SERVICE INSTRUCTIONS **SI-R210A**

Rear 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	SHIMANO ACERA-X
Rapidfire TX	ST-M290 / ST-M295
Outer casing	SIS-SP
Rear derailleur	RD-M290
Type	GS
Freehub	FH-M290
Sprockets	7
Cassette sprocket	CS-HG40
Chain	CN-HG50 / CN-UG50
Bottom bracket cable guide	SM-SP17 / SM-BT17

Specifications

Rear Derailleur

Type	GS
Total capacity	35 teeth or less
Largest sprocket	28T
Smallest sprocket	11T
Front chainwheel tooth difference	18 teeth or less

Cassette sprocket tooth combination

Sprockets	Group name	Tooth combination
7	ac	11, 13, 15, 18, 21, 24, 28T

Rapidfire TX

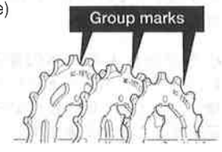
Model number	ST-M290 / ST-M295
Sprockets	7

Freehub

Model number	FH-M290
Sprockets	7
No. of spoke holes	36 / 32

Note

* 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 (Hyperglide) sprocket set bearing the same group marks. Never use in combination with a sprocket bearing a different group mark.
* For the chain, be sure to use only the Shimano narrow type 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.



SHIMANO

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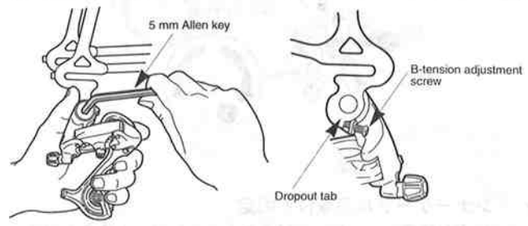
Please note: specifications are subject to change for improvement without notice. (English)

Installation of the rear derailleur

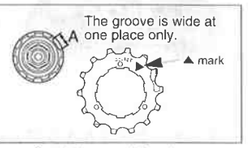
When installing, be careful that deformation is not caused by the B-tension adjustment screw coming into contact with the dropout tab.

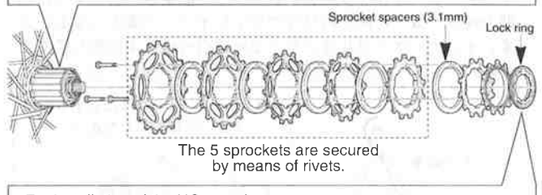
Bracket spindle tightening torque:7.8 - 9.8 Nm {70 - 86 in. lbs.}



Installation of the HG 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.

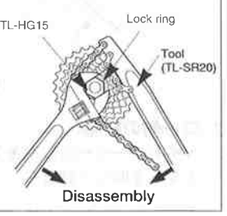




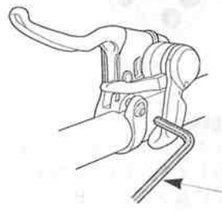
• For installation of the HG sprockets, use the special tool (TL-HG15) to tighten the lock ring.

Tightening torque: 29.4 - 49.0 Nm {261 - 434 in. lbs.}

• To replace the HG sprockets, use the special tool (TL-HG15) and TL-SR20 to remove the lock ring.



Installation of the brake lever

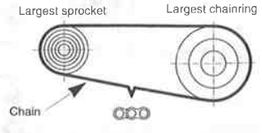


Use a handlebar grip with a maximum outer diameter of 32 mm.

Allen key tightening torque: 5.9 - 7.8 Nm {53 - 69 in. lbs.}

Chain length

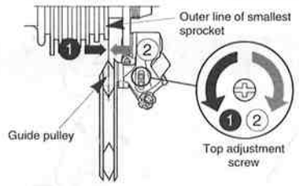
Add 2 links (with the chain on both the largest sprocket and the largest chainring)



Adjustment

1. Top adjustment

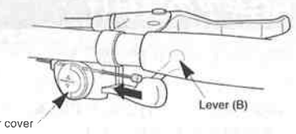
Turn the top adjustment screw to adjust so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.



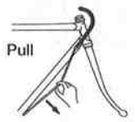
2. Connection and securing of the cable

Press lever (B) 6 or more times to set the lever to the highest position, and then install the cable.

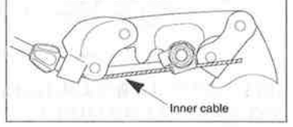
Tightening torque: 4.9 - 6.9 Nm {44 - 60 in. lbs.}



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.

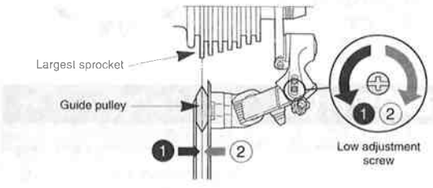


Note: Be sure to secure the inner cable as shown in the illustration below.



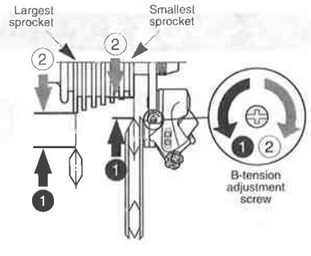
3. Low adjustment

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

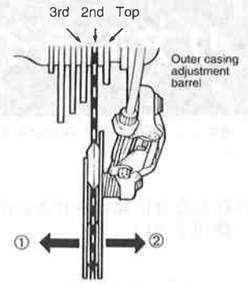
Mount the chain on the smallest chainring and the largest sprocket, and turn the crank arm backward. Then turn the B-tension adjustment screw to adjust the guide pulley as close to the sprocket as possible but not so close that it touches. Next, set the chain to the smallest sprocket and repeat the above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



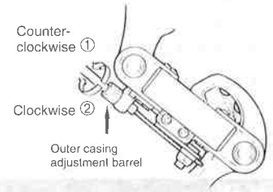
5. SIS Adjustment

(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.

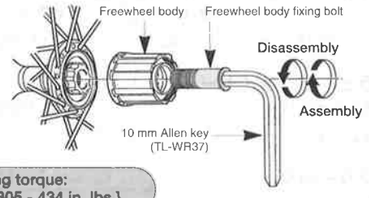


For the best SIS performance, periodically lubricate all power-transmission parts.

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.



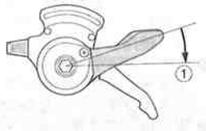
Tightening torque: 34.3 - 49.0 Nm {305 - 434 in. lbs.}

Gear shifting operation

Both lever always returns 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

Press the lever as far as possible in direction (1). A one-step shift is possible each time the lever is pressed.



To shift from a large sprocket to a smaller sprocket

Press the lever as far as possible in direction (2). A one-step shift is possible each time the lever is pressed.