

Dealer's Manual

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

Front hub/ Freehub (Disc brake)

Downhill/Freeride

HB-M820	FH-M820 FH-M825 FH-M828
HB-M640	FH-M640 FH-M645 FH-M648

Cross-Country

HB-M9010	FH-M9000 FH-M9010	SM-AX75 SM-AX76
HB-M9010-B	FH-M9010-B	SM-AX76-B
HB-M675	FH-M756	SM-AX78
HB-M678	FH-M675	SM-AX78-B
HB-M615	FH-M678	SM-AX65
HB-M618	FH-M615 FH-M618 FH-M525 FH-M475	SM-AX55 SM-AX56 SM-AX56-B SM-AX58 SM-AX58-B

Trekking

HB-T675	FH-T675
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MTB

HB-M8000	FH-M8000
HB-M8010	FH-M8010
HB-M8010-B	FH-M8010-B
HB-M756	
HB-M758	

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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 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

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

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.

SAINT/ZEE (Downhill/Freeride): HB-M820/FH-M820/FH-M825/FH-M828/HB-M640/FH-M640/FH-M645/FH-M648

- Downhill bicycle riding and freeriding are inherently dangerous activities. There is a risk of being involved in an accident that can result in a serious injury or even death. It is strongly recommended that riders wear protective head and body gear and perform thorough safety checks of their bicycles before riding. Please remember that you are riding at your own risk and that you have to consider your experience and your skills very carefully.
- These hubs are designed for downhill bicycle riding and freeriding; however, depending on the riding conditions, the hub axle could develop cracks that result in the failure of the hub axle, which can lead to an accident resulting in serious injury or even death. Before riding, carefully check the hubs to make sure that there are no cracks in the axles; if there is any sign of a crack, or another unusual condition, DO NOT use the bicycle.

FH-M820/M825/M640/M645

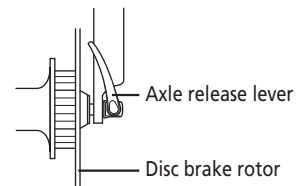
- Confirm that the hub axle has been tightened to a torque of 35 - 45 N·m and the wheel has been secured to the frame. Serious injury can result from falling if the wheel comes off.

XTR/SLX/DEORE (Cross-Country): HB-M9010/HB-M9010-B/FH-M9010/FH-M9010-B/HB-M678/FH-M678/HB-M618/FH-M618

DEORE XT (MTB): HB-M8010/HB-M8010-B/FH-M8010/FH-M8010-B/HB-M758

- These hubs are not designed for downhill bicycle riding and freeriding; therefore, depending on the riding conditions, the hub axle could develop cracks that result in the failure of the hub axle, which can lead to an accident resulting in serious injury or even death. Before riding, carefully check the hubs to make sure that there are no cracks in the axles; if there is any sign of a crack, or any another unusual condition, DO NOT use the bicycle.
- If the axle release lever is on the same side as the disc brake rotor, there is a possibility they may interfere.

Make sure that, even if the axle release lever is tightened as much as possible by hand, the axle 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.



- HB-M678/M618 can be used in combination with a special front fork and the through axle. If used in combination with any other front fork or through axle, it may cause the wheel to become detached from the bicycle while riding and result in serious bodily injury.
- FH-M678/M618 can only be used in combination with a special frame and through axle. If used with any other type of frame, the wheel may come off while the bicycle is being ridden, and serious injury may occur as a result.

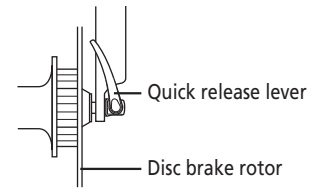
XTR/SLX/DEORE (Cross-Country): FH-M9000/FH-M756/HB-M675/FH-M675/HB-M615/FH-M615/FH-M525/FH-M475

DEORE LX (Trekking): HB-T675/FH-T675

DEORE XT (MTB): HB-M8000/FH-M8000

- 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 as much as possible by hand, 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.



- If it is difficult to install the wheel, install the quick release lever on the disc brake rotor side. If doing this, make sure that the quick release lever does not interfere with the disc brake rotor and that burns do not occur.
- Failure to properly install this quick release hub (wheel) onto the bicycle may cause the wheel to become detached from the bicycle while riding and result in serious bodily injury.
- Make sure to read the instruction manual for the quick release lever.

For Installation to the Bicycle, and Maintenance:

- The securing method and tightening torque for the front wheel both vary depending on the type of front suspension fork being used. When installing the front wheel to the front suspension fork, always be sure to follow the directions given in the Service Instructions for the front suspension fork. If the instructions are not followed, the front wheel may fall out of the front suspension fork and serious injury may occur. When the front wheel is tightened onto the front suspension fork in accordance with the instruction manual, the front wheel's rotation may become stiff; however, the instructions must always be followed.
- It is strongly recommended that only the hub axle that is shipped with the Shimano hub is used. If a different hub axle is used to secure the hub, it may not have sufficient strength to secure the freehub, or the axle may break because of insufficient strength, and this may cause the wheel to fall off, and serious injury may occur.
- Be sure to also carefully read the Service Instructions for the disc brakes.

■ Quick release type

- Use a front fork which is equipped with a wheel retention mechanism.

 **CAUTION****For Installation to the Bicycle, and Maintenance:**

- When using the Shimano original tool (TL-FC36) to remove and install the disc brake rotor fixing ring, be careful not to touch the outside of the disc brake rotor with your hands. Wear gloves to protect your hands from getting cut.

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

- This product is not warranted against damage resulting from improper use, such as jumping while riding or if the bicycle falls over, except if such malfunctions are caused by manufacturing methods.
- 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:

- If the wheel becomes stiff and difficult to turn, lubricate it with grease.
- Do not lubricate the internal parts of the hub. Otherwise, grease will flow out.
- When replacing the E-THRU Axle, make sure that the replacement E-THRU Axle is of the same model as the current E-THRU Axle attached to the frame.
A different model may not be mounted properly onto the frame due to differences in axle length, screw size, housing diameter, etc.

■ SAINT/ZEE




















- Use the TL-HB16 when attaching the front hub to the wheel truing tool.
- SM-AX75/SM-AX76/SM-AX76-B/SM-AX78/SM-AX78-B/SM-AX65/SM-AX55/SM-AX56/SM-AX56-B/SM-AX58/SM-AX58-B cannot be used because the model is not designed for downhill bicycle riding or freeriding.

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

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The following tools are needed for installation, adjustment, and maintenance purposes.

Tool		Tool		Tool	
	5mm hexagon wrench		22mm hub spanner		TL-FH12
	6mm hexagon wrench		23mm hub spanner		TL-FH15
	10mm hexagon wrench		24mm hub spanner		TL-HB16
	14mm hexagon wrench		28mm hub spanner		TL-HS22
	13mm hub spanner		Hexalobular[#25]		TL-LR15
	17mm hub spanner		Adjustable wrench		
	20mm hub spanner		TL-FC36		

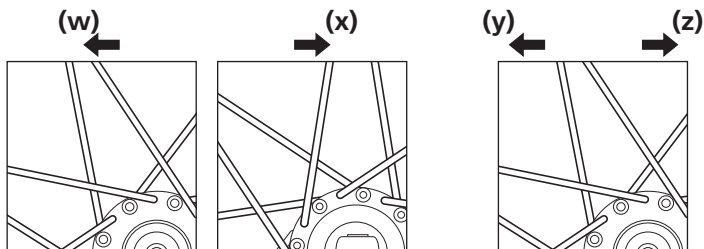
INSTALLATION

INSTALLATION

Spoke lacing

Check that the spokes have been laced as shown in the illustration.
A radial lacing cannot be used.

Rotating direction of wheel



(w) For front: Left (disc brake rotor) side

(x) For front: Right side

(y) For rear: Left (disc brake rotor) side

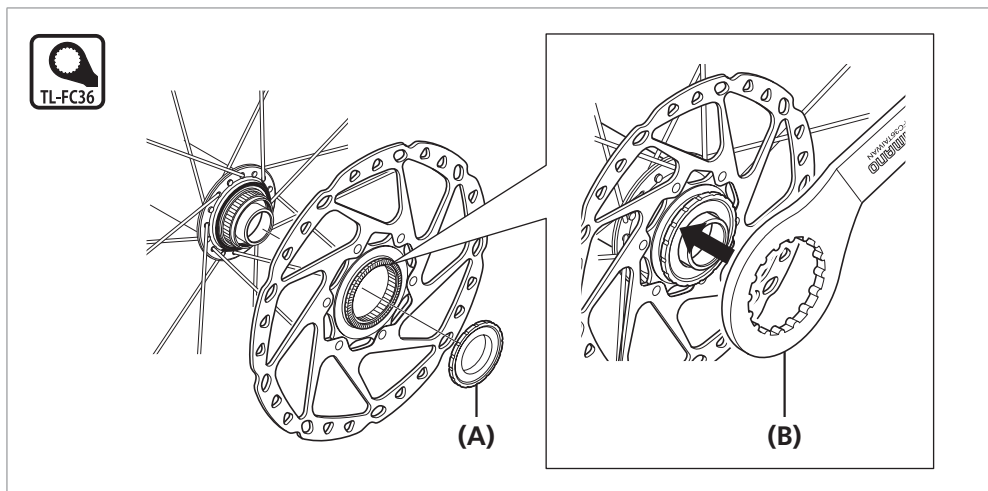
(z) For rear: Right (sprocket) side

NOTE

- HB-M820/M678/M640/M618:
Use the Shimano original tool TL-HB16 when installing the wheel.
- FH-M828/M678/M648/M618:
Use the Shimano original tool TL-FH12 when installing the wheel.

Installation of the disc brake rotor

E-THRU Axle/FH-M9000



(A) Disc brake rotor fixing lock ring

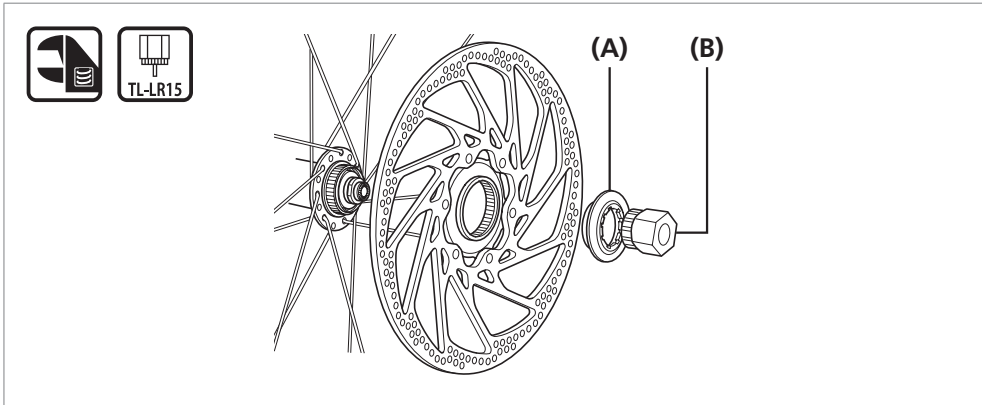
(B) TL-FC36

Tightening torque





40 N·m

Quick release type



- (A)** Disc brake rotor fixing lock ring
- (B)** TL-LR15


Tightening torque	
 	40 N·m

For 6-bolt type

1

Install the disc brake rotor and the disc brake rotor tightening plate to the hub, and then install and tighten the bolts.

- (A)** Hub
- (B)** Tightening plate
- (C)** Disc brake rotor
- (D)** Rotor fixing bolt

Tightening torque	
	2 - 4 N·m

2

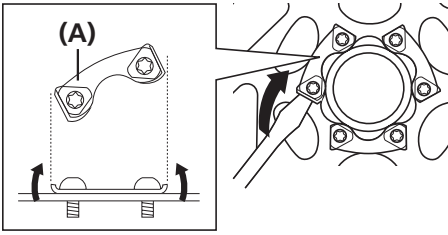
Wear gloves and turn the disc brake rotor clockwise with some force.

While doing this, tighten the rotor fixing bolts in the order shown in the illustration.

INSTALLATION

Installation of the disc brake rotor

3

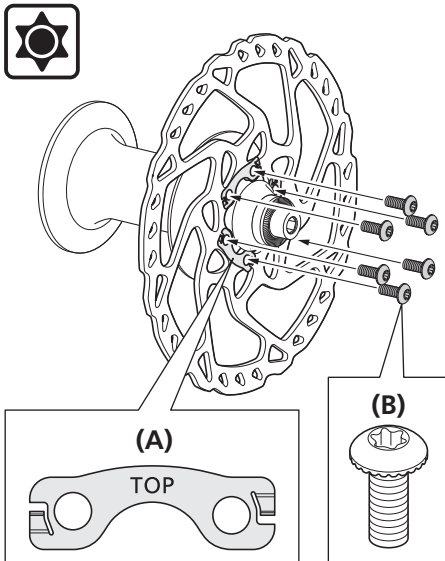


Use a slotted screwdriver or similar tool to bend the edges of the tightening plate over the heads of the bolts.

(A) Tightening plate

For 6-bolt type (with lock washers)

1



Install the disc brake rotor and rotor lock washers to the hub and tighten the bolts.

(A) Lock washer
(B) Rotor fixing bolt

Tightening torque

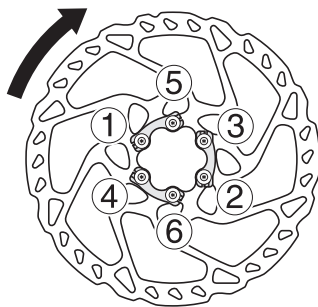


2 - 4 N·m

NOTE

- Fit the lock washers so that the marking "TOP" is visible.
- The lock washers are not reusable. Always use new lock washers when installing/re-installing the disc brake rotor.
- Use the dedicated rotor fixing bolts.

2



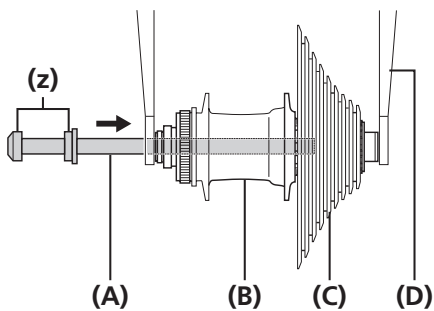
Wear gloves and turn the disc brake rotor clockwise with some force.

While doing this, tighten the rotor fixing bolts in the order shown in the illustration.

■ Installing to the frame

FH-M820/M825/M640/M645

1

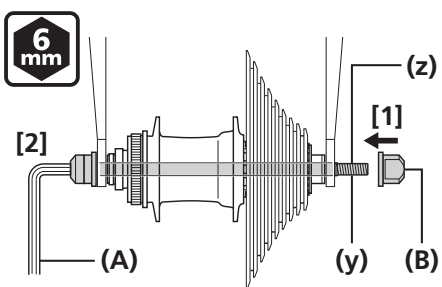


Install the sprockets to the freehub, place the freehub onto the frame and pass the hub axle through it.

(z) Apply grease

- (A) Hub axle
- (B) Freehub
- (C) Cassette sprocket
- (D) Frame

2



Tighten the fixing nut onto the hub axle [1] and then turn the hub axle [2] to secure the freehub to the frame.

* FH-M820/M640 (Ø10/12mm), FH-M825/M645 (Ø12mm)

- (y) Apply grease
- (z) Right-side protrusion: 20mm - 30mm

- (A) 6mm hexagon wrench
- (B) Fixing nut

Tightening torque

	35 - 45 N·m
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NOTE

Check that the axle protrudes about 20mm – 30mm on the right hand side. If it is not long enough, the wheel may come off because the hub axle does not tighten the hub sufficiently.

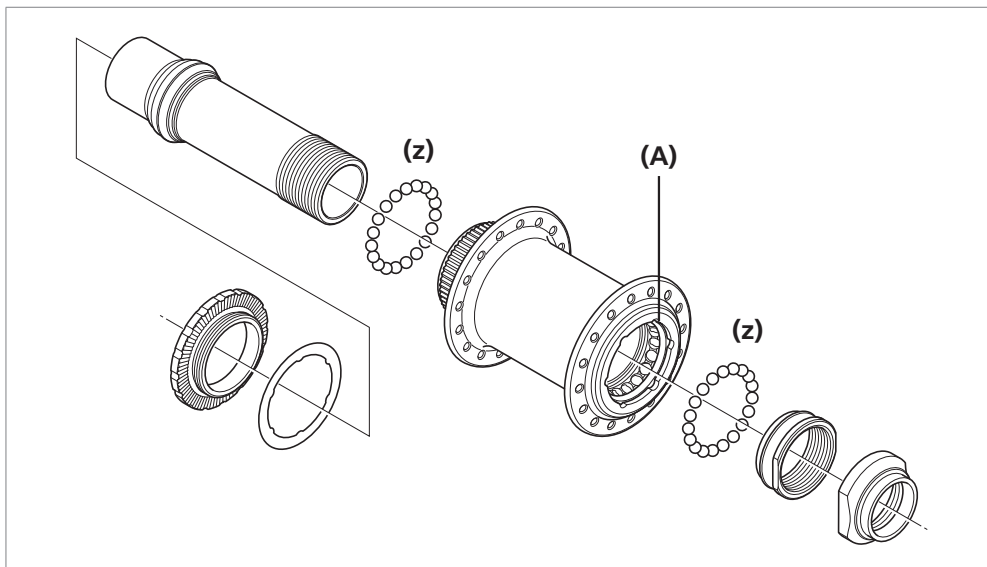
MAINTENANCE

MAINTENANCE

The hub can be disassembled as shown in the illustration. Apply grease to the various parts at periodic intervals.

■ Front hub

HB-M640/M820



(z) Apply grease:
Premium grease (Y-04110000)

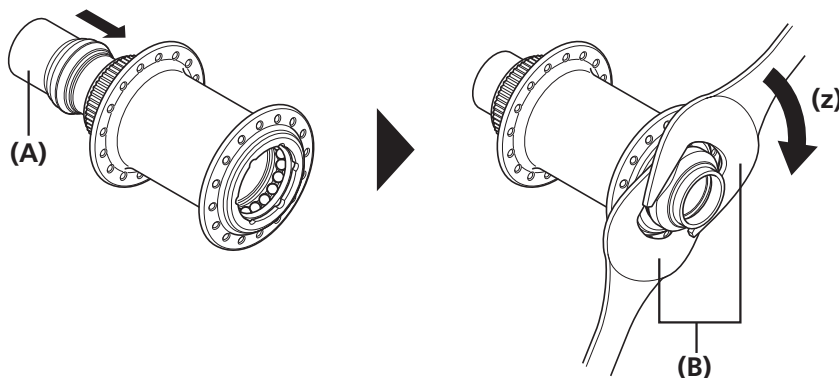
(A) Right-side cover of hub

NOTE

The cover on the right side of the hub unit cannot be disassembled.

Assembly

Install the hub axle, and then use hub spanners as in the illustration to tighten the lock nut so as to double-lock the mechanism.



(z) Tighten

(A) Hub axle

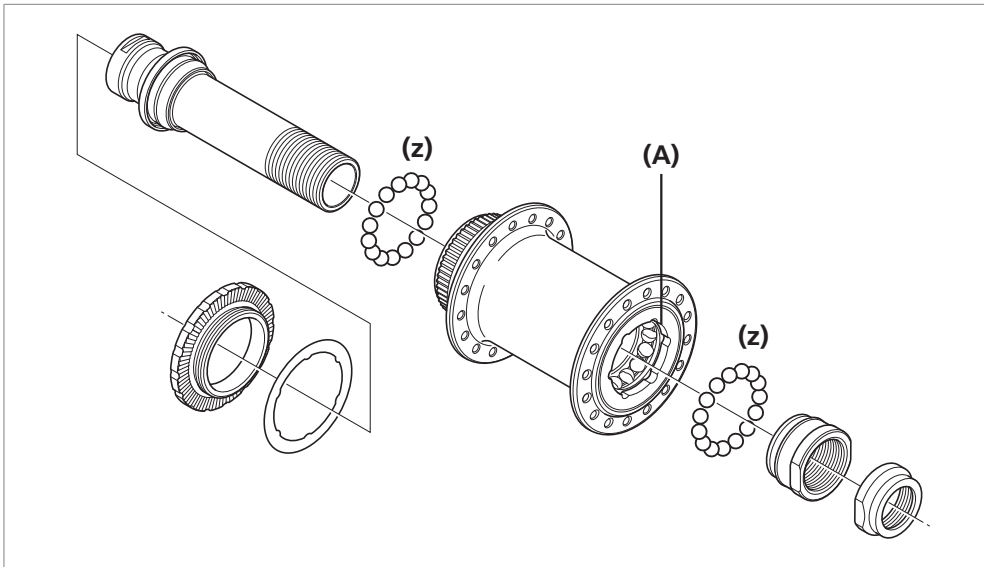
(B) 28mm hub spanner

Tightening torque



30 - 35 N·m

HB-M678



(z) Apply grease:
Premium grease (Y-04110000)

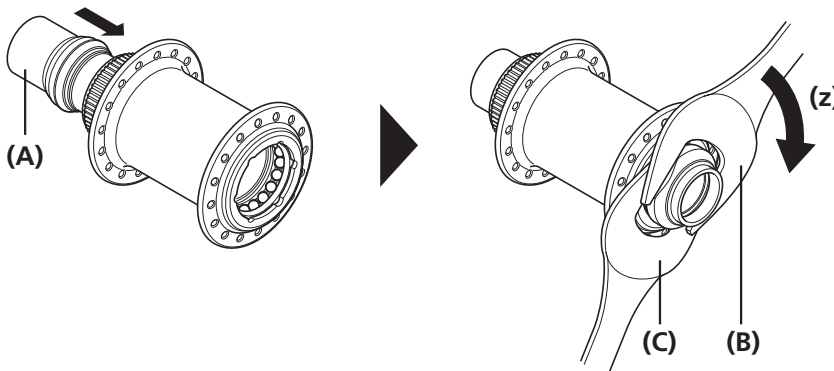
(A) Right-side cover of hub

NOTE

The cover on the right side of the hub unit cannot be disassembled.

Assembly

Install the hub axle, and then use hub spanners as in the illustration to tighten the lock nut so as to double-lock the mechanism.



(z) Tighten

(A) Hub axle

(B) 22mm hub spanner

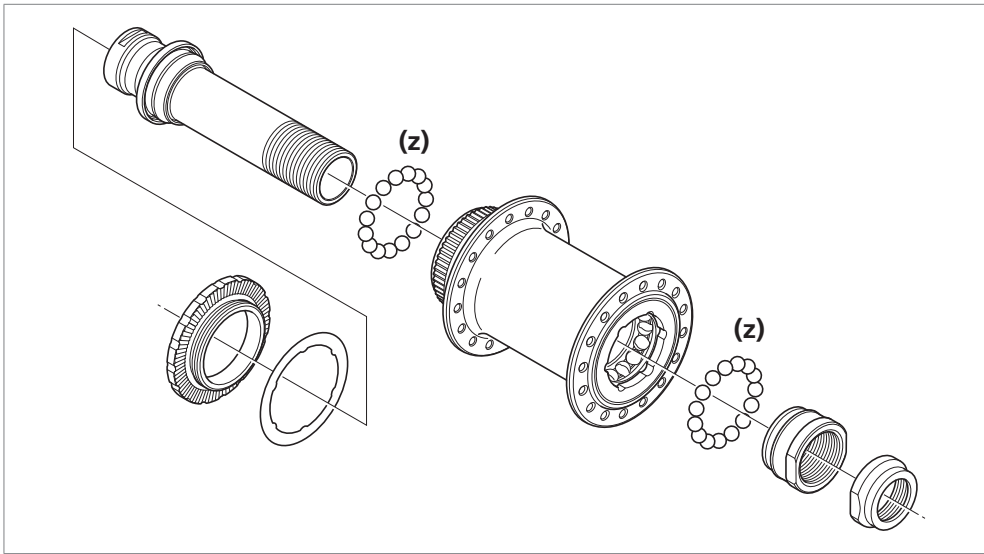
(C) 23mm hub spanner

Tightening torque



21 - 26 N·m

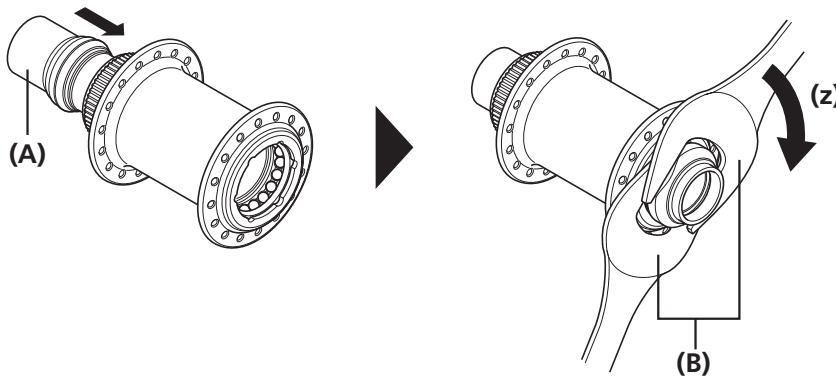
HB-M9010/M9010-B/M618/M8010/M8010-B



(z) Apply grease:
Premium grease (Y-04110000)

Assembly

Install the hub axle, and then use hub spanners as in the illustration to tighten the lock nut so as to double-lock the mechanism.



(z) Tighten

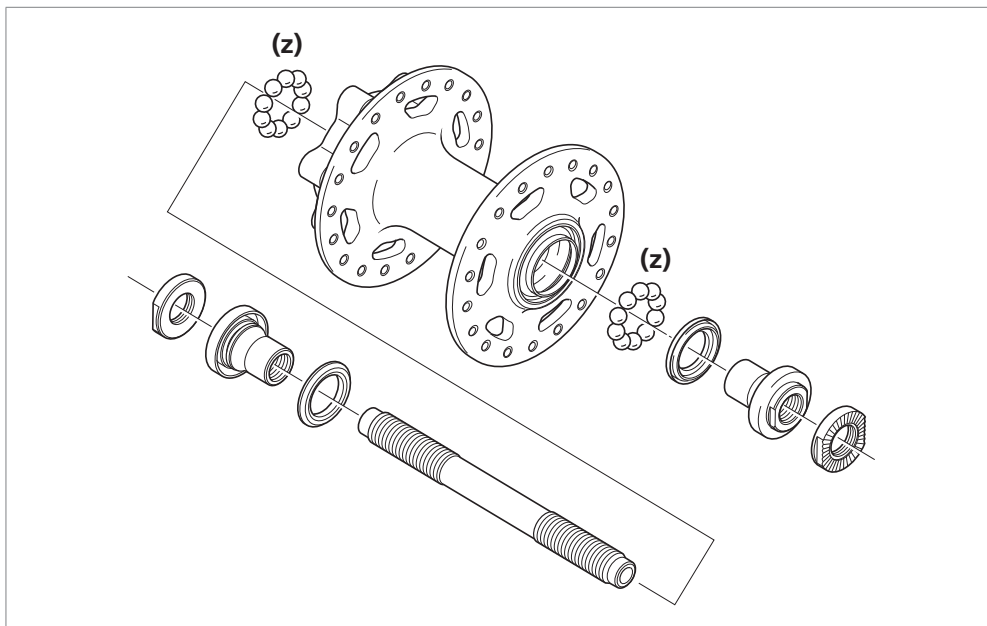
(A) Hub axle
(B) 22mm hub spanner

Tightening torque



21 - 26 N·m

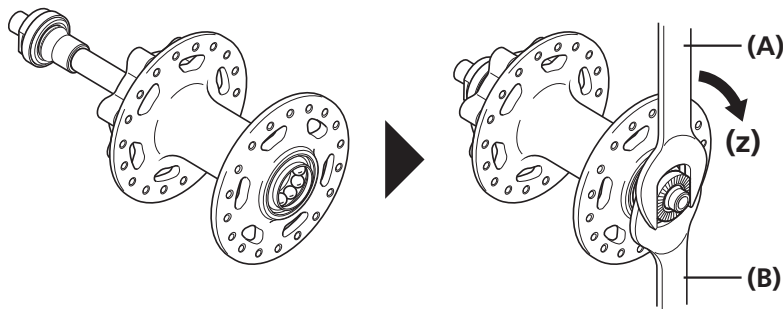
HB-M756



(z) Apply grease:
Premium grease (Y-04110000)



Assembly

Install the hub axle, and then use hub spanners as in the illustration to tighten the lock nut so as to double-lock the mechanism.

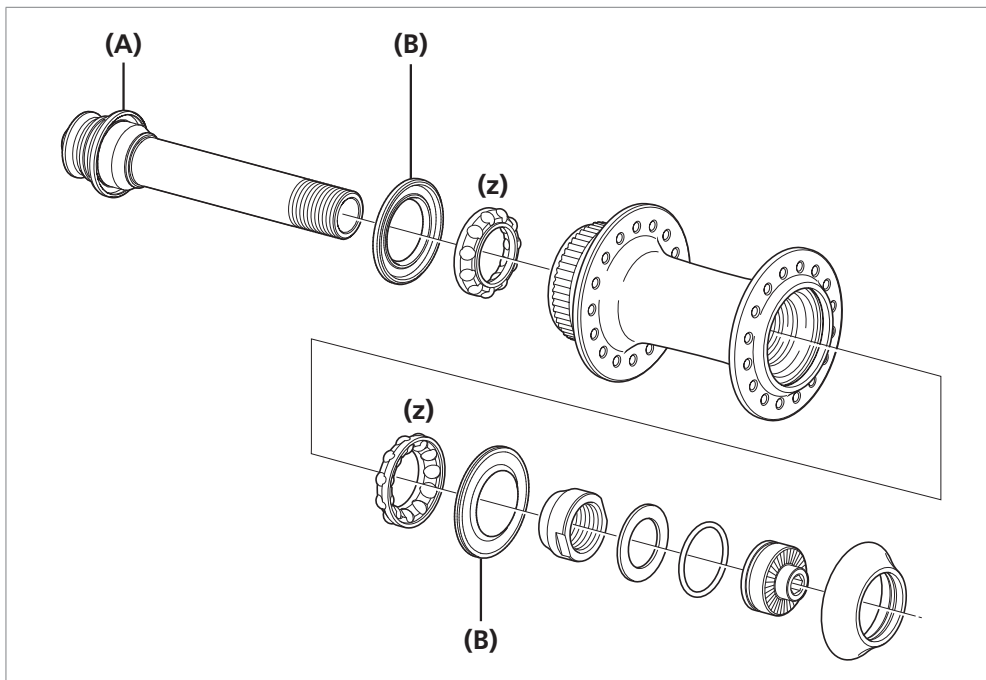


(z) Tighten

(A) 17mm hub spanner
(B) 13mm hub spanner

Tightening torque	
 13mm	<p>10 - 15 N·m</p>
 17mm	

HB-M8000



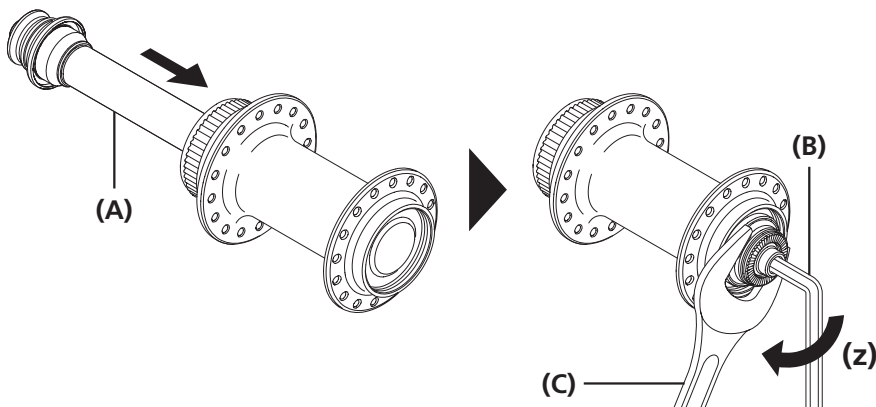
(z) Apply grease:
Premium grease (Y-04110000)

(A) Dust cover

(B) Seal

Assembly

Use the Shimano original tool (TL-HS22) for installing the hub axle and a 5mm hexagon wrench to tighten the lock nut so as to double-lock the mechanism as shown in the illustration.



(z) Tighten

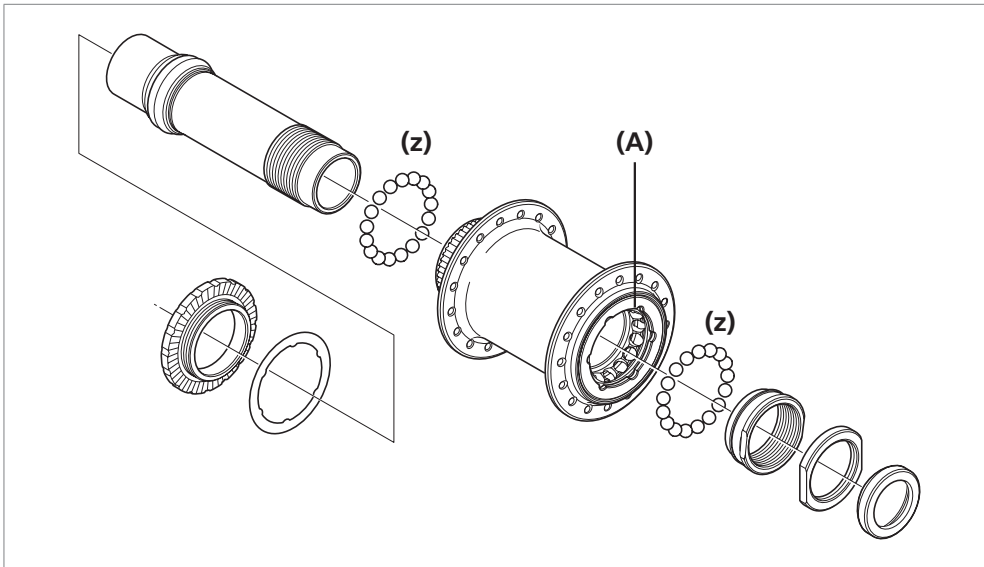
(A) Hub axle

(B) 5mm hexagon wrench

(C) TL-HS22

Tightening torque	
	15 - 17 N·m

HB-M758



(z) Apply grease:
Premium grease (Y-04110000)

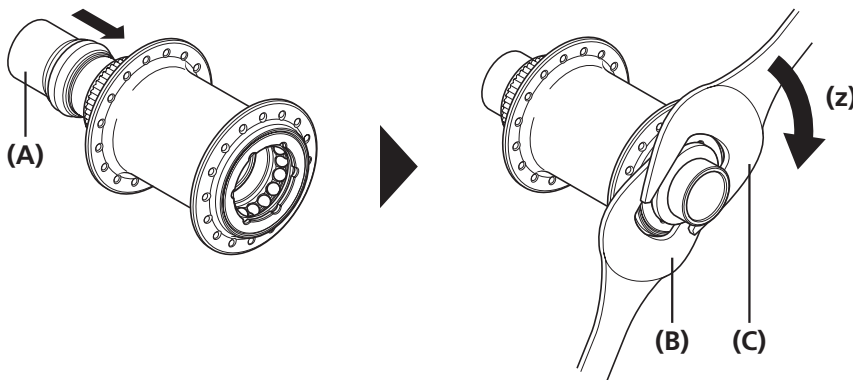
(A) Right-side cover of hub

NOTE

The cover on the right side of the hub unit cannot be disassembled.

Assembly

Install the hub axle, and then use hub spanners as in the illustration to tighten the lock nut so as to double-lock the mechanism.



(z) Tighten

(A) Hub axle

(B) 23mm hub spanner

(C) 24mm hub spanner

Tightening torque



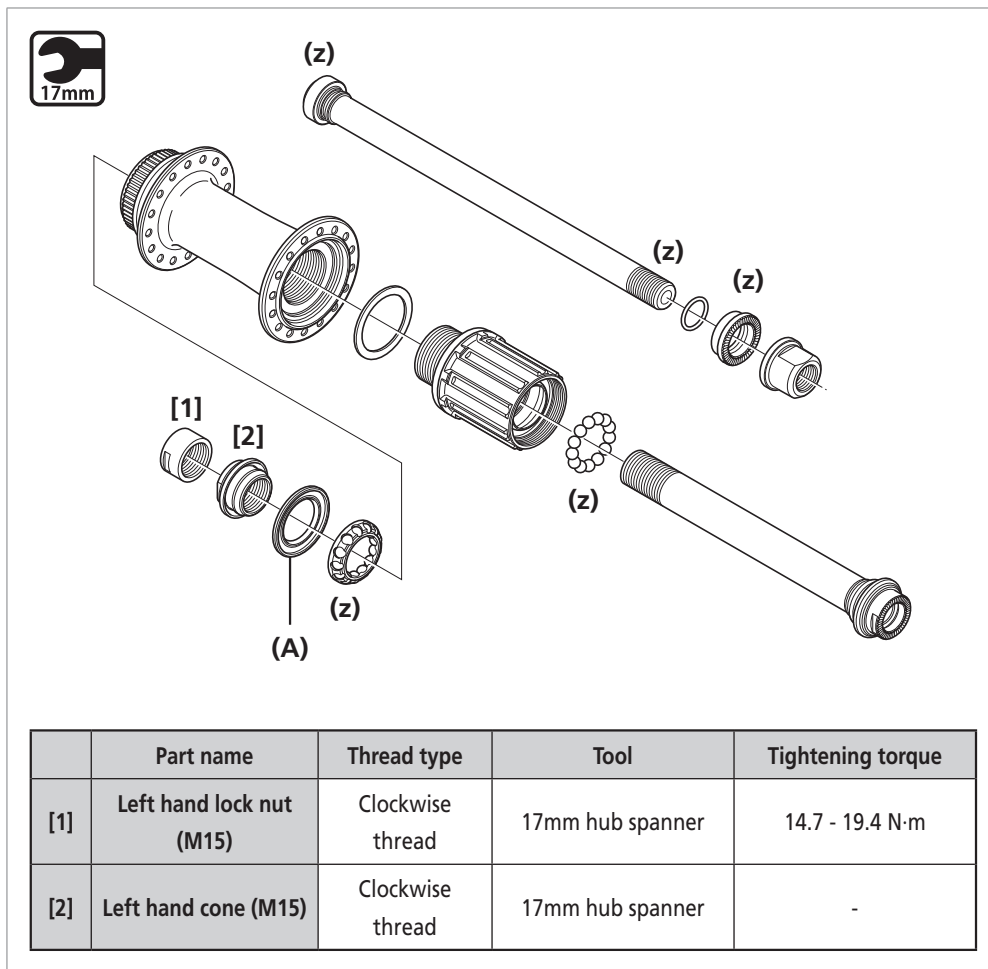
30 - 35 N·m

Freehub

NOTE

- When removing and installing the seal, do so 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 covers which are crimped onto the axle, the right nut and the cone.
- Do not attempt to disassemble the freewheel body, because it may result in a malfunction.

FH-M825/M820/M645/M640



(z) Apply grease:
Premium grease (Y-04110000)

(A) Seal (Lip is on the outside)

	Part name	Thread type	Tool	Tightening torque
[1]	Left hand lock nut (M15)	Clockwise thread	17mm hub spanner	14.7 - 19.4 N·m
[2]	Left hand cone (M15)	Clockwise thread	17mm hub spanner	-

FH-M9010/M9010-B/M8010/M8010-B/M828/M648/M678/M618

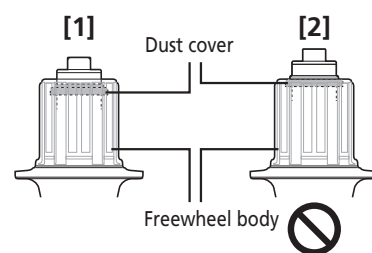
	Part name	Thread type	Tool	Tightening torque
[1]	Left hand lock nut (M15)	Clockwise thread	17mm hub spanner	15 - 20 N·m
				FH-M9010/FH-M9010-B 16.7 - 22.1 N·m
[2]	Left hand cone (M15)	Clockwise thread	17mm hub spanner FH-M9010/FH-M9010-B 20mm hub spanner	-

(z) Apply grease:
Premium grease (Y-04110000)

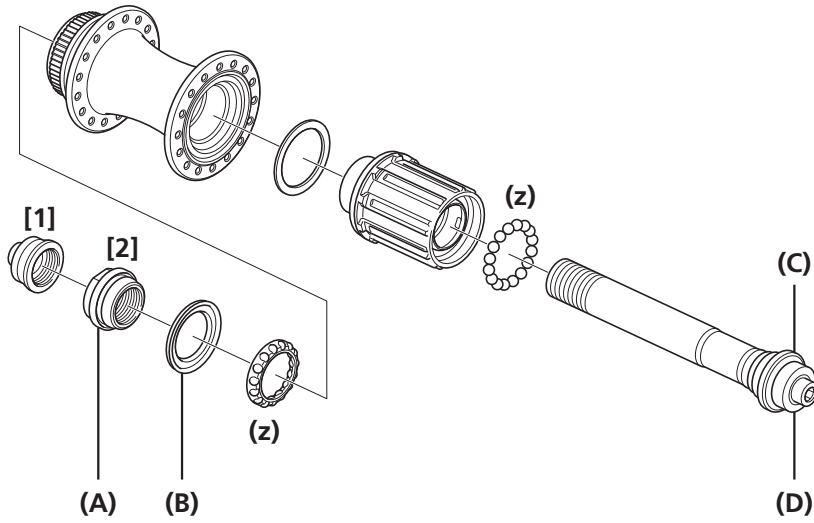
(A) Seal (Lip is on the outside)

NOTE

The correct position for the dust cover is where it is hidden in the freewheel body, as shown in illustration [1].
If the dust cover is in the position shown in illustration [2], repeat the assembly process from the beginning.



FH-M9000



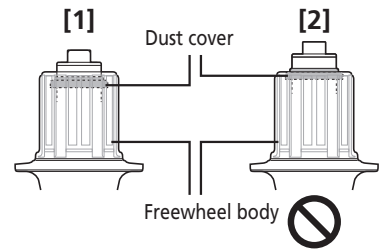
	Part name	Thread type	Tool	Tightening torque
[1]	Left hand lock nut (M15)	Clockwise thread	5mm hexagon wrench	16.7 - 22.1 N·m
[2]	Left hand cone (M15)	Clockwise thread	20mm hub spanner	-

(z) Apply grease:
Premium grease (Y-04110000)

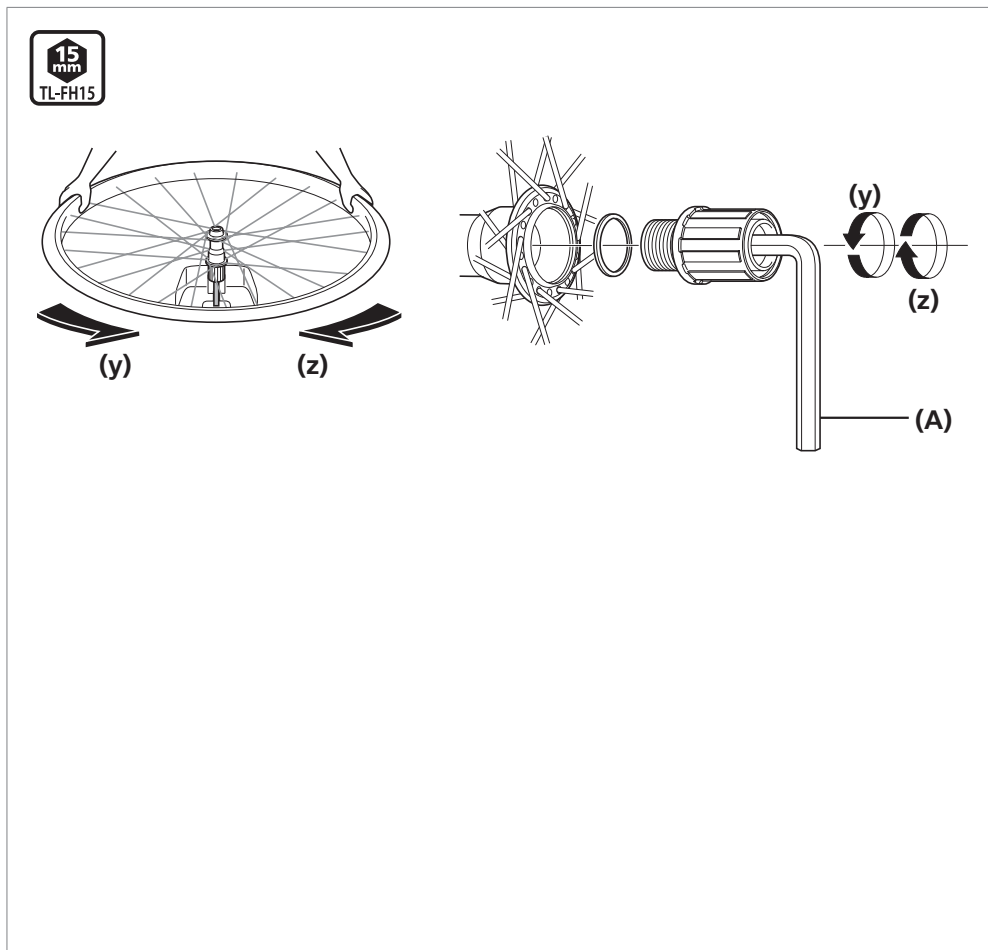
- (A) Cone with dust cover
(Cannot be disassembled)
- (B) Seal (Lip is on the outside)
- (C) Dust cover
(Cannot be disassembled)
- (D) Right nut

NOTE

The correct position for the dust cover is where it is hidden in the freewheel body, as shown in illustration [1].
If the dust cover is in the position shown in illustration [2], repeat the assembly process from the beginning.



FH-M9000/M9010/M9010-B/M8010/M8010-B/M820/M825/M828/
M640/M645/M648/M678/M618



(y) Disassembly

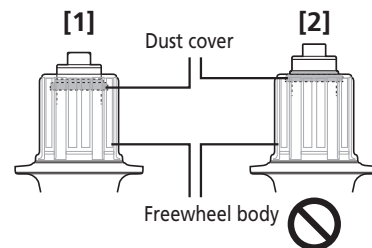
(z) Assembly

(A) TL-FH15

Tightening torque	
	150 N·m

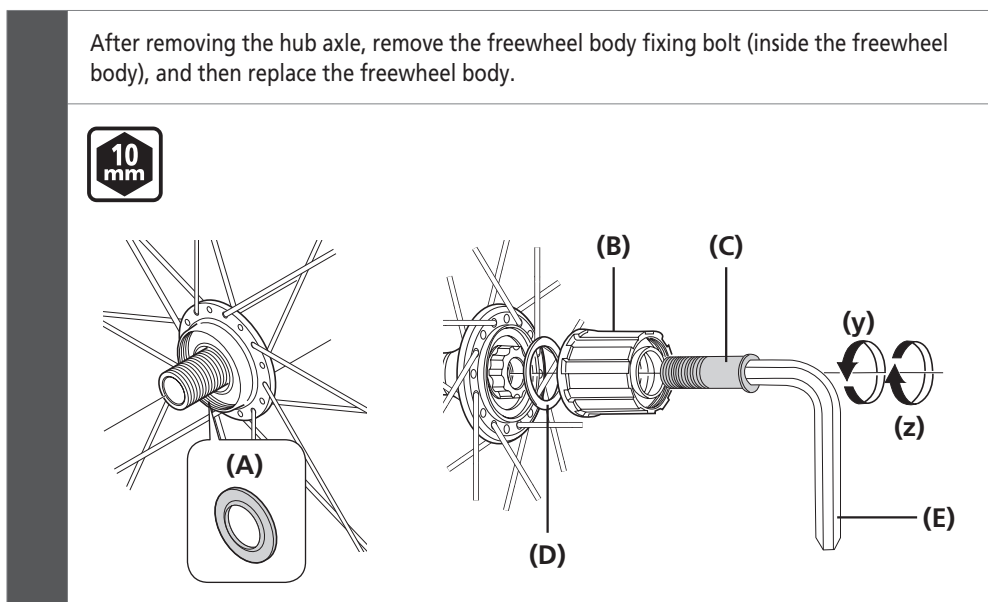
NOTE

The correct position for the dust cover is where it is hidden in the freewheel body, as shown in illustration [1]. If the dust cover is in the position shown in illustration [2], repeat the assembly process from the beginning.



FH-M756/M675/T675/M615/M525/M475

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



(y) Disassembly

(z) Assembly

(A) Seal (Lip is on the outside)

(B) Freewheel body

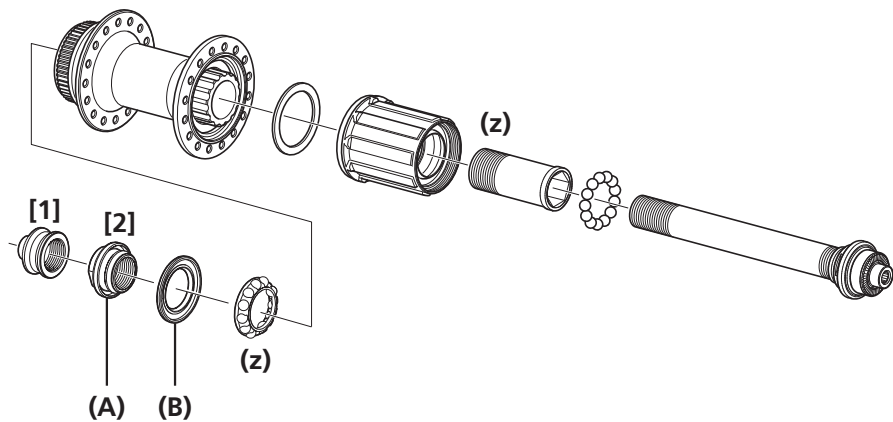
(C) Freewheel body fixing bolt

(D) Freewheel body washer

(E) 10mm hexagon wrench (TL-WR37)

Tightening torque	
	35 - 50 N·m

FH-M8000



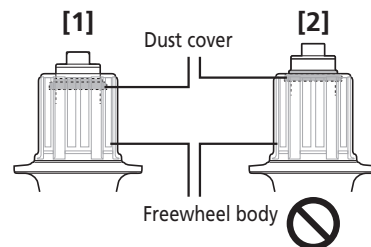
	Part name	Thread type	Tool	Tightening torque
[1]	Left hand lock nut (M15)	Clockwise thread	5mm hexagon wrench	16.7 - 22.1 N·m
[2]	Left hand cone (M15)	Clockwise thread	17mm hub spanner	-

(z) Apply grease:
Premium grease (Y-04110000)

- (A) Cone with dust cover
(Cannot be disassembled)
- (B) Seal (Lip is on the outside)

NOTE

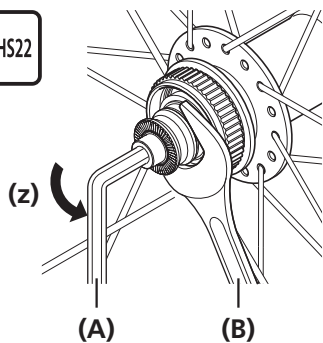
The correct position for the dust cover is where it is hidden in the freewheel body, as shown in illustration [1].
If the dust cover is in the position shown in illustration [2], repeat the assembly process from the beginning.



■ Replacement of the freewheel body (Quick release type)

1

[1]

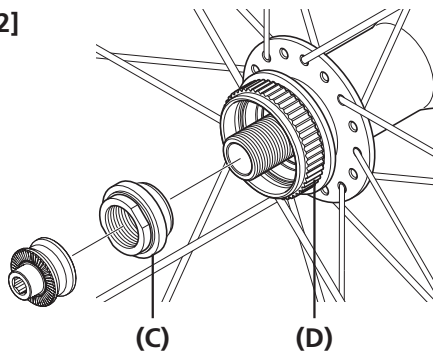


Pull out the hub axle by following procedures [1] to [3].

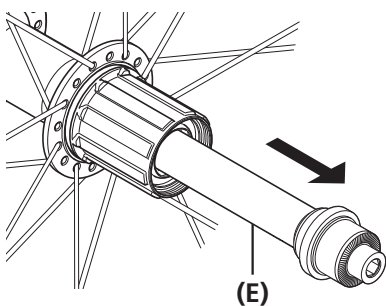
(z) Disassembly

- (A) 5mm hexagon wrench
- (B) TL-HS22
- (C) Cone with dust cover
(Cannot be disassembled)
- (D) Disc brake rotor fixing serrations
- (E) Hub axle

[2]



[3]



Tightening torque

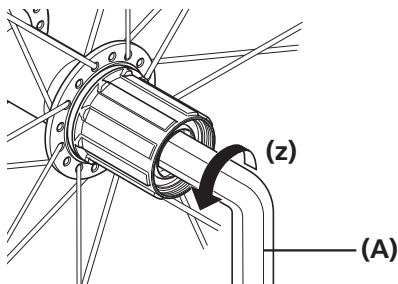


15 - 20 N·m

NOTE

- Do not disassemble the dust cover which is crimped onto the cone.
- The double-lock section on the freewheel side cannot be disassembled.

2



After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body).

(z) Disassembly

- (A) 14mm hexagon wrench

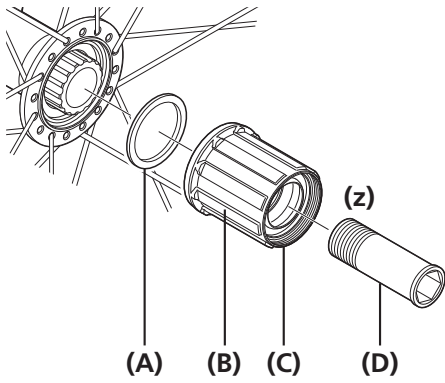
Tightening torque (When installing)



45 - 50 N·m

▶▶ Replacement of the freewheel body (Quick release type)

3



Replace the freewheel body.

When installing, perform the removal procedures in the reverse order.

- (z) Apply grease:
Premium grease (Y-04110000)

- (A) Freewheel body washer
- (B) Freewheel body
- (C) Seal (Cannot be removed)
- (D) Freewheel body fixing bolt

NOTE

Be sure to apply grease to the threads 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.

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

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