

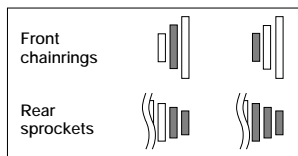
General Safety Information

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.
- Be careful not to let the cuffs of your clothes get caught in the chain while riding, otherwise you may fall off the bicycle.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

Note

- If gear shifting operations cannot be carried out smoothly, clean 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.
- When the chain is in the position shown in the illustration, the chain may contact the front chainrings or front derailleur and generate noise. If the noise is a problem, shift the chain onto the next-larger rear sprocket or the one after.



- 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.
- This front derailleur is for triple front chainwheel use only. It cannot be used with the double front chainwheel, as the shifting points do not match.
- For the chain, be sure to use only the Shimano super-narrow type of chain. The wide type of chain cannot be used.
- 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-5K90A

FD-R453

Front derailleur

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

Series	TIAGRA
Shifting lever	SL-R661 / SL-R441
Outer casing	SIS-SP41
Gears	27
Front derailleur	FD-R453
Front chainwheel	FC-4503
Rear derailleur	RD-4500-GS
Freehub	FH-4500
Cassette sprocket	CS-HG50-9
Chain	CN-HG53
Bottom bracket cable guide	SM-SP17

SHIMANO

SHIMANO AMERICAN CORPORATION
One Holland, Irvine, California 92618, U.S.A. Phone: +1-949-951-5003

SHIMANO EUROPE B.V.
Industrieweg 24, 8071 CT Nunspeet, The Netherlands Phone: +31-341-272222

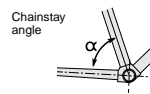
SHIMANO INC.
3-77 Oimatsu-cho Sakai-ku, Sakai, Osaka 590-8577, Japan

Please note: specifications are subject to change for improvement without notice. (English)
© Apr. 2006 by Shimano Inc. XBC SZK Printed in Japan.

These service instructions are printed on recycled paper.

Specifications

Type	Band type / Brazed on type
Front chainwheel tooth difference	20 teeth or less
Min. difference between top and intermediate	11T
Front derailleur installation band diameter	S (ø28.6mm), M (ø31.8mm), L (ø34.9mm)
Chainstay angle (°)	63° - 66°
Chain line	45mm



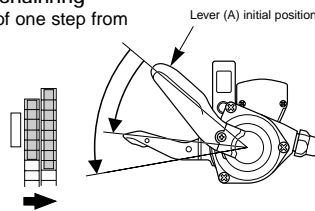
Front shifting (SL-R661 / R441)

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 chainring to a larger chainring

When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.

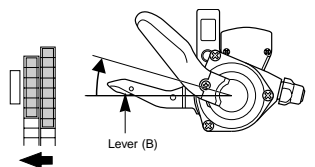
Example:
from intermediate chainring to largest chainring.



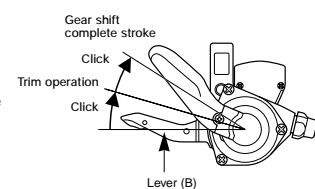
To shift from a large chainring to a smaller chainring

When lever (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.

Example:
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.



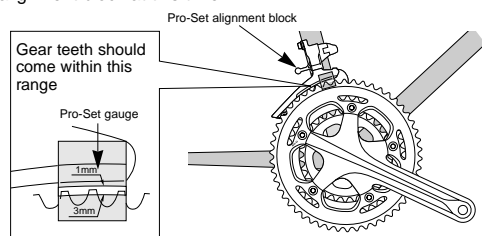
Trimming (noise prevention operation)

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.

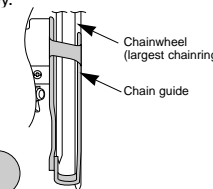


Installation of the front derailleur

Adjust and then install the front derailleur as shown in the illustration. Do not remove the Pro-Set alignment block at this time.



The level section of the chain guide outer plate should be directly above and parallel to the largest chainring. Secure using a 5mm Allen key.



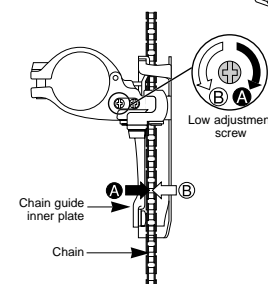
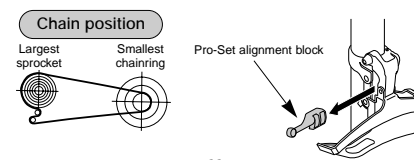
Tightening torque:
5 - 7 N·m (44 - 60 in. lbs.)

SIS adjustment

Be sure to follow the sequence described below.

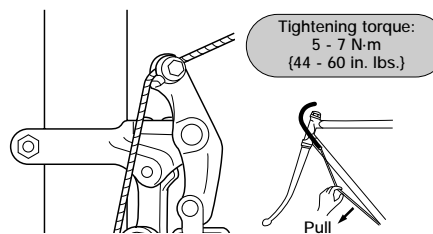
1. Low adjustment

First remove the Pro-Set alignment block. Next, set so that the clearance between the chain guide inner plate and the chain is 0 - 0.5mm.



2. Connection and securing of cable

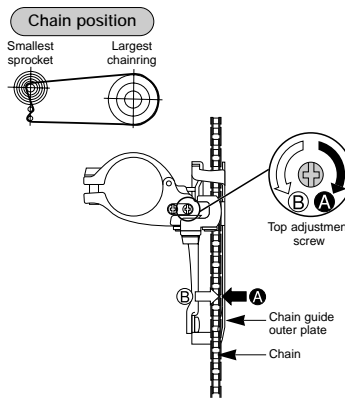
While pulling the inner cable, tighten the wire fixing bolt with a 5 mm allen key to secure the cable.



After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

3. Top adjustment

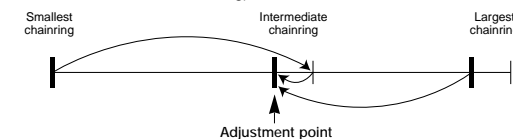
Set so that the clearance between the chain guide outer plate and the chain is 0 - 0.5 mm.



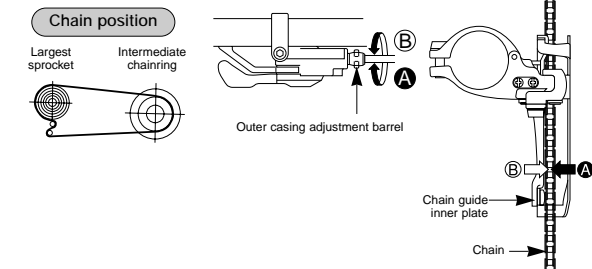
4. Cable adjustment using the intermediate chainring

When making the cable adjustment, place the chain on the largest sprocket for the rear and the middle chainring for the front.

Note: There are 2 derailleur positions for the intermediate chainring. When making the cable adjustment, make sure that the derailleur is in the inner side (toward small chainring) of the two positions. Locate the derailleur to this position by shifting from the largest to the intermediate chainring (recommended) or by shifting from the small to the intermediate chainring, then gently press lever (B) until a small click is felt (to position the derailleur to the inner side of the intermediate chainring).

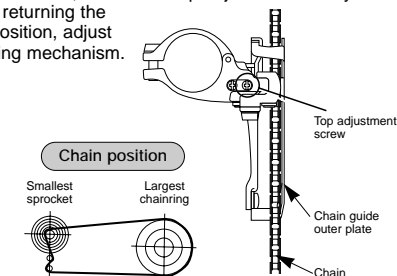


Adjust the cable tension by using the outer adjustment barrel so that the clearance between the chain guide inner plate and the chain is 0 - 0.5 mm.



5. Trimming mechanism adjustment and checking

While turning the crank arm, gently operate lever (B) and check that the front derailleur moves slightly toward the smallest chainring. If the front derailleur moves by a large amount and the chain is set onto the smallest chainring at this time, loosen the top adjustment bolt by 1/8th of a turn. Then, after returning the chain to its original position, adjust and check the trimming mechanism.



6. Troubleshooting chart

After completion of steps 1 - 5, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

If the chain falls to the crank side	Tighten the top adjustment screw clockwise (about 1/4 turn).
If shifting is difficult from the intermediate chainring to the largest chainring	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chainring to the smallest chainring	Loosen the low adjustment screw counterclockwise (about 1/8 turn).
If there is interference between the chain and the front derailleur outer plate at the largest chainring	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If the intermediate chainring is skipped when shifting from the largest chainring	Loosen the outer casing adjustment barrel counterclockwise (1 or 2 turns).
If there is interference between the chain and front derailleur inner plate when the rear sprocket is shifted to the largest sprocket when the chainwheel is at the intermediate chainring position.	Tighten the outer casing adjustment barrel clockwise (1 or 2 turns).
If the chain falls to the bottom bracket side.	Tighten the low adjustment screw clockwise (about 1/8 turn).
If there is interference between the chain and the front derailleur inner plate when the chain is on the smallest chainring and the largest sprocket	Loosen the low adjustment screw counterclockwise (about 1/8 turn).

Be sure to read these service instructions in conjunction with the service instructions for the SL-R661 / R441 before use.