

RACE TECH

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FORK REBOUND GOLD VALVE INSTALLATION - STREET / ROAD RACE 20mm

<IP FRGV S01.doc> FRGV S01, FRGV S03 P Thede © 2.4.14 2 pgs

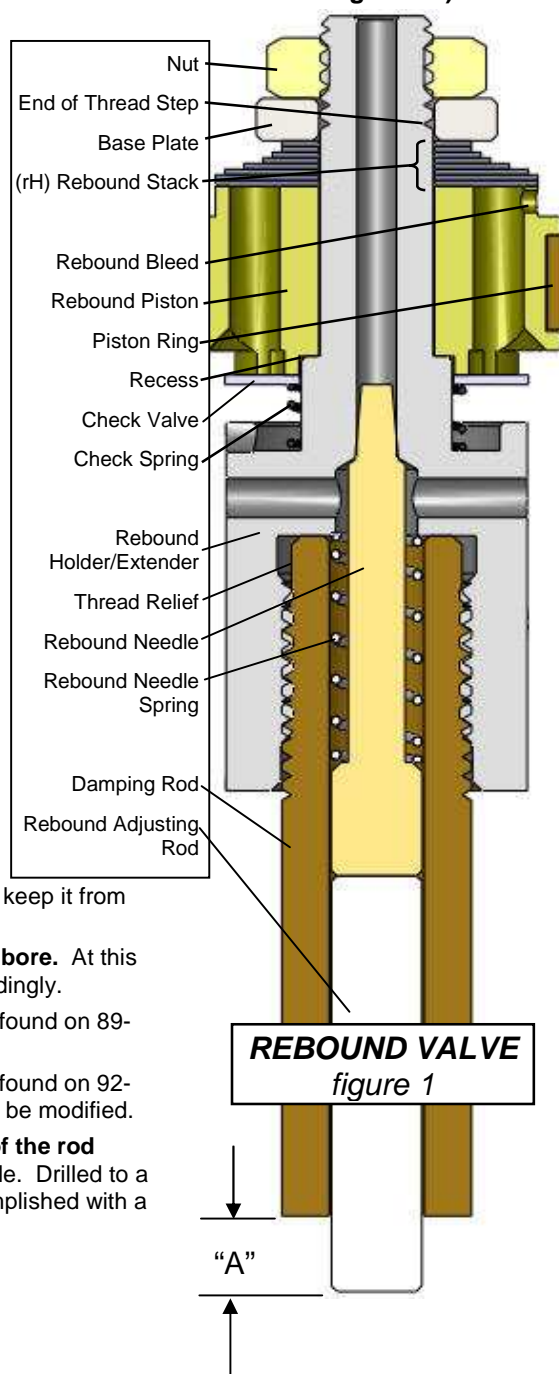
TOOLS REQUIRED: In addition to the tools required for disassembly and assembly. TFSH 20 Shaft Holding Tool, Hydraulic Press (some stubborn cartridges), Hack Saw, Hi-strength Loctite (included), 400 grit (very fine) or finer Sandpaper, [Some models including 91-95 ZX7/R, 94-95 ZX9R, 01+ FZ1000 - Lathe (or Hand Drill with a steady pair of hands) and a Number "1" (5.8mm) Drill Bit]. **OPTIONAL (but highly recommended on models through 2000) - FKRB 1015P Damping Rod Bushings**

CAUTION: THIS PROCEDURE SHOULD ONLY BE DONE BY A QUALIFIED SUSPENSION TECHNICIAN. IF YOU ARE NOT FAMILIAR WITH THIS PROCEDURE, STOP! CONTACT RACE TECH OR A QUALIFIED SUSPENSION TECHNICIAN.

DISASSEMBLY

- 1 **Disassemble the forks** and remove the cartridge.
- 2 **Remove the compression valve.** If you are installing compression Gold Valves at this time, follow the instructions for installation included in the kit.
- 3 **Remove the Rebound Damping Rod Assembly from the Cartridge.** If it cannot slide out of the bottom of the cartridge **remove the cartridge seal head assembly** (at the top of the cartridge) from the cartridge tube. It is Loctited in. It is sometimes beneficial to heat the seal head assembly at the threads (internal) to loosen the Loctite. It should be heated just slightly above 250° F (121 degrees Celsius) (just above boiling). Use the TFSH 20 shaft holding tool at the bottom of the cartridge with the compression valve installed to give it support. You may have to hold the shaft holding tool in a hydraulic press to keep it from spinning.
- 4 Insert the rebound adjusting rod into the center of the hollow damping rod. **Fully compress the adjusting rod into the damping rod. Measure the amount the adjusting rod extends from the end of the damping rod ("A").** The stock rebound needle is spring loaded and therefore the rod must be compressed to get this measurement. This measurement will be used later on, as you will have to shorten the stock adjusting rod.
- 5 **Remove the stock rebound valve assembly from the shaft** using the tool supplied in the kit to hold the shaft. Again, use heat to loosen the Loctite. You may need to clamp the shaft holding tool in the press to keep it from spinning.
- 6 **There are two different types of damping rods, large bore and small bore.** At this point you must **determine which type you have** and handle them accordingly.
- 6a **Large bore rods** have a 5.7mm (0.225") diameter adjusting rod and are found on 89-90 ZX7, 94-95 YZF 750. Nothing has to be done to large bore rods.
- 6b **Small-bore rods** have a 2.9mm (0.115") diameter adjusting rod and are found on 92-95 ZX7, ZX7R and 94-95 ZX9R and 01+ FZ 1000. Small-bore rods must be modified.

SMALL-BORE RODS ONLY. The bottom end (rebound piston end) of the rod must be drilled out to provide room for the new rebound adjusting needle. Drilled to a depth of 25mm (1") using a Number "1" (5.8mm) drill. This is best accomplished with a lathe but can be done with a skilled operator and a hand drill.



- 7 **Polish the damping rods with 400 grit (very fine) or finer sandpaper.** This will drastically improve bushing life and will reduce drag as well. The important part is the lower half of the rod as that is the part that contacts the damping rod bushing.
- 8 **OPTIONAL (but highly recommended)** - The damping rod bushings serve two functions, as both a bearing surface and a seal. On some models the stock bushing is made of aluminum while the damping rod is made of steel. Steel on aluminum is neither a good bearing surface nor a good seal. RT Hi-Performance Teflon Bushings (part number FKRB 1015P), have excellent bearing and sealing qualities. Install them now.
- 9 The threads on both ends of the shaft are M10x1.0mm for models using FRGV S01. In case you get them mixed up, the rebound piston end of the shaft is the end with the thread relief on the first 3mm. FRGV S03 has M10x1.25 thread.
Insert the new rebound adjusting needle into the rebound piston end of the shaft with the point facing outward. Insert the needle spring and install the new rebound assembly onto the shaft (**refer to the figure, the point of the needle goes into the inner diameter of the small spring**). Make sure everything is clean and use Loctite on the threads. Torque the body to 15 ft-lbs (40.8 NM).
- 10 **The adjusting rod must be shortened** because it now sticks out too far. Calculate the amount it must be cut by inserting the rebound adjusting rod into the damping rod. **Fully compress the Rebound Needle Spring by pushing the adjusting rod into the damping rod until it stops. Measure the amount the adjusting rod extends from the end of the damping rod ("A2").** Shorten the adjusting rod by the difference between the original measurement ("A") and the new one ("A2"). The amount it needs to be shortened is usually approximately 22mm (0.87").

VALVING

- 11 **To obtain custom valving settings for your particular application log on to www.racetech.com, go to Digital Valving Search, input your personal specifications and print the custom setup information. If you do not have access to the web, contact our Technical Support Hotline 951.279.6655 for recommendations. You do not need an additional Access Code for this kit.**
- 12 **If the Gold Valve Rebound Assembly is disassembled this is the assembly order of the valving.** Starting with the Check Spring, Check Plate, Rebound Gold Valve (recess first, towards check plate), Rebound Valving, Base Plate, Nut. Use Loctite and torque the nut to 30 in-lbs (0.35 kgf-m).

ASSEMBLY

- 12 **Assemble the cartridge according to the procedure in your manual.** Use Loctite on the threads of the cartridge seal head assembly and torque to 36 ft-lbs (48.9 NM).
- 13 Install the compression assembly and **reassemble the forks.** Be sure to use USF-05 Fluid (5w) as it is designed for this Valve.
- 14 **Install the fork cap.** Use Loctite on the damping rod threads at the cap and torque it to manufacturers specs. Some models require careful positioning of the rod in the cap so the proper number of rebound clicks are available for adjustment. If the rod is threaded too far into the cap there will not be the full number of clicks. If the cap is not threaded on far enough, it will not touch the adjuster and it could come off the shaft. On this type, set the total number of available clicks to 15 to 20 (or 4 turns if there are no "clicks"). Consult owners' manual for the proper procedure. On most models, screw the adjuster in all the way and back it out 2 clicks with the cap off. On some models there's no stop when you screw the adjuster in, so the procedure is a little different. Screw the adjuster out all the way, then screw it in 3 to 4 turns.
Then for either type, **install the cap onto the rod** until it starts to feel tight (the adjuster needle is bottomed out). Hold the position of the cap in relation to the rod, back out the adjuster 5 clicks and torque the jam nut to proper specs (consult manual). Check to see you have the proper number of clicks.
- 15 **Set the external adjustment, preload, and oil level** according to the DVS Setup Sheet. Enjoy!

Rebound Valving Selection Chart – STREET / ROAD RACE 20mm

Welcome to the wonderful world of Gold Valving. To obtain your personal Custom Suspension Settings:

1. Log on to www.racetech.com
2. Go to Digital Valving Search (DVS)
3. Input your personal specifications
4. Print your DVS Custom Suspension Setup Sheet

If you do not have access to the Internet, contact our Technical Support Hotline 951.279.6655 for recommendations.

Once you have your valving settings, build the valving stack.

EXAMPLE:

The Total Valving Stack is rH17:

Starting from the Gold Valve piston face

Rebound Stack – rH17

- (6) 0.15x17
- (1) 0.10x15
- (1) 0.10x12
- (1) 0.10x9

Visit www.racetech.com, go to Digital Valving Search for your personal computer calculated valving setup!

OIL LEVEL, EXTERNAL ADJUSTERS, SPRING RATE, and PRELOAD are all listed on the Digital Valving Search on www.racetech.com.

NOTE: All measurements are metric (*for inches divide by 25.4*). The valving list starts at the piston face and goes towards the base plate. Valve specs are listed by (QUANTITY) THICKNESS x DIAMETER. A number in parentheses means quantity. If there is no number in parentheses the quantity is one. Example: (2).15x17 means quantity two, 15 hundredths of a millimeter thick by 17 millimeters in diameter.

FORK REBOUND GOLD VALVE CHART - STREET / ROAD RACE 20mm

REBOUND VALVING <FR2017-030115>

SLOWER →

| rH14 | rH15 | rH16 | rH17 | rH18 | rH19 | rH20* | rH21* | rH22* | rH23* |
|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| (3) .15x17 | (4) .15x17 | (5) .15x17 | (6) .15x17 | (7) .15x17 | (8) .15x17 | (9) .15x17 | (10) .15x17 | (11) .15x17 | (12) .15x17 |
| .10x15 | .10x15 | .10x15 | .10x15 | .10x15 | .10x15 | .10x15 | .10x15 | .10x15 | .10x15 |
| .10x12 | .10x12 | .10x12 | .10x12 | .10x12 | .10x12 | .10x12 | .10x12 | .10x12 | .10x12 |
| .10x9 | .10x9 | .10x9 | .10x9 | .10x9 | .10x9 | .10x9 | .10x9 | .10x9 | .10x9 |

Shim Dimensions - (QUANTITY) THICKNESS x DIAMETER in mm

If you would like assistance please contact Race Tech Technical Support 951.279.6655.