

Front Drive System

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

**WARNING**

Do not pull out the lever fixing pin which is attached to the shifting lever until the inner cable has been attached. If the pin is pulled out before this, the lever may spring back due to the force of the spring inside the lever, and your fingers may become clamped.



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

Series	SHIMANO ACERA X
Shifting lever	SB-M290 / SB-M295
Outer casing	SP40
Front derailleur	FD-M291
Front chainwheel	FC-M291
Bottom bracket	BB-LP26
Chain	CN-HG50 / CN-UG50
Bottom bracket cable guide	SM-SP18 / SM-BT18

Specifications

Front Derailleur

Type	Band type
Front derailleur installation band diameter	S, M
Stroke (A-A')	38 - 54
Chainstay angle (α)	63°-66°, 66°-69°

* Installation band diameters:
S (28.0 - 28.6 mm), M (31.8 mm)

Chainwheel

Chainwheel tooth combination	42T-34T-24T
Crank arm length	170 mm, 175mm
Pedal thread dimensions	BC 9/16" X 20 T.P.I. (English thread)

Bottom Bracket

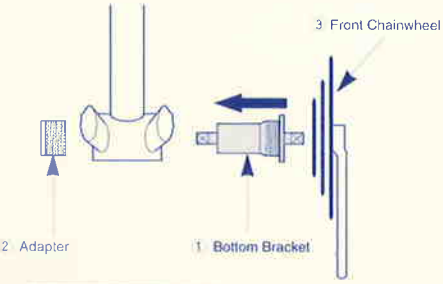
Type	Chain line	Spindle length	Shell width	Stamped marking	Thread dimensions
Triple	47.5 mm	110 mm	68	MM110	BC 1.37" X 24 T.P.I.
			70	MM110	M36 X 24 T.P.I.
	50.0 mm	113 mm	73	MM113	BC 1.37" X 24 T.P.I.

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.
- To ensure the best performance, be sure to use only the specified type of chain. The wide type chain cannot be used.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

Use the special tools (TL-UN70 and TL-UN73) to install the bottom bracket ① so that its face as shown in the illustration. Install the adapter ②, and then use the 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.}

Installation of the brake lever

Do not pull out until the inner cable has been attached.

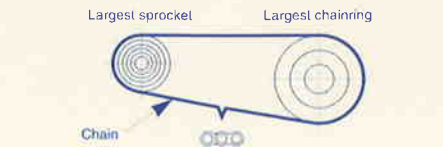
Use a handlebar grip with a maximum outer diameter of 32 mm.



Allen key tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

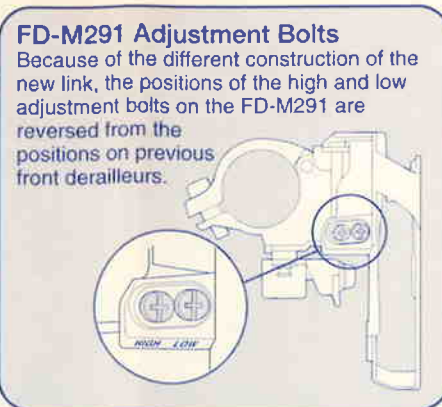
Chain length

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

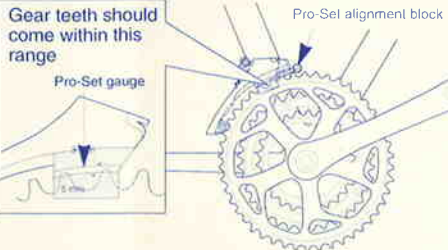


FD-M291 Adjustment Bolts

Because of the different construction of the new link, the positions of the high and low adjustment bolts on the FD-M291 are reversed from the positions on previous front derailleurs.



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 chainring. Secure using a 5mm Allen key.

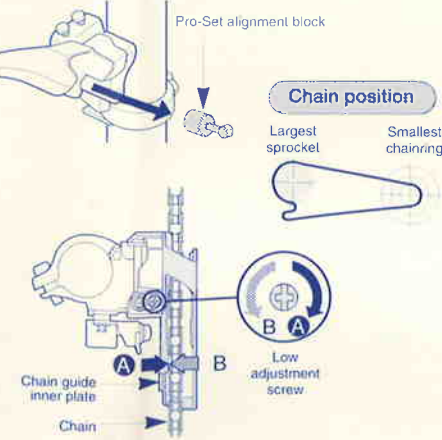
Tightening torque:
5 - 7 Nm {44 - 60 in. lbs.}

SIS adjustment

Be sure to follow the sequence described below.

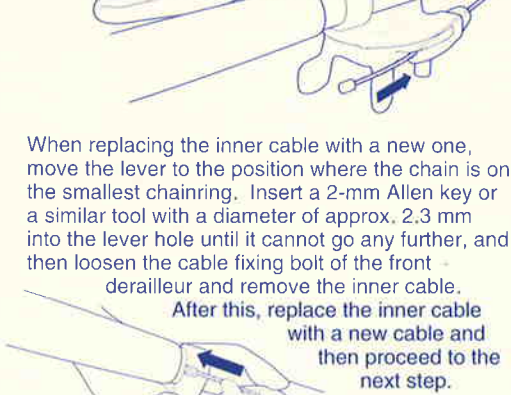
1. Low adjustment

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



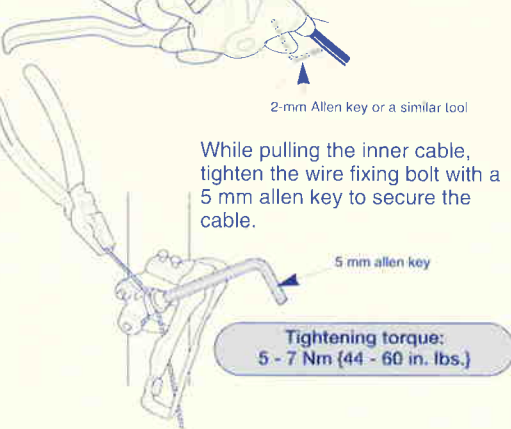
2. Connection and securing of the cable

Pass the inner cable through the lever hole, and then install the lever.



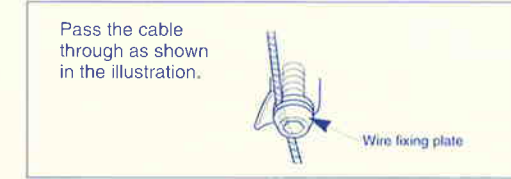
When replacing the inner cable with a new one, move the lever to the position where the chain is on the smallest chainring. Insert a 2-mm Allen key or a similar tool with a diameter of approx. 2.3 mm into the lever hole until it cannot go any further, and then loosen the cable fixing bolt of the front derailleur and remove the inner cable.

After this, replace the inner cable with a new cable and then proceed to the next step.



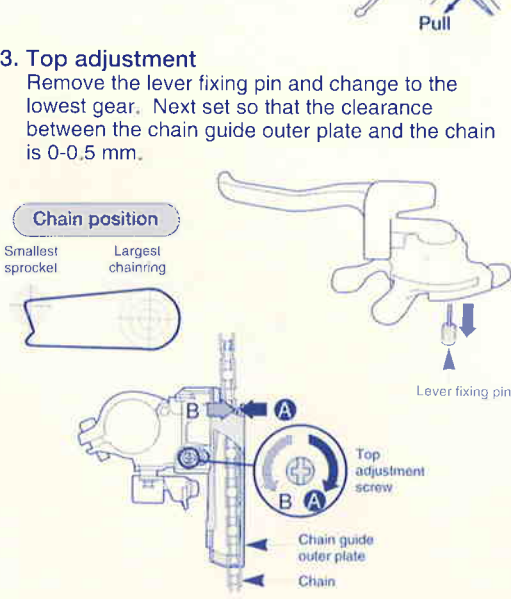
While pulling the inner cable, tighten the wire fixing bolt with a 5 mm allen key to secure the cable.

Tightening torque:
5 - 7 Nm {44 - 60 in. lbs.}



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.



Chain position

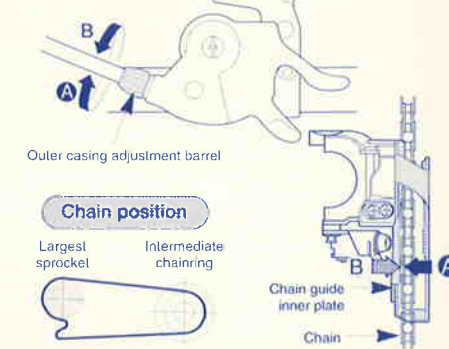
Smallest sprocket Largest chainring

Low adjustment screw

Top adjustment screw

4. Adjustment of the intermediate chainring

Set the chain onto the largest sprocket, and at the front, move the chain from the largest chainring to the intermediate chainring. With the front shifting lever sitting securely at the click-stop, adjust using the cable adjusting bolt so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.



Outer casing adjustment barrel

Chain position

Largest sprocket Intermediate chainring

Chain guide inner plate Chain

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).

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.