

General Safety Information

WARNING

- 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.
- 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.
- 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.

CAUTION

- If the chain is on the smallest or intermediate chainring, there is the danger of injury from the tips of the teeth on the largest chainring.

Note

- Make sure that the chainring combination matches the front chain wheel tooth configuration in the Product Specification table. If other combination are used, the distance between the chainrings will be incorrect and the chain might slip off and get caught in between them.
- Be sure to use only the applicable chain and bottom bracket.
- 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 bottom bracket axle, 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.
- Apply grease to the bottom bracket before installing it.
- 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.
- The cuffs of your clothing may get dirty from the chain while riding.
- 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 {305 - 479 in.lbs.}. The right-hand crank arm has a right-hand thread, and the left-hand crank arm has a left-hand thread.
- 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.

Technical Service Instructions

SI-1JH0A-002

FC-R450 / FC-R453 FC-R345

Front chainwheel

Specifications

Front Chainwheel

Model number	FC-R450	FC-R453	FC-R345
SG chainwheel teeth	52 - 39T	50 - 39 - 30T	50 - 34T
Bolt circle diameter	130 mm	130 / 74 mm	110 mm
Crank arm length	170, 175 mm	170, 175 mm	170, 175 mm
Pedal threads	B.C. 9/16" x 20T.P.I. (English thread)		
Applicable chain	CN-HG53		
Applicable bottom bracket	BB-ES25		

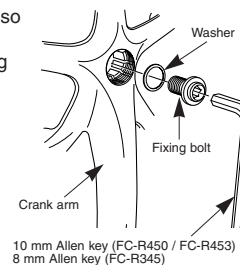
Bottom Bracket

Model number	BB-ES25		
Type	Double	Triple	Double
Spindle length	113 mm	121 mm	113 mm
Chain line	43.5 mm	45 mm	43.5 mm
Shell width (Thread dimensions)	68 mm (1.37 X 24 T.P.I.) 70 mm (M36 X 24 T.P.I.)		

Installation of the front chainwheel

1. Place the crank arm onto the bottom bracket spindle so that it meshes with the serrations on the spindle.
2. Install the washer and fixing bolt and tighten the fixing bolt.

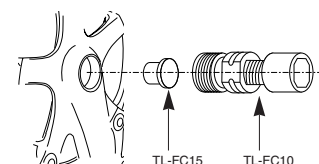
Tightening torque:
35 - 50 N·m {305 - 435 in. lbs.}



Replacing the front chainwheel

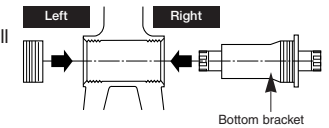
Use the special plug tool (TL-FC15) to remove the FC-R450 / FC-R453 / FC-R345 crank arm.

1. Remove the fixing bolt and washer from the crank arm.
2. Insert the TL-FC15 into the hole of the bottom bracket axle.
3. Then, screw the cotterless crank arm extractor (TL-FC10) into the crank arm, and then remove the crank arm in the same way as normal.



Installation of the Bottom Bracket

Use the special tool (TL-UN74-S) to install the bottom bracket. First install the main body, then the adapter.



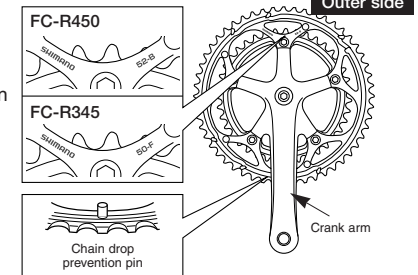
Adapter/bottom bracket
tightening torque:
50 - 70 N·m {435 - 608 in. lbs.}

Installation of the chainrings

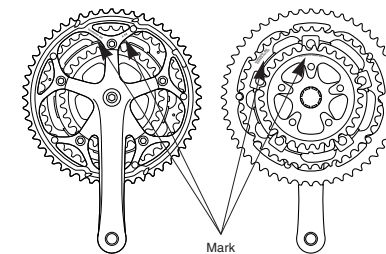
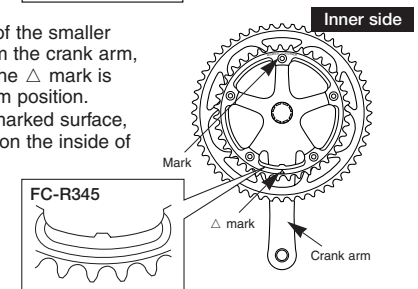
Smooth shifting will not be possible if the chainrings are incorrectly installed, so be sure to install the chainrings in the correct positions.

< FC-R450 / R345 >

With the marked surface of the larger chainring facing out, set the larger chainring so that the chain drop prevention pin is lined up with the crank arm position.



With the marked surface of the smaller chainring facing away from the crank arm, set the chainring so that the Δ mark is lined up with the crank arm position. For chainrings without a marked surface, align using the projection on the inside of the chainring.



< FC-R453 >

For the FC-R453, the tooth number marking on the largest chainring should face outward, and the markings on the intermediate and smallest chainrings should face inward.

SHIMANO

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

SHIMANO EUROPE B.V.
Industrieweg 24, 8071 CT Nunspeet, The Netherlands Phone: +31-341-272222

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

* Service Instructions in further languages are available at :
<http://techdocs.shimano.com>

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