

General Safety Information

WARNING

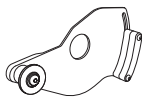
- If the inner cover is not installed correctly, the axle may rust and become damaged, and the bicycle may fall over and serious injury may occur as a result.
- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn or damaged parts may cause the bicycle to fall over and serious injury may occur as a result. We strongly recommend only using genuine Shimano replacement parts.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

Note

- If the bottom bracket shell is not parallel, gear shifting performance will drop.
- Before riding the bicycle, check that there is no play or looseness in the connection. Also, be sure to retighten the crank arms and pedals at periodic intervals.
- If you feel any looseness in the bearings, the bottom bracket should be replaced.
- In addition, if pedaling performance does not feel normal, check this once more.
- Do not wash the bottom bracket with high-pressure jets of water.
- When installing the left and right adapters, be sure to install the inner cover too, otherwise the waterproofing performance will drop.
- Apply grease to the left and right adapters before installing them.
- Be sure to read the service instructions for the Front Drive System or the front chainwheel in conjunction with these service instructions.
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

Chain Device

When installing a BB mount-type chain device to a bicycle, refer to the table below to determine the number of spacers for the right side. If the thickness of the spacers used is not as given in the table, the front chainwheel may become loose and fall off, or problems with gear shifting may occur. When installing a BB mount-type chain device or a ISCG-type chain device to a bicycle, you need to be careful to avoid interference.



The example in the illustration shows a BB mount-type chain device.

<Chain Device Thickness (BB mount)>

	Model number	Bottom bracket shell width		
		68 mm	73 mm	83 mm
For chain device thickness of 2.5 mm	FC-M810-1 FC-M665 FC-M810-2	2.5 mm x 1	Not needed	
	FC-M815-1 FC-M815-2			2.5 mm x 1

	Model number	Bottom bracket shell width		
		68 mm	73 mm	83 mm
For chain device thickness of 5.0 mm	FC-M810-1 FC-M665 FC-M810-2	Not needed	No available	
	FC-M815-1 FC-M815-2			Not needed

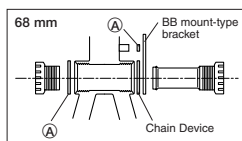
When using in combination with the FD-M665-E (2.5 mm chain device)

Model number	Bottom bracket shell width		
	68 mm	73 mm	83 mm
FC-M665 FC-M810-2	Not needed	No available	
FC-M815-2			Not needed

<Installation method>

Install the chain device and the front derailleur as shown in the illustration.

- If using in combination with an BB mount-type front derailleur, make sure that the chain device does not obstruct the BB mount-type bracket.



(A) : 2.5 mm spacer

Specifications

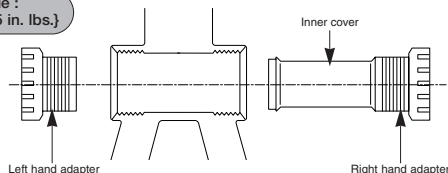
Bottom Bracket

Model number	SM-BB70	SM-BB51	SM-BB50
Applicable front chainwheel	FC-M770 FC-M771-K FC-M665 FC-M660 FC-T661	FC-M590 FC-M591	FC-M545 FC-M543-K FC-M542 FC-M533-K FC-M532
Bottom bracket shell width	68, 73 mm		
Thread dimensions	1.37 X 24 T.P.I.		

Installation of the adapter

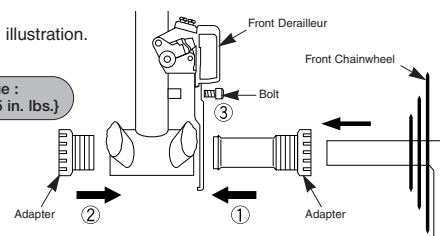
Use the TL-FC32/36 special tool to install the right adapter (counterclockwise thread), the inner cover and the left adapter (clockwise thread).

Tightening torque :
35 - 50 N·m {305 - 435 in. lbs.}

**For bracket type**

Install as shown in the illustration.

Tightening torque :
35 - 50 N·m {305 - 435 in. lbs.}

**Spacer installation method**

- (1) Check whether the width of the bottom bracket shell is 68 mm or 73 mm.
- (2) Next, install the adapter while referring to the illustrations below.

**<Normal type>**

Spacer	Bottom bracket shell width	When using a band-type front derailleur	When using a bracket-type front derailleur
2.5 mm x 2 1.8 mm x 1 0.7 mm x 1	68 mm		
	73 mm		

* 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.

<Chain case specifications>

Spacer	Bottom bracket shell width	Chaincase stay
2.5 mm x 2 1.8 mm* x 1 0.7 mm x 1	68 mm	
	73 mm	

* 1.8 mm corresponds to the thickness of the chain case.

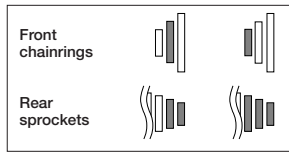


⚠ WARNING

- Before riding, you should carefully check your crankset to make sure that there are no cracks, and if you find any sign of a crack or any other unusual condition, do NOT use the bicycle.
- Be careful not to let the cuffs of your clothes get caught in the chain while riding, otherwise you may fall off the bicycle.
- Check that the tension of the chain is correct and that the chain is not damaged. If the tension is too weak or the chain is damaged, the chain should be replaced. If this is not done, the chain may break cause serious injury.
- 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.
- **Obtain and read the service instructions carefully prior to installing the parts.** Loose, worn or damaged parts may cause the bicycle to fall over and serious injury may occur as a result. We strongly recommend only using genuine Shimano replacement parts.
- **Obtain and read the service instructions carefully prior to installing the parts.** If adjustments are not carried out correctly, the chain may come off and this may cause you to fall off the bicycle which could result in serious injury.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

Note

- Make sure that the chainring combination matches the front chainwheel tooth configuration in the Product specifications table. If other combinations are used, the distance between the chainrings will be incorrect and the chain might slip off and get caught in between them.
- When the chain is in the position shown in the illustration, the chain may contact the front chainrings or front derailleur and generate noise. If the noise is a problem, shift the chain onto the next-larger rear sprocket or the one after.
- If the bottom bracket shell is not parallel, gear shifting performance will drop.
- Before riding the bicycle, check that there is no play or looseness in the connection. Also, be sure to retighten the crank arm fixing bolt at periodic intervals. (BB-FC, FC-PD)
- 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.
- In addition, if pedaling performance does not feel normal, check this once more.
- Do not wash the bottom bracket with high-pressure jets of water.
- When installing the left and right adapters, be sure to install the inner cover too, otherwise the waterproofing performance will drop.
- Apply grease to the left and right adapters before installing them.
- To ensure the best performance, be sure to use only the specified type of chain. The wide type of chain cannot be used.
- If the chain keeps coming off the chainrings during use, replace the chainrings and the chain.
- You should periodically wash the chainrings in a neutral detergent and then lubricate them again. In addition, cleaning the chain with neutral detergent and lubricating it can be an effective way of extending the useful life of the chainrings and the chain.
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.



SM-BB90

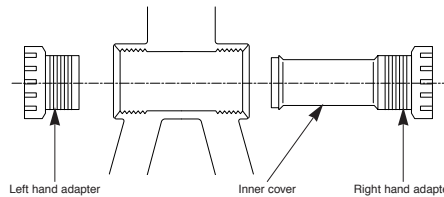
Bottom Bracket

Specifications

Applicable front chainwheel	FC-M970 / FC-M770
Bottom bracket shell width	68, 73 mm
Thread dimensions	BC1.37 (68, 73 mm)

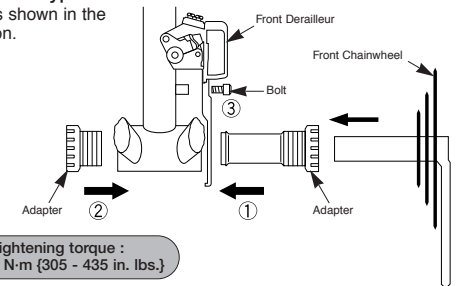
Installation of the adapter

Use the TL-FC32/36 special tool to install the right adapter (counterclockwise thread), the inner cover and the left adapter (clockwise thread).
Tightening torque: 35 - 50 N·m {305 - 435 in. lbs.}



For bracket type

Install as shown in the illustration.

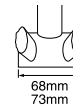


Tightening torque :
35 - 50 N·m {305 - 435 in. lbs.}

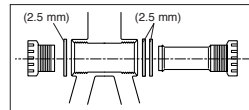
- Be sure to read the service instructions for the Front Drive System in conjunction with these service instructions.

■ Spacer installation method

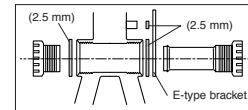
- 1 Check whether the width of the bottom bracket shell is 68 mm or 73 mm.
- 2 Next, install the adapter while referring to the illustrations below.



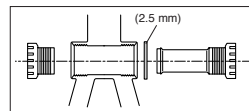
68 mm (Band Type)



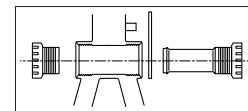
68 mm (Bracket Type)



73 mm (Band Type)



73 mm (Bracket Type)



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