

RACE TECH

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FORK GOLD VALVE INSTALLATION STREET / ROAD RACE 37mm BPF SFF

FK code

<IP FMGV S3702C 41 BPF SFF.doc> FMGV S3702C P Thede © 2.27.15 5 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), Hi-Strength Loctite (included), Metric Calipers and Micrometer, TFCH 06 Seal Head Tool, TFCW 4549 Fork Cap Wrench.

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

This kit makes 3 major changes to the design. First and foremost is the design of the valve itself. The Gold Valve improves the flow characteristics dramatically. Second, the travel is increased. This improves the bump absorption particularly under heavy braking. It also increases front end Trail thereby improving grip. Third, the stock bottom-out mechanism is short and abrupt. This kit makes the bottoming process more gradual and linear decreasing braking chatter and improving traction.

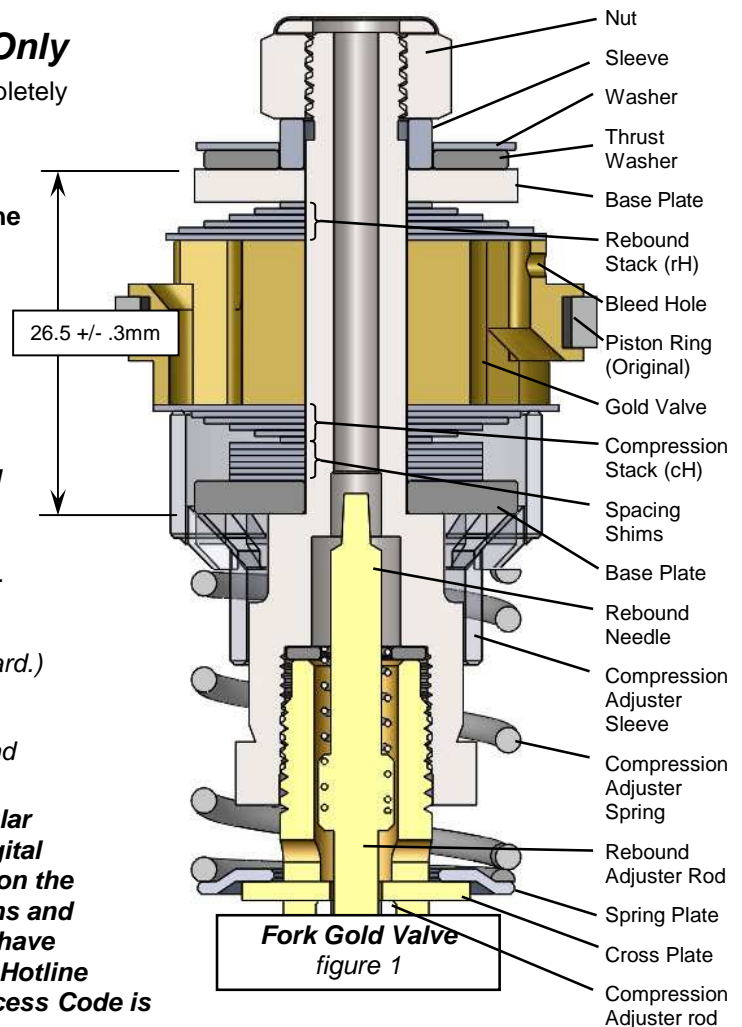
DISASSEMBLY - Damping (right) Leg Only

- D1 **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. Remove the Fork Cap using TFCW 4549 Fork Cap Wrench. Clamp the Fork Bottom in a Vise with Soft Jaws. Use TFCH 06 Seal Head Tool to unscrew the Seal Head from the Fork Tube. There is no need to detach the fork cap from the damping rod at this time.
- D2 **Remove the Nut** from the end of the shaft. When disassembling the valve for the first time, **the peening on the thread above the nut must be filed off.** Lightly deburr the end of the thread.
- D3 Lay out the pieces in the order they come off the shaft. **Clean and inspect** all the original parts. Be careful to maintain the original order and orientation of the parts. (some of the original parts will be reused, do not discard.)

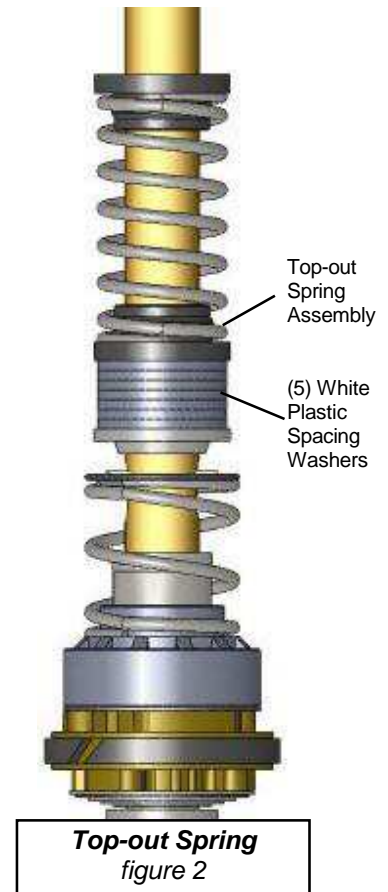
VALVING (figure 1)

This mod will dramatically improve fork action, traction, and control.

- V1 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 this 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.
- V2 This Custom Setup requires a **Bleed Hole** in the Gold Valve Piston. It is pre-drilled.



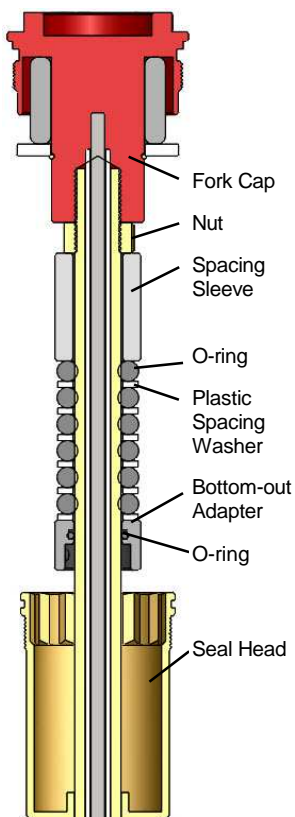
- V3 **Begin assembly (figure 1).** Place the original base plate (2.55x25.5 washer) on the shaft. **Build the Compression Valving Stack. Put the compression valving on the shaft** in the order listed, ending with the largest shim against the piston face.
- V4 Check to see there are no burrs on the Gold Valve Piston and the piston faces are flat. If required, surface the piston on a piece of plate glass with 320 grit (very fine) sandpaper (the piston is surfaced from the factory but check it every time you disassemble the valving.) **Put the original piston ring on the Gold Valve. Place the Gold Valve on the shaft** with the piston face that uses the large diameter shim (6 ports) facing down against the Compression Stack.
- V5 **Build the Rebound Stack.** Install the Rebound Stack on the shaft with the largest diameter shim against the piston face.
- V6 **THIS NEXT STEP IS CRITICAL!!!! The total Valving Stack Thickness (including Base Plates) must be set to 26.5 +/- .3mm. Add Base Plate Provided.** You will reuse some of the .30x16 and .30x24 shims from the stock compression and rebound stacks. Install the stock 2.55x25.5 Rebound Base Plate.
- V7 **Install the nut and tighten it. CAUTION! The threads can be damaged without extreme care. You must use Loctite. It must be torqued with a torque wrench to 48 in-lbs (4 ft-lbs or 0.56 kgf-m), NO MORE! Do not take this step lightly.**
- V8 **Inspect the assembled stack.** Hold the valving stack up to the light and look for proper assembly. If there are any problems, particularly if there is a gap between the piston face and the first shim, disassemble the stack and look for burrs and/or dirt in the valving. Reassemble and check again.



TOP-OUT SPRING REPLACEMENT (figure 2)

This mod will change the Top-out Spring Stiffness and lengthen the fork 15mm. **It is done to BOTH LEGS.**

- T1 Loosen the Jam Nut and **remove the Fork Cap** from the Damping Rod. **Remove the Seal Head and the original Top-out Spring** from the Damping Rod.
- T2 Install five (5) 1.4 x 22mm **White Plastic Spacing Washers**. Next, slide on the new **Top-out Spring Assembly**. Reinstall the stock **Seal Head Assembly**.



BOTTOM-OUT MODIFICATION (figure 3)

Damping (right) Leg Only

This mod will make the bottom-out more gradual. **It is ONLY done to the Damping Leg.**

- B1 **Install the Bottom-out Assembly as follows** - First install the **Bottom-out Adapter** with the recessed side down towards the Seal Head. Then add the first **Bottom-out O-ring** then one **White Plastic Spacing Washer**. Repeat with the rest of the (8) O-rings and (8) White Plastic Washers alternating O-rings and Washers as you go. Next slide on the **Spacing Sleeve**.
- B2 **Retain the stock Bottom-out Bumper Assembly on the Cap.**
- B3 **Install the original Jam Nut** on the Damping Rod all the way. Insert the Compression and Rebound Adjusting Rods into the Damping Rod. Back out the Compression and Rebound Adjuster Screws all the way. Use Loctite on the thread. **Install the Fork Cap** on the Damping Rod all the way until it bottoms into the Cap. Tighten the Jam Nut and torque to manufacturer spec.

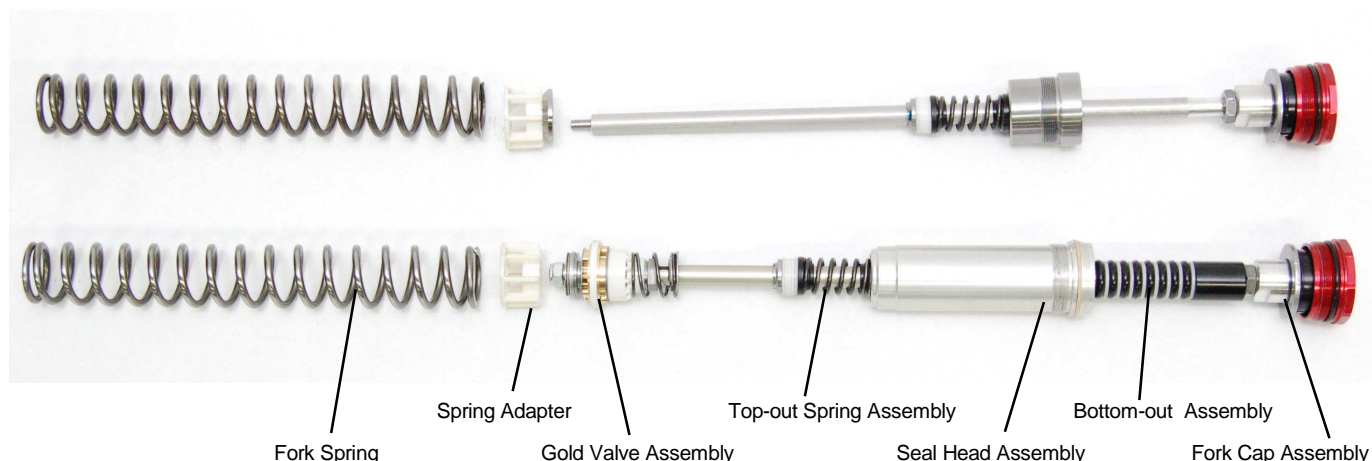
PRELOAD SETUP AND SPRING REPLACEMENT

Whether you are replacing the Fork Springs or not you will need to **setup the Spring Preload on both legs**. There is only one Preload Adjuster located on the left fork leg.

P1 First, back the Preload Adjuster out all the way. Install the Fork Spring, then the plastic Spring Adapter. Next install the Damping Rod Assembly into the Fork but do not tighten the Seal Head.

P2 **The new Top-out Spring is fairly soft so the fork will grow about 4mm when it is assembled.** The **Actual Preload** is calculated by taking two measurements. First, measure the distance between the top of the Fork Tube and the fork cap with the Damping Rod Assembly just resting on top of the Spring. Second, install the Seal Head into the Fork Tube. Measure the distance between the same two points and subtract. This is the Actual Preload.

P3 **To adjust the preload** add Preload Washers provided below the Spring.



Damper Assembly

ASSEMBLY

A1 **Reassemble the forks according to the procedure in your manual.** With the Inner and Outer Fork Tubes assembled—including Seals and Bushings, **install the Spring Guide Assembly, Spring, and Spring Adapter.** Before installing the Damper Assembly fill the Fork Tubes with oil to within 50mm (2") from the top; pump the outer fork tube up and down to fill the space between the inner and outer fork tubes. **Set the oil level** according to the DVS Setup Sheet with the fork tube bottomed still with the damper assembly out.

A2 **Install the Damper Assembly into the Fork Tube.** You may have to raise the outer fork tube slightly to keep the oil from spilling out. Use the TFCH 06 Cartridge Tool to tighten the Seal Head to manufacturer's spec. You will have to move the Bottom-out O-rings out of the way to insert the tool. The o-rings will set themselves with use.

A3 **Tighten the fork cap** to manufacturer's specs.

A4 **Adjust the compression and rebound adjusters** according to the DVS Setup Sheet.

NOTE: When the forks sit for any length of time a small amount of the oil will displace into the upper chamber above the Seal Head. You will feel a "dead spot" for the first couple of strokes then the forks will bleed themselves and this will go away.

A5 When the forks are put on the bike it is very important to **align the fork tubes.** This is done by first tightening the axle all the way and then aligning the tubes 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.

A6 If you have **any questions** please call our Technical Support Hotline at 951.279.6655.

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REBOUND VALVING

SLOWER →

rH80	rH81	rH82	rH83	rH84	rH85	rH86	rH87	rH88	rH89
.10x30	(2).10x30	(3).10x30	(4).10x30	(5).10x30	(4).10x30	(5).10x30	(6).10x30	(7).10x30	(8).10x30
.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28
.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26
.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24
.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22
.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20
.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18
.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16
.10x14	.10x14	.10x14	.10x14	.10x14	.10x14	.10x14	.10x14	.10x14	.10x14
(2).15x12	(2).15x12	(2).15x12	(2).15x12	(2).15x12	(2).15x13	(2).15x13	(2).15x13	(2).15x13	(2).15x13
(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16
2.0x18	2.0x18	2.0x18	2.0x18	2.0x18	2.0x18	2.0x18	2.0x18	2.0x18	2.0x18
rH90	rH91	rH92	rH93	rH94	rH95	rH96*	rH97*	rH98*	rH99*
(9).10x30	(10).10x30	(11).10x30	(12).10x30	(13).10x30	(14).10x30	(13).10x30	(14).10x30	(15).10x30	(16).10x30
.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28
.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26
.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24
.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22
.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20
.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18
.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16
.10x14	.10x14	.10x14	.10x14	.10x14	.10x14	(2).15x14	(2).15x14	(2).15x14	(2).15x14
(2).15x13	(2).15x13	(2).15x13	(2).15x13	(2).15x13	(2).15x13	(4).15x16	(4).15x16	(4).15x16	(4).15x16
(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16	(4).15x16	2.0x18	2.0x18	2.0x18	2.0x18
2.0x18	2.0x18	2.0x18	2.0x18	2.0x18	2.0x18				

Shim Dimensions - (QUANTITY) THICKNESS x DIAMETER in mm (for inches divide by 25.4) *Shims not included in kit – please call.

TUNING NOTES

- Damping is sensitive to vertical wheel velocity, not position in the stroke. If the valving needs to be stiffer, move to the right on the chart. 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.
- The Compression Damping Adjuster controls the Adjuster Valve Spring Preload and affects the entire range.
- The Rebound Adjuster flows on both the Compression and Rebound stroke. It mostly affects Rebound Damping but will have a slight affect on Compression.
- Spring rate is dependent mostly on rider and bike weight. For Racing applications we recommend a slightly stiffer rate. Consult www.racetech.com for recommendations. Spring rate, spring preload and compression damping all combine to 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 fork action, but the forks bottom too easily, raise the oil level by 10mm (0.4").
- If the forks feel too soft all the way through, increase compression damping with the external adjuster. If that's not enough, change the compression stack internally.
- If you would like assistance, please contact the Race Tech Technical Support Hotline 951.279.6655.