



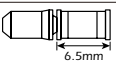
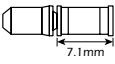
Rear Drive System

General Safety Information

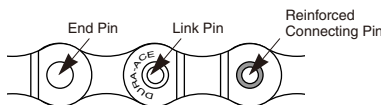
SI-R740G

⚠ 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.
 - 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 you may fall off the bicycle.
 - Check that the wheels are fastened securely before riding the bicycle. If the wheels are loose in any way, they may come off the bicycle and serious injury may result.
 - 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.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.



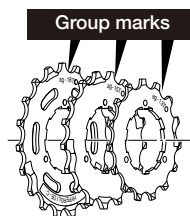
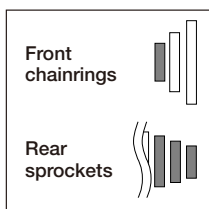
⚠ CAUTION

- **Use a front chainwheel which is compatible with 9-speed chains in conjunction with Shimano CN-7701, CN-HG93 and CN-HG73 chains. If a chainwheel for an 8-speed chain or less is used, front chainwheel gear shifting problems may occur, or the chain pins might fall out, causing the chain to break.**

Note

- 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 clean the derailleur and lubricate all moving parts (mechanism and pulleys).
- If gear shifting adjustment cannot be carried out, check the degree of parallelism at the rear end of the bicycle. Also check if the cable is lubricated and if the outer casing is too long or too short.
- If you hear abnormal noise as a result of looseness in a pulley, you should replace the pulley.
- If the wheel becomes stiff and difficult to turn, you should lubricate it with grease.
- Do not apply any lubricant to the inside of the hub, otherwise the grease will come out.
- You should periodically wash the sprockets 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 sprockets and the chain.
- If the chain keeps coming off the sprockets during use, replace the sprockets and the chain.

- When the chain is in the position shown in the illustration, the chain may sag. Shift the chain onto the next-larger rear sprocket or the one after.
- 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.
- Always be sure to use the HG/IG sprocket set bearing the same group marks. Never use in combination with a sprocket bearing a different group mark.
- 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.
- For smooth operation, use the specified outer casing and the bottom bracket cable guide.
- **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.



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

Series	DEORE
Rapidfire M9 (Shifting lever)	ST-M510 / SL-M510
Outer casing	SP40 sealed
Rear derailleur	RD-M510
Type	SGS
Freehub	FH-M510
Gears	9
Cassette sprocket	CS-HG50-9
Chain	CN-HG73
Bottom bracket guide	SM-SP17 / SM-BT17

Specifications

Rear Derailleur

Model number	RD-M510
Type	SGS
Gears	9
Total capacity	43T
Largest sprocket	34T
Smallest sprocket	11T
Front chainwheel tooth difference	22T

Cassette sprocket tooth combination

Model number	Group name	Gears	Tooth combination
CS-HG50-9	ar	9	11, 12, 14, 16, 18, 21, 24, 28, 32T

Shifting lever

Model number	ST-M510 / SL-M510
Gears	9

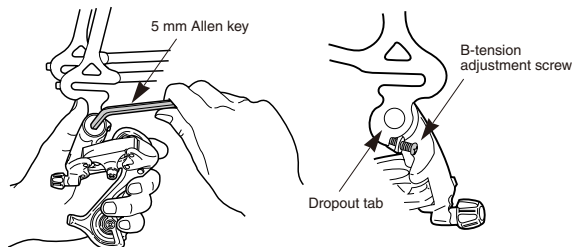
Freehub

Model number	FH-M510
Gears	9
No. of spoke holes	36 / 32

Installation of the rear derailleur

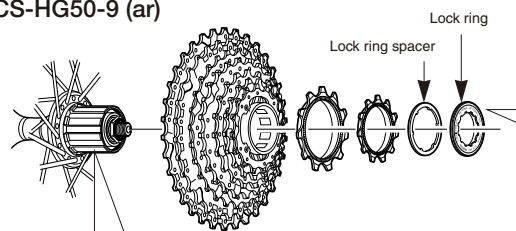
When installing, be careful that deformation is not caused by the B-tension adjustment screw coming into contact with the dropout tab.

Bracket spindle Tightening torque :
8 - 10 Nm {70 - 86 in. lbs.}

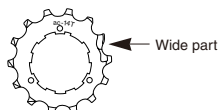
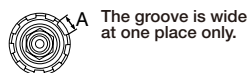


Installation of the sprockets

CS-HG50-9 (ar)



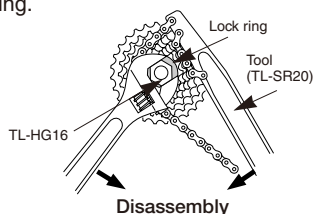
For each sprocket, the surface that has the group mark should face outward and be positioned so that the wider part of each sprocket and the A part (where the groove width is wide) of the freewheel body are aligned.



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

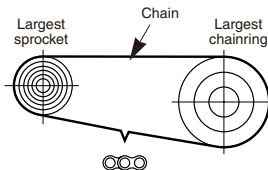
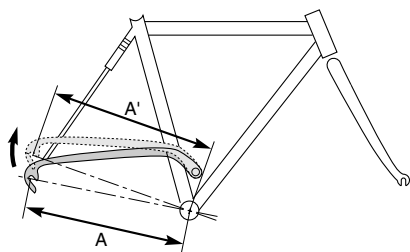
Tightening torque:
30 - 50 N·m {261 - 434 in. lbs.}

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



Chain length on bicycles with rear suspension

The length of A will vary depending on the movement of the rear suspension. Because of this, an excessive load may be placed on the drive system if the chain length is too short. Set the length of the chain by adding two links to the chain when the rear suspension is at a position where dimension "A" is longest and the chain is on the largest sprocket and the largest chainring. If the amount of movement of the rear suspension is large, the slack in the chain may not be taken up properly when the chain is on the smallest chainring and smallest sprocket.



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

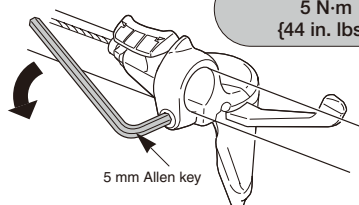
Installation of the lever

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.

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

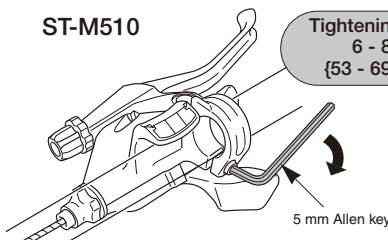
SL-M510

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



ST-M510

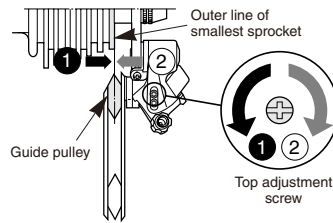
Tightening torque :
6 - 8 N·m
{53 - 69 in. lbs.}



Adjustment

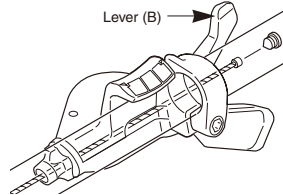
1. Top adjustment

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.



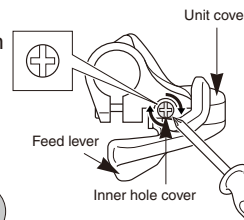
2. Connection and securing of the inner cable

Operate lever (B) 8 or more times to set the lever to the highest position, check on the indicator that the highest position is correct, and then install and adjust the inner cable.



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

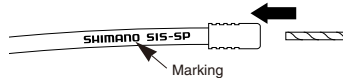
Install the inner hole cover by turning it as shown in the illustration until it stops. Do not turn it any further than this, otherwise it may damage the screw thread. In addition, if the unit cover becomes bent, it may cause the unit cover to get in the way of the feed lever and prevent the feed lever from operating correctly. If the feed lever does not return correctly, loosen the inner hole cover slightly, and then move the feed lever and the unit cover apart and check if this improves the returning of the feed lever.



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.

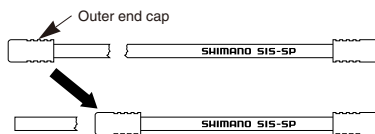


Cutting the outer casing

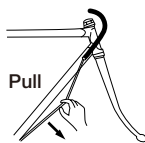
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.



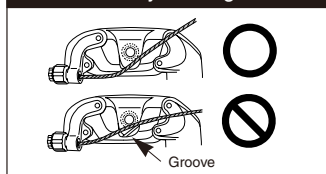
Attach the same outer end cap to the cut end of the outer casing.



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.

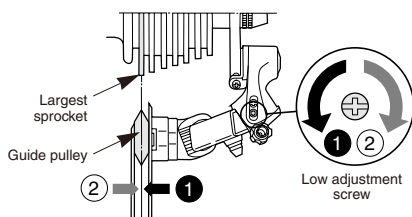


Note: Be sure that the cable is securely in the groove.



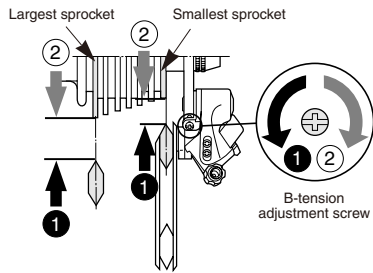
3. Low adjustment

Turn the low adjustment screw so that the guide pulley moves to a position directly in line with the largest sprocket.



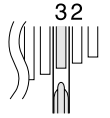
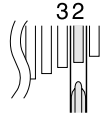
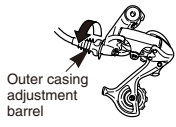
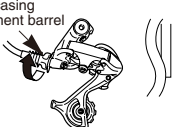
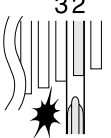
4. How to use the B-tension adjustment screw

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

Operate the shifting lever several times to move the chain to the 2nd sprocket. Then, while pressing the lever just enough to take up the play in the lever, turn the crank arm.

<p>When shifting to 3rd</p> 	<p>When no sound at all is heard</p> 
<p>Outer casing adjustment barrel</p>  <p>Tighten the outer casing adjustment barrel until the chain returns to the 2nd sprocket. (clockwise)</p>	<p>Outer casing adjustment barrel</p>  <p>Loosen the outer casing adjustment barrel until the chain touches the 3rd sprocket and makes noise. (counter clockwise)</p>
<p>Best setting</p> <p>The best setting is when the shifting lever is operated just enough to take up the play and the chain touches the 3rd sprocket and makes noise.</p>  <p>* Return the lever to its original position (the position where the lever is at the 2nd sprocket setting and it has been released) and then turn the crank arm clockwise. If the chain is touching the 3rd sprocket and making noise, turn the outer casing adjustment barrel clockwise slightly to tighten it until the noise stops and the chain runs smoothly.</p>	

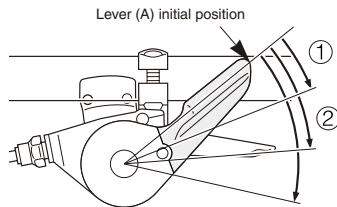
For the best SIS performance, periodically lubricate all power-transmission parts.

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.

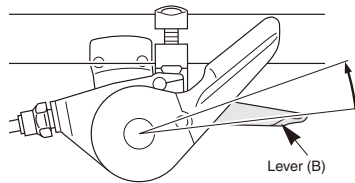
To shift from a small sprocket to a larger sprocket

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.



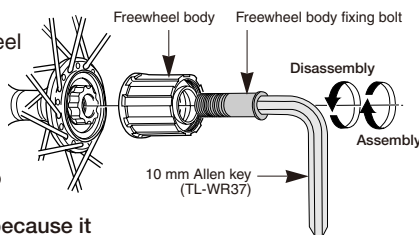
To shift from a large sprocket to a smaller sprocket

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



Replacement of the 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.}

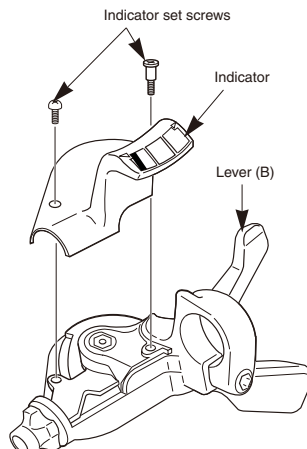
Replacement of the indicator

Disassembly and reassembly should only be carried out when replacing the indicator.

1. Remove the two indicator set screws which are securing the indicator.

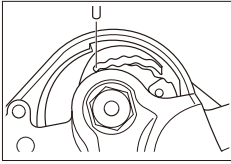
Tightening torque : 0.3 - 0.5 N·m {3 - 4 in. lbs.}

2. Remove the indicator unit as shown in the illustration.
3. Operate lever (B) at least eight times to set the lever to the highest position.

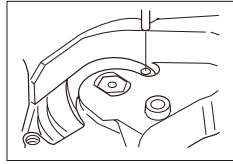


4. After checking that the indicator needle is at the left edge, install the indicator from directly above.

SL-M510



ST-M510



5. Check the operation of the indicator. If it does not operate correctly, re-install the indicator while taking particular note of steps 3. to 4.

Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.

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)

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