

Dealer's Manual

ROAD	GRAVEL	MTB
E-BIKE	LIFESTYLE	GENERAL

Crankset

XTR

FC-M9200

FC-M9220

DEORE XT

FC-M8200

DEORE

FC-M6200

SHIMANO

FC-MT620

FC-MT520

Bottom Bracket

SM-BB93

SM-BB94-41A

BB-MT801

BB-MT501

BB-MT800-PA

BB-MT500-PA

Contents

IMPORTANT NOTICE..... 3

TO ENSURE SAFETY..... 4

NOTICE 5

List of tools to be used 7

Installation / removal 8

 Installing / removing the bottom bracket8

 • Tool combination chart 8

 • Installation 9

 • Removal 12

 Installing the crankset 15

 • HOLLOWTECH II / 2-PIECE CRANKSET 15

 Removing the crankset 17

 • HOLLOWTECH II / 2-PIECE CRANKSET 17

Maintenance..... 18

 Replacing the chainring..... 18

 • Single chainring type 18

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 distributor for assistance.

- Make sure to read all manuals included with each 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 detergents such as rust cleaners. If those detergents 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 cracking), skipping, or other abnormalities such as unintended gear shifting. 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 crank fixing screws of the left crank arm 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 crank fixing 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.
- Re-checking the tightening torque of the crank arm is necessary when the crank arm is subjected to strong blows from a fall. If riding when the tightening torque is weak due to a strong blow, the crank arm could detach and you may fall off the bicycle.

CAUTION

Be sure to also inform users of the following:

- Be careful not to touch the teeth of the chainrings. Otherwise, you may be injured.

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 shifter operation.
- Use a neutral detergent to clean the crank arms and the bottom bracket. Using alkaline or acidic detergents may cause discoloration.
- If pedaling performance does not feel normal due to an abnormal noise, etc., contact your place of purchase.
- Do not wash the surrounding area of the bottom bracket with a high-pressure wash. Water may enter the bearing section and cause noise or adhesion.
- If you feel any excess play in the bearing section, the bottom bracket should be replaced.
- 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.
- This product is not warranted against damage caused by improper use, abuse, or issues resulting from a crash, unless the circumstance was caused by a manufacturing problem.
- 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 skipping during use, replace the chainrings 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 crankset performance, be sure to use only the recommended type of chain.

Crankset	Recommended chain
FC-M9200 / FC-M9220	CN-M9100
FC-M8200	CN-M8100
FC-M6200 / FC-MT620 / FC-MT520	CN-M6100

- 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 excess play in the bearing section, the bottom bracket should be replaced.
- Apply grease to the bottom bracket before installing it.
- If you feel any excess play in the bottom bracket axle, the bottom bracket should be replaced.

NOTICE

- 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.

Single chainring	FC-M9200	FC-M9220	FC-M8200	FC-M6200	FC-MT620	FC-MT520
38T	X	-	-	-	-	-
36T	X	-	X	-	-	-
34T	X	X	X	-	-	X
32T	X	X	X	X	X	X
30T	X	X	X	X	X	X
28T	-	X	X	-	-	-

- Be sure to use only the applicable chain and bottom bracket.

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

The following tools are necessary for installation / removal, adjustment, and maintenance purposes.

Tool			
	5 mm hexagon wrench		TL-FC32
	8 mm hexagon wrench		TL-FC33
	17 mm spanner		TL-FC34
	32 mm spanner		TL-FC36
	Soft face mallet		TL-FC37
	TL-FC16		TL-FC41
	TL-FC18		TL-BB12
	TL-FC24		TL-BB13
	TL-FC25		

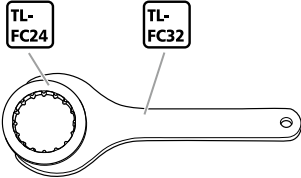
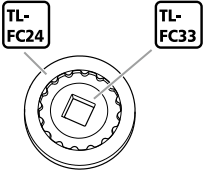
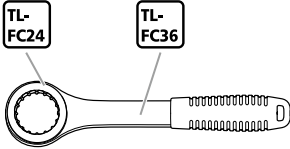
Installation / removal

Installing / removing the bottom bracket

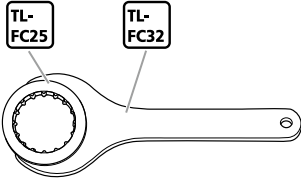
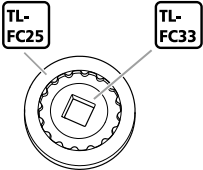
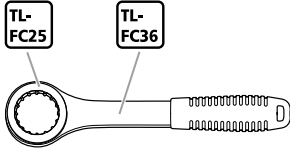
Tool combination chart

Use the tool combinations specified in the table.

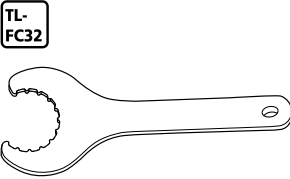
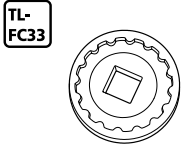
SM-BB93

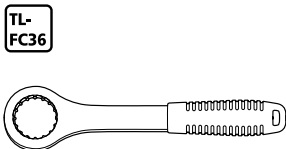
TL-FC24 & TL-FC32	TL-FC24 & TL-FC33
	
TL-FC24 & TL-FC36	TL-FC34
	

BB-MT801

TL-FC25 & TL-FC32	TL-FC25 & TL-FC33
	
TL-FC25 & TL-FC36	TL-FC37
	

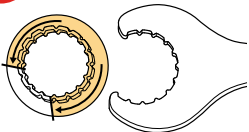
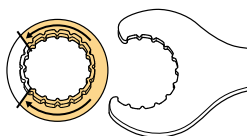
BB-MT501

TL-FC32	TL-FC33
	

TL-FC36	
	

NOTICE

- When using an impact wrench on SM-BB93, use it in combination with TL-FC34. Using any other combinations will damage the tool.
- When using an impact wrench on BB-MT801, use it in combination with TL-FC37. Using any other combinations will damage the tool.
- TL-FC24 / TL-FC25 may become damaged and unusable after repeated use.
- Check the possible installation positions when setting TL-FC24 / TL-FC25 in TL-FC32.



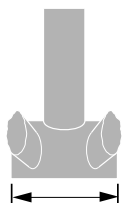
- Any installation position is possible for TL-FC33 / FC36.

Installation

HOLLOWTECH II / 2-PIECE CRANKSET

1. Set the spacers.

- (1) Measure the width of the bottom bracket shell.

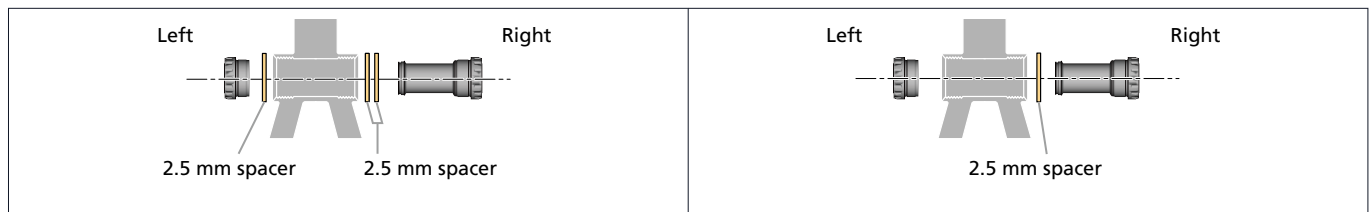


Bottom bracket shell width

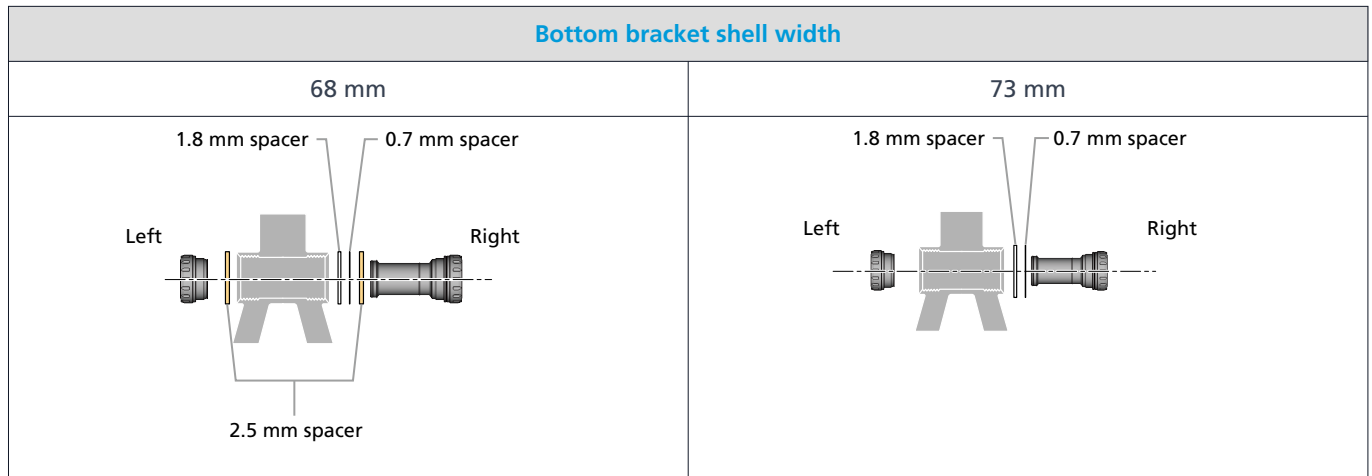
- (2) Prepare the required spacers as indicated in the table.

SM-BB93

Bottom bracket shell width	
68 mm	73 mm



BB-MT801 / BB-MT501

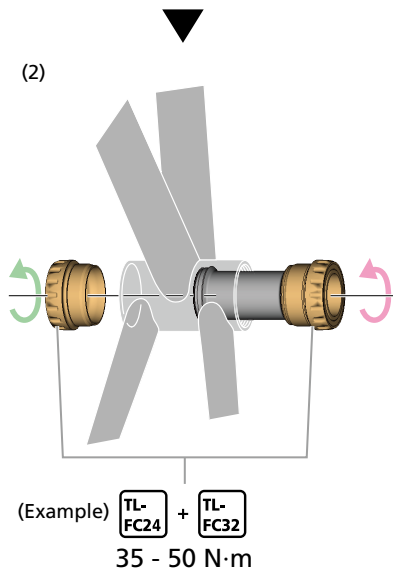
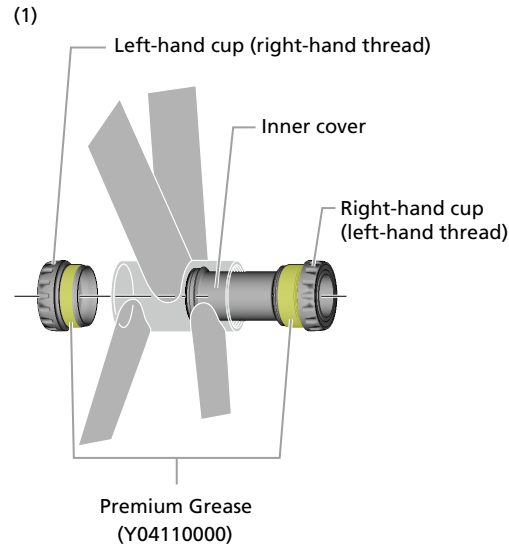


NOTICE

- A 1.8 mm spacer and 0.7 mm spacer can be used together instead of a 2.5 mm spacer.

2. Install the inner cover, left- and right-hand cups, and spacers.

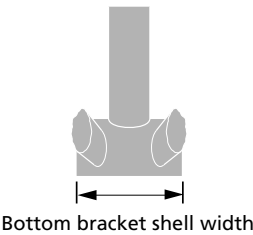
- (1) Apply grease to the left- and right-hand cups.
- (2) Tighten the left- and right-hand cups. Refer to " [Tool combination chart](#) " in "Installing / removing the bottom bracket" for the SHIMANO original tool to use.



Press-fit bottom bracket

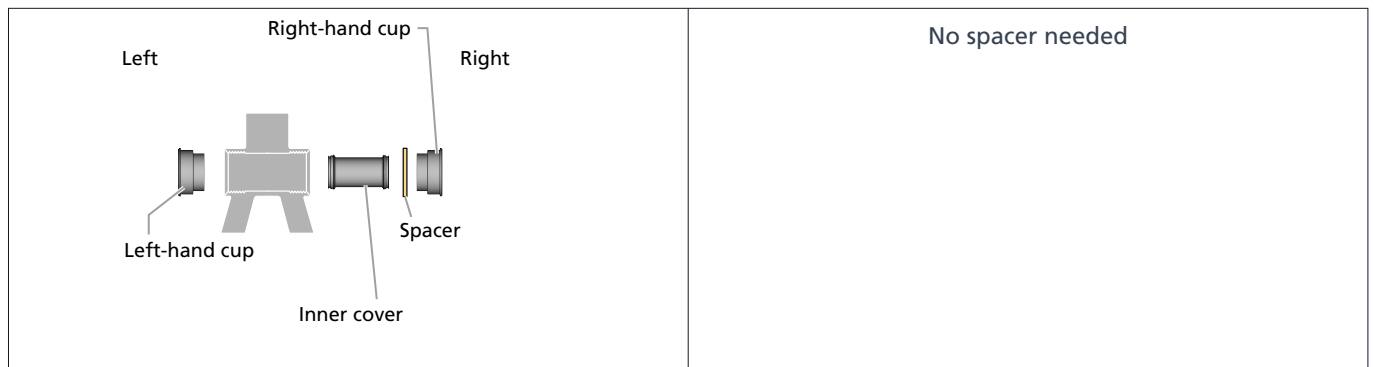
1. Set the bottom bracket and spacer.

(1) Measure the width of the bottom bracket shell.

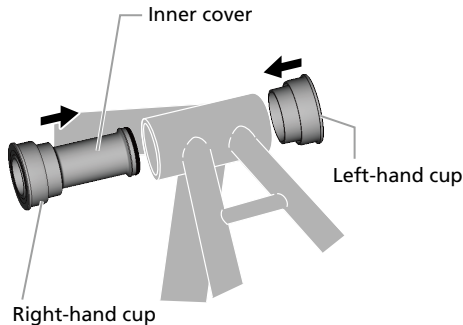


(2) Prepare the required spacers (2.5 mm) as indicated in the table.

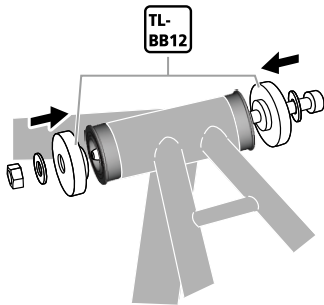
Bottom bracket shell width	
89.5 mm	92 mm



(3) Set the inner cover and left- and right-hand cups.



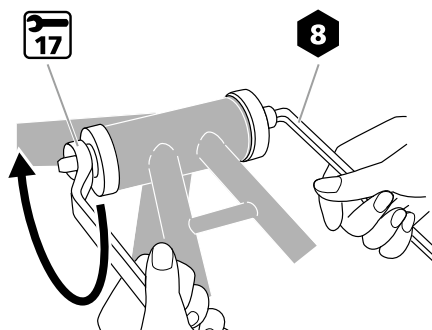
2. Insert the SHIMANO original tool into the bottom bracket.



3. Press-fit the bottom bracket.

Make sure that the flanges of the bottom bracket are parallel to the outer faces of the bottom bracket shell.

* Press-fit until there is no more gap between the flanges of the bottom bracket and the bottom bracket shell.



Removal

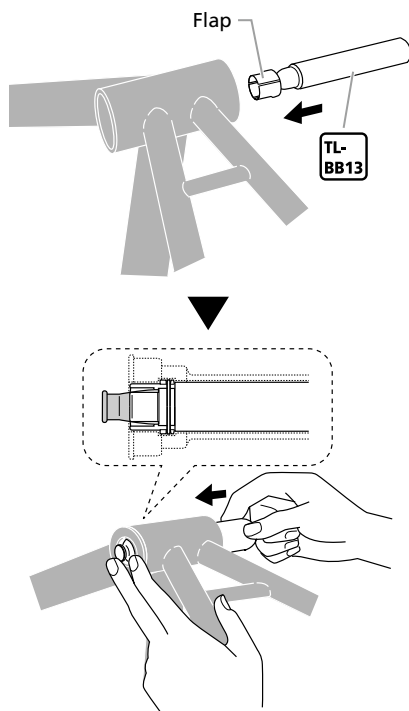
HOLLOWTECH II / 2-PIECE CRANKSET

1. Perform the removal in the reverse order from " [Installation](#) " in "Installing / removing the bottom bracket."

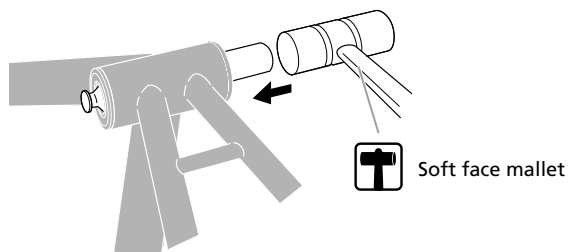
Press-fit bottom bracket

1. Insert the SHIMANO original tool into the bottom bracket.

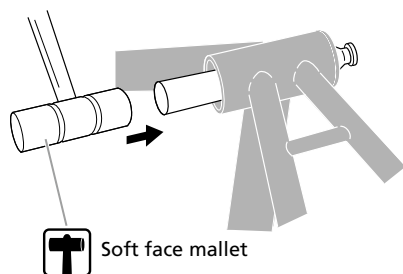
- (1) Extend the flaps to taper the tip of the SHIMANO original tool.
- (2) Insert the SHIMANO original tool from the opposite side of the cup to remove.
- (3) As shown in the figure, press down on the protruding portion of the tip with your hand to expand the flaps.
- (4) Push the tool in further while continuing to press down on the tip, until the collar on the flaps engages with the cup.



2. Push out the cup.



3. Remove the cup on the opposite side in a similar manner.



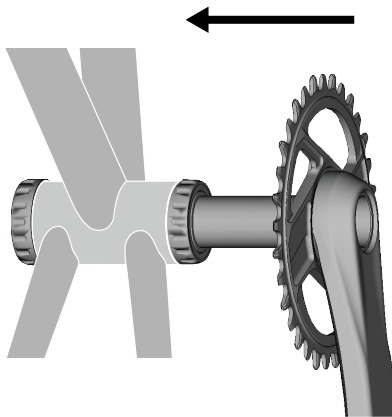
NOTICE

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

Installing the crankset

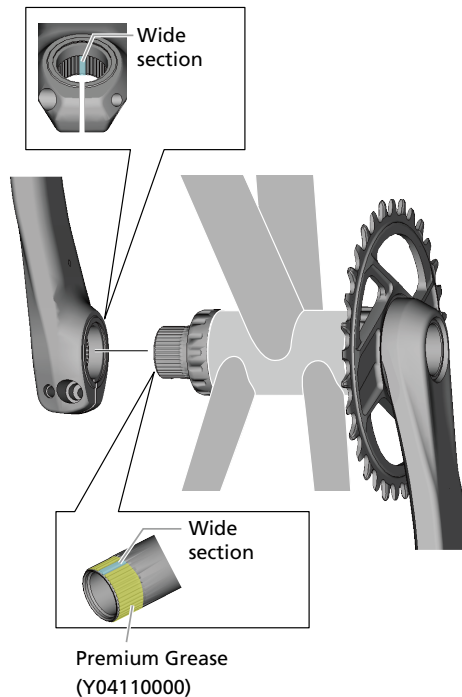
HOLLOWTECH II / 2-PIECE CRANKSET

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

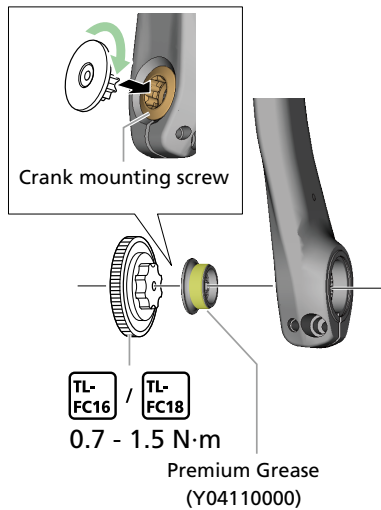


2. Set the left crank arm onto the crank axle.

- (1) Apply grease to the crank axle.
- (2) Align the wide section of the left crank arm spline with the wide section of the spline on the crank axle.

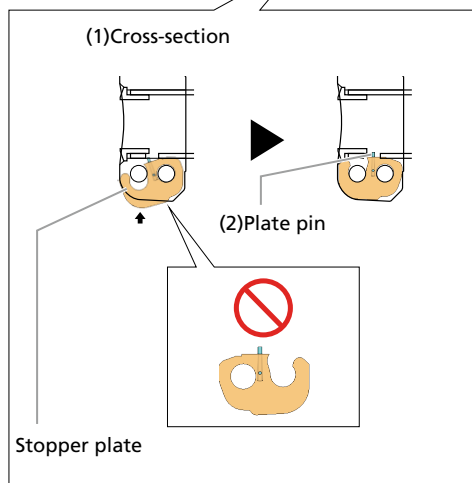
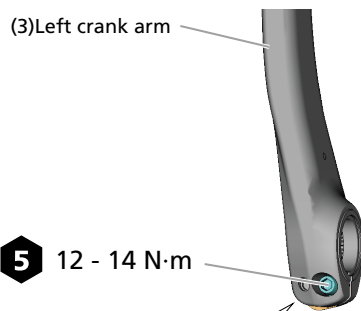


3. Apply grease to the crank mounting screw and tighten it.



4. Tighten the crank fixing screws to secure the crank arm.

- (1) Set the stopper plate in the direction shown in the figure and push it in.
- (2) Check that the plate pin is securely inserted.
- (3) Tighten the two crank fixing screws of the left crank arm alternately until they reach the specified torque.



TECH TIPS

- Confirm that there is no gap or excess play between the crank arm and bottom bracket. If a gap or excess play is present, re-tighten the screws as shown in steps [3](#) and [4](#).

Removing the crankset

HOLLOWTECH II / 2-PIECE CRANKSET

1. Perform the removal in the reverse order from " [HOLLOWTECH II / 2-PIECE CRANKSET](#) " in "Installing the crankset."

Maintenance

Replacing the chainring

Perform the steps of the removal procedure for chainring replacement in the reverse order from the installation procedure.

NOTICE

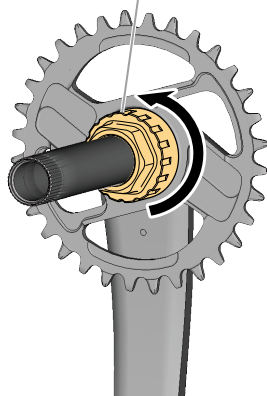
- Make sure to use the correct combination of SHIMANO genuine parts, otherwise the crank arms or chainrings may become damaged.

Single chainring type

Direct mount type

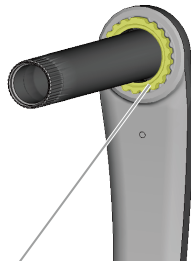
1. Remove the chainrings from the crank arm.

(Example) TL-FC41 + TL-FC32



Tool combinations		
TL-FC41 + TL-FC32	TL-FC41 + TL-FC36	TL-FC41 + 32

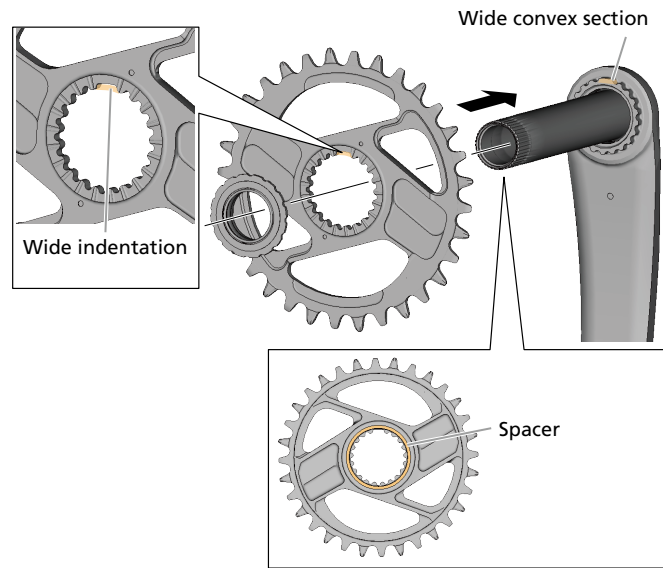
2. Apply grease to the splines of the crank arm.



Premium Grease
(Y04110000)

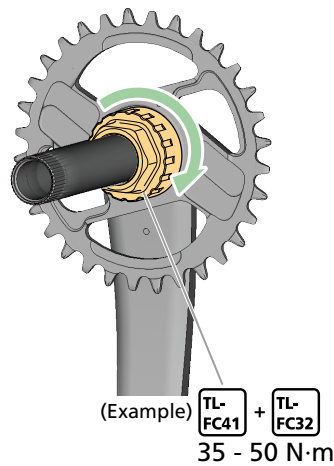
3. Set the chainring on the crank arm.

Set it so that the wide indentation on the splines of the chainring is aligned with the wide convex section of the crank arm.



4. Secure the chainring.

Tighten using the tool combinations specified in the following table.

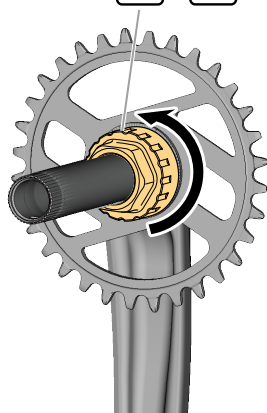


Tool combinations		
TL-FC41 + TL-FC32	TL-FC41 + TL-FC36	TL-FC41 + 32

FC-M6200 / FC-MT620

1. Remove the chainrings from the crank arm.

(Example) TL-FC41 + TL-FC32



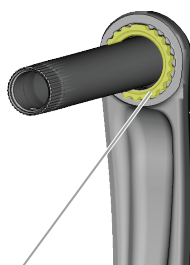
Tool combinations

TL-FC41 + TL-FC32

TL-FC41 + TL-FC36

TL-FC41 + 32

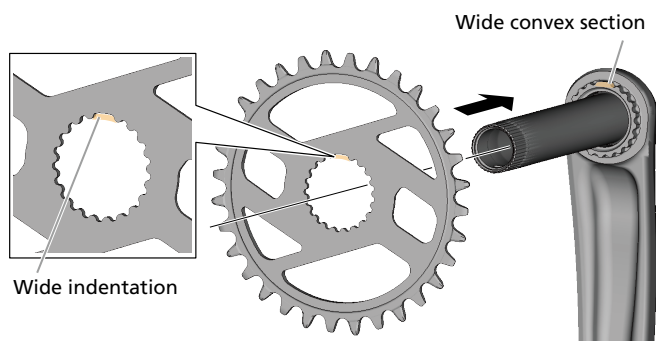
2. Apply grease to the splines of the crank arm.



Premium Grease
(Y04110000)

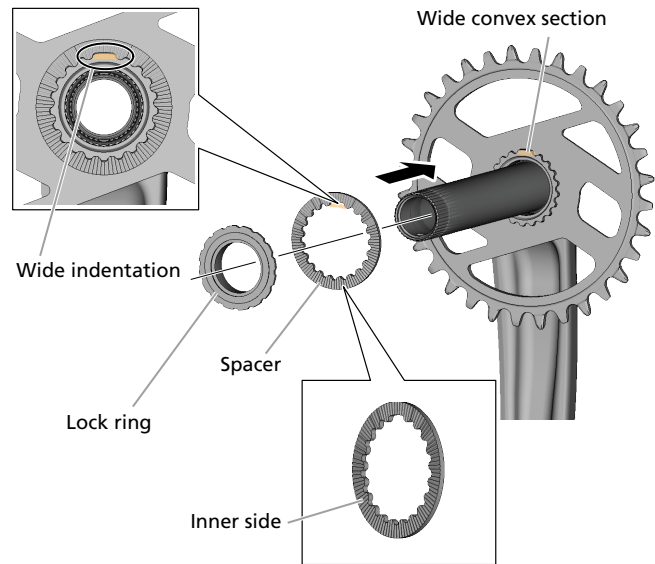
3. Set the chainring on the crank arm.

Set it so that the wide indentation on the splines of the chainring is aligned with the wide convex section of the crank arm.



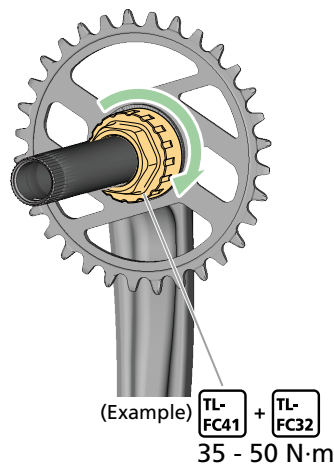
4. Set the spacer on the crank arm.

Set it so that the wide indentation on the splines of the spacer is aligned with the wide convex section of the crank arm.



5. Secure the chainring.

Tighten using the tool combinations specified in the following table.

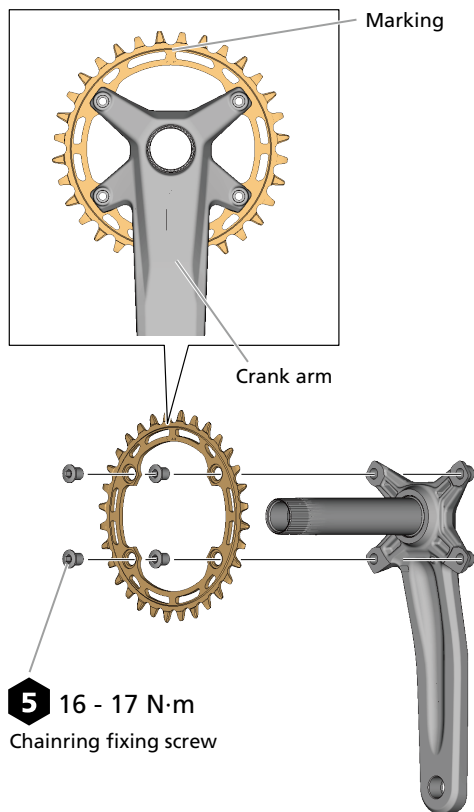


Tool combinations		
TL-FC41 + TL-FC32	TL-FC41 + TL-FC36	TL-FC41 + 32

Standard type

1. Remove the chainrings.
2. Install the chainring.

With the side with the tooth number marking facing outward, secure it with chainring fixing screws.



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
Only EU General Contact : contactshimano@shimano-eu.com

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