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	DEORE XT	DEORE LX
Rapidfire Plus	ST-M737	ST-M563 / ST-M564
Outer casing	SIS-SP sealed outer casing	SIS-SP
Front derailleur	FD-M737	FD-M563
Front chainwheel	FC-M737	FC-M563
Bottom bracket	BB-UN91 / BB-UN71	BB-UN71 / BB-UN51
Chain	CN-HG90 / CN-HG91	CN-HG70
Bottom bracket cable guide	SM-SP16 / SM-SP15 / SM-BT15	

Specifications

Front Derailleur

Model number	FD-M737	FD-M563	Stroke (A-A')
Normal type	○	○	
Top route type	○	○	
Front derailleur installation band diameter	S, M, L, F	S, M, L	
Stroke (A-A')	38 - 58		
Chainstay angle (α)	66°-69°		
Applicable chain line	47.5 mm, 50 mm		

Installation band diameters: S (28.0 - 28.6 mm), M (31.8 mm), L (34.9 mm), F (brazed-on type)

Front chainwheel

Model number	FC-M737	FC-M563
Material	Light alloy	
Bolt circle diameter	94 mm (largest, intermediate), 58 mm (smallest)	
Front chainwheel tooth combination	42 - 32 - 22	42 - 32 - 22
Crank arm length (mm)	180, 175, 170, 165	175, 170
Pedal thread dimensions	BC 9/16" ×20 T.P.I. (English thread)	
Applicable chain line	47.5 mm, 50 mm	

Note: FC-M737 also includes a 44T largest chainring.
Furthermore, the smallest chainring is made of steel.

Bottom Bracket

Model number	BB-UN91 / BB-UN71 / BB-UN51	
Stamped marking	MM107	LL113
Spindle length	107 (68, 70, 73)	113 (68, 70, 73)
Chain line	47.5	50
Bottom bracket cup thread dimensions	BC 1.37×24T.P.I. (68, 73 mm), M36×24T.P.I. (70 mm)	

Note: BB-UN71 and BB-UN51 are not compatible with the MM107 shell width of 73 mm.

Note
- For smooth operation, always be sure to use the SIS-SP outer casing and the bottom bracket cable guide.
- The front derailleurs are for triple front chainwheel use only. they cannot be used with the double front chainwheel, as the shifting points do not match.
- Always be sure to use a Shimano narrow type HG chain on the HG sprocket set.
- When installing the top route type, choose a frame that has three outer casing holders as shown in the illustration at right.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.
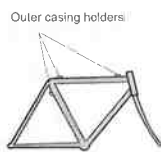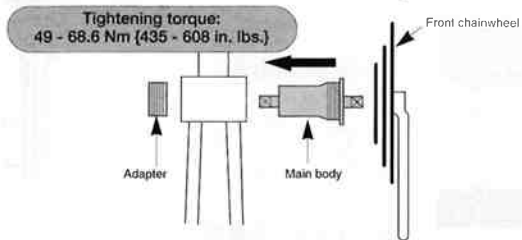

Outer casing holders

Installation of the bottom bracket

Install using the special tool TL-UN72.
First install the main body, then the adapter.

Tightening torque:
49 - 68.6 Nm {435 - 608 in. lbs.}

Front chainwheel

Adapter   Main body

Installation of the chainrings

Be sure to use the following combination for the front chainwheel's tooth configuration.
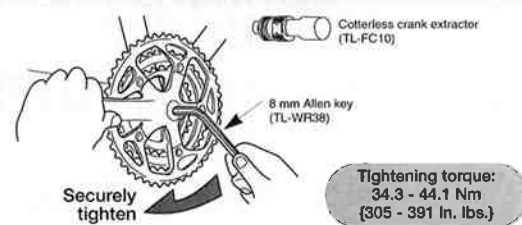
J 42-32-22
(44)

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

Mark

Projecting parts

Crank

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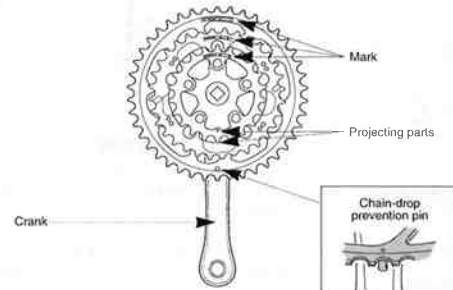
The features of the SIS will not be obtained if the chainrings are installed in the incorrect position, or if a chainring with a mark other than J-□ is being combined. Therefore, be sure to install them in the correct position.

Installation of the front chainwheel

Cotterless crank extractor (TL-FC10)

8 mm Allen key (TL-WR38)

Securely tighten

Tightening torque:
34.3 - 44.1 Nm {305 - 391 in. lbs.}

Installation to the frame

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

Pro-Set alignment block

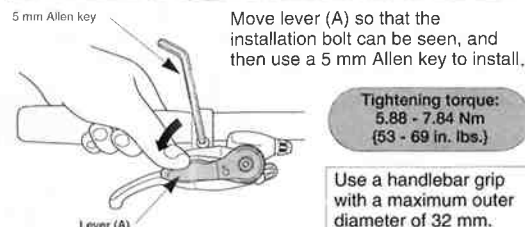Chainring teeth should come within this range

Pro-Set gauge
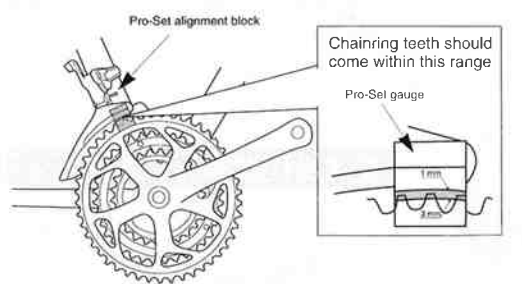
2. The level section of the chain guide outer plate should be directly above and parallel to the largest chainring.

3. Secure using a 5 mm Allen key.
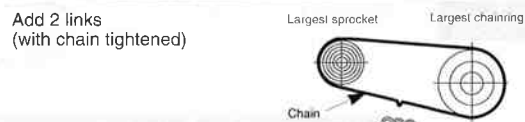

Front chainwheel (largest chainring)

Chain guide

Tightening torque:
4.9 - 8.86 Nm {44 - 60 in. lbs.}

Installation of the lever

Move lever (A) so that the installation bolt can be seen, and then use a 5 mm Allen key to install.

5 mm Allen key

Tightening torque:
5.88 - 7.84 Nm {53 - 69 in. lbs.}

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

Lever (A)

Chain length

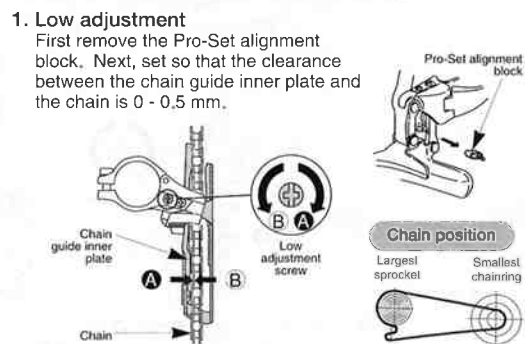Add 2 links (with chain tightened)

Largest sprocket   Largest chainring

Chain

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 guide inner plate

Low adjustment screw

Chain position

Largest sprocket   Smallest chainring

Chain

2. Connection and securing of the inner cable
Operate lever (B) 2 or more times to set the lever to the lowest position.

Lever (B)

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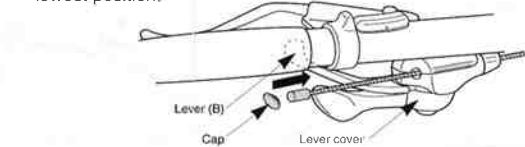
While firmly pulling the inner cable, secure by tightening the fixing bolt with a 5 mm Allen key.

Tightening torque:
4.9 - 6.86 Nm {44 - 60 in. lbs.}

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

Normal type

Wire fixing bolt

5 mm Allen key

Top route type

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

Wire fixing plate

Wire fixing bolt

5 mm Allen key
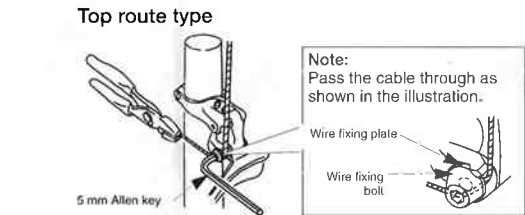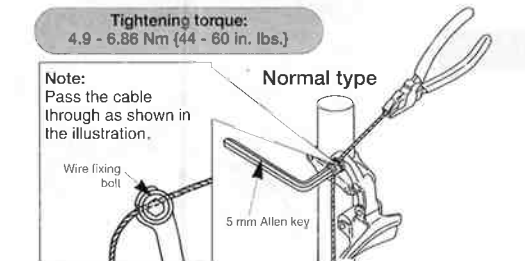
3. Adjustment of cable tension
After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

Normal type   Top route type

Pull   Pull

4. 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
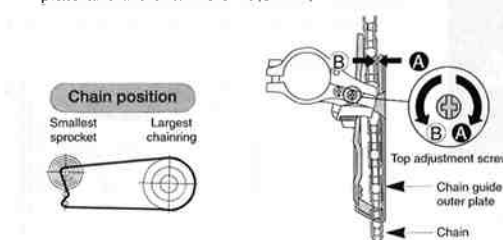
Chain

5. 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.
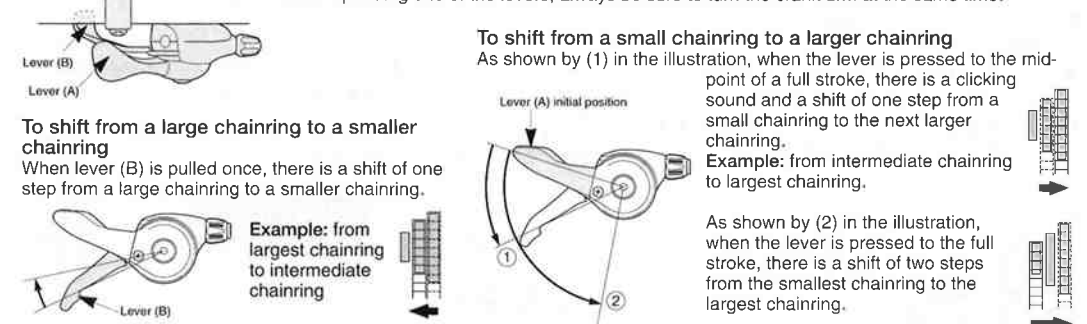

Chain position
Largest sprocket   Intermediate chainring

Chain guide inner plate

Chain

Outer casing adjustment barrel
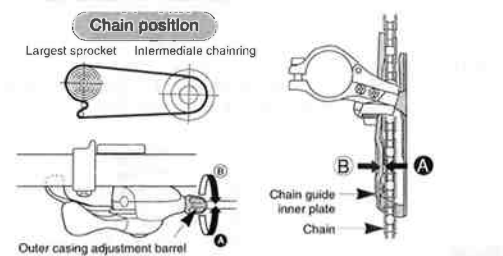
6. Troubleshooting chart
After completion of steps 1 - 5, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

| 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 the front derailleur inner plate when the chain is shifted to the largest sprocket and 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).

Assembly and replacement of the shifting lever unit and indicator

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

Removal of the shifting lever unit
1. Loosen the cable fixing nut of the front derailleur, and then pull the inner cable out of the shifting lever unit.
2. Remove the two outer casing adjustment barrels and the reach adjustment bolt of the brake lever.
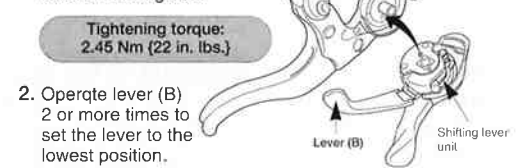

Reach adjustment bolt of the brake lever

Outer casing adjustment barrel of brake cable

Outer casing adjustment barrel of shifting cable

Indicator set screw
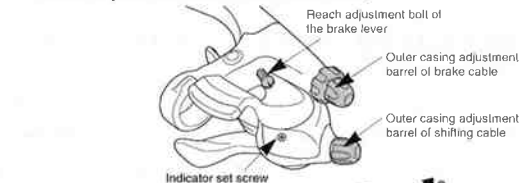
3. Remove the two indicator set screws.

Indicator unit

Indicator set screw
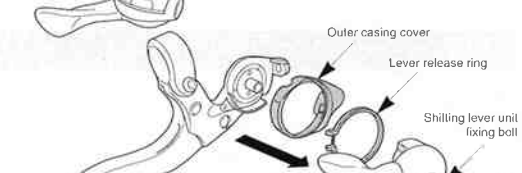
4. Remove the indicator unit as shown in the illustration.

Outer casing cover

Lever release ring

Shifting lever unit fixing bolt

5. Remove the shifting lever unit fixing bolt, and then remove the shifting lever unit.

4 mm Allen key

Replacement and assembly of the shifting lever unit
1. Align the shifting lever unit with the brake lever bracket, and then secure the shifting lever unit with the shifting lever unit fixing bolt.

Tightening torque:
2.45 Nm {22 in. lbs.}

Brake lever bracket

2. Operate lever (B) 2 or more times to set the lever to the lowest position.

Lever (B)   Shifting lever unit

3. After checking to be sure that the indicator needle is at the right edge, align the indicator unit as shown in the illustration and then secure it with the indicator set screws.

Indicator needle

Indicator unit

4. Install the two outer casing adjustment barrels and the reach adjustment bolt of the brake lever.

Replacement of the indicator
After carrying out steps 1 - 4 for removal of the shifting lever unit, carry out steps 2 - 4 for replacement and assembly of the shifting lever unit.

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.

Lever (B)
Lever (A)

To shift from a large chainring to a smaller chainring
When lever (B) is pulled once, there is a shift of one step from a large chainring to a smaller chainring.

Normal type

Example: from largest chainring to intermediate chainring

Lever (B)

Pull

To shift from a small chainring to a larger chainring
As shown by (1) in the illustration, when the lever is pressed to the mid-point of a full stroke, there is a clicking sound and a shift of one step from a small chainring to the next larger chainring.
Example: from intermediate chainring to largest chainring.

Lever (A) initial position

As shown by (2) in the illustration, when the lever is pressed to the full stroke, there is a shift of two steps from the smallest chainring to the largest chainring.