

Dealer's Manual

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

REAR DERAILLEUR

- GRX
- RD-RX810
- RD-RX812
- RD-RX400

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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, consult your place of purchase or a bicycle dealer for their assistance.

- Make sure to read all owner's 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 owner's manuals and dealer's manuals can be viewed on-line on our website (<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.

**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.

 <b>DANGER</b>	Failure to follow the instructions will result in death or serious injury.
 <b>WARNING</b>	Failure to follow the instructions could result in death or serious injury.
 <b>CAUTION</b>	Failure to follow the instructions could cause personal injury or physical damage to equipment and surroundings.


# TO ENSURE SAFETY

## **WARNING**

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

It is recommended to use SHIMANO genuine parts only. If parts such as bolts and nuts become loose or damaged, the bicycle may suddenly fall over, which may cause serious injury.

In addition, if adjustments are not carried out correctly, problems may occur, and the bicycle may suddenly fall over, which may cause serious injury.

-  Be sure to wear safety glasses or goggles to protect your eyes while performing maintenance tasks such as replacing parts.
- After reading the dealer's manual thoroughly, keep it in a safe place for later reference.

## **Be sure to also inform users of the following:**

- **Intervals between maintenance depend on the use and riding circumstances. Clean the chain with an appropriate chain cleaner regularly. 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.**
- Check the chain for any damage (deformation or crack), 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.

## **NOTICE**

## **Be sure to also inform users of the following:**

- For SHADOW RD+, be sure to check that the plate unit cover and the plate unit cap are installed before riding the bicycle.
- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- If looseness in the links is so great that gear shifting adjustments cannot be made, replace the derailleur.
- 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.

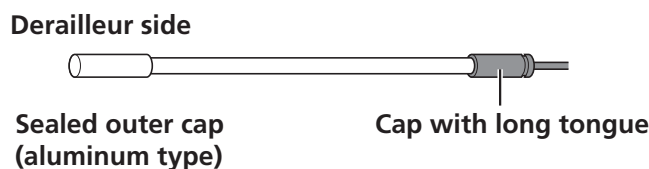
- Products are not guaranteed against natural wear and deterioration from normal use and aging.
- For maximum performance we highly recommend SHIMANO lubricants and maintenance products.

## For installation to the bicycle, and maintenance:

- Depending on the shape of the frame, the rear derailleur may interfere with the chainstay. Use the end adjustment screw to adjust so that the rear derailleur does not interfere with the chainstay.
- Grease the inner cable and the sliding portions of the outer casing before use to ensure that they slide properly.

Do not let dust adhere to the inner cable. If the grease on the inner cable is wiped off, the application of SIS SP41 grease (Y04180000) is recommended.

- Use an OT-RS900 cable and cable guide for smooth operation.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to either side. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- The end of the outer casing which has the sealed outer cap (aluminum type) should be on the derailleur side. Refer to the ST-RX810 dealer's manual for details.










- If gear shifting adjustments cannot be carried out, check that the rear derailleur hanger is aligned. Check whether the cable is clean and greased, and if the outer casing is too long or short.
- Periodically clean the derailleur and lubricate all moving parts (mechanism and pulleys).
- If you hear abnormal noise as a result of looseness in a pulley, you should replace the pulley.

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
	5.5 mm spanner
	Screwdriver [#2]
	TL-CT12

# INSTALLATION/REMOVAL

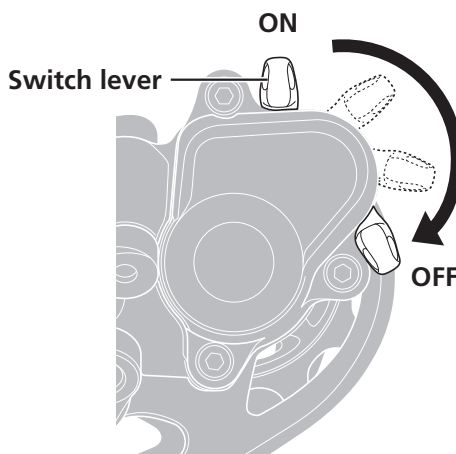
## Installation of the rear derailleur

### TECH TIPS

- The rear derailleur will not gear shift properly if the derailleur hanger is not straight. Use TL-RD11 to check whether the derailleur hanger is straight or not.

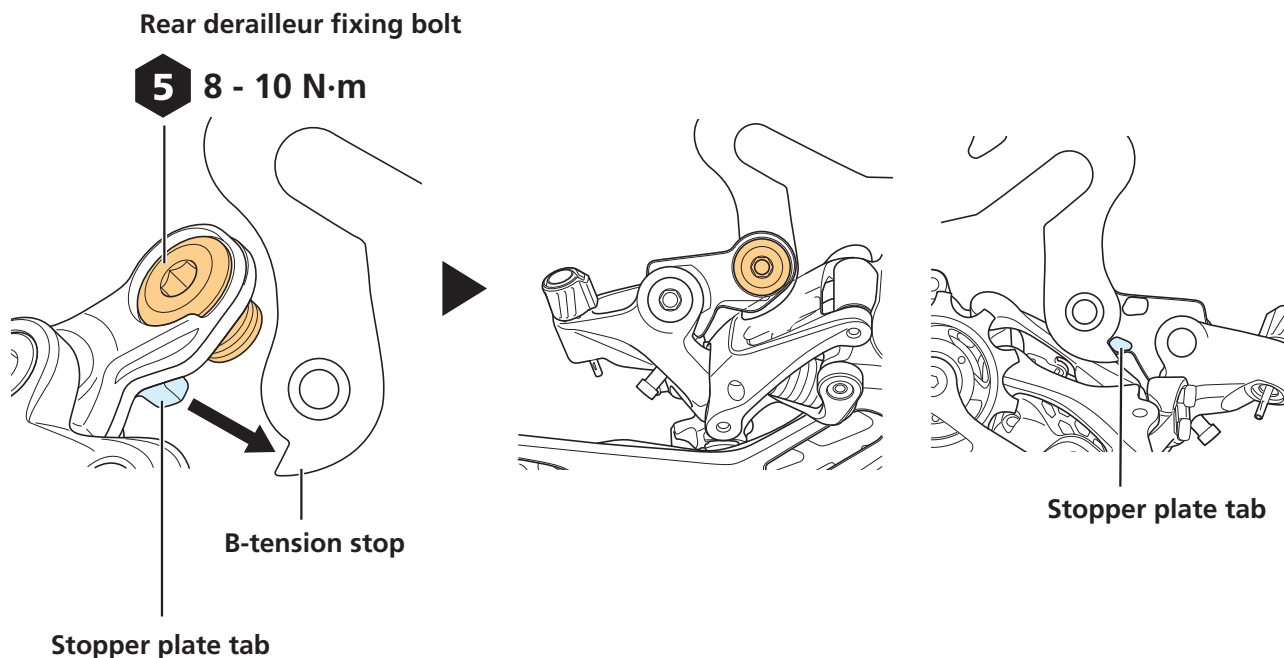
### Standard type

1. Set the switch lever in the OFF position.



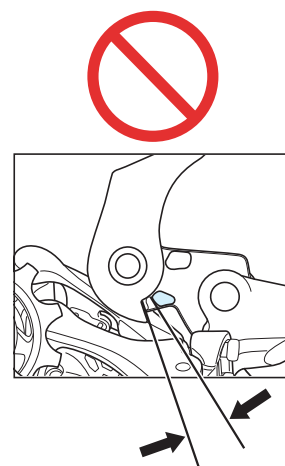
## 2. Tighten the rear derailleur fixing bolt.

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



### NOTICE

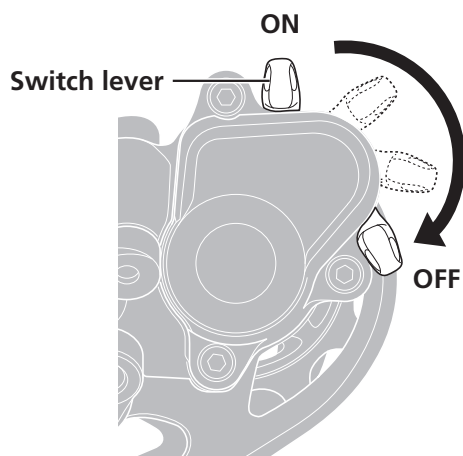
- Periodically check to make sure that there is no gap between the B-tension stop and the stopper plate tab. If there is a gap between these two parts, problems with gear shifting performance may occur.



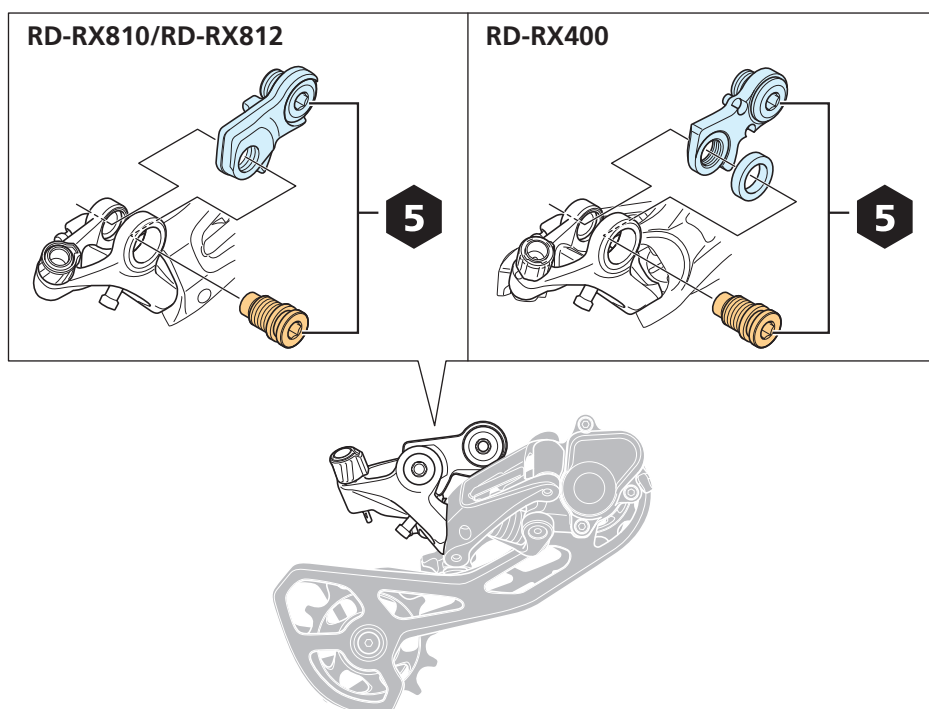


## Direct mount type

1. Set the switch lever in the OFF position.



2. Remove the bracket axle.

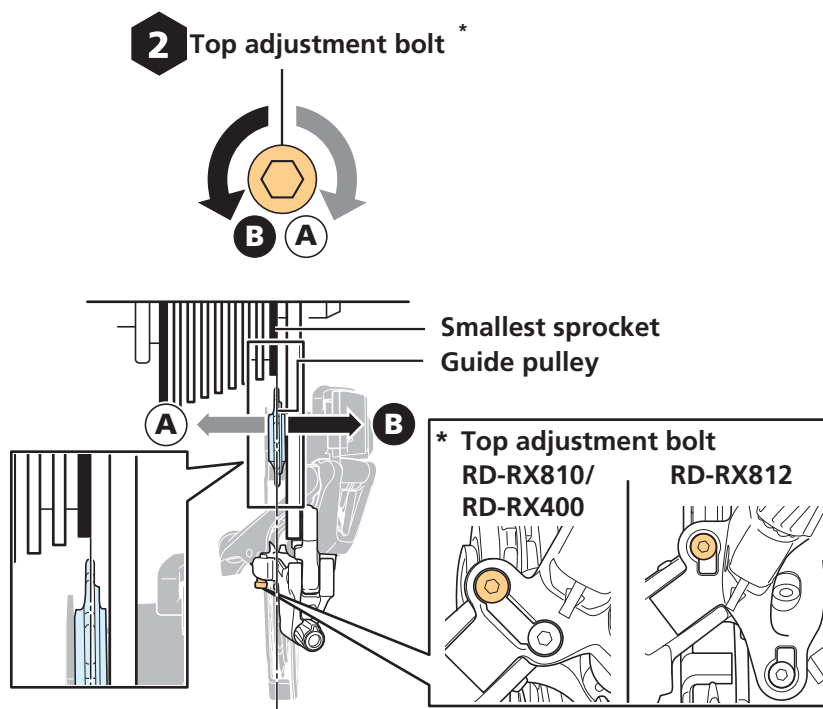


# ADJUSTMENT

## Adjusting the stroke on the top side

### 1. Adjust by turning the top adjustment bolt.

Adjust so that the center of the guide pulley is aligned with the outer line of smallest sprocket when viewed from the rear side.

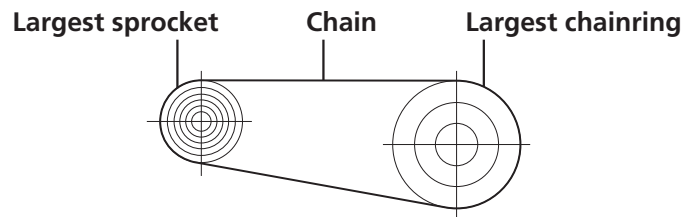


## Installing the chain

Refer to the dealer's manual for the chain to install/remove the chain.

# Checking the chain length

## 1. Mount the chain on the largest sprocket and the largest chainring.



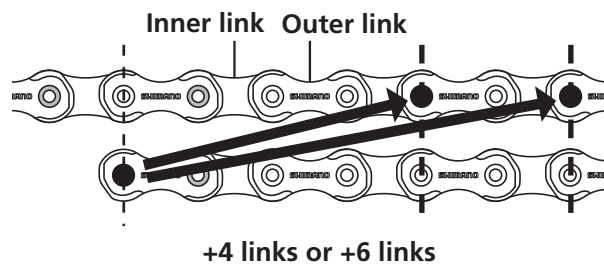
## 2. Check the length of the chain.

Add 4 to 6 links to set the length of the chain, as shown in the figure.

**If the inner links and outer links match when mounting the chain**

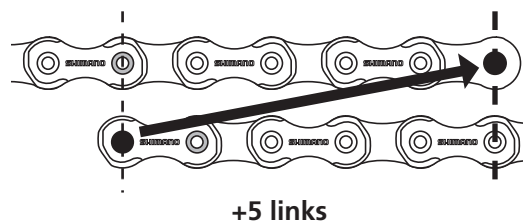
Add 4 to 6 links to set the length.

When setting to the length with 4 links added, if you are concerned about drive wandering after mounting the chain on the largest sprocket and largest chainring, set it to a length with another 2 links added.



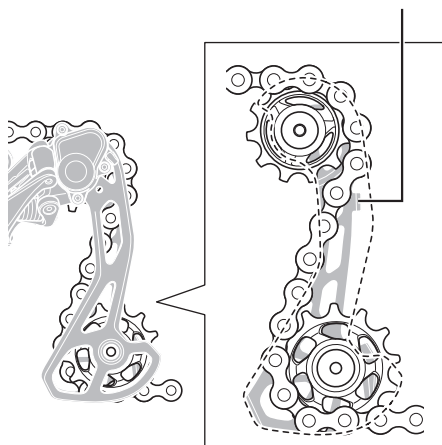
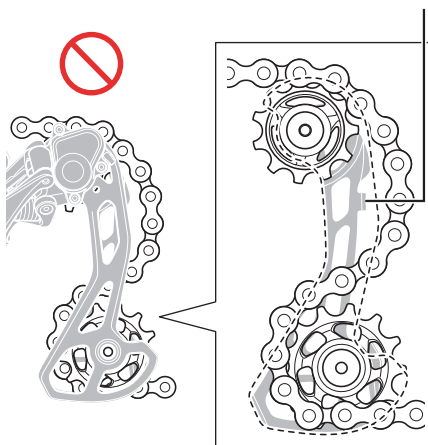
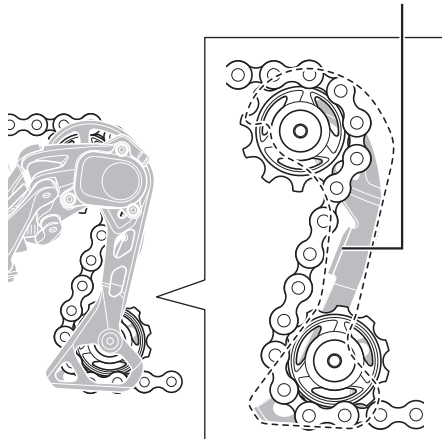
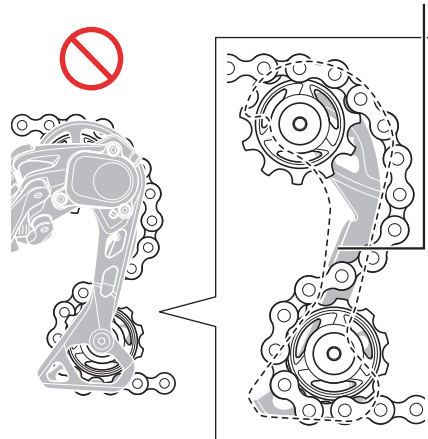
**If the inner links match together and the outer links match together**

Add 5 links to set the length.



**NOTICE**

- 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 main body of the rear derailleur instead of through the chain derailment prevention plate as shown in the figures.
- If the chain is not passed through the correct position, damage may be caused to the chain or rear derailleur.

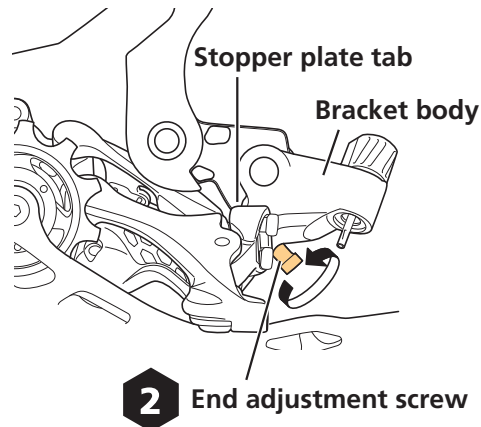
**RD-RX810****Chain derailment prevention plate****Chain derailment prevention plate****RD-RX812/RD-RX400****Chain derailment prevention plate****Chain derailment prevention plate**

# Connection and securing of the inner cable

## Outer casing length

### 1. Loosen the end adjustment screw to the position shown in the figure.

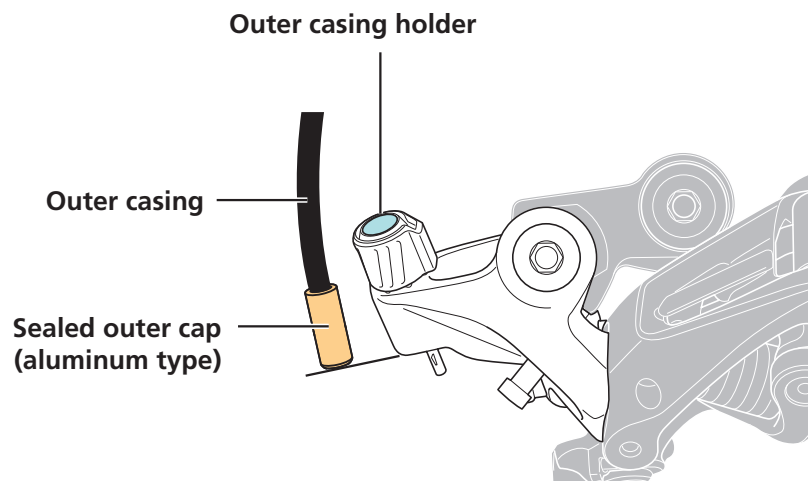
Make sure that the tab of the stopper plate touches the bracket body without leaving a gap.



### 2. Determine the length of the outer casing.

Align the outer casing to which the sealed outer cap (aluminum type) has been fitted with the bottom edge of the outer casing holder on the rear derailleur.

When doing so, make sure to leave enough slack in the outer casing.



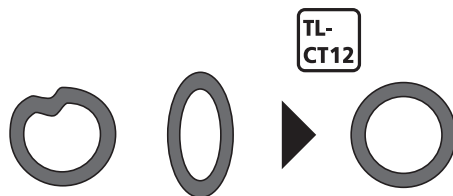
#### NOTICE

- Make sure to use OT-RS900 for the outer casing.

### 3. Cut off any excess outer casing with the cable cutter.

Make sure to cut the cap with long tongue side.

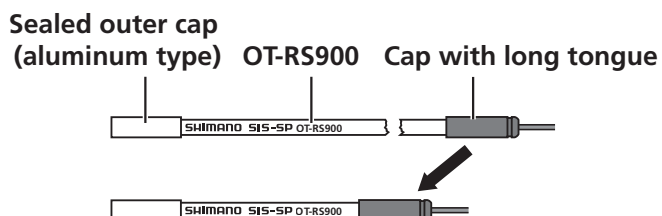
After cutting, return the outside of the outer casing to a perfect circle so that the inside of the hole has a uniform shape.



### 4. Install the cap with long tongue to the end.

The end of the outer casing which has the sealed outer cap (aluminum type) should be on the derailleur side.

Route the inner cable through the outer casing.



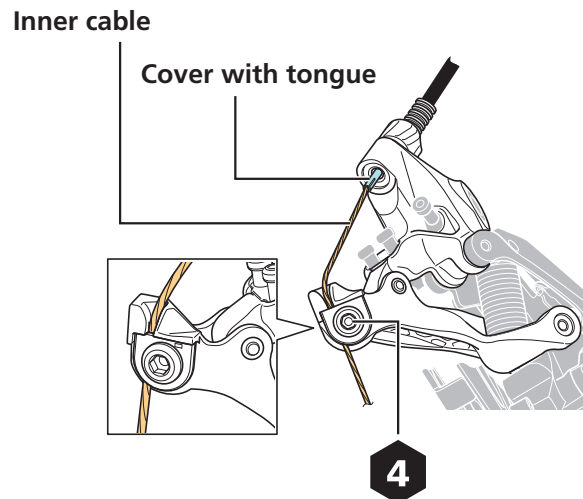
## Connection and securing of the inner cable

### 1. Set the shifting lever in its initial position.

Operate the release lever 10 times or more.

### 2. Secure the inner cable to the rear derailleur.

There is no cover with tongue for RD-RX400.

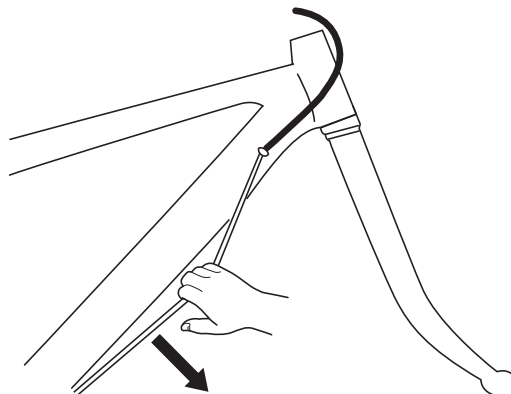


#### NOTICE

- When replacing the inner cable for RD-RX810/RD-RX812, it is recommended to replace the cover with tongue.
- Fuzz may be generated when assembling the inner cable or when the coating is damaged during use, but this will not affect the function of the part.

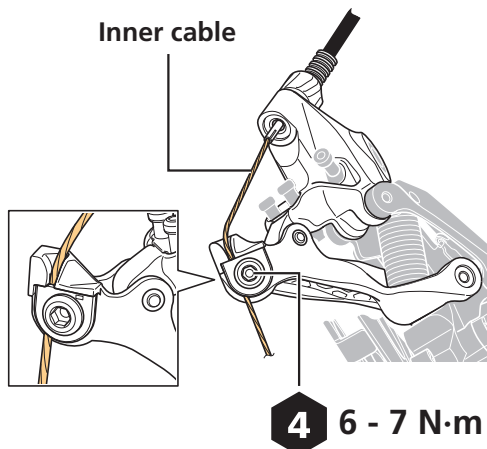
### 3. Remove the initial slack from the inner cable as shown in the figure.

If it is difficult to pull the inner cable, secure the rear derailleur so that it will not move, and then push the main lever several times to remove the initial slack.



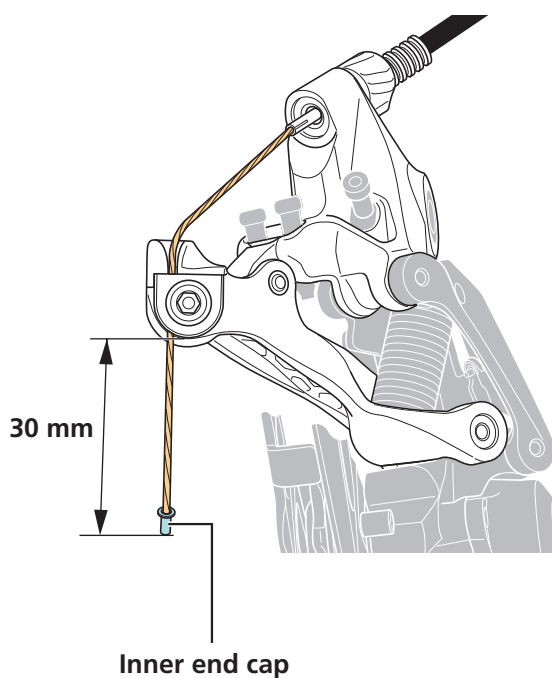
#### 4. Re-secure the inner cable to the rear derailleur.

While pulling the inner cable, be sure that it is secured along the groove.



#### 5. Cut the inner cable so that the protruding length is approximately 30 mm.

Install the inner end cap.



#### NOTICE

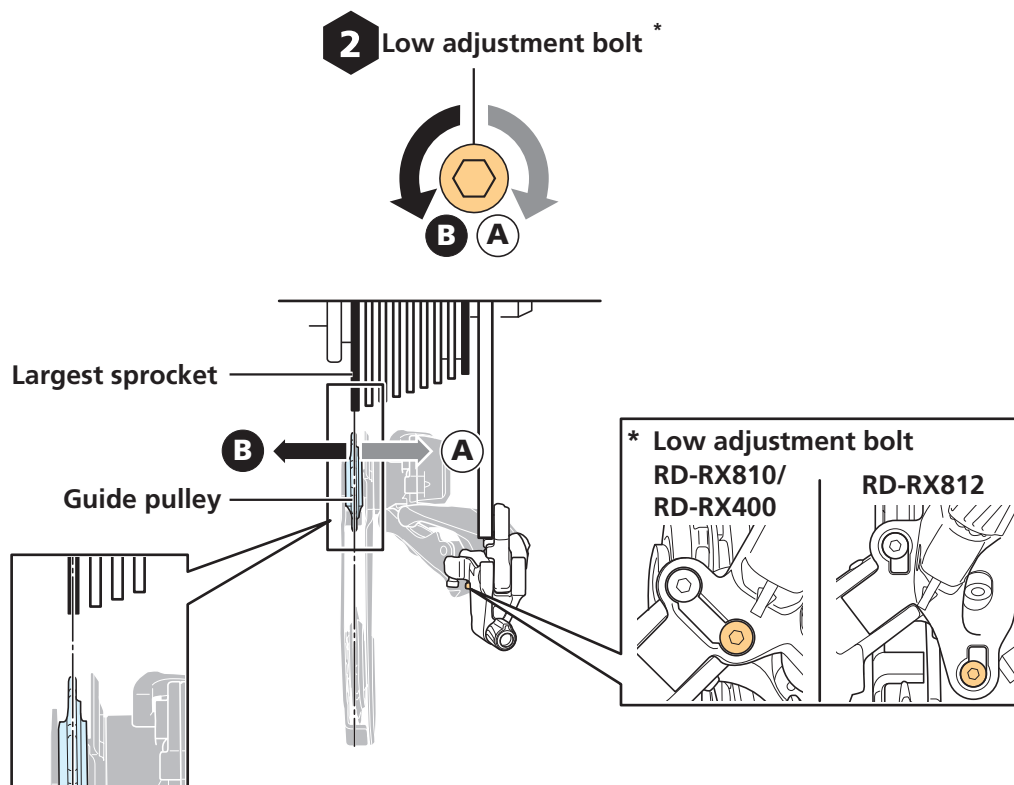
- Check that the inner cable does not interfere with the spokes of the wheel.
- Do not allow the wheel to turn while carrying out this step.



# Adjusting the stroke on the low side

## 1. Adjust by turning the low adjustment bolt.

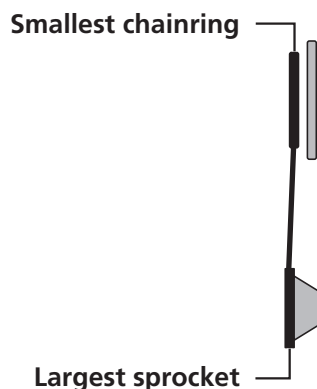
Adjust so that the center of the guide pulley is aligned with the center of the largest sprocket.



# Adjusting the end adjustment screw

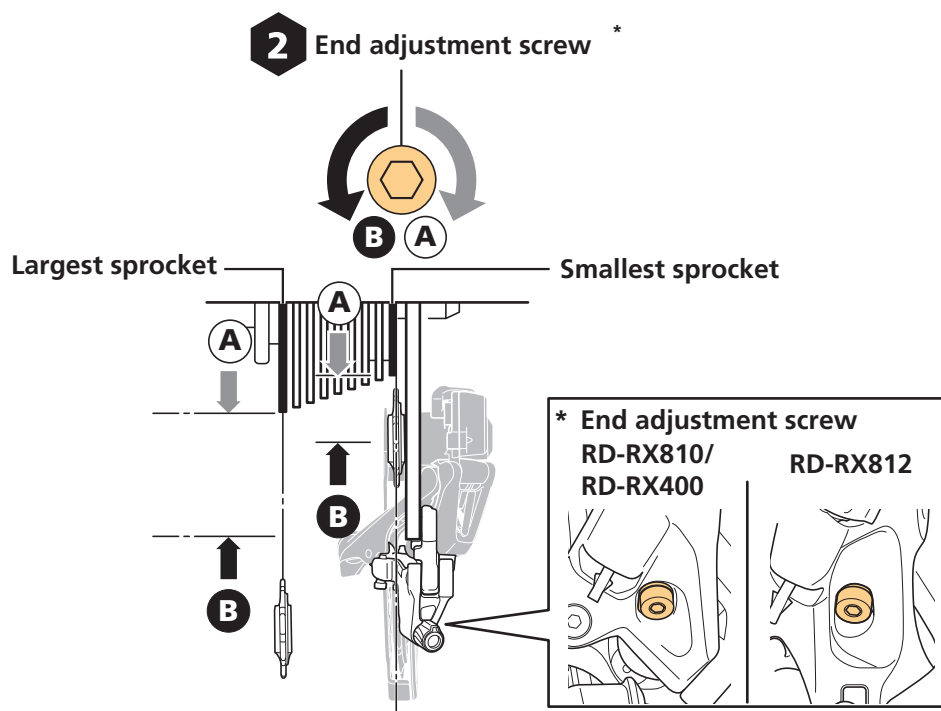
## 1. Set the chain on the smallest chainring and the largest sprocket.

Turn the crank arm in reverse.



## 2. Adjust the end adjustment screw.

Bring the guide pulley close to the gear to a position where the chain does not jam.



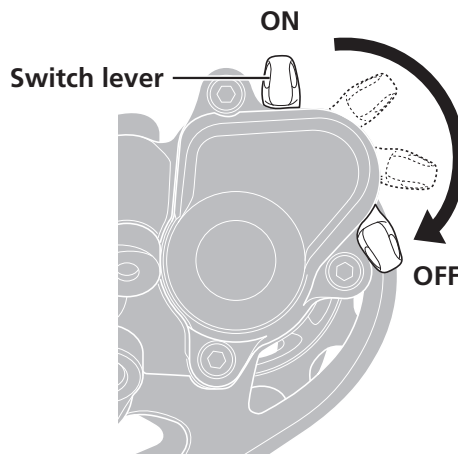
### 3. Check that the chain does not jam even at the smallest sprocket.

If the chainstay and rear derailleur interfere, adjust by turning the end adjustment screw until they do not interfere.

If there is some slack in the chain, adjust the end adjustment screw to remove the slack from the chain.

## SIS adjustment

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

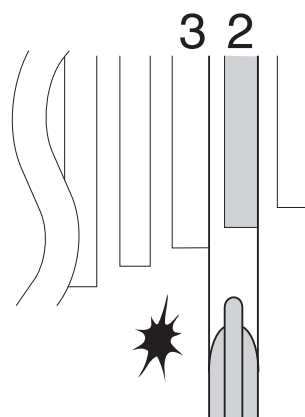


### 2. Operate the shifting lever once to shift to the 2nd sprocket counting from the smallest sprocket.

### 3. While turning the crank, operate the shifting lever just enough to close the lever gap.

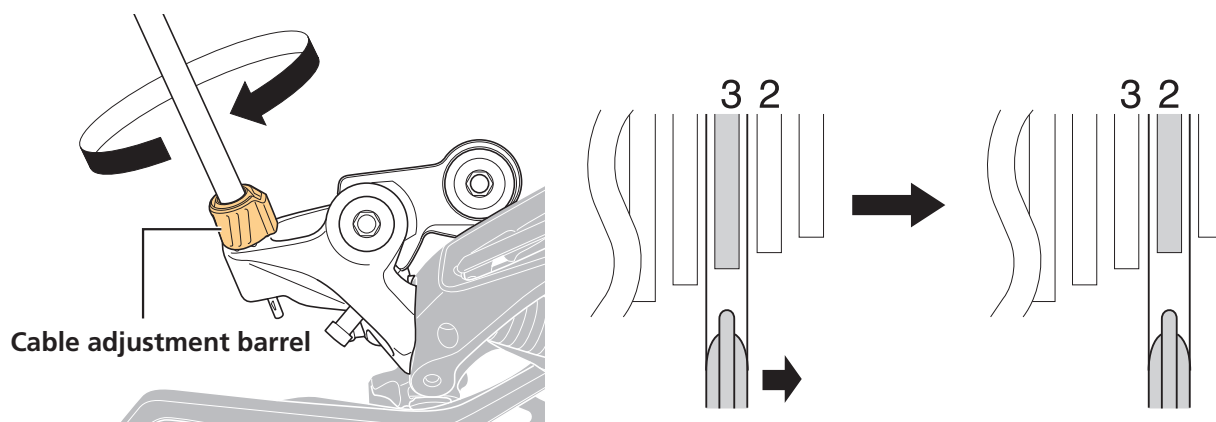
#### Best setting

The best setting is when the chain touches the 3rd sprocket counting from the smallest sprocket and makes noise.

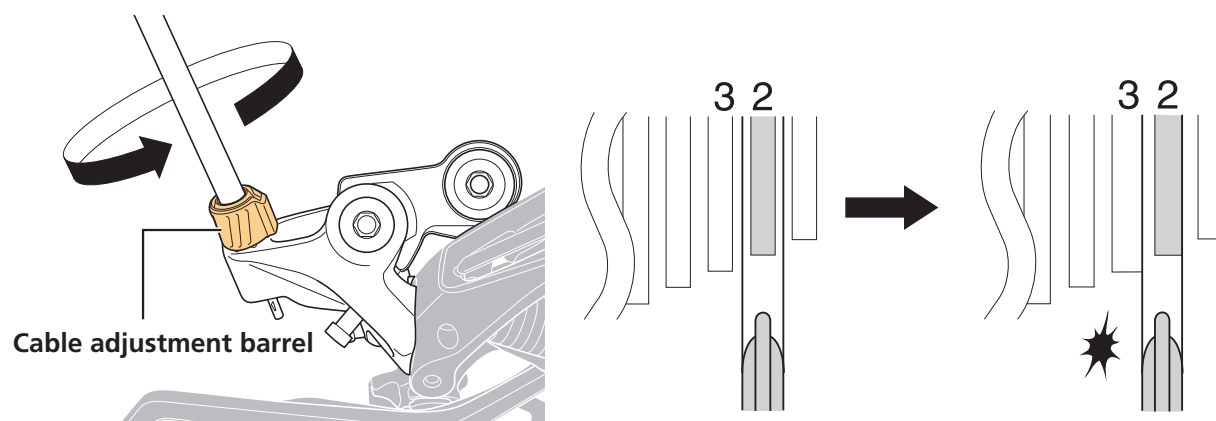


### When shifting to the 3rd sprocket counting from the smallest sprocket

- (1) Tighten the cable adjustment barrel until the chain returns to the 2nd sprocket counting from the smallest sprocket. (Clockwise)

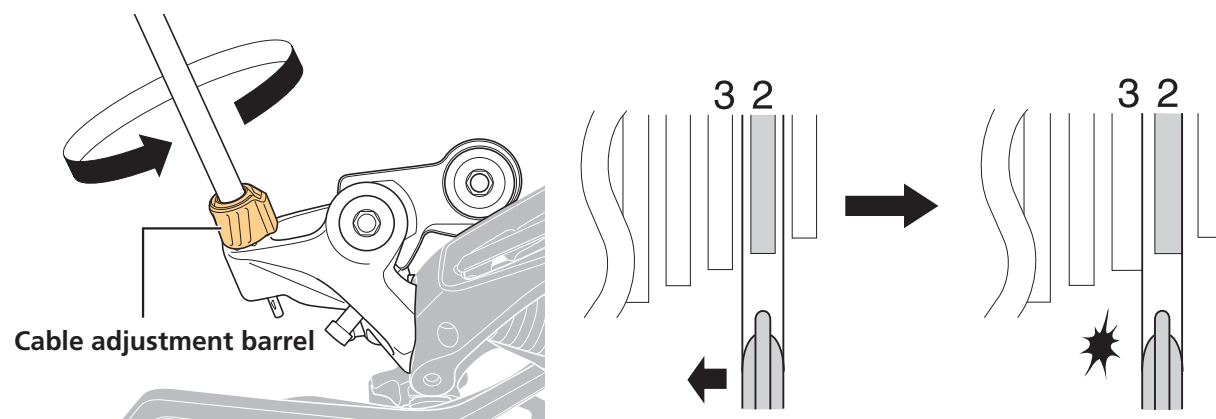


- (2) Loosen the cable adjustment barrel until it touches the 3rd sprocket counting from the smallest sprocket and makes a noise. (Counterclockwise)



### When no sound at all is generated

Loosen the cable adjustment barrel until it touches the 3rd sprocket counting from the smallest sprocket and makes a noise. (Counterclockwise)



- 4. Return the shifting lever to its original position (the position of the 2nd sprocket counting from the smallest sprocket, with your finger released from the shifting lever) and then turn the crank.**

**NOTICE**

- If it is touching the 3rd sprocket counting from the smallest sprocket and making noise, turn the cable adjustment barrel clockwise slightly to tighten it just enough until the noise stops.

- 5. Operate the shifting lever to change gears while turning the crank, and check that no noise occurs in any of the gear positions.**

**TECH TIPS**

- The rear derailleur will not gear shift properly if the derailleur hanger is not straight. Use TL-RD11 to check whether the derailleur hanger is straight or not.

- 6. Set the switch lever in the ON position, and then check that there are no problems with gear shifting during normal riding conditions.**

If gear shifting from low gear is slow, turn the end adjustment screw to release the guide pulley from the gear.

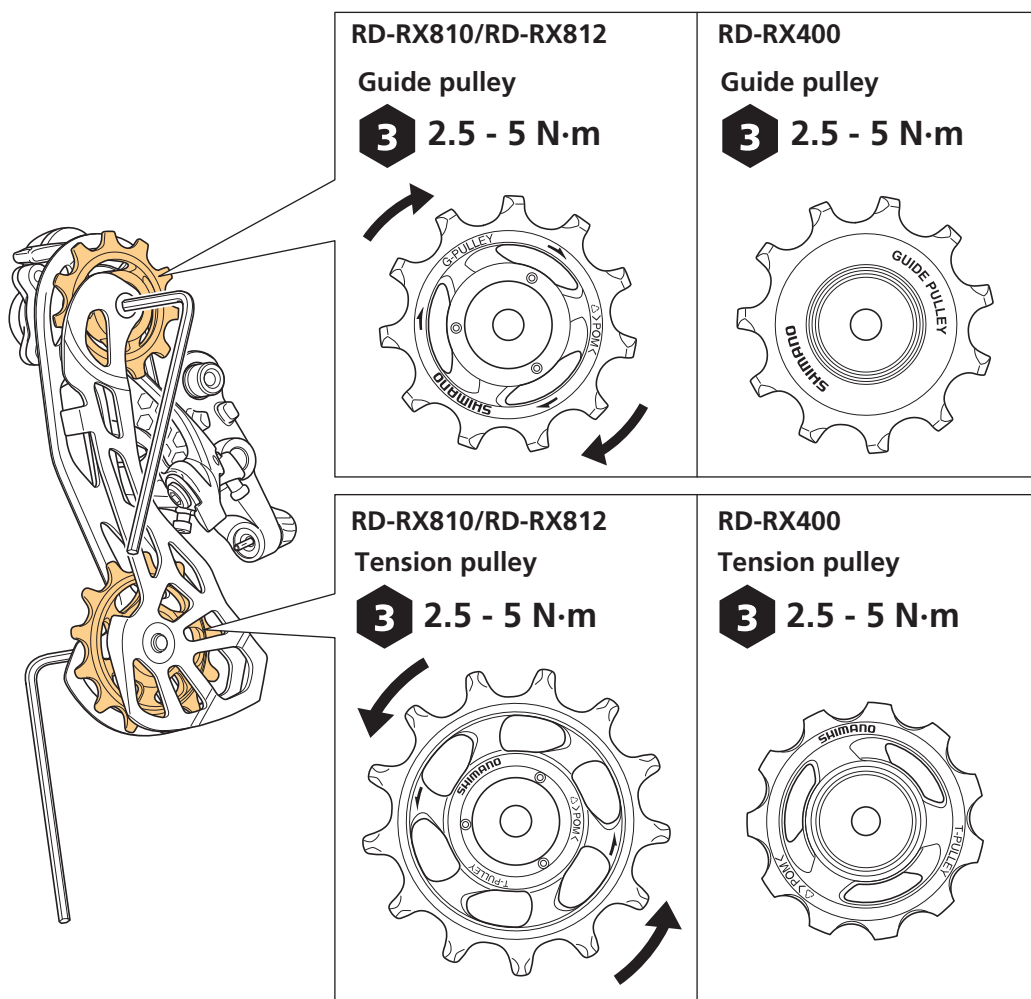
# MAINTENANCE

## Replacing the pulley

### 1. Replace the guide pulley and tension pulley.

Check the arrow direction on the pulley when installing it.

For RD-RX400, the pulley can be installed in any direction.



#### NOTICE

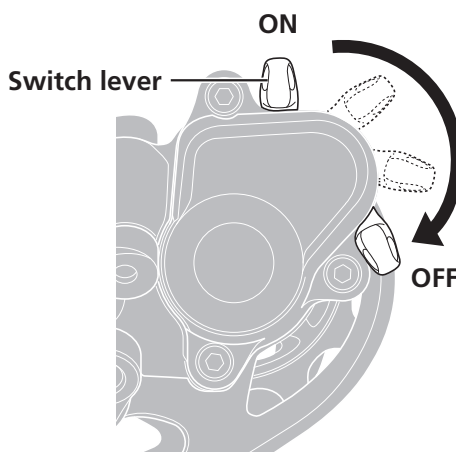
- The pulley for RD-RX810/RD-RX812 has an arrow on it to indicate the direction of rotation. Install so that the guide pulley moves clockwise and the tension pulley moves counterclockwise when viewed from the inner side of the derailleur.

# Applying grease to the chain stabilizer

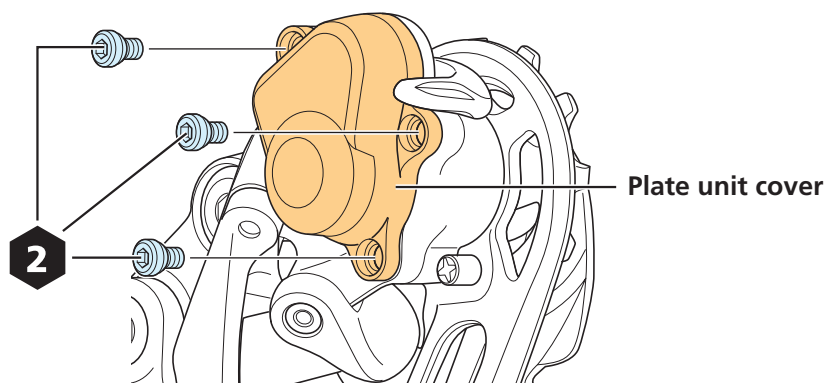
If the friction changes or noise is generated, the grease may be discolored or insufficient. Apply grease.

\* Perform the assembly in the reverse order from the disassembly procedure.

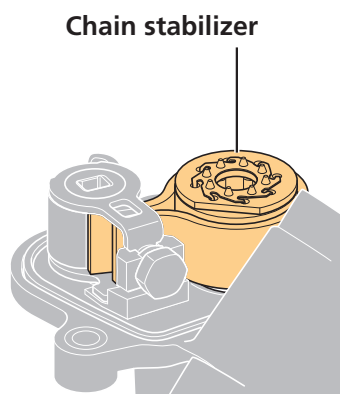
## 1. Set the switch lever in the OFF position.



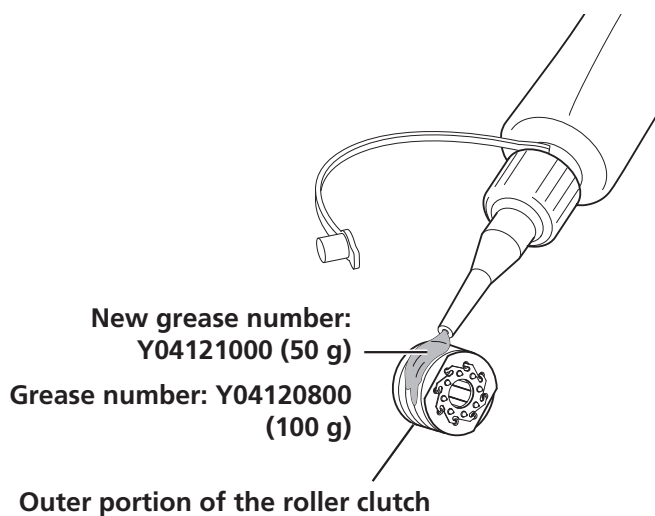
## 2. Remove the plate unit cover.



## 3. Remove the chain stabilizer.



#### 4. Apply grease to the outer diameter of the outer portion of the roller clutch.

**NOTICE**

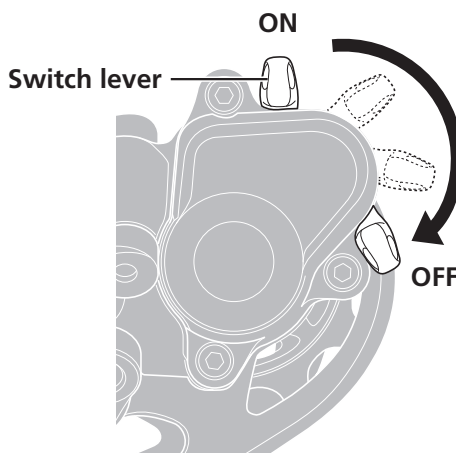
- Be careful not to get grease inside the outer portion of the roller clutch. Otherwise, the clutch could stick, slip, or otherwise malfunction.



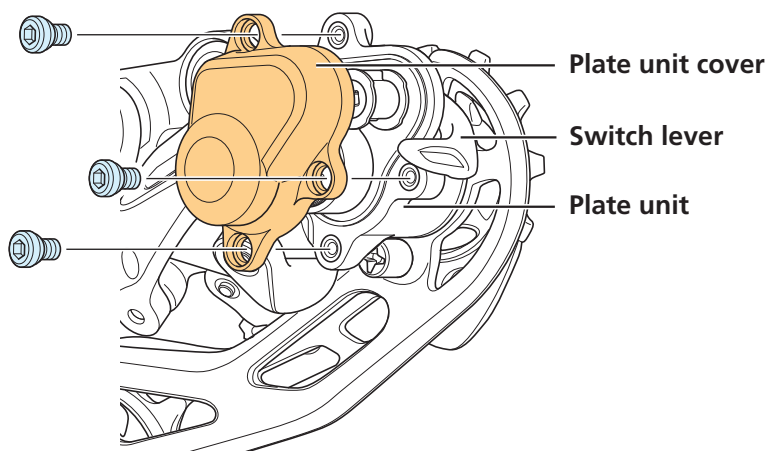
# Adjusting friction

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

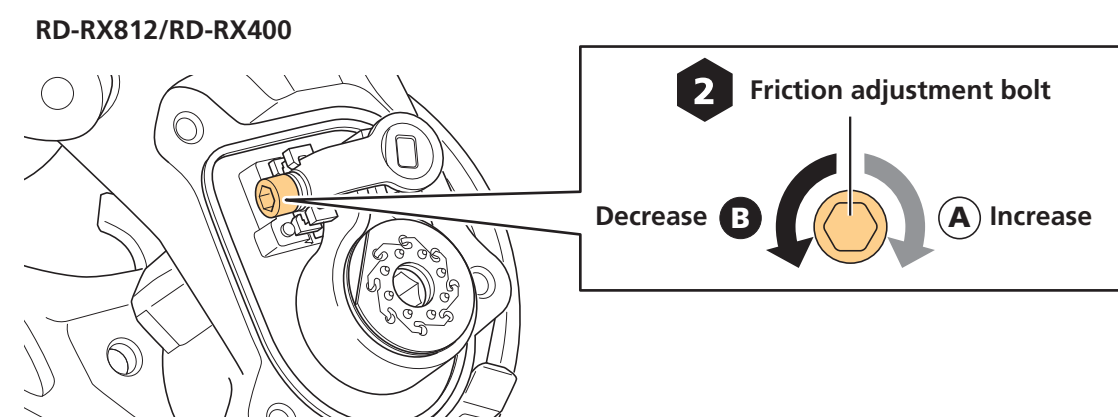
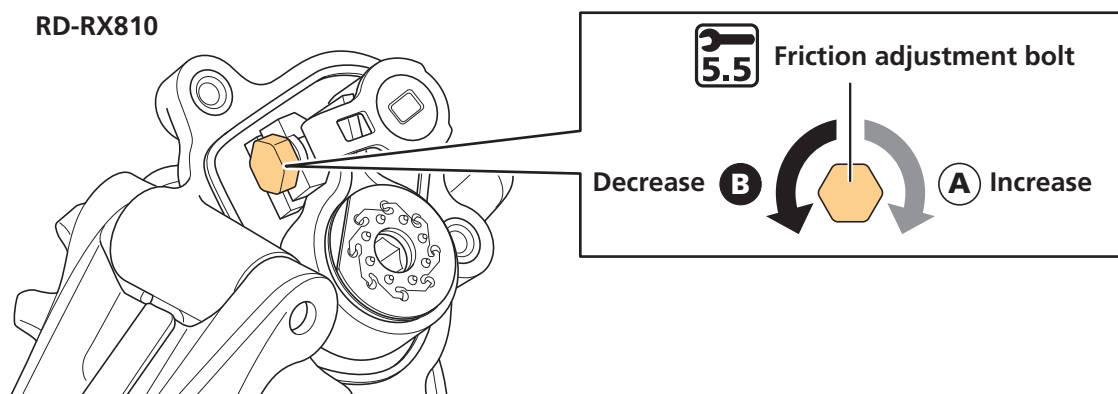
1. Set the switch lever in the OFF position.



2. Use a 2 mm hexagon wrench to remove the plate unit cover.



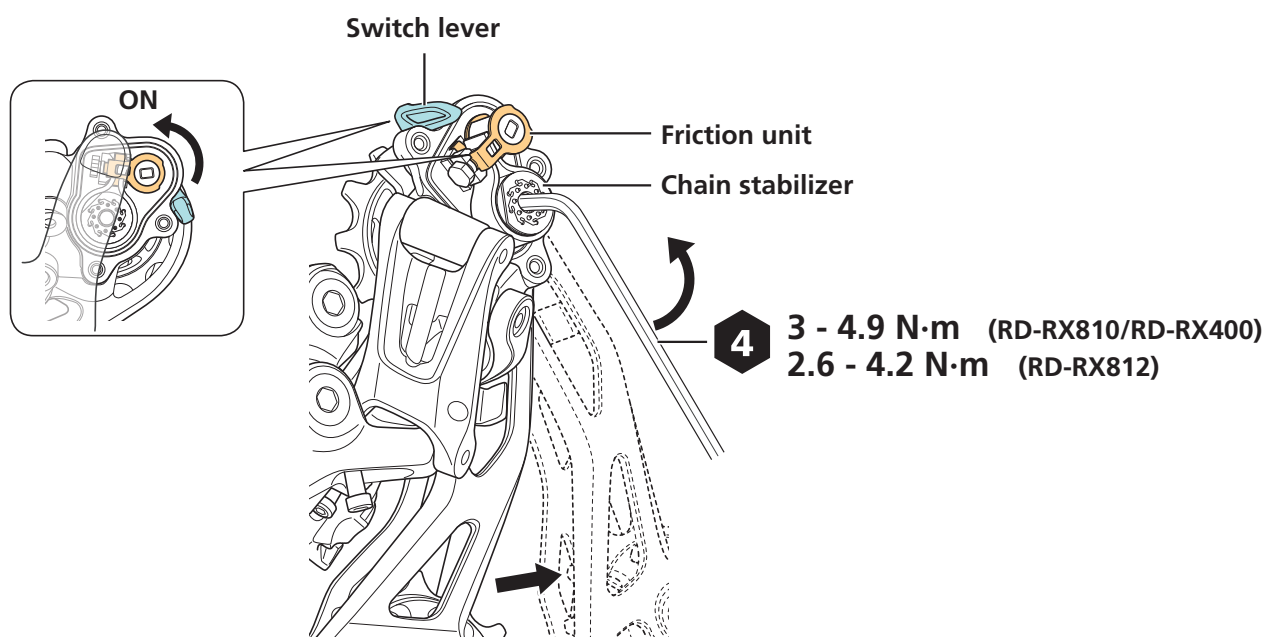
### 3. Turn the friction adjustment bolt to adjust the friction.



### 4. Check the friction torque.

As shown in the figure, set the switch lever to the ON position while pressing the friction unit with your finger.

Insert a 4 mm hexagon wrench into the chain stabilizer, and check the friction torque.

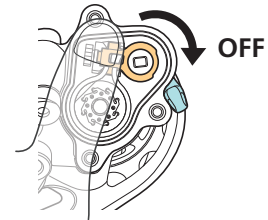


### NOTICE

- If adjusting the friction once more, be sure to set the switch lever to the OFF position while pressing the friction unit with your finger before making the adjustment.

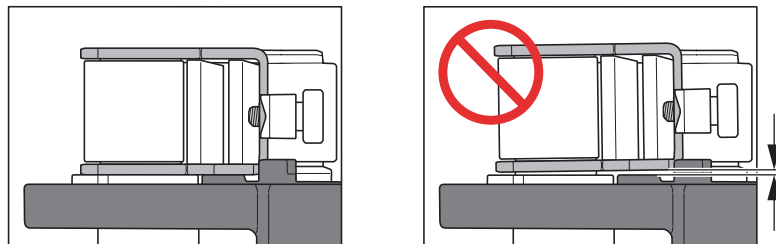
## 5. Set the switch lever in the OFF position.

Set the switch lever to the OFF position while pressing the friction unit with your finger. At that time, make sure that the friction unit is in contact with the bottom of the plate unit.

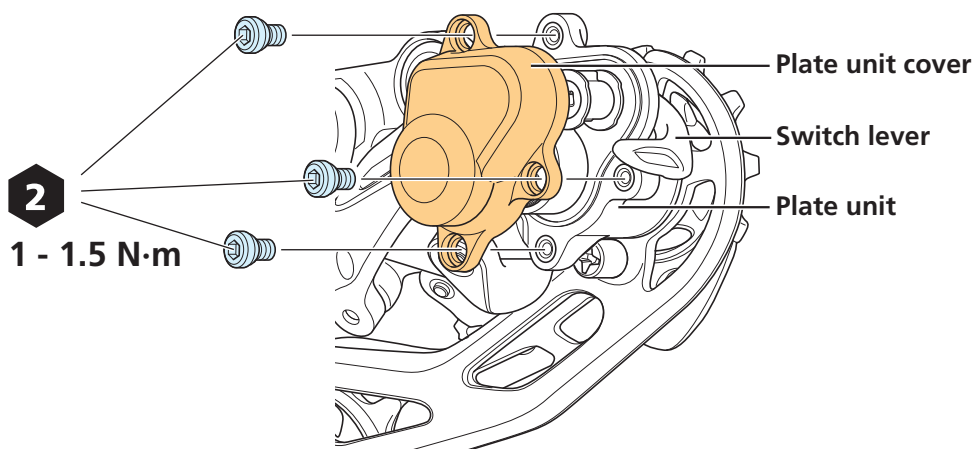


### NOTICE

- Do not install the plate unit cover with a gap between the switch base and the bottom of the plate unit. Insufficient sealing may cause rust to form on the internal structure and the plate may become stuck.



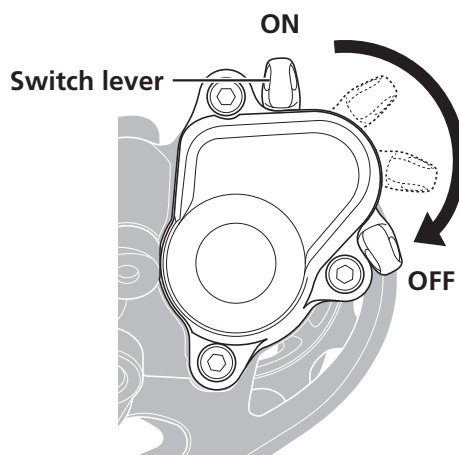
## 6. Install the plate unit cover.



# Replacement of the plate and the plate tension spring

## Removal

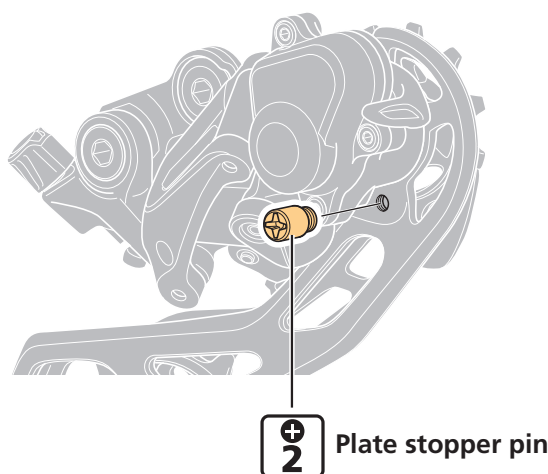
1. Set the switch lever in the OFF position.



### NOTICE

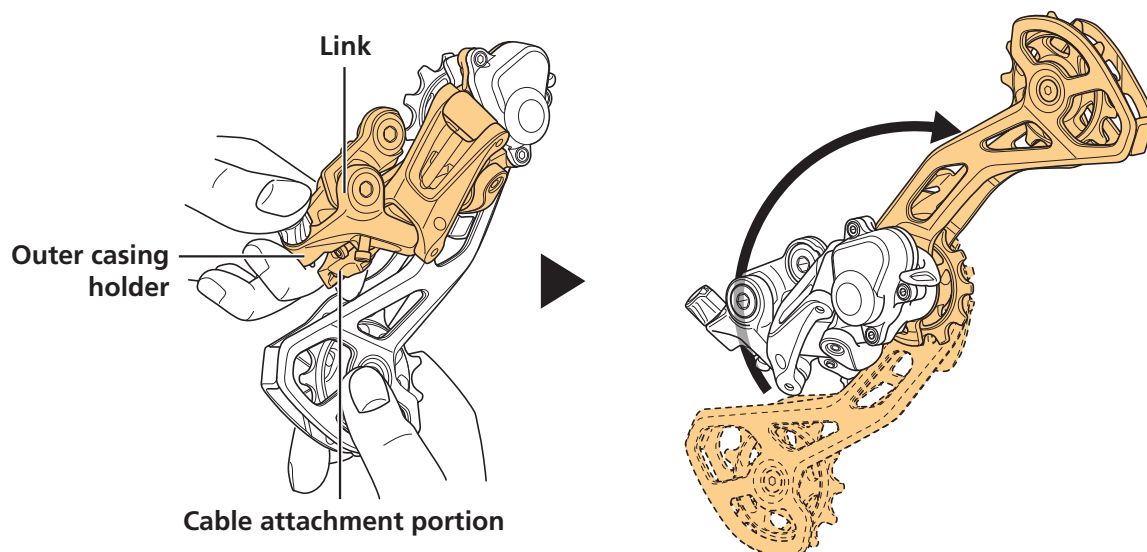
- If operating the switch lever while the plate unit cover is removed, hold the friction unit down with your finger so that it does not fly out.

2. Remove the plate stopper pin with a screwdriver.

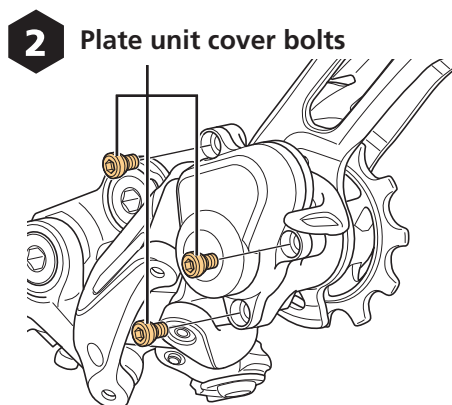


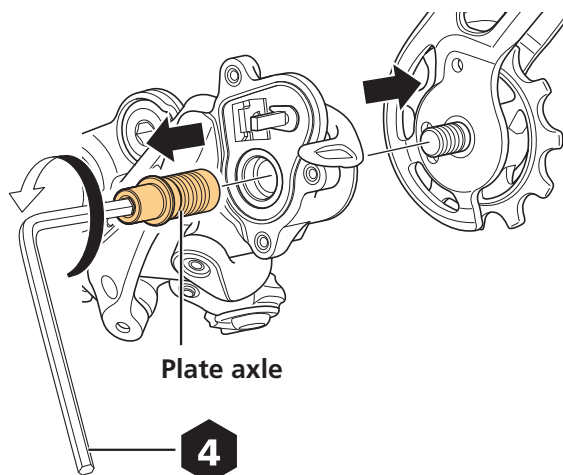
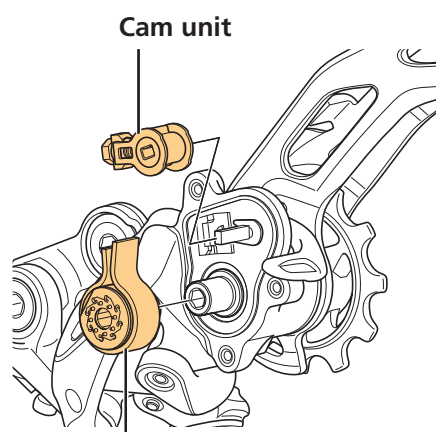
### 3. Turn the plate to loosen the plate tension spring.

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 bolts.

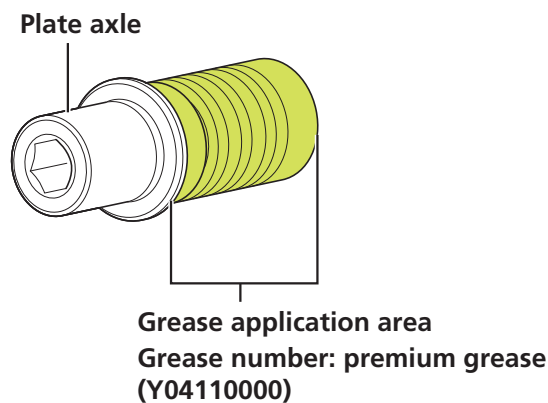


[illegible]

## Installation

Perform the installation in the reverse order from the removal procedure.

### 1. Apply grease to the plate axle.

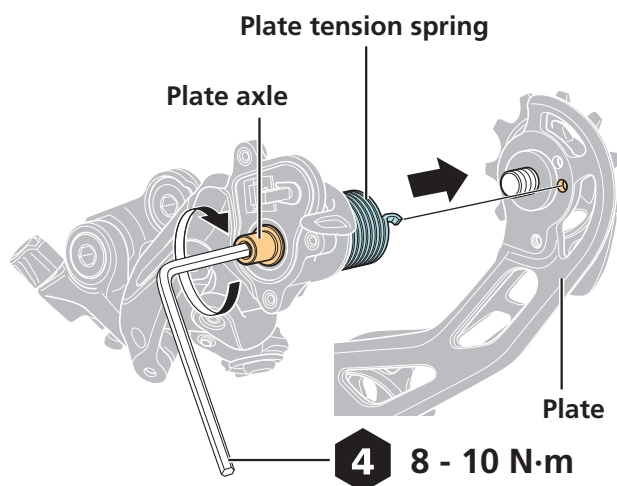


#### NOTICE

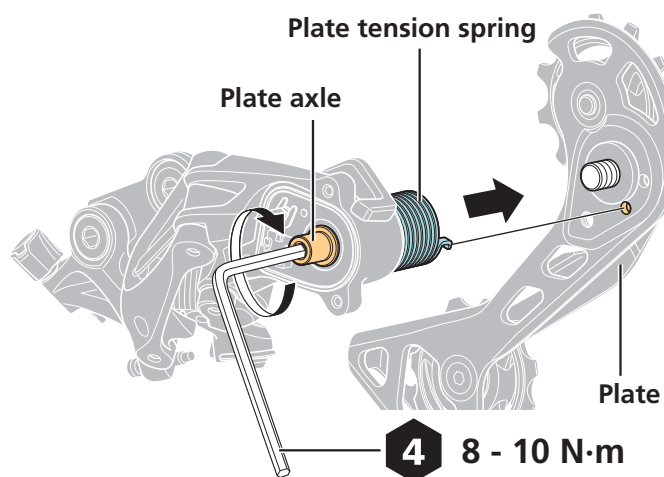
- Do not apply grease outside of the application area indicated above. If grease is applied here, it will get inside the outer portion of the roller clutch and friction will be lost.

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

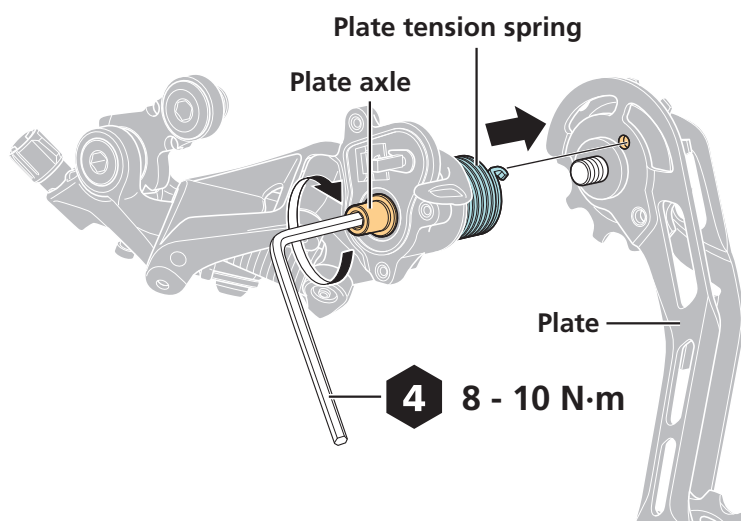
RD-RX810



## RD-RX812

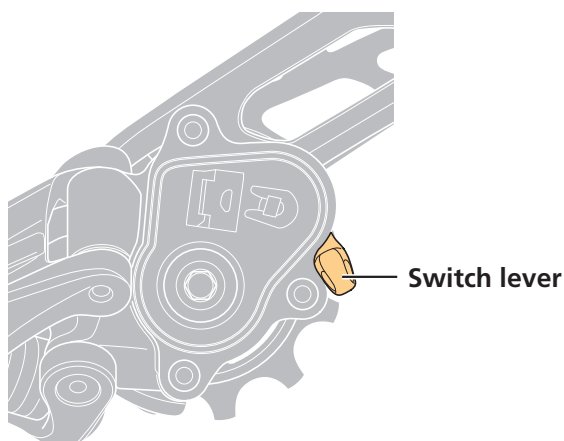


## RD-RX400



### 3. Check that the switch lever is in the OFF position.

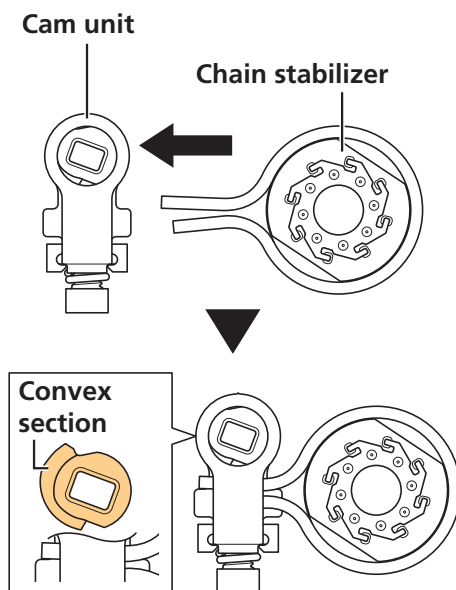
If the switch lever is in the ON position, be sure to set it to the OFF position.





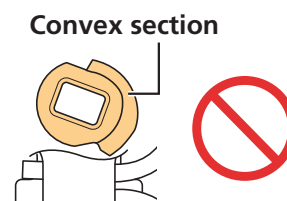
#### 4. Set the chain stabilizer into the cam unit as shown in the figure.

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



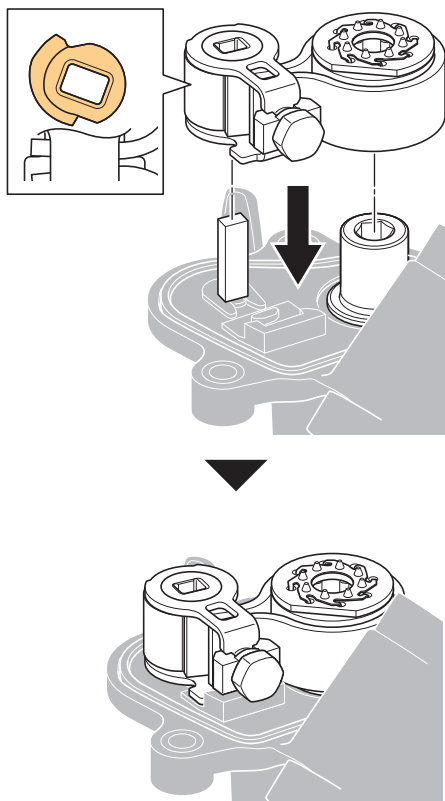
#### NOTICE

- Do not set it in the cam unit with the convex section positioned as shown in the figure below.



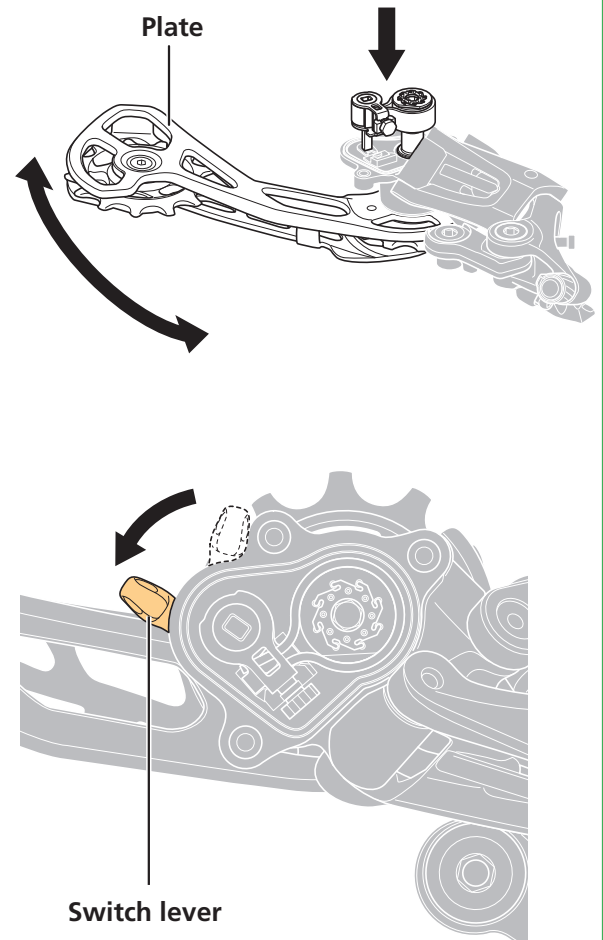
## 5. Align the holes of the cam unit and chain stabilizer with the protrusions on the plate unit, and then install.

Pay attention to the positioning of the convex section of the cam unit when installing.



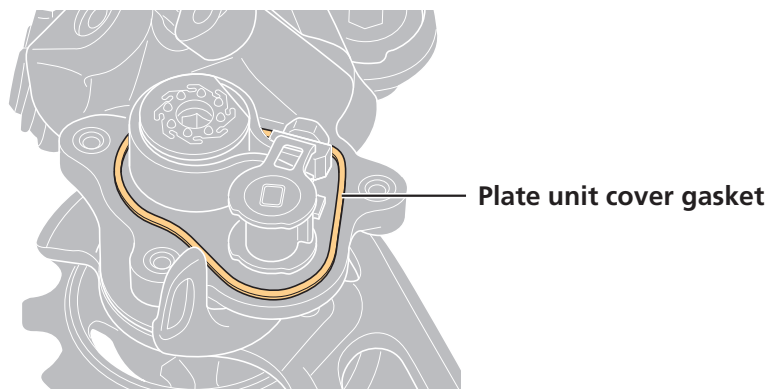
### TECH TIPS

- It helps to move the plate while holding down the cam unit and chain stabilizer when installing.
- If there is resistance when moving the lever switch to the ON position, the components are installed correctly. If there is no resistance, check the position of the convex section of the cam unit and then reinstall the components.

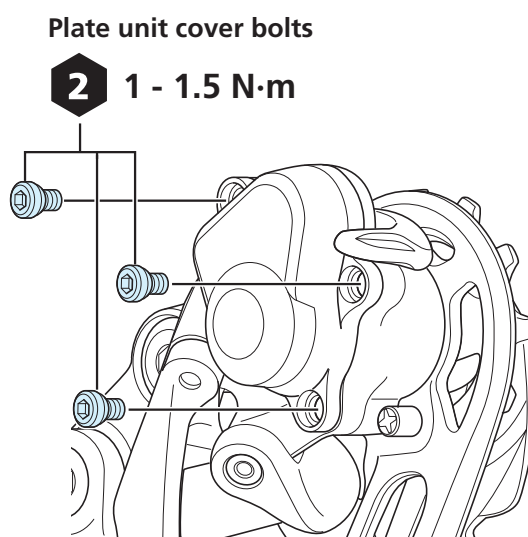


## 6. Install the plate unit cover gasket.

Check that it is installed along the groove in the plate unit.

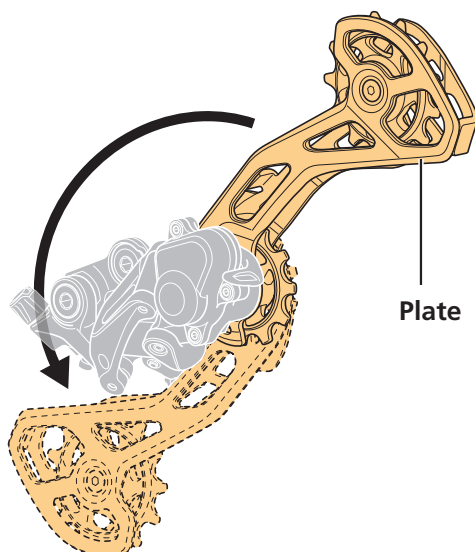


## 7. Install the plate unit cover bolts.

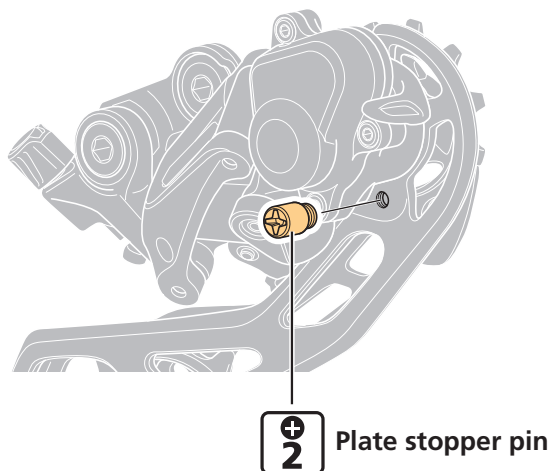


## 8. Turn the plate to tighten the plate tension spring.

Tighten the plate tension spring so that it is not loose, and then insert the plate.



## 9. Install the plate stopper pin.





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

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