

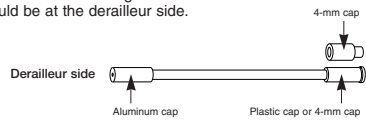
General Safety Information

WARNING

- 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.
- 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.

Note

- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- For smooth operation, always be sure to use the specified outer casing and the bottom bracket cable guide.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- 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.
- The end of the outer casing which has the aluminum cap should be at the derailleur side.



- The cycle computers shown in the table below are compatible.

Meter unit	SC-6500 / SC-6501 / SC-M500
Bracket sensor unit	SM-6500 / SM-6500-RS / SM-6501

*The bracket cover must be replaced.

(ST-6510 ----> Replace with bracket cover for ST-6510.)
(ST-5500-CA ----> Replace with ST-5500-C.)

- Read the service instructions for the cycle computer also.
- 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.

Technical Service Instructions SI-6C80D-001

ST-6510
ST-5500-CA
ST-5510
ST-R600

Shimano
Total Integration

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

Series	ULTEGRA	
Shifting lever	ST-6510 / ST-R600	
Outer casing	SP40	
Gears	18	27
Front derailleur	FD-6500	FD-6503
Front chainwheel	FC-6500	FC-6503
Bottom bracket	BB-6500	
Rear derailleur	RD-6500	RD-6500-GS
Freehub	FH-6500	
Cassette sprocket	CS-6500	
Chain	CN-HG93 / CN-7701	
Bottom bracket cable guide	SM-SP17	

Series	SHIMANO 105	
Shifting lever	ST-5500-CA / ST-5510 / ST-R600	
Outer casing	SP40	
Gears	18	27
Front derailleur	FD-5500 / FD-5501	FD-5503 / FD-5504
Front chainwheel	FC-5501 / FC-5502	FC-5504 / FC-5505
Bottom bracket	BB-5500	
Rear derailleur	RD-5500 / RD-5501	RD-5500-GS / RD-5501-GS
Freehub	FH-5500 / FH-5501	
Cassette sprocket	CS-HG70-9	
Chain	CN-HG73	
Bottom bracket cable guide	SM-SP17	

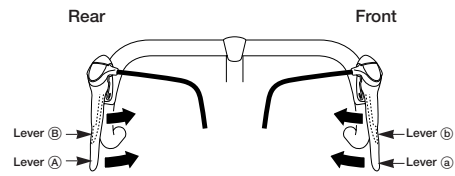
SHIMANO

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

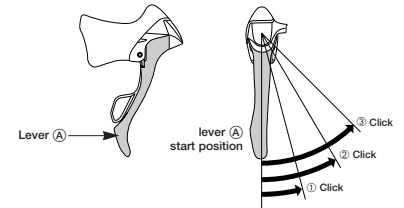


Lever (A) : Shifts from smaller to larger rear sprocket.
Lever (B) : Shifts from larger to smaller rear sprocket.
Lever (a) : Shifts from smaller to larger chainring.
Lever (b) : Shifts from larger to smaller chainring.

All levers return to the starting position when released.

Operation of rear derailleur lever

- Lever (A) : Shifts from smaller to larger rear sprocket. Lever (A) has a click stop at positions ①, ②, and ③.

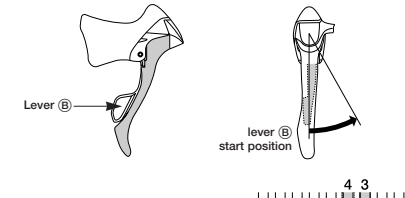


- ① : Shifts one sprocket
E.x. : from 3rd to 4th

- ② : Quick-shifts two sprockets
E.x. : from 3rd to 5th

- ③ : Quick-shifts three sprockets
E.x. : from 3rd to 6th

- Lever (B) : Shifts from larger to smaller rear sprocket. Press lever (B) once to shift from a larger to one smaller sprocket.



E.x. : from 4th to 3rd

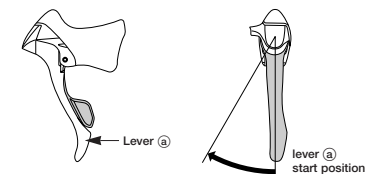
Caution on operation

Lever (B) will also move when lever (A) is operated, but be careful not to apply pressure to lever (B). Similarly be careful not to press lever (A) when operating lever (B). Gears will not shift when both levers are pressed simultaneously.

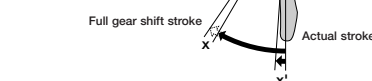
Be sure to read these service instructions in conjunction with the service instructions for the RD-6500/RD-6500-GS/RD-5500/RD-5501/RD-5500-GS/RD-5501-GS before use.

Operation of front derailleur levers (FD-6500 / FD-5500 / FD-5501)

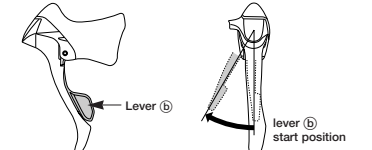
- Lever (a) : Shifts from smaller to larger front chainring.



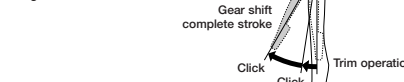
If operation of lever (a) does not complete the chainring shift stroke, operate lever (a) again for the distance (X) to complete that part of the lever stroke (X) which was short.



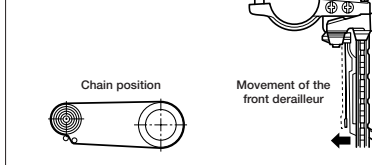
- Lever (b) : Shifts from largest chainring to intermediate chainring.



When lever (b) is operated, there is one click where trimming (the noise prevention mechanism) engages, and a second stronger click when the gear shift stroke is completed. After trimming, the next push will complete the gear shift stroke.

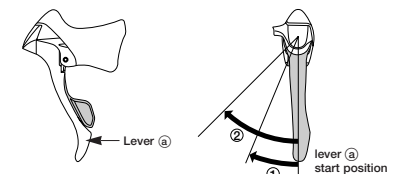


Trimming (noise prevention operation)
If the chain is on the large front chainwheel and the larger rear sprocket, the chain will rub in the front derailleur plate, producing a characteristic noise. When this happens, press lever (b) lightly (to the point where it clicks); this causes the front derailleur to move slightly towards the smaller chainwheel, thereby eliminating the noise.

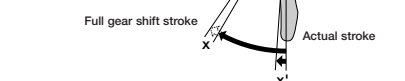


Operation of front derailleur levers (FD-6503 / FD-5503 / FD-5504)

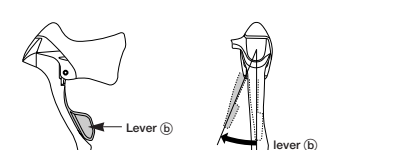
- Lever (a) : Shifts from smaller to larger front chainring.



If operation of lever (a) does not complete the chainring shift stroke, operate lever (a) again for the distance (X) to complete that part of the lever stroke (X) which was short.



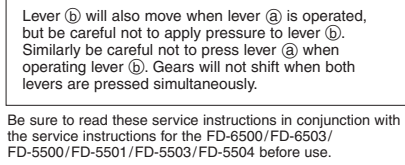
- Lever (b) : Shifts from largest chainring to intermediate chainring.



When lever (b) is operated, there is one click where trimming (the noise prevention mechanism) engages, and a second stronger click when the gear shift stroke is completed. After trimming, the next push will complete the gear shift stroke.



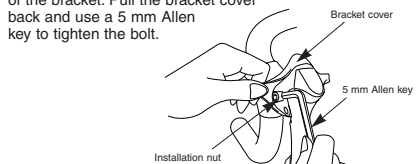
Trimming (noise prevention operation)
If the chain is on the large front chainwheel and the larger rear sprocket, the chain will rub in the front derailleur plate, producing a characteristic noise. When this happens, press lever (b) lightly (to the point where it clicks); this causes the front derailleur to move slightly towards the smaller chainwheel, thereby eliminating the noise.



Installation

Installation to the handlebar

Secure the assembly with the installation nut on the outside of the bracket. Pull the bracket cover back and use a 5 mm Allen key to tighten the bolt.



Tightening torque:
6 - 8 N·m [50 - 70 in. lbs.]

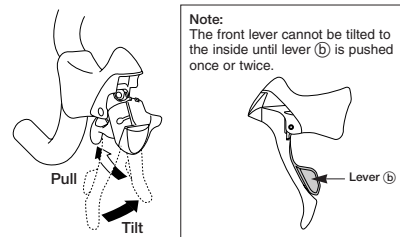
In the case of carbon handlebars, it may be necessary to lower the tightening torque in order to prevent damage to the handlebar. Please consult the bicycle or handlebar manufacturer regarding the appropriate level of tightening torque for carbon handlebars.

Installation of the brake cable

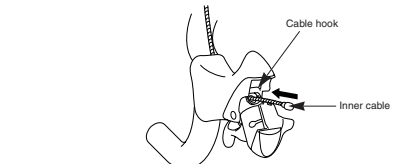
- Cable used
- Inner cable (stainless steel) $\phi 1.6$ mm
- SLR outer casing $\phi 5$ mm

Be sure to leave some excess cable, even if cutting it to the full length of the handlebars.

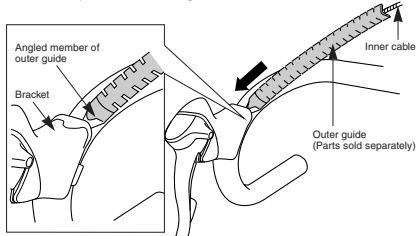
- Tilt the lever in (as when shifting) to make it easier to pass the cable through the cable hook.



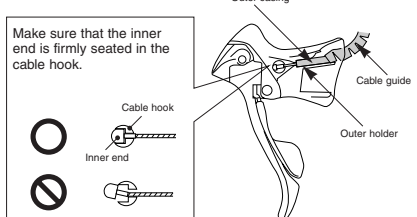
- Pass the inner cable through.



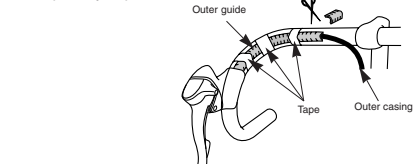
- Fix the outer guide to the inner cable, and set the angled member in the bracket.
Note: Do not wipe the grease on the inner cable off. Also, be careful that the inner cable does not pick up dust and foreign matter.



- Set the outer casing on the inner cable, and in the bracket along the outer guide.



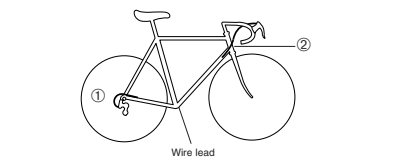
- Bring the outer casing along the front of the handlebar and cover it with the outer guide. Now cut the outer guide to the length of the handlebar, and tape it temporarily in place.



- Finally, wrap the handlebar with the finish tape.

Installing the shifting cable

- Cable used
- Inner cable (stainless steel) $\phi 1.2$ mm
- SP40 sealed outer casing (①) $\phi 4$ mm
- SP40 outer casing (②) $\phi 4$ mm

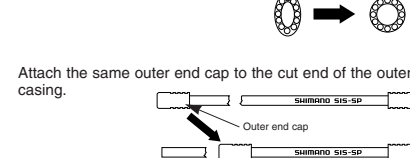


Inserting the inner cable

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.

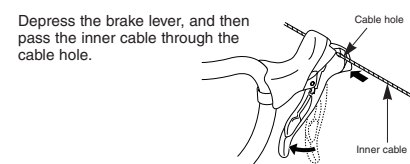


Attach the same outer end cap to the cut end of the outer casing.

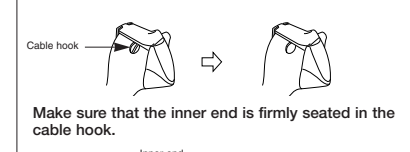


Rear lever

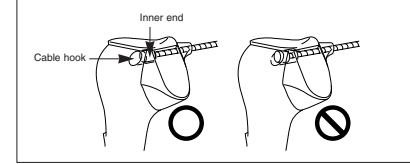
Push lever (B) at least 8 times to make sure the mechanism is in top gear before installing.



If the cable hook does not align with the shifting cable hole, press lever (B) again until it does, and then install the cable.

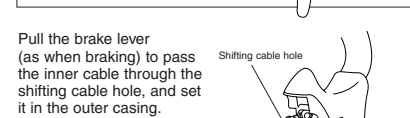


Make sure that the inner end is firmly seated in the cable hook.

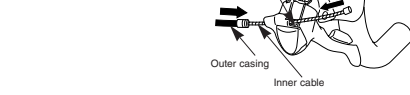


Front lever

Push lever (B) at least two - three times before installing.

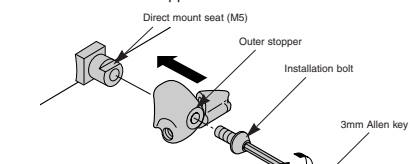


Pull the brake lever (as when braking) to pass the inner cable through the shifting cable hole, and set it in the outer casing.



Outer stopper

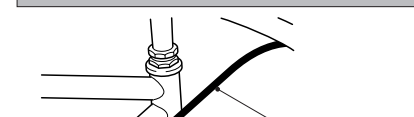
- Install the outer stopper to the down tube.



Tightening torque:
1.5 - 2 N·m [13 - 18 in. lbs.]

Assembling the bracket and lever

- Put the cable hook in to the bearing member, and set the return spring.



Install the outer stopper for the rear chainwheels with the handle in the default position.



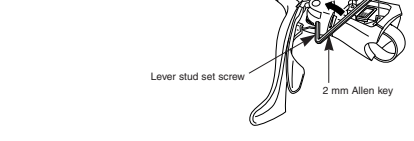
Be sure leave some excess in the outer casing, even if cutting it to the full length of the handlebars.

Confirm
Make sure the outer casing is firmly seated in the outer stopper.

Maintenance

Bracket and lever disassembly

- Remove the sensor cap, and use a 2 mm Allen key to remove the lever stud set screw on the bottom of the bracket.



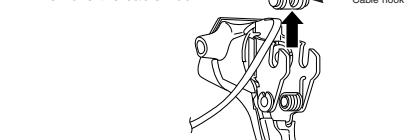
- Insert a 2.5 mm Allen key or similar tool into the lever stud hole, and tap it gently with a plastic mallet to push out the lever stud. When the lever stud comes out, the bracket body and lever body can be disassembled. After this, pull the sensor cable out from the bracket body.



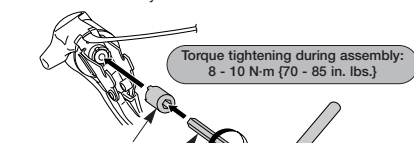
Note:
When removing the sensor cable, do not apply too much force when pulling the cable, otherwise the sensor may become damaged. Use a tool to hold the sensor in place and pull the cable out carefully.

Lever and bearing assembly disassembly

- Remove the cable hook.

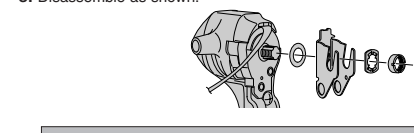


- Disassemble using the special tool and a 5 mm Allen key.

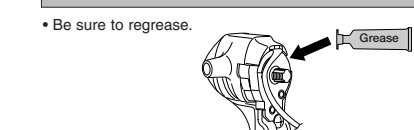


Torque tightening during assembly:
8 - 10 N·m [70 - 85 in. lbs.]

- Disassemble as shown.



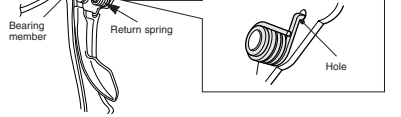
Do not disassemble any further as reassembly may not be possible.



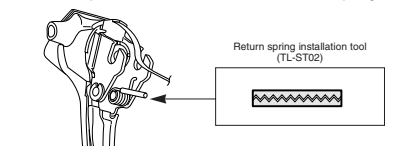
Be sure to regrease.

Assembling the bracket and lever

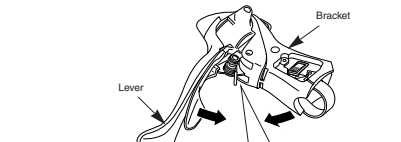
- Put the cable hook in to the bearing member, and set the return spring.



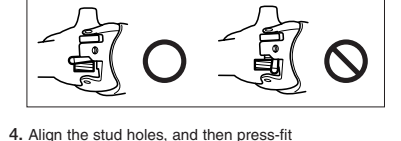
- Set the special installation tool for the return spring.



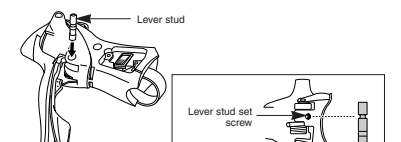
- First insert the sensor cable into the bracket body, and then assemble the bracket body and lever body. Be careful that the end of the return spring does not protrude from the hole in the bearing member at this time.



Make sure the spring is properly positioned.

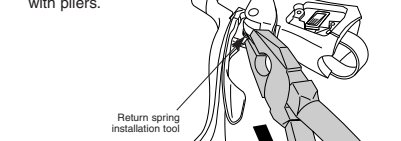


- Align the stud holes, and then press-fit the lever stud.

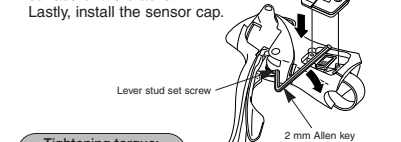


The correct position is for the round hollow on the lever stud to be aligned with the lever stud set screw.

- Remove the return spring installation tool with pliers.



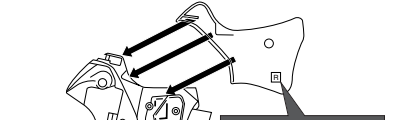
- Tighten the lever stud set screw until it is even with the surface of the bracket. Lastly, install the sensor cap.



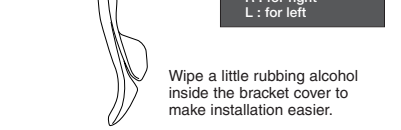
Tightening torque:
1 N·m [8 in. lbs.]

Replacing the bracket cover

The tabs on the bracket cover each fit to a matching slot on the bracket.



Note the markings:
R : for right
L : for left



Wipe a little rubbing alcohol inside the bracket cover to make installation easier.