
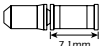


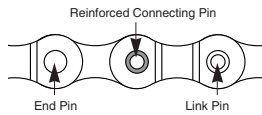
General Safety Information

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 pins 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-7701 / CN-HG93	 Silver	TL-CN32 / TL-CN27
8-/7-/6-speed narrow chain such as CN-HG50 / CN-HG40	 Black	TL-CN32 / TL-CN27

- 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.
- Be careful not to let the cuffs of your clothes get caught in the chain while riding, otherwise you may fall off the bicycle.
- Check that the tension of the chain is correct and that the chain is not damaged. If the tension is too weak or the chain is damaged, the chain should be replaced. If this is not done, the chain may break and cause serious injury.
- Check that there are no cracks in the crank arms before riding the bicycle. If there are any cracks, the crank arm may break and you may fall off the bicycle.
- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn or damaged parts may cause the bicycle to fall over and serious injury may occur as a result. We strongly recommend only using genuine Shimano replacement parts.
- Obtain and read the service instructions carefully prior to installing the parts. If adjustments are not carried out correctly, the chain may come off and this may cause you to fall off the bicycle which could result in serious injury.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

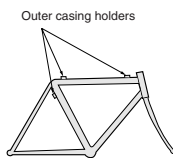


CAUTION

- Be sure to use only a Shimano HG chain in combination with the FC-M191 front chainwheels.

Note

- In addition, if pedaling performance does not feel normal, check this once more.
- Before riding the bicycle, check that there is no play or looseness in the connection. Also, be sure to retighten the crank arms and pedals at periodic intervals.
- Do not wash the bottom bracket with high-pressure jets of water.
- If you feel any looseness in the bottom bracket axle, the bottom bracket should be replaced.
- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.
- You should periodically wash the chainrings in a neutral detergent and then lubricate them again. In addition, cleaning the chain with neutral detergent and lubricating it can be a effective way of extending the useful life of the chainrings and the chain.
- If the chain keeps coming off the chainrings during use, replace the chainrings and the chain.
- Apply grease to the bottom bracket before installing it.
- For smooth operation, 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.
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- For maximum performance we highly recommend Shimano lubricants and maintenance products
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.



Front Drive System

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

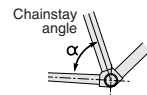
Series	NEXAVE
Shifting lever	ST-T300-S
Outer casing	SP40 sealed outer casing
Front derailleur	FD-M190/FD-M190A/FD-M191/FD-T301
Front chainwheel	FC-M191
Bottom bracket	BB-UN26
Chain	CN-HG50 / CN-HG40
Bottom bracket cable guide	SM-SP18 / SM-BT18

Specifications

Front Derailleur

Model number	FD-M190	FD-M190A	FD-M191	FD-T301
Normal type	X	X	X	X
Top route type	X	X	X	X
Front chainwheel tooth difference	18T	18T	20T	20T
Min. difference between top and intermediate	8T	8T	10T	10T
Front derailleur installation band diameter	S, M	S, M	S, M	S, M
Chainstay angle (α)	63° - 66°	66° - 69°	63° - 66° 66° - 69°	63° - 66° 66° - 69°
Applicable chain line	47.5mm 50.0mm	47.5mm 50.0mm	47.5mm 50.0mm	47.5mm

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



Front chainwheel	FC-M191 (42T-34T-24T) 170mm	
Front derailleur	FD-M190/FD-M190A	
Combination	With chain protector	Without chain protector
B.B. Width	68mm	
B.B.	Model number	BB-UN26
	Spindle length	YL117
	Shell width	68mm
Chain line	47.5mm + T1	47.5mm
Spacer (2.5mm)	X	X

Front chainwheel	FC-M191 (48T-38T-28T) 170mm	
Front derailleur	FD-M191/FD-T301	
Combination	With chain protector	Without chain protector
B.B. Width	68mm	
B.B.	Model number	BB-UN26
	Spindle length	D-NL122.5
	Shell width	68mm
Chain line	47.5mm + T1	47.5mm

* T1 is the thickness of the chain protector.

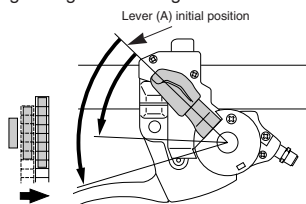
Gear shifting operation

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 chaining to a larger chaining

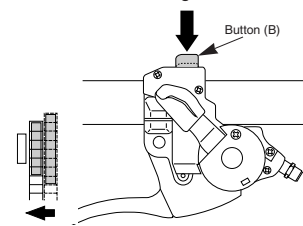
When lever (A) is pressed once, there is a shift of one step from a small chaining to a larger chaining.

Example:
from intermediate chaining to largest chaining.



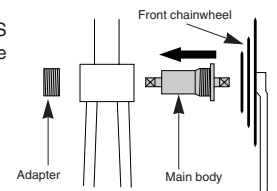
To shift from a large chaining to a smaller chaining When button (B) is pressed once, there is a shift of one step from a large chaining to a smaller chaining.

Example:
from largest chaining to intermediate chaining.



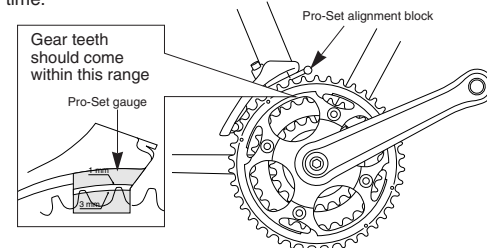
Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

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

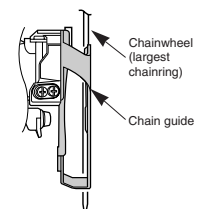


Adapter / bottom bracket tightening torque:
50 - 70 N·m {435 - 608 in. lbs.}
Front chainwheel tightening torque:
35 - 50 N·m {305 - 435 in. lbs.}

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



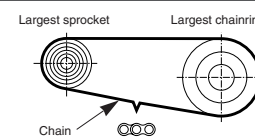
The level section of the chain guide outer plate should be directly above and parallel to the largest chaining. Secure using a 5 mm Allen key.



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

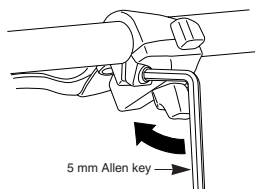
Chain length

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



Installation of the brake lever

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



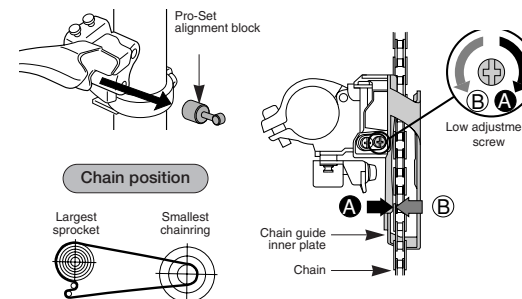
Tightening torque:
6 - 8 N·m {53 - 69 in. lbs.}

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 0-0.5 mm.



2. Connection and securing of the inner cable

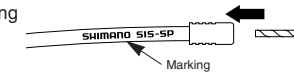
Press button (B) 2 or more times to set the lever to the lowest position, check on the indicator that the lowest position is correct, and then install and adjust the inner cable. Loosen the screw, remove the cover and then pass the inner cable through the cable adjustment bolt as shown in the illustration. 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 N·m
{44 - 60 in. lbs.}

Inserting the inner cable

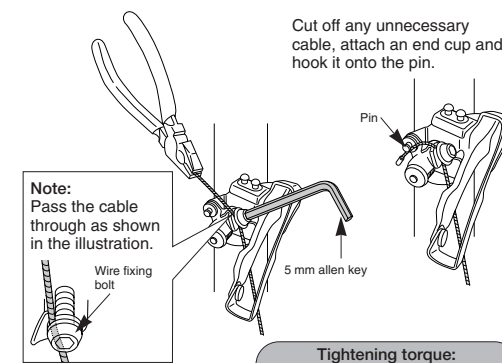
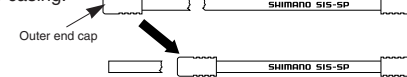
Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.



Cutting the outer casing

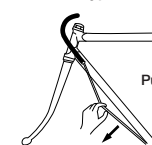
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

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

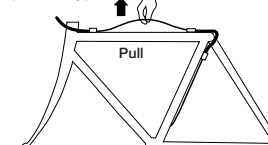


After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

Normal type

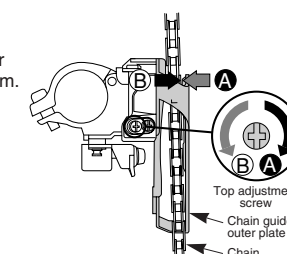
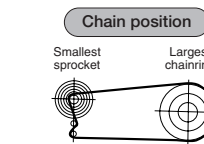


Top route type



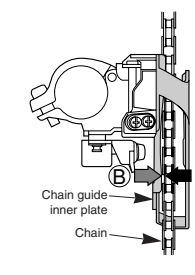
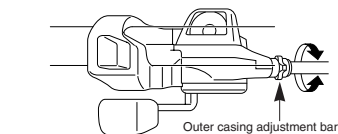
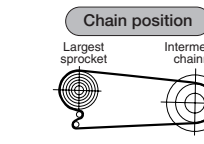
3. Top adjustment

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



4. Adjustment of the intermediate chaining

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



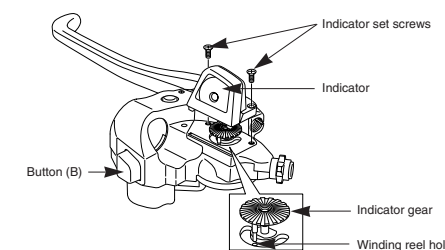
5. Troubleshooting chart

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



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.

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* Service Instructions in further languages are available at:
<http://techdocs.shimano.com>

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