

Dealer's Manual

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

Crankset with power meter

DURA-ACE

FC-R9100-P

Bottom bracket

BB-R9100

SM-BB92-41B

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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.
- The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by SHIMANO INC. is under license.
Other trademarks and trade names are those of their respective owners.

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

DANGER

Be sure to also inform users of the following:

- Use the dedicated charging cable when charging the battery. If any non-specified items are used, fire, overheating, leakage, or damage to the connected PC may occur.
- Do not get the charging cable wet and do not touch or hold it while it is wet or with wet hands. If this is not observed, problems with operation or electric shocks may occur.
- Use an AC adapter with a USB port with a voltage of 5.0 Vdc and with a current equal to or higher than 0.5 Adc. If the one with a current lower than 0.5 A is used, the AC adapter may heat up, potentially causing a fire, smoke, heating, destruction, electric shock, or burns.
- Do not heat the battery or throw it into fire. If this is not observed, fire or bursting may occur.
- Do not use or leave the battery in hot and humid places such as where the battery is exposed to direct sunlight, in a closed vehicle on a hot day, or near a heater. If this is not observed, leakages, overheating or bursting may cause fire, burns or other injury to occur.
- Do not disassemble or modify the battery or apply solder directly to the battery terminals. If this is not observed, leakages, overheating or bursting may cause fire, burns or other injury to occur.
- Do not touch the metal terminals with metal items such as hairpins.
If this is not observed, short-circuits, overheating, burns or other injuries may occur.
- If any liquid leaking from the battery gets into the eyes, immediately wash the affected area with clean water without rubbing the eyes, and then seek medical advice. If this is not done, blindness may occur.

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:

- **Intervals between maintenance depend on the use and riding circumstances. Clean the chain with an appropriate chain cleaner regularly. Never use alkali based or acid based solvents, such as rust cleaners. If those solvent be used chain might break and cause serious injury.**
- Check that there are no cracks in the crank arms before riding the bicycle. If there are any cracks, the crank arm may break and you may fall off the bicycle.
- Be careful not to let the hemming of your clothes get caught in the chain while riding. Otherwise you may fall off the bicycle.
- Check the chain for any damage (deformation or crack), skipping, or other abnormalities such as unintended gear shifting. If any problems are found, consult a dealer or an agency. The chain may break, and you may fall.
- When connecting or disconnecting the charging cable, be sure to hold the plug of the cable. Failure to do so may cause a fire or electric shock.
- If the following symptoms are observed, stop using the device and contact a dealer. A fire or electric shock may be caused.
 - * If heat or acrid-smelling smoke is coming out from the power plug.
 - * There may be a bad connection inside the power plug.

TO ENSURE SAFETY

- If it thunders while charging with an AC adapter with a USB port, do not touch the device, bicycle, or the AC adapter. When lightning strikes, an electric shock may be caused.
- Do not use a USB hub when connecting the cable to a PC USB port. This may cause a charge error or fire due to heating.
- Be careful not to damage the charging cable. (Do not damage, process, forcibly bend, twist or pull them, bring them near hot objects, place heavy objects on them or bundle them tightly together.) If they are used while damaged, fire, electric shocks or short-circuits may occur.
- If the battery does not become fully charged after 4 hours of charging, stop charging.
- Do not place this product in fresh water or sea water, etc., and do not allow the terminals to get wet. If this is not observed, fire, bursting or overheating may occur.
- The operating temperature ranges for the battery are given below. Do not use the battery in temperatures outside these ranges. If the battery is used or stored in temperatures which are outside these ranges, fire, injury or problems with operation may occur.
 1. During discharge: $-10\text{ }^{\circ}\text{C}$ - $50\text{ }^{\circ}\text{C}$
 2. During charging: $0\text{ }^{\circ}\text{C}$ - $45\text{ }^{\circ}\text{C}$
- Do not throw or subject this product to strong shocks. If this is not observed, bursting, overheating or problems with operation may occur.
- Be careful not to get grease etc., on the metal terminals.
A conduction failure may result.
- Do not use the battery if leakages, discoloration, deformation or any other abnormalities occur. If this is not observed, bursting, overheating or problems with operation may occur.
- If any leaked fluid gets on your skin or clothes, wash it off immediately with clean water. The leaked fluid may damage the skin.
- Keep magnetic cards, medical devices, electronic devices, precision instruments, etc., away from this product.
Data loss or malfunctioning may result.
- This product contains a powerful magnet.
Take care when handling as there is a risk of your hand or finger getting caught and injury.

For Installation to the Bicycle, and Maintenance:

- If the inner cover is not installed correctly, the axle may rust and become damaged, and the bicycle may fall over and serious injury may occur as a result.
- The two left crank arm mounting bolts should be tightened in stages rather than fully tightened at once. Use a torque wrench to check that the final tightening torques are within the range of 12 - 14 N·m. Furthermore, after riding approximately 100km (60 miles), use a torque wrench to re-check the tightening torques. It is also important to periodically check the tightening torques. If the tightening torques are too weak or if the mounting bolts are not tightened alternately in stages, the left crank arm may come off and the bicycle may fall over, and serious injury may occur as a result.





Be sure to also inform users of the following:

- Be careful to keep body parts away from the sharp teeth of chainrings.
- Store the battery in a safe place away from the reach of infants and pets.
- Disconnect the charging cable when performing maintenance.

NOTE

Be sure to also inform users of the following:

- Be sure to keep turning the crank during lever operation.
- When the chain is in any of the positions shown in the illustration, the chain may come into contact with the front chainring or front derailleur and generate noise. If the noise is a problem, shift the chain onto the next largest sprocket or the one after.

Double	
Chainring	
Sprocket	

- Before riding the bicycle, check that there is no play or looseness between connecting parts. Also, be sure to retighten the crank arms and pedals at periodic intervals.
- Use a neutral detergent to clean the crank arm and the bottom bracket. Using alkaline or acidic detergents may cause discoloration.
- If pedaling performance does not feel normal, check the bicycle once more.
- Do not wash the bottom bracket with high-pressure jets of water. Water may enter the bearing section and cause noise or adhesion.
- The gears should be periodically washed with a neutral detergent. In addition, cleaning the chain with neutral detergent and lubricating it can be an effective way of extending the life of the gears and the chain.
- The cuffs of your clothing may get dirty from the chain while riding.
- 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.
- Do not get the charging cable or connector wet when connecting them.
- Do not keep connecting and disconnecting the small waterproof connector. The waterproof section or the connecting section may become worn or deformed, and the function may be affected.
- The components are designed to be fully waterproofed to withstand wet weather riding conditions; however, do not deliberately place them into water.
- Do not clean the bicycle with a high-pressure wash. Moreover, do not place any components in water. If water gets into any of the components, operating problems or rusting may result.
- Do not use thinners or similar substances to clean the products. Such substances may damage the surfaces.
- Contact the place of purchase for updates of the component software. The most up-to-date information is available on the Shimano website.
- Charging can be carried out at any time regardless of the amount of charge remaining. Always use the dedicated charging cable and charge the battery until it is fully charged.
- The battery is not fully charged at the time of purchase. Before riding, be sure to fully charge the battery.
- If the battery has become completely empty, charge it as soon as possible. If you leave the battery without charging it, it will cause the battery to deteriorate.
- The battery is an exhaustible item. The battery will gradually lose its capacity to charging after repeated use. If the length of time over which the battery can be used has become significantly reduced, consult the place of purchase or a bicycle dealer.
- If the unit will not be used for an extended period, store it, after charging, in a cool indoor place (approx. 10 to 20 °C) where the battery will not be exposed to direct sunlight or rain, and charge it every 6 months.
- Store the product, or bicycle installed with the product, in a cool indoor place (approx. 10 to 20 °C) where it will not be exposed to direct sunlight or rain. If the storage temperature is low or high, the performance of the battery is reduced, and its available time will be shorter. When you use the battery after a long storage period, be sure to charge it before use.
- If the ambient temperature is low, the battery's usable time will be shorter.



Disposal information for countries outside the European Union

This symbol is only valid within the European Union.

For information on used batteries, contact the place of purchase or a bicycle dealer.

- Charge the battery indoors to avoid exposure to rain or wind.
- Do not use the charging cable while it is tied up.
- Do not apply excessive tension to the charging cable.
- Do not ride the bicycle with the charging cable still connected to it.
- E-TUBE PROJECT cannot be used when the charging cable is connected.
- Keep away from magnetized objects. If this is not observed, the product may be damaged.
For products that have magnets attached, make sure to install the product, using the attached magnet, in the location that is specified.
- 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:

- When installing the pedals, apply a small amount of grease to the threads to prevent the pedals from sticking. Use a torque wrench to securely tighten the pedals. Tightening torque: 35 - 55 N·m. The right-hand crank arm has a right-hand thread, and the left-hand crank arm has a left-hand thread.
- If the bottom bracket shell is not parallel, gear shifting performance will drop.
- If the chain keeps coming off the gears during use, replace the gears and the chain.
- When installing the left and right adapters, apply grease and be sure to install the inner cover. Otherwise the waterproofing performance will worsen.
- To ensure the best performance, be sure to use only the specified type of chain.

Front chainwheel	Recommended chain
FC-R9100-P	CN-HG901-11

- If a squeaking noise is heard coming from the bottom bracket axle and the left crank arm connector, apply grease to the connector and then tighten it to the specified torque.
- If you feel any looseness in the bearings, the bottom bracket should be replaced.
- Be sure to use the specified gear tooth combination. If an unspecified gear is used, the chain may fall in between the gears, damaging them.

FC-R9100-P		Top				
		55T-MX	54T-MX	53T-MW	52T-MT	50T-MS
Low	42T-MX	X	X	-	-	-
	39T-MW	-	-	X	-	-
	36T-MT	-	-	-	X	-
	34T-MS	-	-	-	-	X

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

Be sure to also inform users of the following:

■ **About hardware reset**

- If the product does not work properly, the system may be recovered by performing a hardware reset. (Before performing a hardware reset, refer to the troubleshooting section.)

1. Press the button on the control unit for 15 seconds.
2. When the hardware reset is complete, the LED will light up to indicate the remaining battery level.

After the hardware reset is complete, check operation again and if the issue has not been resolved, consult with the place of purchase or a bicycle dealer.










■ **Connection and communication with smartphone or tablet**

- It is possible to perform such operations as updating firmware, using E-TUBE PROJECT for smartphones/tablets, when this product is connected to a smartphone or tablet via Bluetooth LE.
 - E-TUBE PROJECT: app for smartphones/tablets
 - Firmware: software inside component

LIST OF TOOLS TO BE USED








LIST OF TOOLS TO BE USED

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

Tool		Tool		Tool	
	5mm hexagon wrench		Plastic mallet		Left crank installation tool (TL-FC40)
	8mm hexagon wrench		Hexalobular[#30]		Magnet positioning tool
	17mm spanner	 	TL-FC16/TL-FC18		

The tools required for installing and removing the bottom bracket differ by model. Use the tools in the table in combination.



■ **BB-R9100**

Tool		Tool	
 	TL-FC24& TL-FC32	 	TL-FC24& TL-FC36
 	TL-FC24& TL-FC33		TL-FC34

NOTE

When using TL-FC24&TL-FC33, an impact wrench cannot be used.

■ **SM-BB92-41B**

Tool		Tool	
	TL-BB12		TL-BB13

INSTALLATION

INSTALLATION



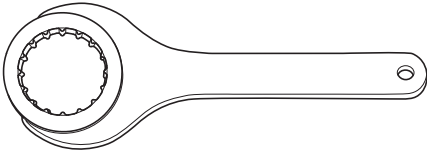


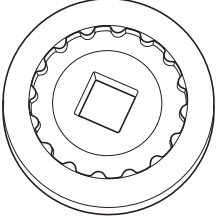


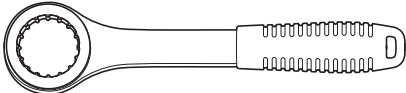

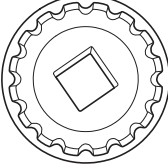
Before installing the product, refer to the user manual and make sure all accessories are included.

Threaded bottom bracket (HOLLOWTECH II)

List of tool combinations

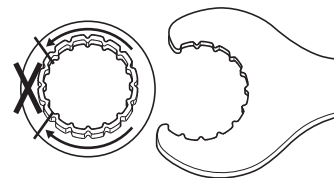
Use the tools in the correct combination.

BB-R9100

TL-FC24&TL-FC32	TL-FC24&TL-FC33
  	  
TL-FC24&TL-FC36	TL-FC34
  	 

NOTE

- For an impact wrench, use TL-FC34. Using other tools may damage the tool.
- When setting TL-FC24 in TL-FC32, check the possible setting position.



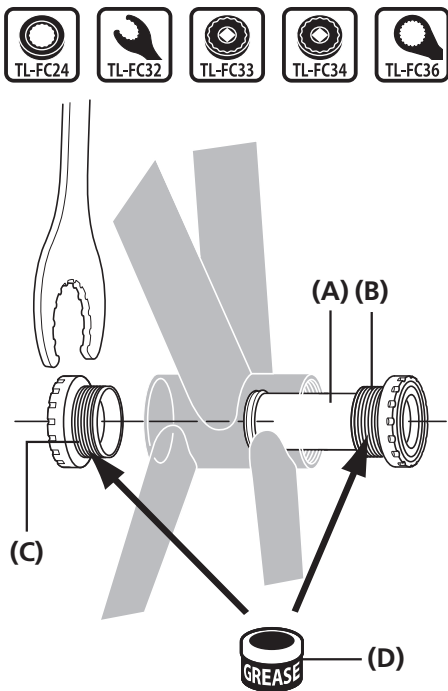
When setting in TL-FC32, check the possible setting position.

- Any position is possible when setting to TL-FC33/FC36.
- TL-FC24 may become damaged and unusable after repeated use.

INSTALLATION

▶▶ Threaded bottom bracket (HOLLOWTECH II)

Installation to the bottom bracket shell



Grease the left and right hand adapters and use the Shimano original tool to install the right hand adapter of the bottom bracket, the inner cover and the left hand adapter of the bottom bracket.

- (A) Inner cover
- (B) Right hand adapter (counterclockwise thread) (Clockwise thread (right-hand thread) for 70mm [M36] bottom brackets)
- (C) Left hand adapter (clockwise thread)
- (D) Applying grease Premium grease (Y-04110000)

Tightening torque



35 - 50 N·m

NOTE

TL-FC24 are tightened by combining with TL-FC32/FC36.

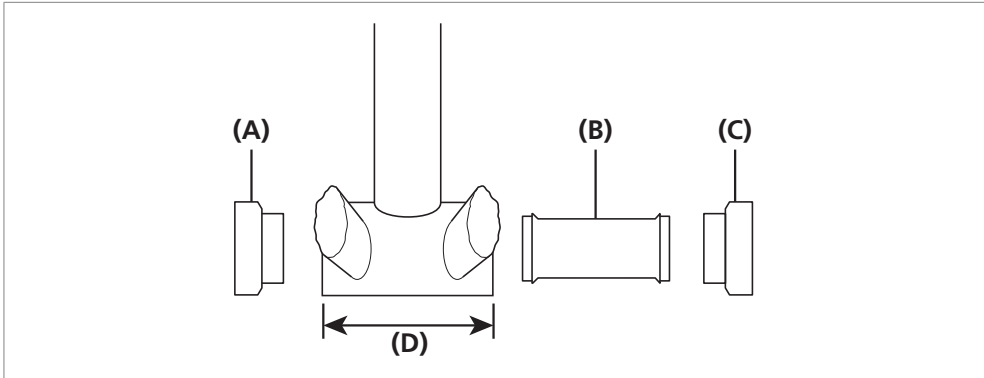


TECH TIPS

For tool combinations used when installing/uninstalling the bottom bracket, refer to "List of tool combinations".

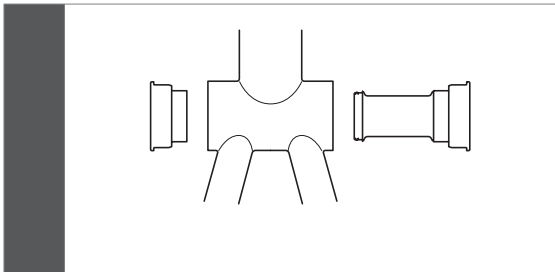
■ PRESS-FIT BB

Adapter



- (A) Left hand adapter
- (B) Inner cover
- (C) Right hand adapter
- (D) Bottom bracket shell width

Assembly example



Use for a bottom bracket shell width of 86.5mm.

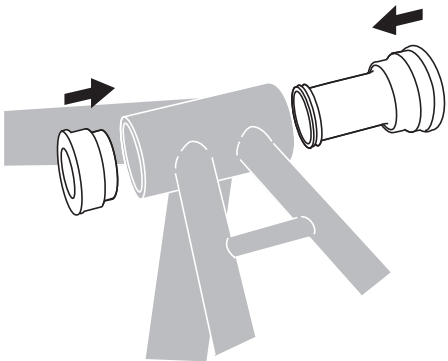
Use the inner cover.

NOTE

- If the frame has openings inside the bottom bracket shell, it should be installed with the inner cover sleeve to prevent possible contamination.
- If the frame has no openings inside the bottom bracket shell, it can be installed without the inner cover sleeve.

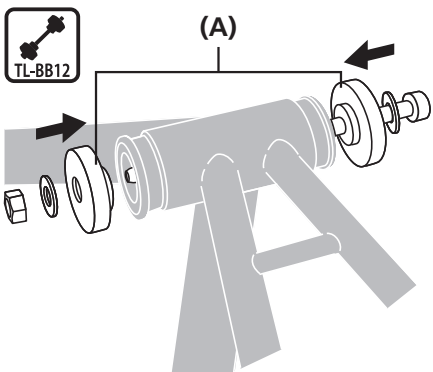
Installation to the bottom bracket shell

1



Insert the bottom bracket into the bottom bracket shell.

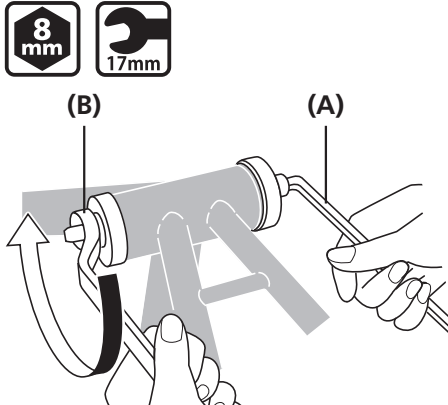
2



Insert the Shimano original tool into the bottom bracket.

(A) TL-BB12

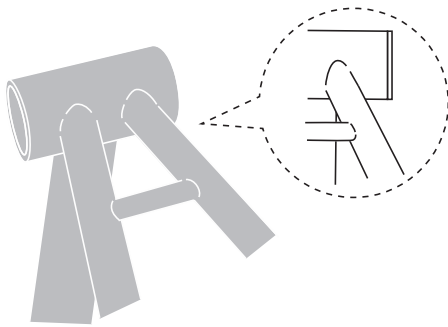
3



Press fit the bottom bracket by tightening with a spanner while making sure that the contact surface of the bottom bracket stays parallel to the contact surface of the bottom bracket shell.

(A) 8mm hexagon wrench
(B) 17mm spanner

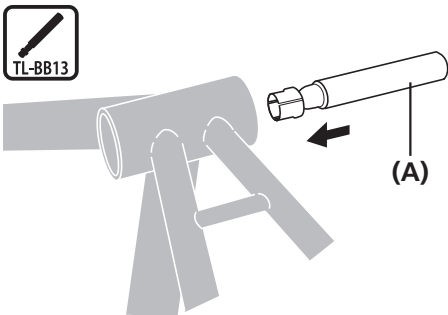
4



Check to confirm that there is no gap between the bottom bracket and the bottom bracket shell.

Removal from the bottom bracket shell

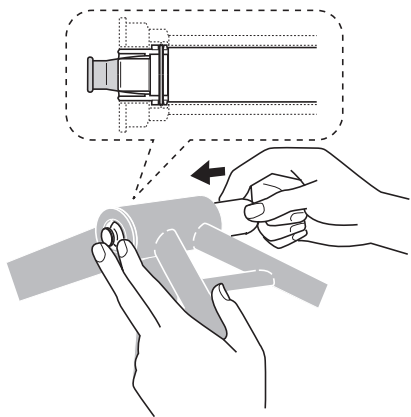
1



Insert the Shimano original tool into the bottom bracket.

(A) TL-BB13

2

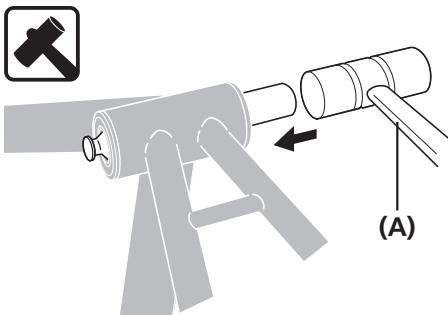


As shown in the illustration, hold down the flap with your fingers and push it in from the opposite side. (When pushed in, the flap opens.)

 **TECH TIPS**

While holding down the end of the removal tool, push the tool in from the other side until it locks in place.

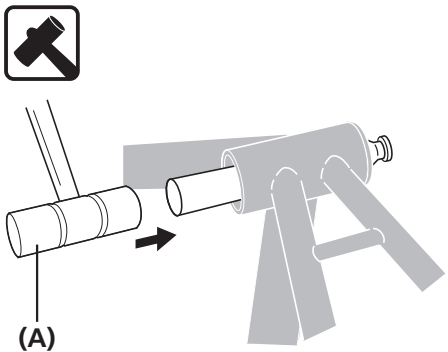
3



Tap the Shimano original tool with a plastic mallet until the end of the bottom bracket is ejected.

(A) Plastic mallet

4



Tap the opposite end of the bottom bracket in the same way and remove it.

(A) Plastic mallet

(A) Plastic mallet

NOTE

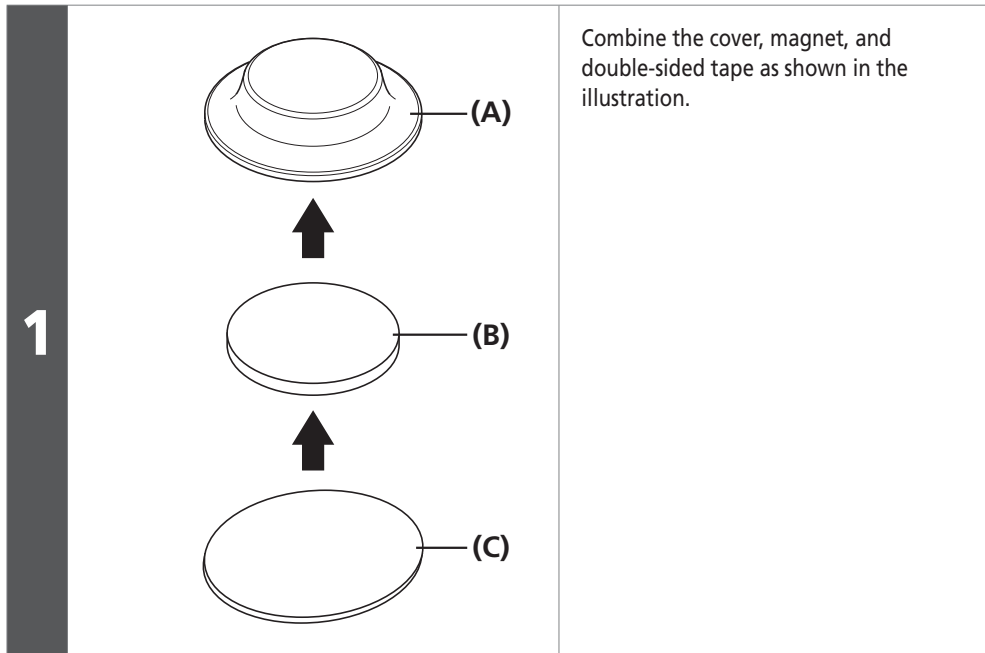
Do not reuse the adapters as they can be damaged during removal.

INSTALLATION

▶▶ Attaching the magnet

■ Attaching the magnet

When using the included magnet positioning tool, install the bottom bracket first.

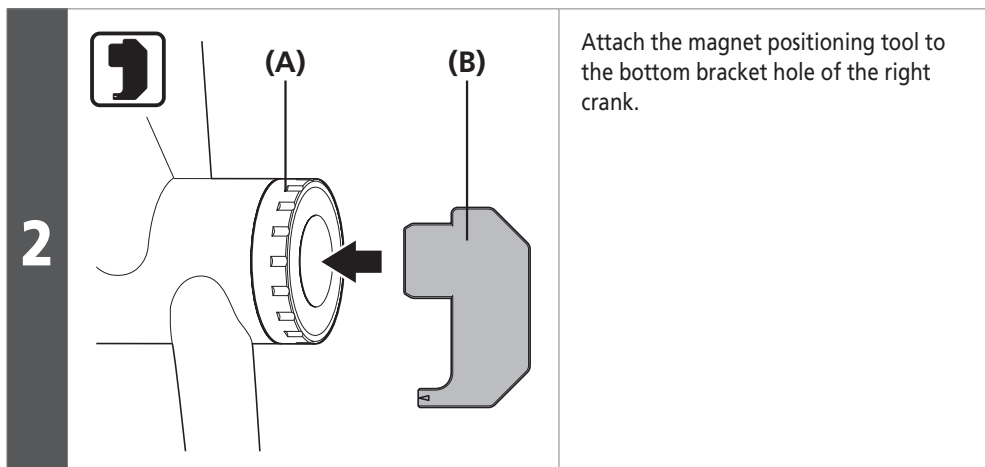


- (A) Cover
- (B) Magnet
- (C) Double-sided tape



TECH TIPS

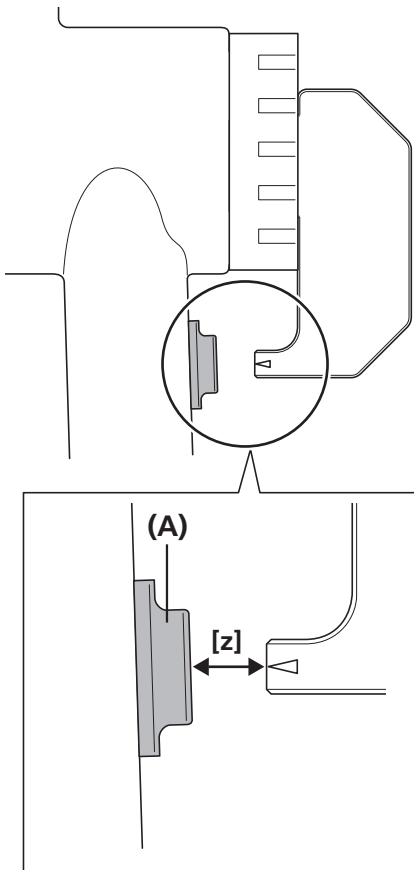
The cover is available in black or white.
Use the color of your choice.



- (A) Bottom bracket
- (B) Magnet positioning tool

▶▶ **Attaching the magnet**

3



Determine the position to attach the magnet.

Make sure that the tip of the tool does not interfere with the magnet, as shown in the illustration.

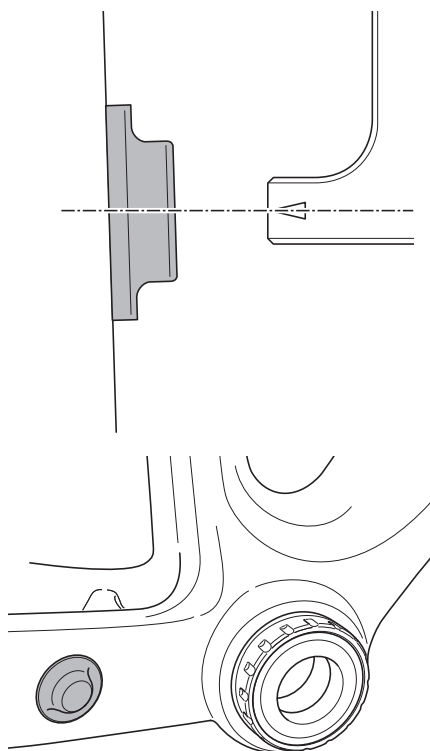
Next, check that the distance [z] between the Δ mark on the tool and the surface of the magnet is 5mm or less.

(A) Magnet

NOTE

- Attach the magnet to the chainstay, seat tube, or down tube. When attaching, make sure that the following conditions are satisfied:
 - The tip of the tool does not interfere with the magnet.
 - The distance between the Δ mark on the tool and the surface of the magnet is 5mm or less.
- Attach the magnet to as flat a portion of the frame as possible.
- Once you have determined the attachment position, wipe away oil, dirt and other stains on the frame before attaching the magnet.

4



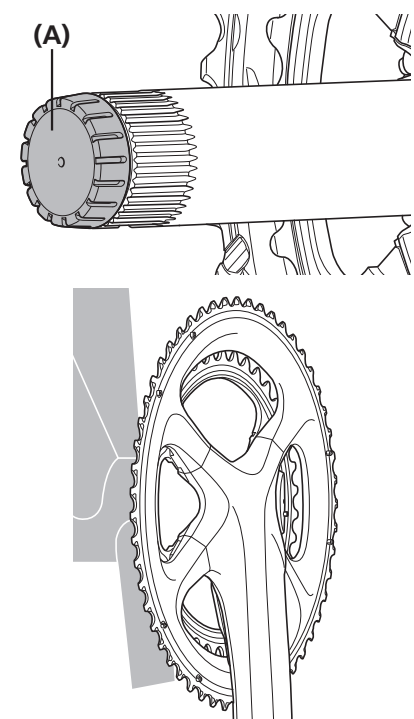
Attach the magnet so that the center of the magnet is aligned with the Δ mark on the tool.

 **TECH TIPS**

Remove the release liner before attaching the magnet.

Installation of the crank

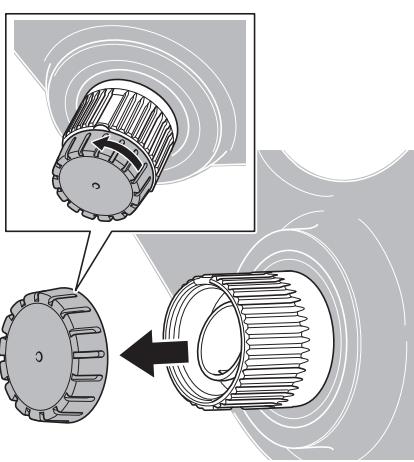
1



(A)

Insert the right crank arm unit without removing the spindle cover.

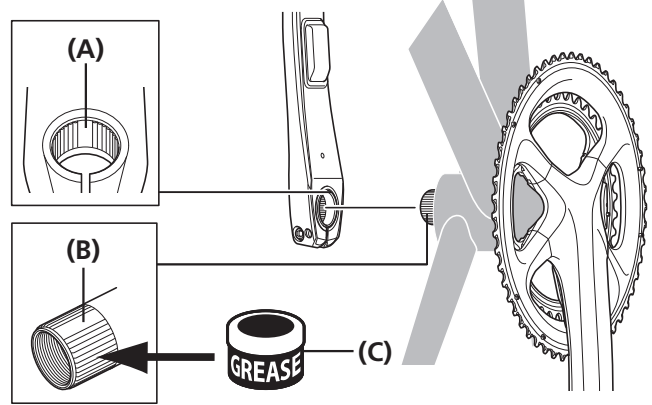
2



Remove the spindle cover.

3

Set the wide groove area of the left crank arm into the axle of the right crank arm unit where the groove is wide.



(A)

(B)

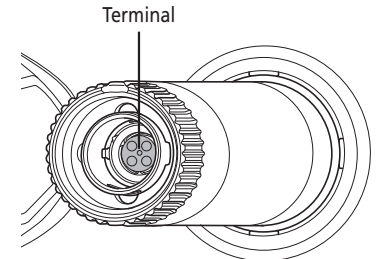
(C)

GREASE

(A) Spindle cover

NOTE

Do not remove the spindle cover when installing the crank arm unit. If the spindle cover is removed, grease may get on the terminal inside the shaft when it is inserted, resulting in poor contact.



Terminal

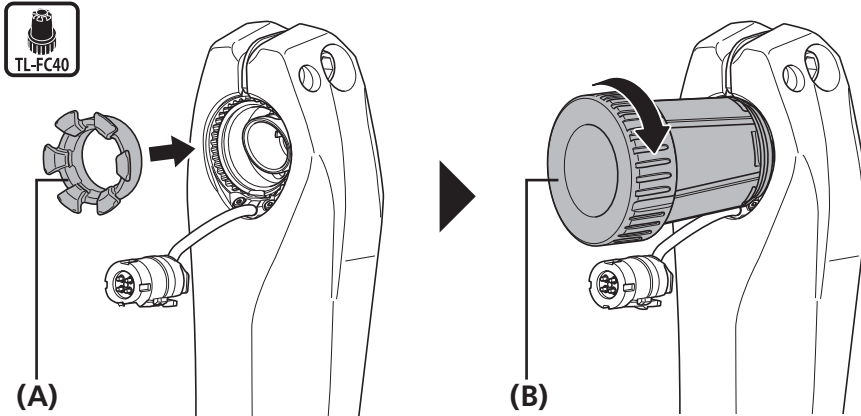
- (A)** Wide groove area (left crank arm)
- (B)** Wide groove area (axle)
- (C)** Applying grease
Premium grease (Y-04110000)

NOTE

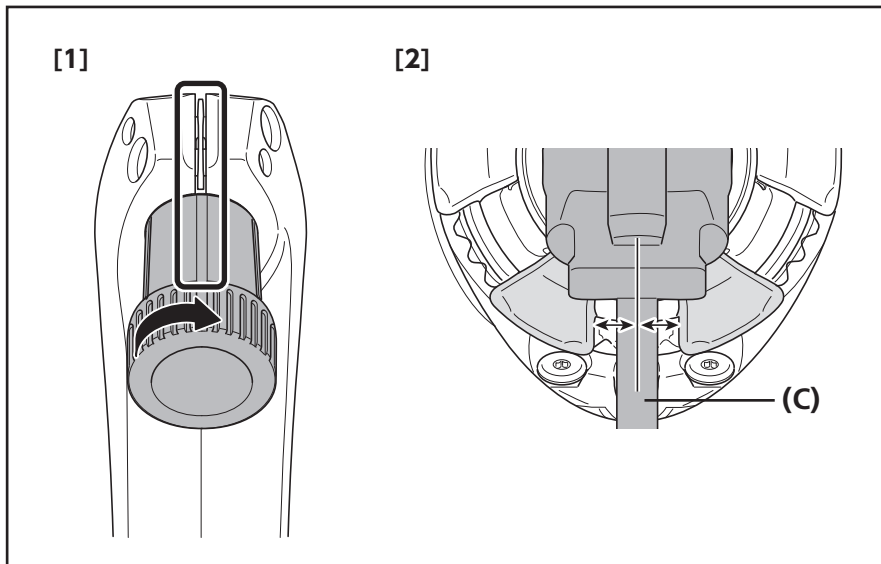
When applying grease, be careful not to allow grease to get inside the shaft.

▶▶ Installation of the crank

Use the Shimano original tool (TL-FC40) to install the left crank installation ring. (As shown in illustration [1], set it at a position where a groove in the tool aligns with the groove in the top of the crank. By doing so, the cable of the connecting terminal will align with the center of a groove in the ring, as shown in illustration [2].)



4



- (A) Left crank installation ring
- (B) Shimano original tool (TL-FC40)
- (C) Cable

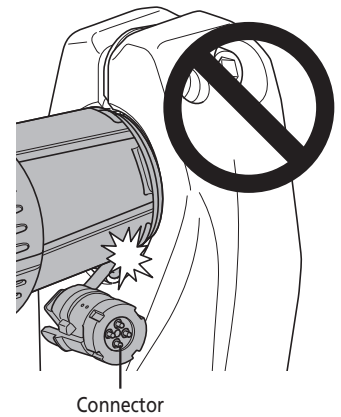
Tightening torque



0.7 - 1.5 N·m

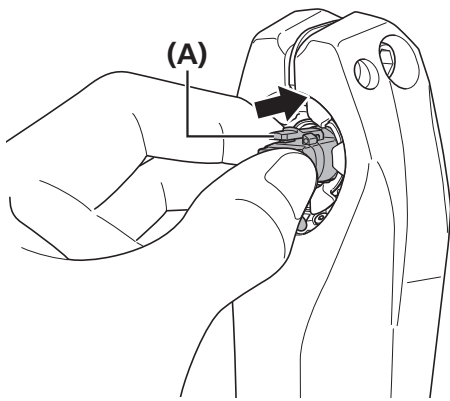
NOTE

- Make sure to use the Shimano original tool (TL-FC40) when installing the left crank installation ring.
- When using the Shimano original tool, make sure that the electric wire of the connector is not pinched. Tightening when the electric wire is pinched may sever the electric wire.



- When aligning a groove in the tool with the groove in the top of the crank, adjust by turning the tool in the tightening direction. If the tool is turned in the loosening direction to adjust the position, the torque may be insufficient, possibly resulting in the crank becoming detached.

5



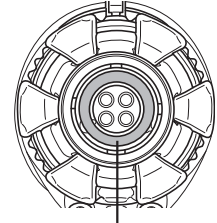
Insert the connector so that the side with the lever is on top, as shown in the illustration.

Push in the connector firmly until it clicks into place.

(A) Lever

NOTE

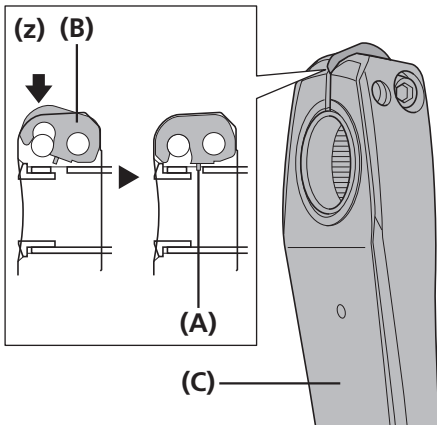
- Before inserting the connector, make sure that the O-ring is attached inside the right crank shaft.



O-ring

- Insert the connector in the correct orientation. The connector may be damaged if it is forced into place.
- Do not allow water, oil, grease, etc., get on the connector.

6



Push in the stopper plate and check that the plate pin is securely in place, and then tighten the bolt of the left crank arm.

Tighten both bolts equally to the specified tightening torque (12 - 14 N·m).

(z) The illustration is of the left crank arm (cross-section)

(A) Plate pin

(B) Stopper plate

(C) Left crank arm

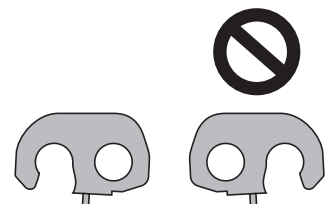
Tightening torque



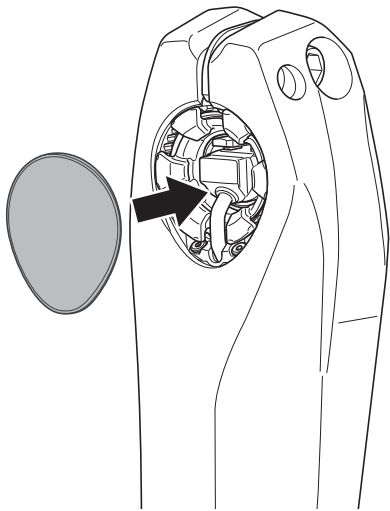
12 - 14 N·m

NOTE

- The two bolts should be tightened at the same time rather than each bolt being fully tightened separately.
- Set the stopper plate in the correct direction as shown in illustration.



7



Attach the outer cap.

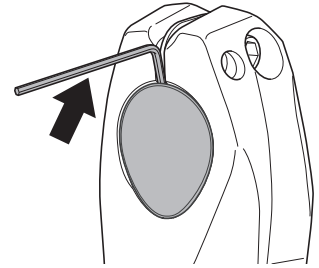
NOTE

When attaching the outer cap, orient the cap to match the shape of the attachment opening. The cap may be damaged if it is forced into place.

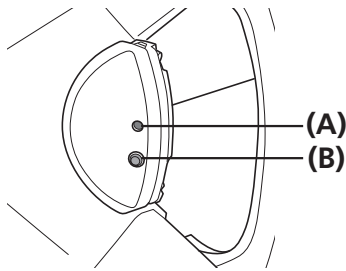


TECH TIPS

To remove the outer cap, insert a thin rod, such as a hexagon wrench, into the groove in the left crank and pull it out.



8



Press the button on the control unit and check that the LED lights up green or red.

- (A)** LED
- (B)** Button

NOTE

- Make sure to perform this step. If this step is not performed, the product may not operate properly.
- If the LED does not light up, charge the battery in accordance with the section "CHARGING THE BATTERY".

CHARGING THE BATTERY

CHARGING THE BATTERY

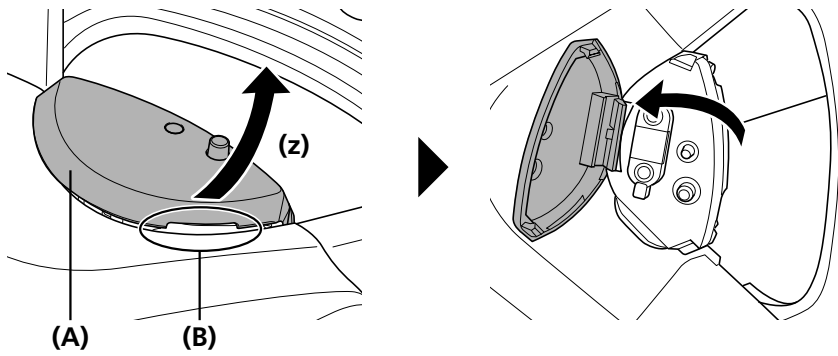
■ Charging procedures

You cannot use the battery immediately after shipment.

Be sure to charge it before use.

This product can be charged using an AC adapter with a USB port or by connecting to a USB connector on a PC.

1 Pull at the indent in the control unit to open the cover.

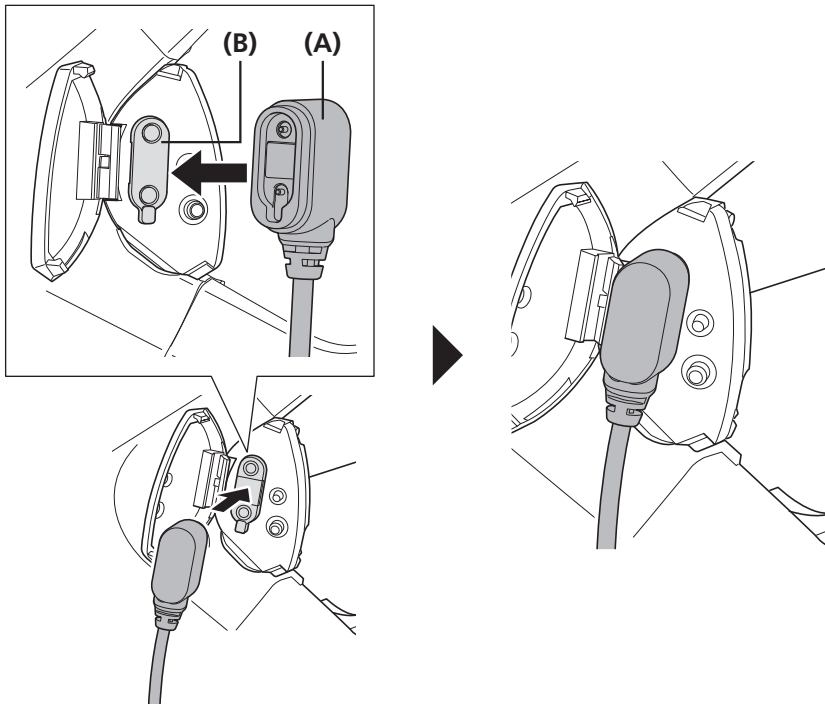


(z) Push upward

(A) Control unit

(B) Indent

2 As shown in the illustration, connect the charging cable so that the indents and protrusions of the charging cable and connection port of the control unit match.



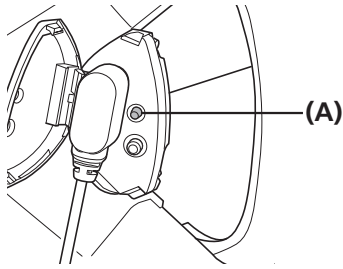
(A) Charging cable

(B) Connection port

CHARGING THE BATTERY

▶▶ Charging procedures

3



Once charging begins the LED lights up blue.

(A) LED

NOTE

Do not move the crank or cable during charging. There is a risk of the cable disconnecting. Reconnect the cable if it disconnects.

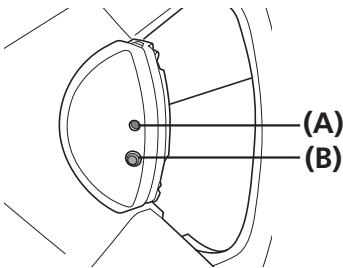
4

Charging is complete when the LED turns off.
Pull out the cable and then close the cover.

NOTE

After charging, be sure to close the cover.

Checking remaining battery level



Press the button on the control unit and check the state of the LED.

(A) LED

(B) Button

NOTE

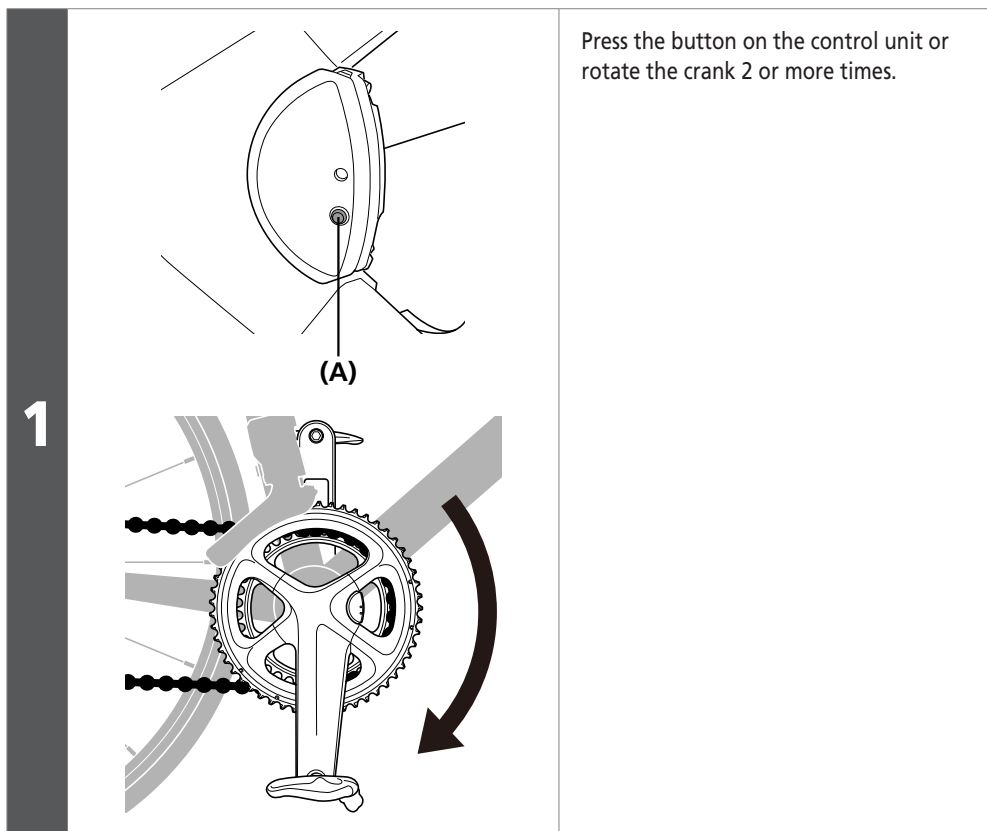
If the LED lights up red, or if it does not light up, charge the battery in accordance with the section "Charging procedures".

LED	Battery level
Green	20% or more
Red	20% or less
Not lit	0%

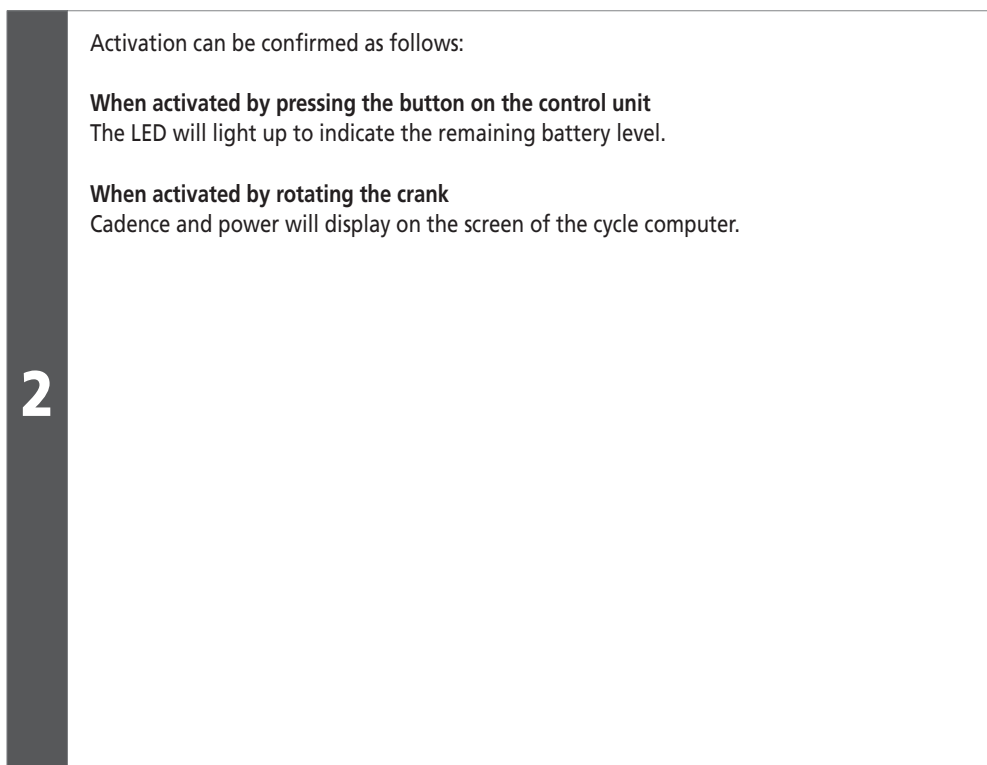
OPERATION

OPERATION

■ Activation/Confirming activation



(A) Button



NOTE

If the LED does not light up

This means that there is no more battery power.

Charge the battery in accordance with the section "Charging procedures".

Cadence and power are not displayed on the screen of the cycle computer.

This means that there is no battery power, or there is no wireless connection.

Press the button on the control unit and check that the LED lights up. If the LED lights up, establish a wireless connection according to the section "About wireless functions".



TECH TIPS

If this product does not detect motion for 5 minutes after activation, wireless transmission will terminate in order to save battery power. To re-establish the wireless connection, either press the button on the control unit or rotate the crank 2 or more times.

■ About wireless functions

Functions

ANT⁺™ connection

The ANT⁺™ connection allows the following information to be sent wirelessly to a compatible cycle computer or receiver.

Power	Left/right power balance
Pedal smoothness	Cadence
Torque effectiveness	Battery level information

For information on which of the above types of information are displayed, refer to the manual for your cycle computer or receiver.

Bluetooth® LE connection

E-TUBE PROJECT for smartphones/tablets may be used if a Bluetooth LE connection is established with a smartphone/tablet.



TECH TIPS

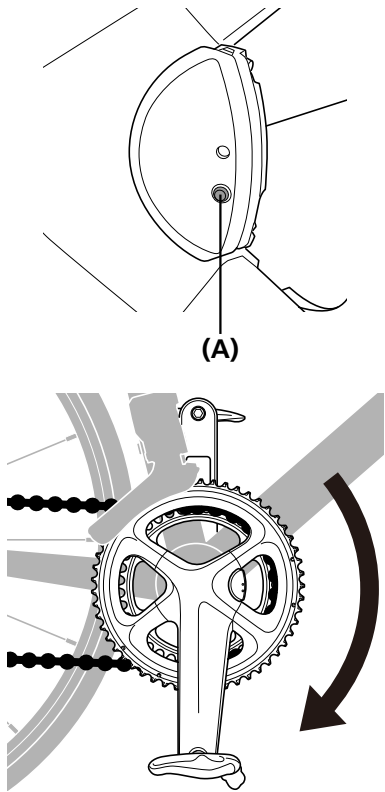
The latest functions can be checked by updating the software via E-TUBE PROJECT. For details, consult the place of purchase.

How to make connections

ANT+™ connection

To make a connection, the cycle computer needs to be in connection mode. For information on how to put the cycle computer into connection mode, refer to the manual for the cycle computer.

1

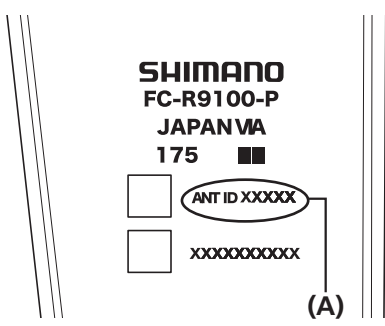


(A)

Press the button on the control unit or rotate the crank 2 or more times.

(A) Button

2



(A)

Select the unit name displayed on the screen of the cycle computer or enter the 5-digit ANT ID marked on the inner side of the right crank.

(A) ANT ID

3

This completes the connection process.

NOTE

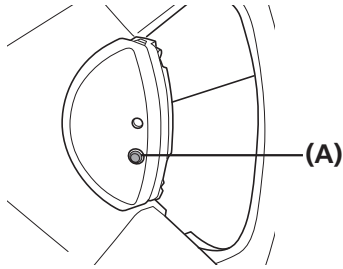
Check on the cycle computer to see if connection was successful.
If a connection cannot be made in the way described above, refer to the manual for your cycle computer.

Bluetooth® LE connection

Before setting up a connection, turn on Bluetooth LE on the smartphone/tablet.

1 Open E-TUBE PROJECT and set it to listen for Bluetooth LE signals.

2



Press the button on the control unit until remaining battery level is indicated.

(A) Button



Release the button once remaining battery level is indicated.
If the button is held down for any longer, a different mode will be activated.

3

Select the unit name displayed on screen.

NOTE

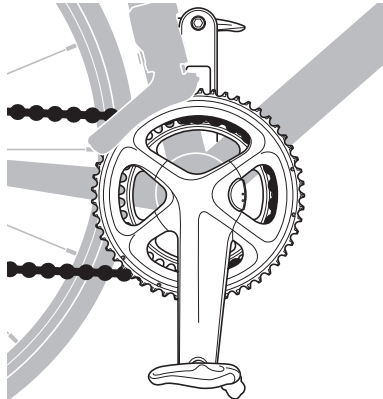
- To disconnect, cancel the Bluetooth LE connection from the smartphone/tablet.
- To restore the Bluetooth LE Name and Passkey to their default values, hold down the button on the control unit for at least 3 seconds during battery charging.

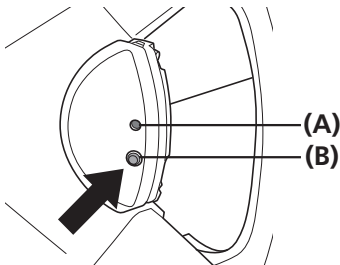
Bluetooth LE Name	Passkey
FCR9100P	000000

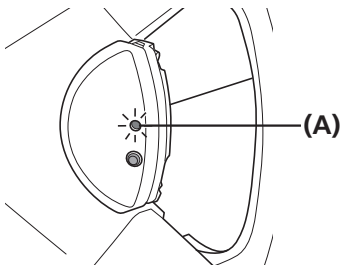
■ Performing zero offset calibration

- Zero offset calibration can be performed using the control unit or the cycle computer.
When calibrating using the cycle computer, refer to the instruction manual for the cycle computer.
- It is recommended to perform zero offset calibration before riding the bicycle.

1 Place the bicycle on level ground.

2  Position the crank arm so that it is perpendicular to the ground as shown in the illustration.

3  Press the button on the control unit until the LED lights up blue.

4  Once the LED lights up blue, release the button.
The LED will begin blinking blue and zero offset calibration will complete.

NOTE

At this time, do not place your feet on the pedals or apply load to the crank. It may not be possible to perform calibration correctly.

 **TECH TIPS**

Zero offset calibration is unaffected by which chainring the chain is positioned on.

(A) LED
(B) Button

(A) LED

NOTE

If the LED blinks red, perform zero offset calibration again.

MAINTENANCE

MAINTENANCE

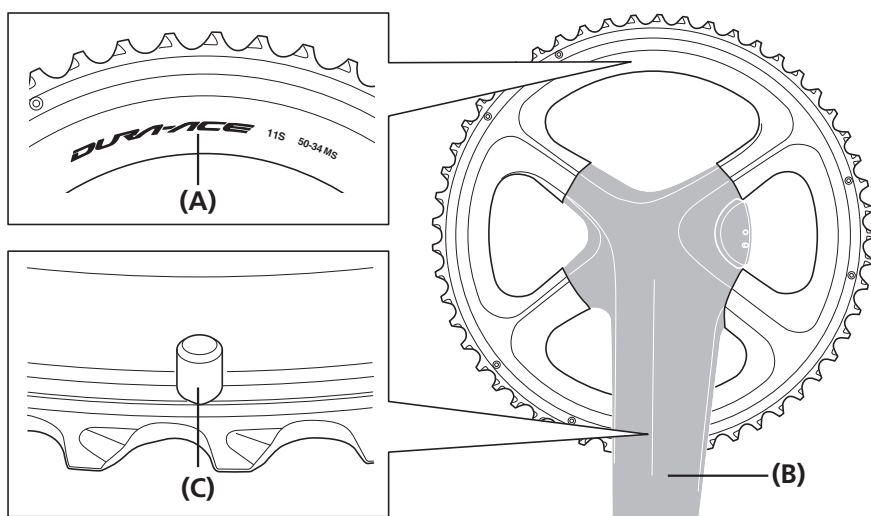
■ Replacing chainrings

NOTE

- Gear shifting performance will be reduced if the installation positions of the chainrings are incorrect. Be sure to install the chainrings in the correct positions.
- Use the correct combination of genuine Shimano bolts, chainrings and crank arm, otherwise the large chainring may become damaged by the bolts.

Outer side

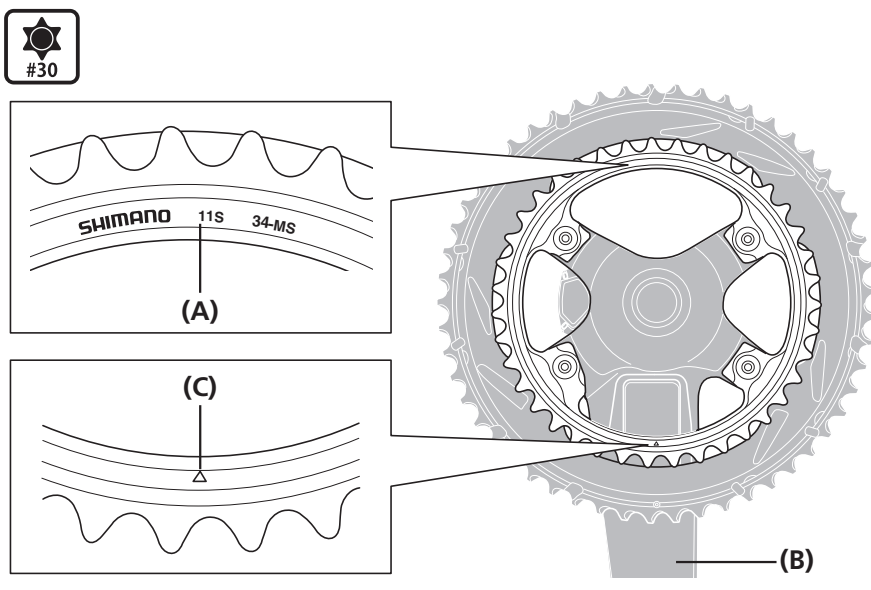
With the marked side of the largest chainring facing outward, set the largest chainring so that the chain drop prevention pin is positioned under the crank arm.



- (A) Marking
- (B) Crank arm
- (C) Chain drop prevention pin

Inner side

With the marked side of the smallest chainring facing inward, set the chainring so that the Δ marking is positioned under the crank arm.



- (A) Marking
- (B) Crank arm
- (C) Δ mark

Tightening torque



12 - 16 N·m

TROUBLESHOOTING

TROUBLESHOOTING

■ Troubleshooting

If you experience any trouble using this product, please refer to the following.

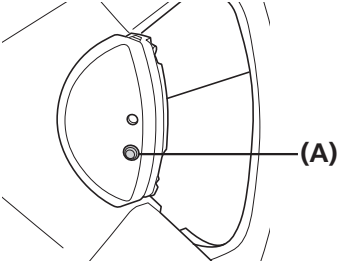
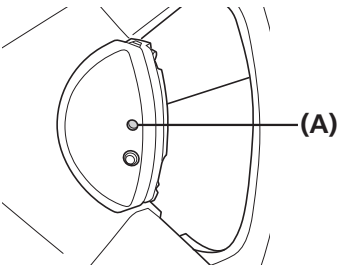
If none of the following are applicable, or the suggested solution does not resolve the issue, consult with the place of purchase or a bicycle dealer. If the power value has changed, it is possible to correct it. For details, consult the place of a bicycle dealer.

Power does not display	The cycle computer may not have a wireless connection. Establish a wireless connection. (Refer to the section "About wireless functions")
	The battery may be out of charge. Check the remaining battery level. Charge the battery if the remaining battery level is low. (Refer to the section "Charging procedures")
	The left crank connector may be detached. Remove the outer cap and check that the connector is connected. (Refer to the section "Installation of the crank")
Power value is abnormal	Zero offset calibration may not have been performed correctly. Perform zero offset calibration. (Refer to the section "Performing zero offset calibration")
Cadence does not display	The magnet may not be attached or its position may not be appropriate. Attach the magnet if it is not attached, or make adjustments if its position is not appropriate. (Refer to the section "Attaching the magnet")
Cadence value is abnormal	Another cadence sensor may be attached. If this is the case, either remove or disable it.
LED blinks red during zero offset calibration	There may have been an issue during zero offset calibration. Confirm that the connector is connected and perform zero offset calibration again. (Refer to the sections "Installation of the crank" and "Performing zero offset calibration")
Charging is not possible	A USB hub may be connected. Do not use a USB hub.
	The charging cable may be damaged. If charging is not possible even after trying a different PC or USB adapter, replace the charging cable.
Connection cannot be made with cycle computer	The cycle computer in use may not be supported. Check the instruction manual for the cycle computer.
	Interference may be affecting the wireless signals. Wireless signals may be susceptible to interference in the following locations and conditions, preventing successful connection. * Near televisions, PCs, radios, motors etc., or inside cars and trains. * Near railroad crossings, railway tracks, television transmitting stations, radar bases, etc. * When used alongside other wireless/cordless devices or certain types of lighting. Change location and reattempt connection.

About hardware reset

If an issue cannot be resolved even after referring to the troubleshooting section, perform a hardware reset.

After the hardware reset is complete, check the operation again and if the issue has not been resolved, consult with the place of purchase or a bicycle dealer.

1		Hold down the button on the control unit for 15 seconds.	<hr/> (A) Button <hr/>
2		The hardware reset completes when the button is released. When the hardware reset is complete, the LED will light up to indicate the remaining battery level.	<hr/> (A) LED <hr/>

CONNECTION AND COMMUNICATION WITH DEVICES

CONNECTION AND COMMUNICATION WITH DEVICES

It is possible to perform such operations as updating firmware, using E-TUBE PROJECT for smartphones/tablets, when this product is connected to a smartphone or tablet via Bluetooth LE.

You need E-TUBE PROJECT to configure the system and update firmware.

Download E-TUBE PROJECT from our support website (<http://e-tubeproject.shimano.com>).

For information on how to install E-TUBE PROJECT, check the support website.

NOTE

- Firmware is subject to change without notice.
- E-TUBE PROJECT cannot be used when the charging cable is connected.
- Do not do any of the following while firmware is being updated.
 - Press the button on the control unit.
 - Connect or disconnect the charging cable.
 - Move the crank.

SPECIFICATIONS

SPECIFICATIONS

■ Specifications

Operating temperature range	-10°C – 50°C	Continuous operation time	300 or more hours (for given temperature of 25°C)
Battery type	Lithium ion		
Normal charging time	2.5 hours	Wireless specification	ANT ⁺ TM / Bluetooth [®] LE
Charging temperature	0°C – 45°C		

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

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