derailleur is displayed.	
Adjustment mode	When adjusting the front derailleur and rear derailleur, the adjustment level is displayed.	



TECH TIPS

The display information varies depending on the mode setting.

< (D) Suspension settings >

Display	Details
	If the suspension settings are already configured, one of the settings can be selected from the screen indications. *1*2
	If the suspension settings are not configured, the suspensions are not connected, or the battery level is running low, the display will be blank.

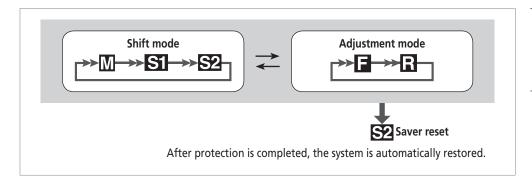
Three types of front and rear suspension combinations can be configured. * 1 Suspension settings are configured in

- E-tube Project. For details, consult a dealer or an agency.
- * 2 Depending on the type of suspension, settings may be factory configured at the time of shipment. Check the indications displayed on the information display screen, and if the arrows are displayed, be sure to check the setting details.

< (E) Operation mode >

Display	Mode	Details	
SV	Saver reset	The protection function is reset.	
F R	Front derailleur / rear derailleur Adjustment	Adjustment setting is done in this mode. For the setting procedure, contact a dealer or an agency.	
M	Manual shift	Gears are shifted manually in this mode.	
S1	Synchronized shift 1	The front gears are shifted according to the rear gear position. This setting mode is designed for riders with strong legs.	
S2	Synchronized shift 2	The front gears are shifted according to the rear gear position. This setting mode is designed for courses with considerable terrain variation.	

How to operate

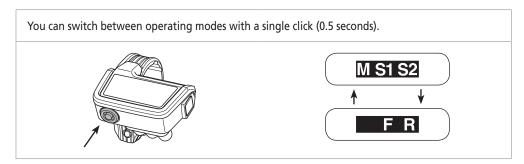


→ Single click (0.5 seconds)

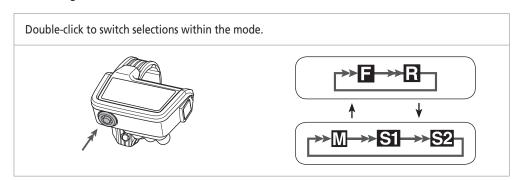
→ Double click

Pressing and holding down (5 seconds or more)

< Switching operating modes >

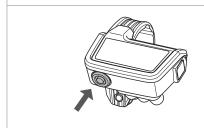


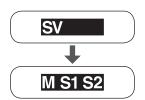
< Switching selections in each mode >



< Saver reset >

Pressing the mode button for at least five seconds when the protection function is operating will reset the system connection and return to normal operation.







In cases where the rear derailleur is pressed in by a strong impact such as when falling from the bicycle, the protection function intentionally cuts the transmission of power between the motor and the link. The rear derailleur does not operate when the protection function is operating. If this happens, pressing the mode button on the system information display or the button on junction (A) for 5 seconds or more will restore the connection between the motor and the link and the rear derailleur will start operating normally. The connection can also be restored manually. For details, contact the distributor.



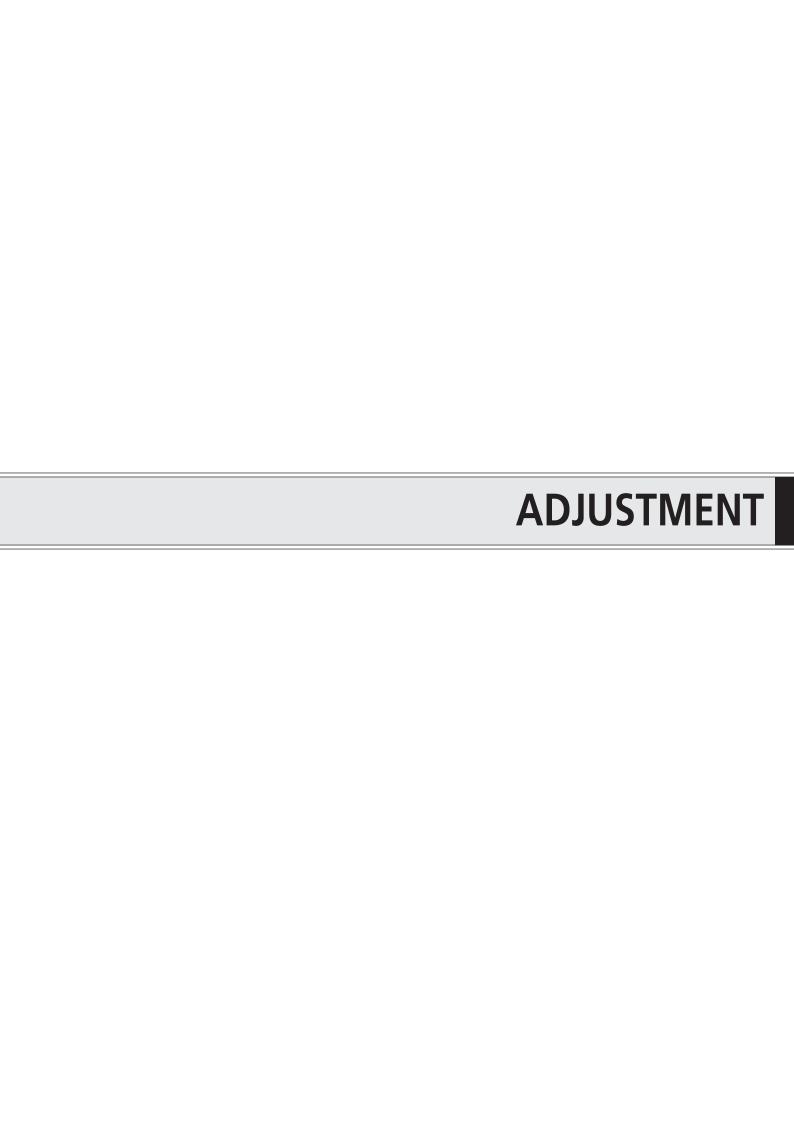
■ Error message

About the beep

Beep sounds	Situation	
One short beep	Indicates that the gear shifting limit has been reached. (When the chain is on the highest gear for both front and rear or lowes gear for both front and rear)	
Two short beeps	Indicates that the front gears are being shifted in the synchronized shift mode. These beeps sound the next time the front gears are shifted.	
One long beep	Indicates that the front derailleur cannot be shifted when the battery is running low. (Only one beep sounds when the gears are shifted)	



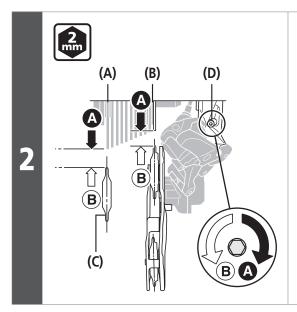
Beeps are set to sound in the following situations during gear operation.



ADJUSTMENT

■ Adjustment of the rear derailleur

Install the battery.



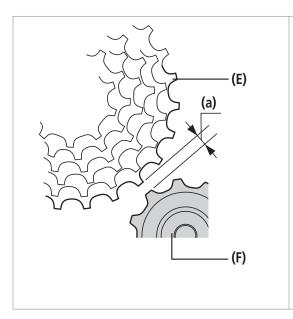
Adjust the end adjustment screw (D).

Mount the chain on the smallest chainring and the largest sprocket (A), and turn the crank arm.

Adjust the end adjustment screw **(C)** so that the guide pulley does not interfere with the sprocket, but do not let the guide pulley come so close to the chain that they come into contact with each other.

- (A) Largest sprocket
- (B) Smallest sprocket
- (C) Guide pulley
- (D) End adjustment screw

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



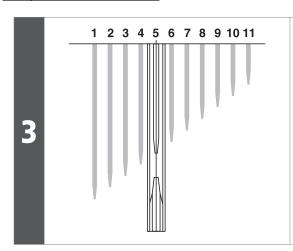
Set the rear derailleur on the largest sprocket (E), and with the wheel stopped, make sure that the clearance between the tip of the guide pulley (F) and the tip of the largest sprocket is within the range of 5 to 6 mm.

(a) 5 - 6 mm

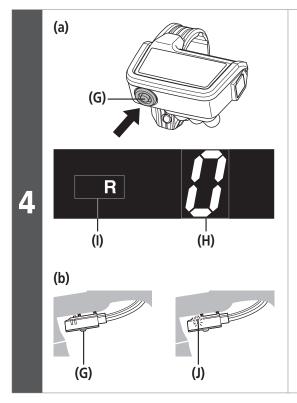
- **(E)** Largest sprocket
- **(F)** Guide pulley

NOTE

Check the distance between the largest sprocket and the guide pulley with the rear suspension at its greatest extension.



Shift the rear derailleur to the 5th sprocket position.



Switch to adjustment mode (I).

(a) In the case of system information display

Single-click the button **(G)** (approx. 0.5 seconds) to switch to adjustment mode. The adjustment mode indicator "R" flashes.

(b) In the case of Junction (A)

Press the junction (A) button (G) until the red LED (J) lights up.

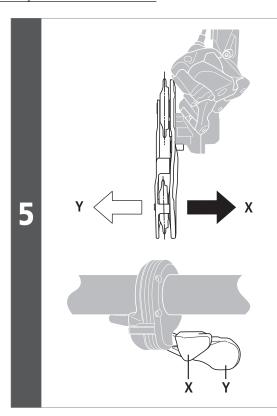
- (G) Button
- (H) Adjustment level
- (I) Adjustment mode
- (J) Red LED

NOTE

In the case of the junction (A), note that if you keep pressing the button after the red LED has illuminated, protection recovery operation will begin.



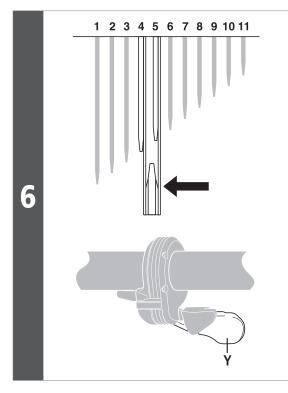
For details on the protection function, refer to "About the protection function" in the user's manual for the rear derailleur (Di2).



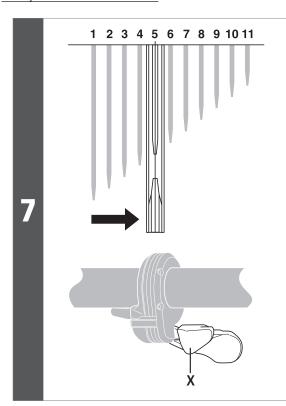
If shifting switch **(Y)** is pressed once while the initial setting condition is active, the guide pulley will move one step toward the inside.

If shifting switch **(X)** is pressed once, the guide pulley will move one step toward the outside.

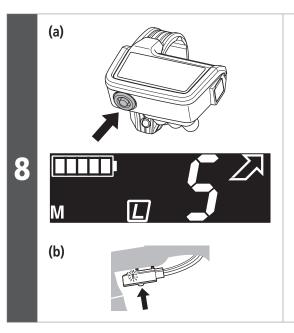
The guide pulley can move 16 steps inward and 16 steps outward from the initial position, for a total of 33 positions.



While turning the front chainwheel, operate shifting switch (Y) to move the guide pulley toward the inside until the chain touches the 4th sprocket and makes a slight noise.



Next, operate shifting switch (X) 5 times to move the guide pulley toward the outside by 5 steps to the target position.



Exit adjustment mode.

(a) In the case of system information display

Single-click the button (approx. 0.5 seconds) to switch from adjustment mode to shift mode.

(b) In the case of Junction (A)

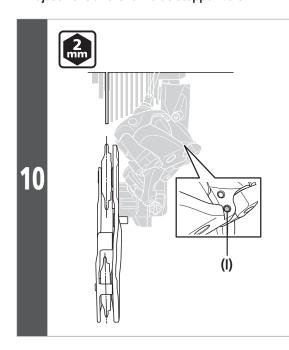
Press the button at junction (A) until the red LED turns off in order to switch from rear derailleur adjustment mode to gear shifting mode.

9

Shift to each gear and check that no noise or chain jamming is generated at any gear position.

If slight adjustment is needed, switch back to adjustment mode and readjust the rear derailleur.

< Adjustment of the low-side stopper bolt >



Then, adjust the low-side stopper bolt (I) with a 2 mm Allen key.

Shift the rear derailleur to the largest sprocket, and then tighten the low-side stopper bolt until it touches against the stopper.

If it is tightened too much, the motor will detect a problem and gear shifting operation will not be carried out correctly.

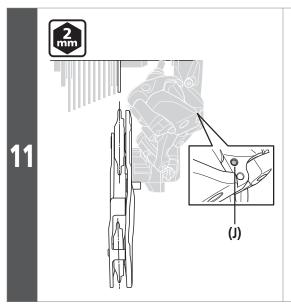
(I) Low-side stopper bolt



Possible occurrences if the adjustment bolt is overtightened

- Gears do not shift to the top/low gear.
 (Even if you shift gears to the top or low gear, the gear may shift back by one gear after about 5 seconds.)
- Noise does not stop.
- The battery level drops quickly. (load is being placed on the motor)
- The motor may be damaged. (irreparable)

< Adjustment of the top-side stopper bolt >



Then, adjust the top-side stopper bolt (J) with a 2 mm Allen key.

Shift the rear derailleur to the smallest sprocket, and then tighten the top-side stopper bolt until it touches the stopper at the position where the rear derailleur finally stopped.

(J) Top-side stopper bolt

Adjustment of the front derailleur

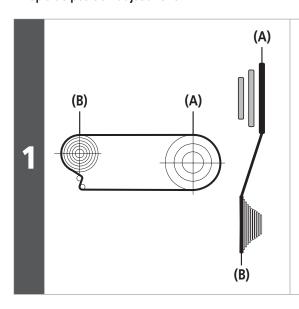
Adjust the front derailleur using the following procedure.

- Top side position adjustment
 Use the adjustment screw of the front derailleur for adjustment.
- Middle position adjustment (for front triple), low position adjustment
 Switch the information display to adjustment mode and use the shifting switch for adjustment.

The shifting switch configuration is divided into two types: right and left shifting switches or a one-side shifting switch. The adjustment of the front derailleur differs depending on the type used. Refer to "When using two shifting switches for adjustment" or "When using one shifting switch for adjustment" depending on the number of shifting switches your bicycle has.

When using two shifting switches for adjustment

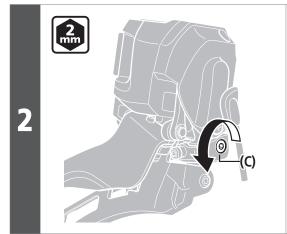
< Top side position adjustment >



Set the chain onto the largest chainring (A) and the largest sprocket (B).

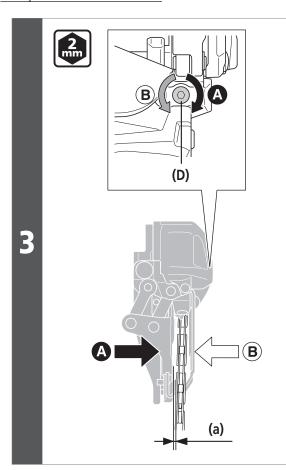
If the rear derailleur cannot be set to the largest sprocket in synchronized mode, switch to manual mode before setting the rear derailleur to the largest sprocket.

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



Loosen the stroke fixing bolt **(C)** with a 2 mm Allen key.

(C) Stroke fixing bolt

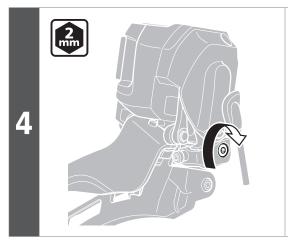


Turn the top adjustment screw **(D)** with a 2 mm Allen key to adjust the clearance.

Adjust the chain guide while pushing it towards B.

Adjust so that there is a clearance (a) of 0 to 0.5 mm between the chain and the chain guide inner plate.

(D) Top adjustment screw



After adjustment, securely tighten the stroke fixing bolt while pushing the chain guide towards the frame.



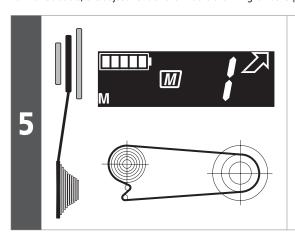


0.5 N·m {4.4 in. lbs.}

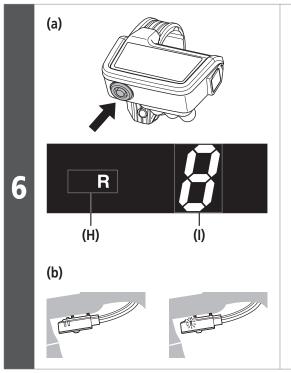
Adjustment of the front derailleur

< Middle position adjustment >

For front double, the adjustment of the middle chainring is not required. Adjust the low side position.



Set the chain onto the middle chainring and the largest sprocket.



Switch to adjustment mode (H).

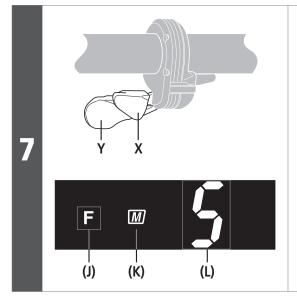
(a) In the case of system information display

Single-click the button (approx. 0.5 seconds) to switch to adjustment mode. The adjustment mode indication "R" and the adjustment level (I) indicator flash.

(b) In the case of Junction (A)

Press the junction (A) button until the red LED lights up.

- **(H)** Adjustment mode
- (I) Adjustment level

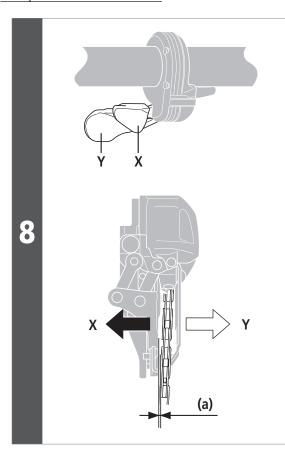


Press the lever of the front-side shifting switch to adjust the clearance.

Pressing the lever switches the on-screen mode indication to a flashing "F" for front derailleur adjustment (J).

The adjustment level of the front derailleur is displayed on the adjustment level (L) indicator.

- (J) Front derailleur adjustment
- (K) Front derailleur gears
- (L) Adjustment level (Front derailleur)

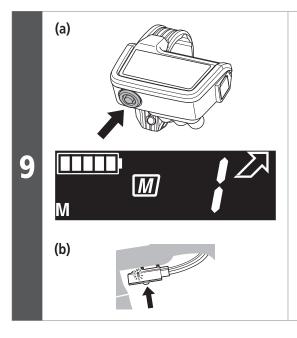


Adjust so that there is a clearance (a) of 0 to 0.5 mm between the chain and the chain guide inner plate.

If shifting switch (X) is pressed once while the initial setting condition is active, the chain guide will move one step toward the inside.

If shifting switch **(Y)** is pressed once, the chain guide will move one step toward the outside.

The guide pulley can move 16 steps inward and 16 steps outward from the initial position, for a total of 33 positions.



After adjustment, exit the adjustment mode.

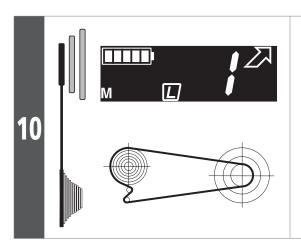
(a) In the case of system information display

Single-click the button (approx. 0.5 seconds) to switch from adjustment mode to shift mode.

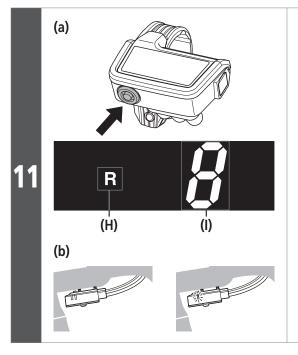
(b) In the case of Junction (A)

Press the button at junction (A) until the red LED turns off in order to switch from rear derailleur adjustment mode to gear shifting mode.

< Low side position adjustment >



Set the chain onto the smallest chainring and the largest sprocket.



Switch to adjustment mode (H).

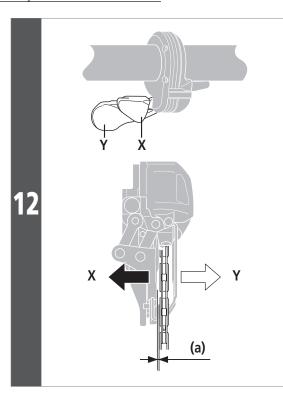
(a) In the case of system information display

Single-click the button (approx. 0.5 seconds) to switch to adjustment mode. The adjustment mode indication "R" and the adjustment level (I) indicator flash.

(b) In the case of Junction (A)

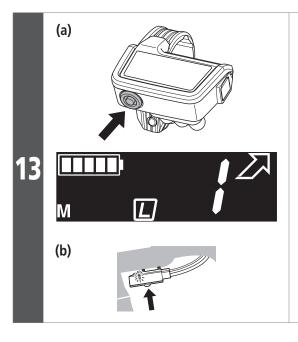
Press the junction (A) button until the red LED lights up.

- (H) Adjustment mode
- (I) Adjustment level



Press the lever of the front-side shifting switch to adjust the clearance.

Adjust so that there is a clearance (a) of 0 to 0.5 mm between the chain and the chain guide inner plate.



After adjustment, exit the adjustment mode.

(a) In the case of system information display

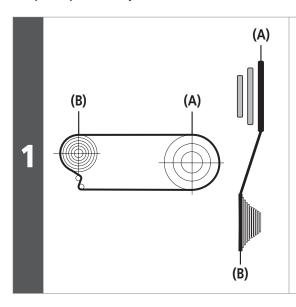
Single-click the button (approx. 0.5 seconds) to switch from adjustment mode to shift mode.

(b) In the case of Junction (A)

Press the button at junction (A) until the red LED turns off in order to switch from rear derailleur adjustment mode to gear shifting mode.

When using one shifting switch for adjustment

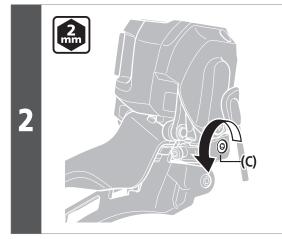
< Top side position adjustment >



Set the chain onto the largest chainring (A) and the largest sprocket (B).

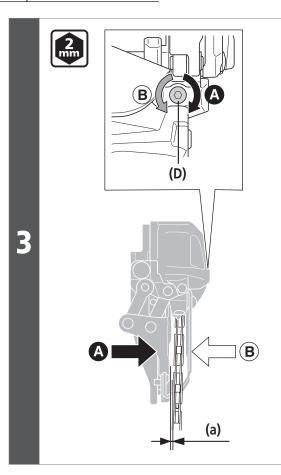
If the rear derailleur cannot be set to the largest sprocket in synchronized mode, switch to manual mode before setting the rear derailleur to the largest sprocket.

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



Loosen the stroke fixing bolt **(C)** with a 2 mm Allen key.

(C) Stroke fixing bolt

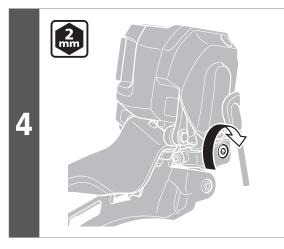


Turn the top adjustment screw **(D)** with a 2 mm Allen key to adjust the clearance.

Adjust the chain guide while pushing it towards B.

Adjust so that there is a clearance (a) of 0 to 0.5 mm between the chain and the chain guide inner plate.

(D) Top adjustment screw



After adjustment, securely tighten the stroke fixing bolt while pushing the chain guide towards the frame.

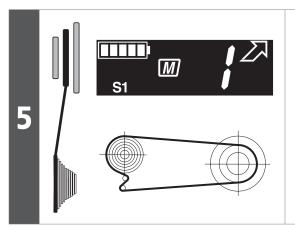




0.5 N·m {4.4 in. lbs.}

< Middle position adjustment >

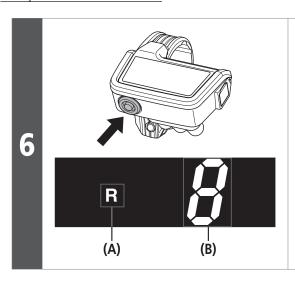
For front double, the adjustment of the middle chainring is not required. Adjust the low side position.



Set the chain onto the middle chainring and the largest sprocket.

NOTE

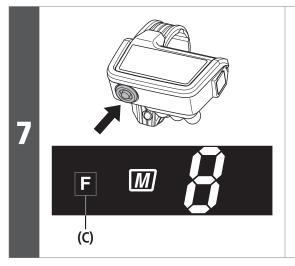
If only one shifting switch is provided, the front derailleur cannot be adjusted using junction (A).



Single-click the button (approx. 0.5 seconds) to switch to adjustment mode (A).

The adjustment mode indicator "R" flashes.

- (A) Adjustment mode
- (B) Adjustment level

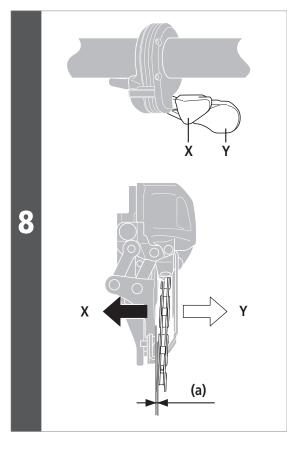


Switch the adjustment mode.

Every time the button is double-clicked, the blinking indicator switches between "F" and "R".

Select "F" for front derailleur adjustment (C).

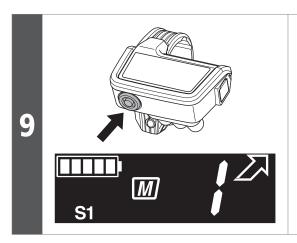
(C) Front derailleur adjustment



Press the lever of the shift switch to adjust the clearance.

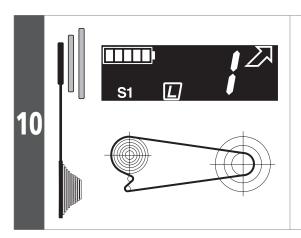
Adjust so that there is a clearance (a) of 0 to 0.5 mm between the chain and the chain guide inner plate.

Adjustment of the front derailleur

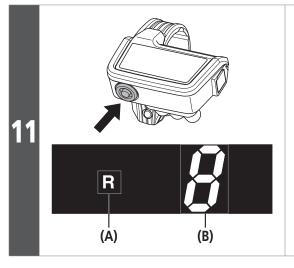


After adjustment, single-click the button (approx. 0.5 seconds) to switch from adjustment mode to shift mode.

< Low side position adjustment >



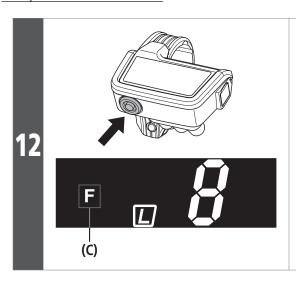
Set the chain onto the smallest chainring and the largest sprocket.



Single-click the button (approx. 0.5 seconds) to switch to adjustment mode (A)

The adjustment mode indicator "R" flashes.

- (A) Adjustment mode
- (B) Adjustment level

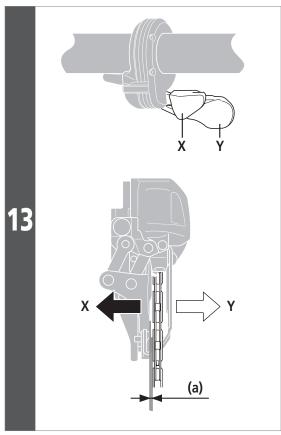


Switch the adjustment mode.

Every time the button is double-clicked, the blinking indicator switches between "F" and "R".

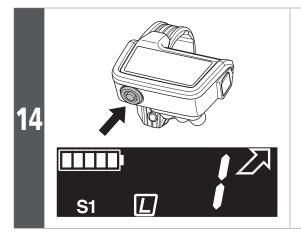
Select "F" for front derailleur adjustment **(C)**.

(C) Front derailleur adjustment



Press the lever of the shift switch to adjust the clearance.

Adjust so that there is a clearance (a) of 0 to 0.5 mm between the chain and the chain guide inner plate.



After adjustment, single-click the button (approx. 0.5 seconds) to switch from adjustment mode to shift mode.

Troubleshooting chart

After adjusting the front derailleur, check the shifting by operating the shifting lever.

(This also applies if shifting becomes difficult during use.)

Use the table as a reference to make fine adjustments to the bolts. Turn the screw by 1/8 of turn for each adjustment of the top side position and by 1 click for each adjustment of the middle and low side positions.

NOTE

After adjusting the top adjustment screw, recheck the middle and low side positions.

< In the case of a front triple >

If the chain falls to the crank side	Turn the top adjustment screw counterclockwise.
If shifting is difficult from the middle chainring to the largest chainring	Turn the top adjustment screw clockwise.
f shifting is difficult from the largest chainring to the middle chainring	Perform readjustment according to "Middle position adjustment" in "Adjustment of the front derailleur". Adjust the chain guide inward (X direction).
If the chain falls to the bottom bracket side	Perform readjustment according to "Low side position adjustment" in "Adjustment of the front derailleur". Adjust the chain guide outward (Y direction).
If the middle chainring is skipped when shifting from the largest chainring	Perform readjustment according to "Middle position adjustment" in "Adjustment of the front derailleur". Adjust the chain guide outward (Y direction).
f shifting is difficult from the middle chainring to the smallest chainring	Perform readjustment according to "Low side position adjustment" in "Adjustment of the front derailleur". Adjust the chain guide inward (X direction).

In the case of a front double >		
If the chain falls to the crank side		Turn the top adjustment screw counterclockwise.
When it is difficult to shift from the smallest chainring to the largest chainring	>	Turn the top adjustment screw clockwise.
When it is difficult to shift from the largest chainring to the smallest chainring	•	Perform readjustment according to "Low side position adjustment" in "Adjustment of the front derailleur". Adjust the chain guide inward (X direction).
If the chain falls to the bottom bracket side	>	Perform readjustment according to "Low side position adjustment" in "Adjustment of the front derailleur". Adjust the chain guide outward (Y direction).

■ Adjusting rear derailleur friction

The friction amount can be adjusted as desired. It may also be adjusted if the friction changes during use.

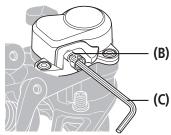
Friction adjustment

Move the lever switch to the ON position.

(D)

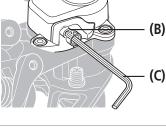
Remove the plate unit cap (A) by hand as shown in the illustration.

(A) Plate unit cap



Turn the friction adjustment bolt (B) with an Allen key (C) to adjust the friction.

- **(B)** Friction adjustment bolt
- (C) 2 mm Allen key



Insert an Allen key or Hexalobular wrench into the left plate (D) and check the friction torque.

(D) Left plate

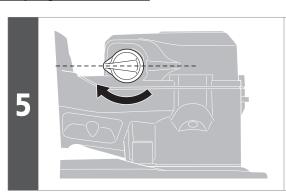
Friction torque

3.5 - 5.4 N·m {31 - 47 in. lbs.}

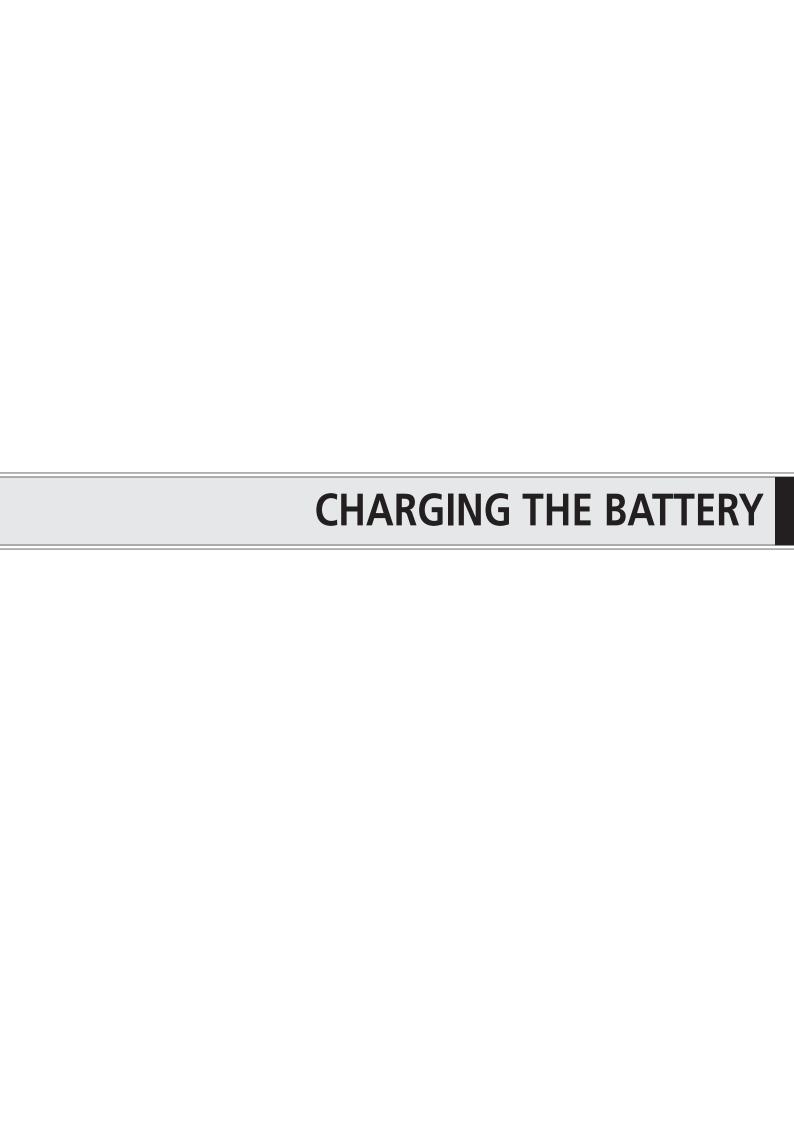
NOTE

Check the shape of the hole and use a tool that fits into the hole in the left plate. Tool specifications:

- 5 mm Allen key
- Hexalobular #30



Install the plate unit cap so that it is in the position shown in the illustration.



CHARGING THE BATTERY

Use the specified combination of lithium ion batteries, chargers, and linkage devices.

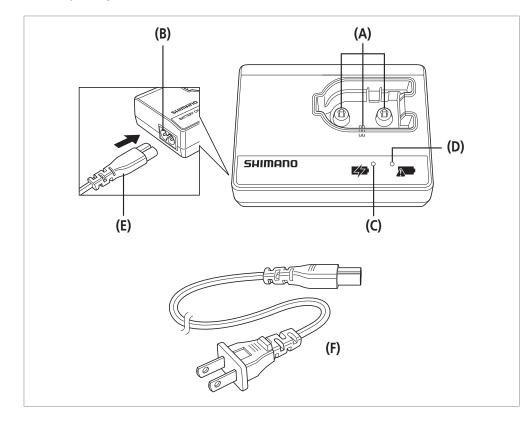
Any other combinations may cause explosion or fire.

Fully understand the precautions for use provided at the beginning of the Dealer's Manual before using the products.

■ Names of parts

External (SM-BCR1 / SM-BTR1)

< Battery charger (SM-BCR1) >

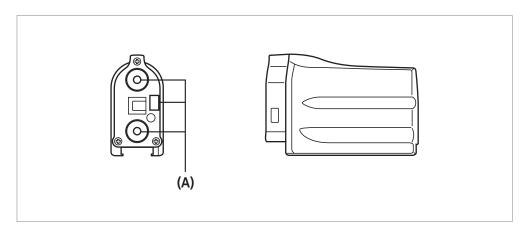


- (A) Electrical contacts
 (If these are modified or damaged, problems with operation will occur. Be very careful when handling them.)
- (B) Power cable connector
- **(C)** CHARGE indicator (This lights up while charging is in progress.)
- **(D)** ERROR indicator (This flashes when there is an error.)
- (E) Power cord (Insert into the connector. * Insert as far as it will go.)
- **(F)** Charger cord < Sold separately >



This charger is a special charger for use in charging Shimano lithium ion batteries (SM-BTR1).

< Special battery (SM-BTR1) >



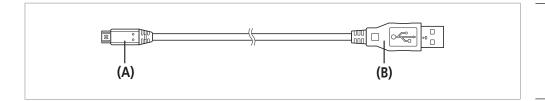
(A) Electrical contacts (If these are modified or damaged, problems with operation will occur. Be very careful when handling them.)



The battery is a lithium ion battery. Use the special battery charger (SM-BCR1) to recharge the battery.

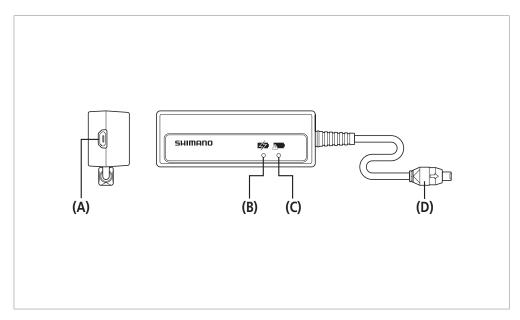
Built-in (SM-BCR2 / SM-BTR2)

< USB cable >



- (A) Micro USB plug (Connect to the battery charger)
- (B) USB plug (Connect to a PC USB port or an AC adapter with a USB port)

< Battery charger (SM-BCR2) >

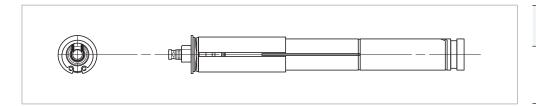


- (A) Micro USB connector
- (B) CHARGE indicator
- (C) ERROR indicator
- **(D)** Product connection plug (Connect to junction (A) or the charging connector of the system information display.)



- This charger is a special charger for use in charging Shimano lithium ion batteries (SM-BTR2).
- If water collects in the connector of the product side, wipe the water and then connect the plug to the connector.

< Battery (SM-BTR2) >





The battery is a lithium ion battery.
Use the special charger (SM-BCR2) to charge it.

■ Charging the battery

External (SM-BCR1 / SM-BTR1)

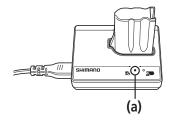
Insert the plug of the battery charger into an electrical outlet.

2 Summeno F-5° *2

Insert the battery (SM-BTR1) into the battery charger (SM-BCR1) as far as it will go.

The charging time is approximately 1.5 hours. (Note that the actual time will vary depending on the amount of charge remaining in the battery.)

3



When the CHARGE indicator (orange) turns off, charging is complete.

If the ERROR indicator flashes, it means that there may be a problem with the battery.

Refer to "Troubleshooting for charging error" for more information.

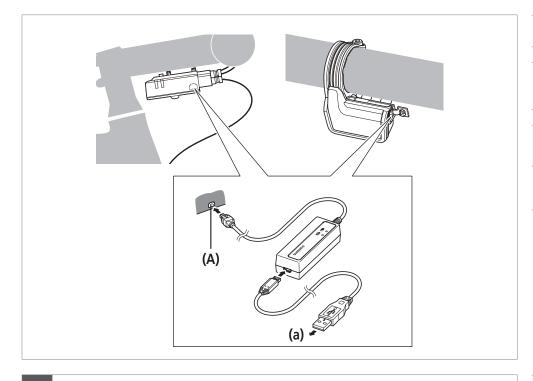
(a) Illuminates orange

1

Disconnect the plug of the battery charger from the electrical outlet, and store the battery charger in a safe place according to the safety instructions.

Built-in (SM-BCR2 / SM-BTR2)

Example of connection for charging



(A) Charging port

(a) To an AC adapter with a USB port or PC



The position of the charging port differs depending on the product.

Connect the battery to junction (A) or the system information display.

TECH TIPS

You can charge the battery by using the AC adapter with a USB port or connecting the battery charger to a PC USB port.

Connect the charging cable of the battery charger to junction (A) or the charging port of the system information display.



The charging time of an AC adapter with a USB port is about 1.5 hours, and that of PC USB port type about 3 hours. (Note that the actual time will vary depending on the amount of charge remaining in the battery.) Depending on the specifications of the AC adapter, recharging via the AC adapter requires as many hours (about 3 hours) as recharging via PC.

When the CHARGE indicator (orange) turns off, charging is complete.

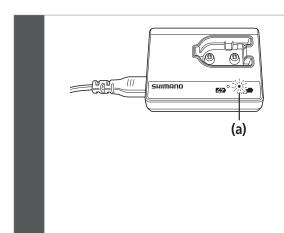


If ERROR indicator or CHARGE indicator blinks, refer to "Troubleshooting for charging error".

Disconnect the charging cable or USB cable, and keep it at the location specified in the precautions.

■ Troubleshooting for charging error

External (SM-BCR1 / SM-BTR1)



Remove the battery from the battery charger, disconnect the plug from the electrical outlet, and then repeat the charging operation.

If charging cannot be carried out even after the above steps are taken, the ambient temperature may be too low or too high, or there may be a problem with the battery.

(a) If charging is not possible, the ERROR indicator on the Battery charger will flash.

Built-in (SM-BCR2 / SM-BTR2)

- Make sure that only one unit of SM-BCR2 is connected to a PC.
- If the ERROR indicator blinks, the ambient temperature during charging may have fallen outside the operating temperature limits. Check that the temperature is appropriate.
- If the CHARGE indicator blinks, refer to the following.

The current capacity of your AC adapter with a USB port is lower than 1.0 Adc.

⇒Use an AC adapter with a USB port with a current capacity equal to or higher than 1.0 Adc.

A USB hub is used to connect to PC.

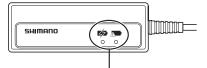
⇒Remove the USB hub.

If none of the above applies, the battery or junction may be faulty.

NOTE

If the CHARGE indicator does not light up or extinguishes quickly, the battery may be fully charged. Check the remaining power of the battery using junction (A) or the system information display.

If the battery is low or dead, contact the place of purchase or a bicycle dealer.



If it becomes impossible to charge, the CHARGE indicator (orange) or ERROR indicator of the battery charger will blink.

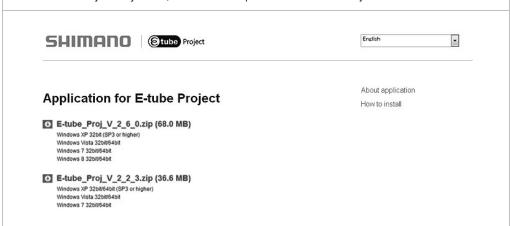


Connection and communication with the PC

You can connect the bicycle (system or components) to a PC via a PC linkage device to carry out tasks such as customizing single components or the whole system and updating their firmware.

E-tube project is needed to configure the system and update firmware. Download E-tube Project from our support website (http://e-tubeproject.shimano.com).

For information on how to install E-tube Project, check the support website. For information on how to use E-tube Project on your PC, refer to the help manual for E-tube Project.





- SM-PCE1 and SM-JC40/JC41 are needed to connect the system to a PC. They are not required if there is an available port.
- Firmware is subject to change without notice.

< System requirements >

PC linkage device : SM-PCE1/SM-BCR2E-tube Project : version 2.6 or later

• SM-BTR1, SM-BTR2, SM-BTE2 firmware : version 3.0.0 or later

NOTE

If your versions of E-tube Project software and firmware for each component are not up to date there could be problems operating the bicycle. Check the versions and update to the latest ones.

■ Settings customizable in E-tube Project

Display monitor	Beep setting	You can switch the beep between ON and OFF.	
settings	Display time	Sets the time until the display turns off when the display monitor is left unattended.	
Switch setting		Changes the function settings of the shifting switch and suspension switch.	
Front derailleur adjustment setting		Adjust the front derailleur.	
Rear derailleur adjustment setting		Adjust the rear derailleur.	
Synchronized shift map setting		Modify the synchronized shift map settings.	
Suspension type setting		Set the suspension type.	
Multi shift mode setting	Multi-shift mode ON/OFF	Select whether or not to use multi-shift.	
	Gear-shifting interval	Sets the gear-shifting interval for multi-shift.	
	Gear number limit	Sets the limit on the number of gears shifted when the shifting switch is held down.	

Synchronized shift map

Synchronized shift is a function that automatically shifts gears on the front derailleur in synchronization with rear derailleur gear shifting. The numbers of switch gears for synchronized shift are configured by default as shown in the charts.

< Triple specification >

Synchronized shift 1

CS	Smallest chainring	Middle chainring	Largest chainring
1	1 1	_	
2	4		/
3	1	1	
4			
5			>
6		+	
7			
8			
9			
10			
11			+ I

Synchronized shift 2

CS	Smalle chainri		Middle hainring		gest inring
1	4	^	/		
2		14			-
3					
4	+-				
5					
6				~	
7		,	-		
8					
9					
10					
11				1	

< Double specification >

Synchronized shift 1

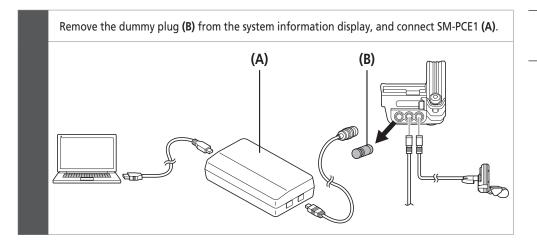
CS	Smallest chainring	Largest chainring
1	1	1
2	4	
3		~
4	+	
5		
6		
7		
8		
9		
10		
11		+

Synchronized shift 2

CS	Smallest chainring	Largest chainring
1	1 1	/
2	4	
3		
4		~
5	+	
6		
7		
8		
9		
10		
11		+

■ Connecting to a PC

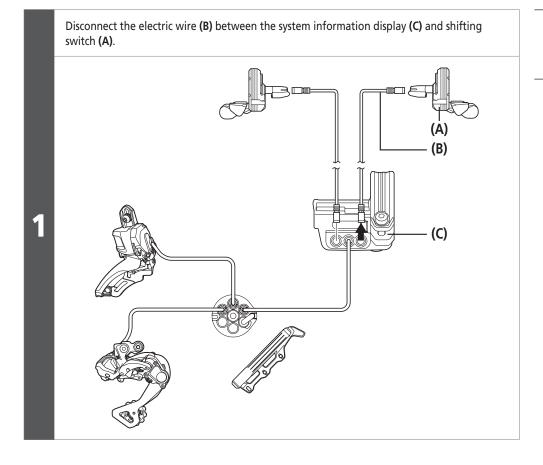
If there is an empty port in the system information display



- (A) SM-PCE1
- (B) Dummy plug

If there are no empty ports in the system information display

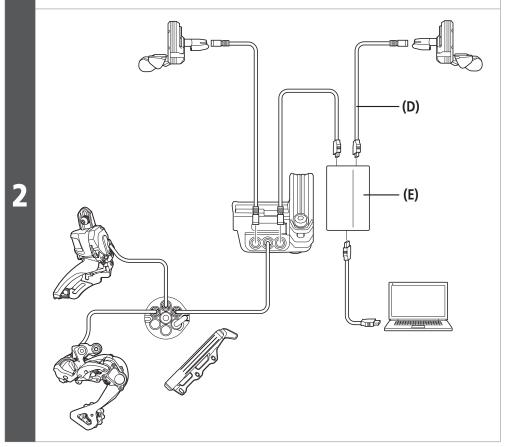
< When the electric wire can be disconnected from the shifting switch >



- (A) Shifting switch
- **(B)** Electric wires
- (C) System information display

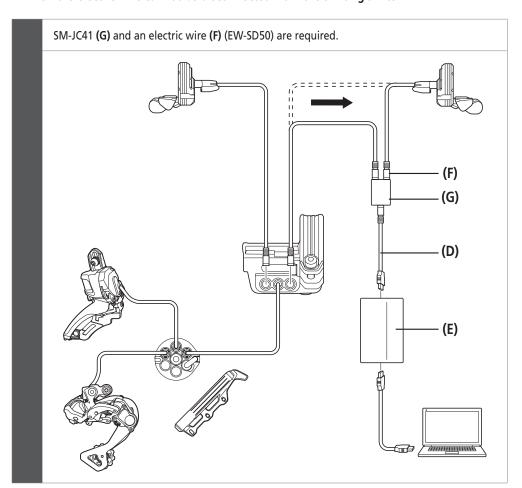
Connect an unoccupied port of the system information display or shifting switch to an unoccupied port of SM-PCE1 (E) as shown in the illustration. Use the two PC link cables (D) provided with SM-PCE1 for connection.

- **(D)** PC link cable
- **(E)** SM-PCE1

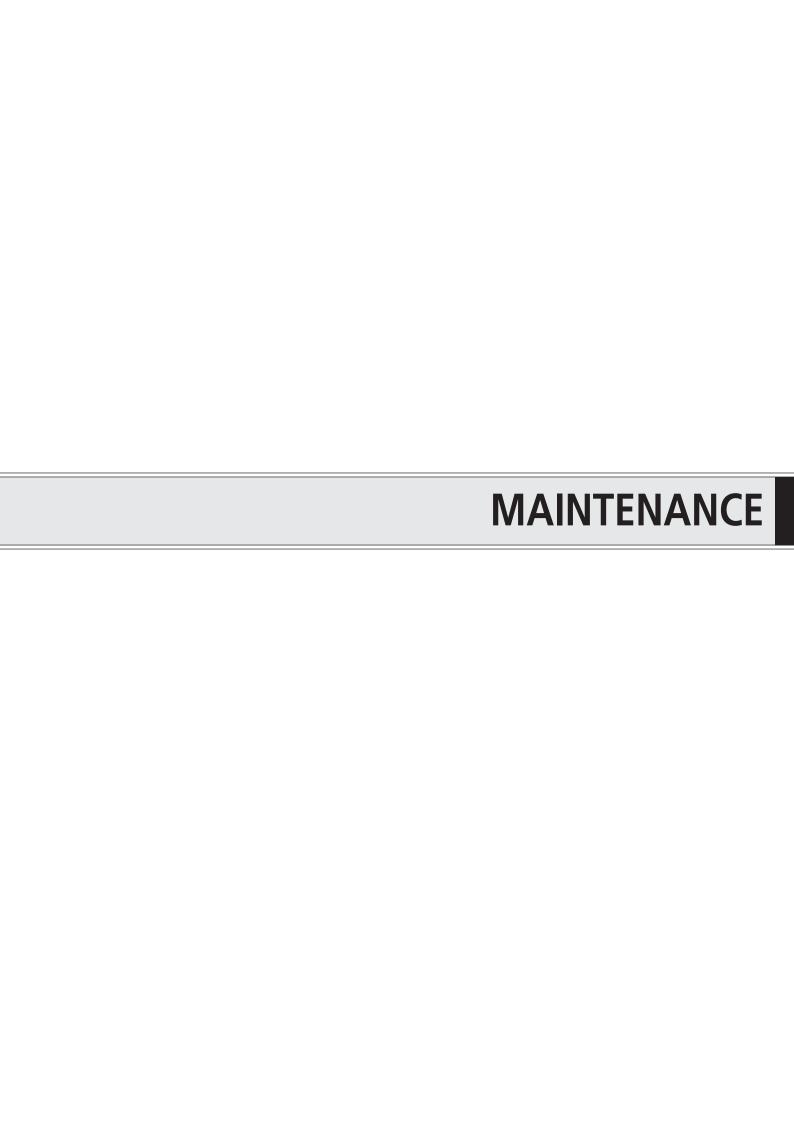


Connecting to a PC

< When the electric wire cannot be disconnected from the shifting switch >



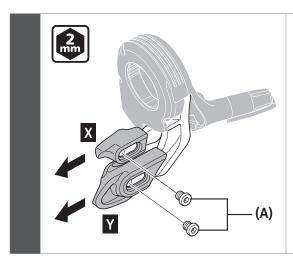
- **(D)** PC link cable
- **(E)** SM-PCE1
- **(F)** Electric wires
- (G) SM-JC41



MAINTENANCE

■ Replacing parts - shifting switch

Replacing the lever



Lever X and lever Y can be replaced.

Remove the lever fixing bolt (A).

Slide the lever, remove it from the shifting switch, and replace it.

(A) Lever fixing bolt

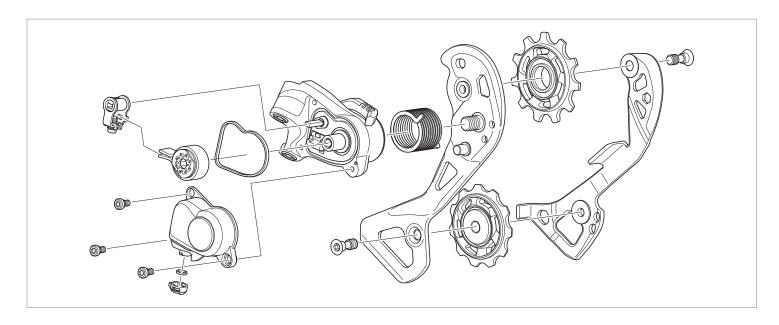
Tightening torque



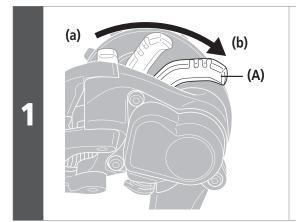
0.5 - 0.7 N·m {4.4 - 6.1 in. lbs.}

■ Replacing parts - rear derailleur

Replacement of the plate and the p tension spring



< Removal >



Make sure that the lever switch is in the OFF position.

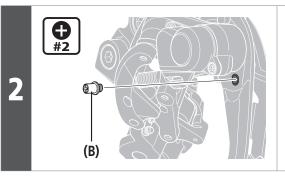
If the lever switch is in the ON position, be sure to move it to the OFF position.

- (a) ON
- (b) OFF

(A) Friction unit

NOTE

If operating the lever switch while the plate unit cover is removed, press the friction unit with your finger so that it does not fly out.



Set the rear derailleur to the lowest gear.

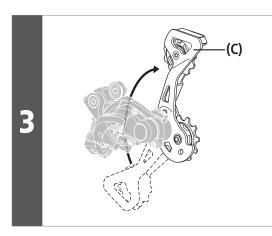
Remove the plate stopper pin **(B)** with a screwdriver.

(B) Plate stopper pin





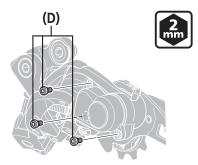
1 N·m {9 in. lbs.}



Turn the plate **(C)** to loosen the P tension spring as shown in the illustration.

(C) Plate

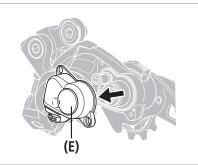




Remove the plate unit cover bolts (D).

(D) Plate unit cover bolt

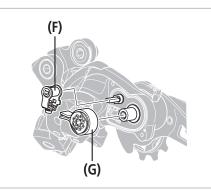




Remove the plate unit cover (E).

(E) Plate unit cover

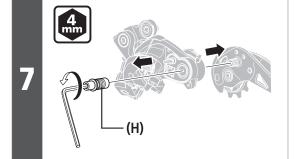




Remove the cam unit **(F)** and the chain stabilizer **(G)**.

(F) Cam unit

(G) Chain stabilizer



Remove the plate axle (H).

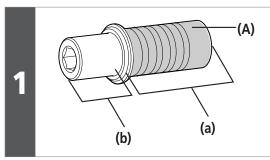
(H) Plate axle



Tightening torque

8 - 10 N·m {70 - 87 in. lbs.}

< Installation >



Apply grease to the plate axle (A).

(a) Grease application area Grease number: Premium grease (Y04110000) (A) Plate axle

NOTE

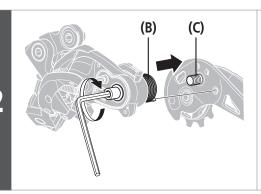
Do not apply grease to **(b)**. If the outer surface of the roller clutch with non groove part gets grease on it, it will slip and the friction function will not work.

(B) P tension spring

(C) Plate

NOTE

When installing the plate stopper pin, first shift RD to a low position, and then install it.



Insert the plate axel and insert the tip of the p tension spring (B) into the groove of the plate (C).

(E)

Set the cam unit **(D)** as shown in the illustration.

- (a) Projection
- (b) Uneven

(D) Cam unit

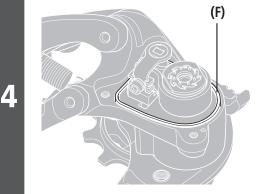
(E) Chain stabilizer

NOTE

Make sure the cam unit is not set as shown in the following illustration.

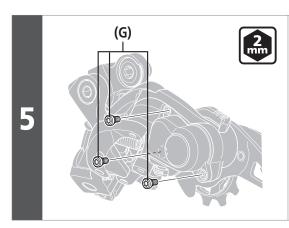






Make sure that the plate unit cover gasket **(F)** is attached along the grooves in the plate unit.

(F) Plate unit cover gasket



Install the plate unit cover bolts (G).

(G) Plate unit cover bolt

Tightening torque

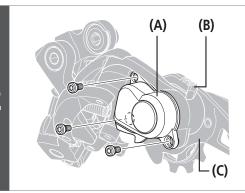


1 - 1.5 N·m {9 - 13 in. lbs.}

Applying grease to the chain stabilizer

If the friction changes or noise is generated, the grease may have become discolored or may have disappeared. Apply more grease.

- * Reassemble by carrying out the disassembly procedure in reverse.
- Move the lever switch to the OFF position.



Remove the plate unit cover (A).

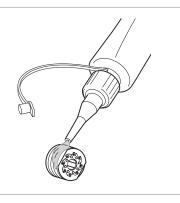
- (A) Plate unit cover
- (B) Lever switch
- (C) Plate unit

3

Remove the chain stabilizer (D).

(D) Chain stabilizer

4



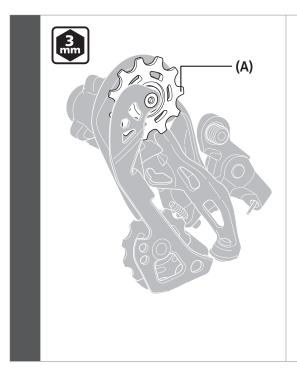
Apply grease to the clutch. Grease number: Y04120800

NOTE

Be careful not to let grease get inside the clutch. If grease gets inside the clutch, it will cause the clutch to malfunction.

Replacement of the pulley

< Guide pulley >



Replace the guide pulley (A).

(A) Guide pulley

Tightening torque



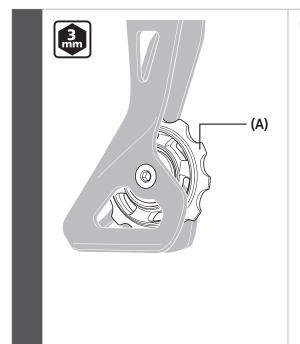
2.5 - 5 N·m {22 - 43 in. lbs.}

NOTE

Check the arrow direction on the pulley when installing it.



< Tension pulley >



Replace the tension pulley (A).

(A) Tension pulley

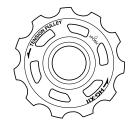
Tightening torque



2.5 - 5 N·m {22 - 43 in. lbs.}

NOTE

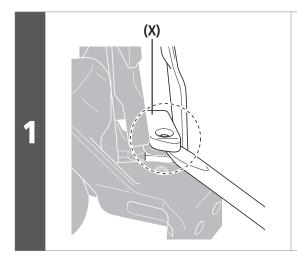
Check the arrow direction on the pulley when installing it.



■ Replacing rubber pad A

Depending on the specifications, there are also models with no rubber pad A.

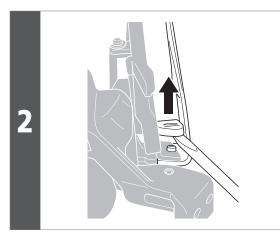
Removal



Remove rubber pad A (X).

Insert a small slotted screwdriver into the gap as shown in the illustration.

(X) Rubber pad A

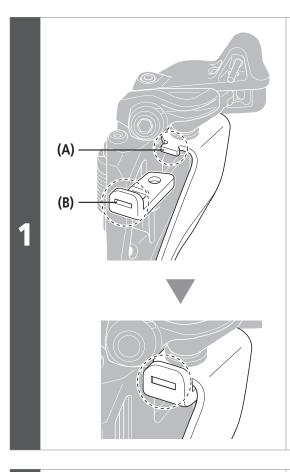


Lift rubber pad A to remove it.

NOTE

- When removing rubber pad A, do not apply excessive force. It may cause damage to the chain guide or unexpected injuries.
- Do not reuse rubber pads that have been removed. The rubber pad may become loose due to deformation etc.

INSTALLATION

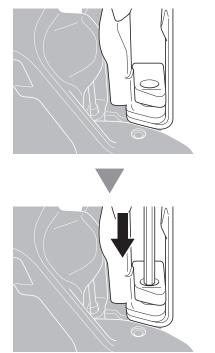


Install rubber pad A.

Fit the elongated hole **(B)** to the arm of rubber pad A **(A)**.

Push in the rubber pad A firmly to the end of the arm.

- (A) Arm of rubber pad A
- **(B)** Elongated hole



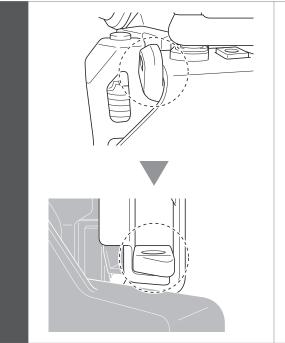
2

Align the protrusion of rubber pad A with the chain guide hole.

Lightly push in rubber pad A with an 8 mm Allen key or similar tool.

Firmly insert rubber pad A.

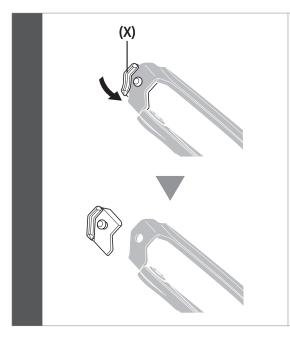
Check



Make sure that rubber pad A is securely attached to the chain guide.

■ Replacing rubber pad B

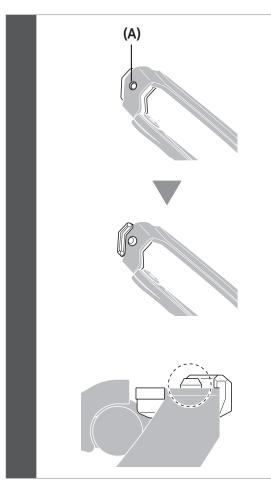
Removal



Turn over rubber pad B (X) from the backside of the chain guide and remove it.

(X) Rubber pad B

INSTALLATION



Align the rubber pad B mounting hole (A) of the chain guide with the protrusion of rubber pad B.

Push in the protrusion from the backside of rubber pad B.

Make sure that the protrusion of rubber pad B is securely fitted on the chain guide.

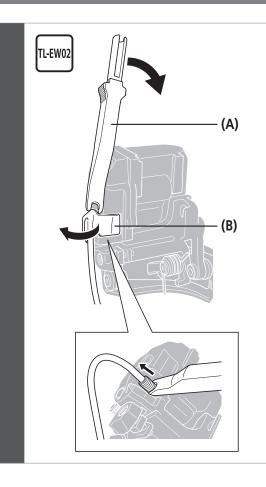
(A) Rubber pad B mounting hole

■ Disconnection of the electric wires

NOTE

- This is a small waterproof connector. Do not repeat connecting and disconnecting it. The waterproof section or the connecting section may become worn or deformed, and the function may be affected.
- When removing the electric wire, use the wider end of the Shimano original tool TL-EW02 as shown in the illustration. If you pull too firmly on an electric wire without using the Shimano original tool, a malfunction may occur.
- Forcibly disconnecting an electric wire may damage it.

Removing from the front derailleur



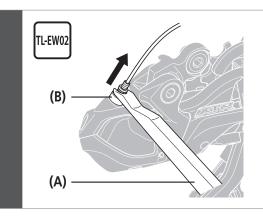
Insert the Shimano original tool (A) into the groove in the plug cover (B) as shown in the illustration.

Firmly hold the plug cover, and then remove the electric wire together with the plug cover, using the side of the front derailleur as leverage for support.

If the plug cover comes loose, remove it completely using the Shimano original tool.

- (A) Shimano original tool TL-EW02
- (B) Plug cover

Removing from the rear derailleur



Push down the plug cover **(B)** using the Shimano original tool **(A)**.

Insert the Shimano original tool into the groove in the electric wire and remove the wire.

- (A) Shimano original tool TL-EW02
- **(B)** Plug cover

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Please note: specifications are subject to change for improvement without notice. (English) © Oct. 2014 by Shimano Inc. HTR