

Dealer's Manual

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

Crankset

Non-Series

FC-RS400
FC-RS510

Bottom bracket

BB-RS500
BB-RS500-PB

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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 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.

Be sure to also inform users of the following:

- *Never use alkali- or acid-based solvents such as rust cleaners. If those solvents are used the chain might break and cause serious injury.*
- *Clean the chain with an appropriate chain cleaner regularly. Intervals between maintenance depend on the use and riding circumstances.*
- **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.

For Installation to the Bicycle, and Maintenance:

- Install the inner cover correctly. If it 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 screws should be tightened alternately in stages rather than each fully tightened at once. Use a torque wrench to check that the tightening torques are within the range of 12 - 14 N·m. Also, after riding approximately 100 km (60 miles), use a torque wrench to re-check the tightening torques. Thereafter, continue to check the tightening torques periodically. If the tightening torques are too weak or if the mounting screws are not tightened alternately in stages, the left crank may come off and the bicycle may fall over, and serious injury may occur as a result.

CAUTION







Be sure to also inform users of the following:

- Be careful not to touch the teeth of chainrings. There is a danger of injury.

NOTICE

Be sure to also inform users of the following:

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

	Double	Triple	
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, contact your place of purchase.
- 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.
- 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 is 35 - 55 N·m. The right crank has a right-hand thread, and the left crank 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-hand cups, 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.

Crankset	Recommended chain
FC-RS400	CN-HG54
FC-RS510	CN-HG601

- 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-RS400		Top
		50T-NA
Low	34T-NA	X







FC-RS510		Top		
		52T-MT	50T-MS	46T-MT
Low	36T-MT	X		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.




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	
	5 mm hexagon wrench		Soft face mallet
	8 mm hexagon wrench	 	TL-FC16/TL-FC18
	17 mm spanner		

■ BB-RS500

Tool		Tool	
	TL-FC32		TL-FC36
	TL-FC33		

■ BB-RS500-PB

Tool		Tool	
	TL-BB12		TL-BB13

INSTALLATION

INSTALLATION

■ Bottom bracket

Installation

1

Check that the inner cover is installed to the right-hand cup unit, insert the right-hand cup from the right side of the bottom bracket shell, and tighten 2 to 3 turns with your hand.

- (A) TL-FC32
- (B) Right-hand cup (left-hand thread)
- (C) Bottom bracket shell
- (D) Inner cover

Tightening torque	
 TL-FC32	35 - 50 N·m
 TL-FC33	
 TL-FC36	

2

Install the left-hand cup (right-hand thread).

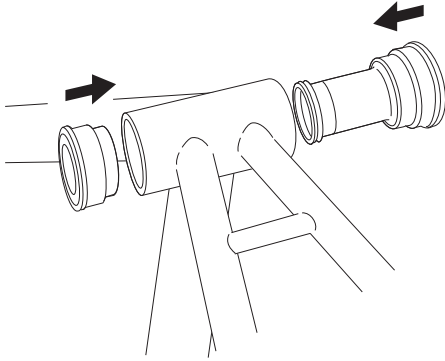
- (A) TL-FC32
- (B) Left-hand cup (right-hand thread)

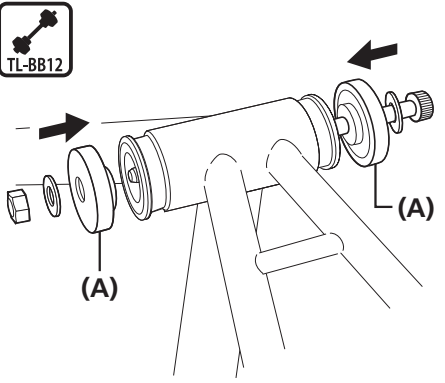
Tightening torque	
 TL-FC32	35 - 50 N·m
 TL-FC33	
 TL-FC36	

■ PRESS-FIT BB

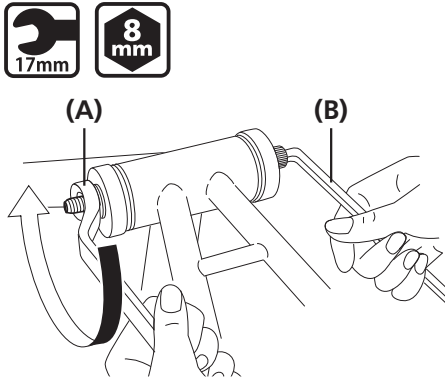
Installation

Press the bottom bracket into the bottom bracket shell using TL-BB12.

1		<p>Insert the bottom bracket into the bottom bracket shell.</p>
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2		<p>Insert the installation tool into the bottom bracket.</p>
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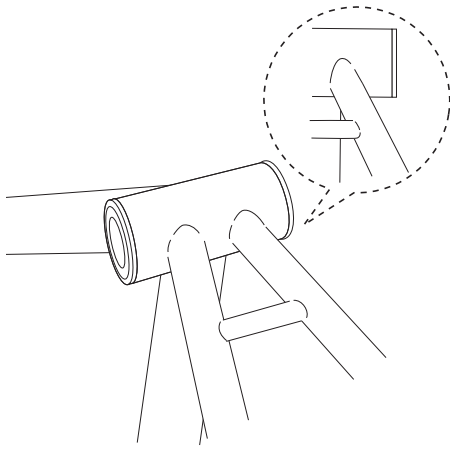
(A) TL-BB12

3		<p>Press-fit the bottom bracket by tightening with a spanner while making sure that the rim of the bottom bracket stays parallel to the rim of the bottom bracket shell.</p>
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(A) 17 mm spanner

(B) 8 mm hexagon wrench

4

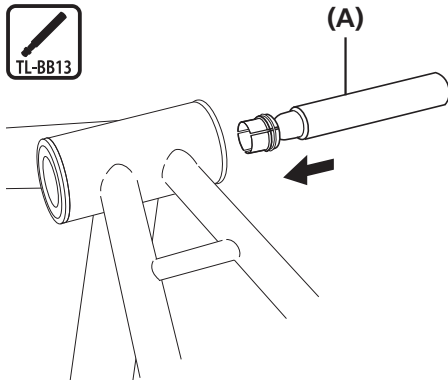


Check to confirm that there is no gap between the bottom bracket and the bottom bracket shell.

Removal

When removing the bottom bracket, use TL-BB13.

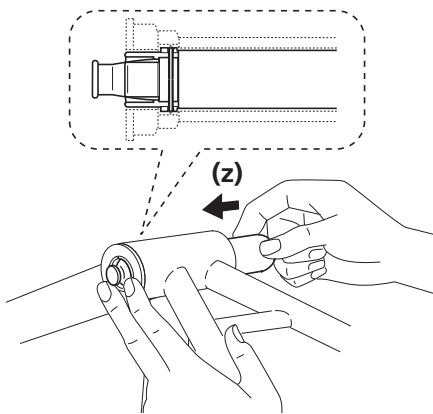
1



Insert the removal tool into the bottom bracket.

(A) TL-BB13

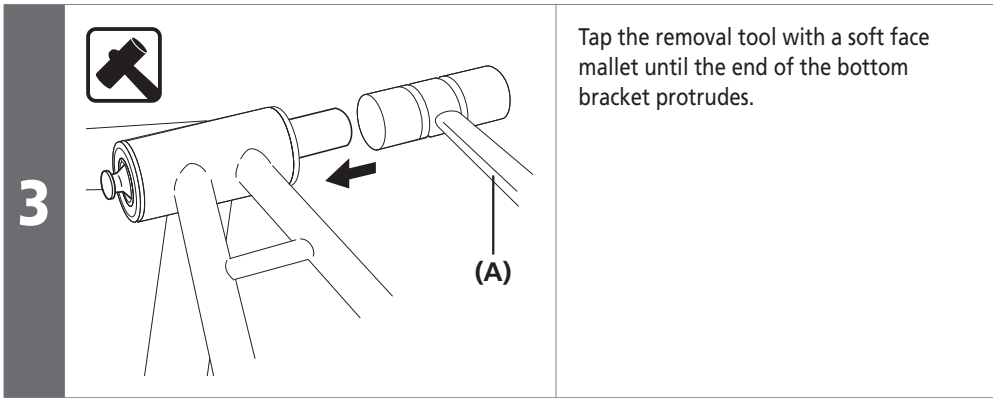
2



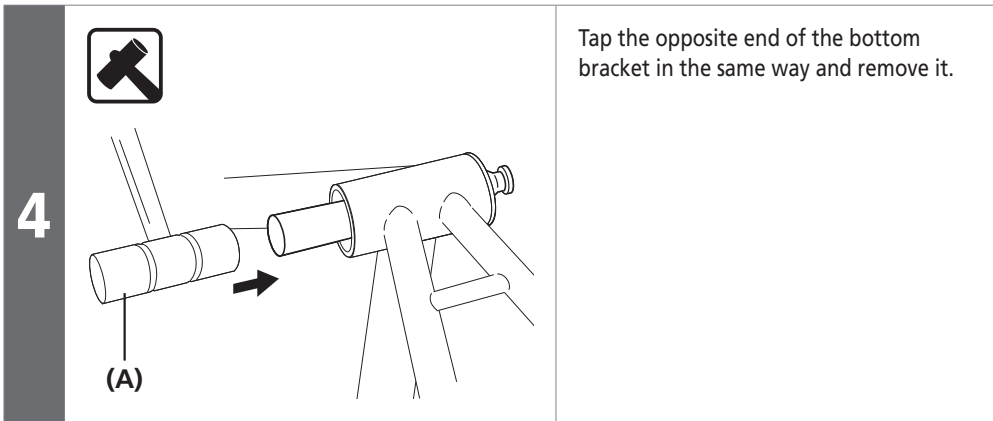
As shown in the illustration, hold down the flap with your fingers and push it in from the opposite side.

(When pushed in, the flap opens.)

(z) While holding down the flaps at the end of the removal tool, push the tool in from the other side until it locks in place.



(A) Soft face mallet



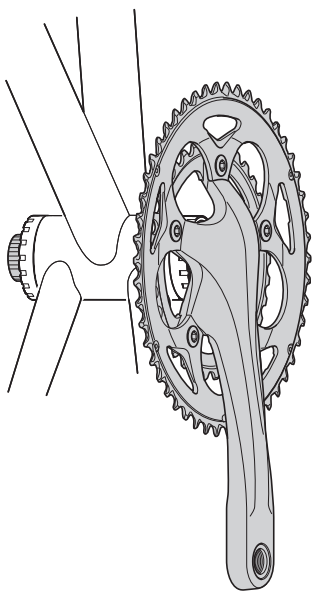
(A) Soft face mallet

NOTICE

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

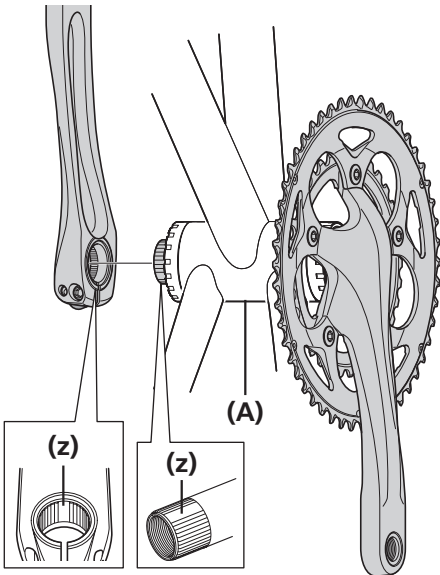
■ Installation of the crank

1



Fully insert the right crank arm unit until it touches the bottom bracket.

2





Set with the wide section of the left crank aligned with the wide section of the axle of the right crank unit.

(z) Wide part

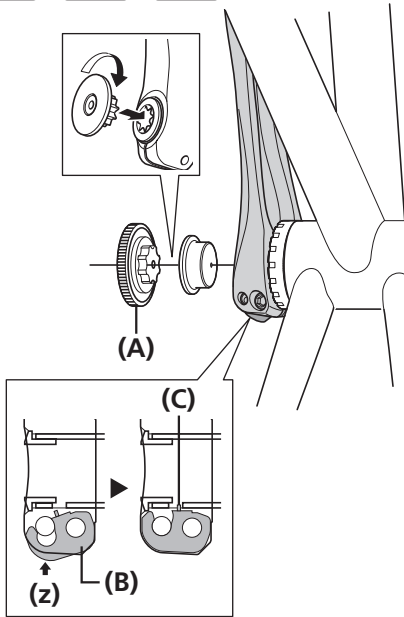
(A) Bottom bracket shell

3

Use TL-FC16/FC18 to tighten the cap.

Tightening torque	
 TL-FC16  TL-FC18	<p>0.7 - 1.5 N·m</p>


4



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

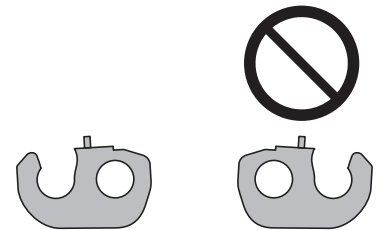
(z) Push up

- (A)** TL-FC16/FC18
- (B)** Stopper plate
- (C)** Plate pin

Tightening torque	
	<p>12 - 14 N·m</p>

NOTICE

- The two screws should be tightened alternately in stages rather than each screw being fully tightened at once.
- Set the stopper plate in the correct direction as shown in illustration.



MAINTENANCE

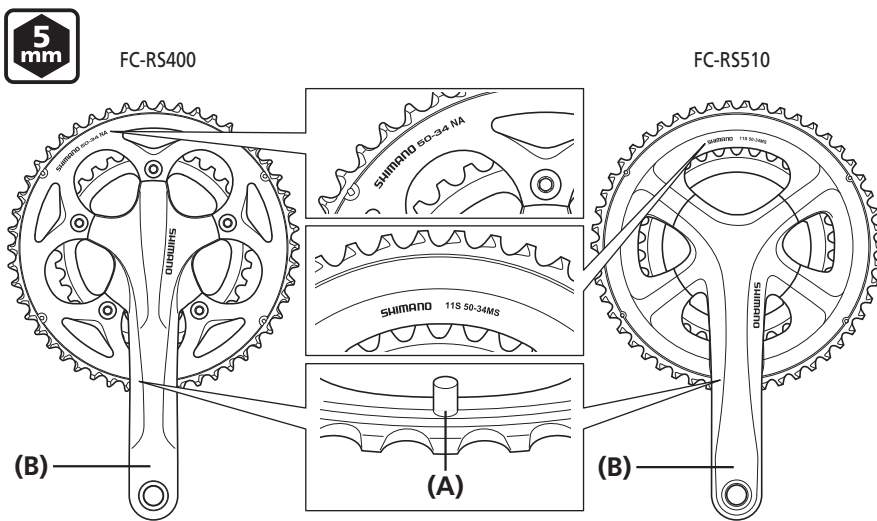
MAINTENANCE

Installation of the chainrings

- 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 screws, chainrings and crank arm, otherwise the largest chainring may become damaged by the screws.

Outer side

With the marked surface of the largest chainring facing outward, set the chainring with the chain drop prevention pin aligned with the crank arm.



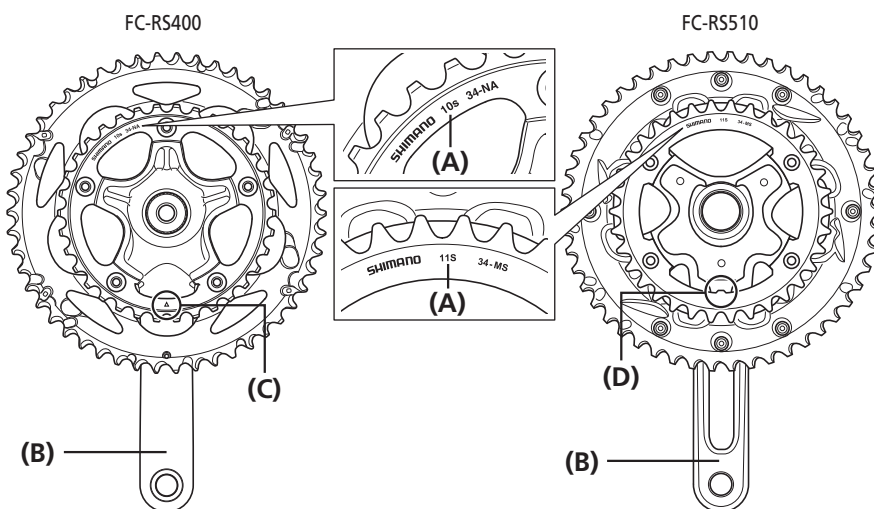
- (A) Chain drop prevention pin
- (B) Crank arm

Tightening torque

5 mm	12 - 16 N·m
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Inner side

Set the smallest chainring so that the marked side faces inward and the Δ marking or alignment tab is positioned under the crank arm.



- (A) Mark
- (B) Crank arm
- (C) Δ marking
- (D) Alignment tab

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

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