

Dealer's Manual

ROAD	GRAVEL	MTB
E-BIKE	LIFESTYLE	GENERAL

Wheel Set (Disc Brake)

SHIMANO

WH-RX180

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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.

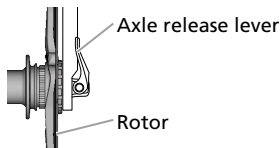
TO ENSURE SAFETY

⚠ 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.
- When assembling the freewheel body unit, do not apply grease or oil outside of the designated areas. This may cause the freewheel body unit to malfunction.
- Do not wash the freewheel body unit. The internal grease may flow out and cause the freewheel body unit to malfunction.

Be sure to also inform users of the following:

- **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 or collision.**
- Before riding the bicycle, check the wheels to make sure that there are no bent or loose spokes, dents, scratches or cracks on the rim surface. Do not use the wheel if any of these problems are found. The wheel may break, and you may fall. Check also that there is no carbon peeling or cracking.
- Do not use the GRAVEL wheel set in harsh conditions such as on rough roads. Do not use for downhill bicycle riding or freeriding, etc. otherwise the wheel may become bent or otherwise damaged if it is subjected to a strong impact, and accidents may occur as a result.
- Do not use with rim brakes. These wheels are designed exclusively for use with disc brakes. Using these wheels with rim brakes could damage the rims and result in an accident that can lead to a serious injury or even death.
- Confirm that the axle release lever does not interfere with the rotor even when it is fully engaged. If the axle release lever is on the same side as the rotor, there is the danger that it may interfere with the rotor. If it interferes with the rotor, stop using it and consult a place of purchase or a distributor.



- Check how to use the axle release lever. Using the axle release lever incorrectly may cause the wheel to fall off, etc. and lead to serious injury.
- Do not touch the calipers or rotor while riding or immediately after dismounting from the bicycle. The calipers and rotor will become hot when the brakes are operated, so you may get burned if you touch them. Check that the brake system has cooled down sufficiently before attempting brake system maintenance.
- Do not allow any oil or grease to get onto the rotor or pads. Riding the bicycle with oil or grease on the rotor or pads may prevent the brakes from operating and result in serious injury due to a fall or collision.
- Read the disc brake manual carefully, and keep it in a safe place for later reference.
- For details on the E-THRU axle, refer to the E-THRU axle user's manual.

F12 (Front 12 mm Axle), R12 (Rear 12 mm Axle) Wheel (Thru Axle)

- This wheel can only be used in combination with the special front fork / frame and the through axle. If it is used in combination with any other front fork / frame or through axle, it may cause the wheel to become detached from the bicycle during riding and result in serious bodily injury.

TL: Tubeless wheel

- The tires should be installed and removed by hand. If this is difficult, a resin tire lever for tubeless wheels may be used. In such cases, be sure to check that the rim surface has not been dented, scratched, or cracked as there is a risk of causing damage to the air seal between the tire and the rim, which would result in air leakage. For carbon rims, check that there is no carbon peeling or cracking, etc. Finally, make sure that there is no air leakage.
- Use the appropriate air pressure indicated on the tire and rim. If the maximum pressures indicated on the tires and rims differ, be sure not to exceed the maximum pressure with the lower value. A higher pressure than indicated can cause a sudden puncture and/or sudden release of the tire, which can result in serious injury.

WH-RX180-TL: Maximum pressure = 5 bar / 72 psi / 500 kPa

For installation to the bicycle and maintenance

- When installing the wheel to the front suspension fork / frame, always be sure to follow the instructions given in the manual for the front suspension fork / frame. The securing method and tightening torque for the wheel both vary depending on the type of front suspension fork / frame being used. If the instructions are not followed, the wheel may fall out and possibly result in serious injury. When the wheel is secured in accordance with the tightening torque, the wheel's rotation may become stiff; however, the instructions in the manual for front suspension fork / frame must always be followed.

CAUTION

Be sure to also inform users of the following:

- If you will be using tire sealant, consult the place of purchase or a distributor. Tire sealant may damage the tire and rim.

TL: Tubeless wheel

- When using an inner tube, do not add additional rim tape on top of the tubeless tape. Doing so may make it difficult to install or remove the tire, and it may cause damage to the inner tube resulting in a sudden puncture, which can cause the bicycle to fall over.
- Be sure to use tubeless tape when using these wheels.
- Do not use tape other than genuine SHIMANO tubeless tape. Otherwise, a sudden puncture may occur, and you may fall off the bicycle.
- If you use a tire such as a Tubeless Ready tire that needs to be used with a sealant, use the sealant recommended by the tire manufacturer.
- Do not overtighten the valve lock ring. If you tighten the valve lock ring too much, the valve seal may become deformed, and air leaks may occur.

■ Bed-in period

- Disc brakes have a bed-in period, and the braking force will gradually increase as the bed-in period progresses. Accidents or falls may occur due to losing control of the bicycle, possibly resulting in serious injury. (The same thing will happen when the pads or rotor are replaced.)

For installation to the bicycle and maintenance

- Refer to the tire size table in the “ [Tire size](#) ” section when selecting tires.
- Read the tire manual carefully, and keep it in a safe place for later reference.
- When installing or removing the rotor lock ring, be careful not to touch the outer edges of the rotor with your hands. Wear gloves to protect your hands from getting cut.

NOTICE

Be sure to also inform users of the following:

- For the use of the supplied nipple wrench tool, contact your place of purchase or a distributor for their assistance.
- Use only the lubricants specified by SHIMANO.
- Do not oil the internal parts of the hub. Doing so may cause the grease to flow out.
- It is recommended that you ask a place of purchase to adjust the spoke tensions if there is any deviation in the spokes and after the first 1,000 km of riding.
- Optional reflector and spoke protector sets are available. Check the model number on the website specifications and please ask your bicycle dealer for details.
- Do not clean the hub areas with a high-pressure wash. Water may get inside the hubs, which can degrade performance.
- Use a neutral detergent when cleaning wheels. Other cleaners may damage the wheels. Do not clean any areas that have been instructed not to be cleaned.
- Do not forcibly scrub wheel stickers, painted parts, or printed parts. This may peel off the stickers or damage the paint or printing.
- Be sure to also read the manual for the disc brakes.
- 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 only genuine SHIMANO spokes and nipples. Otherwise, the area where the spokes fit into the hub body may become damaged.
- Be careful not to overtighten the nipples when adjusting the spoke tensions. If overtightened, damage to the rim may result.
- If the wheel becomes stiff and difficult to turn, perform an inspection.
- Special nipple wrenches are available as optional accessories.
- Check the specifications table (<https://si.shimano.com>) for compatible reflectors and spoke protectors.
- For information on how to install and remove the tires, refer to the manual accompanying the tire.

TL: Tubeless wheel

- Use genuine SHIMANO spokes, spoke plugs, and washers. Otherwise, the area where the spokes fit into the hub body may become damaged.

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 necessary for installation / removal, adjustment, and maintenance purposes.

Tool	
	4 mm hexagon wrench
	19 mm hexagon wrench
	17 mm hub spanner
	TL-FC36
	Slotted screwdriver
	Soft face mallet
	Bearing press tool

Installation / removal

Tire size

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

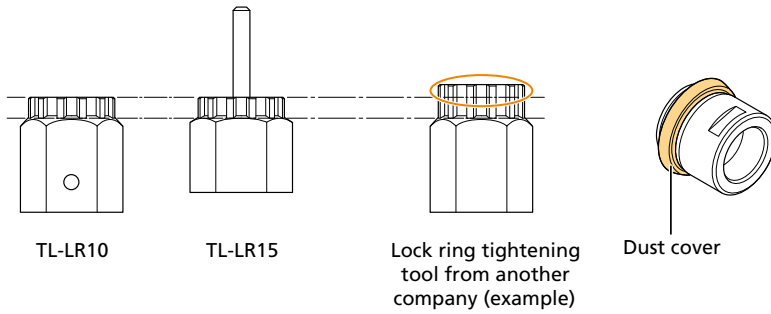
	Wheel size	Model name	Tire size
GRX	622 x 25C (700C)	WH-RX180-TL-F12	32-622 - 50-622
		WH-RX180-TL-R12	

Installing / removing the cassette

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

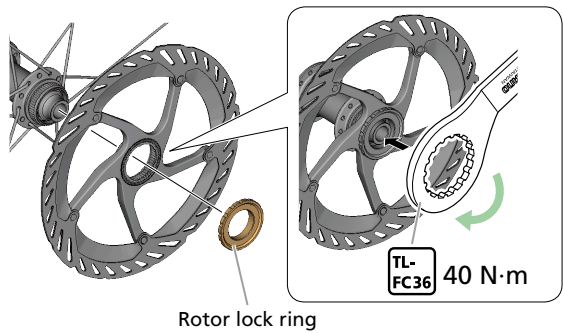
NOTICE

- When using a lock ring tightening tool from another company, ensure that the tool does not interfere with the dust cover of the right cap. Damage to the dust cover or deviation from the specified position may affect the rotation performance and waterproofing performance.



Installing the rotor

1. Set the rotor on to the hub, then secure it with the rotor lock ring.



	External spline type
Rotor lock ring	
Lock ring tightening tool	TL-FC36

Removing the rotor

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

Maintenance

Spoke lacing

WH-RX180

Lace the spokes as shown in the figure.

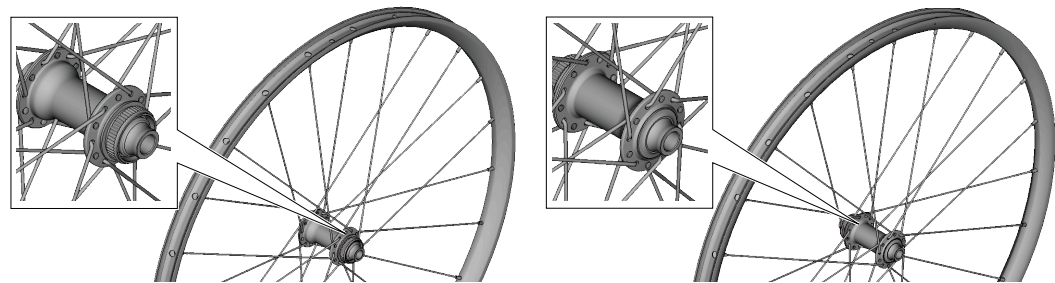
* Refer to the table for spoke tension value.

Number of spokes: 24

For front

Left side (rotor side)

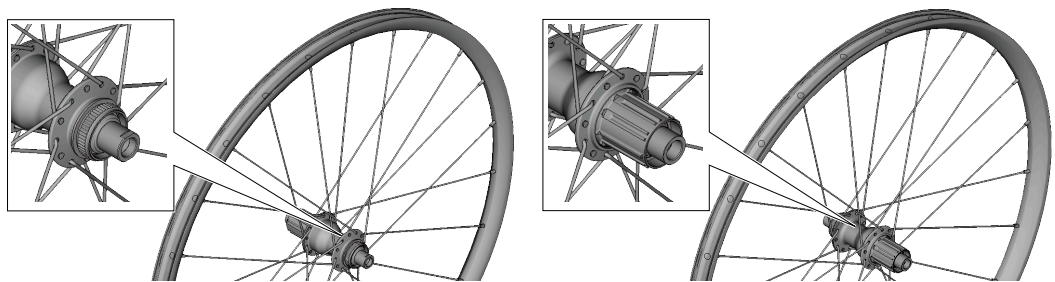
Right side



For rear

Left side (rotor side)

Right side (sprocket side)



622 x 25C (700C)

Spoke tension value		
	For front	For rear
Left side (rotor side)	900 - 1,300 N	> 800 N
Right side	> 820 N	1,000 - 1,400 N

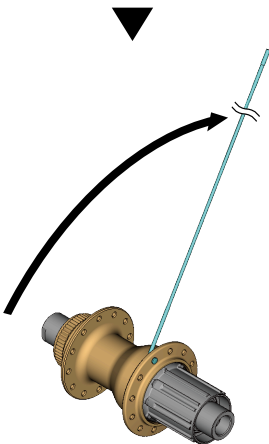
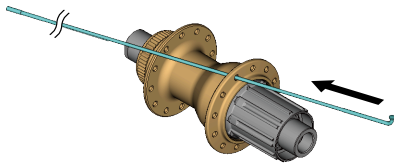
Replacing the spokes

Remove the tubeless tape before replacing the spokes.

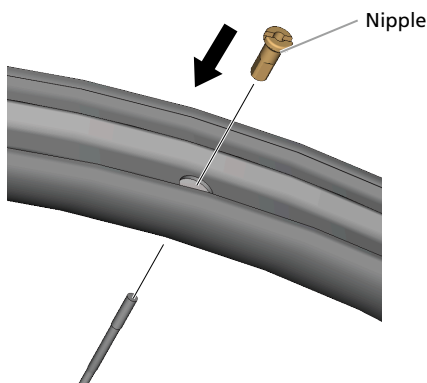
(For instructions on affixing/removing tubeless tape, refer to " [Replacing tubeless tape](#) ".)

WH-RX180

1. Remove the spoke to replace.
2. Insert the spoke through the hole in the hub flange.
Set the spoke onto the hub flange as shown in the figure.



3. Attach the nipple and tighten the spoke to the specified tension.



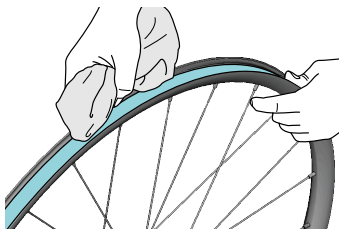
Replacing tubeless tape

Important safety information

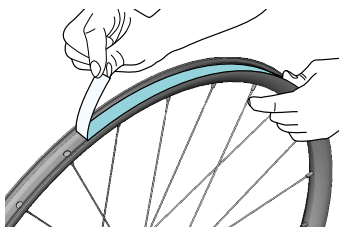
⚠ CAUTION

- Be sure to use tubeless tape when using these wheels.
- Do not use tape other than genuine SHIMANO tubeless tape. Otherwise, a sudden puncture may occur, and you may fall off the bicycle.

1. If sealant was used in the tire, use a clean rag to wipe away any residual sealant from the rim and tape.

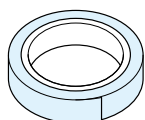


2. Remove the tubeless tape.



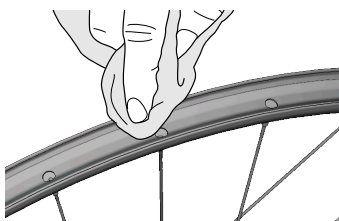
NOTICE

- Tubeless tape cannot be reused. After removing tubeless tape, always replace it with new tape.
- Use a tubeless tape matching the rim inner width.
- Use genuine SHIMANO tubeless tape to prevent punctures and other possible damage.



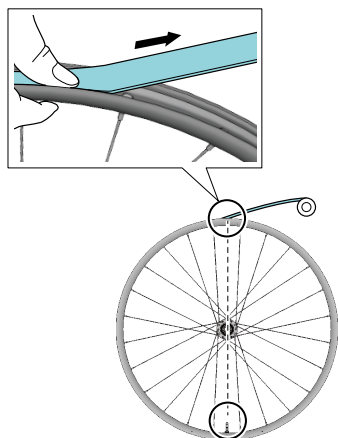
Tubeless tape

3. Use a clean rag to wipe off any residue, sealant or dirt from the surface where the tubeless tape will be affixed.



4. Affix new tubeless tape.

Start affixing the tubeless tape from the opposite side of the valve.



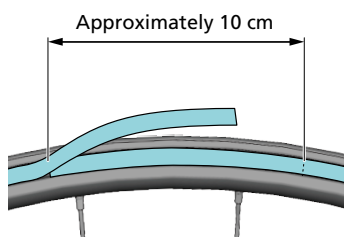
TECH TIPS

- Do not use a tool to affix the tape, as it may cause the tape to tear.
- Pull on the tape to give it some tension when affixing it in order to ensure it sits cleanly in the rim.
- When affixing the tape, align the center of the tape with the center of the rim, not off to one side, as shown in the figure.

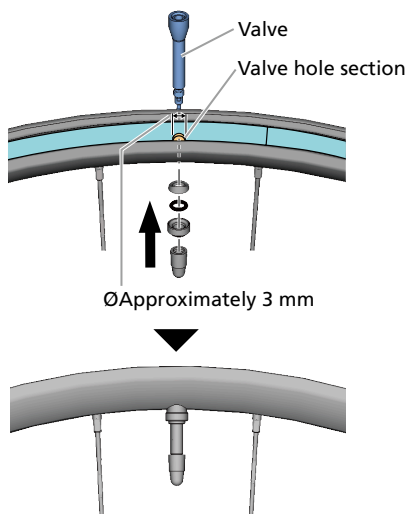


5. Securely attach both ends of the tape to the rim.

* Overlap the ends of the tape by approximately 10 cm.

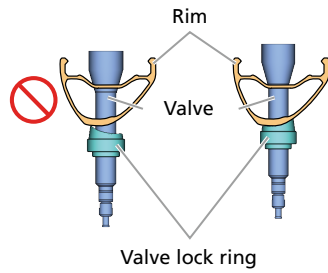


6. Punch a pilot hole in the valve hole section, then attach the valve.



NOTICE

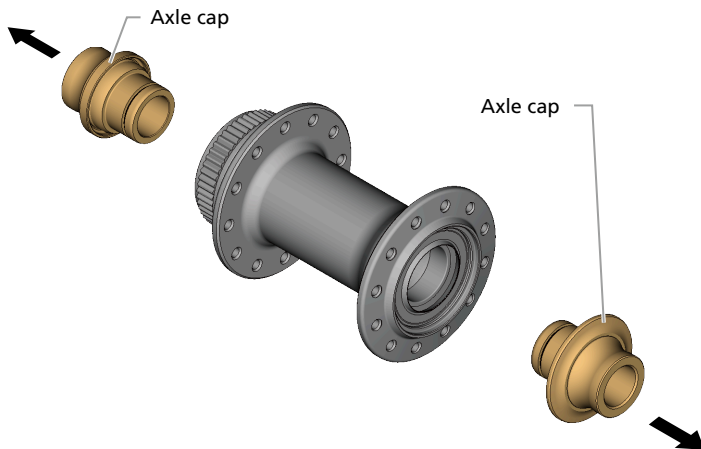
- Note the direction of the valve.



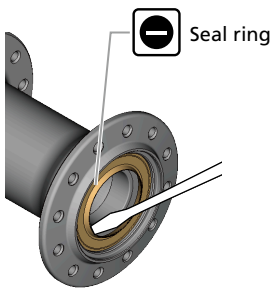
- When tightening the valve lock ring, check that the valve does not turn together with the valve lock ring.

Front hub disassembly

1. Remove the left and right axle caps by pulling them outwards off the end of the hub.

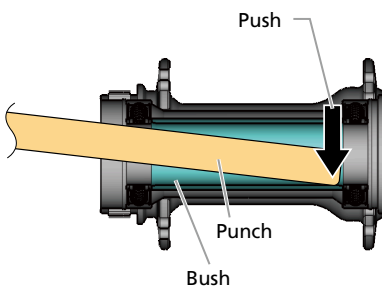


2. Remove the left and right seal rings using a tool such as a slotted screwdriver.

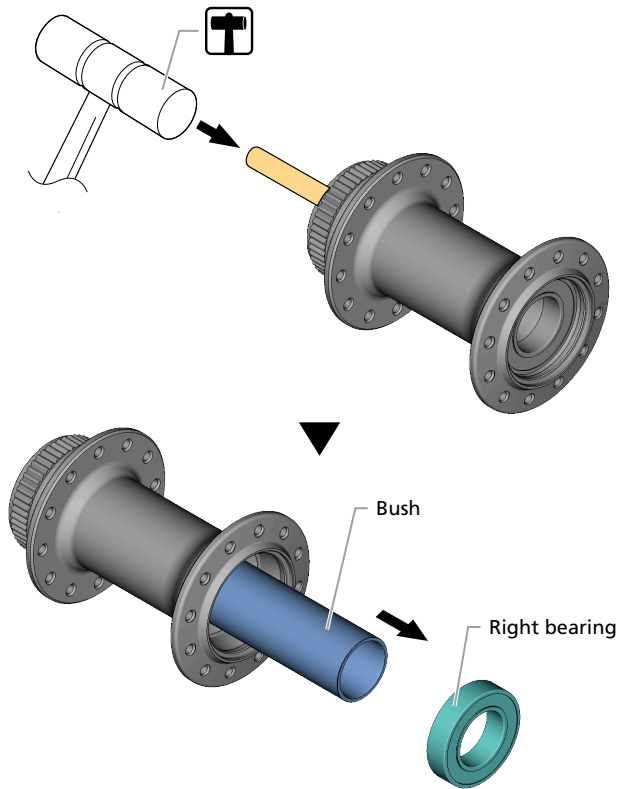


3. Remove the bearings.

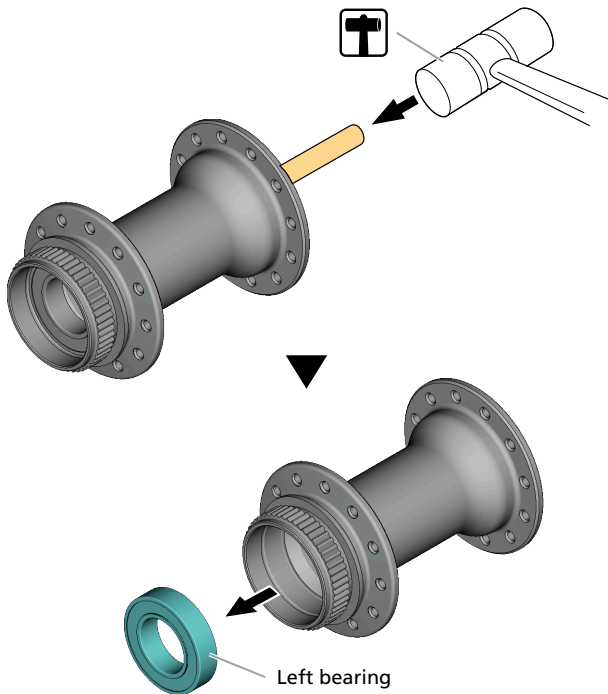
- (1) Use a punch (recommended: diameter 10 - 15 mm, length 120 - 150 mm) to push the right side of the bush to tilt it as shown in the figure.



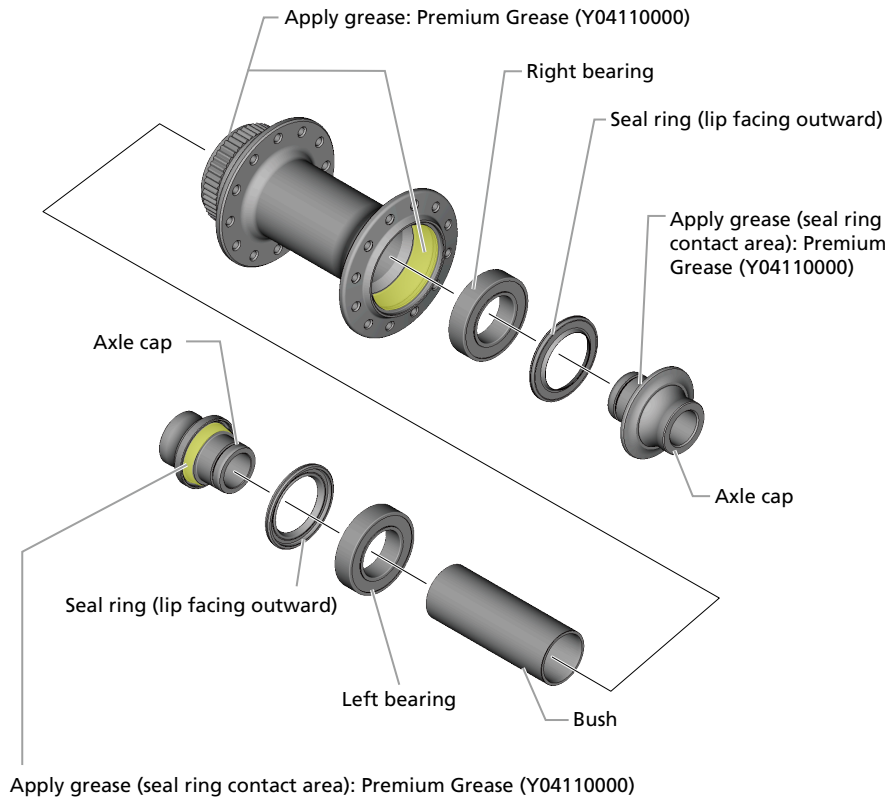
- (2) Touch the part of the right bearing that was exposed when the bush was shifted with the punch, and tap it with the soft face mallet to push out the right bearing.
 - The bush can be removed at the same time too.



(3) Also push out the left bearing from the other side in the same manner.

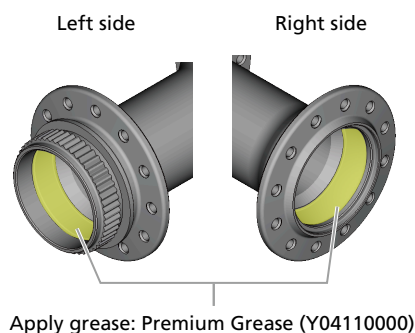


4. The hub can be disassembled as shown in the figure. Apply grease to the indicated parts at periodic intervals.



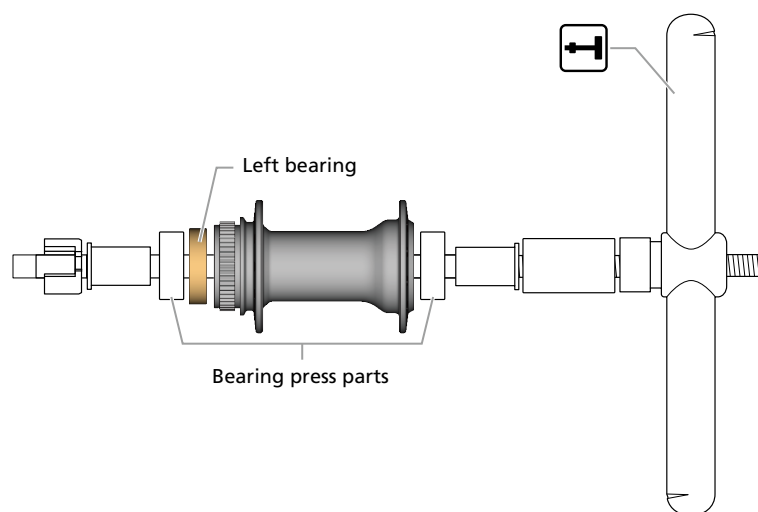
Front hub assembly

1. Apply grease to the hub shell.

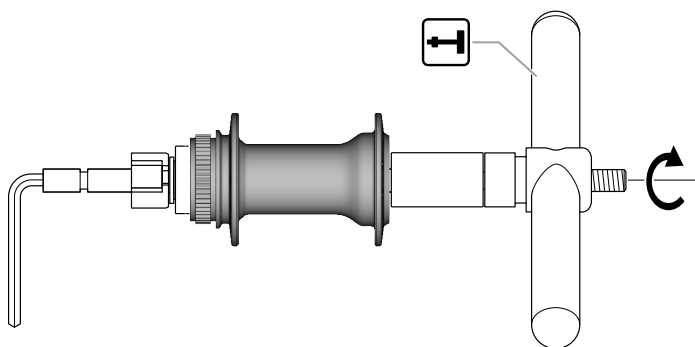


2. Install the left bearing.

- (1) Install the left bearing and bearing press parts (inner diameter 17 mm, outer diameter 30 mm) to the hub body, and set the bearing press tool.



- (2) Turn the handle of the bearing press tool, and securely press-fit the left bearing as far as it will go.

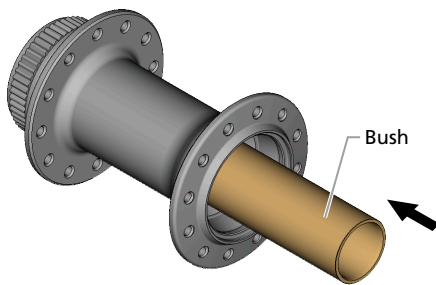


NOTICE

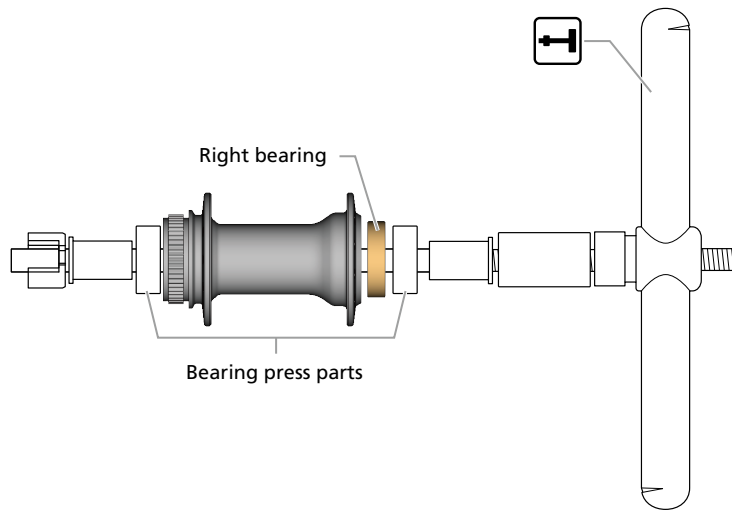
- Be sure to install the left bearing first.
- The bearing press parts should touch both the outer race and inner race of the bearing.

3. Install the right bearing.

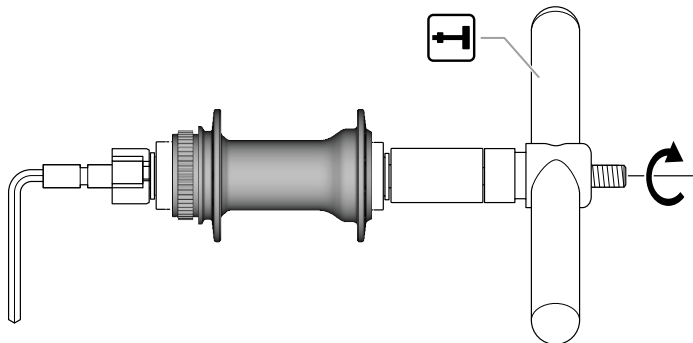
- (1) Remove the bearing press tool and bearing press parts, and insert the bush from the right side of the hub body.
 - Make sure that the bush is in the center of the hub body.



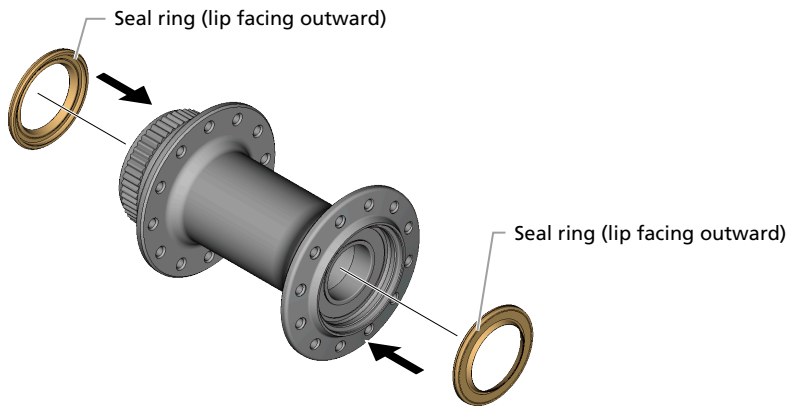
- (2) Install the right bearing and bearing press parts to the hub body, and set the bearing press tool.



- (3) Turn the handle of the bearing press tool, and securely press-fit the right bearing as far as it will go.

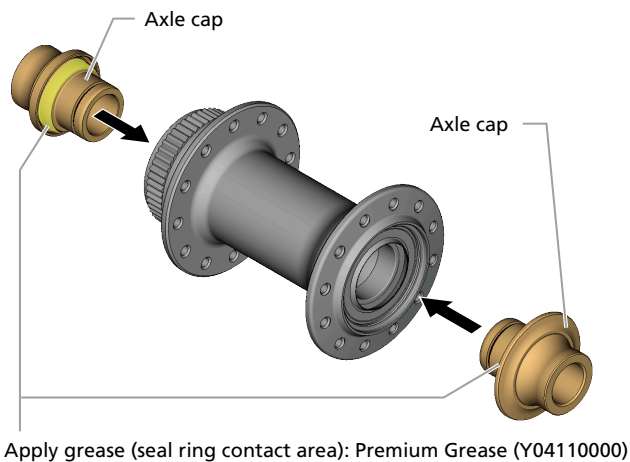


4. Install the left and right seal rings.



5. Install the left and right axle caps.

Be sure to push the axle caps until they click.



6. Make sure that the bearings are completely installed.

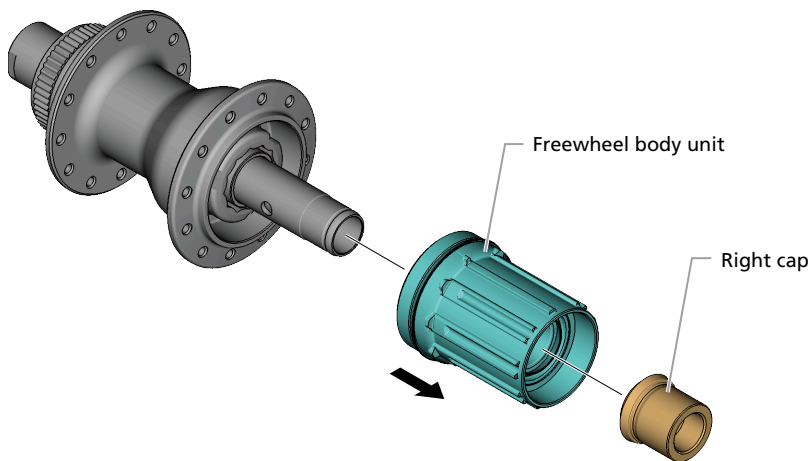
- (1) Push the hub axle left and right to confirm there is no excess play in the bearings. If there is excess play, perform step [3](#). If there is still excess play, perform step [2](#).
- (2) Hold the hub body with the cap in one hand, and rotate the hub body with the other hand to confirm that it rotates smoothly. If it is not smooth, gently tap the bearing with a punch from inside to loosen it as when performing disassembly. When loosening, loosen the right bearing first.

Freehub disassembly

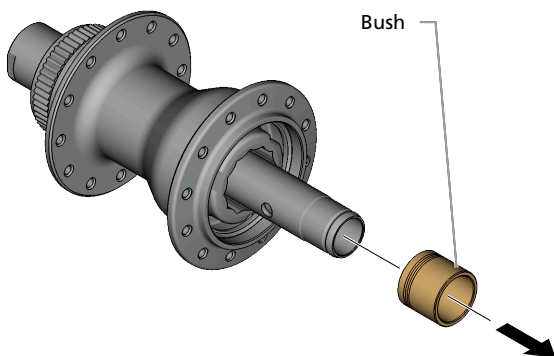
NOTICE

- Conduct the removal and installation of the seal very carefully so that it does not become deformed. When reinstalling the seal, check that it is facing the right way and insert it as far as it will go.
- Do not attempt to disassemble the dust cover which is crimped onto the right cap.
- Do not attempt to disassemble the freewheel body unit, because it may result in a malfunction.
- Perform the assembly according to the assembly procedures when the freewheel body unit has been removed.
- Do not mix the special grease applied to the freewheel body unit with other grease. Doing so may cause the clutch of the freewheel to malfunction.

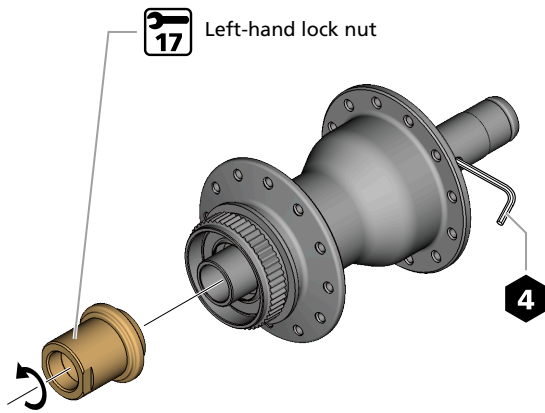
1. Remove the right cap and freewheel body unit by pulling them outwards off the end of the hub axle.



2. Remove the bush.

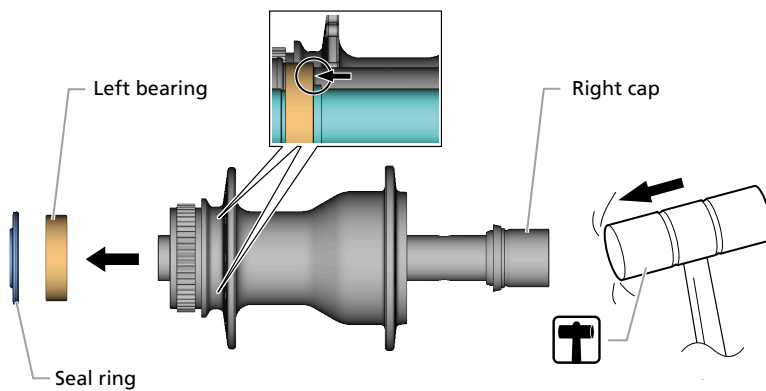


3. Secure the hub axle with a hexagon wrench, and remove the left-hand lock nut.

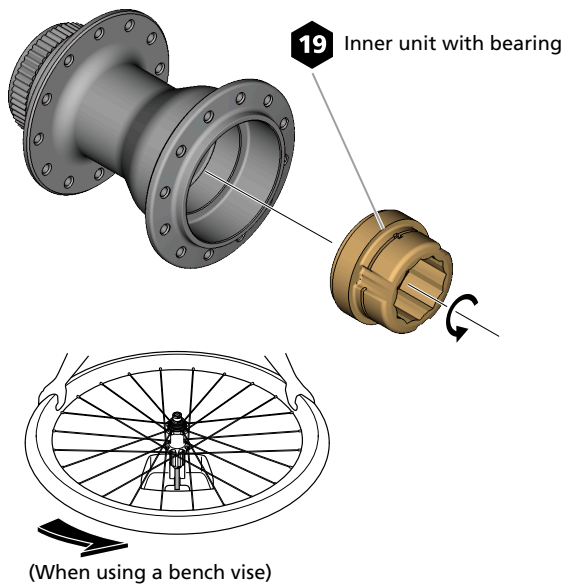


4. Remove the left bearing and seal ring.

Place the right cap over the right side of the hub axle, and tap the right cap from the right side with a soft face mallet to remove the left bearing and seal ring.

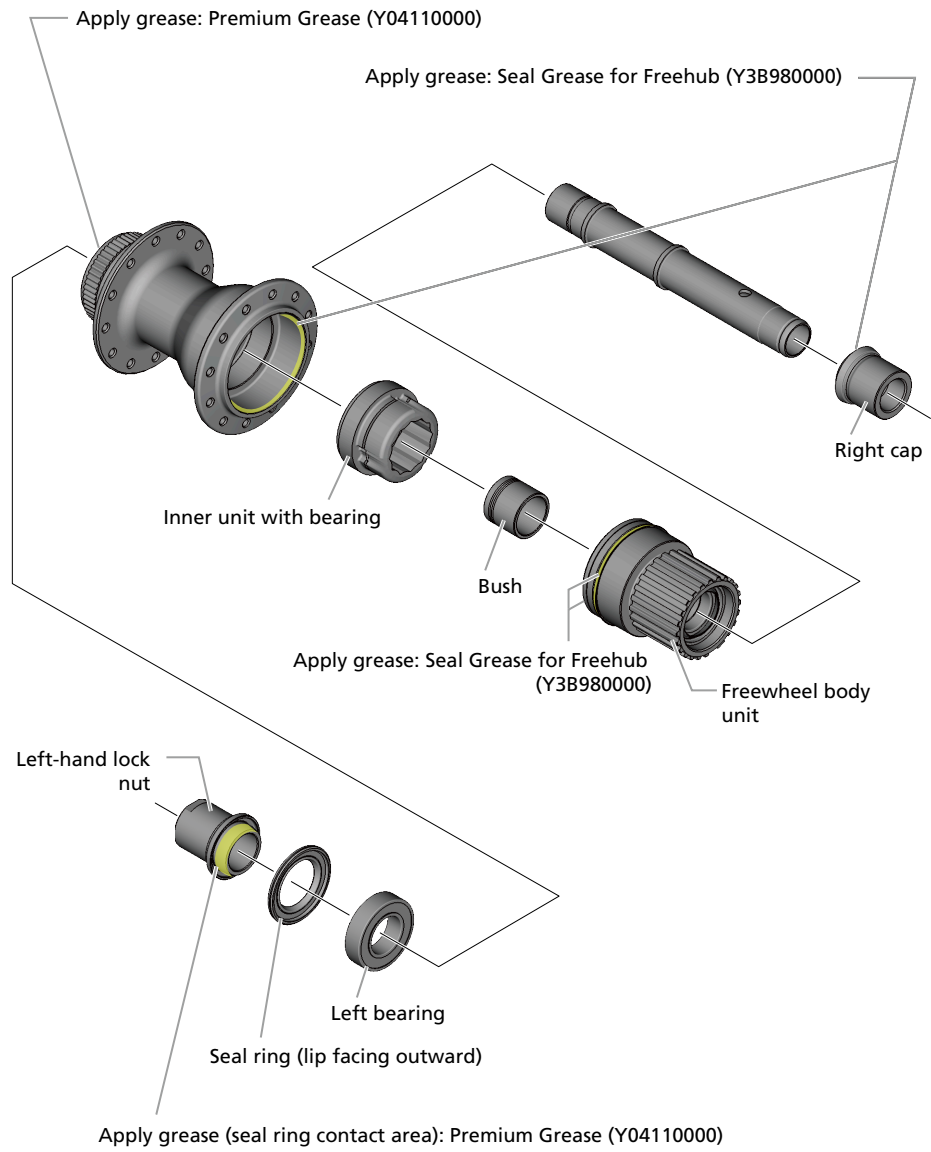


5. Remove the inner unit with bearing.



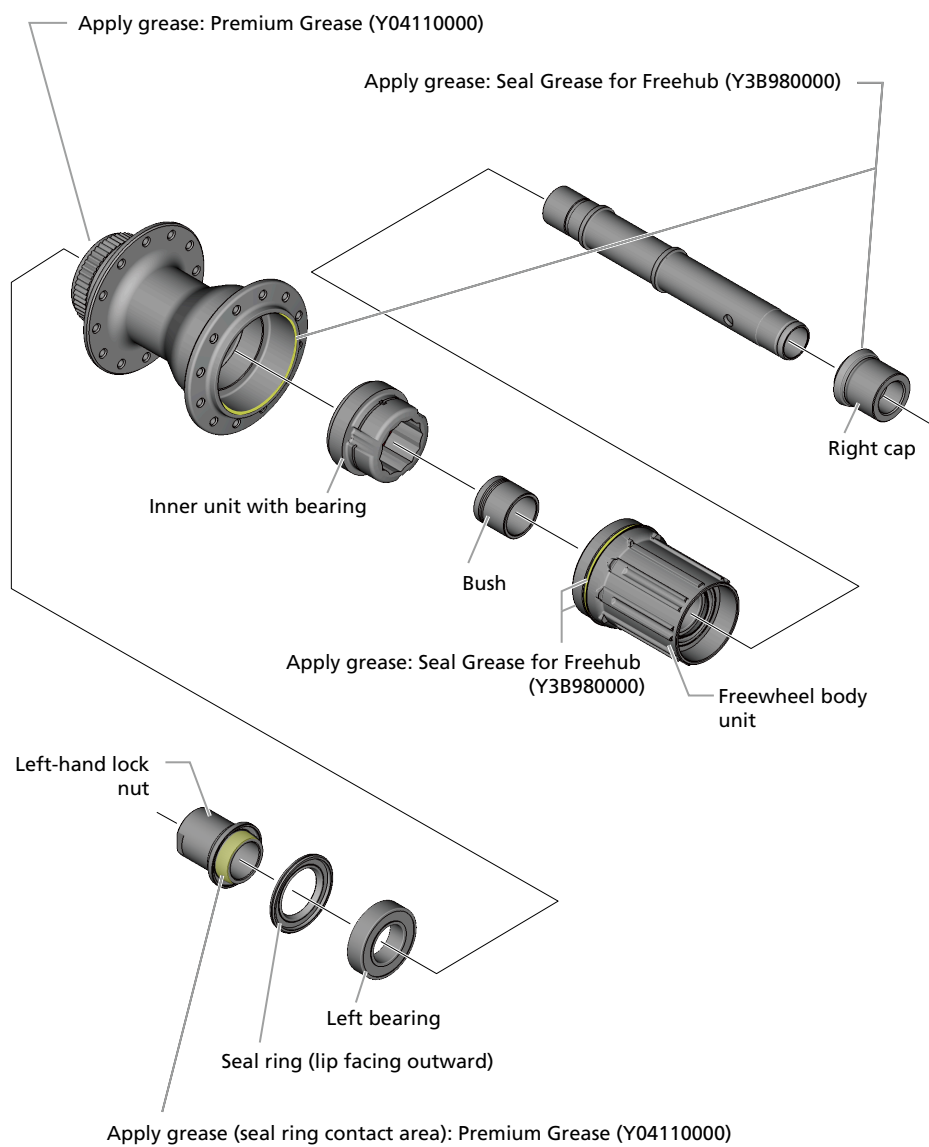
6. The hub can be disassembled as shown in the figure. Apply grease to the indicated parts at periodic intervals.

MICRO SPLINE



Maintenance Freehub disassembly

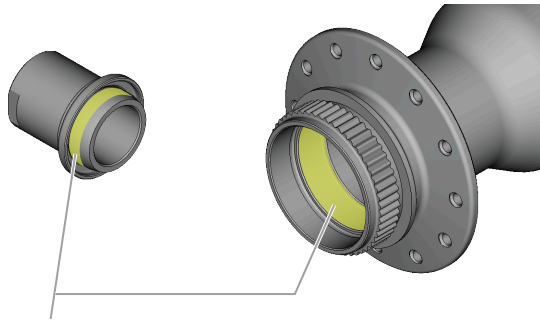
HG spline



Freehub assembly

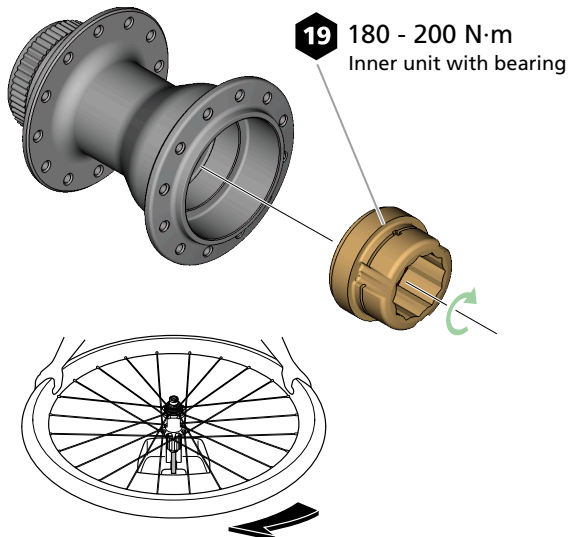
1. Apply grease to the left-hand lock nut (contact area with the seal ring) and hub shell.

Left side



Apply grease: Premium Grease (Y04110000)

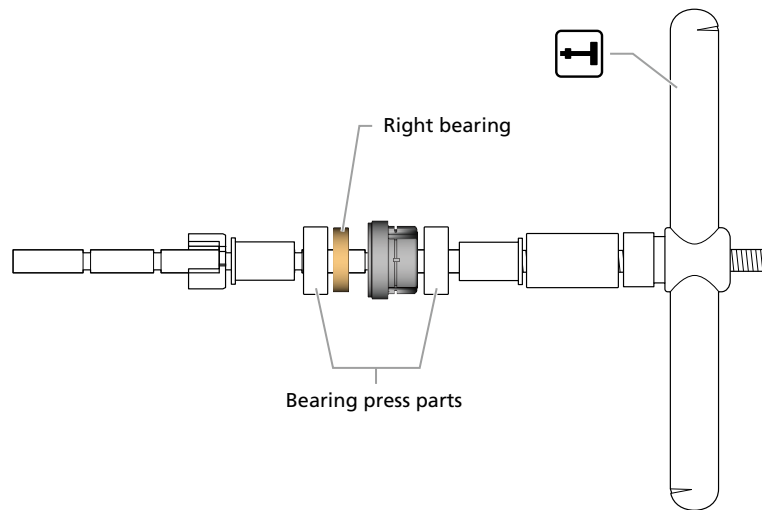
2. Install the inner unit with bearing to the hub body.



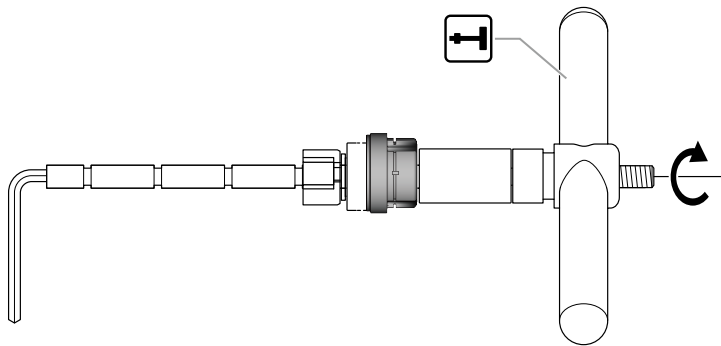
(When using a bench vise)

If the right bearing has come off the inner unit

- (1) Install the right bearing and bearing press parts (inner diameter 15 mm, outer diameter 28 mm) to the inner unit, and set the bearing press tool.



- (2) Turn the handle of the bearing press tool, and securely press-fit the right bearing as far as it will go.

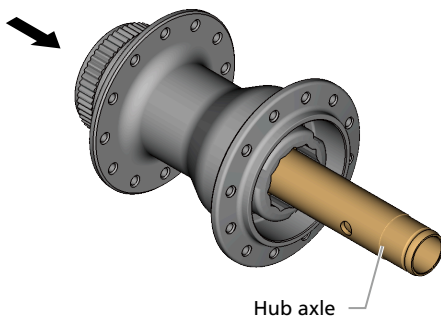


NOTICE

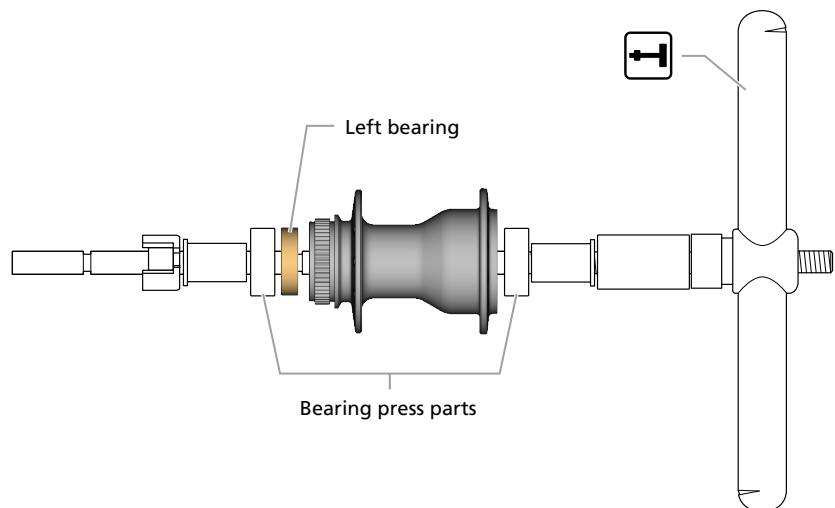
- Be sure to install the right bearing first. (If the right bearing has come off the inner unit)
- The bearing press parts should touch both the outer race and inner race of the bearing.

3. Install the left bearing and hub axle to the hub body.

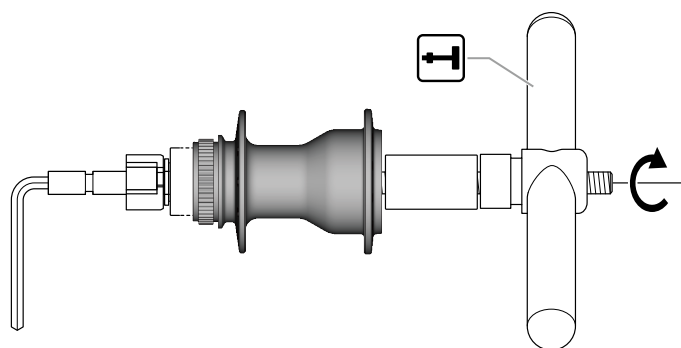
- (1) Insert the hub axle and left bearing from the left side of the hub body.



- (2) Install the bearing press parts (inner diameter 15 mm, outer diameter 28 mm) to the hub body, and set the bearing press tool.



- (3) Turn the handle of the bearing press tool, and securely press-fit the left bearing as far as it will go.



NOTICE

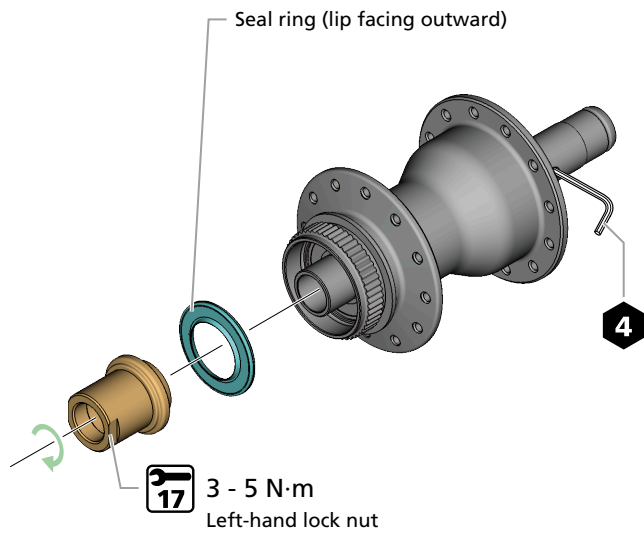
- The bearing press parts should touch both the outer race and inner race of the bearing.

4. Make sure that the bearings are completely installed.

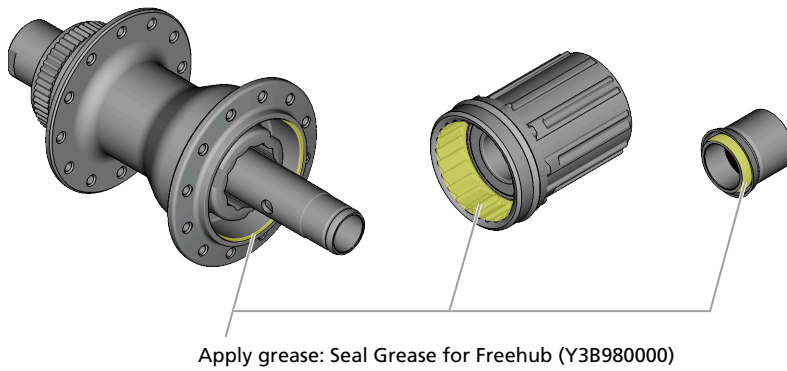
- (1) Push the hub axle left and right to confirm there is no excess play in the bearings. If there is excess play, perform step [3](#).
- (2) Hold the hub body with one hand, and rotate one side of the hub axle with the other hand to confirm that it rotates smoothly. If it is not smooth, gently tap the bearing with a soft face mallet to loosen it as when performing disassembly.

5. Install the seal ring and left-hand lock nut.

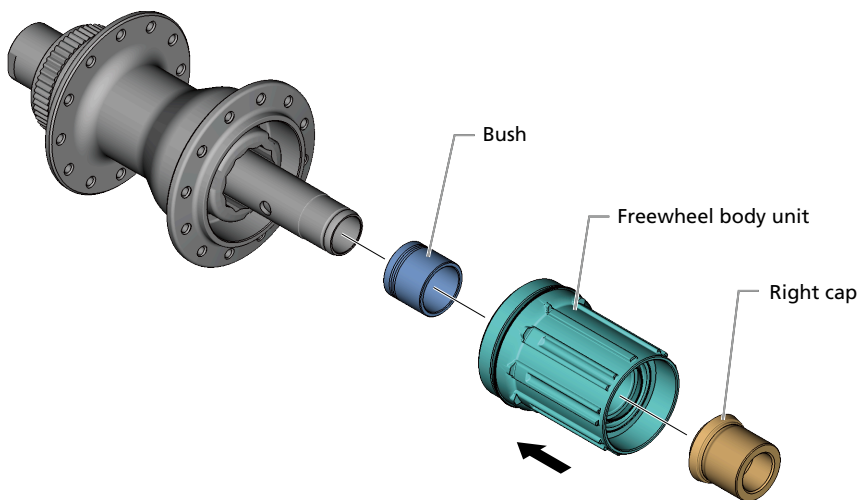
Secure the hub axle with a hexagon wrench, then install the left-hand lock nut.



6. Apply grease to the hub body (contact area with the seal ring), ratchet part, freewheel body unit, and right cap.



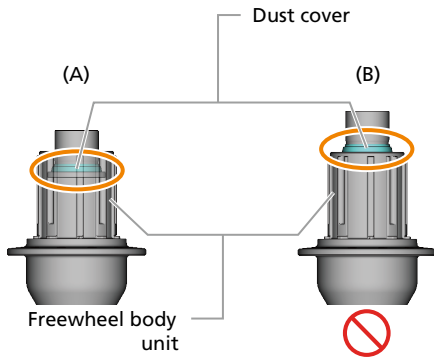
7. Install the bush, freewheel body unit, and right cap to the hub body.
Be sure to push the right cap until they click.



NOTICE

- The correct position for the dust cover is where it is hidden in the freewheel body unit, as shown in illustration (A).

If the dust cover is in the position shown in illustration (B), repeat the assembly process from the beginning.



Replacing the freewheel body unit

Refer to “ [Freehub disassembly](#) ” and “ [Freehub assembly](#) ” when replacing the freewheel body unit.

The procedure from step 2 in “ [Freehub disassembly](#) ” is unnecessary, since the hub axle does not need to be removed.

Installing and removing the tubeless tires

Important safety information

⚠ WARNING

- The tires should be installed and removed by hand. If this is difficult, a resin tire lever for tubeless wheels may be used. In such cases, be sure to check that the rim surface has not been dented, scratched, or cracked as there is a risk of causing damage to the air seal between the tire and the rim, which would result in air leakage. For carbon rims, check that there is no carbon peeling or cracking, etc. Finally, make sure that there is no air leakage.

⚠ CAUTION

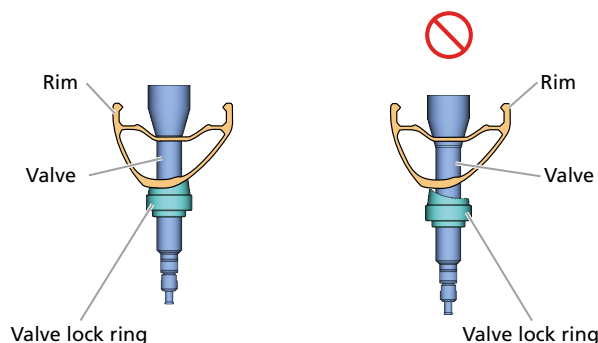
- When using an inner tube, do not add additional rim tape on top of the tubeless tape. Doing so may make it difficult to install or remove the tire, and it may cause damage to the inner tube resulting in a sudden puncture, which can cause the bicycle to fall over.
- Do not overtighten the valve lock ring. If you tighten the valve lock ring too much, the valve seal may become deformed, and air leaks may occur.

NOTICE

- If the tires are difficult to fit, use tap water or soapy water to help them slide more easily.
- Products are not guaranteed against natural wear and deterioration from normal use and aging.

Installation

1. Install the valve on the rim.



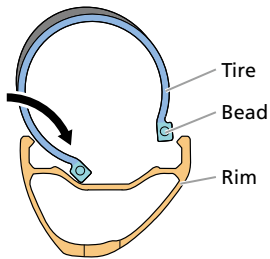
NOTICE

- Note the direction of the valve.

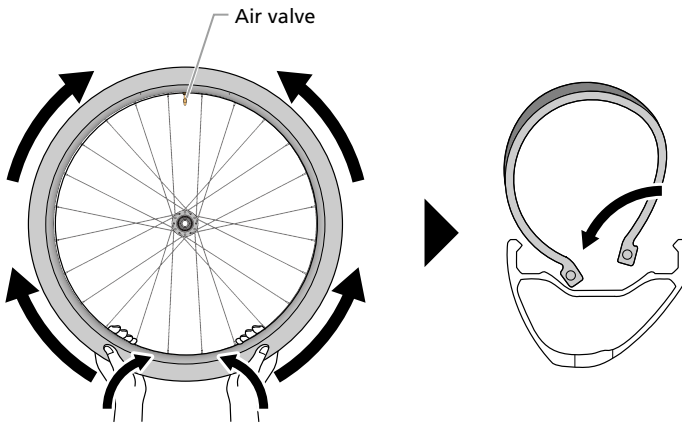
- When tightening the valve lock ring, check that the valve does not turn together with the valve lock ring.

2. On one side of the tire, push the bead into the center groove of the rim.

* Check that there are no foreign particles or damage in the tire bead, rim, and valve.

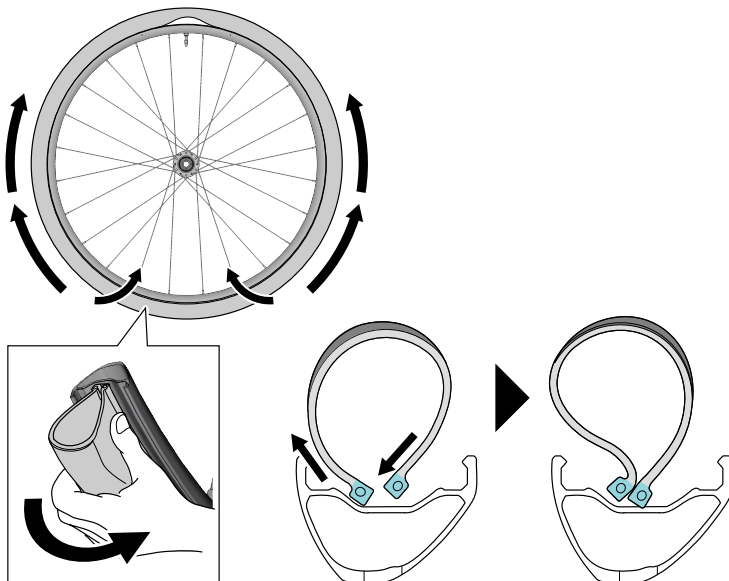


3. Set the bead on the other side of the tire starting from the point opposite the air valve.

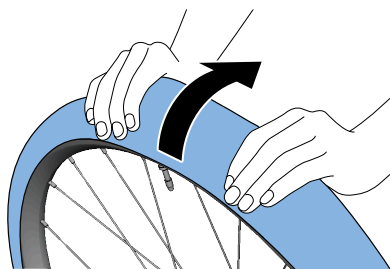


TECH TIPS

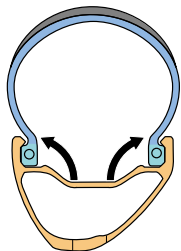
- If the final section of the bead at the air valve is difficult to mount, make sure the whole bead is pushed into the center groove of the rim. Start from the opposite side of the air valve and work your way around each side to the location of the air valve.



4. Grip the tire with both hands and insert the tire into the rim.



5. Inflate with air to lock the beads of the tires into the rim.



6. Deflate the tire and check that the beads are locked into the rim.

When deflating the tire, the tire may separate from the rim if the bead lock is released from the rim and cause air leaks while riding.

7. Inflate the tire until it is at an appropriate pressure.

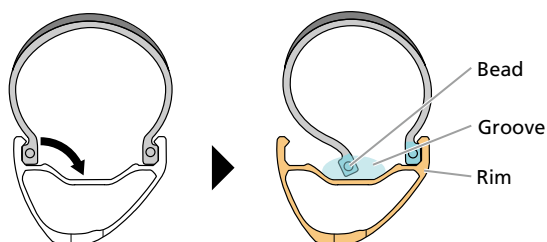
⚠ WARNING

- Use the appropriate air pressure indicated on the tire and rim. If the maximum pressures indicated on the tires and rims differ, be sure not to exceed the maximum pressure with the lower value. A higher pressure than indicated can cause a sudden puncture and/or sudden release of the tire, which can result in serious injury.

WH-RX180-TL: Maximum pressure = 5 bar / 72 psi / 500 kPa

Removal

1. To remove the tire, deflate it and push one side of the bead into the center groove of the rim.

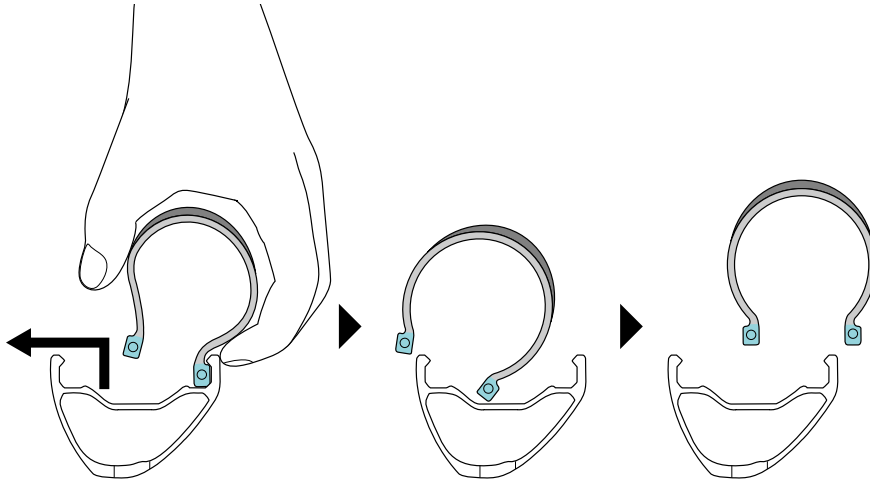


TECH TIPS

- 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 accidentally unseat both beads, inflate the tire once more to lock the beads, then restart the procedure from the beginning.

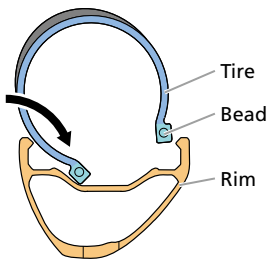
2. Remove the beads.

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



Installing an inner tube

1. Loosen the valve lock ring and remove the air valve.
2. On one side of the tire, push the bead into the center groove of the rim.



3. Insert the inner tube into the tire.

Inflate the inner tube slightly to give it a firm shape, then insert it into the tire.

NOTICE

- Check that the air valve and size of the inner tube are appropriate for the rim and tire being used.
- Contact your place of purchase for the specifications of inner tubes that can be used.

4. Insert the bead from the opposite side of the air valve.

Be careful not to pinch the tube at this time.

If necessary, use soapy water.

5. Inflate the inner tube until the tire locks into place.

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