

WARNING

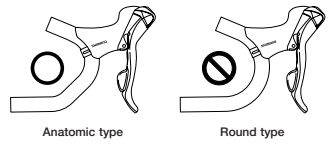
• Obtain and read the service instructions carefully prior to installing the parts. Loose, worn or damaged parts may cause the bicycle to fall over and serious injury may occur as a result. We strongly recommend only using genuine Shimano replacement parts.
• Read these Technical Service Instructions 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, 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.
- Use a frame with internal cable routing is strongly discouraged as it has tendencies to impair the SIS shifting function due to its high cable resistance.
- A special grease is used for the gear shifting cable (SIS-SP41). Do not use DURA-ACE grease or other types of grease, otherwise they may cause deterioration in gear shifting performance.
- 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.

Note when using the reach adjustment block (Pad spacer)

When installing the 8-degree reach adjustment block, use an anatomic-type handlebar. If a round-type handlebar is used, the cable stroke may become too short and this can result in insufficient braking force.



Technical Service Instructions

SI-6LP0B-001

ST-4500
ST-4501
ST-4503

Shimano Total Integration

SHIMANO TIAGRA

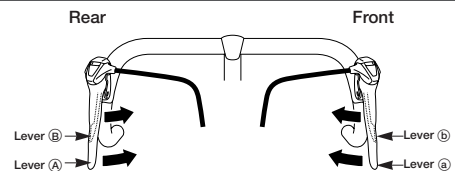
Shimano Total Integration Features

The Shimano Total Integration TIAGRA series features a dual action control lever which actuates the brakes like a conventional brake lever, and shifts the gears when moved inward toward the center line of the bicycle. Gear shifting is now possible without ever taking your hands off the brake hoods or drops.

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

Series	TIAGRA	
	Front	Rear
Shifting lever	ST-4501 (Double)	ST-4503 (Triple)
Outer casing	SIS-SP41	
Gears	18	27
Front derailleur	FD-4500	FD-4503
Front chainwheel	FC-4500	FC-4503
Bottom bracket	SM-FC4500	
Rear derailleur	RD-4500-SS	RD-4500-GS
Freehub	FH-4500	
Cassette sprocket	CS-HG50-9	
Chain	CN-HG53	
Bottom bracket cable guide	SM-SP17	

Operation

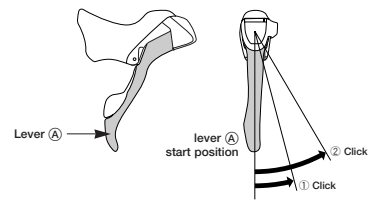


- Lever (A) : Shifts from smaller to larger rear sprocket.
- Lever (B) : Shifts from larger to smaller rear sprocket.
- Lever (A) : Shifts from smaller to larger chainring.
- Lever (B) : Shifts from larger to smaller chainring.

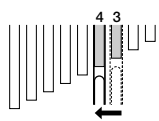
All levers return to the starting position when released.

Operation of rear derailleur lever

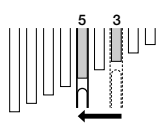
- Lever (A) : Shifts from smaller to larger rear sprocket. Lever (A) has a click stop at positions (1) and (2).



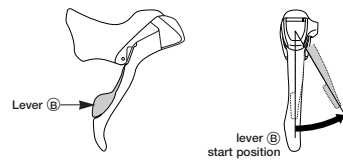
- ① : Shifts one sprocket
E.x. : from 3rd to 4th



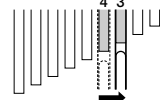
- ② : Quick-shifts two sprockets
E.x. : from 3rd to 5th



- 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



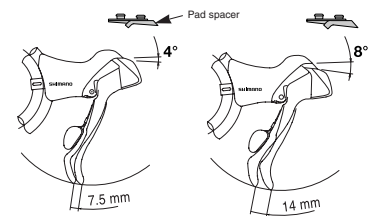
Caution on operation

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-4500 before use.

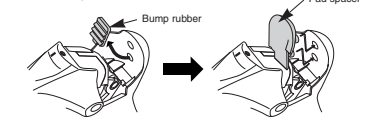
Reach adjustment

If you would like to reduce the reach, remove the bump rubber and replace it with the accessory pad spacer. (Two types are available: 4° and 8°.)



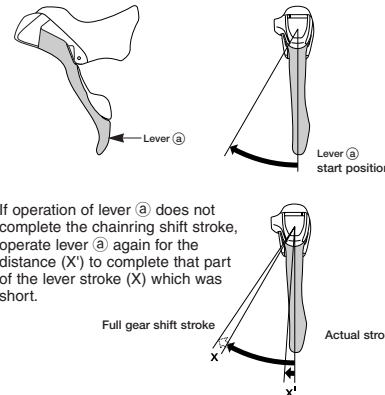
Replacement method

1. Remove the bump rubber.
2. Apply a thin layer of grease to the two projections of the pad spacer.
3. Press-fit the pad spacer so that the projections go as far in as possible.



Operation of front derailleur levers (FD-4500 / 4503)

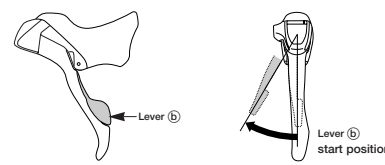
- Lever (A) : Shifts from smaller to larger front chainring.



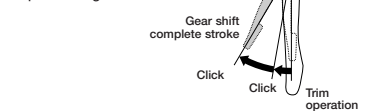
If operation of lever (A) does not complete the chainring shift stroke, operate lever (A) again for the distance (X') to complete that part of the lever stroke (X) which was short.

< FD-4500, ST-4501 >

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

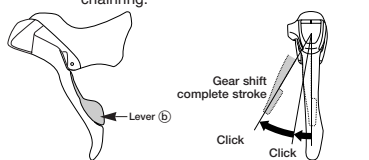


When lever (B) is operated, there is one click where trimming (the noise prevention mechanism) engages, and a second stronger click when the gear shift stroke is completed. After trimming, the next push will complete the gear shift stroke.

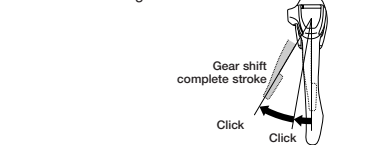


< FD-4503, ST-4503 >

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



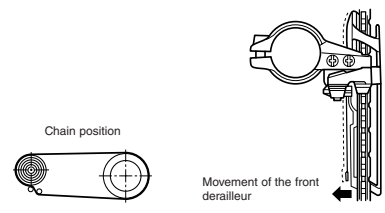
- Lever (B) : Shifts from intermediate chainring to smallest chainring.



Trimming (noise prevention operation)

If the chain is on the large or intermediate chainring and the largest rear sprocket, the chain will rub on the front derailleur inner plate, producing a characteristic noise. When this happens, press lever (B) slightly (to the point where it clicks); this causes the front derailleur to move slightly toward the smaller chainring, thereby eliminating the noise.

If the front derailleur outer plate and the chain come into contact and generate noise when the chain is on the smallest or intermediate chainring and on one of the smaller sprockets, press lever (A) slightly to move the front derailleur slightly toward the largest chainring in order to eliminate the noise.



Caution on operation (FD-4500 / 4503)

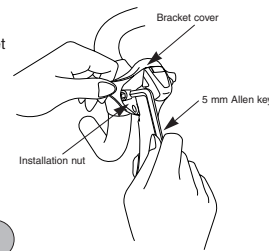
Lever (B) will also move when lever (A) is operated, but be careful not to apply pressure to lever (B). Similarly be careful not to press lever (A) when operating lever (B). Gears will not shift when both levers are pressed simultaneously.

Be sure to read these service instructions in conjunction with the service instructions for the FD-4500 / 4503 before use.

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 Nm (50 - 70 in. lbs.)

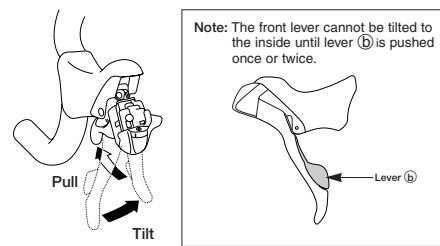
Installation of the brake cable

Cable used

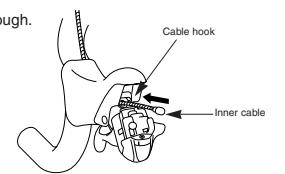
- Inner cable $\phi 1.6$ mm
- SLR outer casing $\phi 5$ mm

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

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

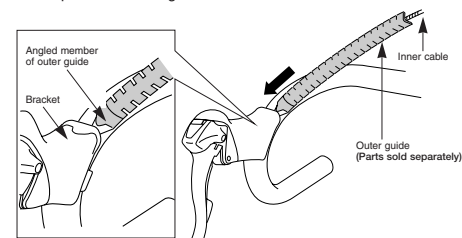


2. Pass the inner cable through.

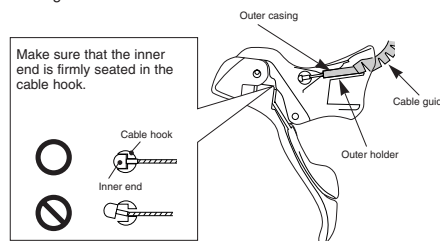


3. Fix the outer guide to the inner cable, and set the angled member in the bracket.

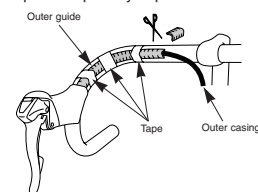
Note: Do not wipe the grease on the inner cable off. Also, be careful that the inner cable does not pick up dust and foreign matter.



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



5. 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.

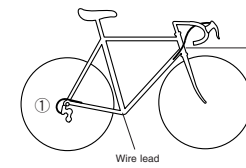
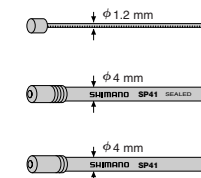


6. Finally, wrap the handlebar with the finish tape.

Installing the shifting cable

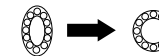
Cable used

- Inner cable (stainless steel) $\phi 1.2$ mm
- SP41 sealed outer casing (1) $\phi 4$ mm
- SP41 outer casing (2) $\phi 4$ mm

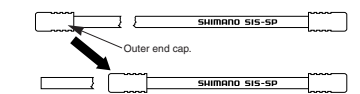


Cutting the outer casing

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.

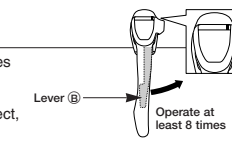


Attach the same outer end cap to the cut end of the outer casing.

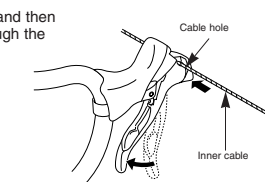


Rear lever

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.



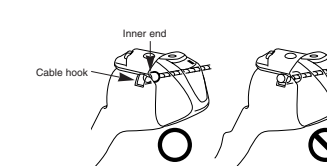
Depress the brake lever, and then pass the inner cable through the cable hole.



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

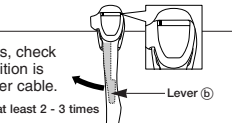


Make sure that the inner end is firmly seated in the cable hook.

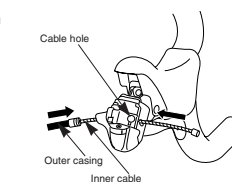


Front lever

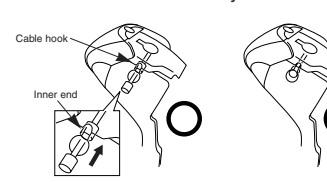
Operate lever (B) 2 or more times, check on the indicator that the low position is correct, and then secure the inner cable.



Depress the brake lever, and then pass the inner cable through the cable hole.

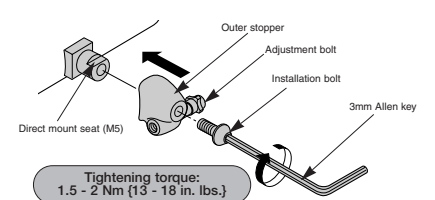


If the cable hook does not align with the shifting cable hole, press lever (B) again until it does, and then install the cable. Make sure that the inner end is firmly seated in the cable hook.



- Outer stopper

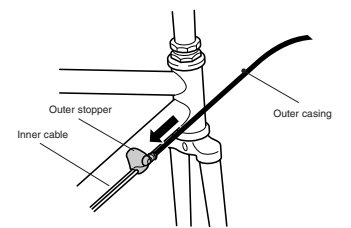
1. Install the outer stopper to the down tube.



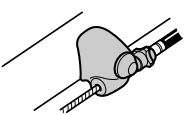
Install with the adjustment bolt tightened. The adjustment range for the adjustment bolt is six full turns.

2. Pass the inner cable through, and set the outer casing.

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

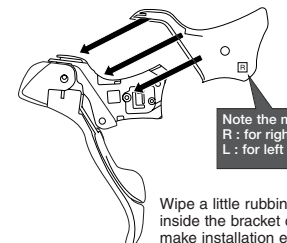


Confirm
Make sure the outer casing is firmly seated in the outer stopper.



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.

SHIMANO

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