

## **Dealer's Manual**

# **Cross bike wheel set**

WH-RX830

WH-RX31

WH-RX05

WH-RX010

SM-RIMTAPE

## 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

### WARNING

- When installing components, be sure to follow the instructions that are given in the instruction manuals.

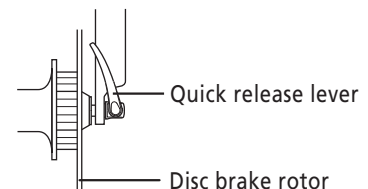
It is recommended to use genuine Shimano parts only. If parts such as bolts and nuts become loose or damaged, the bicycle may suddenly fall over, which may cause serious injury.

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

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

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

- Check that the wheels are fastened securely before riding the bicycle. If the wheels are loose in any way, they may come off the bicycle and serious injury may result.
- This wheel set is designed for recreational use. Do not use this wheel set for aggressive uses such as competition. The wheel may break, and you may fall.
- Before use, check the wheels to make sure that there are no bent or loose spokes, dents, scratches or cracks on the rim surface. The wheel may break, and you may fall.
- If the quick release mechanism is not used correctly, the wheel may come off the bicycle and serious injury could result. Read the Service Instructions for the quick release mechanism thoroughly before use.
- These wheels are designed exclusively for use with disc brakes. Do not use these wheels with rim brakes.
- If the quick release lever is on the same side as the disc brake rotor, there is the danger that it may interfere with the disc brake rotor. Make sure that even if the quick release lever is tightened with your palm with all your strength, the quick release lever does not interfere with the disc brake rotor. If the lever interferes with the disc brake rotor, stop using the wheel and consult a dealer or an agency.



### CAUTION

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

- Use rim tape which can withstand high pressure, otherwise the tires may suddenly puncture and come off, which may result in severe injury. Furthermore, it is not recommended that you reuse rim tape after it has been removed from the wheel. If the tape is reused, the tires may suddenly puncture and come off, and severe injury may result.
- When you replace the rim tape, use the one that matches the rim size. If you use a rim tape that does not match the rim size, a sudden puncture may occur, and you may fall off the bicycle.
- The tires should be inflated to the pressure indicated on the tires before use.
- When using a puncture repair agent, consult a dealer or an agency.

### ■ Burn-in period

- Disc brakes have a burn-in period, and the braking force will gradually increase as the burn-in period progresses. Make sure that you are aware of any such increases in braking force when using the brakes during the burn-in period. The same thing will happen when the brake pads or disc brake rotor are replaced.

### Note

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

- Do not lubricate the internal parts of the hub. Otherwise, grease will flow out.
- It is recommended that you ask a bicycle dealer to adjust the spoke tensions if there is any deviation in the spokes and after the first 1,000 km of riding.
- Do not use detergent or other chemicals when wiping the wheel, otherwise the sticker on the rim or the paint may come off.
- 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:

- Use of genuine Shimano spokes and nipples is strongly recommended. If non-Shimano parts are used, the area where the spokes fit into the hub unit may become damaged.
- If the wheel becomes stiff and difficult to turn, lubricate it with grease.
- For compatible reflectors and spoke protectors, check the specifications table (<http://www.si.shimano.com>).

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

# INSTALLATION











## ■ Tire size

The recommended tire sizes for installation to each wheel are as follows.

Model No.	Tire size
WH-RX830 WH-RX31 WH-RX05 WH-RX010	(622) 23C-32C

## ■ List of tools to be used

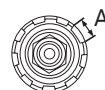
The following tools are required to assemble the product.

Tool		Tool	
	5 mm Allen key		15 mm hub spanner
	10mm Allen key		17mm hub spanner
	14mm Allen key		Adjustable wrench
	Spoke plug wrench		TL-LR15
	13mm hub spanner		TL-SR21

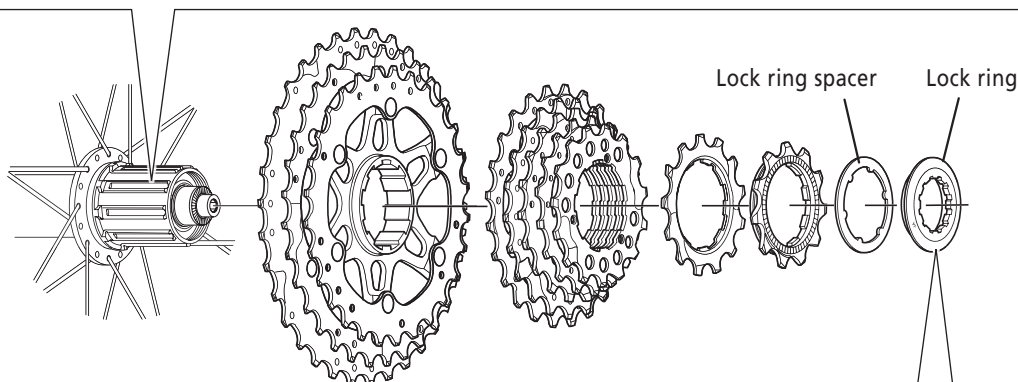
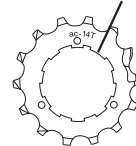
## ■ Installation of cassette sprocket

For each sprocket, the surface that has the group mark should face outward and be positioned so that the wide parts of the gear projections on each sprocket and the A part (where the groove width is wide) of the freewheel body are aligned.

The groove has only one wide section.



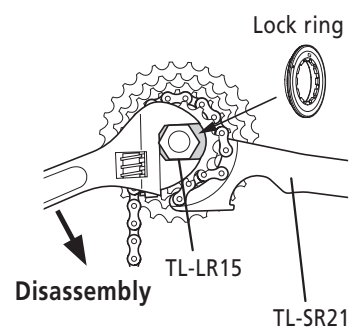
Wide part



- For installation of the HG sprockets, use the Shimano original tool TL-LR15 to tighten the lock ring.

**Tightening torque:**  
30.0 - 50.0 N·m {262 - 437 in. lbs.}

- To replace the HG sprockets, use the Shimano original tool TL-LR15 and TL-SR21 to remove the lock ring.



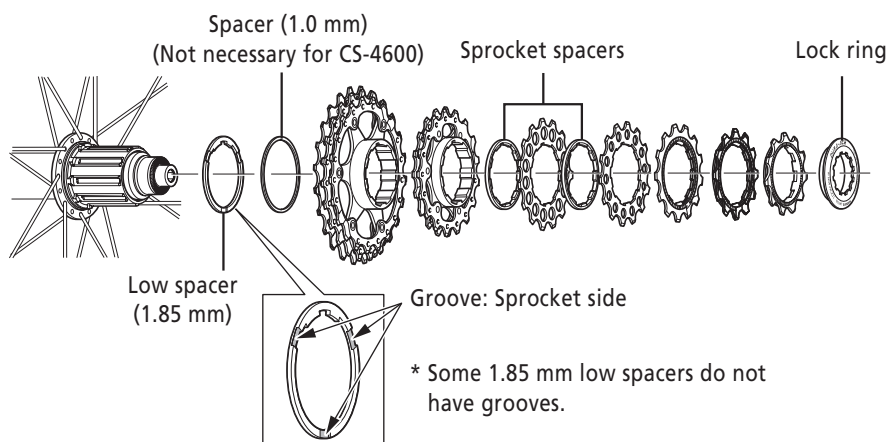
\* The illustration of the cassette sprocket is an example. For details, refer to the dealer's manual or user's manual of the cassette sprocket to be used.

### < WH-RX830 / WH-RX31 / WH-RX010 >

#### Note:

When installing a 10-speed cassette other than CS-4600, install the included 1.85 mm low spacer and the 1.0 mm spacer included with the cassette at the positions indicated in the illustration.

For CS-4600, install only the 1.85 mm low spacer. (The 1.0 mm spacer is not necessary.)



\* Refer to the Disc Brake section of General Operations for installation of the disc brake rotor.

# MAINTENANCE

## ■ Spoke lacing

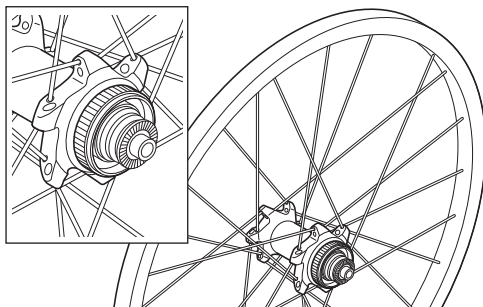
Lace the spokes as shown in the illustration.

### WH-RX830

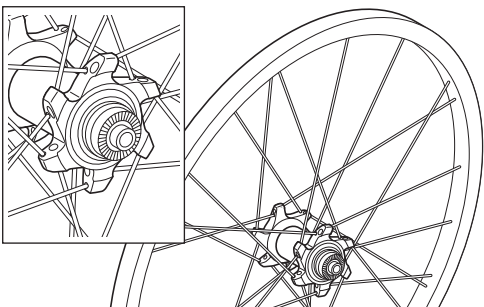
Number of spokes: 24

#### For front

Left side

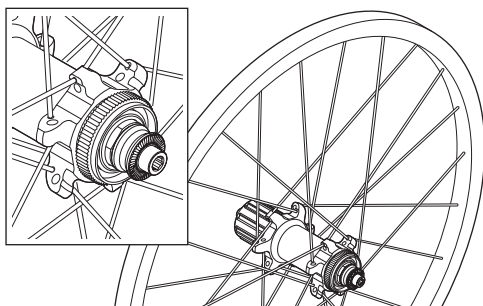


Right side

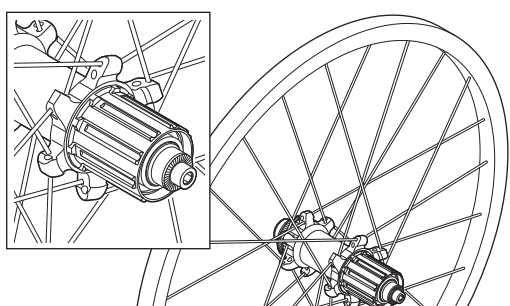


#### For rear

Left side



Right side



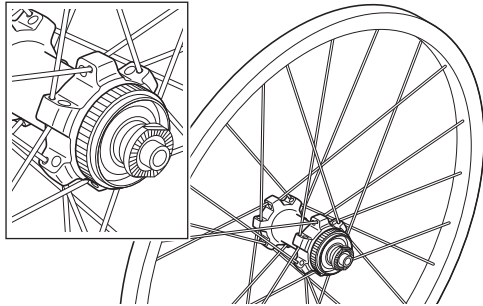
Spoke tension value			
For front		For rear	
Right side	Left (rotor) side	Right (sprocket) side	Left (rotor) side
600 - 1,000 N (134 - 224 lbf)	800 - 1,350 N (180 - 302 lbf)	900 - 1,350 N (202 - 302 lbf)	600 - 900 N (134 - 202 lbf)

\* These values should be used as a guide only.

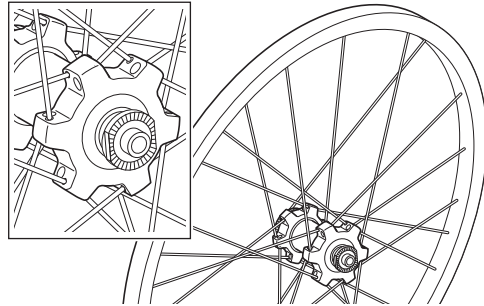
Number of spokes: 24

**For front**

Left side

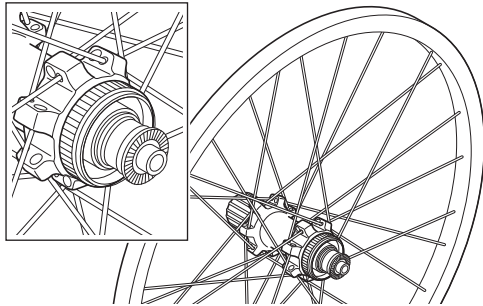


Right side

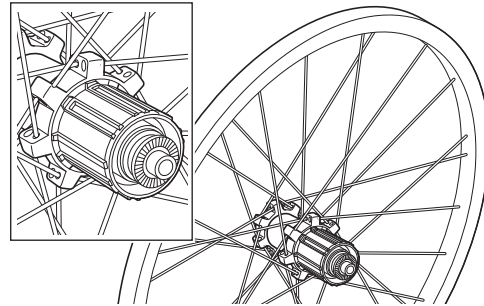


**For rear**

Left side



Right side



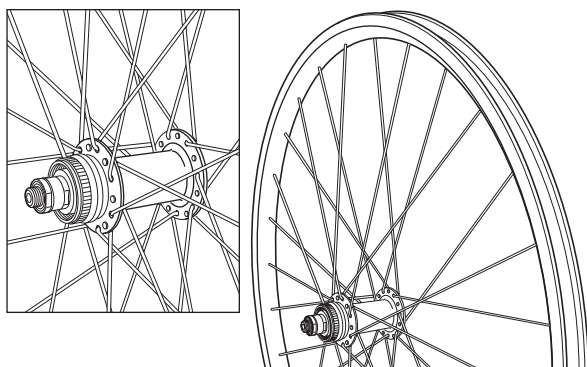
Spoke tension value			
For front		For rear	
Right side	Left (rotor) side	Right (sprocket) side	Left (rotor) side
600 - 900 N (135 - 200 lbf)	900 - 1,300 N (200 - 290 lbf)	1,000 - 1,400 N (225 - 315 lbf)	600 - 900 N (135 - 200 lbf)

\* These values should be used as a guide only.

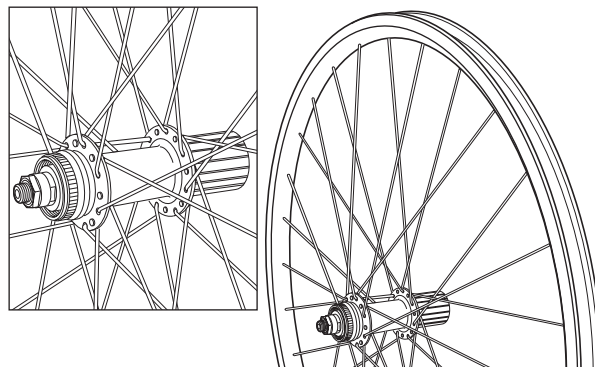


Number of spokes: 28

**For front**



**For rear**



Spoke tension value			
For front		For rear	
Right side	Left (rotor) side	Right (sprocket) side	Left (rotor) side
500 - 900 N (110 - 200 lbf)	900 - 1,500 N (200 - 340 lbf)	900 - 1,500 N (200 - 340 lbf)  <WH-RX010> 400 - 1,400 N (90 - 313 lbf)	500 - 900 N (110 - 200 lbf)  <WH-RX010> 500 - 836 N (112 - 187 lbf)

\* These values should be used as a guide only.

## ■ Replacing the spoke

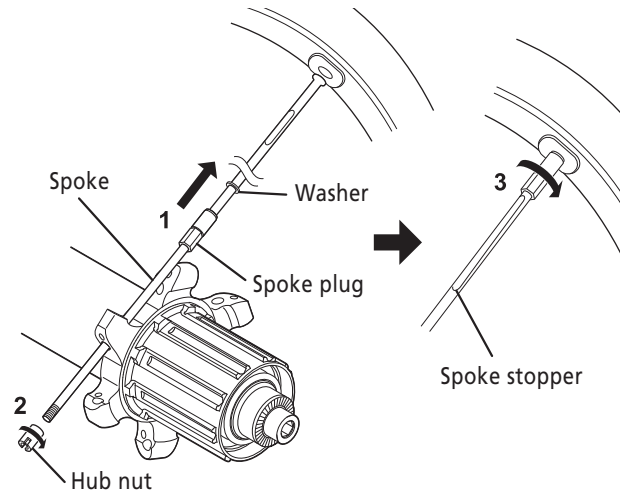
Install the spokes by inserting them through the hub as shown in the illustration.

### WH-RX830

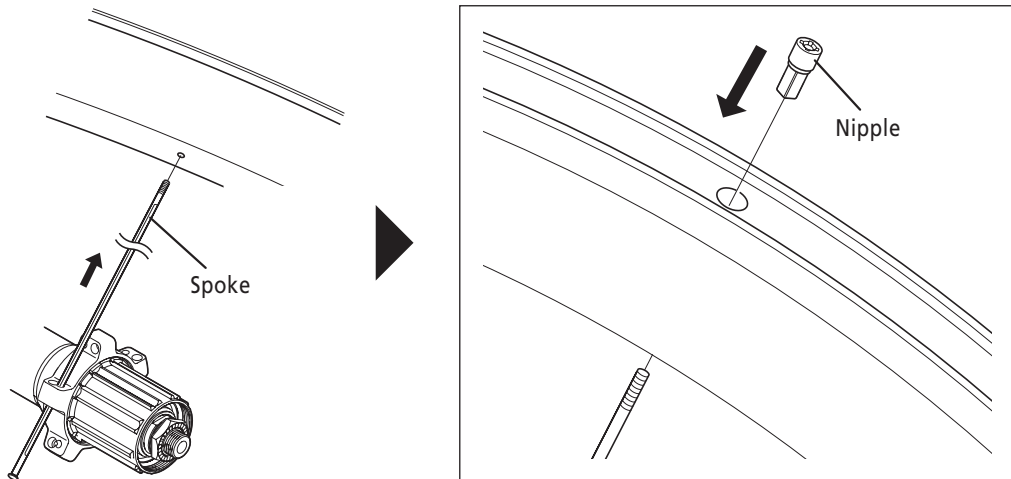
1. Pass the washer and spoke plug over the spoke.
2. After inserting the spoke into the hole in the hub flange, tighten the hub nut. When installing, use the spoke stopper to secure the spoke so that it does not turn, and then insert a screwdriver or similar tool into the groove in the hub nut to screw in the hub nut.
3. Turn the spoke plug clockwise to screw it into the screw hole in the rim. At this time, use the spoke stopper to stop the spoke from turning.

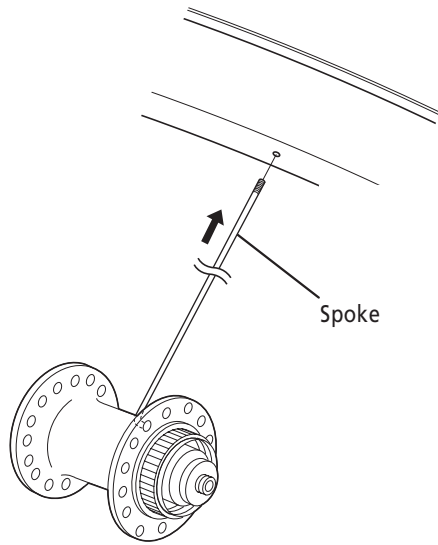
#### Note:

- If the washer is not installed, it will not be possible to adjust the spoke tension, so be sure to include the washer.
- Tighten the hub nut as far as the edges of the thread.

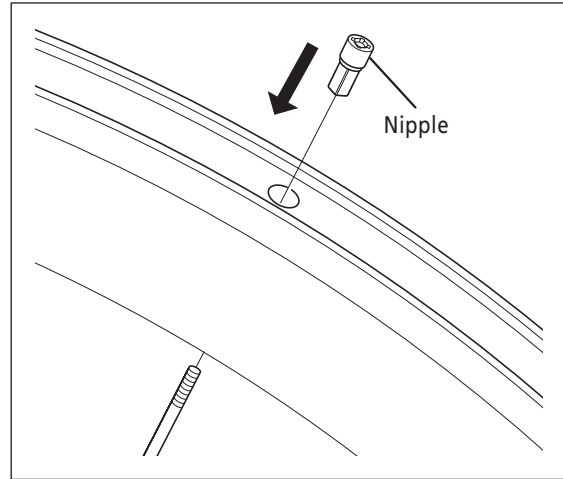


### WH-RX31

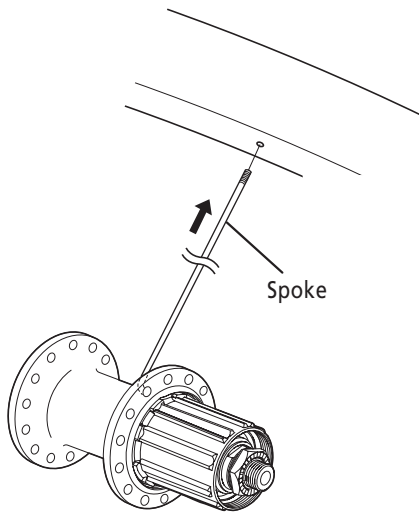




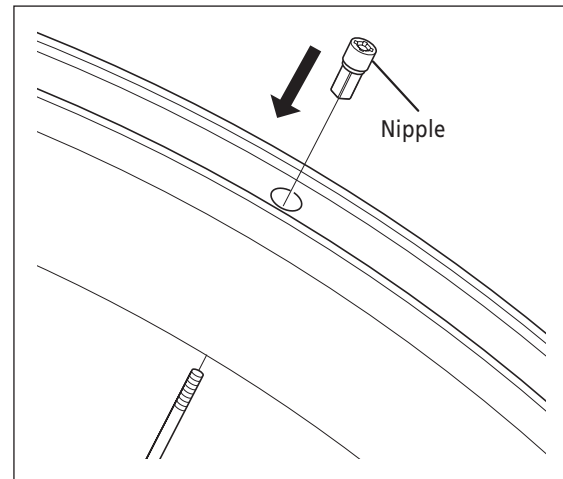
Spoke



Nipple



Spoke



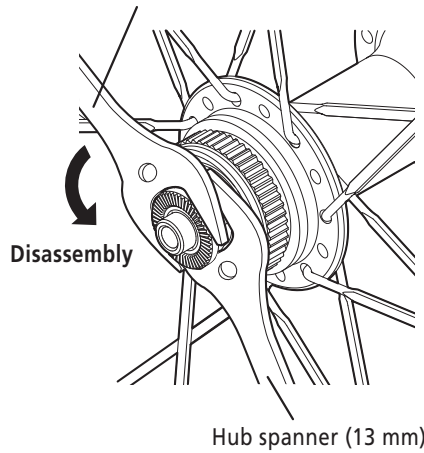
Nipple

## ■ Pulling out the hub axle

WH-RX31 / WH-RX05 / WH-RX010

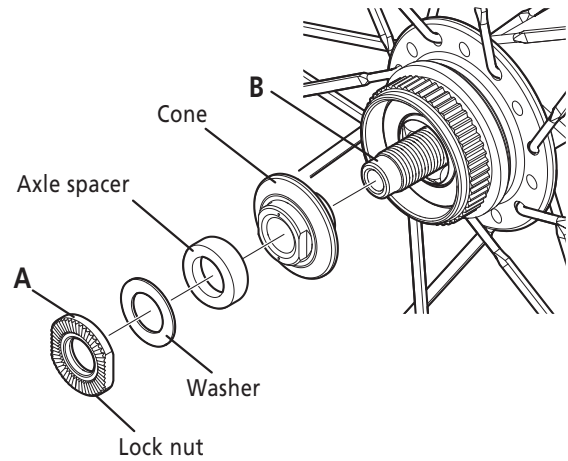
### < Front >

(1) Hub spanner (17mm)



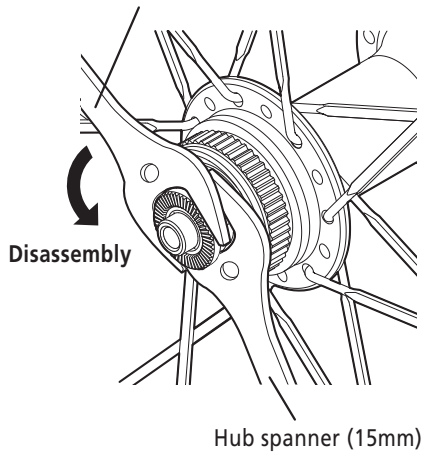
**Tightening torque:**  
15.0 - 17.0 N·m {131 - 149 in. lbs.}

(2)



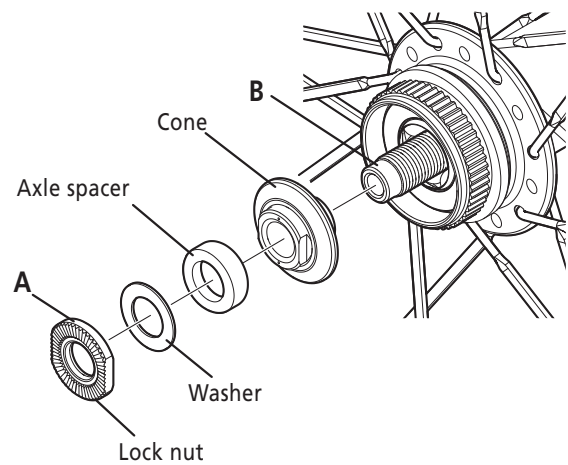
### < Rear >

(1) Hub spanner (17mm)

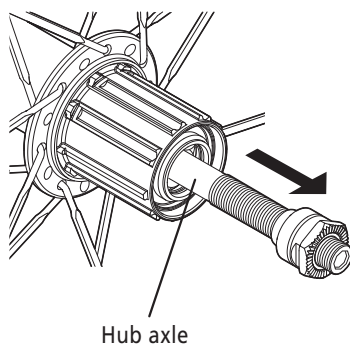


**Tightening torque:**  
15.0 - 17.0 N·m {131 - 149 in. lbs.}

(2)



(3)



\* The illustration shows the rear side.

## ■ Disassembly and Assembly

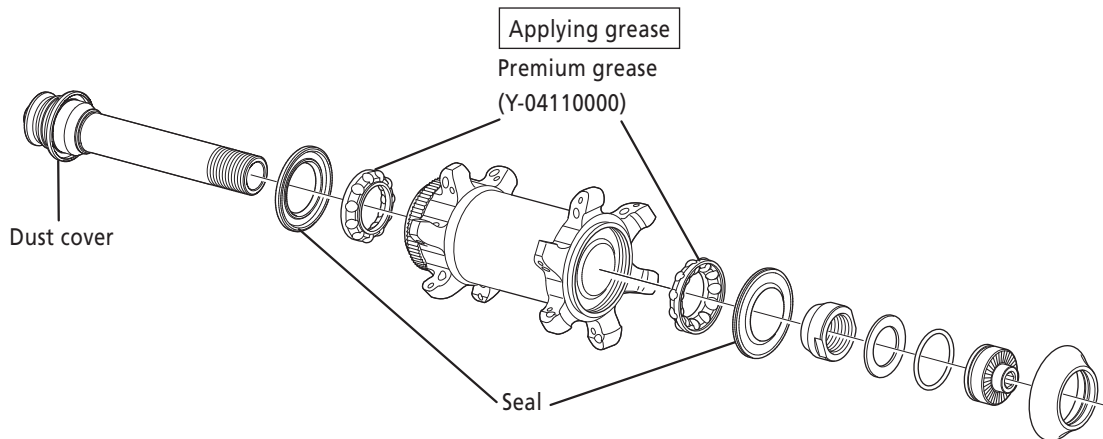
WH-RX830-TL-F

### Note:

- The front hub cannot be disassembled from the left side of the hub unit (the rotor fixing serration side).
- When removing and installing the seal, do it very carefully so that the seal does not become bent. When reinstalling the seal, make sure that it is facing the right way, and insert it as far as it will go.
- Do not disassemble the dust cover which is crimped onto the hub axle.

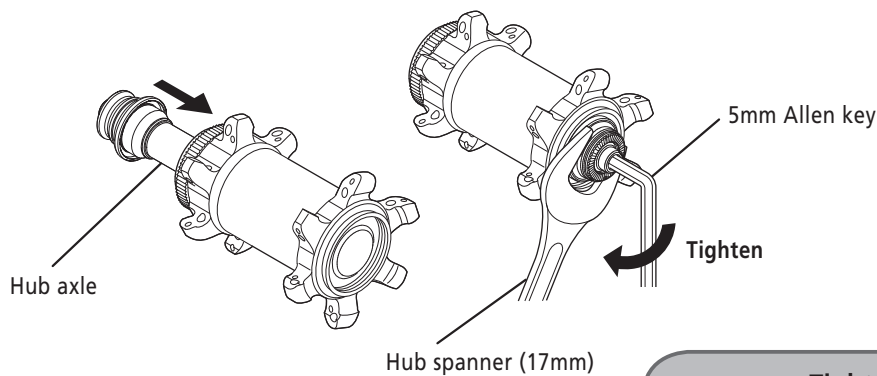
### < Disassembly >

These units can be disassembled as shown in the illustrations. Grease should be applied to each part at periodic intervals.



### <Assembly>

Use the 17 mm hub spanner for installing the hub axle and a 5 mm Allen key to tighten the lock nut so as to double-lock the mechanism as shown in the illustration.



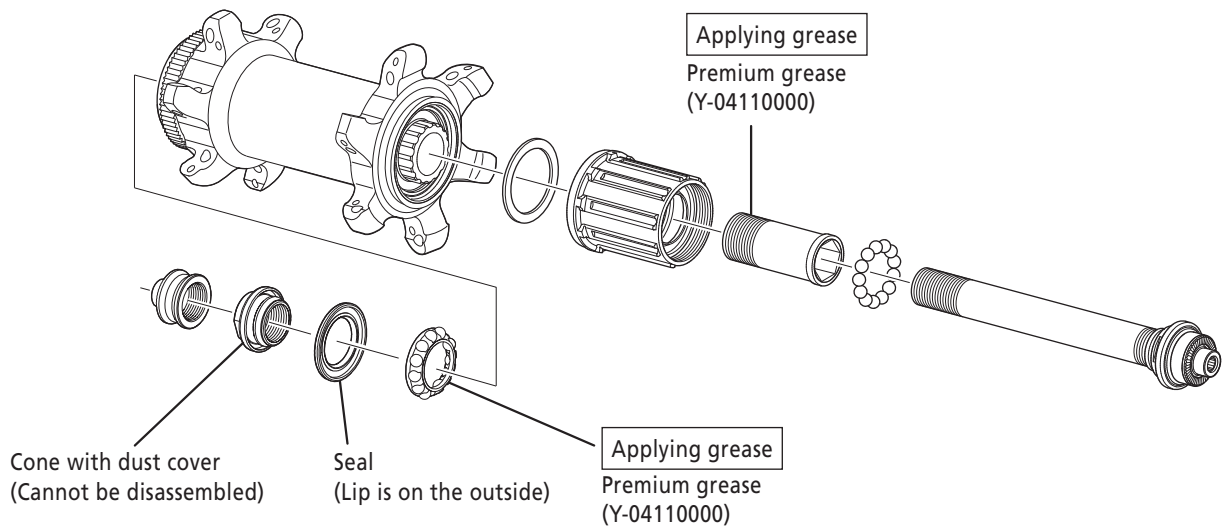
**Tightening torque:**  
15.0 - 17.0 N·m {131 - 149 in. lbs.}

**Note:**

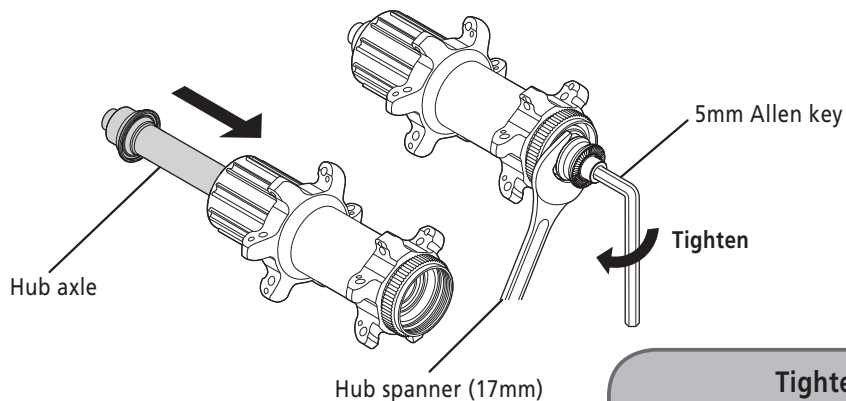
- When removing and installing the seal, do it very carefully so that the seal does not become bent. When reinstalling the seal, make sure that it is facing the right way, and insert it as far as it will go.
- Do not disassemble the dust cover which is crimped onto the cone.
- Do not attempt to disassemble the freewheel body, because it may result in a malfunction.

**< Disassembly >**

These units can be disassembled as shown in the illustrations. Grease should be applied to each part at periodic intervals.

**<Assembly>**

Use the 17 mm hub spanner for installing the hub axle and a 5 mm Allen key to tighten the lock nut so as to double-lock the mechanism as shown in the illustration.



**Tightening torque:**  
15.0 - 20.0 N·m {131- 175 in. lbs.}

## ■ Replacement of the freewheel body

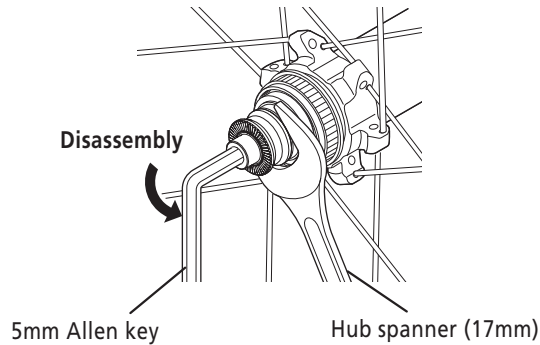
WH-RX830-TL

### Note:

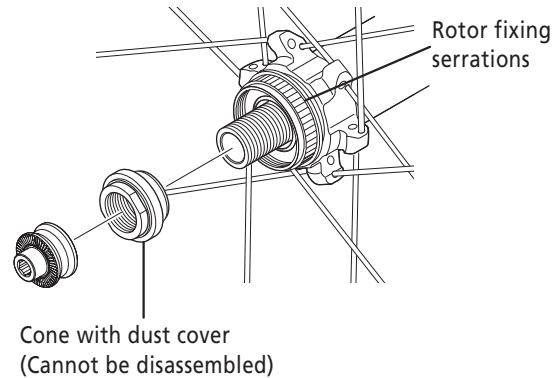
- Do not disassemble the dust cover which is crimped onto the cone.

**1.** First, pull out the hub axle by following the procedure shown in the illustration. The double-lock section at the freewheel side cannot be disassembled.

(1)

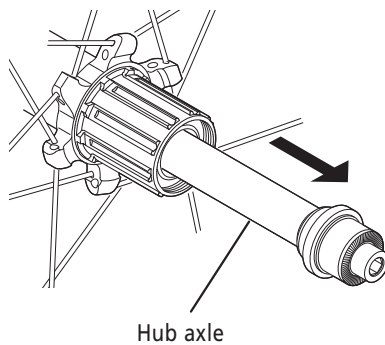


(2)



**Tightening torque < Assembly >:**  
15.0 - 20.0 N·m {131- 175 in. lbs.}

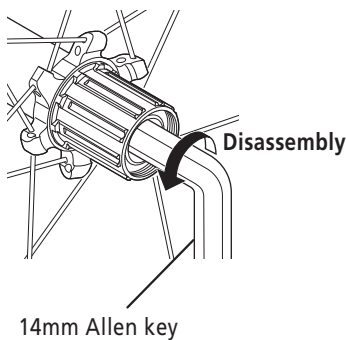
(3)



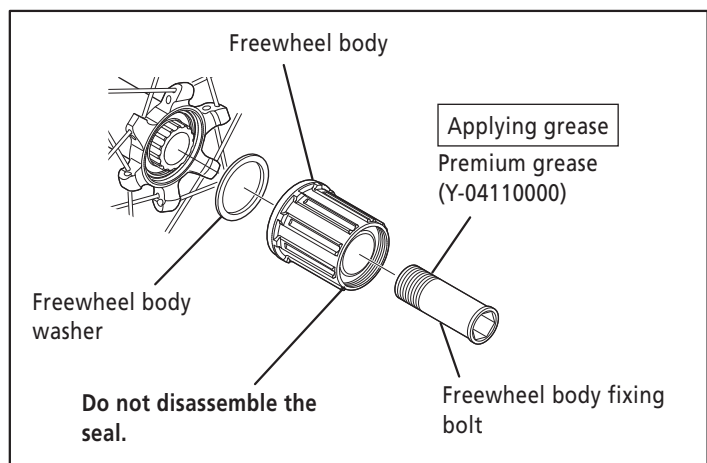
**2.** After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

### Note:

- Be sure to apply grease to the thread of the freewheel body fixing bolt, otherwise looseness or sticking may occur. Do not attempt to disassemble the freewheel body, because it may result in a malfunction.



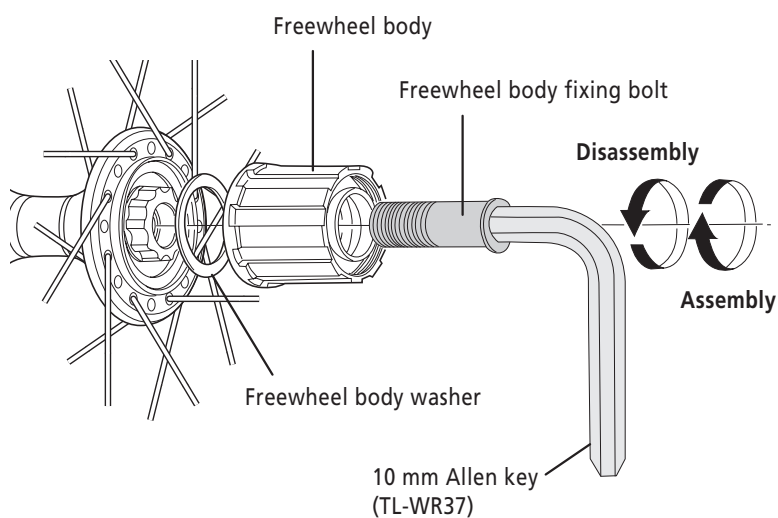
**Tightening torque < Assembly >:**  
45.0 - 50.0 N·m {393 - 437 in. lbs.}



After removing the hub, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

**Note:**

Do not attempt to disassemble the freewheel body, because it may result in a malfunction.



**Tightening torque:**  
35.0 - 50.0 N·m {306 - 437 in. lbs.}



## ■ Installing and removing tubeless tires

### TO ENSURE SAFETY

#### ⚠ WARNING

- After reading the user's manual carefully, keep it in a safe place for later reference.

#### ⚠ CAUTION

- Do not use rim tape if using an inner tube either. Rim tape may make it difficult to remove and install the tire, and the tire or tube may become damaged or the tires may suddenly puncture and come off, and severe injury may result.

#### NOTE

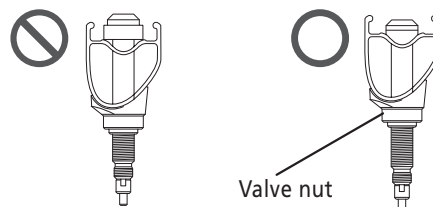
- The tires should always be installed and removed by hand. Never use tools such as tire levers. They can damage the seal between the tires and the rims and cause air to leak out.
- Do not tighten the valve nut too much, otherwise the valve seal may become warped and air leaks may occur.
- If the tires are difficult to fit, use plain water or soapy water to help them slide more easily.
- Products are not guaranteed against natural wear and deterioration from normal use and aging.

### Technical Service Instructions

#### 1. Installing tubeless tire valves

- Install the valve so that it faces as shown in the illustration.

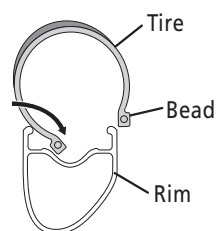
When tightening the valve nut, check that the valve does not turn together with the valve nut.



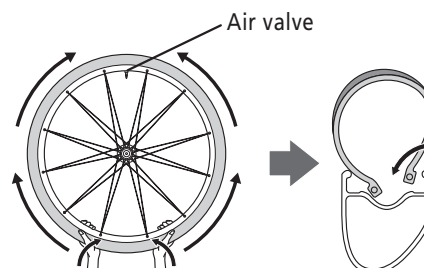
#### 2. Installing the tires

- Insert the bead on one side of the tire as shown in the illustration.

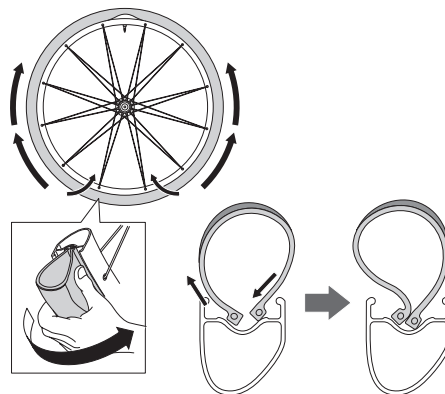
Check that there are no foreign particles in the tire bead, rim and valve at this time.



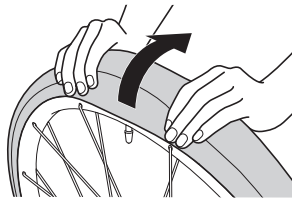
- Insert the bead on the other side of the tire starting from the point opposite the air valve.



It will become more difficult to insert the bead at the side of the air valve. In such cases, lift up the bead by hand starting from the opposite side of the tire, and work your way around to the location of the air valve.

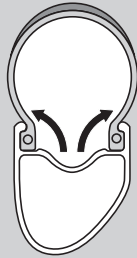


Lastly, grip the tire with both hands as shown in the illustration and insert the tire into the rim.



Inflate with air to lock the beads of the tires into the rim as shown in the illustration. After this, deflate the tire and check that the bead is locked into the rim. Then re-inflate the tire to the standard air pressure for use. If the bead is not locked into the rim, the bead is separating from the rim when the tire is deflated.

(Max : Tire pressure 800kPa/116psi)



#### 4. Notes when using inner tubes

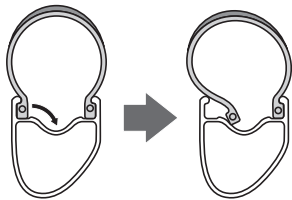
- Loosen the locking ring of the air valve and remove the air valve.
- Insert the bead on one side of the tire as shown in the illustration.



- Liberally moisten the outer edges of the rim and the tire beads, and place the slightly-inflated inner tube inside the tire so that it can slide smoothly.
- Check that the air valve of the inner tube is appropriate for use with the rim.
- Insert the bead on one side of the tire starting from the side of the rim opposite the air valve. Be careful not to pinch the tube at this time. If necessary, use soapy water.
- Inflate the inner tube until the tire locks into place.

#### 3. Removing the tires

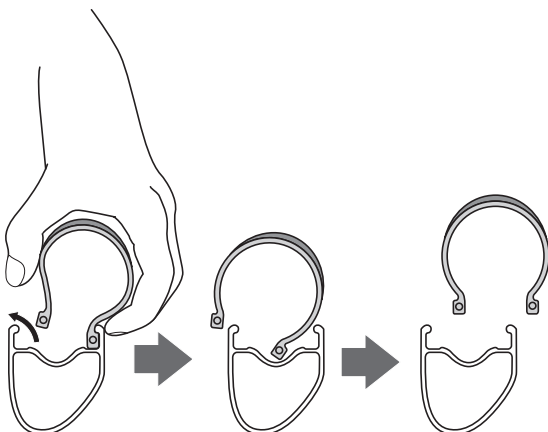
- To remove a tire, deflate it and push the bead on one side of the tire into the gorge of the rim as shown in the illustration.



##### Note:

Be sure to only push in the bead on one side of the tire. If you push the beads in on both sides, the tires will be difficult to remove. If you push in the beads on both sides, inflate the tire once more to lock the beads, and then remove the tire by starting the procedure from the beginning again.

- Remove the bead on one side of the tire starting from the point closest to the air valve, and then remove the bead on the other side of the tire.



# SHIMANO

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

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