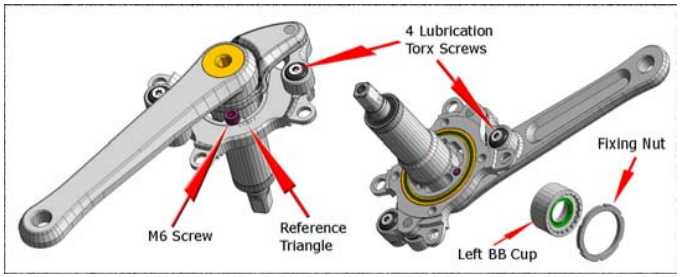
RS03 INSTALLATION & MAINTENANCE INSTRUCTIONS



Required Tools:
-Allen key/Hex wrench
5mm and 8mm
-Shimano bottom
bracket tools
-Adjustable wrench or
32mm wrench
-Grease remover
-Assembly Grease
-Chainline measuring
device; Caliper

1. CLEANING AND PREPARING THE BOTTOM BRACKET TUBE

Clean the frame's bottom bracket tube of all residue (grease, oil, dirt) with a solvent such as Finish Line Citrus Biosolvent and thoroughly dry the area.

- Check that there are no obstructions within the BB tube; example: a long screw for the gear cable guide.
- You may need to clean and/or dress the threads in the BB tube using a thread chasing tool (English or Italian thread, depending on the bike)

Important:
If the BB tube is not completely clean of lubricant residue and moisture, the thread locking adhesive will not work properly. To hasten the drying process, you may wish to use a hair dryer but be careful not to damage the finish of the frame with extreme heat! Usually natural drying can take place in 3-4 hours.

2. PREPARING THE ROTOR

- Take off the left crank. Slide the left BB cup (Left-hand Adaptor) off of the spindle. The left BB cup is a precision fit on the spindle so it will simply slide off of the BB spindle.
- Tighten the M6 screw on the eccentric (see illustration).

Important:
Before mounting the Rotor system, we recommend that you remove the chainrings to avoid damaging the front derailleur.

3. APPLY MEDIUM STRENGTH (BLUE COLOR) THREAD LOCK ADHESIVE. Apply a sufficient amount of *medium strength thread lock adhesive F43* (anaerobic resin like *LOCTITE 243*) on the threads of the right side of the BB tube, ensuring that all threads are sufficiently covered with the adhesive. Also apply a little bit of medium strength thread lock adhesive to the threads on the left side of the BB housing.

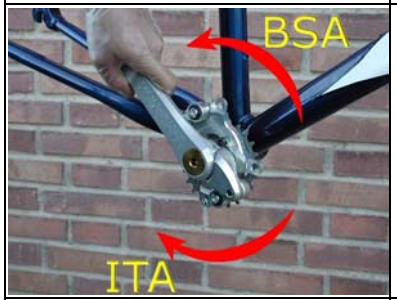
- You must use medium strength thread locking adhesive to correctly install the Rotor eccentric. A small amount, sufficient for the first installation, is included with your Rotor.
- NEVER use any type of grease during this assembly step: if grease has been used, the mechanism will not properly secure and the regulation points will change while pedaling.
- **NEVER use a thread locking adhesive other than medium strength. Using a different strength could prevent the extraction of the Rotor system in the future and/or seriously damage the threads of the bottom bracket tube.**

4. INSTALL THE LEFT BB CUP (LEFT-HAND ADAPTOR) BY SCREWING IT ON APPROXIMATELY HALF WAY

Use the spindled Shimano BB installation tool.

5. ONLY FOR THE INSTALLATION OF A TRIPLE CHAINRING MODEL (MTB or Road)

Place, the 3rd (small) chainring onto the eccentric of the Rotor. Do not fasten the chainring using the screws (See illustration). This step will prevent damaging the front derailleur and allow placement of the other two chainrings later in the installation process.



6. SCREWING THE ROTOR INTO THE BOTTOM BRACKET

Screw the Rotor (by hand and without force) onto the BB tube by turning the right crank counter-clockwise for English thread frames or clockwise for Italian thread frames.

Do not screw on completely!

Important:
If the Rotor does not easily screw into the BB tube, it is recommended that a thread-chasing tool be used to clean and sharpen the BB threads (English or Italian thread depending on the bike).

7. MEASURING THE CHAIN LINE

Screw the Rotor into the threads until the distance between the outside part of the right crank (at the pedal hole) and the center of the seat tube of the bicycle measures approximately:

-75.5 mm for 2 chainring Road.
-79 mm for 3 chainring Road.
-82.5 mm for MTB XC (chain line 47.5mm)
-84.5 mm for MTB Free Ride (chain line 49.5mm)

Note:

- To facilitate the measuring procedure and improve accuracy: first measure the seat tube diameter, then add half of this distance to the above measurement. This allows you to measure to the **outside** of the seat tube instead of the center of the seat tube.

Each time we screw or unscrew the Rotor one 360 degree revolution, the system moves in or out approximately 1mm.

8. REGULATING THE ROTOR

To correctly align the Rotor it is important that the tires are properly inflated and that the bicycle is standing in a horizontal position on a level surface with the right crank pointed towards the floor, creating a 90º angle. Position the system by pushing or pulling the right crank against the M6 screw, raising or lowering the eccentric so that the reference point (inside triangle) coincides with the triangle on the "spider wheel." In order to check the set regulation point, position the right crank pointed downwards again.

There are five possible regulation points, with the triangle being the third (always counting from the top). We recommend this middle regulation, however, positioning depends on each user's physical characteristics, form of pedaling, etc. **The regulation point can be changed at any time.** With lower points, more comfort during climbs (lower muscular requirement) will be achieved, while with the higher points the cyclist will achieve higher top speeds, requiring more muscular effort.

Usually MTB and TT cyclists prefer using the system regulated with the reference triangle positioned in the middle or at one point above the triangle; while road cyclists prefer to ride with the system regulated at the reference triangle or one point below the triangle.

9. FASTENING THE ROTOR

Carefully turn the right crank in the same direction as the pedaling motion (clockwise) as far as the M6 screw permits without changing the previously set regulation point (approximately 10 cm under the chain stay). While holding the chain stay and the right crank with the left hand, strongly tighten the left cup with the right hand (approximately *58 lb·ft* or *78.5 N·m*). Finally, check to see that the desired regulation point is set and did not move during the tightening process.

Important:

-The tightening of the left BB cup (Left-hand Adaptor) is very important because the left BB cup, not the nut (lockring), secures the Rotor System. The left BB cup is not an adjusting cup, it is a locking cup.

-Tightening the cup should be completed in a progressive process and without sudden jerks or pulls, which could change the positioning of the regulation points. In case the positioning of the regulation point has been moved, it is necessary to repeat the "Regulating the Rotor" procedure in step #8.

10. SCREW THE FIXING NUT (LOCKRING)

Secure the fixing nut (lockring) using the standard bottom bracket tool. It is not necessary to tighten the fixing nut (lockring) with much force; the left BB cup (Left-Hand Adaptor) secures the Rotor system to the BB tube, not this fixing nut (lockring).

11. REMOVE THE M6 SCREW FROM THE ECCENTRIC

Remove the M6 screw using a 5mm Allen key/hex wrench.

12. PLACING THE CHAINRINGS, BEGINNING WITH THE 2nd CHAINRING

Maneuver the right crank so that it is pointed to a 4 o'clock position (down and forward) to facilitate the placement of the 2nd chainring on the Rotor.

Make sure that the bolt-head impressions on the 2nd chainring are facing the frame of the bicycle. **ALSO**, the 2nd chainring has a small arrow on the outside surface. Use this arrow as a reference and place the 2nd chainring so that this arrow points towards the pedal hole in the right crank.

Place the 1st (largest) chainring on the Rotor. This chainring has a chain catcher pin (to prevent the chain from falling between the 1st chainring and the right crank). Place the 1st chainring so that this chain catcher pin is pointed away from the bicycle frame and aligned/placed behind the right crank.

We recommend mounting the chainring bolts for the 1st and 2nd chainrings with assembly grease, which often prevents inadvertent loosening. Finally, in the event of a triple chainring model, secure the 3rd chainring with the installation screws. If there is a reference arrow on the 3rd chainring it should be aligned pointed towards the pedal hole (a chainring with 24 teeth does not have a reference arrow).

13. INSTALLING THE LEFT CRANK

Degrease the axle and the crank square tapered heads.

We recommend that you use medium strength thread locking on the threads of the BB spindle (required on the titanium model).

Using a long handle ratchet or a long 8mm Allen/hex tool, tighten the left-crank fixing bolt while watching to be certain the left crank is correctly & evenly pulling tight on the taper of the BB spindle. Tighten the bolt to *29.6 lb·ft* or *40 N·m*

IMPORTANT: Do not ride your bike immediately after the assembly procedure. Your bike should not be used for the following 3 ~ 4 hours; you must allow adequate time for the thread adhesive to dry completely; to prevent movement of the Regulation Point.

The correct regulation point is that in which you feel comfortable using the system in all conditions. For some cyclists to attain the athletic benefits of the Rotor system, a time period of 2 to 3 weeks and up to 3 to 4 months, depending on the characteristics of the cyclist, may be required.

STEPS TO CHANGE THE REGULATION POINT

1. Remove the left crank and the fixing nut (lockring).
2. Tighten the M6 screw on the eccentric.
3. Using the Shimano bottom bracket tool, loosen the left BB cup (Left-hand Adaptor): 2 turns is enough.
4. Turn the right crank up or down, pushing the M6 screw, moving the eccentric to the new desired point. Look at step 8 of the Installation Instructions.
5. Repeat steps 9 thru 13 of the Installation Instructions to complete the process.

Note: If you change the regulation point more than once, we recommend that you remove the Rotor and follow the installation instructions from the beginning in order to ensure that the thread locking adhesive securely holds the Rotor and prevents movement within the BB tube threads.

STEPS TO REMOVE THE ROTOR

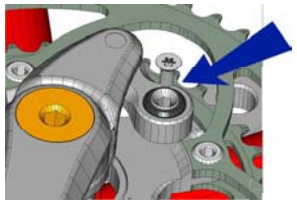
1. Remove the chainrings.
2. Remove the left crank and the fixing nut (lockring).
3. Tighten the M6 screw on the eccentric
4. Using the Shimano bottom bracket tool loosen and remove the left BB cup.
5. Turn the right crank, unscrewing the Rotor until it is completely removed.

LUBRICATING THE RS-03

Cleaning and lubricating the Rotor System is just as important as cleaning and lubricating the chain. These instructions and tips will help you keep your Rotor System in top operating condition. **NEVER** spray (shoot) water against the Rotor System; this will enable water to enter into the bearings, creating oxidization (rust) leading to mechanical problems with the Rotor System. You may ride in wet conditions (i.e. in rain, through streams/rivers) and you may gently rinse off the Rotor System using a damp cloth.

Here are the areas of the Rotor System that require lubrication:

1. **The four pivots, which roll on needle bearings:** The required frequency of greasing the pivots depends on the conditions of use. After riding in very wet conditions such as a prolonged ride in rain, through streams/rivers and/or very muddy conditions, the pivots should be properly lubricated. Also, after washing the Rotor System, it is suggested that you lubricate these pivots. Otherwise, if not exposed to water/wet/muddy conditions, simply lubricate these pivots once every three months. To lubricate: simply remove the "torx head", lubrication/sealing screws, which enables you to insert the lubricant into the cavity. The lubricant will naturally spread to the pivot surface and into the needle bearings. We recommend that you use a high quality lubricant, such as **FINISH LINE TEFLON-FORTIFIED GREASE** applied with a grease injection pump for these four (4) pivots.



2. **The sealed bearings of the spindle:** These bearings are double sealed on each side & it is very difficult for water or dirt to enter them. Even riding under water, as long as there is no significant pressure shooting water at the Rotor System, these bearings should be fine. The spindle and spindle-bearings should only require lubrication once per year. To lubricate, remove the fixing bolt of the left-crank and insert the lubricant into the hollow spindle. A "lube-hole" in the spindle allows the lubricant to pass into the area where the spindle-bearings are located. We recommend that you use a high quality lubricant, such as **FINISH LINE TEFLON-FORTIFIED GREASE** applied with a grease injection pump for this position.

3. **The main bearing & most important bearing in the Rotor System is the bearing located inside the spider.** This is a sealed bearing, however it is very important that a direct pressurized stream of water never comes into contact with this bearing or area. If you believe that there is a problem, i.e. oxidation, with this bearing, we recommend that you contact an authorized Rotor Technician to make the necessary repairs or replacement.

Visit www.finishlineusa.com to locate a licensed Finish Line retailer in your area.

HELPFUL TIPS:

We recommend that you check these points regularly:

1. Be certain the fixing-bolt of the left-crank is tight, so the crank is tight on the spindle.
2. Be certain the chainring bolts and nuts are securely tightened.
3. Be certain the regulation point of the Rotor system is where you want it and that it has not slipped or moved.

Serial number

WARRANTY REGISTRATION

Full name:_____
Address:_____
Phone: _____
Date of purchase:_____
Retailer seal:_____
Type of use:

	recreational		advanced		professional

Age: _____
Suggestions: _____
_____
_____

WARRANTY CONDITIONS:

- The ROTOR and its components are guaranteed for **2 YEARS** against any manufacturer defects or defective materials.
- Elements subject to wear and breakdowns that the manufacturer is not responsible for are not covered by this warranty.
- Failures or breakdowns caused by improper use, poor assembly or inadequate maintenance as declared in the instructions or the user manual are not covered by this warranty.
- Register your warranty at www.rotorbike.com or send this completed form with a copy of your receipt or invoice to the following address within 30 days of the date of purchase.

  RCT
  Ctra. Torrejón – Ajalvir Km 3.300
  28864 Ajalvir – Madrid – Spain
- Always keep your receipt or invoice, which will be required should the warranty be used.
- The following acts void this warranty:
  - Failure to fulfill the requirements above.
  - Improper installation
  - Dismantling any parts without supervision by an authorized ROTOR service technician.
  - Improper use or installation of inadequate parts.