

Dealer's Manual

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

Crankset

ROAD

SORA

FC-3503

FC-3550

CLARIS

FC-2403

FC-2450

Non-Series

FC-R350

FC-RS200

FC-RS500

TOURNEY A070

FC-A070

FC-A073

MTB

DEORE XT

FC-M780

FC-M782

FC-M785

FC-M8000

SLX

FC-M670

FC-M672

FC-M675

FC-M677

ZEE

FC-M640

FC-M645

DEORE

FC-M610

FC-M612

FC-M615

FC-M617

SHIMANO ALIVIO

FC-M4000

FC-M4050

FC-M4060

TOURNEY

FC-TX801

FC-TY701

ACERA

FC-M3000

FC-M3000-8

Non-Series

FC-M351

FC-M371

FC-M522

FC-M523

FC-M552

FC-M622

FC-M625

FC-M627

FC-MT700

Trekking

DEORE XT

FC-T780

FC-T781

DEORE LX

FC-T671

DEORE

FC-T611

ACERA

FC-T3010

FC-T3010-8

SHIMANO ALIVIO

FC-T4010

FC-T4060

Non-Series

FC-T521

Comfort

ALFINE

FC-S501

NEXUS

FC-C6000

Bottom bracket

SM-BB52

SM-BB93

SM-BB94-41A

SM-BB72

SM-BBR60

BB-UN100

BB-UN101

BB-UN300

BB-ES300

BB-MT501

BB-MT500-PA

BB-MT800

BB-MT801

BB-MT800-PA

BB-RS500

BB-RS501

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.
- 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.

■ SAINT/ZEE

- Downhill bicycle riding and freeriding are inherently dangerous activities. 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. There is a risk of being involved in an accident that can result in a serious injury or even death.

For Installation to the Bicycle, and Maintenance:

■ HOLLOWTECH II type

- 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 arm 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. Furthermore, after riding approximately 100 km (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 screws 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.

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:

- Check that there is no excess play or looseness in any fastening sections before riding the bicycle. Also, be sure to retighten the crank arm and pedals at periodic intervals.
- Be sure to keep turning the crank arm during the shift lever operation.







■ MTB/Trekking

- When the chain is in any of the positions shown in the illustration, 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 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	
Chainring		 	
Sprocket		 	

■ ROAD

- When the chain is in any of the positions shown in the illustration, the chain may come into contact with the 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	Triple	
Chainring			
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 chainrings 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 chainrings 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 seizing. Use a torque wrench to securely tighten the pedals. Tightening torque is 35 - 55 N·m. The right crank arm has a right-hand thread, and the left 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 chainrings and the chain.

■ HOLLOWTECH II / 2-piece crankset

- 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 recommended 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 fastening section, then tighten it to the specified torque.
- If you feel any looseness in the bearings, the bottom bracket should be replaced.
- Use the specified chainring combination. If other chainring combinations are used, it can create poor shifting and cause the chain to jam, resulting in damage to the bicycle.

■ 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.

■ FC-M8000-B1 / FC-M8000-B2

























- Use FC-M8000-B1 / FC-M8000-B2 with a specially designed frame.

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	
	5 mm hexagon wrench		TL-FC11		TL-FC34
	8 mm hexagon wrench		TL-FC16		TL-FC36
	10 mm hexagon wrench		TL-FC18		TL-FC37
	15 mm spanner		TL-FC24		TL-BB12
	16 mm spanner		TL-FC25		TL-BB13
	17 mm spanner		TL-FC31		TL-UN66
	Soft face mallet		TL-FC32		TL-UN74-S
	TL-FC10		TL-FC33		Hexalobular [#30]

INSTALLATION

INSTALLATION

List of tool combinations

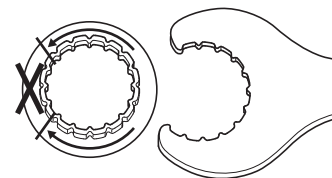
Use the tools in the correct combination.

SM-BB93

<p>TL-FC24 & TL-FC32</p>	<p>TL-FC24 & TL-FC33</p>
<p>TL-FC24 & TL-FC36</p>	<p>TL-FC34</p>

NOTICE

- For an impact wrench, use TL-FC34 for SM-BB93. Use TL-FC37 for SM-BBR60 / BB-MT800 / BB-MT801. Using other tools may damage the tool.
- TL-FC24/FC25 may become damaged and unusable after repeated use.
- When setting TL-FC24/FC25 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.

SM-BBR60 / BB-MT800 / BB-MT801

<p>TL-FC25 & TL-FC32</p>	<p>TL-FC25 & TL-FC33</p>
<p>TL-FC25 & TL-FC36</p>	<p>TL-FC37</p>

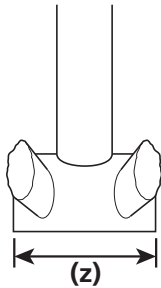
INSTALLATION

▶▶ HOLLOWTECH II/2 piece crankset

■ HOLLOWTECH II/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

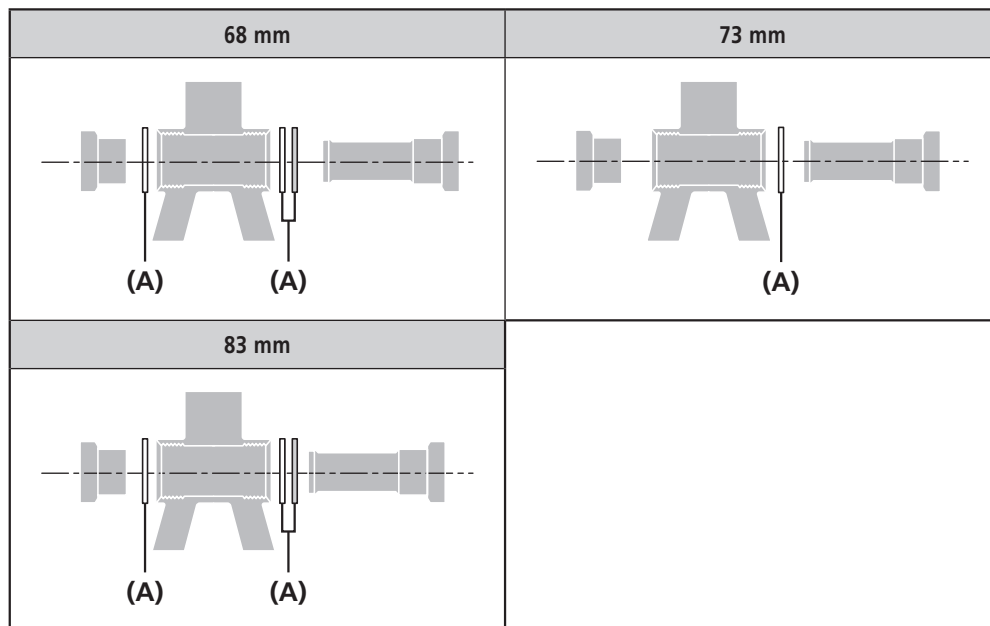
2

Install the cups.

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

INSTALLATION

▶▶ HOLLOWTECH II/2 piece crankset

Band type**(A)** 2.5 mm spacer**NOTICE**

When installing the recommended ROAD bottom bracket, a spacer is not needed. Separate cups for ROAD and MTB are available. Use a cup that is compatible with the crankset.

Refer to the following information for the details on the combination of each component.

<Current models>

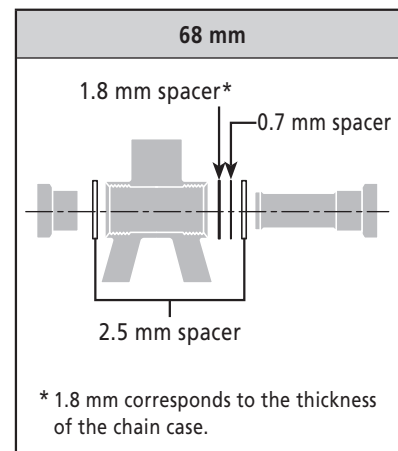
<https://productinfo.shimano.com>

<Previous models>

<https://productinfo.shimano.com/#/archive>**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.

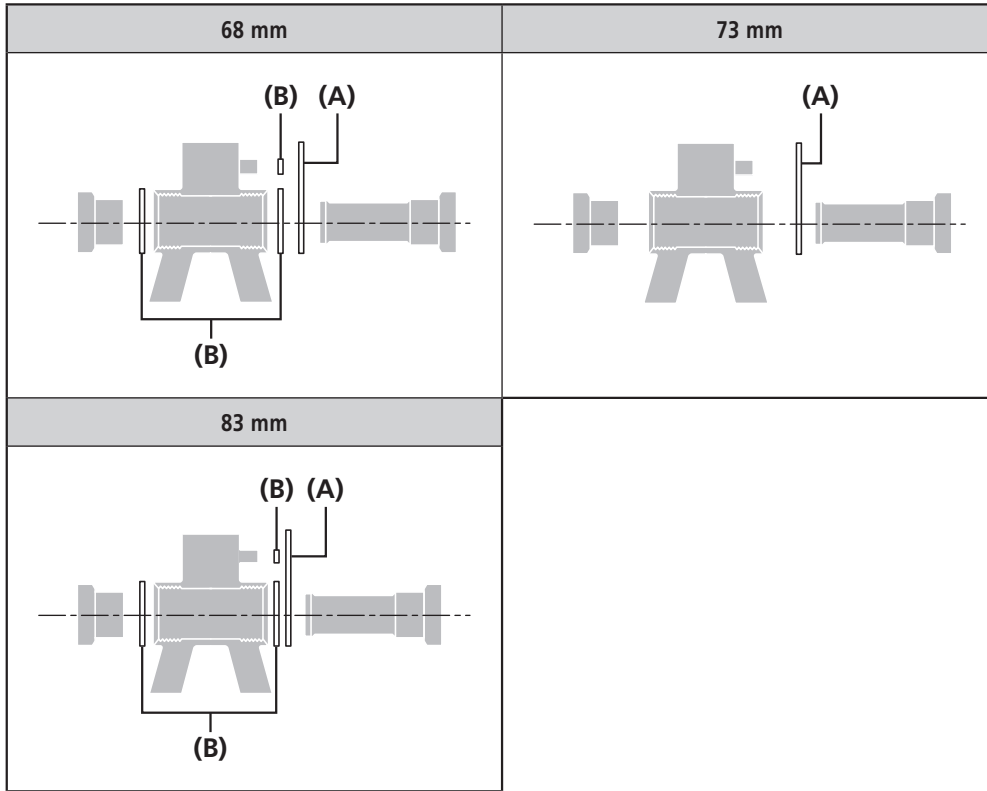
* SM-BB93 is an aluminum spacer.



INSTALLATION

▶ HOLLOWTECH II/2 piece crankset

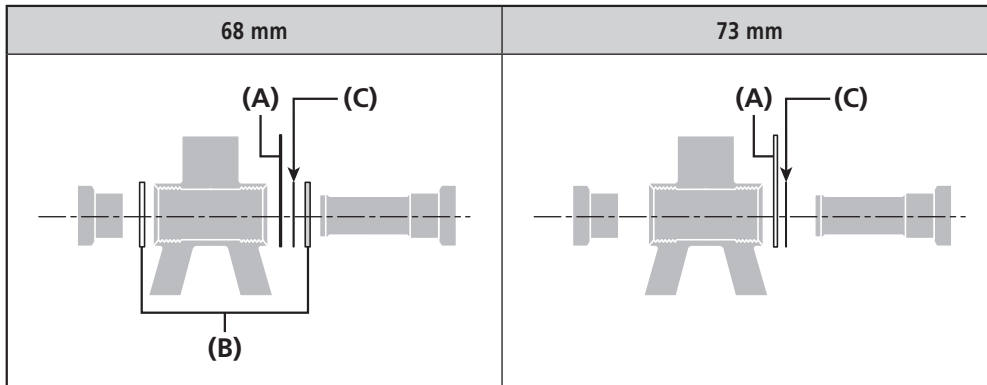
Bracket type



(A) BB mount-type bracket

(B) 2.5 mm spacer

Chain case stay type



(A) Chain case stay

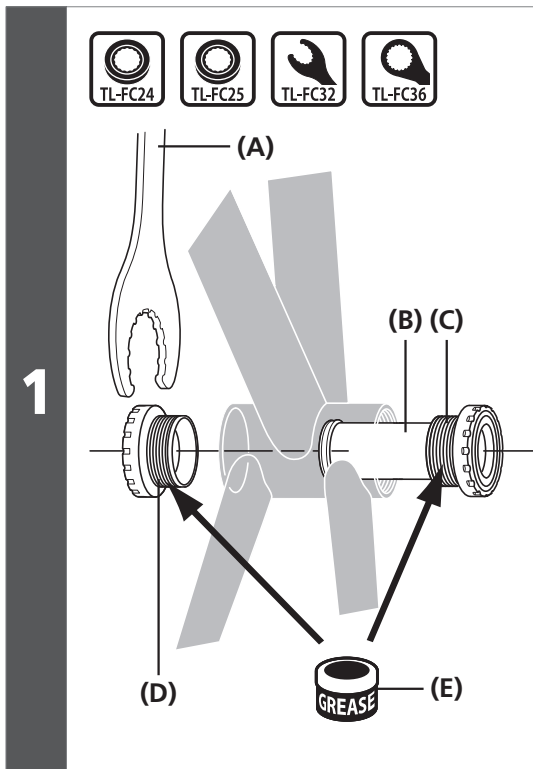
(B) 2.5 mm spacer

(C) 0.7 mm spacer

NOTICE

If not using a chain case, use a 1.8 mm spacer.

Installing the crank arms



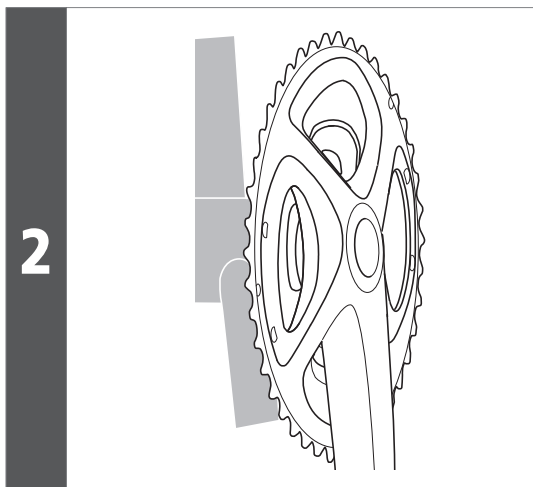
Grease the left- and right-hand cups and use the SHIMANO original tool to install the right-hand cup of the bottom bracket, the inner cover and the left-hand cup of the bottom bracket.

- (A) TL-FC32
- (B) Inner cover
- (C) Right-hand cup (left-hand thread) (Right-hand thread for 70 mm [M36])
- (D) Left-hand cup (right-hand thread)
- (E) Apply grease: Premium Grease (Y04110000)

Tightening torque	
	35 - 50 N·m

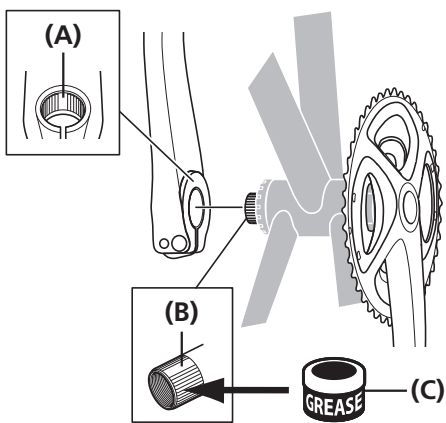
NOTICE

TL-FC24/FC25 are tightened by combining with TL-FC32/FC36.



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

3

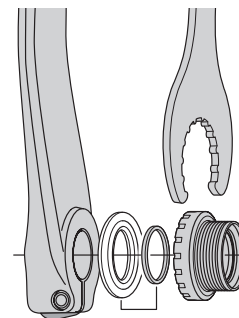


Set the wide groove area of the left crank arm into the axle of the right crank arm unit where the groove is wide.

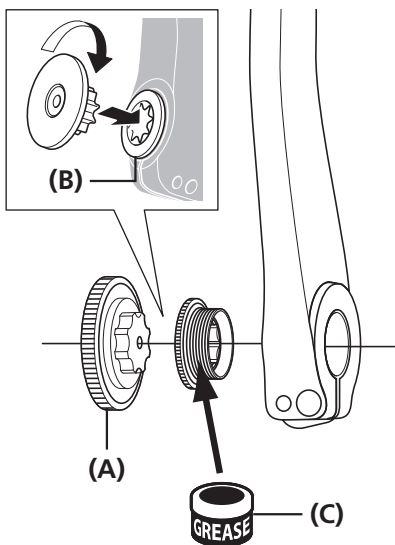
- (A) Wide groove area (left crank arm)
- (B) Wide groove area (axle)
- (C) Apply grease: Premium Grease (Y04110000)

NOTICE

Insert a spacer for the road bike triple specification and the comfort bike double guard specification.



4



Use the SHIMANO original tool to tighten the cap.

- (A) TL-FC16
- (B) Cap
- (C) Apply grease: Premium Grease (Y04110000)

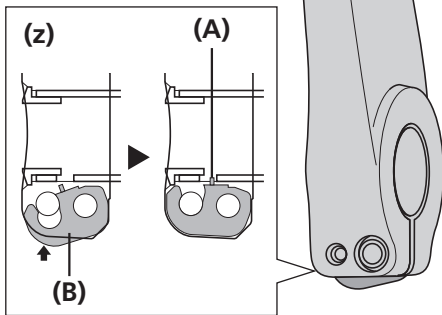
Tightening torque

	<p>0.7 - 1.5 N·m</p>

INSTALLATION

►► HOLLOWTECH II/2 piece crankset

5



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

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

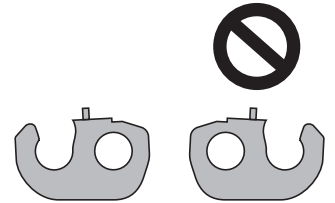
Tightening torque



12 - 14 N·m

NOTICE

- The two screws should be tightened alternately in stages rather than each screw being fully tightened at once.
- **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.

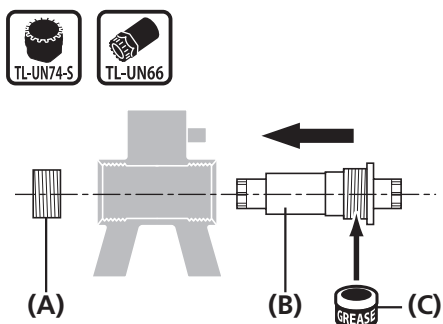


INSTALLATION

▶ OCTALINK type

■ 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 cup.

- (A) Cup
- (B) Body
- (C) Apply grease:
Premium Grease
(Y04110000)

Tightening torque



TL-UN74-S



TL-UN66

50 - 70 N·m

NOTICE

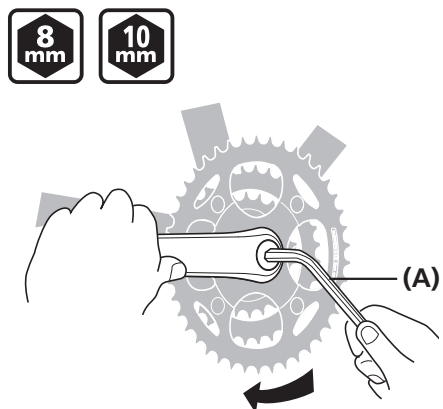
If the cup is made of aluminum or steel
Apply grease to the cup.



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



Installation of the crankset



Use a hexagon wrench to install the crankset.

- (A) 8 mm hexagon wrench /
10 mm hexagon wrench

Tightening torque



8 mm



10 mm

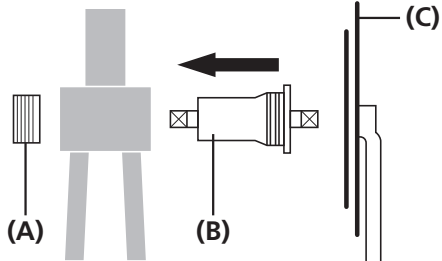
35 - 50 N·m

INSTALLATION

► SQUARE type

■ SQUARE type

Installation of the bottom bracket



Install using the SHIMANO original tool.

First install the main body, then the cup.

- (A) Cup
- (B) Body
- (C) Right crankset

Tightening torque



50 - 70 N·m

NOTICE

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



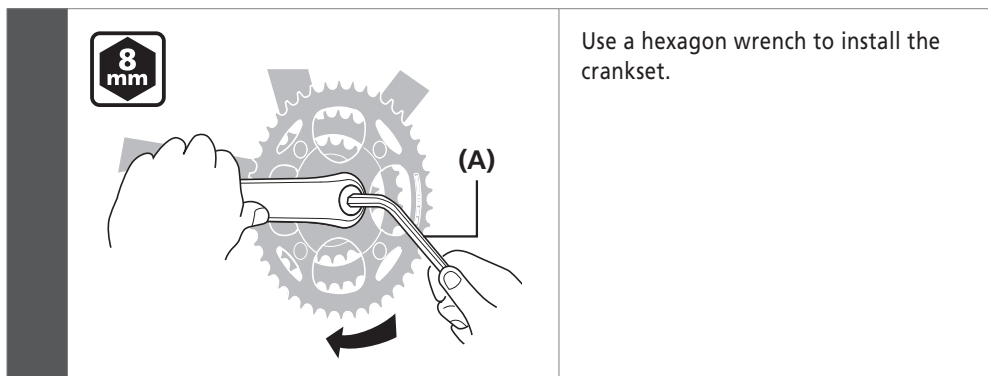
Apply grease:
Premium Grease (Y04110000)

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




Installation of the crankset

When using a hexagon wrench

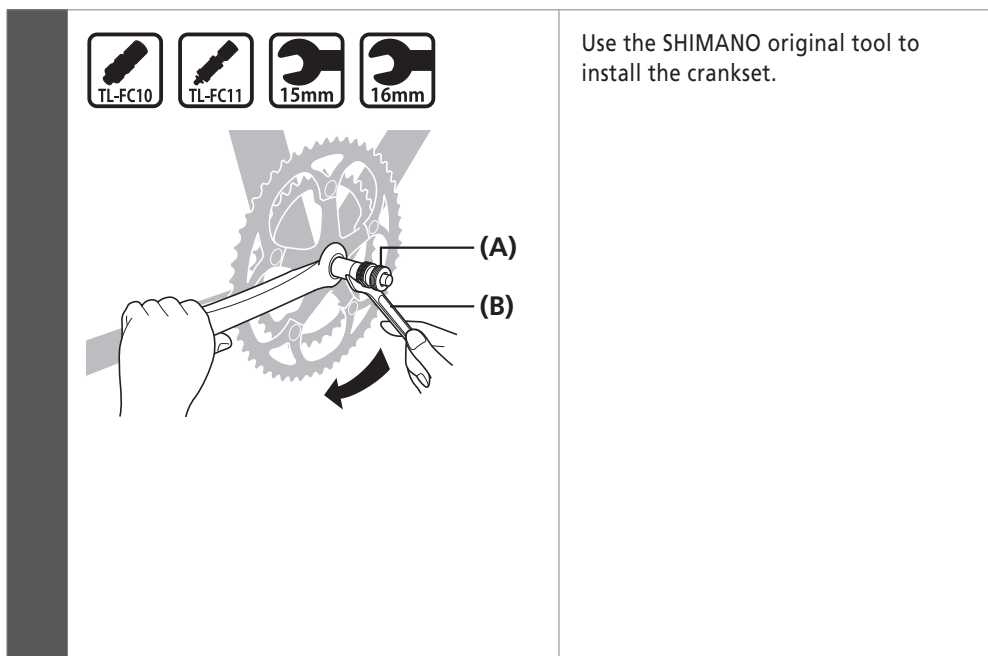


Use a hexagon wrench to install the crankset.

(A) 8 mm hexagon wrench

Tightening torque	
	35 - 50 N·m





When using SHIMANO original tools



Use the SHIMANO original tool to install the crankset.

(A) TL-FC10 / TL-FC11

(B) 15 mm spanner / 16 mm spanner

Tightening torque	
 	35 - 50 N·m
 	

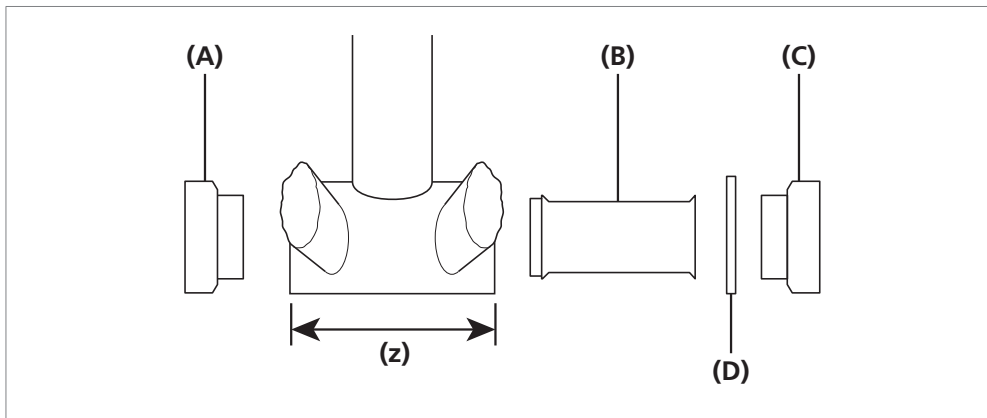
TECH TIPS

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

PRESS-FIT BB

PRESS-FIT BB

Bottom bracket cups



(z) Bottom bracket shell width

- (A) Left-hand cup
- (B) Inner cover
- (C) Right-hand cup
- (D) 2.5 mm spacer

NOTICE

Some models do not need spacers.

Assembly example

ROAD	Bottom bracket shell with 86.5 mm width	<ul style="list-style-type: none"> • Use for a bottom bracket shell width of 86.5 mm. The 2.5 mm spacer is not necessary. • Use the inner cover.
MTB	Bottom bracket shell with 92 mm width	<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.
	Bottom bracket shell with 89.5 mm width	<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 cup). • Use the inner cover.

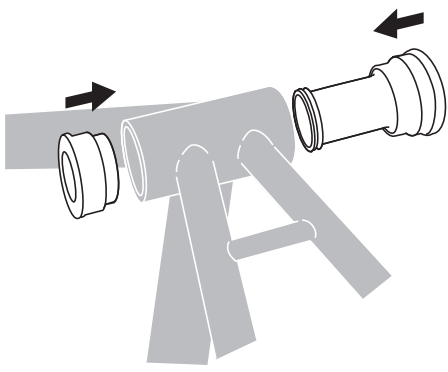
(A) 2.5 mm spacer

NOTICE

- If the frame has openings for the bottom bracket shell, attach an inner cover sleeve to prevent foreign objects from getting inside.
- If the frame has no openings inside the bottom bracket shell, it can be installed without the inner cover sleeve.

■ Installation

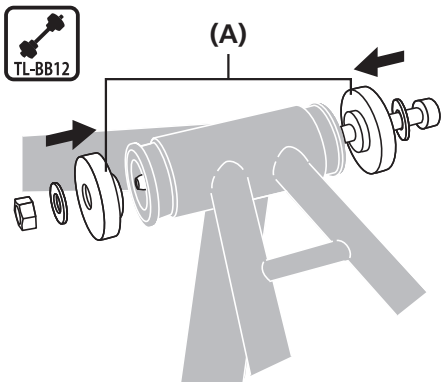
1



Insert the bottom bracket into the bottom bracket shell.

The diagram shows a bottom bracket being inserted into a shell. Arrows indicate the direction of insertion from both ends.

2



Insert the SHIMANO original tool into the bottom bracket.

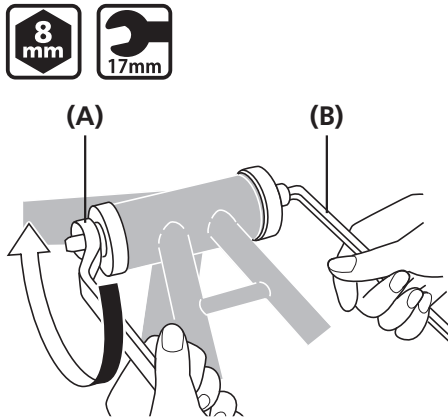
(A)

TL-BB12

The diagram shows the Shimano TL-BB12 tool being inserted into the bottom bracket. A callout (A) points to the tool's position.

(A) TL-BB12

3



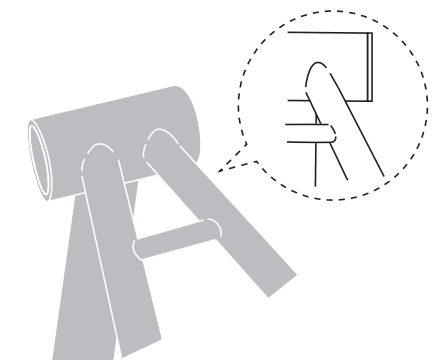
Press fit the bottom bracket by tightening with a spanner while making sure that the contact surface of the bottom bracket stays parallel to the contact surface of the bottom bracket shell.

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

The diagram shows a 17 mm spanner (A) and an 8 mm hexagon wrench (B) being used to tighten the bottom bracket. Arrows indicate the direction of rotation.

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

4

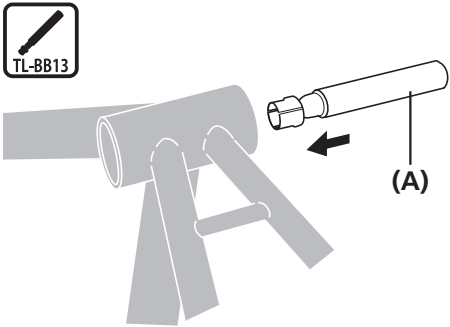


Check to confirm that there is no gap between the bottom bracket and the bottom bracket shell.

The diagram shows the bottom bracket installed in the shell. A dashed circle highlights the contact area, with a magnified view showing the fit between the two parts.

■ Removal

1



Insert the SHIMANO original tool into the bottom bracket.

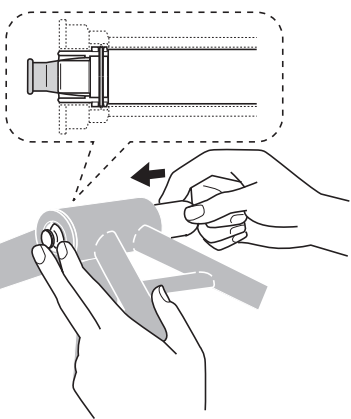
(A) TL-BB13

(A) TL-BB13

NOTICE

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

2



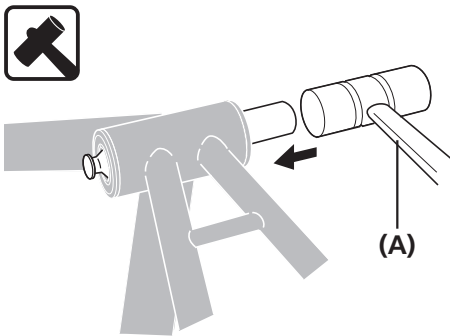
As shown in the illustration, hold down the flap with your fingers and push it in from the opposite side. (When pushed in, the flap opens.)

(A)

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

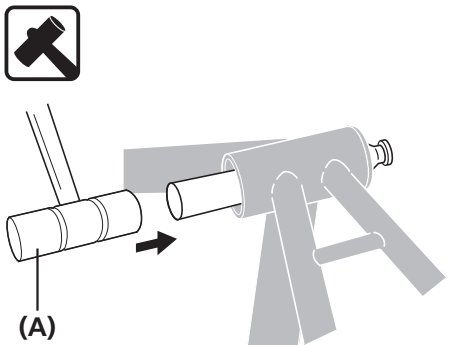


Tap the SHIMANO original tool with a soft face mallet until the end of the bottom bracket is ejected.

(A) Soft face mallet

(A) Soft face mallet

4



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

(A) Soft face mallet

(A) Soft face mallet

MAINTENANCE

MAINTENANCE

■ Replacing chainrings

NOTICE

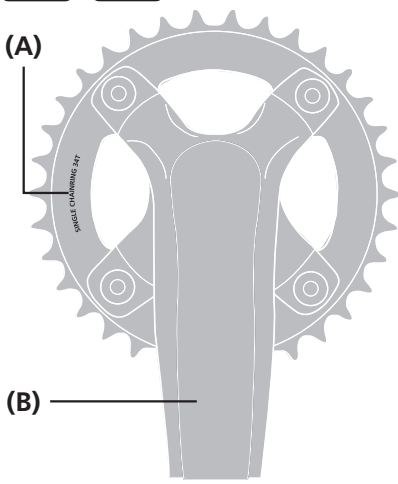
For models that are not described here, refer to the section "INSTALLATION (CHAINRINGS)" in General Operations.

Single chainring type

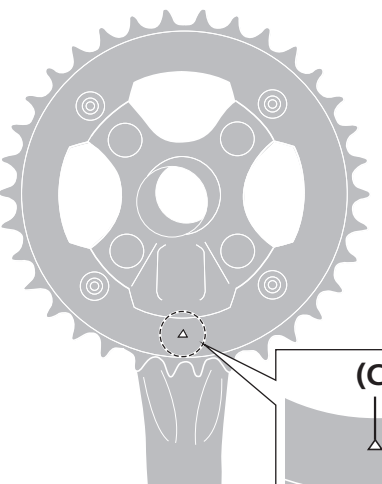
The marked side of the chainring is the front and it should be set so that the Δ mark is positioned under the crank arm.



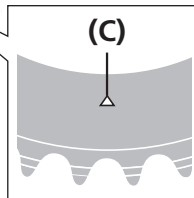
(A)



(B)



(C)



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

Tightening torque



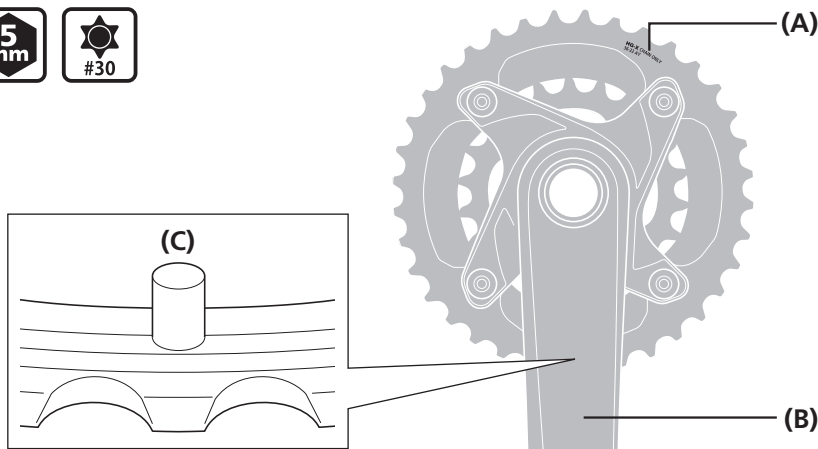
12 - 14 N·m

Double chainring type

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.



1



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

Tightening torque



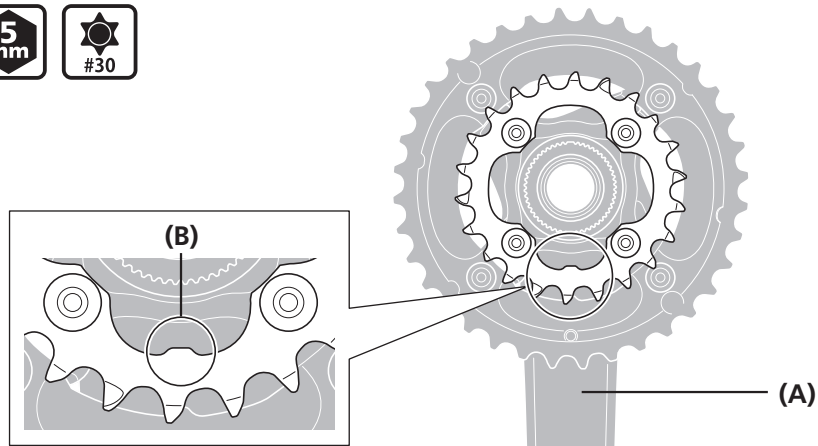
12 - 14 N·m



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



2



- (A) Crank arm
- (B) Alignment tab

Tightening torque

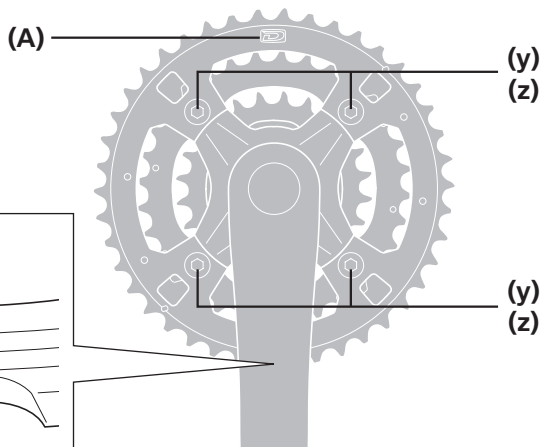


16 - 17 N·m



Triple chainring type

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.



1

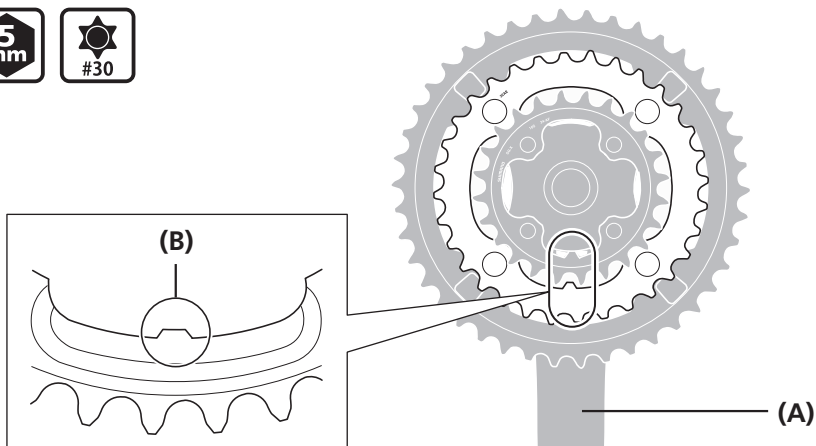
(y) 5 mm hexagon wrench

(z) Hexalobular [#30]

(A) Mark

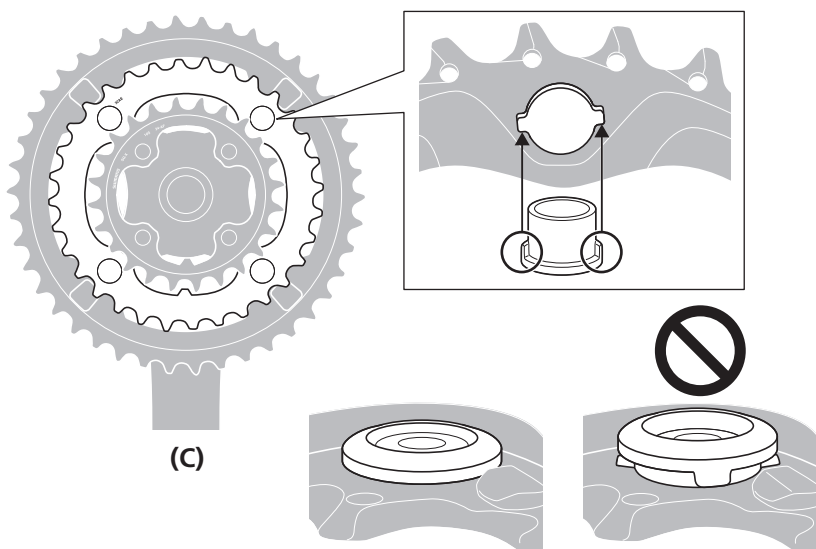
(B) Chain drop prevention pin

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



2

FC-M782/M672/M622/M612/M3000/M4000/M4050



(A) Crank arm

(B) Alignment tab

(C) Inner side

Smallest chainring Tightening torque

 	<p>16 - 17 N·m</p>
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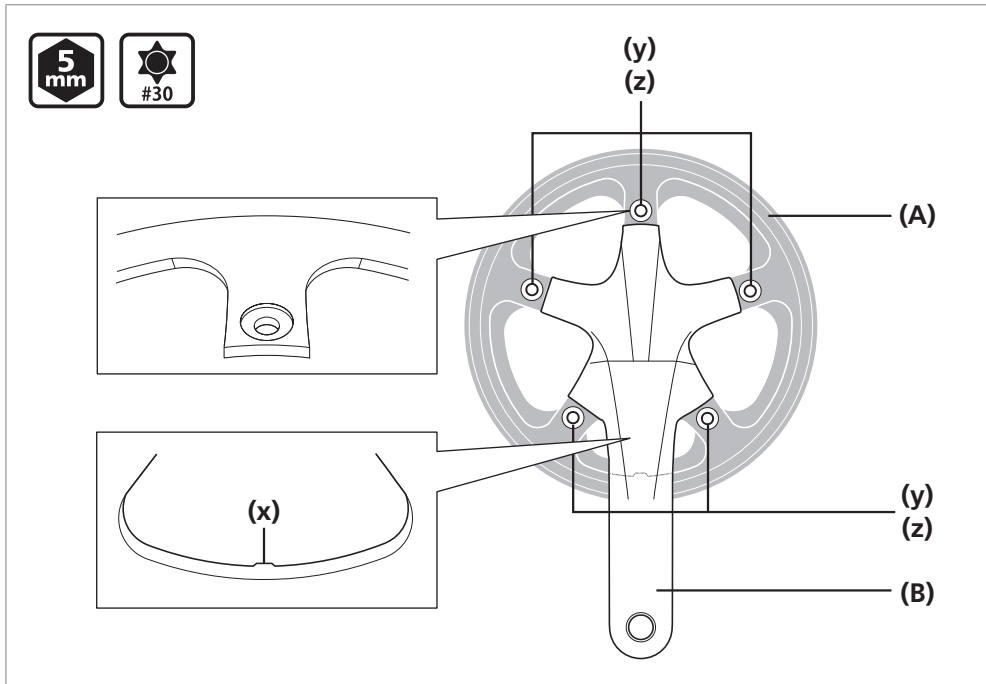
Largest chainring / Middle chainring Tightening torque

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

NOTICE

Set the largest chainring and the middle chainring of FC-M782/M672/M622/M612/M3000/M4000/M4050 so that the alignment tabs of the nuts fit the notches in the holes of the chainring.

Chain guide type



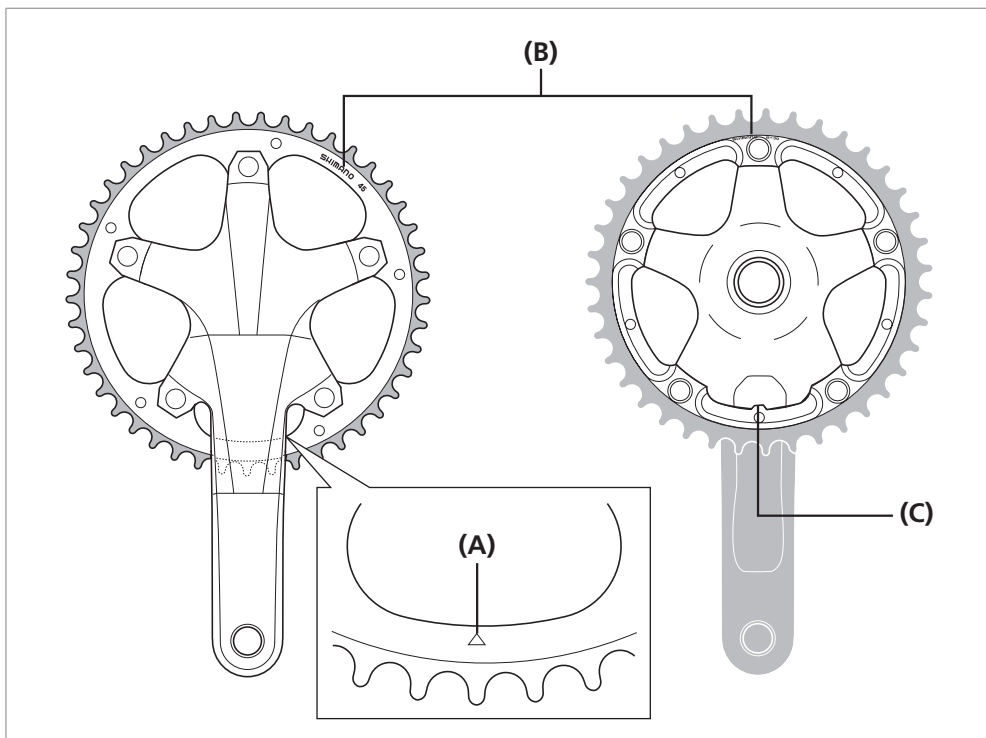
- (x) Alignment tab
- (y) 5 mm hexagon wrench
- (z) Hexalobular [#30]

- (A) Top guard
- (B) Crank arm

NOTICE

The side with indentations around the holes is the front of the top guard and it should be set so that the inside alignment tab of the chainring is at the crank arm position.

No chain guide type



- (A) Δ mark
- (B) Mark
- (C) Alignment tab



TECH TIPS

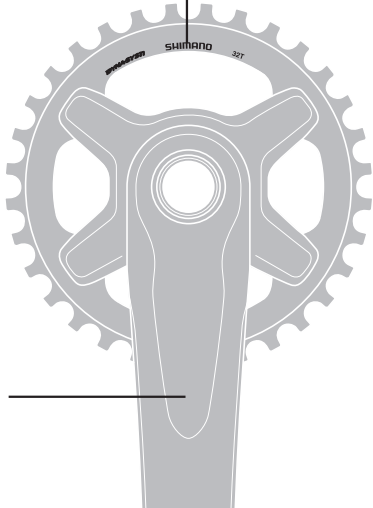
- **For 45T/42T**
The marked side of the chainring is the front and it should be set with the Δ mark lined up with position of the crank arm.
- **For 39T**
The marked side of the chainring is the reverse and it should be set so that the inside alignment tab of the chainring is at the crank arm position.

FC-M8000 Single chainring type

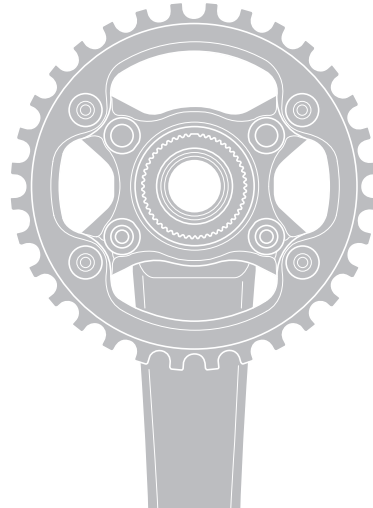
Set the chainring so that the marked side faces the front, and set the crank arm as shown in the illustration.



(A)



(B)



(A) Mark

(B) Crank arm

Tightening torque



12 - 14 N·m

FC-M8000 Double chainring type

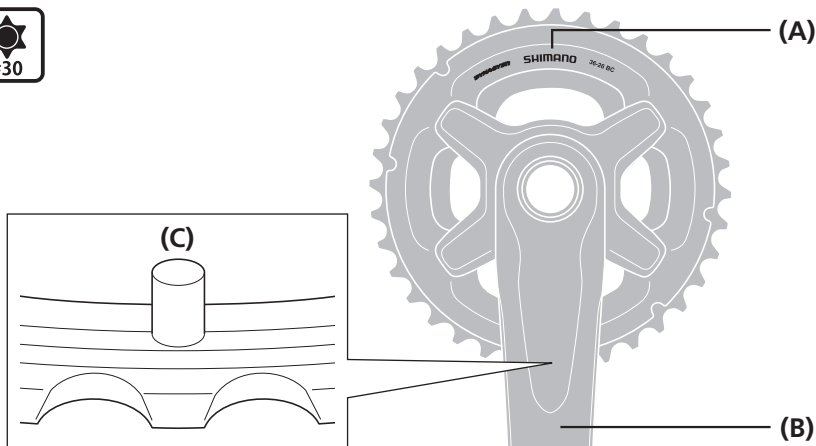
Only use chainring combinations listed below. If other chainring combinations are used, it can create poor shifting and cause the chain to jam, resulting in damage to the bicycle.

		Top		
		34T-BB	36T-BC	38T-BD
Low	24T-BB	X	-	-
	26T-BC	-	X	-
	28T-BD	-	-	X

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.



1



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

Tightening torque

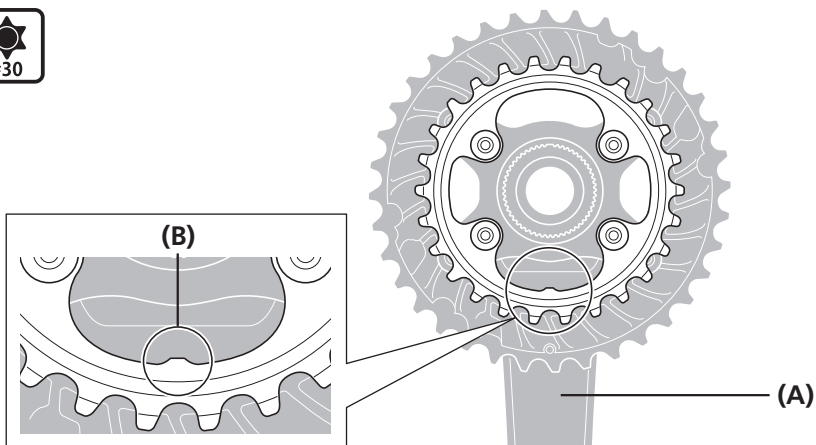


12 - 14 N·m

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



2



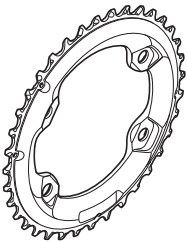
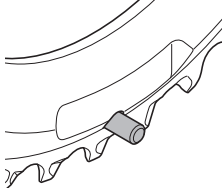
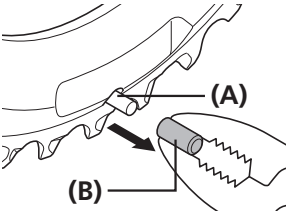
- (A) Crank arm
- (B) Alignment tab

Tightening torque



16 - 17 N·m

FC-M8000-2 / FC-M8000-B2 Repair chainring

Part	Model	Chain drop prevention pin
<p>Chainring</p> 	<p>FC-M8000-2</p>	<p>Use with chain drop prevention pin cover.</p> 
	<p>FC-M8000-B2</p>	<p>Remove chain drop prevention pin cover.</p> 

- (A)** Chain drop prevention pin
- (B)** Chain drop prevention pin cover

NOTICE

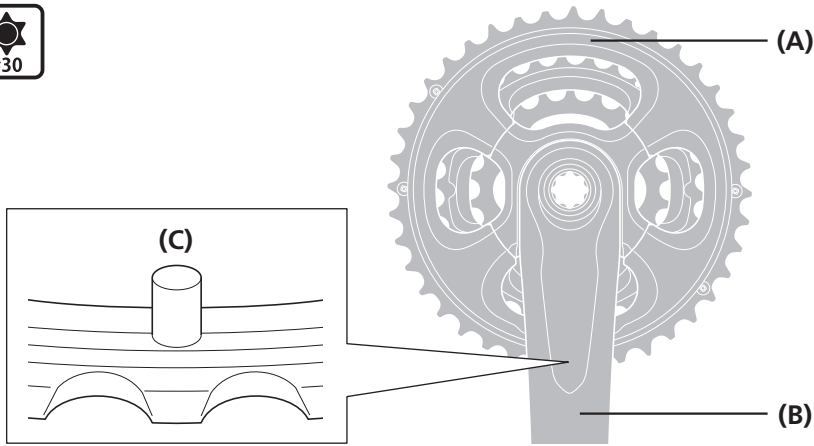
- If the chainring is combined with a standard specification right crank arm without the chain drop prevention pin cover, the chain may get caught between the crank arm and the largest chainring if it falls to the outside of the largest chainring.
- If the chainring is combined with a B specification right crank arm with the chain drop prevention pin cover still in place, the cover will interfere with the crank arm, and it will not be possible to assemble the chainring correctly. It may cause the chain to fall, etc.
- Removed chain drop prevention pin covers cannot be reused.

FC-M8000 Triple chainring type

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.



1



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

**Largest chainring / Middle chainring
Tightening torque**

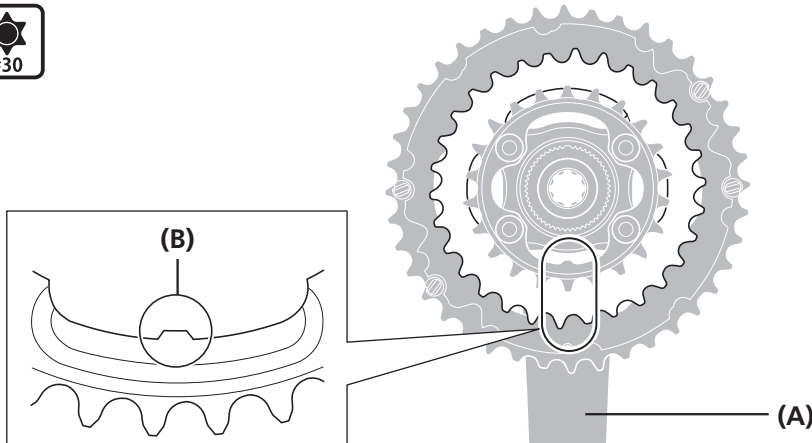


10 - 12 N·m

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



2



- (A) Crank arm
- (B) Alignment tab

Smallest chainring Tightening torque



16 - 17 N·m

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