Technical Service Instructions **SI-F650F**

Front Drive System

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

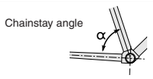
Series	DEORE XT		DEORE LX	
Rapidfire M9 (Shifting lever)	ST-M750 / SL-M750		ST-M570 / SL-M570	
Outer casing	SP40 sealed		SP40 sealed	
Front derailleur	FD-M750 / FD-M751		FD-M570 / FD-M571	
Front chainwheel	FC-M751	FC-M752 (OCTALINK)	FC-M571	FC-M572 (OCTALINK)
Bottom bracket	BB-ES70	BB-ES71	BB-ES50	BB-ES51
Chain	CN-HG93		CN-HG73	
Bottom bracket cable guide	SM-SP17 / SM-BT17		SM-SP17 / SM-BT17	

Specifications

Front Derailleur

Model number	FD-M751/FD-M750/ FD-M570	FD-M750-E / FD-M570-E	FD-M571
Normal type	○	○	○
Top route type	○	○	○
Front chainwheel tooth difference	22T	22T	22T
Min. difference between top and intermediate	12T	12T	12T
Front derailleur installation band diameter	S, M, L	S, M, L	S, M, L
Chainstay angle (α)	66° - 69°	66° - 69°	63° - 66°, 66° - 69°
Applicable chain line	47.5mm, 50.0mm	47.5mm, 50.0mm	47.5mm, 50.0mm
Applicable Bottom Bracket	BB-ES70E	BB-ES70E	BB-ES70

Installation band diameters:
S (28,6 mm), M (31,8 mm), L (34,9 mm)



Chainwheel

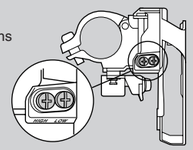
Model number	FC-M751	FC-M752	FC-M571	FC-M572
Chainwheel tooth combination	44-32-22T			
Bolt circle diameter	104 mm / 64 mm			
Crank arm length	165, 167.5, 170, 172.5, 175, 177.5, 180 mm	165, 170, 172.5, 175, 180 mm	170, 175 mm	
Pedal thread dimensions	BC 9/16" x 20 T.P.I.			

Bottom Bracket

Model number	BB-ES70		BB-ES70-E		BB-ES71		BB-ES51-K
Spindle length	113 mm	118 mm	113 mm	118 mm	113 mm	118 mm	121 mm
Chain line	47.5 mm	50 mm	47.5 mm	50 mm	47.5 mm	50 mm	47.5 mm + t
Shell width	68,73 mm	68,73 mm	68 mm	73 mm	68,73 mm	68,73 mm	68 mm
Thread dimensions	BC1.37 (68, 73mm)		BC1.37 (68, 73mm)		BC1.37 (68, 73mm)		BC1.37 (68mm)
Applicable front chainwheel	FC-M751				FC-M752		FC-M752-K

Model number	BB-ES50		BB-ES50-E		BB-ES51		BB-ES51-E	
Spindle length	113 mm	118 mm	113 mm	118 mm	121 mm	126 mm	121 mm	126 mm
Chain line	47.5 mm	50 mm	47.5 mm	50 mm	47.5 mm	50 mm	47.5 mm	50 mm
Shell width	68,73 mm	68,73 mm	68 mm	73 mm	68,73 mm	73 mm	68 mm	73 mm
Thread dimensions	BC1.37 (68, 73mm)		BC1.37 (68, 73mm)		BC1.37 (68, 73mm)		BC1.37 (68, 73mm)	
Applicable front chainwheel	FC-M571				FC-M572			

FD-M750/FD-M570 Adjustment Bolts
Because of the different construction of the new link, the positions of the top and low adjustment bolts on the FD-M750/FD-M570 are reversed from the positions on previous front derailleurs.



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.

SHIMANO

These service instructions are printed on recycled paper.

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

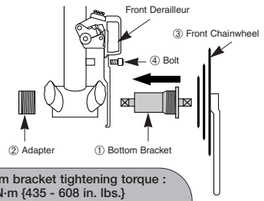
SHIMANO EUROPE HOLDING B.V.
Industrieweg 24, 8071 CT Nunspeet, The Netherlands Phone: +31-341-272222

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

Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

● **FD-M750-E / FD-M570-E**

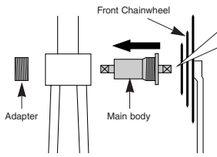
Use the special tools (TL-UN70 and TL-UN74-S) to install the bottom bracket ① and the front derailleur so that they face as shown in the illustration.
Install the adapter ②, and then use an 8 mm Allen key ③ to install the front chainwheel. Secure by using the bolt ④.



Adapter / bottom bracket tightening torque : 50 - 70 N·m {435 - 608 in. lbs.}
Front chainwheel tightening torque : 35 - 50 N·m {305 - 435 in. lbs.}

● **FD-M570 / 571**
FD-M750 / 751

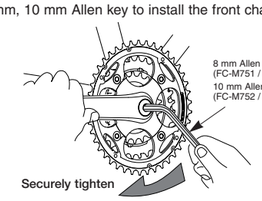
Install using the special tool TL-UN74-S.
First install the main body, then the adapter.



The serration of the bottom bracket should be lined up correctly with the front chainwheel.

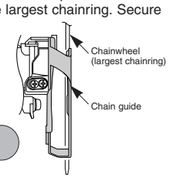
Adapter / bottom bracket tightening torque : 50 - 70 N·m {435 - 608 in. lbs.}

Use an 8 mm, 10 mm Allen key to install the front chainwheel.



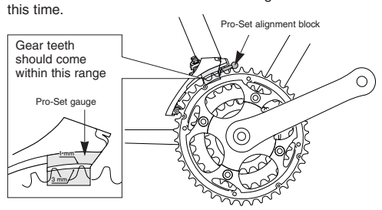
Front chainwheel tightening torque : 35 - 50 N·m {305 - 435 in. lbs.}

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.



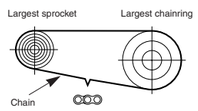
Tightening torque : 5 - 7 N·m {44 - 60 in. lbs.}

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



Chain length

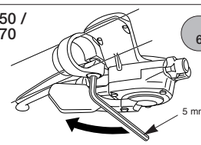
Add 2 links (with the chain on both the largest sprocket and the largest chainring)



Mounting the shifting lever

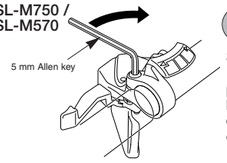
Use a handlebar grip with a maximum outer diameter of 32 mm.

ST-M750 / ST-M570



Tightening torque : 6 - 8 N·m {53 - 69 in. lbs.}

SL-M750 / SL-M570



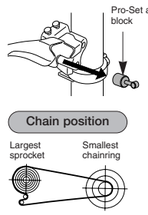
Tightening torque : 5 N·m {44 in. lbs.}

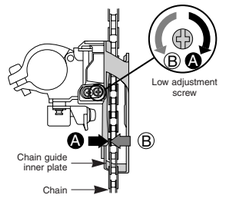
SL-M750 / SL-M570
Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

SIS adjustment

Be sure to follow the sequence described below.

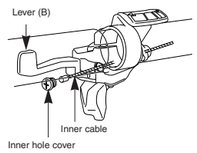
1. Low adjustment
First remove the Pro-Set alignment block .
Next, set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.





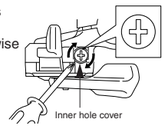
2. Connecting and securing the inner cable
Operate lever (B) two times or more, and check on the indicator that the lever is at the lowest position. Then remove the inner hole cover and connect the inner cable.

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



Install the inner hole cover by turning it as shown in the illustration until it stops.
Do not turn it any further than this, otherwise it may damage the screw thread.

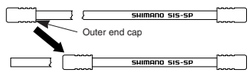
Tightening torque : 0.3 - 0.5 N·m {3 - 4 in. lbs.}



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.

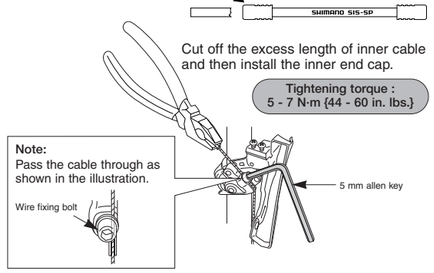
Cutting the outer casing
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

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

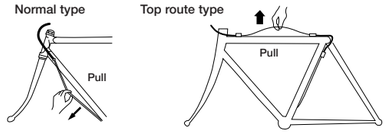


Cut off the excess length of inner cable and then install the inner end cap.

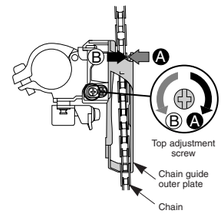
Tightening torque : 5 - 7 N·m {44 - 60 in. lbs.}



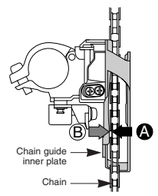
After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

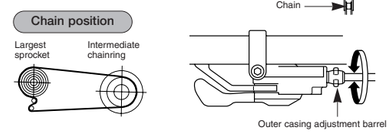


3. Top adjustment
Set so that the clearance between the chain guide outer plate and the chain is 0-0.5 mm.



4. Adjustment of the intermediate 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.





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.)

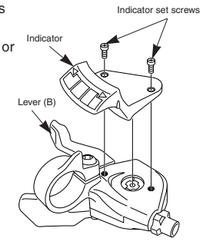
If the chain falls to the crank side.	Tighten the top adjustment screw clockwise (about 1/4 turn).
If shifting is difficult from the intermediate chainring to the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chainring 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).

Replacement of the shifting lever unit and indicator

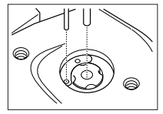
Removal of the indicator

Disassembly and reassembly should only be carried out when replacing the indicator.

1. Remove the two indicator set screws which are securing the indicator.
Tightening torque : 0.3 - 0.5 N·m {3 - 4 in. lbs.}
2. Remove the indicator unit as shown in the illustration.
3. Operate lever (B) two times or more to set the lever to the lowest position.



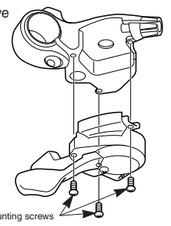
4. After checking that the indicator needle is at the right edge, install the indicator as shown in the illustration.
5. Check the operation of the indicator. If it does not operate correctly, re-install the indicator by while taking particular note of steps 3. and 4.



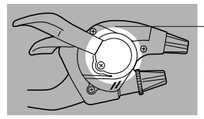
Replacement of the shifting lever unit

Disassembly and reassembly should only be carried out when replacing the shifting lever unit.

1. Loosen the cable fixing bolt (nut) of the front derailleur, and then pull the inner cable out of the shifting lever unit in the same way as when installing the inner cable.
2. Carry out steps 1 - 2 for replacement of the indicator.
3. Remove the three shifting lever mounting screws, and then remove the shifting lever unit as shown in the illustration.
Tightening torque : 0.5 - 0.8 N·m {4 - 7 in. lbs.}



4. To assemble, align the shifting lever unit and the brake lever bracket and then secure the shifting lever mounting screws.
5. Carry out steps 3 - 4 for replacement of the indicator.



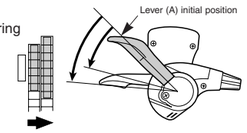
Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.

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.