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FORK GOLD VALVE INSTALLATION

STREET / ROAD RACE SPECIAL 20 mm

<IP FMGV S2044.doc> **FMGV S2044, FMGV S2045** P Thede © 10-28-05 3 pgs

TOOLS REQUIRED: *(In addition to those required for fork disassembly.)* In-lb Torque Wrench that accurately measures 0 to 50 in-lbs (0.58 kgf-m), 5 mm Allen Wrench, 1/2" Wrench, Loctite 271 (Red), Metric Calipers, 0-25 mm Metric Micrometer, Drill Motor and 1-60 Numbered Drill Set or Metric Drills by 0.01 mm (see step 3).

NOTE: Many riders require different fork springs. Please consult www.racetech.com or call Race Tech.

DISASSEMBLY

1 **CLEANLINESS IS CRITICALLY IMPORTANT. Completely disassemble and clean your front forks**. ***If you are unfamiliar with this process, STOP!!!! Do not proceed. Seek out a qualified suspension technician to complete the installation.***

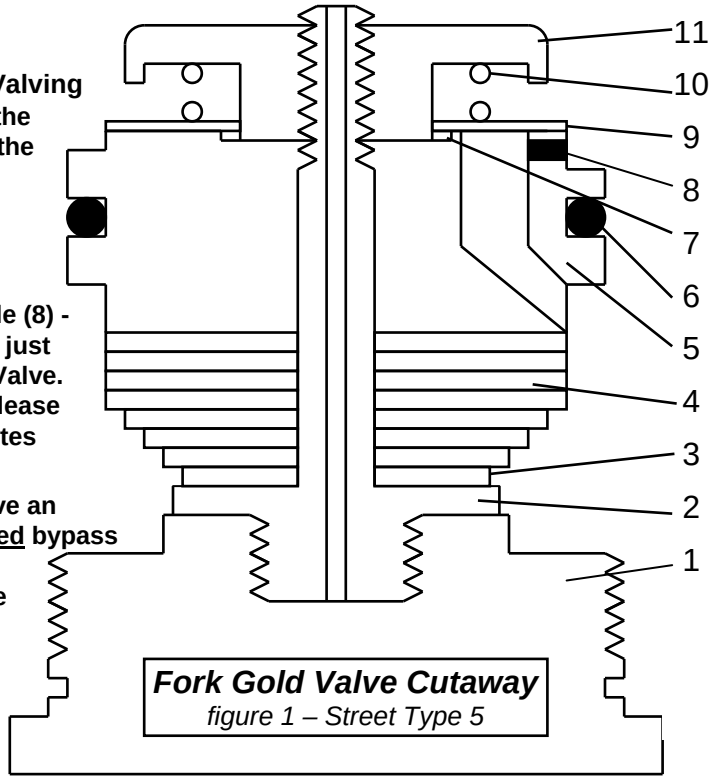
2 Remove the cartridge. Once the cartridge is out, **remove the compression valve body from the cartridge**. The compression adjuster assembly screws into the bottom of the cartridge tube. This type uses a thread locking compound. Heat can be very helpful in disassembly to loosen the Loctite. Light tapping with a small ball peen hammer on the outside of the cartridge tube at the threads also works. Loctite must be used on reassembly on this type as well. Be very careful when holding the cartridge tube, it is very easy to dent or distort it (TFSH 20 Shaft Holding Tool is helpful).

COMPRESSION VALVING

3 **To obtain custom valving settings for your particular application log on to www.racetech.com, go to Digital Valving Search, insert your Access Code (printed on the top of the first page), 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. Note: The Access Code is good for one limited-time use.**

4 **If your Custom Setup requires a Compression Bleed Hole (8) - Drill one hole horizontally, through one of the port walls just above the step for the o-ring on the Compression Gold Valve. Placement is not critical. If your application is Racing please use the Bleed Hole size recommended in the Valving Notes section of the Custom Setup Sheet.**

Your model will require a Bleed if your fork does not have an external compression adjuster or some other type of fixed bypass hole in the cartridge tube. (89-95 ZX7 requires a bleed hole, ZX7R does not). (If there is an existing bleed in the cartridge tube it is usually located approximately 40 mm (1.5") up from the bottom of the tube as with some models of FZR 1000.) If your forks have an external compression adjuster or another type of fixed bypass, ignore this step.



Fork Gold Valve Cutaway
figure 1 – Street Type 5

5 Begin assembling the compression valving assembly by first **installing the valving bolt (2) into the large base bolt (1)**. Use Loctite.

6 Put the valving on the shaft in the order listed, starting with the smallest diameter (clamping) shim (3) and ending with the 17 mm shim closest to the Gold Valve.

7 **IMPORTANT NOTE: There are two different size o-rings (6) in this kit. Most applications (ZX7 and ZX7R) take the fat o-ring as they seal on the 21 mm bore of the cartridge tube. Other applications (FZR 1000 and 96 YZF 600) use the thin o-ring as they seal on the 20 mm bore. Select the proper o-ring.** Put the proper o-ring on the Gold Valve (5). Place the Gold Valve on the shaft with the recess (7) on the piston facing up.

8 **Place the check valve plate (9) *(large ID washer)* and the spring (10) on the shaft**.

9 **Install the special nut (11)**. Be sure the check plate is free before tightening or you will damage it. Torque the nut. **CAUTION! The threads can be damaged without extreme care. You must use Loctite 271. The 6 mm bolt must be torqued with a torque wrench to 30 in-lbs (2.5 ft-lbs or 0.35 kgf-m), NO MORE! Do not take this step lightly.**

10 **Inspect your work**. Hold the compression stack up to the light and look for proper assembly. If there are any problems, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.

CARTRIDGE BUSHING *IMPORTANT!!*

Most applications for this kit (most KYB's, ZX6R, ZX7, ZX7R, YZF 750 and FZR 1000) have aluminum shaft bushings that wear and leak badly. Special bushings (FKRB 1015P) are included that cures this problem. **They should be installed at this time**.

11 **Install the compression assembly into the cartridge**.

REBOUND VALVING *(optional)*

Many models benefit from rebound damping changes using a Rebound Gold Valve Kit p/n FRGV S01. These models are: KAWASAKI 91-95 ZX7, 91-94 ZX7R, 94-96 ZX9R. If you have this kit, install it at this time. . If you are using FRGV S01 Rebound Kit use US-1.

REASSEMBLY

12 **Reassemble the forks according to the procedure in your manual**. Bleed the cartridge and set the oil level with the forks and the damping rod completely bottomed. ***Set the spring preload and oil level*** according to the Digital Valving Search Setup Sheet. If you are using FRGV S01 Rebound Kit use US-1.

13 **Use Loctite 271 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 **KYB's**, 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 (so the needle isn't damaged when the slop is taken up in the threads) and tighten the jam nut. Check to see you have the proper number of clicks.

14 ***Adjust the compression and rebound adjusters*** according to the Digital Valving Search Setup Sheet. **NOTE: 91-95 ZX7/R spring adjustment is not a preload adjustment, it is a travel and ride height adjustment. The more you screw it in the more travel and the higher the ride. This will affect turning characteristics.**

15 **Install the forks on the bike.** It is very important to align the fork tubes. This is done by first tightening the axle all the way, then the tubes are aligned by pumping the forks up and down with the right-hand axle clamp loose. This will line the tubes up so they won't bind. Finally, tighten the axle clamp. Some models do not grip the axle this way. You may need to make spacers or washers to create the proper width.

16 **If you have any questions** please call our Technical Support Hotline at 951.279.6655.

BUILDING the VALVING STACK - STREET / ROAD RACE 20 mm

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

1. **Log on to our website at www.racetech.com**
2. **Go to Digital Valving Search (DVS)**
3. **Input your Access Code when prompted (your Code is printed on top of page 1 of these instructions)**
4. **Input your personal specifications**
5. **Print your Custom Suspension Setup**

If you do not have access to the Internet contact our Technical Support Hotline 951.279.6655 for recommendations. Note: The Access Code is good for one bike, limited-time use.

Once you have your valving settings, build your valving stacks.

EXAMPLE:

The **Total Valving Stack** is c33:
Starting from the Gold Valve piston face

Compression Stack – c33

(3) 0.15x17
(1) 0.10x15
(1) 0.10x13
(1) 0.10x12
(1) 0.10x11
(1) 0.10x10
(1) 0.10x9

Visit www.racetech.com, go to Digital Valving Search with your Access Code (from the top of page 1) 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. If there is a number in parentheses that means quantity. If there is no number in brackets the quantity is one. Example: (2).15x17 means quantity two, 15 hundredths of a millimeter thick by 17 millimeters in diameter.

FORK GOLD VALVE CHART - STREET / ROAD RACE 20 mm

Chart #20S--054 © P Thede ***STIFFER*** ⟶

c30	c31	c32	c33	c34	c35	c36	c37	c38	c39
.10x17	(1).15x17	(2).15x17	(3).15x17	(4).15x17	(5).15x17	(6).15x17	(7).15x17	(8).15x17	(9).15x17
.10x15	.10x15	.10x15	.10x15	.10x15	.10x15	.10x15	.10x15	.10x15	.10x15
.10x13	.10x13	.10x13	.10x13	.10x13	.10x13	.10x13	.10x13	.10x13	.10x13
.10x12	.10x12	.10x12	.10x12	.10x12	.10x12	.10x12	.10x12	.10x12	.10x12
.10x11	.10x11	.10x11	.10x11	.10x11	.10x11	.10x11	.10x11	.10x11	.10x11
.10x10	.10x10	.10x10	.10x10	.10x10	.10x10	.10x10	.10x10	.10x10	.10x10
.10x9	.10x9	.10x9	.10x9	.10x9	.10x9	.10x9	.10x9	.10x9	.10x9

Shim Dimensions - (QUANTITY) THICKNESS x DIAMETER in mm *(for inches divide by 25.4)*

TUNING NOTES

- Damping is sensitive to vertical wheel velocity, not position in the stroke. If your valving needs to be stiffer, move to the right. This will improve bottoming resistance by increasing damping overall, making it stiffer through the entire speed range. If the forks are too firm, go the opposite direction, to the left.
- Please feel free to use the compression damping adjuster. It controls the lowest speed damping and affects the entire range. The closer to maximum damping *(full clockwise)* the more effect one click makes. In other words going from 3 to 2 has a lot more effect than going from 14 to 13.
- Spring rate is dependent mostly on rider and bike weight. Spring rate, pre-load and low-speed compression damping; affect dive, wallow and bottoming.
- Oil level can drastically alter bottoming resistance and only affects the last part of the travel *(near bottoming)*. If you like the action, but the forks bottom too easily, raise your oil level by 10 mm (0.4").
- If the forks feel too soft all the way through, increase compression damping with the external adjuster (if available). If that's not enough, change the compression stack internally.
- The Clamping Shim is the shim that goes closest to the base plate. It is the most critical shim as it affects damping overall.
- If you would like assistance, please contact the Race Tech Technical Support Hotline 951.279.6655.