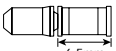
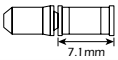
Rear Drive System

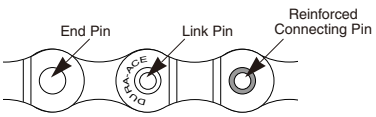
Before use, read these instructions carefully, and follow them for correct use.

⚠ 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-7701 / CN-HG93	 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

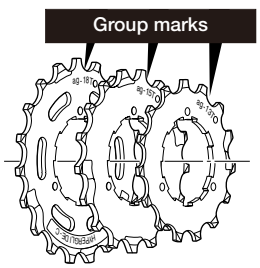
- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.



- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend only using genuine Shimano replacement parts.

Note

- Always be sure to use the sprocket set bearing the same group marks. Never use in combination with a sprocket bearing a different group mark.
- Because the high cable resistance of a frame with internal cable routing would impair the SIS function, this type of frame should not be used.
- 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 smooth operation, use the specified outer casing and the bottom bracket cable guide.
- 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.



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

Series	Altus	Tourney40	Tourney30
Rapidfire Plus	ST-EF29-8R ST-EF35-8R	ST-EF29-7R ST-EF35-7R	ST-EF29-7R ST-EF35-7R
Outer casing	SIS	SIS	SIS
Rear derailleur	RD-CT95	RD-MR40-7	RD-TY30-7
Type	Smart Cage	MGS	GS
Freehub	FH-CT91	–	–
Sprockets	8	7	7
Cassette sprocket	CS-HG50-8I CS-HG40-8I	MF-HG40-7	MF-HG37
Chain	CN-HG50 / CN-UG50		
Bottom bracket cable guide	SM-SP18 / SM-BT18		

Specifications

Rear Derailleur

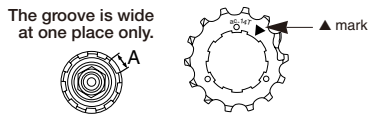
Model number	RD-CT95	RD-MR40-7	RD-TY30-7
Type	Smart Cage	MGS	GS
Total capacity	43T	40T	34T
Largest sprocket	34T	34T	28T
Smallest sprocket	11T	13T	14T
Front chainwheel tooth difference	20T	20T	20T
Applicable front chainwheel (chainring tooth configuration)	**FC-CT93 (42-34-24T)**	**FC-TY33A (48-38-28T)**	**FC-TY33 (48-38-28T)**

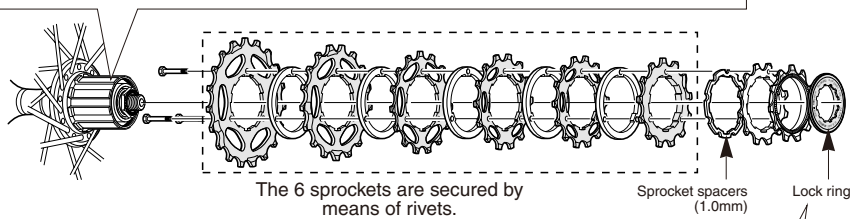
Cassette sprocket tooth combination

Model number	Sprockets	Group name	Tooth combination
CS-HG50-8I	8	an	11, 13, 15, 17, 20, 23, 26, 30T
CS-HG40-8I	8	ao	11, 13, 15, 17, 20, 23, 26, 34T
MF-HG40-7	7	az	14, 16, 18, 20, 22, 24, 34T
MF-HG37	7	ax	14, 16, 18, 20, 22, 24, 28T

Installation of the sprockets

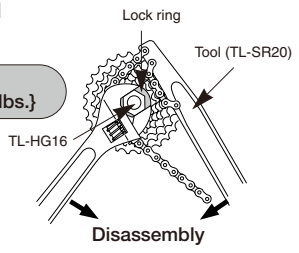
For each sprocket, the surface that has the group mark should face outward and be positioned so that the triangle (▲) mark on each sprocket and the A part (where the groove width is wide) of the freewheel body are aligned.





- For installation of the sprockets, use the special tool (TL-HG16) to tighten the lock ring.

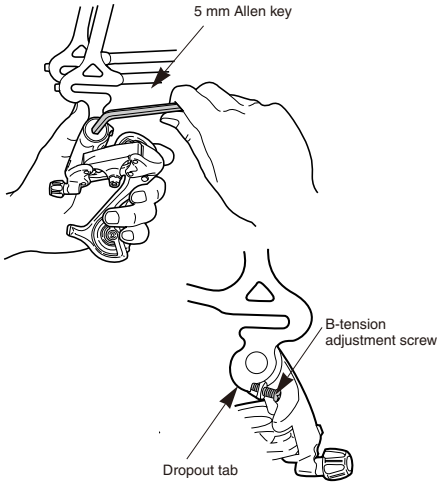
Tightening torque: 30 - 50 N·m {261 - 434 in. lbs.}



- To replace the sprockets, use the special tool (TL-HG16) and TL-SR20 to remove the lock ring.

Installation of the rear derailleur

When installing, be careful that deformation is not caused by the B-tension adjustment screw coming into contact with the dropout tab.

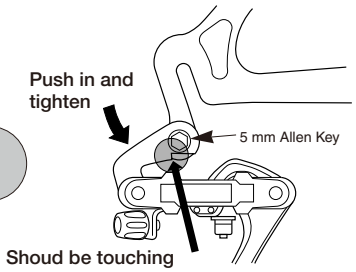


Bracket spindle tightening torque:
8 - 10 N·m {70 - 86 in. lbs.}

<RD-MR40/RD-TY30>

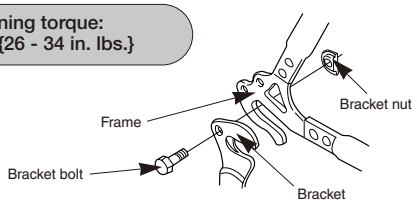
Direct-mount type

Tightening torque:
8 - 10 N·m
{70 - 86 in. lbs.}



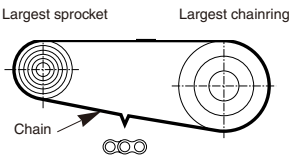
Bracket type

Tightening torque:
3 - 4 N·m {26 - 34 in. lbs.}



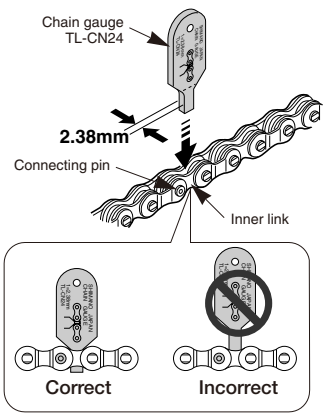
Chain length

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

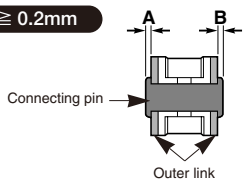


Checking the chain connection

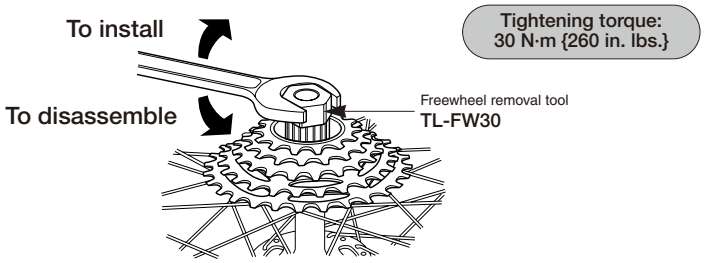
For IG, chains, insert the chain gauge (TL-CN24) into the inner link which is next to the chain connecting pin to check that the inner link width is correct. Check that the connecting pin pro-trudes past the outer link by the same amount on both sides, and that the amount of protrusion is 0.2 mm or more.



A, B ≧ 0.2mm



Installation of the freewheel



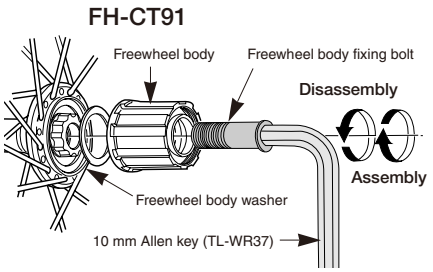
Replacement of the freewheel body

After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

Note:

Do not attempt to disassemble the freewheel body, because it may result in a malfunction.

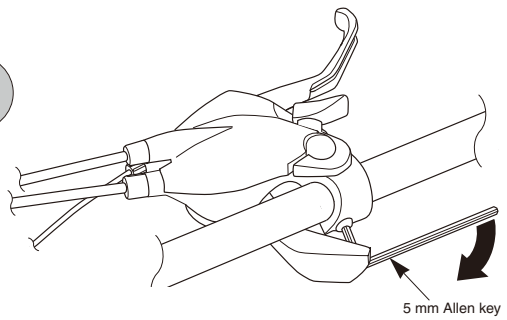
Tightening torque:
35 - 50 N·m {305 - 434 in. lbs.}



Mounting the shifting lever

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

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

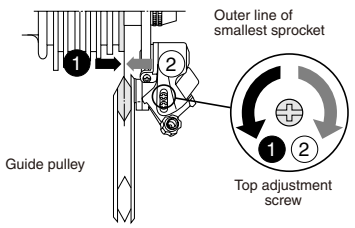


Adjustment

1. Top adjustment

Turn the top adjustment screw to adjust so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.

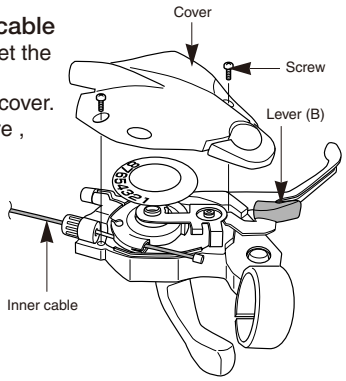
After this, install the chain.



2. Connecting and securing the inner cable

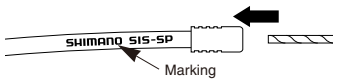
Operate lever (B) at least eight times to set the lever to the highest position.
Remove the screw, and then remove the cover.
Pull out the inner cable as shown in Figure , and then install the new inner cable.

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



Inserting the inner cable

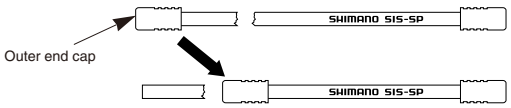
Insert the inner cable into the outer casing from the end with the marking on it.
Apply grease from the end with the marking in order to maintain cable operating efficiency.



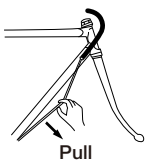
Cutting the outer casing

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.

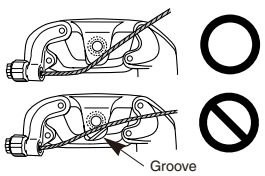


Connect the cable to the rear derailleur and, after taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.



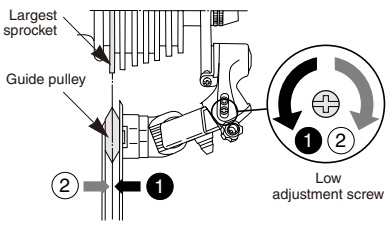
Tightening torque:
5 - 7 N·m {44 - 60 in. lbs.}

Note: Be sure that the cable is securely in the groove.



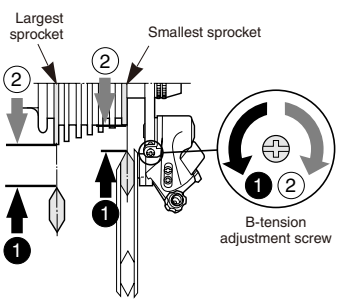
3. Low adjustment

While turning the front chainwheel, operate the lever to shift to the lowest gear.
Turn the low adjustment screw so that the guide pulley moves to a position directly in line with the largest sprocket.

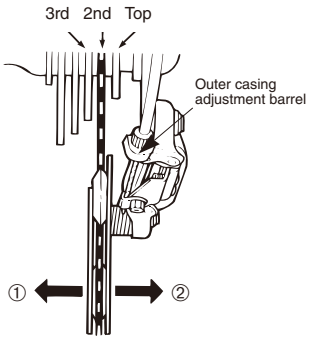


4. How to use the B-tension adjustment screw

Mount the chain on the smallest chainring and the largest sprocket, and turn the crank arm backward. Then turn the B-tension adjustment screw to adjust the guide pulley as close to the sprocket as possible but not so close that it touches. Next, set the chain to the smallest sprocket and repeat the above to make sure that the pulley does not touch the sprocket.

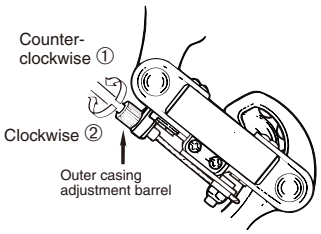


5. SIS Adjustment



(1) Operate the shifting lever to move the chain from the top gear to the 2nd gear.

* If the chain will **not move to the 2nd gear,** turn the outer casing adjustment barrel to increase the tension ----- ① **(counter clockwise)**
* If the chain **moves past the 2nd gear,** decrease the tension ----- ② **(clockwise)**



(2) Next with the chain on the 2nd gear, increase the inner cable tension ① while turning the crank arm forward. Stop turning the outer casing adjustment barrel **just before the chain makes noise against the 3rd gear.** This completes the adjustment.

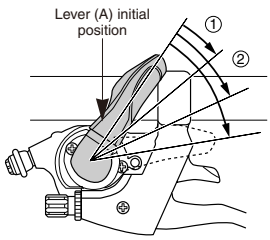
For the best SIS performance, periodically lubricate all power-transmission parts.

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.

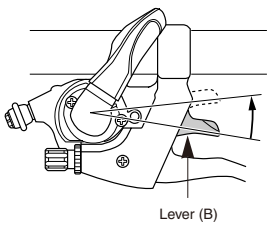
To shift from a small sprocket to a larger sprocket

To shift one step only, press lever (A) to the (1) position. To shift two steps at one time, press to the (2) position. A maximum three-step shift can be made in this manner.



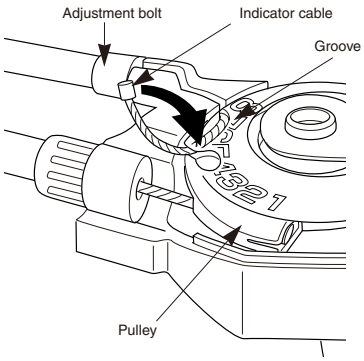
To shift from a large sprocket to a smaller sprocket

Press lever (B) once to shift one step from a larger to a smaller sprocket.



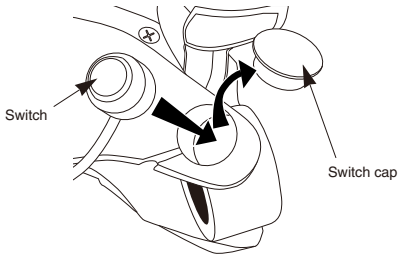
Replacement of the indicator cable

Operate lever (B) at least eight times to set the lever to the highest position.
Remove the cover fixing screws, and then remove the cover as shown in the illustration.
Pull the end of the new cable until it is positioned in the pulley as shown in the illustration.
Check that the cable is securely in the groove at this time.
Tighten the adjustment bolt, install the cover and secure it with the screws.



Installation of the switch

Remove the switch cap and install the switch as shown in the illustration.



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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Please note: specifications are subject to change for improvement without notice. (English)