

Dealer's Manual

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

Front chainwheel

ALIVIO

FC-M4000
FC-M4050
FC-M4050-B2
FC-M4060

ACERA

FC-M3000
FC-M3000-B2
FC-M3000-8

ALTUS

FC-M2000

Non-Series

FC-MT100
FC-MT101
FC-MT101-B2
FC-MT200
FC-MT210
FC-MT210-B2
FC-MT300
FC-M315
FC-M315-B2
FC-TY501

Bottom bracket

SM-BB52
BB-UN100
BB-UN101
BB-UN300
BB-UN26
BB-ES300
BB-MT500-PA
BB-MT500

CONTENTS

IMPORTANT NOTICE.....	3
TO ENSURE SAFETY.....	4
LIST OF TOOLS TO BE USED.....	8
INSTALLATION	10
List of tool combinations.....	10
2 piece crankset.....	11
OCTALINK type.....	16
SQUARE type	17
PRESS-FIT BB	20
Adapter.....	20
Assembly example.....	20
Installation.....	21
Removal	22
MAINTENANCE	24
Replacing chainrings.....	24
Installation of the chain guard.....	26

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:

- Clean the chain with an appropriate chain cleaner regularly.
Intervals between maintenance depend on the use and riding circumstances. Never use alkali based or acid based solvents, such as rust cleaners. If these solvents are used the 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.
- Check the chain for any damage (deformation or cracking), 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.
- Be careful not to let the hemming of your clothes get caught in the chain while riding. Otherwise you may fall off the bicycle.

For Installation to the Bicycle, and Maintenance:

■ 2 piece crank type

- Make sure to correctly install the inner cover. 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.
- Be sure to use a torque wrench with the specified torque value when tightening the crank mounting bolts. After riding approximately 100 km (60 miles), use a torque wrench to re-check the tightening force.
If the crank is used when the tightening torque is weak, the crank could detach and you may fall off the bicycle.

CAUTION

Be sure to also inform users of the following:

- Be careful to keep body parts away from the sharp teeth of chainrings.









NOTICE

Be sure to also inform users of the following:

- Before riding the bicycle, check that there is no play or looseness between connecting parts. Also, be sure to retighten the crank and pedals at periodic intervals.
- Be sure to keep turning the crank arm during the lever operation.

■ MTB

- 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 noise is a problem, shift the chain onto the next largest rear sprocket or the one after if the chain is in the position shown in Figure 1. Shift the chain onto the next smallest sprocket or the one after if it is in the position shown in Figure 2.

	Figure 1		Figure 2
	Double	Triple	
Front chainring		 	
Rear sprocket		 	

- 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.
- 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.

■ 2 piece crank

- 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.
- 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 dimension between the gears changes, and the chain may fall in between the gears.

■ OCTALINK type/SQUARE type






















- Be sure to use only the applicable chain and bottom bracket.
- Apply grease to the bottom bracket before installing it.
- If you feel any looseness in the bottom bracket axle, the bottom bracket should be replaced.

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		Tool	
	4 mm hexagon wrench		Soft face mallet		TL-FC32
	5 mm hexagon wrench		TL-FC10		TL-FC33
	8 mm hexagon wrench		TL-FC11		TL-FC36
	Screwdriver [#2]		TL-FC16		TL-BB12
	15 mm spanner		TL-FC18		TL-BB13
	16 mm spanner		TL-FC21		TL-UN66
	17 mm spanner		TL-FC31		TL-UN74-S


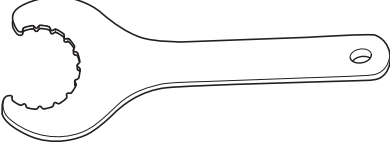

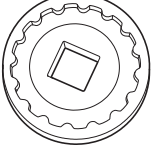

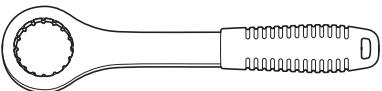
INSTALLATION

INSTALLATION

■ List of tool combinations

Use the tools in the correct combination.

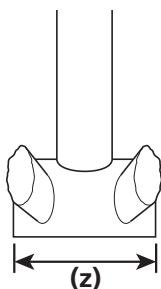
BB-MT500/SM-BB52

TL-FC32	TL-FC33
 	 
TL-FC36	
 	

■ 2 piece crankset

Spacer installation method

1



Check whether the width of the bottom bracket shell is 68 mm, 73 mm, or 83 mm.

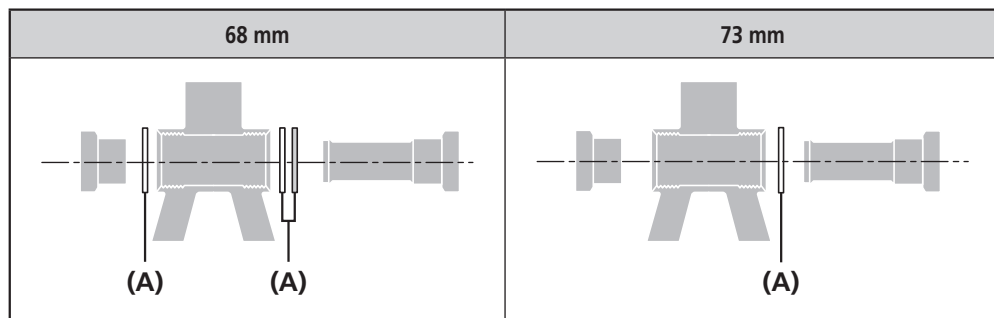
(z) Bottom bracket shell width

2

Install the adapter.

See the illustrations for band type, bracket type, and chain case stay type.

Band type

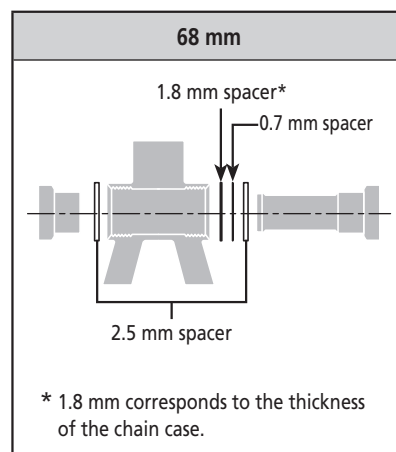


(A) 2.5 mm spacer



TECH TIPS

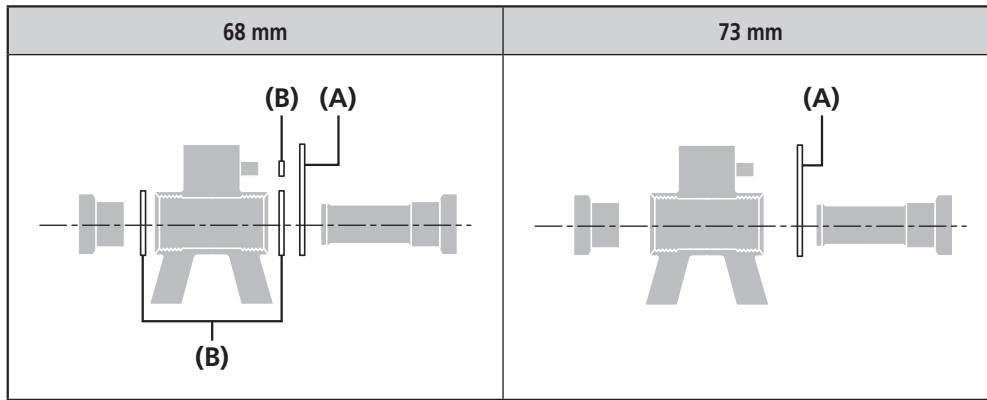
If using three 2.5 mm spacers with a band type and a bottom bracket shell having a width of 68 mm, install the three spacers so that there are two on the right and one on the left.



INSTALLATION

▶▶ 2 piece crankset

Bracket type



(A) BB mount-type bracket

(B) 2.5 mm spacer

Installation of the crank

1

TL-FC32 TL-FC33 TL-FC36

(A)

(B) (C)

(D)

(E) GREASE

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.

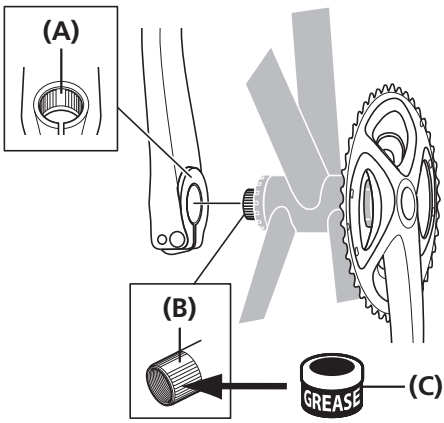
- (A) TL-FC32
- (B) Inner cover
- (C) Right hand adapter (counterclockwise thread) (for 70 mm [M36], turn clockwise (clockwise thread))
- (D) Left hand adapter (clockwise thread)
- (E) Apply grease: Premium Grease (Y-04110000)

Tightening torque	
	35 - 50 N·m

2

Insert the right crank arm unit.

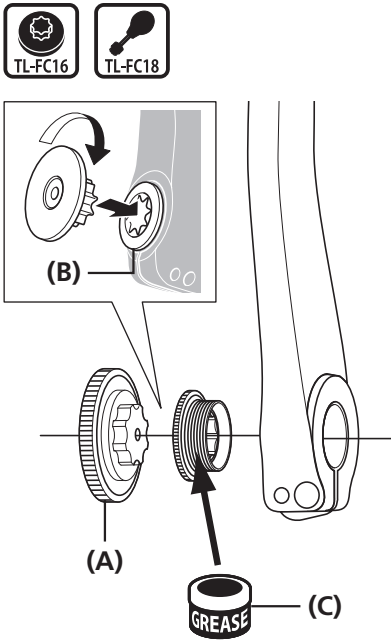
3



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) Wide groove area (left crank arm)
- (B) Wide groove area (axle)
- (C) Apply grease:
Premium Grease
(Y-04110000)

4

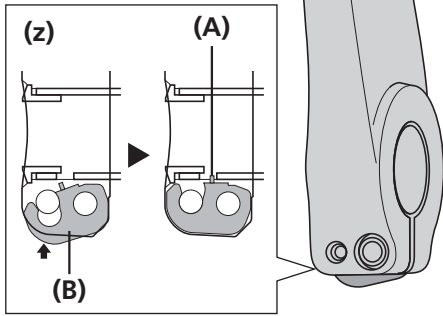


Use the SHIMANO original tool to tighten the cap.

- (A) TL-FC16
- (B) Cap
- (C) Apply grease:
Premium Grease
(Y-04110000)

Tightening torque	
 TL-FC16	0.7 - 1.5 N·m
 TL-FC18	

5



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.

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

- (A) Plate pin
- (B) Stopper plate
- (C) Left crank arm

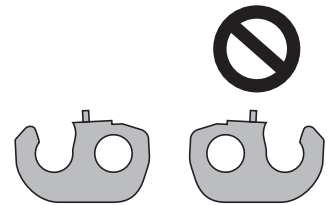
Tightening torque



12 - 14 N·m

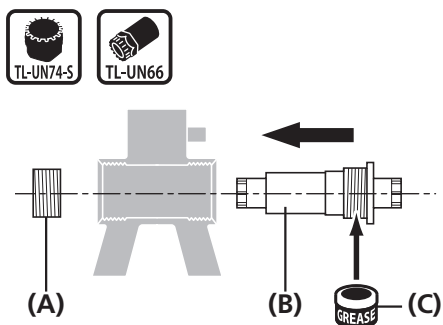
NOTICE

- For MTB/Trekking
Spacers used vary according to the width of the bottom bracket shell. For details, refer to "Spacer installation method".
- Set the stopper plate in the correct direction as shown in illustration.



■ OCTALINK type

Installation of the bottom bracket





Apply grease to the main body, and install using the SHIMANO original tool.

First install the main body, then the adapter.

- (A) Adapter
- (B) Body
- (C) Apply grease:
Premium Grease
(Y-04110000)

Tightening torque

 TL-UN74-S	<p>50 - 70 N·m</p>
 TL-UN66	

NOTICE

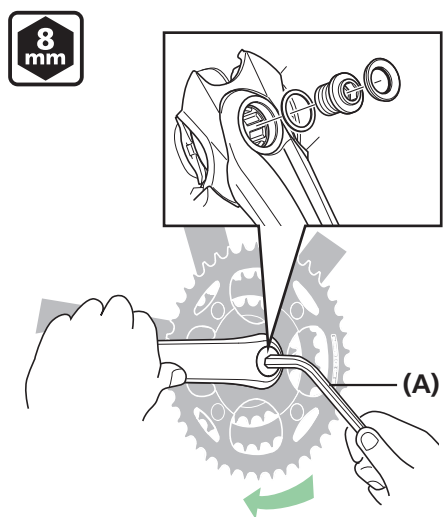
If the adapter is made of aluminum or steel
Apply grease to the adapter.



If the adapter is made of plastic
Do not apply grease to the adapter.




Installation of the front chainwheel



Use a hexagon wrench to install the front chainwheel.

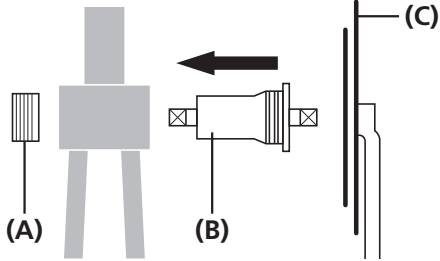
- (A) 8 mm hexagon wrench

Tightening torque

 8 mm	<p>35 - 50 N·m</p>
---	--------------------

■ SQUARE type

Installation of the bottom bracket



Install using the SHIMANO original tool.

First install the main body, then the adapter.

- (A) Adapter
- (B) Body
- (C) Front chainwheel

Tightening torque



50 - 70 N·m

NOTICE

If the main body and adapter are made of aluminum or steel
Apply grease to the main body and adapter.



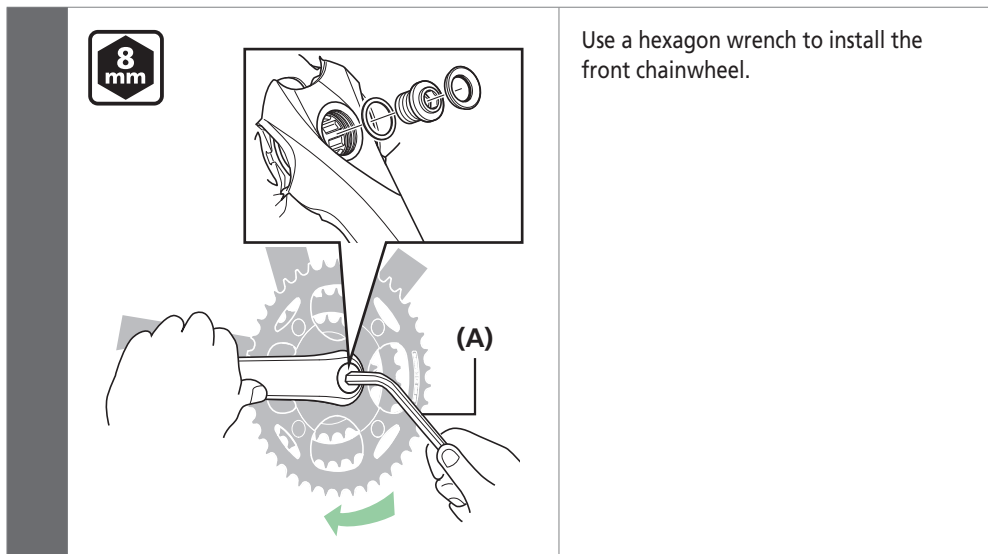
Apply grease:
Premium Grease (Y-04110000)

If the main body and adapter are made of plastic
Do not apply grease to the main body or adapter.




Installation of the front chainwheel

When using a hexagon wrench

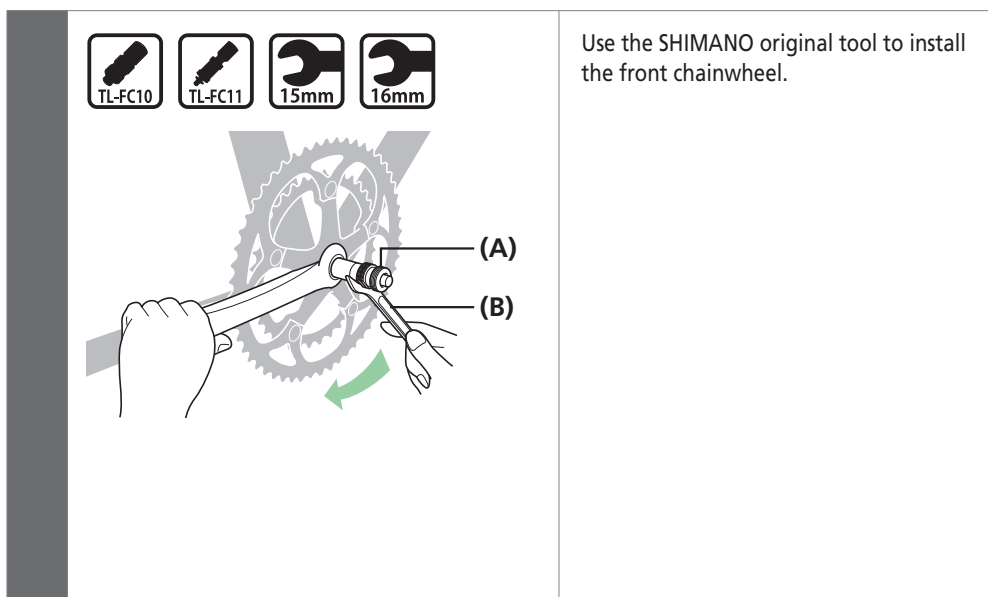


Use a hexagon wrench to install the front chainwheel.

(A) 8 mm hexagon wrench

Tightening torque	
	35 - 50 N·m





When using SHIMANO original tools



Use the SHIMANO original tool to install the front chainwheel.

(A) TL-FC10/TL-FC11

(B) 15 mm spanner/16 mm spanner

Tightening torque	
 	35 - 50 N·m
 	

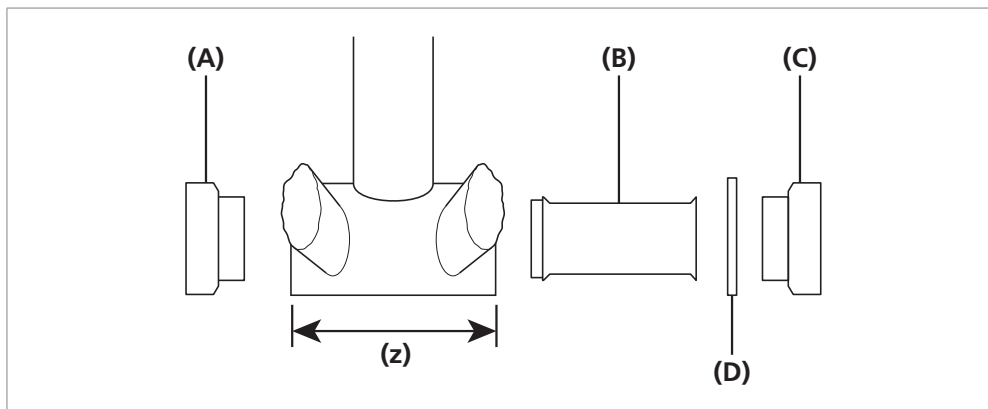
TECH TIPS

- When using TL-FC10, use a 16 mm spanner.
- When using TL-FC11, use a 15 mm spanner.

PRESS-FIT BB

PRESS-FIT BB

■ Adapter



(z) Bottom bracket shell width

(A) Left-hand adapter

(B) Inner cover

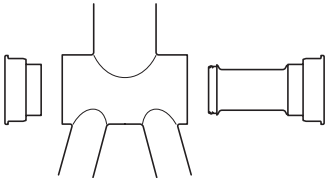
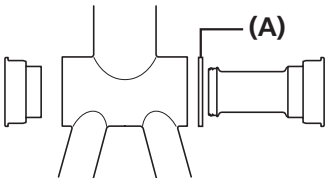
(C) Right hand adapter

(D) 2.5 mm spacer

NOTICE

Some models do not need spacers.

■ Assembly example

<p>Bottom bracket shell with 92 mm width</p>	<ul style="list-style-type: none"> • The 2.5 mm spacer is not needed for a bottom bracket shell width of 92 mm. • Use the inner cover. 
<p>Bottom bracket shell with 89.5 mm width</p>	<ul style="list-style-type: none"> • For a bottom bracket shell width of 89.5 mm, insert the 2.5 mm spacer into the right hand side (between the frame and the right hand adapter). • Use the inner cover. 

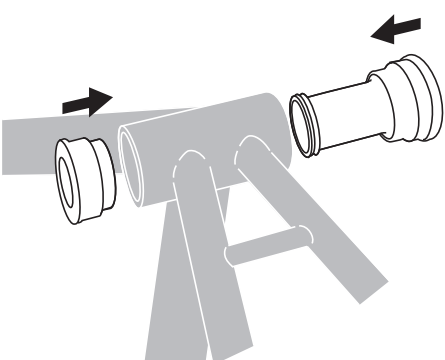
(A) 2.5 mm spacer

NOTICE

- 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.

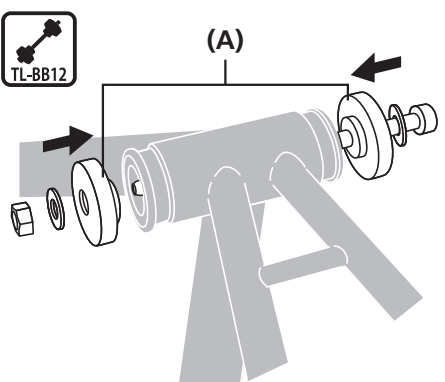
■ Installation

1



Insert the bottom bracket into the bottom bracket shell.

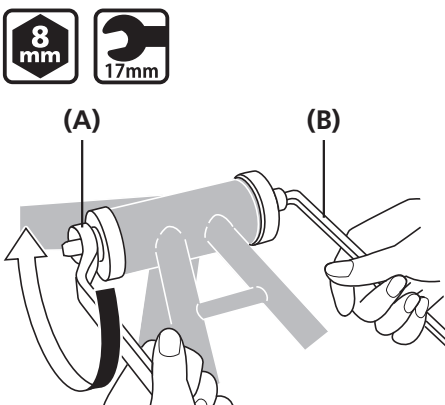
2



Insert the SHIMANO original tool into the bottom bracket.

(A) TL-BB12

3

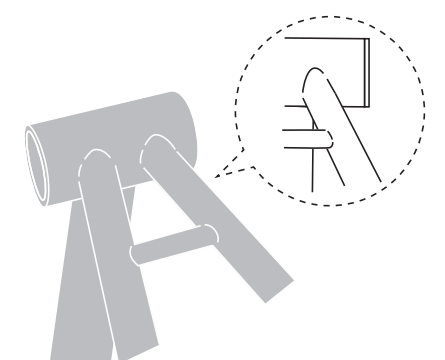


Press fit the bottom bracket by tightening with a spanner while making sure that the contact surface of the bottom bracket stays parallel to the contact surface of the bottom bracket shell.

(A) 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

1

Insert the SHIMANO original tool into the bottom bracket.

(A) TL-BB13

NOTICE

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

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 soft face mallet until the end of the bottom bracket is ejected.

(A) Soft face mallet

4

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

(A) Soft face mallet

MAINTENANCE

MAINTENANCE

■ Replacing chainrings

NOTICE

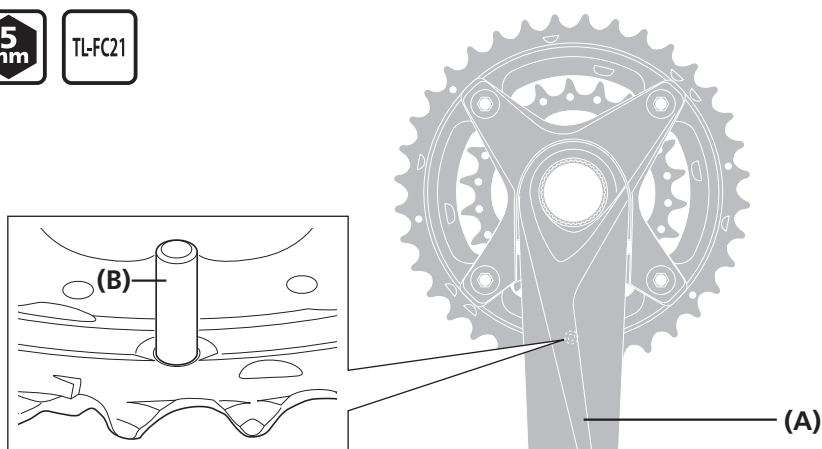
For models that are not described here, refer to the section "INSTALLATION (CHAINRINGS)" in General Operations.

Double gear type (FC-M3000-B2/FC-M4050-B2)

Set the largest chainring so that the chain drop prevention pin is positioned under the crank arm.



1



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

Tightening torque

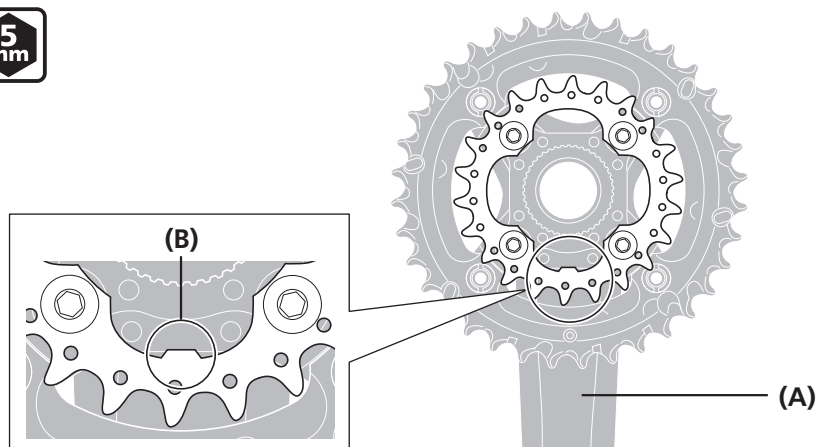


12 - 14 N·m

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



2



- (A) Crank arm
- (B) Convex section

Tightening torque



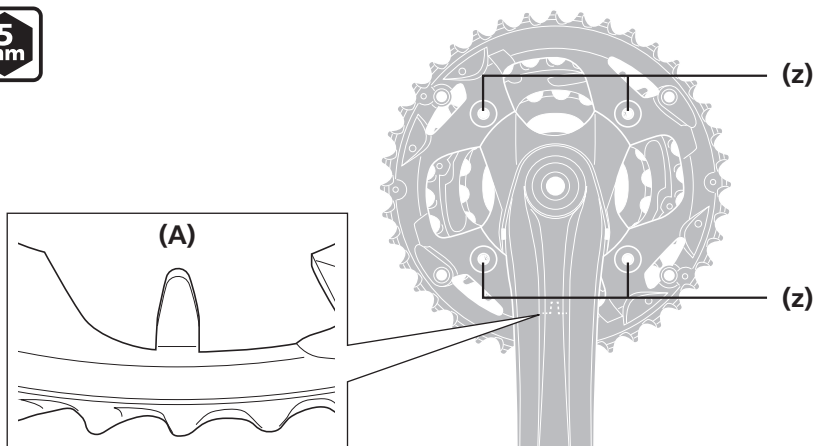
16 - 17 N·m

Triple gear type (FC-M3000/M4000/M4050/M4060/MT300)

Set the largest chainring so that the chain drop prevention pin is positioned under the crank arm.



1



(z) 5 mm hexagon wrench

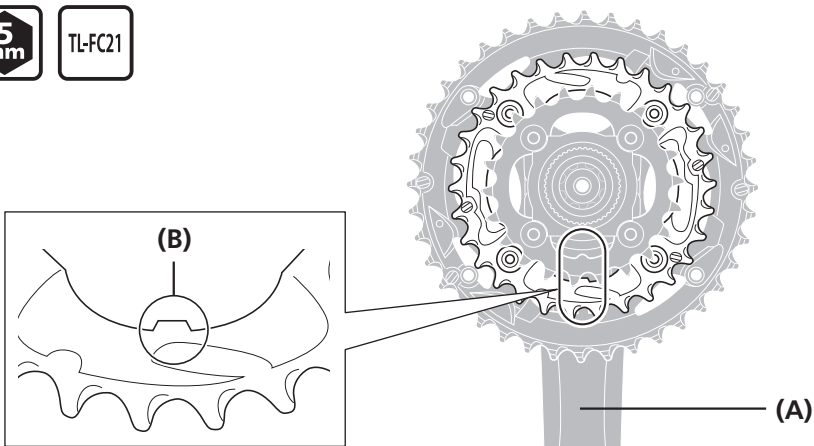
(A) Chain drop prevention pin

Set the middle chainring and the smallest chainring so that the marked sides face inward and the convex section on each chainring is positioned under the crank arm.



2

FC-M3000/M4000/M4050



(A) Crank arm

(B) Convex section

(C) Inner side

Smallest chainring Tightening torque



16 - 17 N·m

Largest chainring/ Middle chainring Tightening torque

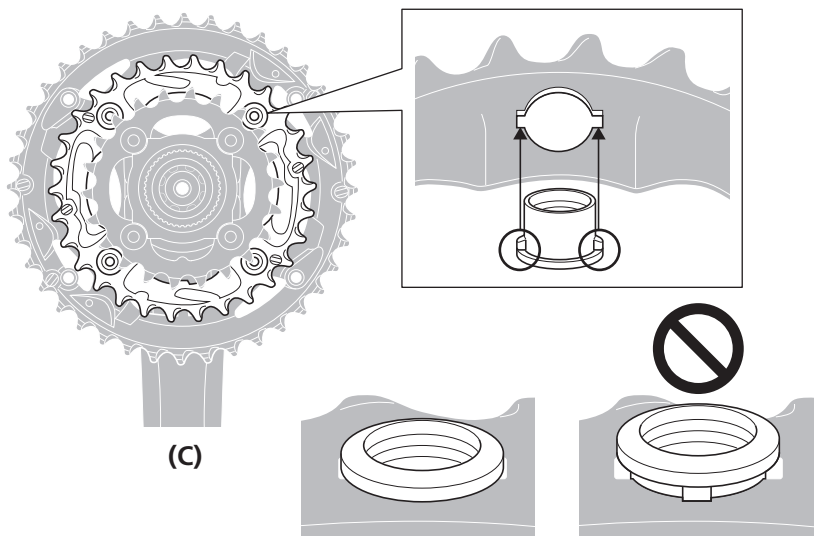


12 - 14 N·m



NOTICE

- Set the largest chainring and the middle chainring of FC-M3000/M4000/M4050 so that the convex sections of the nuts fit the notches in the holes of the chainring.
- TL-FC21 is used with the largest chainring and middle chainring of FC-M4060.



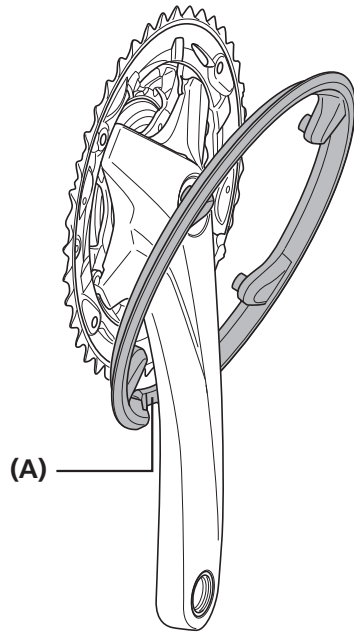
■ Installation of the chain guard

FC-M2000/M3000/M4000/M4050/M4060/MT101/MT200-3/MT210/MT300-40T/MT210-2/TY510-2 specifications

1

Attach the chain guard to the largest chainring as shown in the illustration.

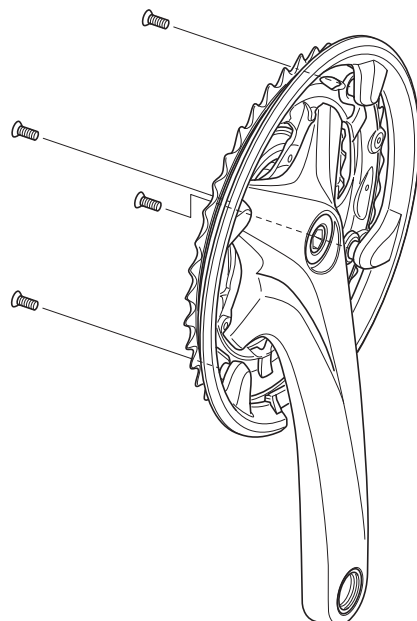
Put the Chain Guard between Crank and Gear, align the flat area is placed in the Crank position.



(A) Flat areas

2

Install the chain guard.
Refer to the illustration to see where to tighten the bolt.



Tightening torque



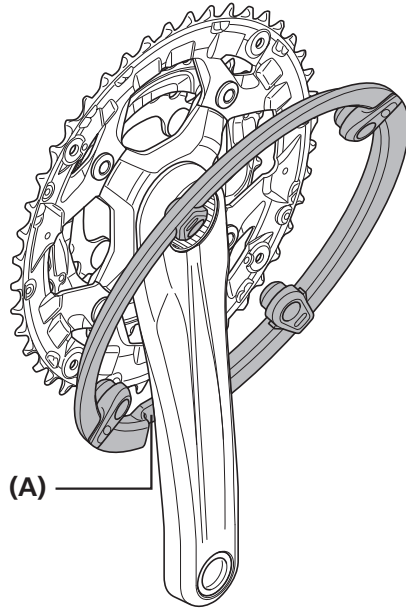
1.5 - 2 N·m

FC-MT300-44T specification

1

Attach the chain guard to the largest chainring as shown in the illustration.

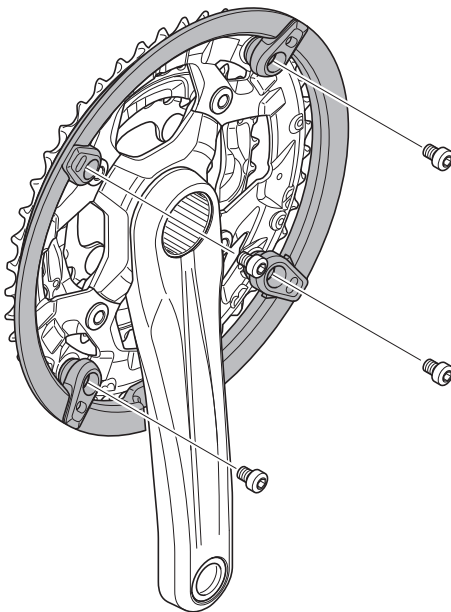
Put the Chain Guard between Crank and Gear, align the flat area is placed in the Crank position.



(A) Flat areas

2

Install the chain guard.
Refer to the illustration to see where to tighten the bolt.



Tightening torque



1.5 - 2 N·m

SHIMANO

SHIMANO NORTH AMERICA BICYCLE, INC.

One Holland, Irvine, California 92618, U.S.A. Phone: +1-949-951-5003

SHIMANO EUROPE B.V.

High Tech Campus 92, 5656 AG Eindhoven, The Netherlands Phone: +31-402-612222

SHIMANO INC.

3-77 Oimatsu-cho, Sakai-ku, Sakai City, Osaka 590-8577, Japan

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

© Dec. 2019 by SHIMANO INC. ITP