



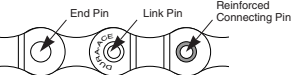
General Safety Information

WARNING

- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pins available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

Chain	Reinforced connecting pin	Chain tool
9-speed super narrow chain such as CN-7701 / CN-HG93	 Silver	TL-CN31/TL-CN22
8-/7-/6-speed narrow chain such as CN-HG50 / CN-IG51	 Black	TL-CN31/TL-CN22 and TL-CN30/TL-CN21

- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.



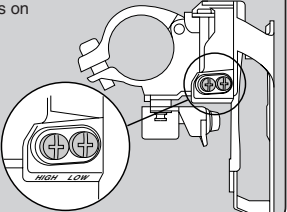
- Be careful not to let the cuffs of your clothes get caught in the chain while riding, otherwise you may fall off the bicycle.
- Check that the tension of the chain is correct and that the chain is not damaged. If the tension is too weak or the chain is damaged, the chain should be replaced. If this is not done, the chain may break 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.
- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn, or damaged parts may cause injury to the rider.
- 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

- In addition, if pedaling performance does not feel normal, check this once more.
- Check that there is no looseness in any joints or connections before riding the bicycle. (BB-FC, FC-PD)
- Do not wash the bottom bracket with high-pressure jets of water.
- If you feel any looseness in the bottom bracket axle, the bottom bracket should be replaced.
- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.
- Apply grease to the bottom bracket before installing it.
- For smooth operation, use the specified outer casing and the bottom bracket cable guide.
- 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.
- If the chain keeps coming off the chainrings during use, replace the chainrings and the chain.
- This front derailleur is for triple front chainwheel use only. It cannot be used with the double front chainwheel, as the shifting points do not match.
- When installing the top route type, choose a frame that has three outer casing holders as shown in the illustration at right.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides.
- Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- 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.

FD-CT92-E/FD-C102 Adjustment Bolts

Because of the different construction of the new link, the positions of the top and low adjustment bolts on the FD-CT92-E/FD-C102 are reversed from the positions on previous front derailleurs.



Technical Service Instructions

SI-F520B

Front Drive System

In order to realize the best performance, we recommend that the following combination be used.

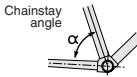
Series	ALIVIO	
Rapidfire Plus	SL-MC40	
Outer casing	SP40	
Front derailleur	FD-CT92-E	FD-C102
Front chainwheel	FC-TX70	FC-TX71
Bottom bracket	BB-UN25	BB-TY30
Chain	CN-UG51 / CN-HG50	
Bottom bracket cable guide	SM-SP18 / SM-BT18	

Specifications

Front Derailleur

Model number	FD-CT92-E	FD-C102
Normal type	<input type="radio"/>	<input type="radio"/>
Top route type	<input type="radio"/>	<input type="radio"/>
Top gear tooth	42T	48T
Front chainwheel tooth difference	18T	20T
Min. difference between top and intermediate	8T	10T
Front derailleur installation band diameter	S, M L	S, M, L
Chainstay angle (°)	66°- 69° 66°- 69° 63°- 66°	66°- 69°
Applicable chain line	47.5 mm 50 mm 50 mm	47.5 mm 50 mm

Installation band diameters:
S (28.6 mm), M (31.8 mm), L (34.9 mm)



Chainwheel

Model number	FC-TX70	FC-TX71
Chainwheel tooth combination	42T-32T-22T	48T-38T-28T
Crank arm length	160 mm, 170 mm	
Pedal thread dimensions	BC 9/16" X 20 T.P.I. (English thread)	
Applicable Bottom Bracket	BB-UN25	BB-TY30

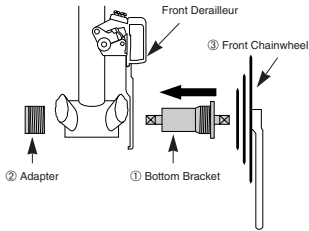
Bottom Bracket

Model number	BB-UN25	BB-TY30
Stamped marking	D-NL	D-NL
Chain line	47.5 mm	47.5 mm
Thread dimensions	BC 1.37" X 24 T.P.I. (68mm)	BC 1.37" X 24 T.P.I. (68mm)

Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

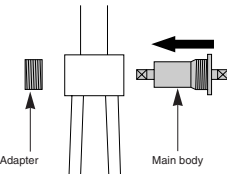
<FD-CT92-E>

Use the special tools (TL-UN65 and TL-UN74-S) to install the bottom bracket ① and the front derailleur so that they face as shown in the illustration. Install the adapter ②, and then use the TL-FC10 to install the front chainwheel.

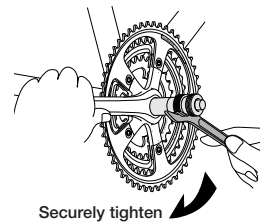


<FD-C102>

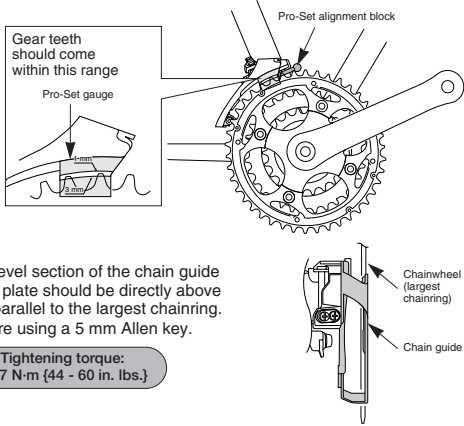
Install using the special tool TL-UN74-S. First install the main body, then the adapter.



Use the cotterless crank extractor (TL-FC10) to install the front chainwheel.



Adjust and then install the front derailleur as shown in the illustration. Do not remove the Pro-Set alignment block at this time.

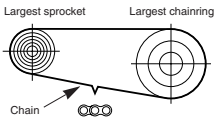


The level section of the chain guide outer plate should be directly above and parallel to the largest chaining. Secure using a 5 mm Allen key.

Tightening torque:
5 - 7 N·m {44 - 60 in. lbs.}

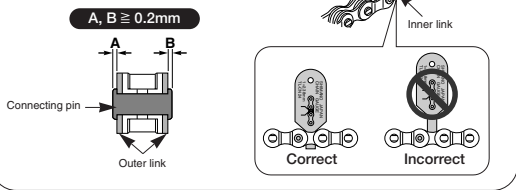
Chain length

Add 2 links (with the chain on both the largest sprocket and the largest chaining)



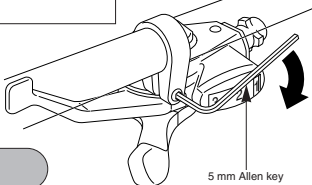
Checking the chain connection

For IG, chains, insert the chain gauge (TL-CN24) into the inner link which is next to the chain connecting pin to check that the inner link width is correct. Check that the connecting pin protrudes past the outer link by the same amount on both sides, and that the amount of protrusion is 0.2 mm or more.



Installation of the shifting lever

Use a handlebar grip with a maximum outer diameter of 32 mm.



Tightening torque:
5 N·m {44 in. lbs.}

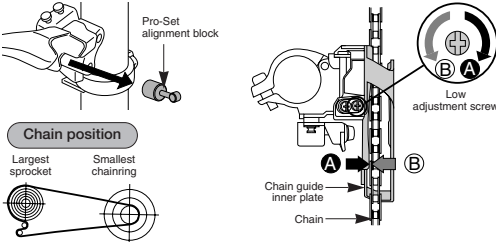
Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

SIS adjustment

Be sure to follow the sequence described below.

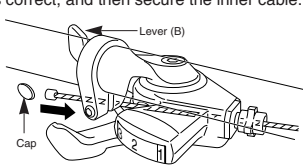
1. Low adjustment

First remove the Pro-Set alignment block. Next, set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.



2. Connection and securing of the inner cable

Operate lever (B) 2 or more times, check on the indicator that the low position is correct, and then secure the inner cable.



While firmly pulling the inner cable, secure by tightening the fixing bolt with a 5 mm Allen key.

Tightening torque:
5 - 7 N·m {44 - 60 in. lbs.}

Inserting the inner cable

Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.

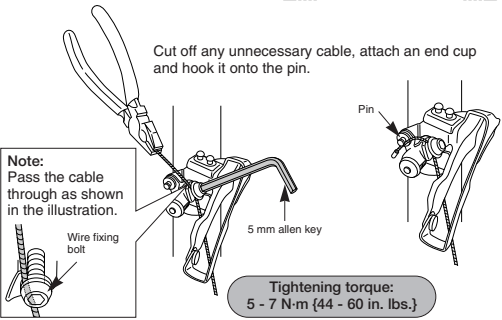
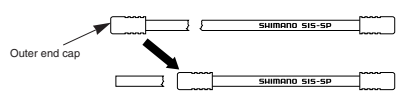


Cutting the outer casing

When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

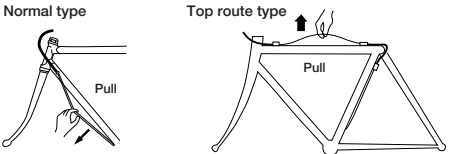


Attach the same outer end cap to the cut end of the outer casing.



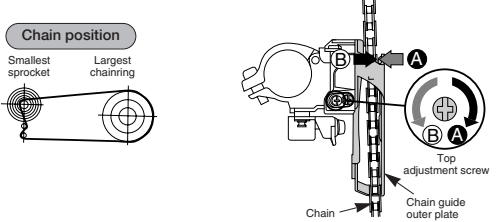
Note:
Pass the cable through as shown in the illustration.

After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.



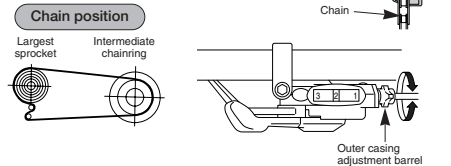
3. Top adjustment

Set so that the clearance between the chain guide outer plate and the chain is 0-0.5 mm.



4. Adjustment of the intermediate chaining

When carrying out adjustment, set the chain to the largest sprocket, and at the front, set the chain to the intermediate chaining. Adjust using the outer casing adjustment barrel so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.



5. Troubleshooting chart

After completion of steps 1 - 4, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

If the chain falls to the crank side.	Tighten the top adjustment screw clockwise (about 1/4 turn).
If shifting is difficult from the intermediate chaining to the largest chaining.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chaining to the smallest chaining.	Loosen the low adjustment screw counterclockwise (about 1/4 turn).
If there is interference between the chain and the front derailleur inner plate at the largest chaining.	Tighten the top adjustment screw clockwise (about 1/8 turn).
If there is interference between the chain and the front derailleur outer plate at the largest chaining.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If the intermediate chaining is skipped when shifting from the largest chaining.	Loosen the outer casing adjustment barrel counterclockwise (1 or 2 turns).
If there is interference between the chain and front derailleur inner plate when the rear sprocket is shifted to the largest sprocket when the chainwheel is at the intermediate chaining position.	Tighten the outer casing adjustment barrel clockwise (1 or 2 turns).
If the chain falls to the bottom bracket side.	Tighten the low adjustment screw clockwise (about 1/2 turn).

Gear shifting operation

Both lever (A) and lever (B) always return to the initial position when they are released after shifting.

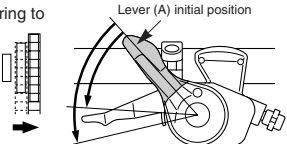
When operating one of the levers, always be sure to turn the crank arm at the same time.

To shift from a small chaining to a larger chaining

When lever (A) is pressed once, there is a shift of one step from a small chaining to a larger chaining.

Example:

from intermediate chaining to largest chaining.

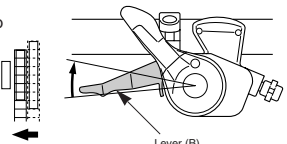


To shift from a large chaining to a smaller chaining

When lever (B) is pressed once, there is a shift of one step from a large chaining to a smaller chaining.

Example:

from largest chaining to intermediate chaining.



This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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