

# Front Drive System

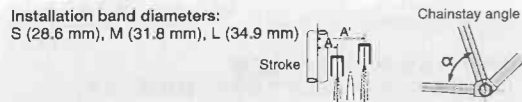
Before use, read these instructions carefully, and follow them for correct use.

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

Series	ALIVIO
Rapidfire SL	SL-MC40
Outer casing	SP40
Front derailleur	FD-MC14
Front chainwheel	FC-MC16
Bottom bracket	BB-LP26-E
Chain	CN-IG51
Bottom bracket cable guide	SM-SP18 / SM-BT18

## Specifications

Front Derailleur	
Model number	FD-MC14
Normal type	○
Top route type	○
Front chainwheel tooth difference	18T
Min. difference between top and intermediate	8T
Front derailleur installation band diameter	S, M, L
Stroke (A-A')	38 - 58
Chainstay angle (α)	63°-66°, 66°-69°
Applicable chain line	47.5 mm, 50.0 mm



Chainwheel	
Model number	FC-MC16
Chainwheel tooth combination	42T-34T-24T
Bolt circle diameter	67mm
Crank arm length	170 mm, 175 mm
Pedal thread dimensions	BC 9/16" X 20 T.P.I. (English thread)

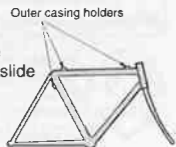
Bottom Bracket	
Model number	BB-LP26-E
Stamped marking	MM110
Spindle length	110 mm
Chain line	47.5 mm
Thread dimensions	BC 1.37" X 24 T.P.I. (68, 73 mm)

## CAUTION

Be sure to use only the Shimano IG chain with the IG front chainwheel. The HG or UG type of chain cannot be used.

## Note

- Apply grease to the bottom bracket before installing it.
- For smooth operation, always be sure to use the specified outer casing and the bottom bracket cable guide.
- 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.
- The indicator cannot be removed.



**FD-MC36/34/14 Adjustment Bolts**  
Because of the different construction of the new link, the positions of the top and low adjustment bolts on the FD-MC36/34/14 are reversed from the positions on previous front derailleurs.

## Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

<FD-MC14>  
Use the special tools (TL-UN70 and TL-UN74) 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 cotterless crank extractor (TL-FC10) to install the front chainwheel.

Adapter / bottom bracket tightening torque: 50 - 70 Nm (435 - 608 in. lbs.)  
Front chainwheel tightening torque: 35 - 50 Nm (305 - 435 in. lbs.)

<FD-MC14-B>  
Install using the special tool TL-UN74. First install the main body, then the adapter.

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

Gear teeth should come within this range

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

Tightening torque: 5 - 7 Nm (44 - 60 in. lbs.)

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

Securely tighten

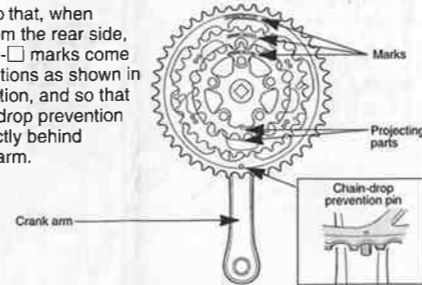
Front chainwheel tightening torque: 35 - 50 Nm (305 - 435 in. lbs.)

## Installation of the chainrings

Be sure to use the following combination for the tooth configuration.

- K 42-32-22 (FC-MC36/FC-MC34)
- I 42-34-24 (FC-MC14)

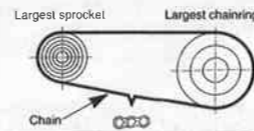
Position so that, when looking from the rear side, the K-□, I-□ marks come to the positions as shown in the illustration, and so that the chain-drop prevention pin is directly behind the crank arm.



The features of the SIS will not be obtained if the chainrings are installed in the incorrect position, or if a chainring with a mark other than K-□, I-□ is being combined. Therefore, be sure to install them in the correct position.

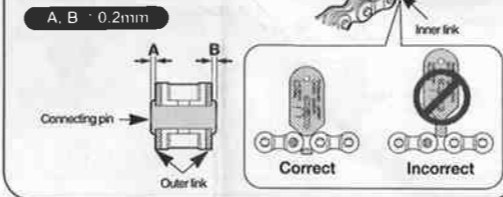
## Chain length

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



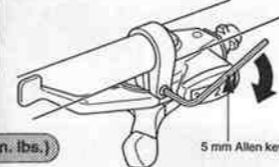
## Checking the chain connection

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 brake lever

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



Tightening torque: 5 Nm (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.

Pro-Set alignment block

Chain position

Largest sprocket Smallest chainring

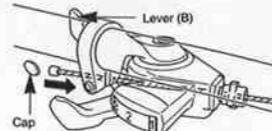
Chain guide inner plate

Chain

Low adjustment screw

### 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.

### 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.



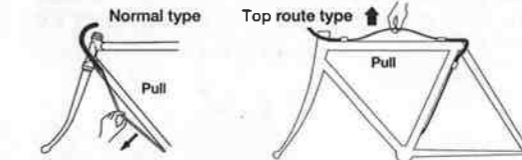
Tightening torque: 5 - 7 Nm (44 - 60 in. lbs.)

Wire fixing bolt

5 mm allen key

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.

Chain position

Smallest sprocket Largest chainring

Top adjustment screw

Chain guide outer plate

Chain

### 4. Adjustment of the intermediate chainring

When carrying out adjustment, set the chain to the largest sprocket, and at the front, set the chain to the intermediate chainring. 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.

Chain position

Largest sprocket Intermediate chainring

Chain guide inner plate

Chain

Outer casing adjustment barrel

## 5. Troubleshooting chart

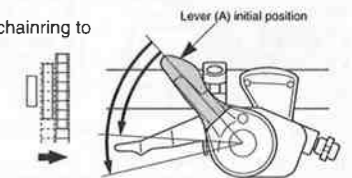
After completion of steps 1 - 4, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

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 chainring to the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chainring to the smallest chainring.	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 chainring.	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 chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If the intermediate chainring is skipped when shifting from the largest chainring.	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 chainring 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).

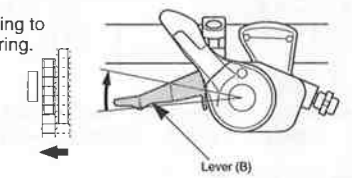
## Gear shifting operation

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 chainring to a larger chainring**  
When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.  
Example: from intermediate chainring to largest chainring.



**To shift from a large chainring to a smaller chainring**  
When lever (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.  
Example: from largest chainring to intermediate chainring.



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.