Dealer's Manual

ROAD	GRAVEL	MTB
E-BIKE	LIFESTYLE	GENERAL

Rear Derailleur

TIAGRA

RD-R4000

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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 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.

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

⚠ WARNING

- **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:

- **Clean the chain and QUICK-LINK with an appropriate chain cleaner regularly. Intervals between maintenance depend on the use and riding circumstances. Never use alkali- or acid-based detergents such as rust cleaners. If those solvents are used, the chain or QUICK-LINK might break and cause serious injury.**
- Check the chain for any damage (deformation or cracking), skipping, or other abnormalities such as unintended gear shifting. The chain may break, and you may fall.

■ When using TL-CT12

- Be careful not to get injured by the blade or needle while working.
- Be careful not to get your fingers pinched by the tool while working.
- Keep the tool out of the reach of small children.

NOTICE

Be sure to also inform users of the following:

- If gear shifting operations do not feel smooth, consult the place of purchase for assistance.
- The gears should be periodically washed with a neutral detergent then lubricated. In addition, cleaning the chain and QUICK-LINK with a neutral detergent and lubricating them can be an effective way of extending the life of the chain and QUICK-LINK.
- 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 B-screw to adjust so that the rear derailleur does not interfere with the chainstay.
- Grease with SIS SP41 Grease (Y04180000) 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.
- Use an OT-SP41 outer casing and a 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 shifter does not touch the bicycle frame when the handlebars are turned all the way.
- If gear shifting adjustments cannot be carried out, check the alignment of the derailleur hanger and check if the cable is clean and lubricated or if the outer casing is too long or too short.
- Periodically clean the shifting unit and lubricate all moving parts (mechanism and pulleys).
- If you hear abnormal noise as a result of excess play 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
	Hexalobular[#10]
	Cross head screwdriver[#2]
	TL-CT12

Installation / removal

Installing the rear derailleur

TECH TIPS

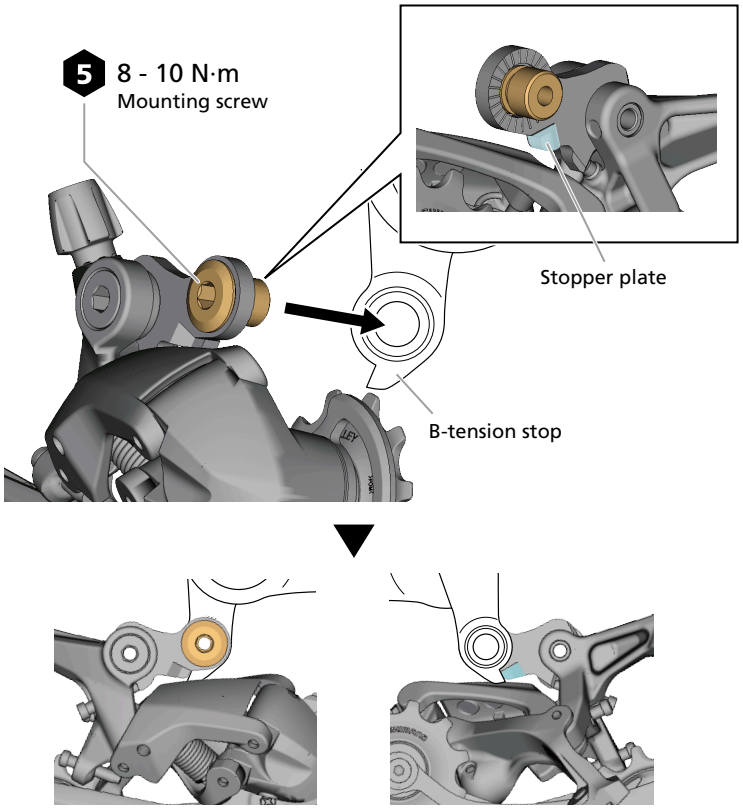
- The rear derailleur will not shift properly if the derailleur hanger is not straight. Use TL-RD11 to check whether the derailleur hanger is straight or not.

Standard type

1. **Secure the rear derailleur.**

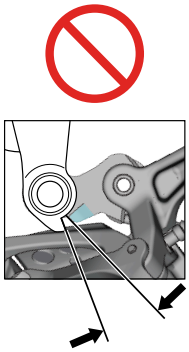
   Be careful not to insert the mounting screw in the derailleur hanger at an angle.

   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.

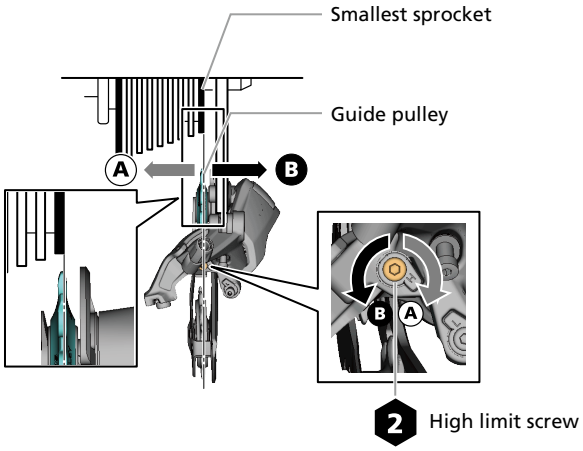


Adjustment

Adjusting the stroke on the high limit

1. **Adjust by turning the high limit screw.**

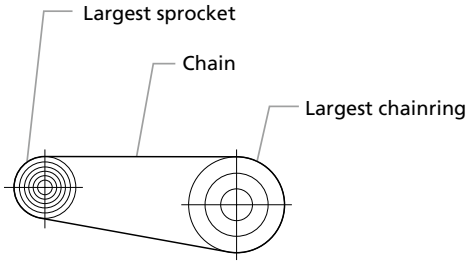
   Adjust so that the center of the guide pulley is aligned with the outer face of the smallest sprocket when viewed from the rear side.



Checking the chain length

1. **Set the chain on the largest sprocket and the largest chainring.**

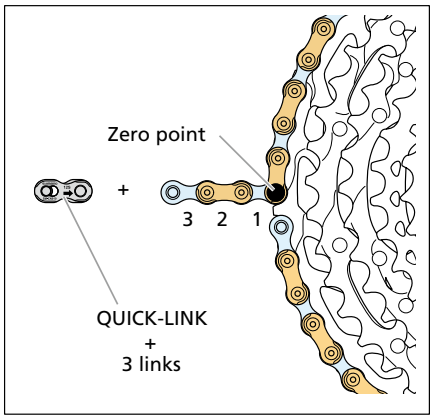
   In order to check the length at the rear of the cassette, join the two ends of the chain at the rear of the cassette as shown in the figure.

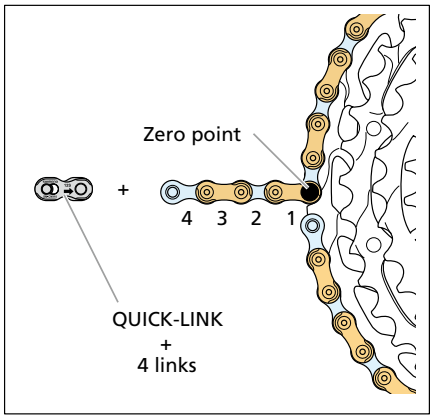


2. **Check the length of the chain.**

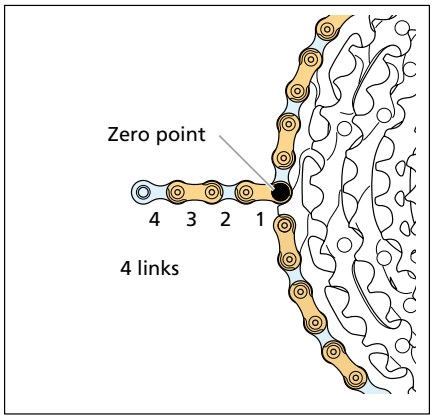
   With the zero point of the chain established on the rear of the largest sprocket, the proper final chain length is determined by adding a certain number of links to this resulting chain length. The number of links is dependent on the chain connection method. See the figures.

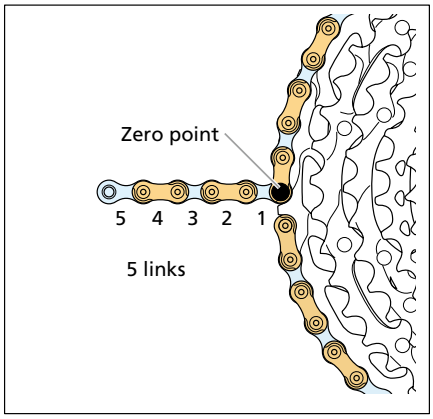
   - QUICK-LINK





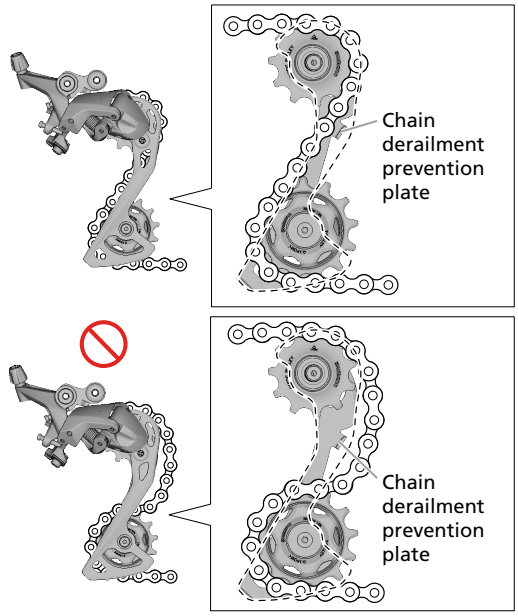
   - Connecting pin





NOTICE

- The rear derailleur plate assembly is equipped with a plate that prevents chain derailment. When routing the chain through the rear derailleur plate assembly, route it so that it is on the rear derailleur body 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.



Installing the chain

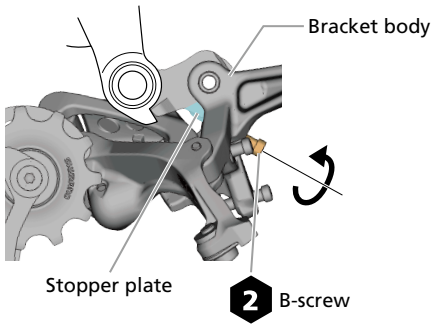
Refer to the dealer's manual for the chain for instructions on installing/removing the chain.

Connection and securing of the inner cable

Outer casing length

1. **Loosen the B-screw to the position shown in the figure.**

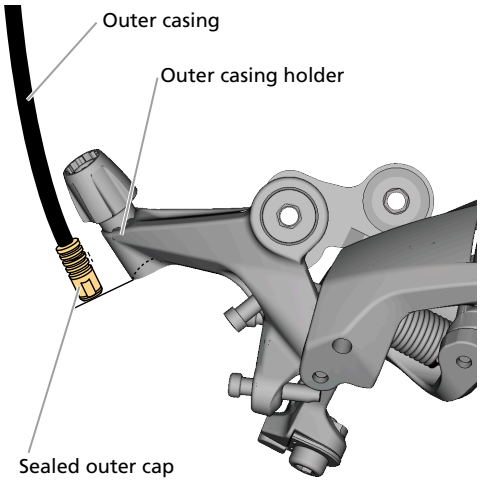
   Make sure that the stopper plate touches the bracket body without leaving a gap.



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

   Temporarily attach a sealed outer cap to the end of the outer casing. Align the end of the outer cap to the bottom edge of the outer casing holder on the rear derailleur.

   Make sure to leave enough slack in the outer casing.

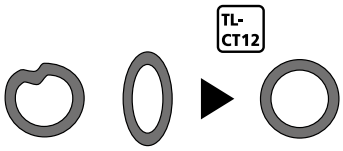


TECH TIPS

- If the rear wheel is difficult to remove, you can use OT-RS900. Refer to the RD-R7100 dealer's manual for details.

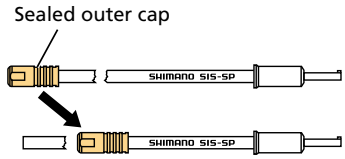
3. **Cut off any excess outer casing with the cable cutter.**

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



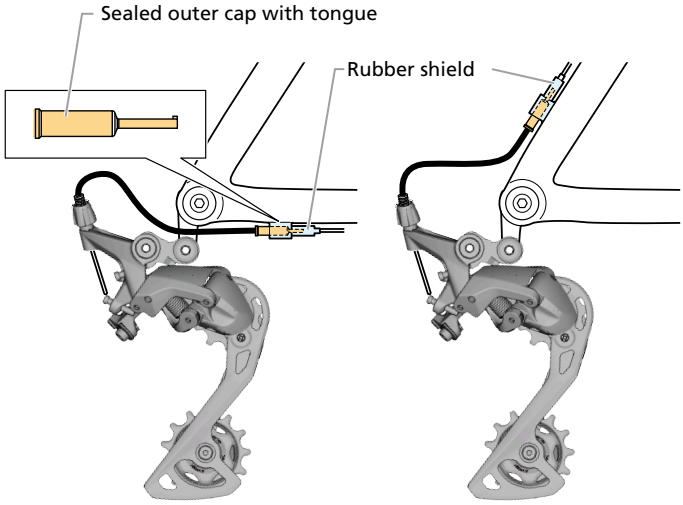
4. **Install the sealed outer cap to the end of the outer casing.**

   Route the inner cable through the outer casing.



5. **Install the sealed outer cap with tongue and rubber shield onto the outer casing stopper of the frame.**

   Be careful not to bend the cover with tongue.



Connection and securing of the inner cable

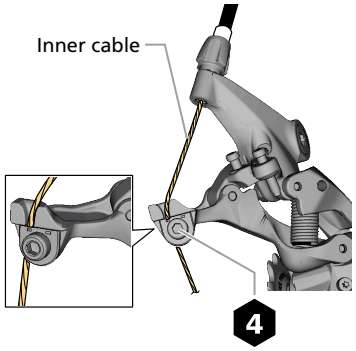
⚠ CAUTION

- Do not allow the wheel to turn while securing the inner cable and installing the inner end cap. Otherwise, you may touch the wheel and be injured.

1. **Set the shifter in its initial position.**

   Operate the release lever 10 times or more.

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



NOTICE

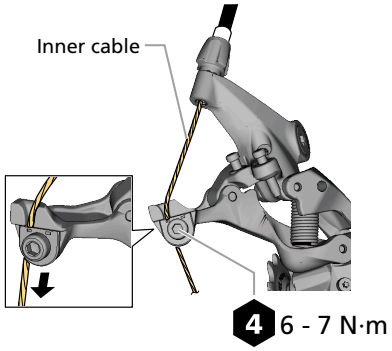
- Cables with a polymer coating may develop a fuzzy appearance or texture through natural wear when used. However, if the cables are installed with care according to the procedures outlined in this manual, this is strictly cosmetic and performance will not be affected where the inner cables are housed by outer casing.

3. **Remove the initial slack from the inner cable.**

   Hold the rear derailleur so that it won't move under load from the shift cable. Operate the shifter several times in order to tension the shift cable assembly and fully seat all the shift cable components.

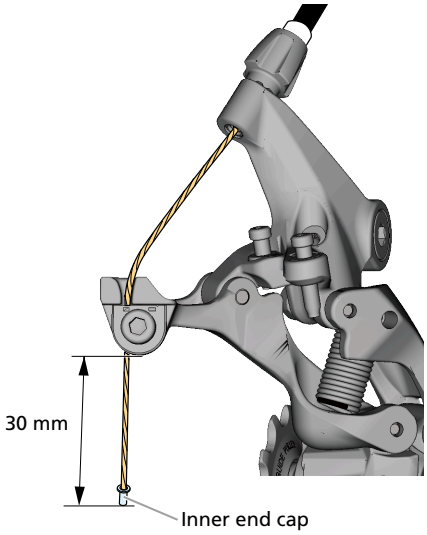
4. **Re-secure the inner cable to the rear derailleur.**

   While pulling the inner cable, be sure that it is securely in the cable fixing 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.

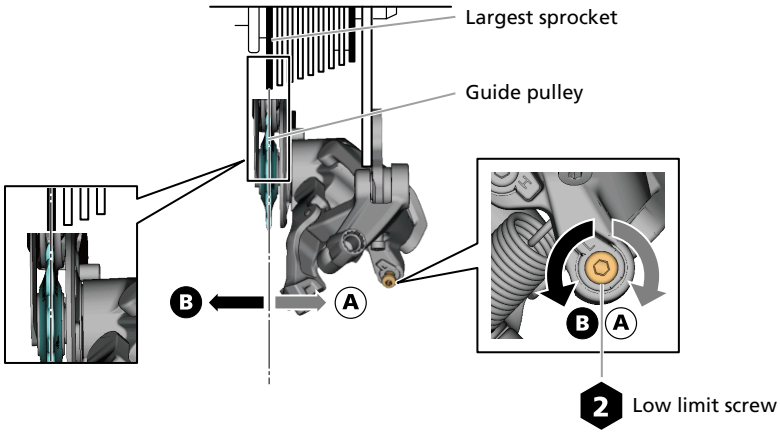
Adjusting the stroke on the low limit

NOTICE

- If the B-screw is loose when adjusting the stroke on the low limit, the largest sprocket and chain may interfere. Before adjusting the stroke on the low limit, tighten the B-screw to some extent to open a gap between the largest sprocket and guide pulley.

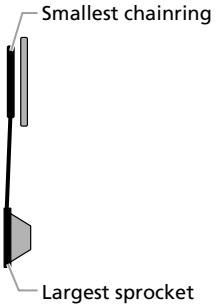
1. **Adjust by turning the low limit screw.**

   Align the center of the guide pulley with the center of the largest sprocket while moving the guide pulley using the shifter, etc.



Adjusting the B-screw

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



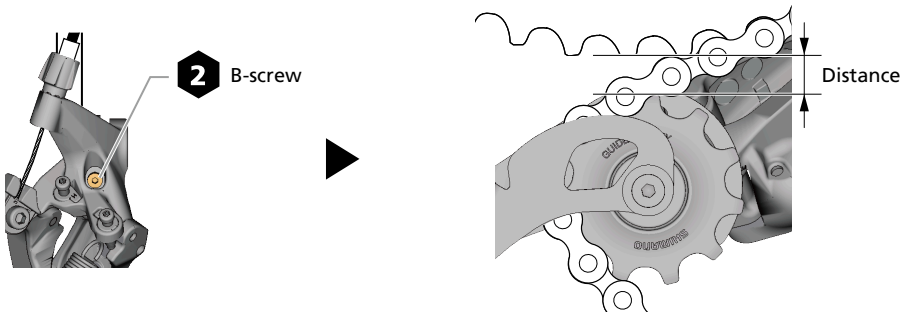
NOTICE

- If there is interference between the sprocket and pulley cage when gear shifting, tighten the B-screw to a position that eliminates the interference.

2. **Adjust the B-screw.**

   Adjust the distance between the tip of the guide pulley and the tip of the highest tooth on the largest sprocket as listed in the table.

Cassette	Distance between largest sprocket and guide pulley
11-36T	7 mm



3. **Turn the crank arm and shift through all the gears to ensure the shifting is smooth.**

NOTICE

- Perform this adjustment again when using a cassette with a different number of teeth.

SIS adjustment

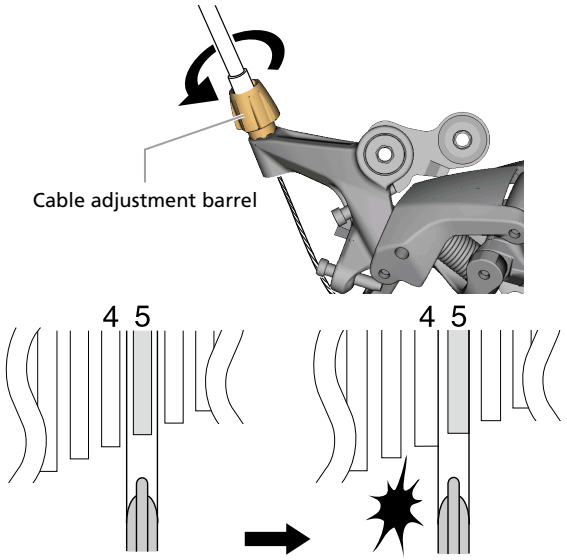
1. **Operate the shifter several times to shift the chain to the fifth gear from the largest sprocket.**

   For bicycles with double front chainrings, shift to the largest chainring.

   NOTICE

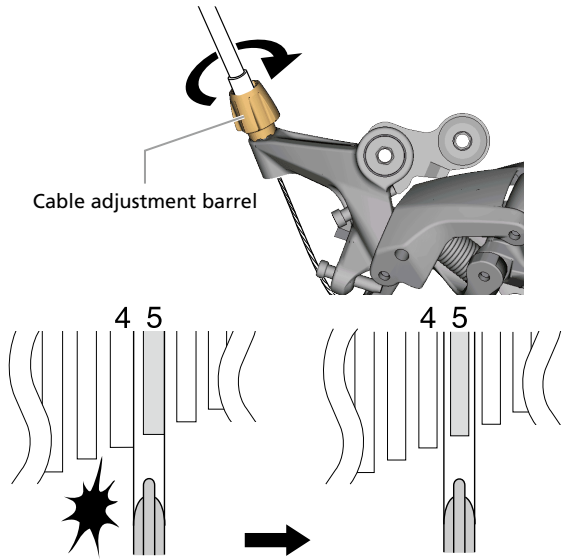
   - If the chain rubs against the larger adjacent sprocket and makes noise while turning the crank, turn the cable adjustment barrel clockwise until there is no noise.

2. **Turn the cable adjustment barrel counterclockwise while turning the crank until you start to hear the chain rub on the larger sprocket.**



3. **Turn the cable adjustment barrel five clicks in the clockwise direction.**

   This position will serve as the target for adjustment.



4. **Operate the shifter to change gears while turning the crank, and check that no noise occurs in any of the gear positions.**

If the chain makes noise, readjust from step 1 .

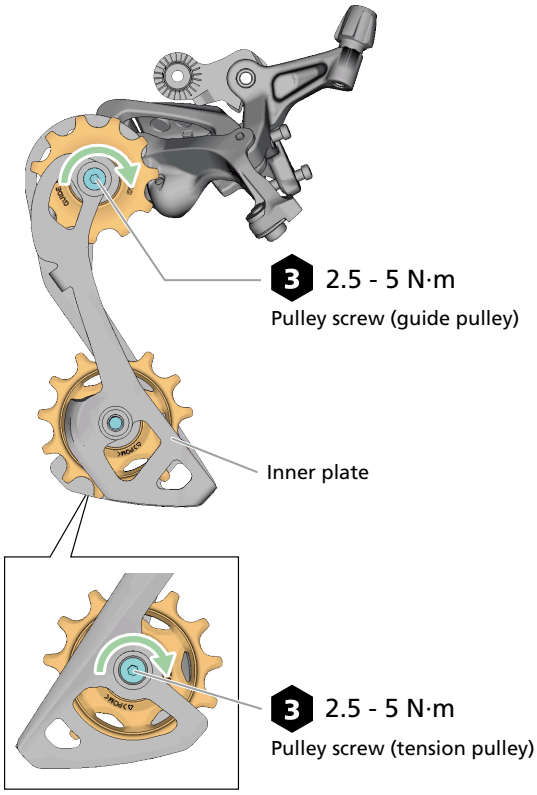
TECH TIPS

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

Maintenance

Replacing the pulleys

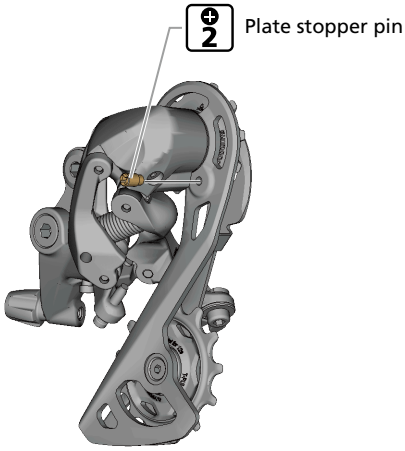
1. Replace the guide pulley/tension pulley.



Removing the plate and replacing the P-tension spring

Removal

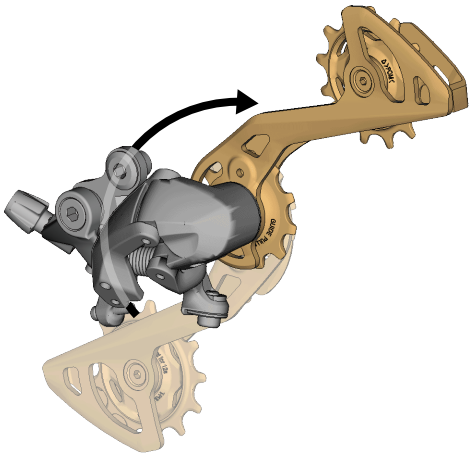
1. **Remove the plate stopper pin.**



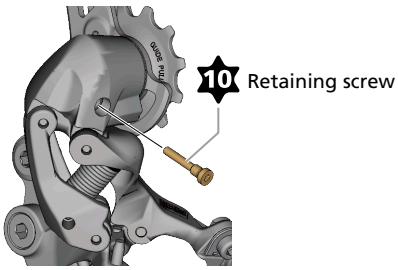
NOTICE

- Hold the plate and rear derailleur body firmly when working, as there is spring force applied to the plate.

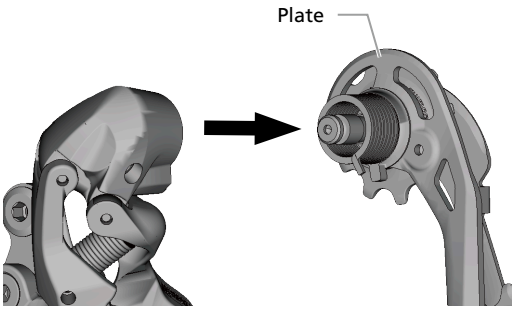
2. **Turn the plate to loosen the P-tension spring.**



3. **Remove the retaining screw.**

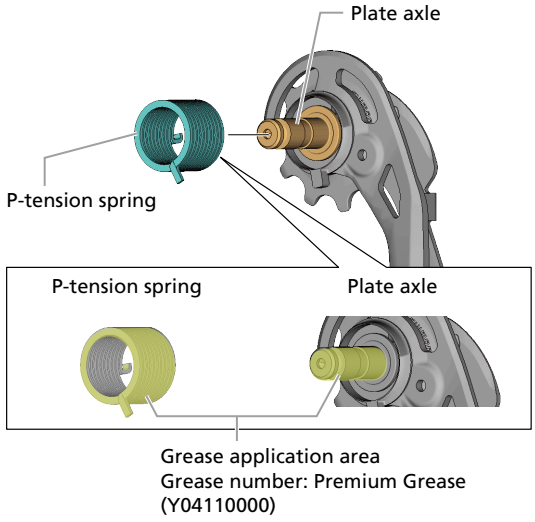


4. Detach the plate.



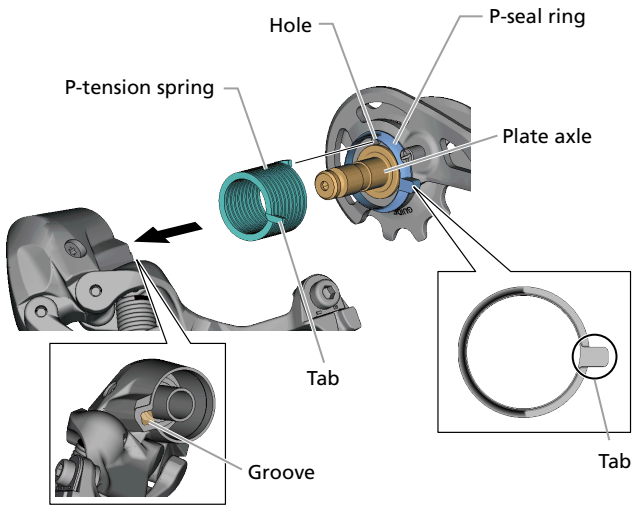
Installation

1. Apply the dedicated grease to the plate axle and P-tension spring.



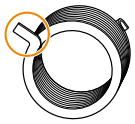
2. Fit the tip of the P-tension spring in the hole of the plate and insert the plate axle to the derailleur body.

When performing insertion, confirm that the tab of the P-tension spring and P-seal ring is inserted into the groove on the main body side.

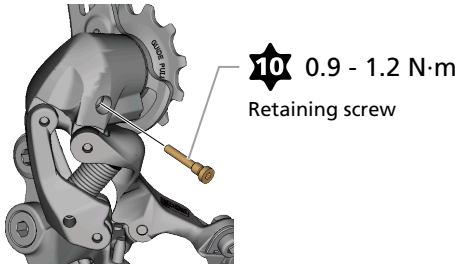


TECH TIPS

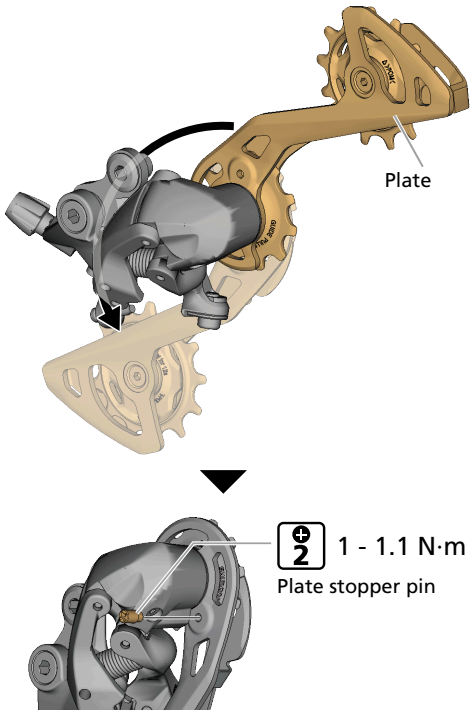
- The tip sticking out to the side when viewing the P-tension springs from above comes to the derailleur body side.



3. **Install the plate with the retaining screw.**



4. **Twist the plate and install the plate stopper pin.**



NOTICE

- Hold the plate and rear derailleur body firmly when working, as there will be spring force applied to the plate.

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