Dealer's Manual

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

Rear Derailleur (Di2)

DEORE XT

RD-M8150

Contents

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 distributor for assistance.
- Make sure to read all manuals included with each product.
- Do not disassemble or modify the product other than as stated in the information contained in this dealer's manual.
- All manuals and technical documents are accessible online at https://si.shimano.com .
- For consumers who do not have easy access to the internet, please contact a SHIMANO distributor or any of the SHIMANO offices to obtain a hardcopy of the user's manual.
- Please observe the appropriate rules and regulations of the country, state or region in which you conduct your business as a dealer.
- The Bluetooth ® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by SHIMANO INC. is under license. Other trademarks and trade names are those of their respective owners.

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

- Be sure to follow the instructions provided in the manuals when installing the product.
  Only use SHIMANO genuine parts. If a component or replacement part is incorrectly assembled or adjusted, it can lead to component failure and cause the rider to lose control and crash.
-  Wear approved eye protection while performing maintenance tasks such as replacing components.

Be sure to also inform users of the following:

- Never use alkali- or acid-based solvents such as rust cleaners. If those solvents are used the chain might break and cause serious injury.
- Clean the chain with an appropriate chain cleaner regularly. Intervals between maintenance depend on the use and riding circumstances.
- When operating the shift switch, be careful not to allow your fingers to be caught in the derailleur or rear derailleur. The motor in the derailleur is powerful enough to be operated without stopping until the shifting position is reached, and may cause serious injury if your fingers interfere with the shifting motion.
- Check that the wheels are fastened securely before riding the bicycle. Using the axle release lever incorrectly may cause the wheel to fall off, etc. and lead to serious injury due to a fall.
- Check the chain for any damage (deformation or cracking), skipping, or other abnormalities such as unintended gear shifting. If any problems are found, consult your place of purchase or a distributor. The chain may break, and you may fall.
- Be careful not to let the hemming of your clothes get caught in the chain while riding. Otherwise, you may fall off the bicycle.

■ About the multi-shifting function

- Connecting this system to E-TUBE PROJECT and switching [Multi shift] to [ON] will allow you to continuously shift gears while the shift switch is held down.

■ Gear-shifting interval

- [Gear-shifting interval] can be set to one of five levels as a multi-shifting function setting in E-TUBE PROJECT: [Very fast], [Fast], [Normal], [Slow], or [Very slow] (Default: [Normal]).
- A faster [Gear-shifting interval] setting will result in faster gear shifting. The rider can quickly adjust the traveling speed and the speed at which the crankset turns (“cadence” below) in response to changes in riding conditions.
  However, if a gear shifting operation is performed at an insufficient cadence when the system is set to a fast gear-shifting interval, the chain may be unable to follow the movement of the rear derailleur, resulting in the following problems:

- The chain may slip over the tip of the cassette sprocket teeth
- The cassette sprocket may deform
- The chain may break

- Fully understand the features of the gear-shifting interval, then set the gear-shifting interval according to the riding conditions, such as the terrain and the riding style of the rider.

Gear-shifting interval	Benefits	Drawbacks
Fast setting	• Quick multi shift is possible • The rider can quickly adjust the cadence or traveling speed in response to changes in the riding conditions	• A high cadence is required when gear shifting • Unintended over-shifting occurs easily
Slow setting	• Gear shifting can be performed reliably	• Gear shifting takes some time

NOTICE

Be sure to also inform users of the following:

- Be careful not to get water into the E-TUBE ports.
- Be sure to attach dummy plugs to any unused E-TUBE ports. If water gets into any of the components, operating problems or rusting may result.
- Be sure to rotate the crank while performing the switch operations related to gear shifting.
- Do not keep connecting and disconnecting the small waterproof connector. 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 wash. Moreover, do not place any components in water. If water gets into any of the components, operating problems or rusting may result.
- Handle the components carefully, and avoid subjecting them to strong shock. The internal battery may be damaged. If the product has been subjected to a shock, consult your place of purchase.
- Do not use the thinners or harsh solvents to clean the products. Such solvents may damage the surface.
- If gear shifting operations do not feel smooth, wash the shifting unit and lubricate all moving parts.
- Contact the place of purchase for updates of the component software. The most up-to-date information is available on the SHIMANO website.
- Be sure to check that the plate unit cover is installed before riding the bicycle.
- Make sure that the plug cover is attached to the E-TUBE port when using the product.
- If gear shifting operations do not feel smooth, wash the shifting unit and lubricate all moving parts.
- If the chain keeps skipping during use, replace the gears and chain at the place of purchase.
- If you hear abnormal noise as a result of excess play in a pulley while riding, you should replace the pulley at the place of purchase.
- The gears should be periodically washed with a neutral detergent. In addition, cleaning the chain with neutral detergent and lubricating it can be an effective way of extending the life of the gears and the chain.
- If excess play in the links is so great that gear shifting adjustments cannot be made, replace the shifting unit.
- Products are not guaranteed against natural wear and deterioration from normal use and aging.
- For maximum performance we highly recommend SHIMANO lubricants and maintenance products.

For installation to the bicycle and maintenance

- Be sure to attach dummy plugs to any unused E-TUBE ports.
- Be sure to use SHIMANO original tool TL-EW300 to remove the electric wires.
- The motor unit cannot be disassembled and repaired.

- 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 shift lever does not touch the bicycle frame when the handlebars are turned all the way.

■ Electric wires / electric wire covers

- Secure the electric wires with a zip tie so that they do not interfere with the gears or tires.
- The strength of the adhesive is fairly weak to prevent the paint on the frame from being peeled off at when removing the electric wire cover, such as when 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 so, the paint on the frame will peel off, too.
- Do not remove the wire holders which are attached to the internal type electric wires (EW-SD300-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 connection.

■ Rear derailleur

- Be sure to adjust the high and low limits according to the instructions given in the adjustment section. If these instructions are not observed, the chain may become clamped between the spokes and the largest sprocket and the wheel may lock, or the chain may fall off the small sprocket.
- Periodically clean the shifting unit and lubricate all moving parts (mechanism and pulleys).
- If gear shifting adjustments cannot be carried out, check the degree of parallelism of the dropout.
- Depending on the model, the pulleys have arrows on them to indicate the direction of rotation. Make sure that the arrow points in the direction of movement of the chain.

■ Notes on reinstalling and replacing components

- When the product is reinstalled 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 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 available.

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

List of tools to be used

The following tools are needed for installation/removal, adjustment, and maintenance purposes.

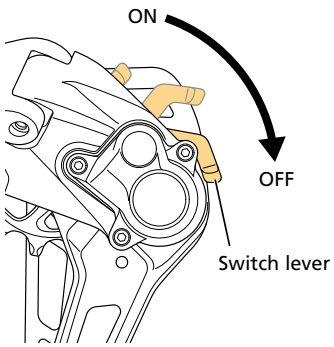
Tool	
	2 mm hexagon wrench
	3 mm hexagon wrench
	4 mm hexagon wrench
	5 mm hexagon wrench
	Cross head screwdriver [#2]
	Hexalobular [#27]
	TL-EW300

Installation / removal

Installing the rear derailleur

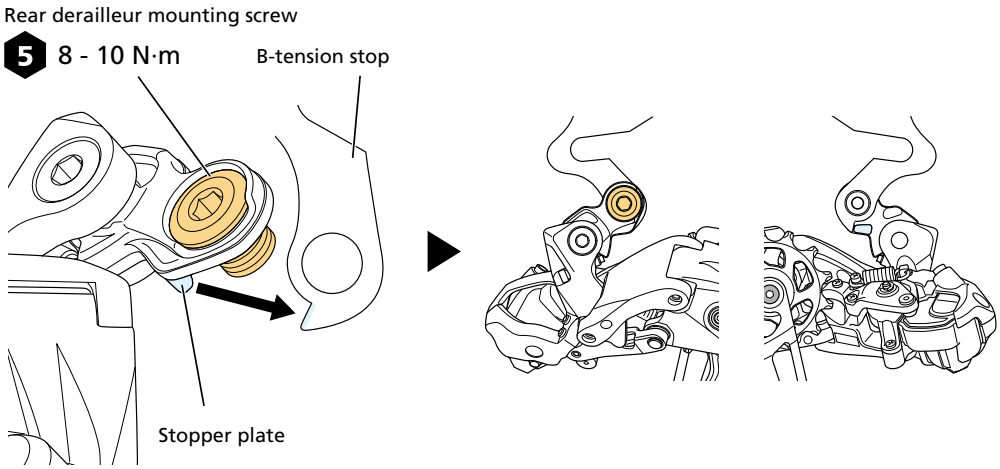
Standard type

1. **Set the switch lever in the OFF position.**



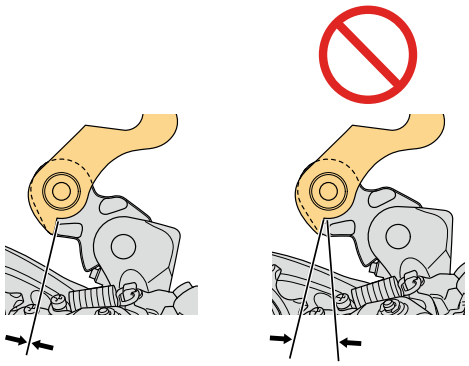
2. **Tighten the rear derailleur mounting screw.**

   Be careful not to insert the rear derailleur mounting screw in the dropout at an angle. In addition, be sure to install the rear derailleur so that the stopper plate contacts the B-tension stop, with no gap in between.



NOTICE

- Periodically check to make sure that there is no gap between the B-tension stop and the stopper plate. If there is a gap between these two parts, problems with gear shifting performance may occur.



Connecting / disconnecting the electric wires

Be sure to use the SHIMANO original tool to connect and disconnect electric wires.

NOTICE

- When connecting and disconnecting electric wires, do not forcibly bend the plug part. It may result in a poor connection.

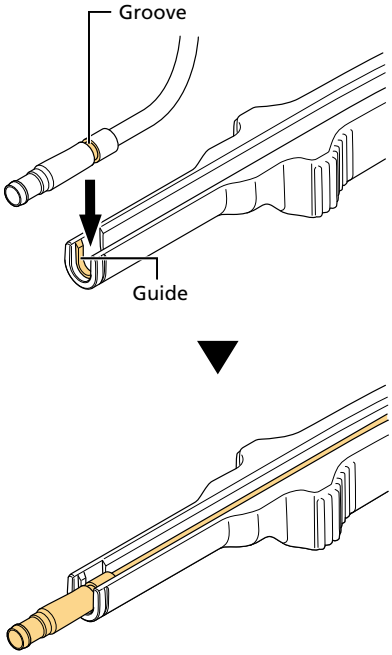
Connecting the electric wire (EW-SD300-I)

Connect the electric wire to the E-TUBE port.

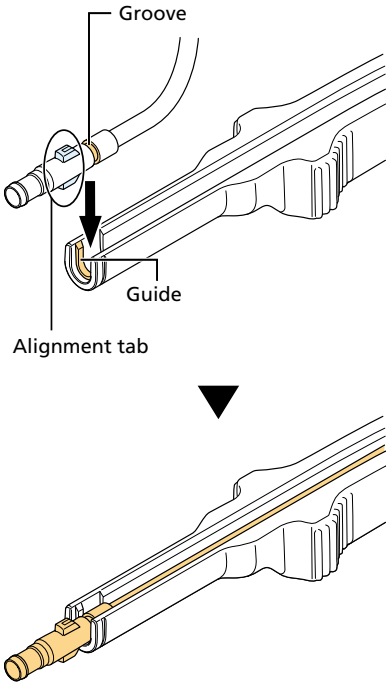
1. Set the plug of the electric wire to the TL-EW300.

If there is an alignment tab on the plug of the electric wire, check the shape of the E-TUBE port you are trying to connect to, and set it aligned with the alignment tab as shown in the figure.

Without alignment tab on plug

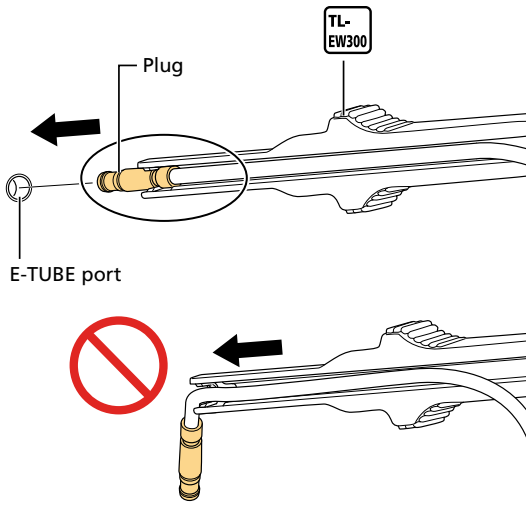


With alignment tab on plug



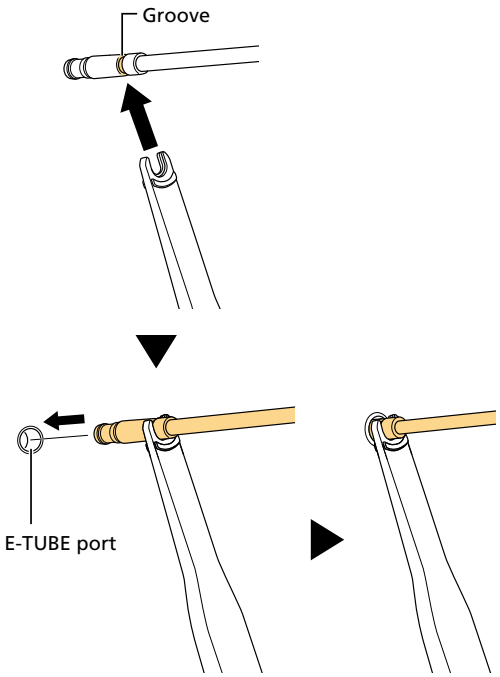
2. Insert the plug on the electric wire into the E-TUBE port.

Push it straight in until you feel it click into place.



TECH TIPS

- You can use the TL-EW300 as indicated in the figure to install the electric wire.



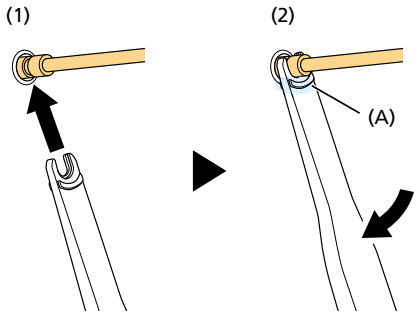
Disconnecting the electric wire (EW-SD300-I)

1. **Disconnect the electric wire.**

   (1) Insert the TL-EW300 into the groove on the plug part of the electric wire.

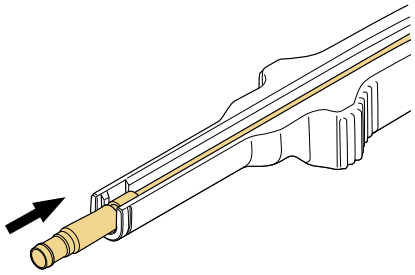
   (2) Disconnect the electric wire from the E-TUBE port.

   * As shown in the figure, use part (A) of the TL-EW300 as a fulcrum, move the tool like a lever, then disconnect the plug part.



TECH TIPS

- If there is limited space to insert the tool, you can use the TL-EW300 as indicated in the figure to disconnect the electric wire.



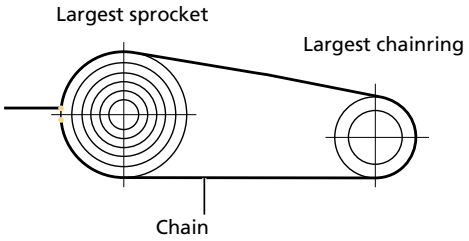
Checking connections

1. **After connecting the electric wires to all of the components including this product, install the battery and check the operation.**

2. **Check that the rear derailleur operates properly by operating the shift switch.**

Checking the chain length

1. **Mount the chain on the largest sprocket and the largest chainring.**
   In order to check the length at the rear of the cassette sprocket, join the two ends of the chain at the rear of the cassette as shown in the figure.

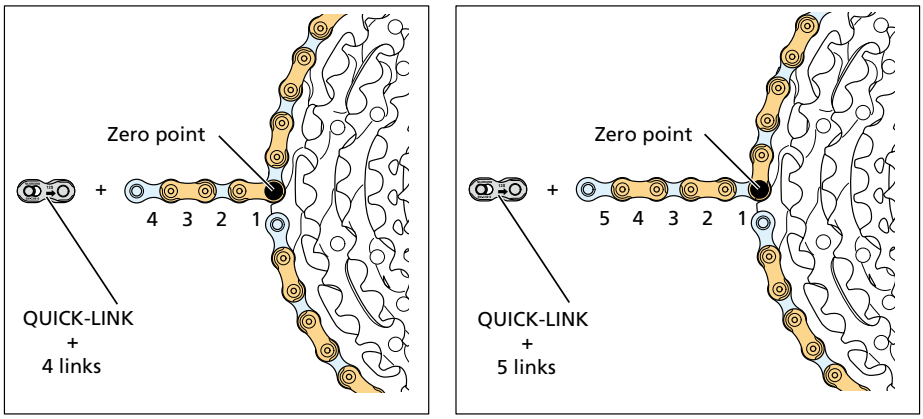


2. Check the length of the chain.

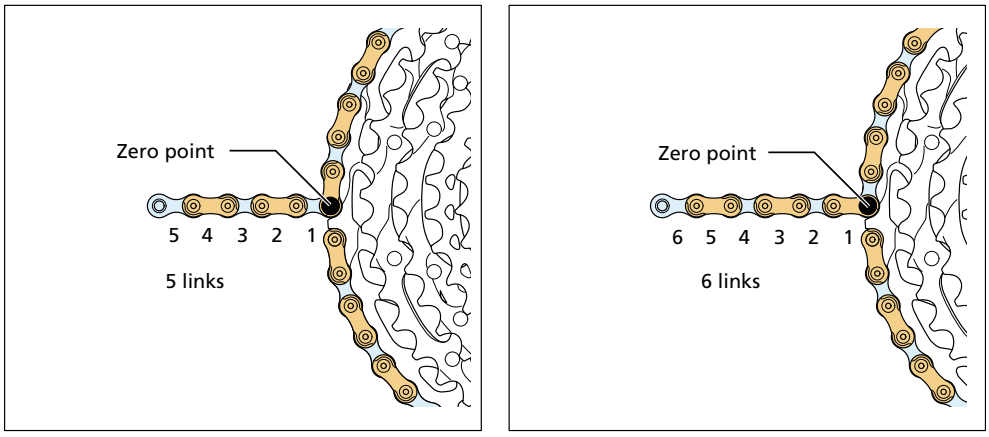
With the zero point of the chain established on the rear of the largest sprocket, the proper final chain length is determined by adding a certain amount of links to this resulting chain length. The amount of links is dependent on the chain connection method.

Hardtail bikes

- QUICK-LINK



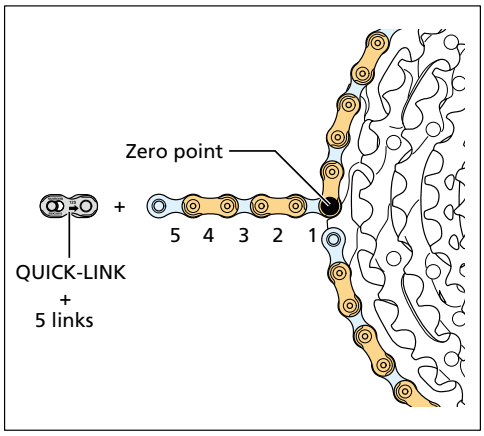
- Connecting pin

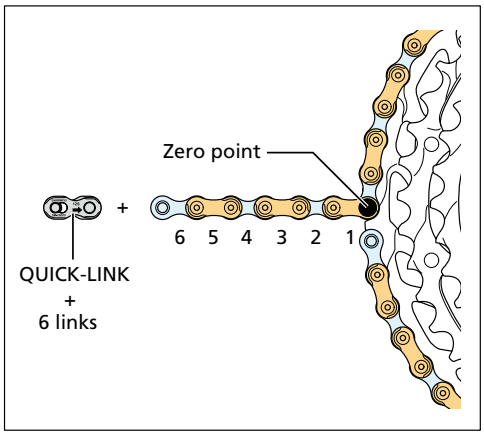


Full suspension bikes

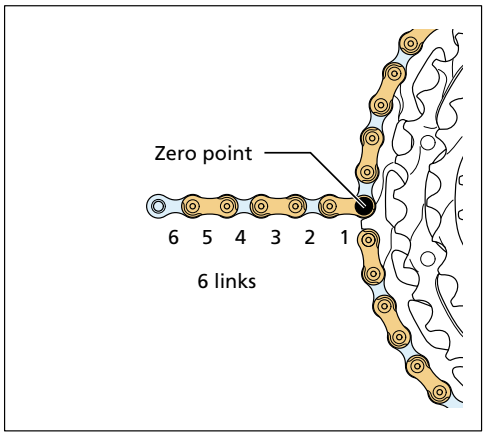
* For full suspension bikes, check the length of the chain with the suspension in its fully extended position.

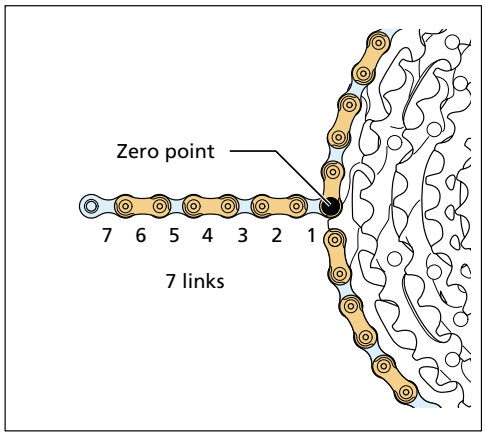
- QUICK-LINK





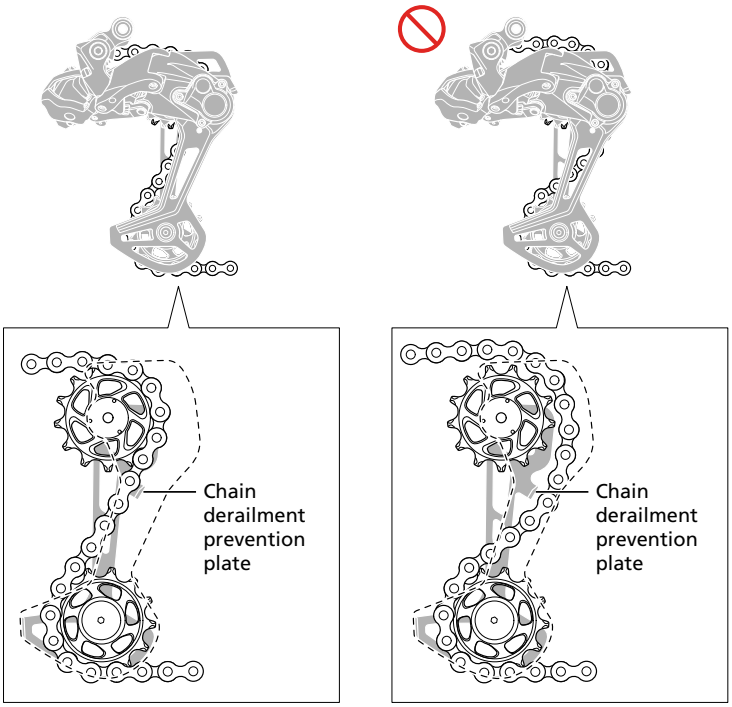
- Connecting pin



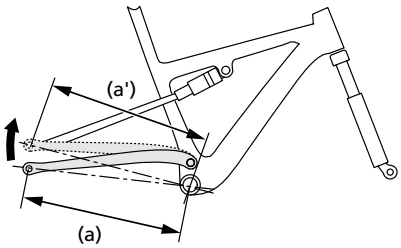


NOTICE

- The rear derailleur plate assembly is equipped with a pin or plate that prevents chain derailment. When passing the chain through the rear derailleur, pass it through the main body of the rear derailleur from the side of the chain derailment prevention plate as shown in the figure.
- If the chain is not passed through the correct position, damage may be caused to the chain or the rear derailleur.



- For full suspension bikes, length (a) will vary according to the movement of the rear suspension. After shifting to the largest chainring and the largest sprocket, make sure that the chain length is not too short when dimension (a) is at its maximum extension.
  If the chain length is too short, drivetrain components may be damaged due to excessive load on the drivetrain.



Installing the chain

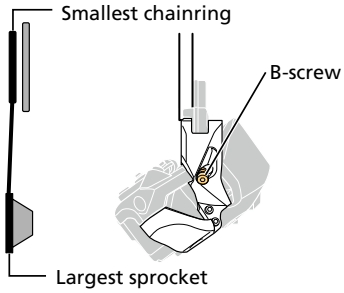
Refer to the dealer's manual for the chain to find instructions on installing the chain.

Adjustment

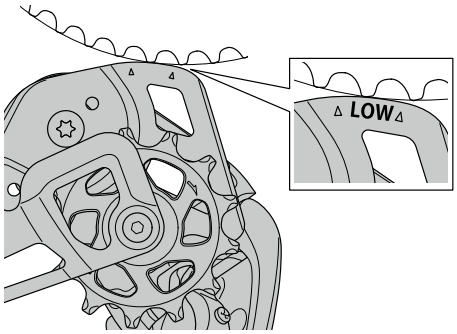
Adjusting the B-screw

1. **Shift the chain to the smallest chainring and the largest sprocket.**

   Turn the crank arm and shift the gears.



2. **Adjust the B-screw.**
   Align the contour of the outer plate and the tip of the highest tooth on the largest sprocket between the arrows on the inner side of the outer plate.



Gear shifting adjustment

For details on gear shifting adjustment, refer to the dealer's manual of your cycle computer .

Adjusting the low / high limits

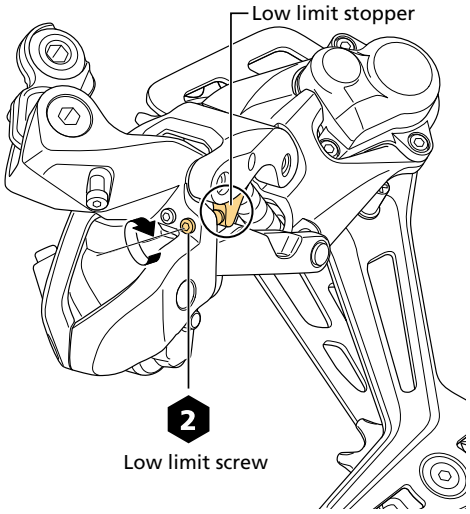
NOTICE

- The following issues may occur if the low/high limits are not properly adjusted:
  - Shifting to the smallest or largest sprocket is not possible. Even if the gears are shifted, the gear may shift back by 1 gear after approximately 5 seconds.
  - Gear shifting noise does not stop.
  - The battery level drops quickly because an undue load is being placed on the motor.
  - The motor may be damaged due to overload (irreparable).
  - The chain will become derailed from the sprocket and damage the rear derailleur, wheel, frame, etc.

1. Adjust the low limit.

(1) Shift the rear derailleur to the largest sprocket.

(2) Tighten the low limit screw until it just touches the low limit stopper.

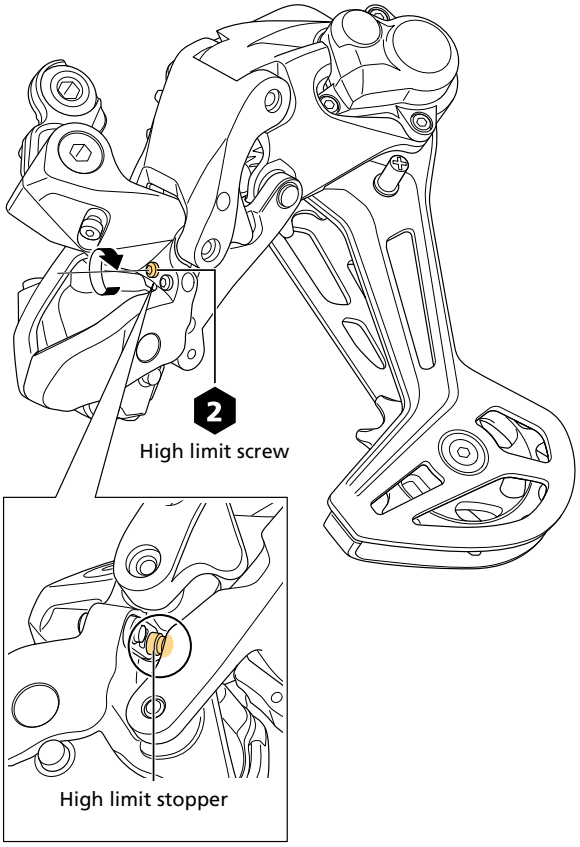


2. Adjust the high limit.

(1) Shift the rear derailleur to the smallest sprocket.

(2) Tighten the high limit screw until it just touches the high limit stopper.

(3) Turn the high limit screw counterclockwise one turn from position (2) so that an over-stroke allowance can be maintained.



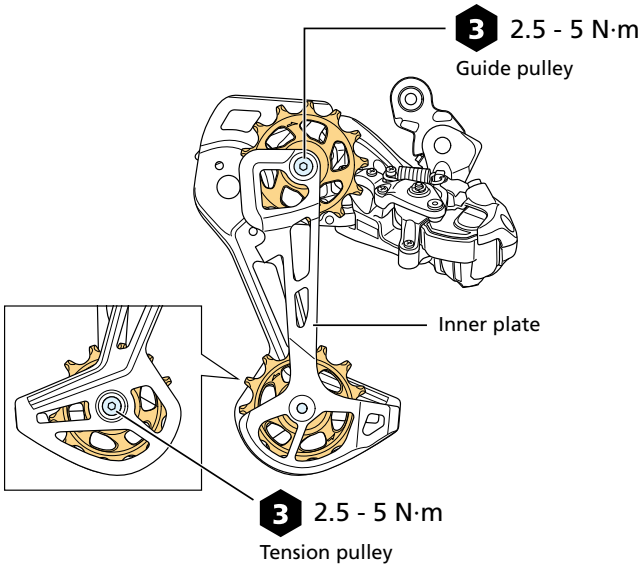
TECH TIPS

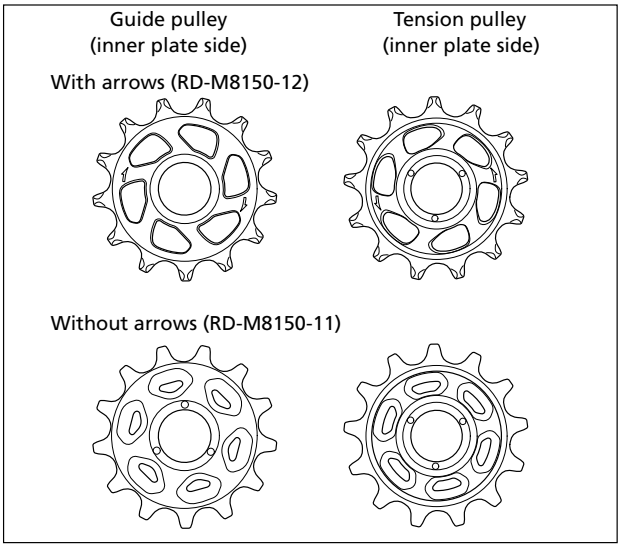
- During gear shifting, the rear derailleur may temporarily move to a position other than the target position. This operation ensures accurate gear shifting, and the rear derailleur will stop at the target position after the operation is complete.

Maintenance

Replacing the pulleys

1. **Replace the guide pulley/tension pulley.**
   Check the arrow direction on the pulleys when installing them. There may be no specified direction in which to install the pulleys, depending on the model.

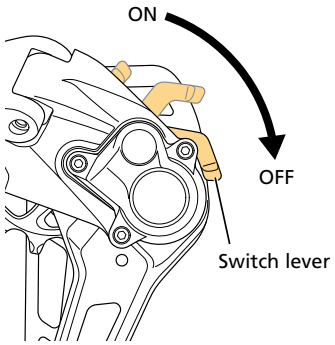




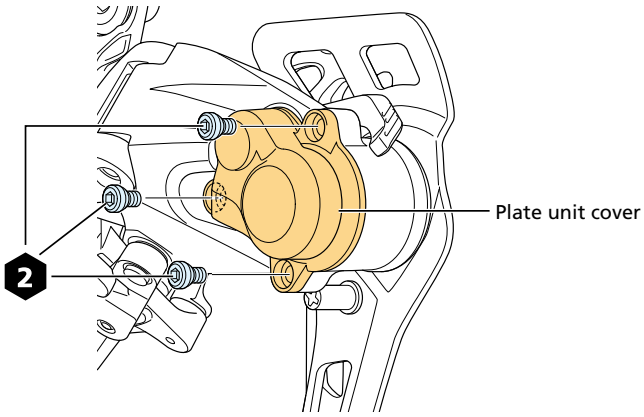
Applying grease to the chain stabilizer

If there is a noticeable change in friction in the chain stabilizer assembly, or if it starts to make noise, you may need to add grease to the chain stabilizer.

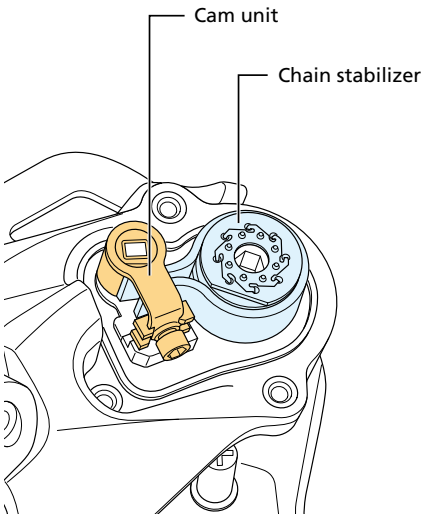
1. **Set the switch lever in the OFF position.**



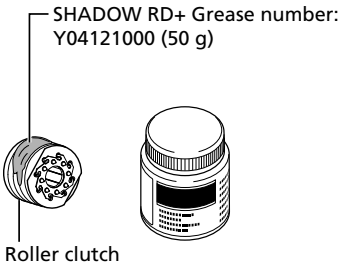
2. **Remove the plate unit cover.**



3. **Remove the cam unit and the chain stabilizer.**



4. **Apply the dedicated grease to the outer diameter of the roller clutch.**



NOTICE

- Be careful not to get grease inside the roller clutch. If grease gets inside the roller clutch, it will cause the roller clutch to stick or slide and malfunction.

When assembling, reverse the procedure.

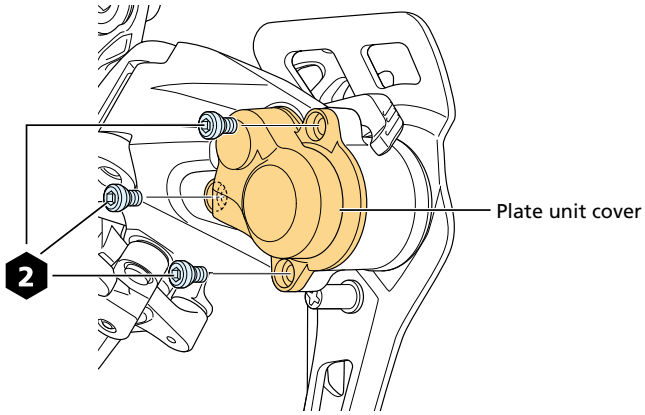
Adjusting friction

The level of friction can be adjusted as desired. Furthermore, the friction can also be adjusted when it changes during use.

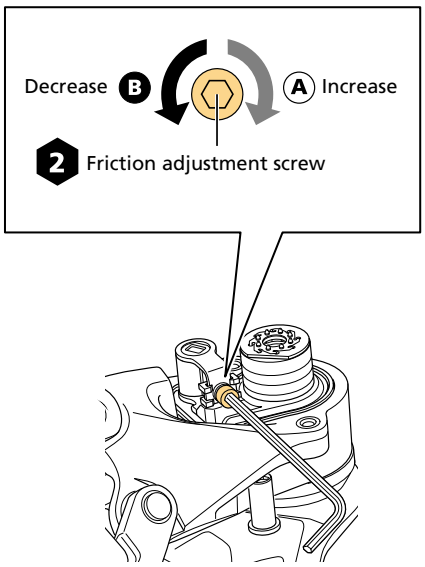
Friction adjustment

1. **Set the switch lever in the ON position.**

2. **Remove the plate unit cover as shown in the figure.**



3. Turn the friction adjustment screw with a hexagon wrench to adjust the friction.

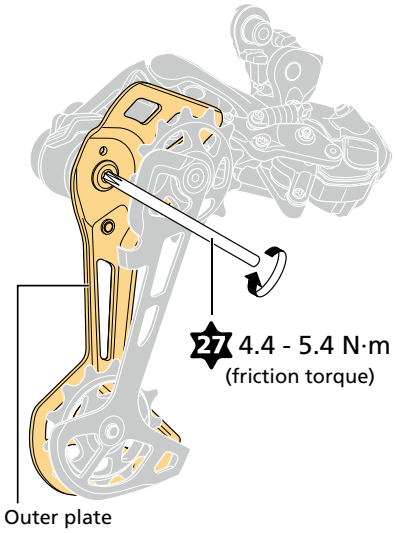


NOTICE

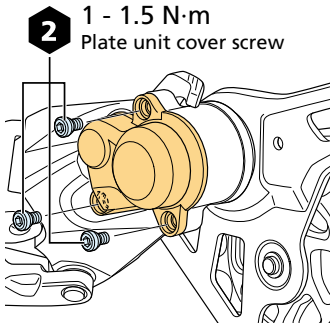
- Do not adjust the friction with a torque of 0.25 N·m or higher. Turning the screw excessively may cause damage.

4. Check the friction torque.

Insert a hexalobular wrench into the outer plate and check the friction torque.



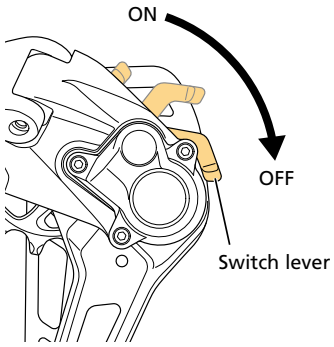
5. **Install the plate unit cover as shown in the figure.**



Replacing the plate, plate tension spring, and switch lever

Removal

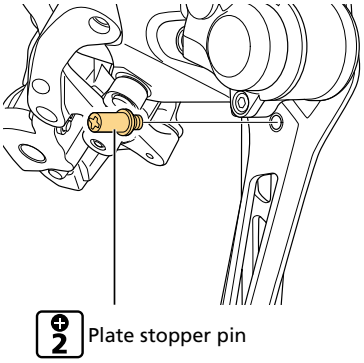
1. **Set the switch lever in the OFF position.**



NOTICE

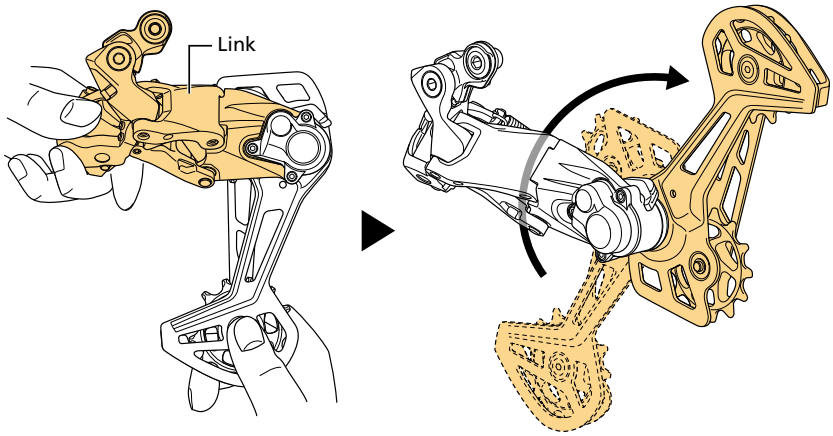
- If operating the switch lever while the plate unit cover is removed, hold the cam unit down with your finger so that it does not slide out.

2. Remove the plate stopper pin with a cross head screwdriver.

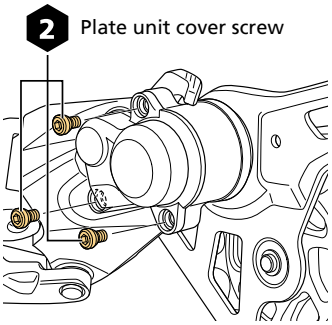


3. Turn the plate to loosen the plate tension spring.

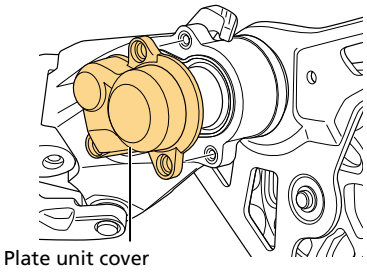
As shown in the figure, squeeze the outer casing holder and cable attachment portion together to move the link and turn the plate.



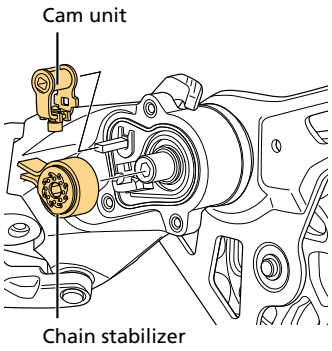
4. Remove the plate unit cover screws.



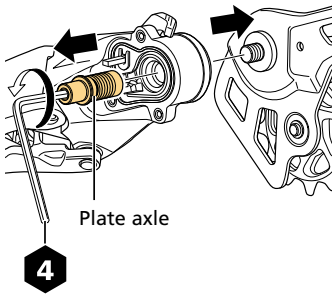
5. Remove the plate unit cover.



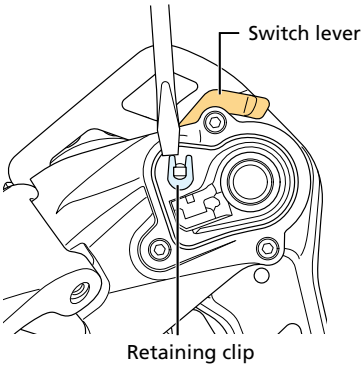
6. Remove the chain stabilizer and cam unit.

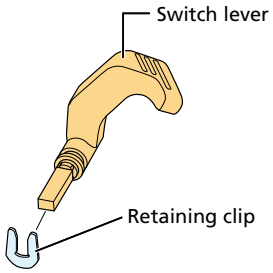


7. Remove the plate axle.

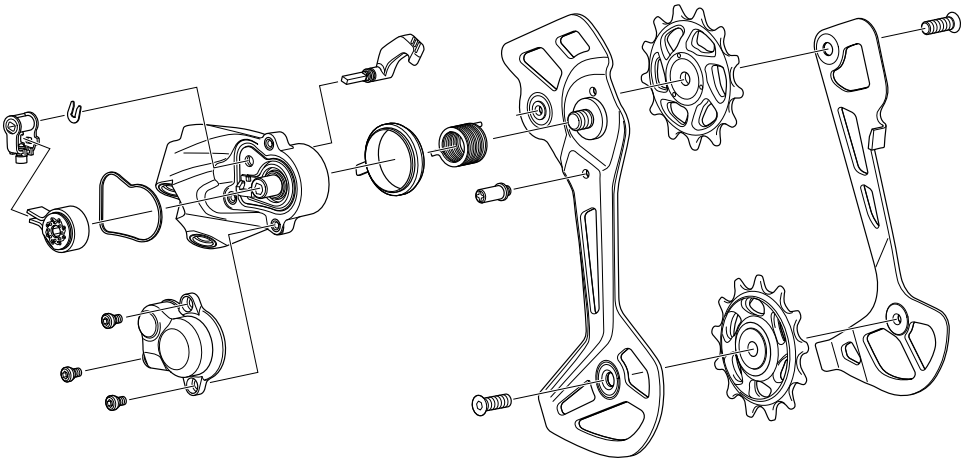


8. Remove the retaining clip and the switch lever.





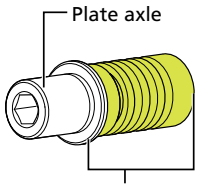
9. The unit can be disassembled as shown in the figure.



Installation

Perform the installation in the reverse order from Removal .

1. **Apply the dedicated grease to the plate axle.**

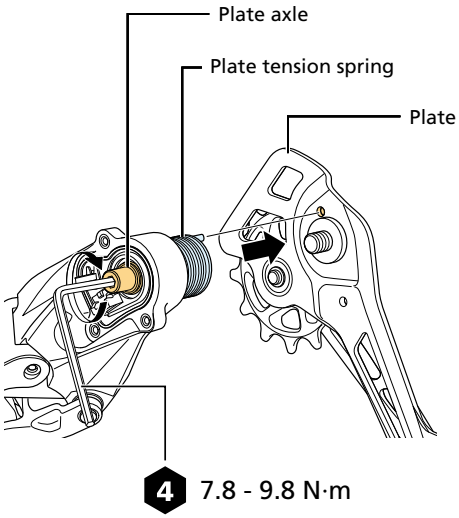


Grease application area
Grease number:
Premium Grease (Y04110000)

NOTICE

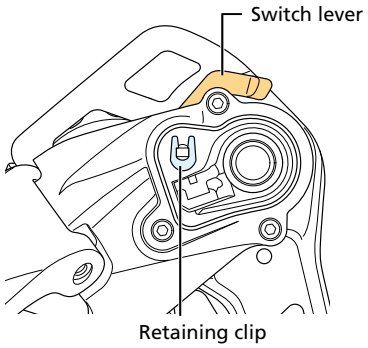
- Do not apply grease outside of the application area indicated above. If grease is applied here, it will get inside the roller clutch and friction will be lost.

2. **Insert the plate axle, then fit the tip of the plate tension spring in the hole of the plate.**



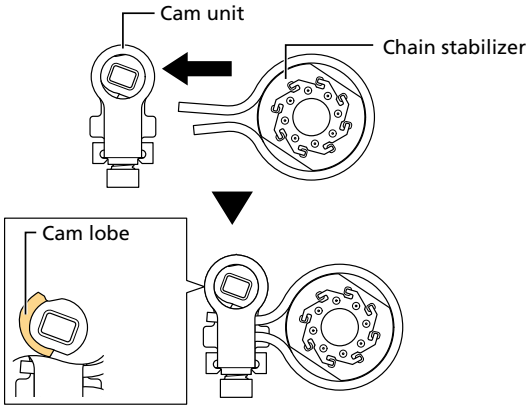
3. **Install the switch lever and engage the retaining clip.**

   Set the switch lever in the OFF position.



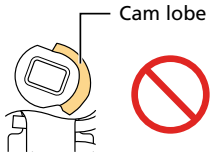
4. **Set the chain stabilizer into the cam unit as shown in the figure.**

   Check that the cam lobe of the cam unit is in the position shown in the figure.



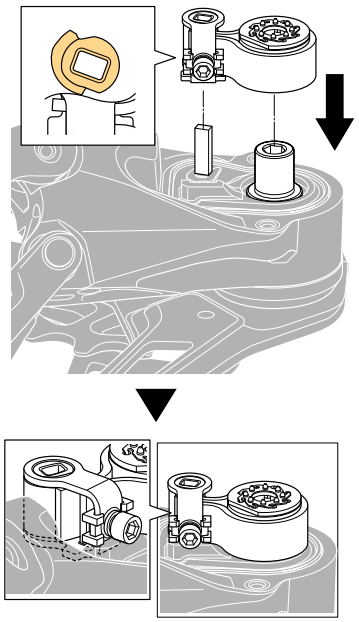
NOTICE

- Do not set the chain stabilizer in the cam unit with the cam lobe positioned as shown in the figure.



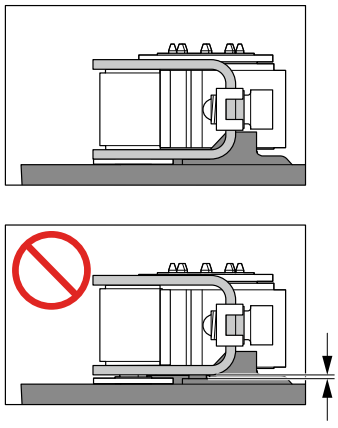
5. **Install the cam unit and chain stabilizer.**

   Pay attention to the positioning of the cam lobe of the cam unit.



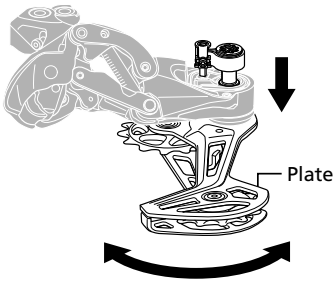
NOTICE

- Do not install the plate unit cover if the plate unit is not fully seated against the cam unit. This may result in insufficient sealing, which can lead to corrosion and malfunction of the chain stabilizer assembly.

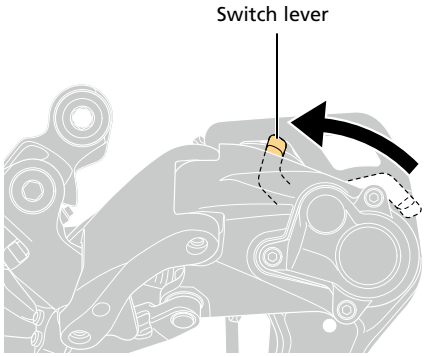


TECH TIPS

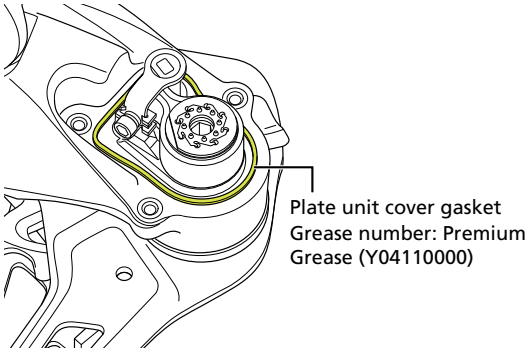
- When installing, it helps to move the plate back and forth while pushing on the cam unit and chain stabilizer.



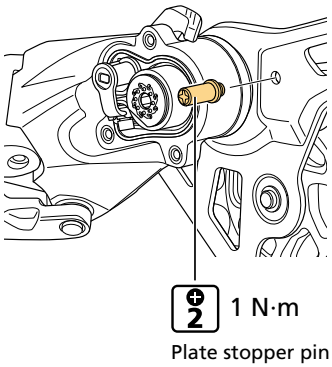
- If there is resistance when moving the switch lever to the ON position, the components are installed correctly. If there is no resistance, check the position of the cam lobe of the cam unit and reinstall the components.



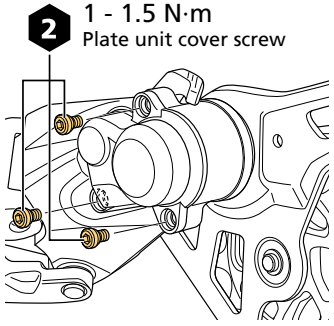
6. **Apply the dedicated grease to the plate unit cover gasket and install.**
   Check that the plate unit cover gasket is installed along the groove in the plate unit.



7. Install the plate stopper pin.



8. Install the plate unit cover screws.



9. Check the friction, and adjust as necessary.

Refer to " Adjusting friction " for the friction adjustment method.

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