



Congratulations on your purchase of the "RRS" Rising Rate Spring kit

These instructions are intended to provide the competent mechanic with the information necessary to understand the various functional aspects of the pressure springs and to correctly install this Merge product.

Product Background

The majority of current off-road motorcycles have a closed cartridge fork that works much like a rear shock absorber. When the fork is compressed, the damper shaft enters the cartridge body and a volume of oil equal to the volume of the shaft is displaced into an upper chamber. The upper chamber has a floating piston which stops the oil from exiting the cartridge. Force is applied to the floating piston by the pressure spring, the stronger the spring the more resistance on the damper rod. This resistance is known as compression damping. The Merge RRS system uses unique winding methods to produce a pressure spring which gets much stiffer in the end of the stroke where you need it, "Rising Rate", much like a linkage on the rear suspension and unlike conventional progressive springs. The Merge RRS simply provides resistance or compression damping at the end of the stroke to help prevent bottoming, and less resistance at the top of the stroke to help absorb those square edged bumps, rocks and roots.

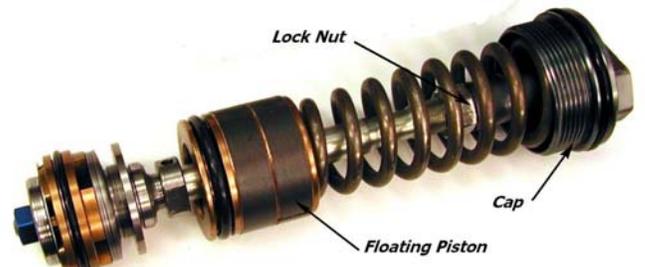
Installation

Important - If you are not a competent mechanic do not attempt to install this kit yourself; have your local dealer install it for you.

Precautions:

- Always wear Safety Glasses when working on a motorcycle.
- Read all safety instructions in your manual.
- Always clean the area around the Front Fork before disassembly.

1. Remove the front forks per the service manual for your motorcycle. *Tip: You may choose to remove the upper cartridge assembly by removing the handlebars and handlebar mounts. Note, if you decide to remove the forks from the motorcycle, first record the height setting (fork to triple clamp measurement). See your owner's manual.*
2. Make a note of the compression adjustment, counting the number of clicks you go in before the adjuster lightly bottoms out. Write this down, than unscrew the adjuster all the way counterclockwise. Repeat this for the opposite side.
3. Unscrew the compression damper assembly using a 19mm wrench. You will notice that the assembly only unscrews approximately 15mm (5/8") which is the length of the threads.
4. Grasp the 19mm flat surfaces of the compression assembly cap with the smooth jaw pump pliers and firmly pull the assembly upwards while gently rocking the assembly from side to side. The oil will cause substantial resistance until the assembly has been lifted approximately 25mm (1"). Then it will get easier, as the piston will be out of the oil. Next, tip the assembly from side to side and rotate it to drain the remaining oil back into the fork. *Tip: If you do not have a pair of smooth jaw pump pliers, make a thick pad from layers of paper to protect the assembly from damage.*
5. You can remove the OEM pressure spring by disassembling the top or the bottom of the compression adjuster shaft. To remove the spring from the top of the shaft loosen the 13mm lock nut and unscrew the shaft holding the 19mm flats on the top of the assembly. To remove the spring from the bottom, hold the round 16mm (.625") section that is between the shims and the floating position with a suitable pair of clamps, blocks or soft jaws and then undo the shaft using the 19mm wrench.
6. Remove the OEM spring.
7. Clean the threads with contact cleaner.
8. Very important to install the RRS with the large diameter facing the end cap (facing up)
9. Apply a small amount of screw locking compound to the threads and reassemble the compression damper shaft in the reverse order of disassembly. Do not forget to tighten the cap / lock nut or valve body using the same method as the disassembly (see section 5).



Note: If you have 2008 or later forks with a 12.5mm damper shaft and you are draining/refilling the damper, do not overfill and blow excess oil off - use a siphon to set the oil at 130mm from the top of the cartridge and always run the damper through its complete travel to verify smooth operation.

10. Repeat the process for the other assembly.

11. Reinstall the compression assembly into the top of the fork. Push the assembly down firmly as you install it into the fork. Once you get the threads touching each other rotate the assembly clockwise using the 19mm wrench while you continue the pressure to engage the threads. When the threads are fully engaged it's no longer necessary to continue the pressure. Keep rotating the assembly clockwise until it lightly bottoms and then hand tighten. *Tip: The o-rings provide turning resistance so it's not necessary to overly tighten the assembly.*
12. Repeat the process for the other assembly
13. Adjust the compression clicker to the same setting you recorded earlier, (see section 2).
14. Re-install the forks or handlebars per you owners manual.

Adjustment and Setup

Compression Adjustment - The compression adjuster screws or "Clickers" on the top of the fork stiffen or softens the damping. Clicking the top adjusters -

- a. Clockwise (In) - makes the fork rider higher / makes the fork more resistant to bottoming (use less stroke) which makes the ride feel stiffer.
- b. Counterclockwise (Out) - makes the fork go over small bumps, rocks and roots better / allows the fork to use more travel making the ride smooth, or "plush".

Ideally, the front fork should use its full travel (lightly bottom) on occasion and still feel plush over the small bumps, rocks and roots.

Rebound Adjustment – The rebound clicker on the bottom of the fork slows the outward action of the fork down or speed it up. Rebound adjustment affects how stable the front of the bike feels, for example - landing from jumps. These adjusters also affect the compression. Clicking the bottom adjusters -

- c. Clockwise (In) – slows the fork down (***this also stiffens the fork similar to step a***)
- d. Counterclockwise (Out) – speeds the fork up (***this also softens the fork similar to step b***)

Damping adjustment is always a compromise, so test the clicker in and out to get the performance and feeling you prefer.

Fork Height – The height that the forks are positioned in the triple clamps has an affect on steering and stability.

- a. Adjusting the fork higher in the triple clamps improves how quickly the bike can turn but can make the bike feel more unstable at speed.
- b. Adjusting the fork lower makes the bike feel more stable but makes the bike harder to turn.

Additional items required

- 19 mm combo or open wrench
- 13 mm combo or open wrench
- Med Flat Blade Screwdriver
- Smooth Jaw Pump Pliers
- 16mm Clamp Blocks
- Owner Manual for your motorcycle

Safety Notices –

- **Offroad motorcycles should never be ridden when they are not functioning correctly.**
- **Always check nuts and bolts before riding**

Disclaimer - Merge products are inspected prior to packaging. Our guarantee is limited to the replacement of defective products and/ components. This limited guarantee is in lieu of all other guarantees or warranties implied or expressed. Buyer assumes all risk for any and all damage caused to himself, a third party and/or property by virtue of failure of this product. We make no warranty as to products distributed by Merge Racing Technologies, expressed or implied from our suppliers or 3rd party vendors. This includes, without limitation, any warranties or merchantability and fitness for a particular purpose. All products are offered and designed for use with standard machines. Merge Racing Technologies makes no claims as to the products effectiveness on modified machines. Merge Racing Technologies is the sole determiner of abuse, misuse, installation errors and modifications. We assume no liability for any errors in listings, specifications, part numbers, prices or model applications. We reserve the right to change specifications, product descriptions, product quality, pricing and application at any time without notice and without further obligation. By installing and/or using a Merge Racing Technologies product, you hereby accept and understand these stated terms and conditions and have followed all instructional steps.

Other recommended Merge Racing Technologies products

- # 00-008 "ALJ" Adjustable leak Jet
- # 00-019 "FMS" Fuel Mixture Screw
- # 00-018 "APS" Accelerator Pump Spring
- # 00-0026/026/028 "HPL" Hydraulic Preload

Visit us on the web at www.mergeracing.com

Merge Racing Technologies, 3245 Main St, Suite #235-300, Frisco, TX 75034
support@mergeracing.com / sales@mergeracing.com