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FK code

FORK GOLD VALVE INSTALLATION

YAMAHA FZ1/FJR1300 - 20 mm

<IP FMGV S2047.doc> **FMGV S2047** P Thede © 3.23.10 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), 1/2" Wrench, Loctite 271 (Red), Metric Calipers, 0-25 mm Metric Micrometer, Cartridge Holding Tool (TFSH 20).

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**. Then **remove the compression valve from the cartridge**. It must be unscrewed with a 19 mm wrench while holding the cartridge with a TFSH 20 Shaft Holding Tool. The compression valve is Loctited into the cartridge so tapping on the cartridge tube at the threads or heating to 300° F will help break it loose.

3 **If you are installing the highly recommended Rebound Gold Valve Kit - FRGV S03 this is the perfect time to do it. If you do you will have to disassemble the cartridge. Otherwise install the Gold Valve Assembly into the cartridge**. Use Loctite on the external threads of the new Compression Body and tighten it to 30 ft-lbs (41 NM).

VALVING

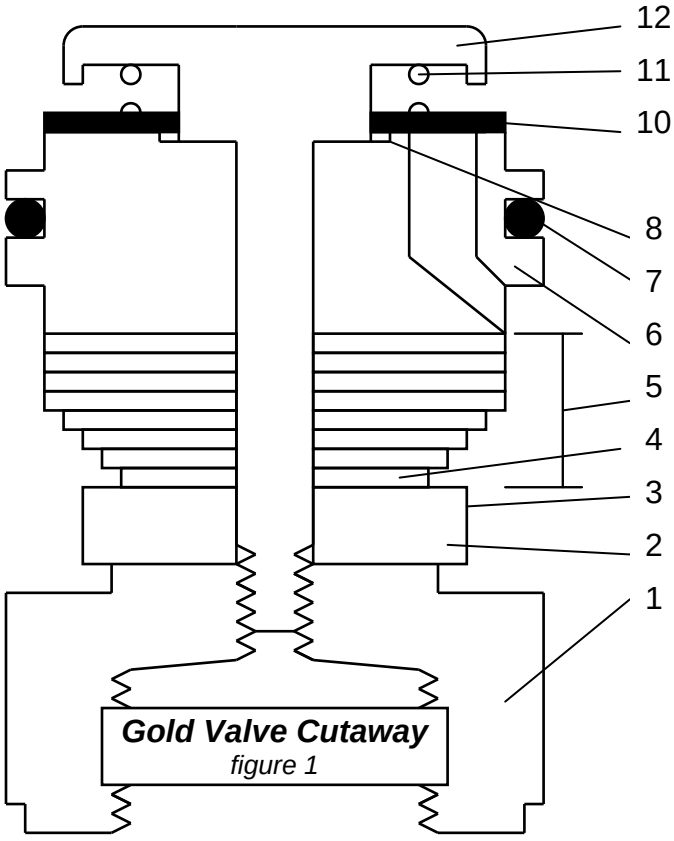
4 **This kit is pre-assembled with c34 valving**. Compare this with the custom valving output you generate from the Digital Valving Search (DVS) on racetech.com.

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 recommendations. Note: The Access Code is good for one limited-time use.

If the recommended valving stack is different than c34 and you would like to change valving follow this procedure:

5 Disassemble the valving stack by unscrewing the compression bolt (12). Clean the components. Be careful to keep the same orientation and location of the parts.

6 **Start reassembly** by putting the check valve spring (11) on the compression bolt (12), then the check valve plate (10) *(17 mm OD by 8 mm ID)*. Install the o-ring (7) on the Gold Valve (6) and **place the Gold Valve on the shaft** *(the side of the valve with the recess (8) goes on first).*



Gold Valve Cutaway
figure 1

7 **Install the valving on the shaft of the compression bolt** in the order listed with the largest shim closest to the valve. The smallest diameter shim (4) is the clamping shim and is the last one to be placed on the shaft. Place the new base plate (3) *(thick washer)* on the shaft. This kit comes pre-assembled with c34 valving standard. Additional shims are provided for valving changes if desired or required.

8 **Inspect the check valve plate** (10) *(large ID washer)* to make sure it is free and can move up and down against the spring. Hold the assembly so it keeps the check spring compressed as you do the next step.

9 Install the compression bolt assembly into the compression body (1) and tighten it. **CAUTION! The bolt 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 **Check your work**. Hold the compression stack up to the light and look for proper assembly. **Re-inspect the check valve plate to insure it is free to move.** If there are any problems, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.

11 **Install the compression assembly into the cartridge**. Use Loctite on the external threads of the new Compression Body and tighten it to 30 ft-lbs (41 NM).

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.

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.

Screw the adjuster all the way in and back it out 2 clicks with the cap off. Then 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 you tighten it) 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.

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. Feel free to experiment and please stay in touch. Enjoy!

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.