

Dealer's Manual

ROAD	GRAVEL	MTB
E-BIKE	LIFESTYLE	GENERAL

Wheel Set (Disc Brake)

DEORE XT

WH-M8100

WH-M8120

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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

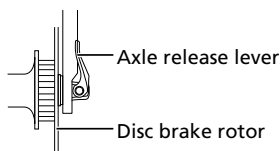
- **Be sure to follow the instructions provided in the manuals when installing the product.**

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.
- Before riding the bicycle, carefully check the wheels to make sure that there are no cracks in the axles, and if you find any unusual conditions, DO NOT use the bicycle. This wheel is not designed for downhill bicycle riding or freeriding. Depending on the riding conditions, the wheel axle could develop cracks that may result in the failure of the wheel axle, which can lead to an accident resulting in serious injury or even death.
- 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 disc brake rotor even when it is fully engaged. The axle release lever may interfere with the disc brake rotor if it is on the disc brake rotor side, which is unsafe. If the axle release lever interferes with the disc brake rotor, immediately stop use and contact the place of purchase or a distributor.



- Do not touch the calipers or disc brake rotor while riding or immediately after dismounting from the bicycle. The calipers and disc brake 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.
- Read the disc brake manual carefully, and keep it in a safe place for later reference.

- 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-M8100: Maximum pressure = 3 bar / 44 psi / 300 kPa
WH-M8120: Maximum pressure = 2.5 bar / 37 psi / 250 kPa
- For details on the E-THRU axle, refer to the E-THRU axle user's manual.

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

For installation to the bicycle and maintenance

- When installing or removing the disc brake rotor lock ring, be careful not to touch the outer edges of the disc brake rotor with your hands. Wear gloves to protect your hands from getting cut.

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.
- Be sure to use tubeless tape when using these wheels.
- 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.

■ Bed-in period

- Disc brakes have a bed-in period, and the braking force will gradually increase as the bed-in period progresses. You may lose control of the bicycle, which can result in serious injury due to a fall or collision. The same thing will happen when the brake pads or disc brake rotor are replaced.

For installation to the bicycle and maintenance

- Refer to the tire size table in the " [Tire size](#) " section when using tires.
- Read the tire manual carefully, and keep it in a safe place for later reference.

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.
- Do not oil the internal parts of the hub. Otherwise, the grease will 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.

TO ENSURE SAFETY

- 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.
- 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, nipples, and washers is strongly recommended. 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.
- If the freehub is making abnormal noises when the pedal is pressed, there may be insufficient grease between the freewheel body unit and the spacer. Apply grease to the spacer.
- 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.

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	
	17 mm hub spanner
	18 mm hub spanner
	22 mm hub spanner
	TL-FH12
	TL-FH16 / TL-FH17A
	TL-FC36
	TL-HB16
	Snap ring pliers
	Slotted screwdriver

Installation/removal

Tire size

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

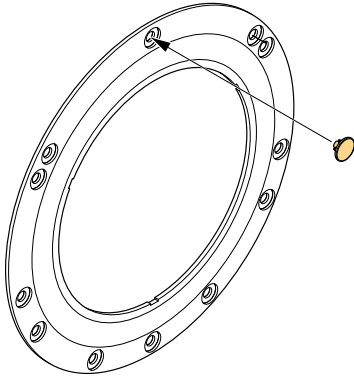
Series	Wheel size	Model name	Tire size
DEORE XT	622 x 24C (29")	WH-M8100-TL-F15-B-29	29 x 2.00 - 2.35
		WH-M8100-TL-R12-B-29	
	622 x 30C (29")	WH-M8120-TL-F15-B-29	29 x 2.25 - 2.50
		WH-M8120-TL-R12-B-29	
	584 x 24C (27.5")	WH-M8100-TL-F15-B-275	27.5 x 2.00 - 2.35
		WH-M8100-TL-R12-B-275	
	584 x 30C (27.5")	WH-M8120-TL-F15-B-275	27.5 x 2.25 - 2.50
		WH-M8120-TL-R12-B-275	

Installing the spoke protector

For information on wheels that can be installed, check the compatibility information (<https://productinfo.shimano.com>).

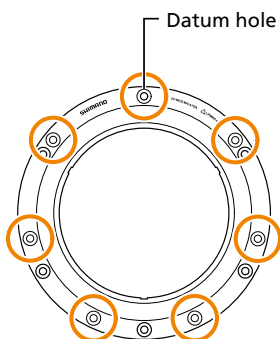
CP-WH32

1. Install the pins to the spoke protector.



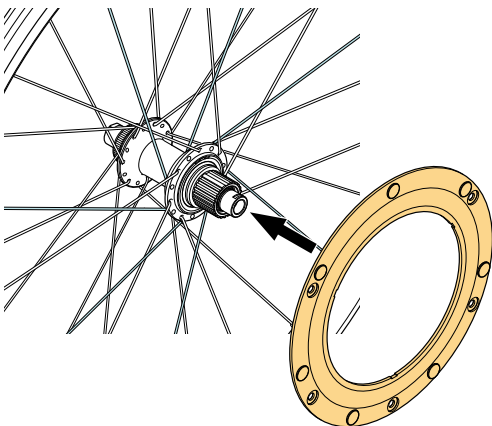
NOTICE

- For the pin installation position, refer to the following. There is a datum hole between the SHIMANO logo and the model name.



2. Install the spoke protector.

Push the pins onto the outer spokes to install.

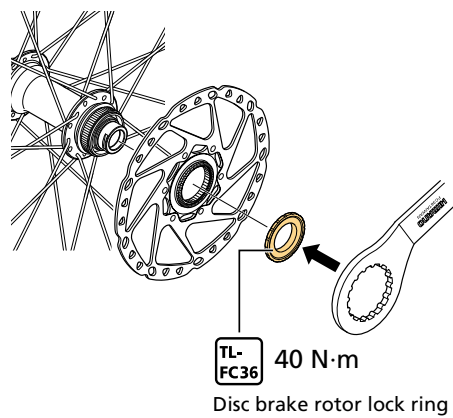


Installing/removing the cassette

Refer to the [dealer's manual for the cassette](#) to install/remove the cassette.

Installing the disc brake rotor

1. Set the disc brake rotor on to the hub, then secure it with the disc brake rotor lock ring.
Use TL-FC36 to secure it.



	External spline type
Disc brake rotor lock ring	
Lock ring tightening tool	TL-FC36

Removing the disc brake rotor

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

Maintenance

Spoke tension value

NOTICE

- Use SHIMANO original tools (for the front: TL-HB16, for the rear: TL-FH12) when assembling the wheel.

WH-M8100

* Refer to the table for spoke tension value.

Number of spokes: 28

Spoke tension value		
	For front	For rear
Left side (disc brake rotor side)	704 - 954 N	29": 650 - 866 N 27.5": 750 - 970 N
Right side	650 - 895 N	29": 910 - 1,160 N 27.5": 1,050 - 1,300 N

WH-M8120

* Refer to the table for spoke tension value.

Number of spokes: 28

Radial lacing is not supported.

Spoke tension value		
	For front	For rear
Left side (disc brake rotor side)	975 - 1,192 N	815 - 1,042 N
Right side	972 - 1,188 N	866 - 1,103 N

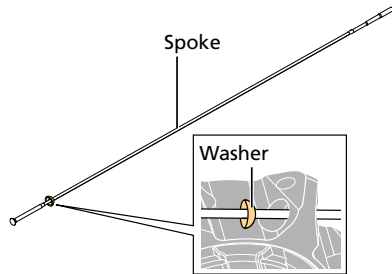
Replacing the spokes

Remove the tubeless tape before replacing the spokes.

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

WH-M8100

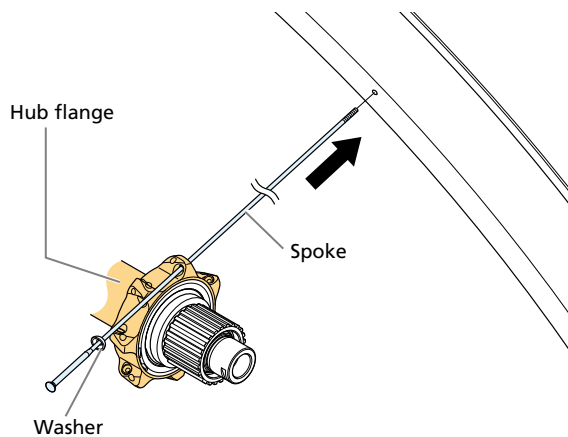
1. Pass the spoke through the washer.



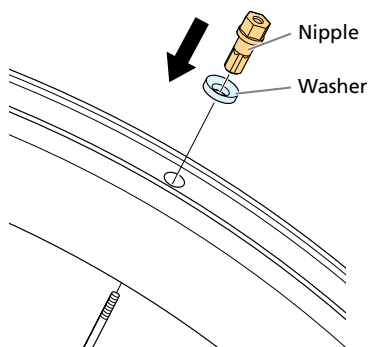
NOTICE

- Direct the convex side of the washer toward the hole in the hub flange when passing the spoke through the washer.

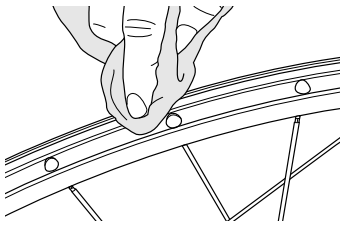
2. Insert the spoke through the hole in the hub flange.



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

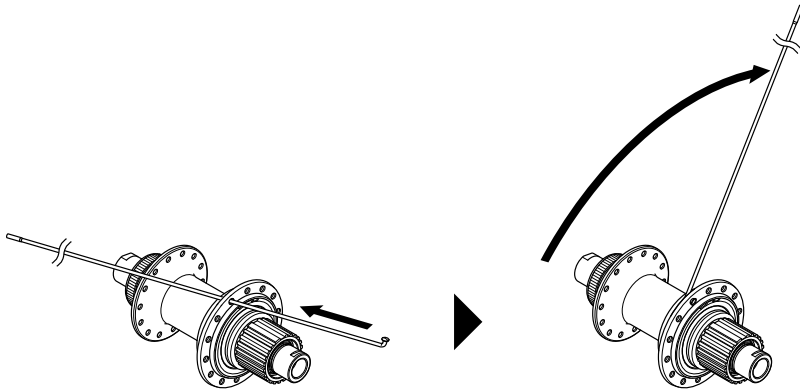


4. Remove any dirt from the rim hole and where the tubeless tape will be affixed.

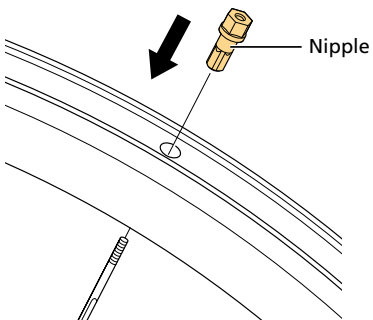


WH-M8120

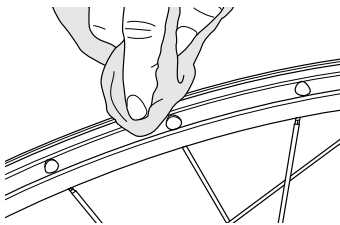
1. Insert the spoke through the hole in the hub flange.



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

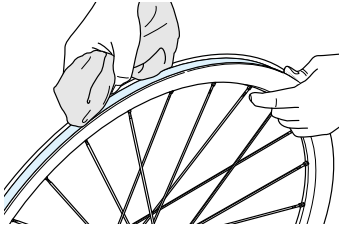


3. Remove any dirt from the rim hole and where the tubeless tape will be affixed.

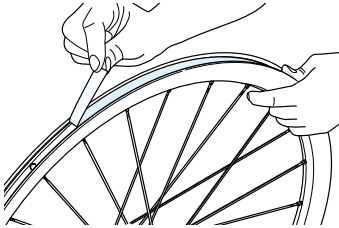


Replacing tubeless tape

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

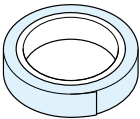


2. Remove the tubeless tape.



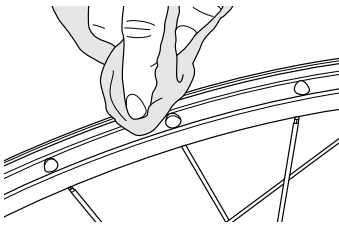
NOTICE

- The tubeless tape cannot be reused, so use a new one after replacing it.
- Use a tubeless tape matching the rim inner width.
- It is recommended to use genuine SHIMANO tubeless tape to prevent punctures and other possible damage.



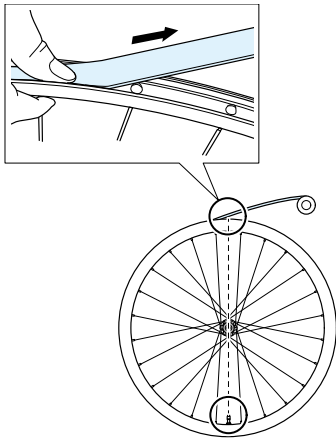
Tubeless tape

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.



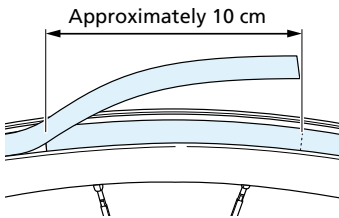
TECH TIPS

- 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.

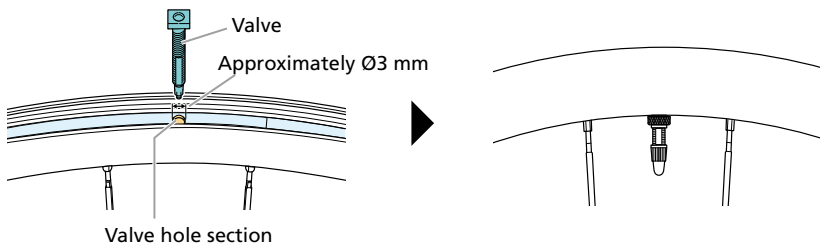


5. Securely attach both ends of the tape to the rim.

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



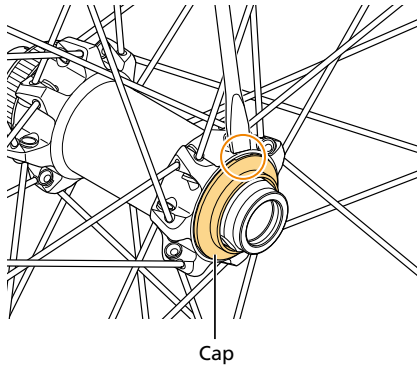
6. Punch a pilot hole in the valve hole section, then attach the valve.



Front hub

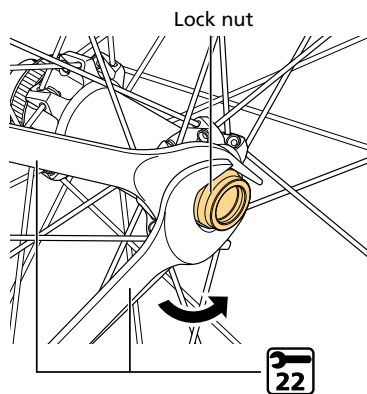
Disassembly

1. Remove the cap using a tool such as a slotted screwdriver.

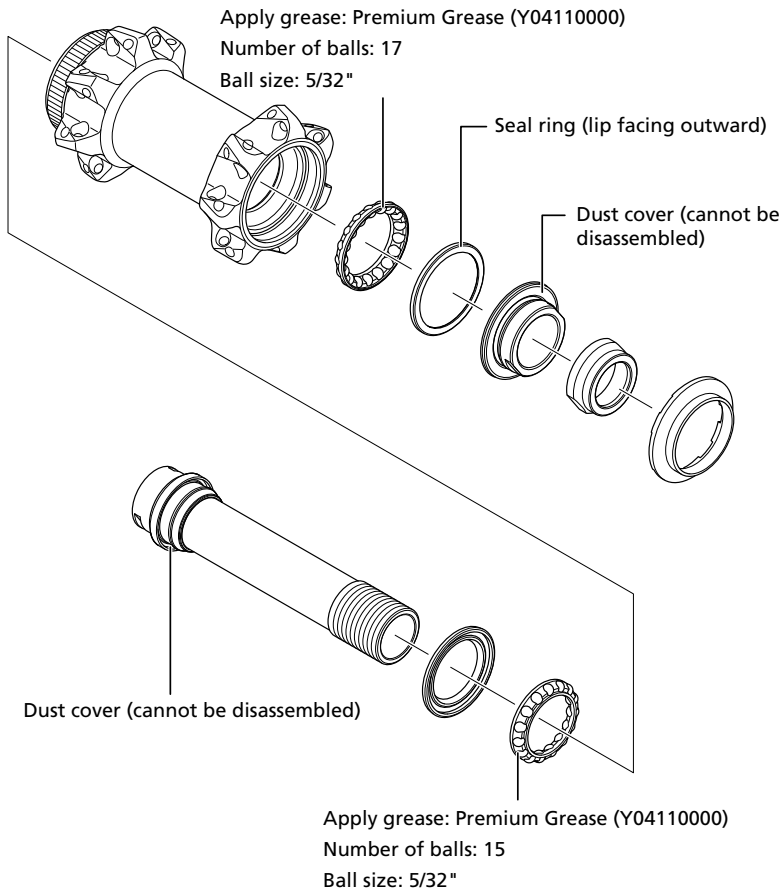


2. Loosen the lock nut on the double-lock section on the right side of the hub body.

The hub cannot be disassembled from the left side of the hub body (the disc brake rotor fixing spline side).



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

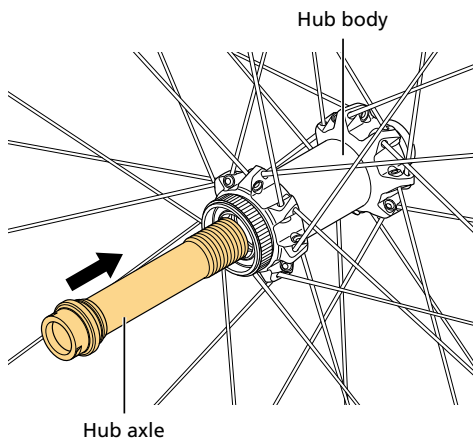


NOTICE

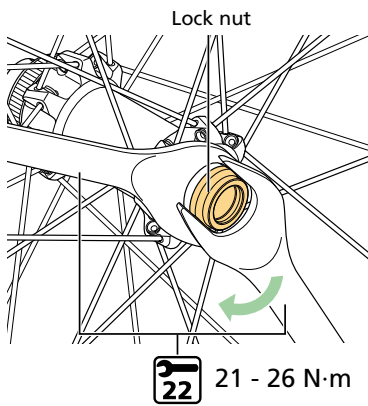
- Conduct the removal and installation of the seal very carefully so that it does not become deformed. When reinstalling the seal, check that it is facing the right way and insert it as far as it will go.

Assembly

1. Install the hub axle from the left side of the hub body.



2. After assembling the necessary parts and adjusting the bearing preload, tighten the lock nut to double-lock the assembly.



NOTICE

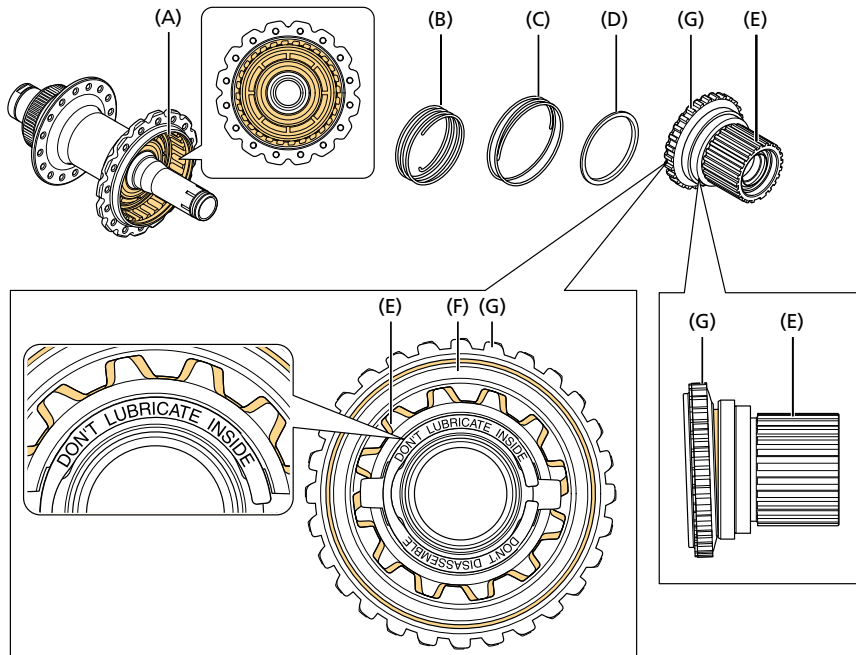
- If using a hub spanner on the beveled parts on the left side of the hub body, be careful not to apply excessive torque. Doing otherwise may cause damage.

Freehub

Pre-work cautions

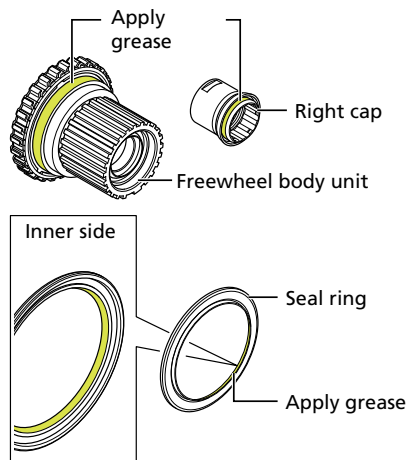
⚠ WARNING

- Except for the areas of parts (A) and (G) that contact the applied grease and the seal portion of part (E), do not apply grease or oil etc. to parts (A) through (G) or to the colored parts shown in the figure. This may lead to a malfunction in the freewheel body unit.



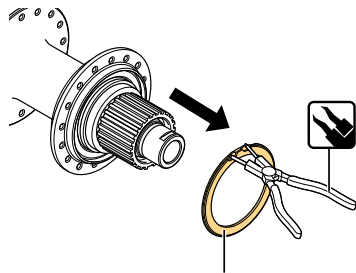
- Do not disassemble the freewheel body unit. The three parts (E), (F) and (G) form one unit (the freewheel body unit). Disassembling them may lead to a malfunction in the freewheel body unit.
- Make sure that the freewheel body unit is operating correctly before riding the bicycle by checking it several times following parts replacement or maintenance. If the freewheel body unit appears to be malfunctioning, replace it.

- Apply the special grease (Seal Grease for Freehub) to the areas illustrated in the figure. Only apply a thin film by hand, and do not mix any other type of grease. If too much grease is used, the wrong grease is used, or grease is applied outside the specified areas, the freewheel body unit may malfunction.



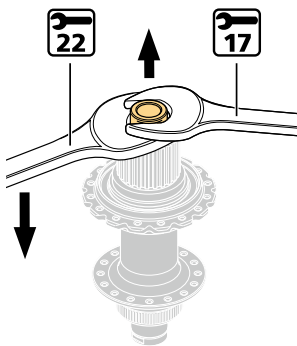
Disassembly

1. Remove the snap ring with outer dust cover.



Snap ring with outer dust cover

2. Using 17 mm and 22 mm hub spanners or similar, remove the right cap as shown in the figure.

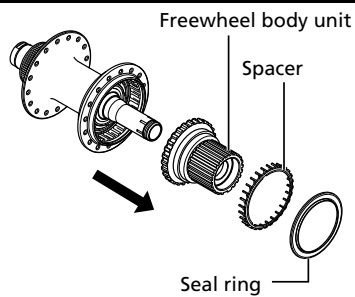


3. Remove the freewheel body unit.

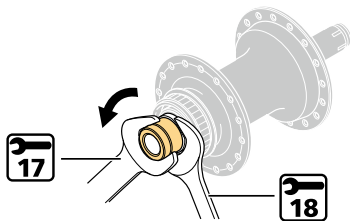
The seal ring and the spacer can be removed at the same time.

Maintenance

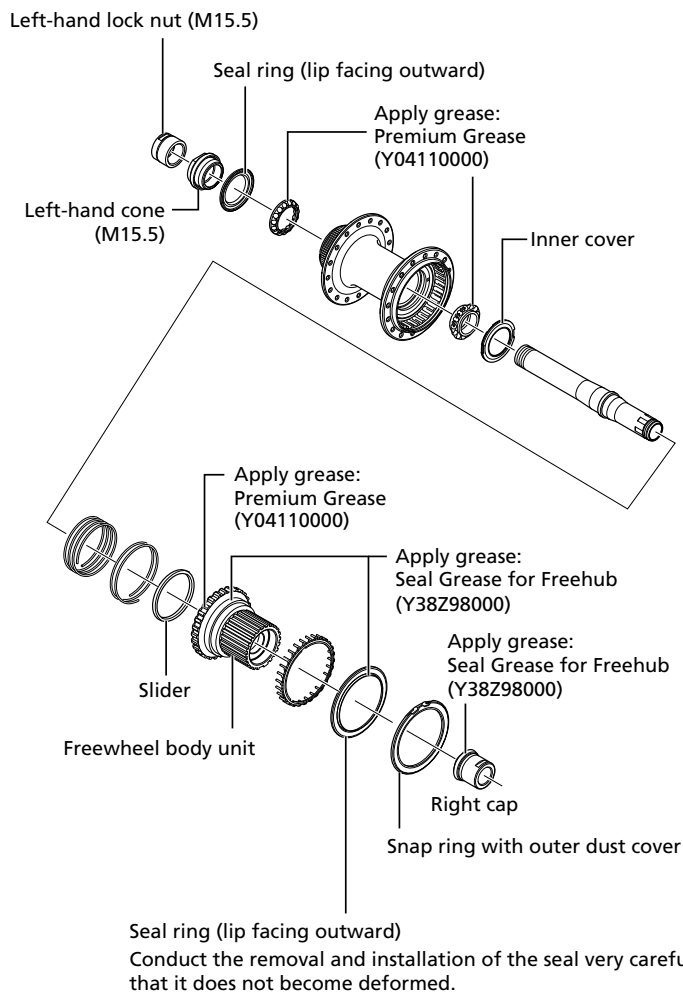
Freehub



4. Loosen the lock nut on the double-lock section on the left side of the hub body.

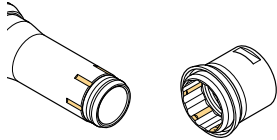


5. The unit can be disassembled as shown in the figure. Apply grease to the indicated parts at periodic intervals.

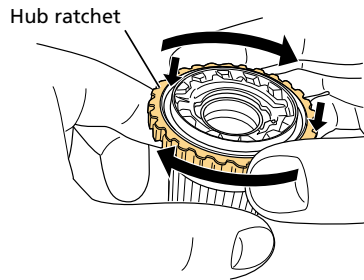


NOTICE

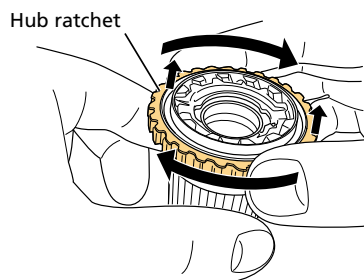
- When attaching the right cap to the hub axle, align the grooves of the hub axle with the protrusion parts of the right cap.



- Do not attempt to disassemble the freewheel body unit, because it may result in a malfunction.
- 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 and cone.
- Place the freewheel body unit down on a work surface with the hub ratchet facing up. Spin the hub ratchet clockwise while pushing downwards on it, as shown in the figure. Ensure that this firmly engages the hub ratchet, and that the hub ratchet cannot be spun freely.

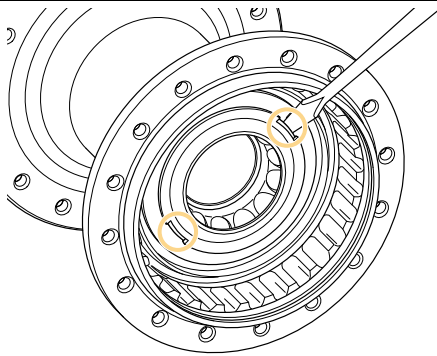


If the two hub ratchets do not engage, reset the position of the ratchets by turning clockwise while pulling up on the hub ratchet, then repeat the previous step. If the rings fail to firmly engage after several attempts, it may be indicative of a fault in the freewheel body unit.



Removing the inner cover

1. Remove the inner cover using a tool such as a slotted screwdriver.

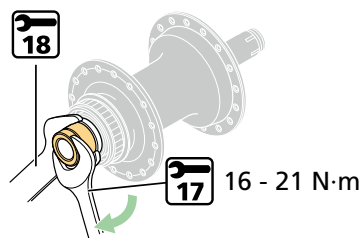


Assembly

Perform the tasks listed below to assemble the hub.

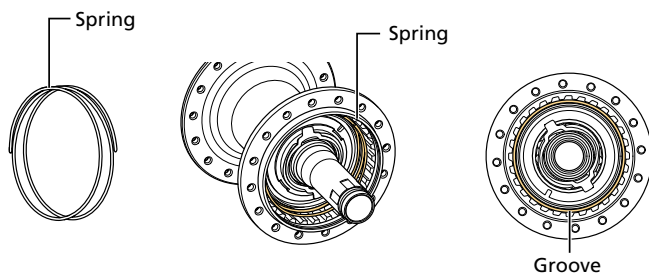
Installing the hub axle

1. Install the necessary parts such as the hub axle.
Install it in the reverse order from the disassembly.
2. Tighten the lock nut on the left side of the hub body to double-lock the assembly.



Installing the spring / coil spring

1. Fit the spring into the groove in the hub.
Insert the spring into the groove specified in the figure.



NOTICE

- The coil spring and spring have different shapes.

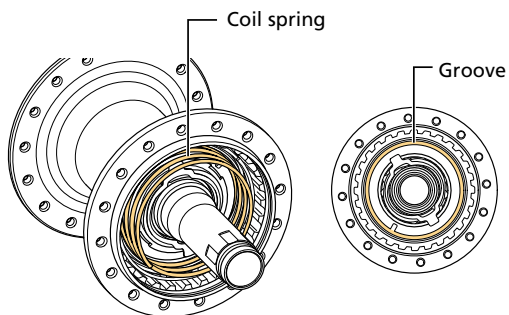
Coil spring



Spring

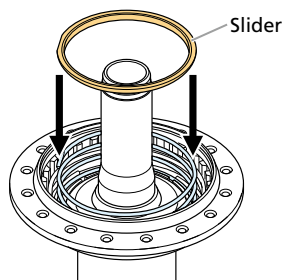


2. Fit the coil spring into one of the grooves in the hub.



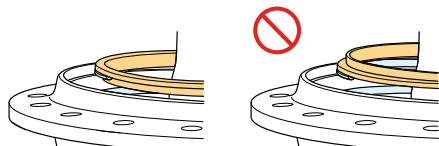
Installing the slider

1. Set the slider on top of the coil spring.



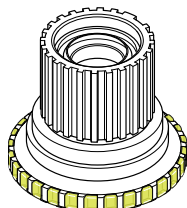
NOTICE

- Note the direction (up and down) of the slider.



Installing the snap ring with outer dust cover

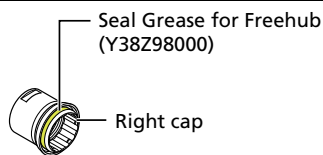
1. Apply grease to the freewheel body unit.



Premium Grease
(Y04110000)

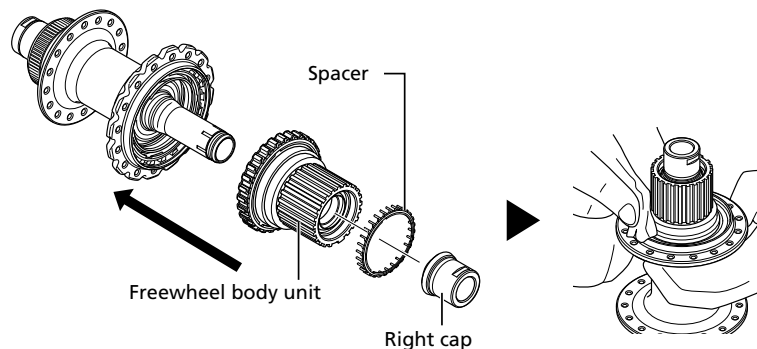
2. Apply grease to the seal portion of the right cap.

Do not apply grease outside of the indicated areas.



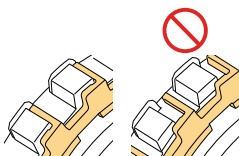
3. Install the freewheel body unit, spacer, and right cap.

Use a clean rag to wipe off excess grease from the freewheel body unit.



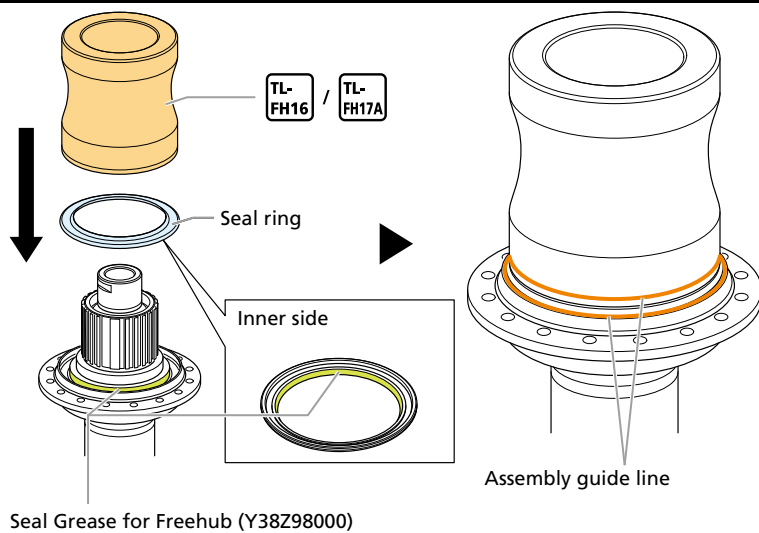
NOTICE

- Pay attention to the position of the spacer.



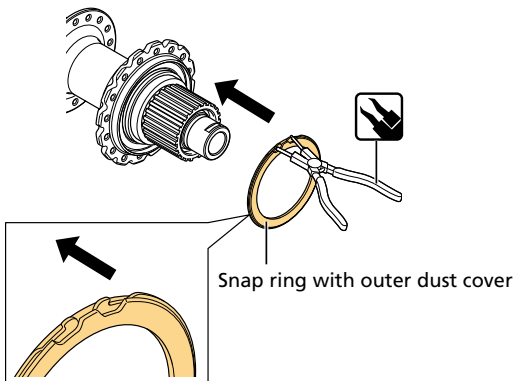
4. Install the seal ring.

- (1) Apply grease to the seal ring and the seal portion of the freewheel body unit. Do not apply grease outside of the indicated areas.
- (2) Ensure the lip on the inner diameter of the seal ring is facing outwards. Be careful not to damage the seal ring during installation.
- (3) Install the seal ring.



5. Install the snap ring with outer dust cover.

Ensure the tool recess in the snap ring with outer dust cover is facing outwards.



6. Double check that the snap ring with outer dust cover is fully seated along the entire circumference of the groove.

Replacing the freewheel body unit

Refer to “ [Pre-work cautions](#) ”, “ [Disassembly](#) ”, and “ [Assembly](#) ” when replacing the freewheel body unit.
The procedure from step [4](#) in “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. Finally, make sure that there is no air leakage.

⚠ CAUTION

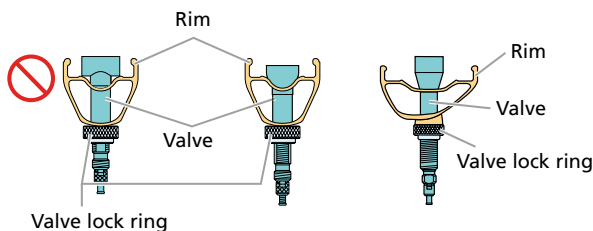
- When using an inner tube, do not add additional rim tape on top of the tubeless tape. Doing so may make it difficult to install or remove the tire, and it may cause damage to the inner tube resulting in a sudden puncture, which can cause the bicycle to fall over.
- Do not overtighten the valve lock 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.

Installation

1. Install the valve on the rim.



NOTICE

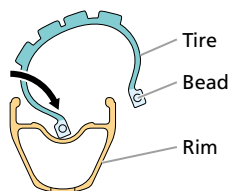
- Note the direction of the valve.
- When tightening the valve lock ring, check that the valve does not turn together with the valve lock ring.

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

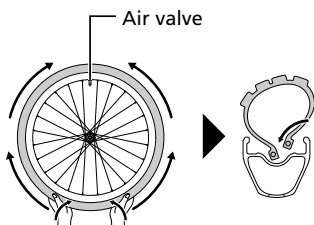
Maintenance

Installing and removing the tubeless tires

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

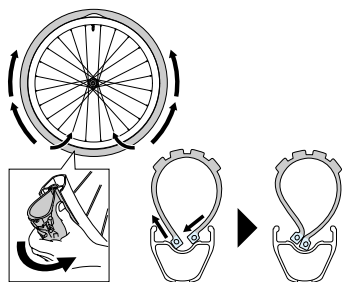


3. Set the bead on the other side of the tire starting from the point opposite the air valve.

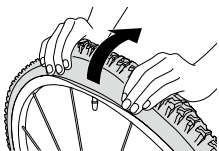


TECH TIPS

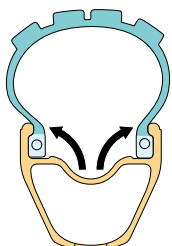
- If it is difficult to insert the bead at the side of the air valve, lift up the bead by hand starting from the opposite side of the tire, and work your way around to the location of the air valve.



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.



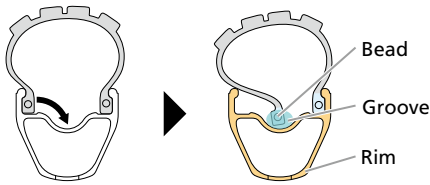
6. Deflate the tire and check that the beads are locked into the rim.

If the beads are not locked into the rim, they may separate from the rim when the tire is deflated.

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

Removal

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

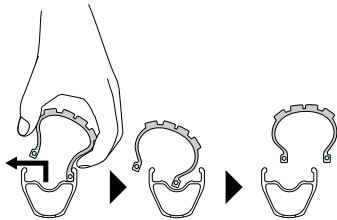


TECH TIPS

- 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.

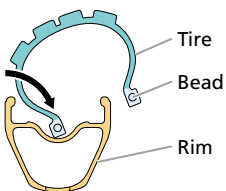
2. Remove the beads.

* 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.

Maintenance

Installing and removing the tubeless tires

If necessary, use soapy water.

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

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