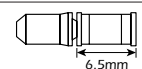
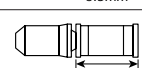
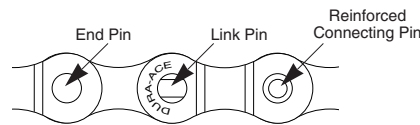


## WARNING

- 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 pin 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-7700 / CN-HG92	 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.



- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

## SERVICE INSTRUCTIONS

SI-F570C

# Front Drive System

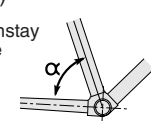
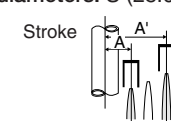
Before use, read these instructions carefully, and follow them for correct use.

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

Series	NEXAVE	
Shifting lever	ST-T400/SL-MC41-T	
Outer casing	SP40 sealed outer casing	
Front derailleur	FD-T401 / FD-MC36	
Front chainwheel	FC-T401 / FC-T400	
Bottom bracket	BB-UN52	
Chain	CN-IG51	
Bottom bracket cable guide	SM-SP18 / SM-BT18	

## Specifications

Front Derailleur	FD-T401	FD-MC36
Model number	FD-T401	FD-MC36
Normal type		○
Top route type		○
Front chainwheel tooth difference	20T	
Min. difference between top and intermediate	10T	
Front derailleur installation band diameter	S, M, L	
Stroke (A-A')	38 - 58	
Chainstay angle (α)	63°-66°, 66°-69°	
Applicable chain line	47.5mm	47.5mm, 50.0mm
Applicable front chainwheel	FC-T401	FC-T400
Installation band dimensions: S (28.6 mm), M (31.8 mm), L (34.9 mm)		



Chainwheel	FC-T400	FC-T401
Model number	FC-T400	FC-T401
Chainwheel tooth combination	42T-32T-22T	42T-38T-28T
Bolt circle diameter	104mm / 54mm	79mm
Crank arm length	170 mm, 175 mm	
Pedal thread dimensions	BC 9/16" X 20 T.P.I. (English thread)	

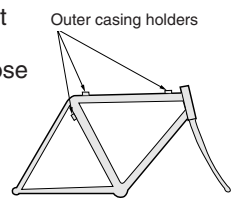
Bottom Bracket	Pedal thread dimensions			
Type	Chain line	Spindle length	Chainwheel tooth combination	Pedal thread dimensions
Triple	47.5 mm	68 mm	MM110	BC 1.37 X 24 T.P.I.
		70 mm	MM110	M36 X 24 T.P.I.
	50.0 mm	68 mm	MM113	BC 1.37 X 24 T.P.I.

## CAUTION

- Be sure to use only a Shimano IG chain in combination with the FC-T400/FC-T401 front chainwheels.

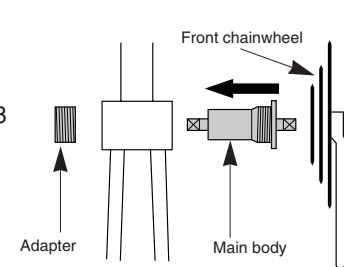
### Note:

- 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.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.



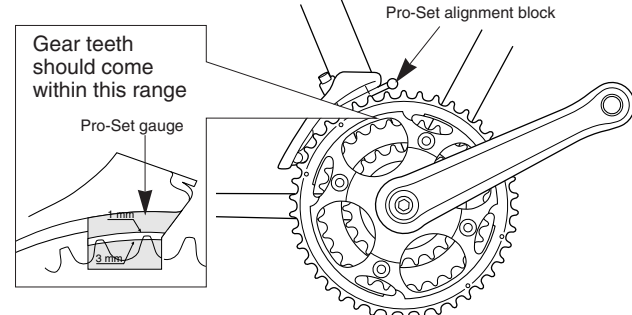
## Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

Install using the TL-UN74 special tool. First install the main body, then the adapter. After this, use an 8 mm Allen key to install the front chainwheel.

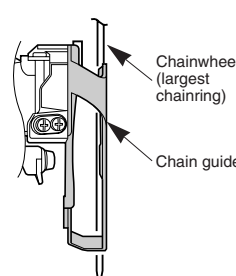


Adapter / bottom bracket tightening torque: 50 - 70 Nm (435 - 608 in. lbs.)  
Front chainwheel tightening torque: 35 - 50 Nm (305 - 435 in. lbs.)

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 5 mm Allen key.



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

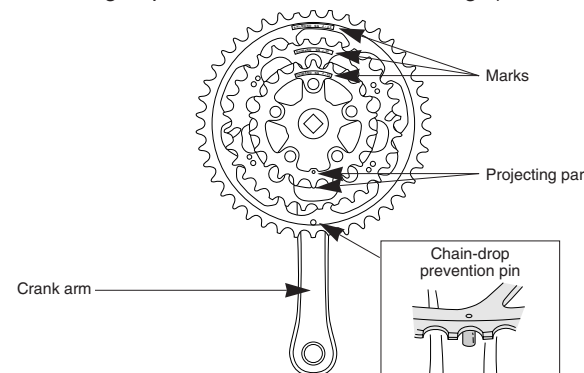
## Installation of the chainrings

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

**M 42-32-22**  
**48-38-28 (FCT401)**

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

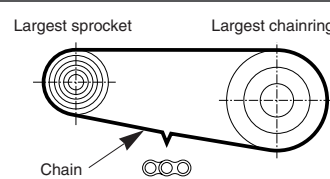
(There are no group marks on 48-38-28 chainrings.)



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 M-□ is being combined. Therefore, be sure to install them in the correct position.

## Chain length

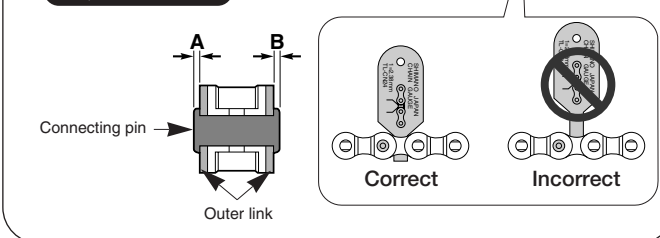
Add 2 links (with the chain on both the largest sprocket and the largest chainring)



### 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.

A, B ≥ 0.2mm

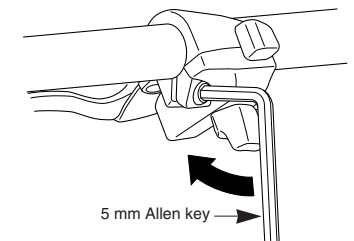


## Installation of the brake lever

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

<ST-T400>

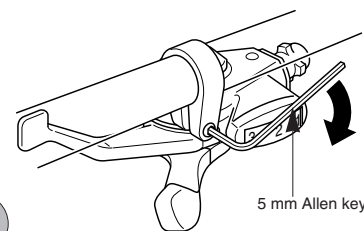
Tightening torque: 6-8 Nm (53-69 in. lbs.)



<SL-MC41-T>

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.

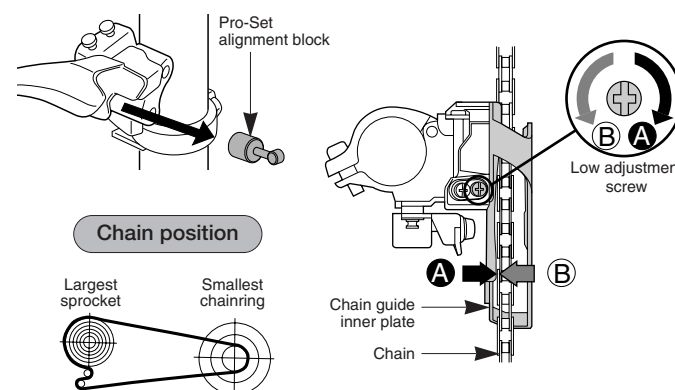


## SIS adjustment

Be sure to follow the sequence described below.

### 1. Low adjustment

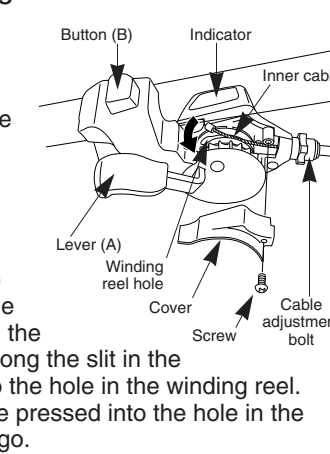
First remove the Pro-Set alignment block. Next, set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.



### 2. Connection and securing of the inner cable

<ST-T400>

Press button (B) 2 or more times to set the lever to the lowest position, check on the indicator that the lowest position is correct, and then install and adjust the inner cable. Loosen the screw, remove the cover and then pass the inner cable through the cable adjustment bolt as shown in the illustration. Run the cable along the slit in the winding reel and hook it into the hole in the winding reel. The inner end cap should be pressed into the hole in the winding reel as far as it will go.

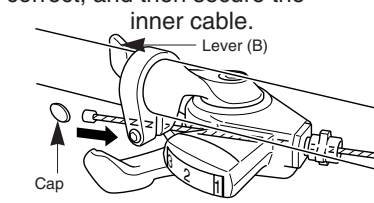


While firmly pulling the inner cable, secure by tightening the fixing bolt with a 5 mm Allen key.

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

<SL-MC41-T>

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



### 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.

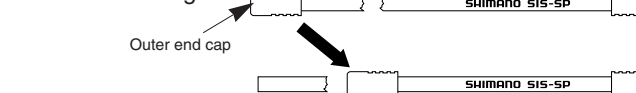


### Cutting the outer casing

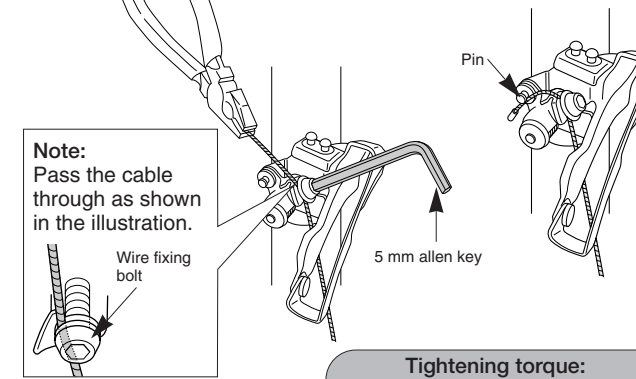
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.



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



Cut off any unnecessary cable, attach an end cap and hook it onto the pin.

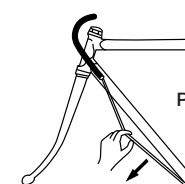


Note: Pass the cable through as shown in the illustration.

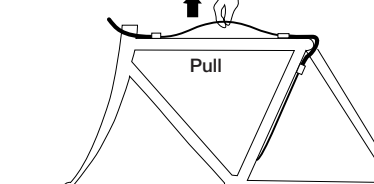
Tightening torque: 5 - 7 Nm (44 - 60 in. lbs.)

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

Normal type

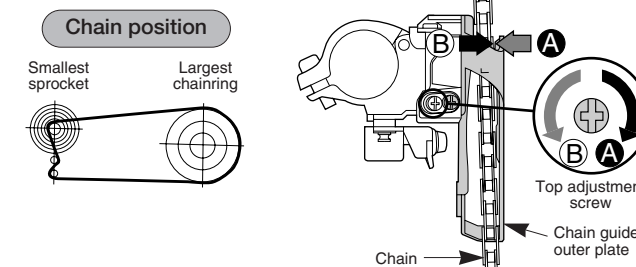


Top route type



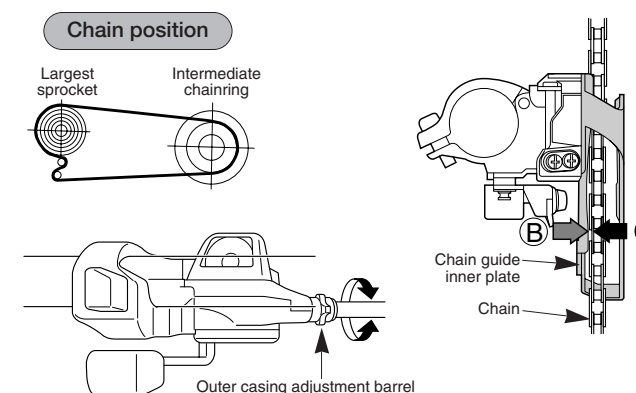
### 3. Top adjustment

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.



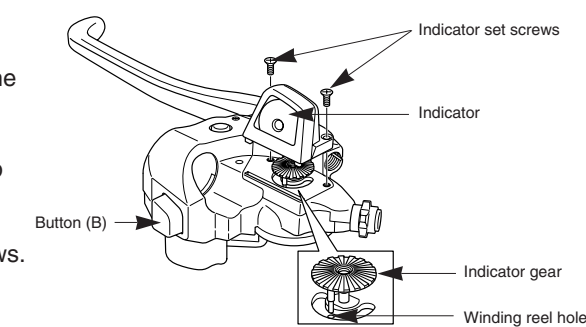
## 5. Troubleshooting chart

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).

## Replacing the indicator

- Press button (B) to set the lever to the lowest position.
- Insert the pin of the indicator gear into the hole of the winding reel.
- Move the indicator needle to the [1] position.
- In the condition in step 3., place the indicator on top of the brake lever bracket. Be careful not to let the indicator needle move at this time.
- Secure the indicator with the two indicator set screws.

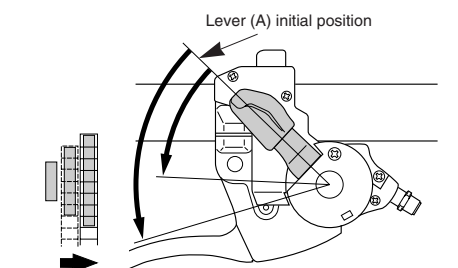


## Gear shifting operation

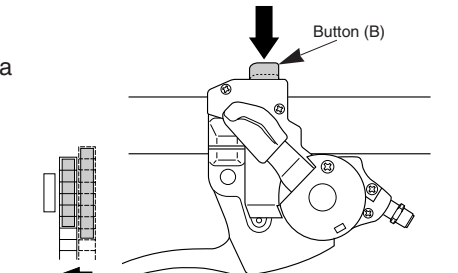
<ST-T400>

Both lever (A) and button (B) return to the initial lever or button position when they are released after shifting. When operating lever (A) or button (B), 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.



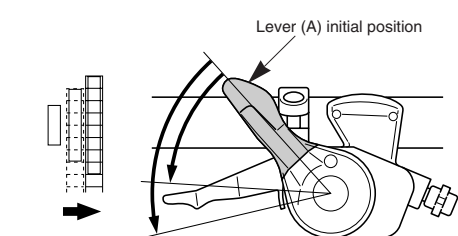
**To shift from a large chainring to a smaller chainring**  
When button (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.  
Example: from largest chainring to intermediate chainring.



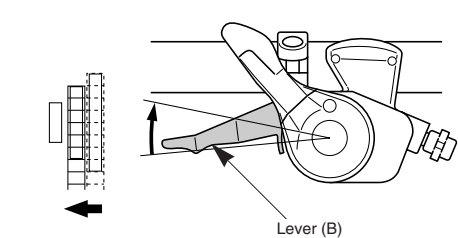
<SL-MC41-T>

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.

**SHIMANO**

SHIMANO AMERICAN CORPORATION  
One Hubbard Drive, CA 92018, U.S.A. Phone (949) 951-5000

SHIMANO EUROPA  
Industrieweg 24 NL-8071 CT Nunspeet Holland Phone 31-341-27222

SHIMANO INC.  
77 Omatsubo 3-cho Sakai Osaka 590-8577 Japan Phone 0722-23-2424

Please note: specifications are subject to change for improvement without notice. (English)  
© Sep. 1999 by Shimano Inc. XBC SZK Printed in Japan

These service instructions are printed on recycled paper and can be recycled again.