

# RACE TECH

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## FORK GOLD VALVE INSTALLATION STREET / ROAD RACE WP 21mm

FK code

<IP FMGV S2151.doc> FMGV S2151 P Thede © 1.31.14 4 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), 3mm Allen Wrench and Socket, Hi-strength Loctite (included), Metric Calipers, 0-25mm Metric Micrometer, #55 (1.3mm) Drill Bit (some models), Drill Motor.

**NOTE:** Many riders require different fork springs. Please consult [www.racetech.com](http://www.racetech.com) or call Race Tech.

### DISASSEMBLY

- 1 **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.**

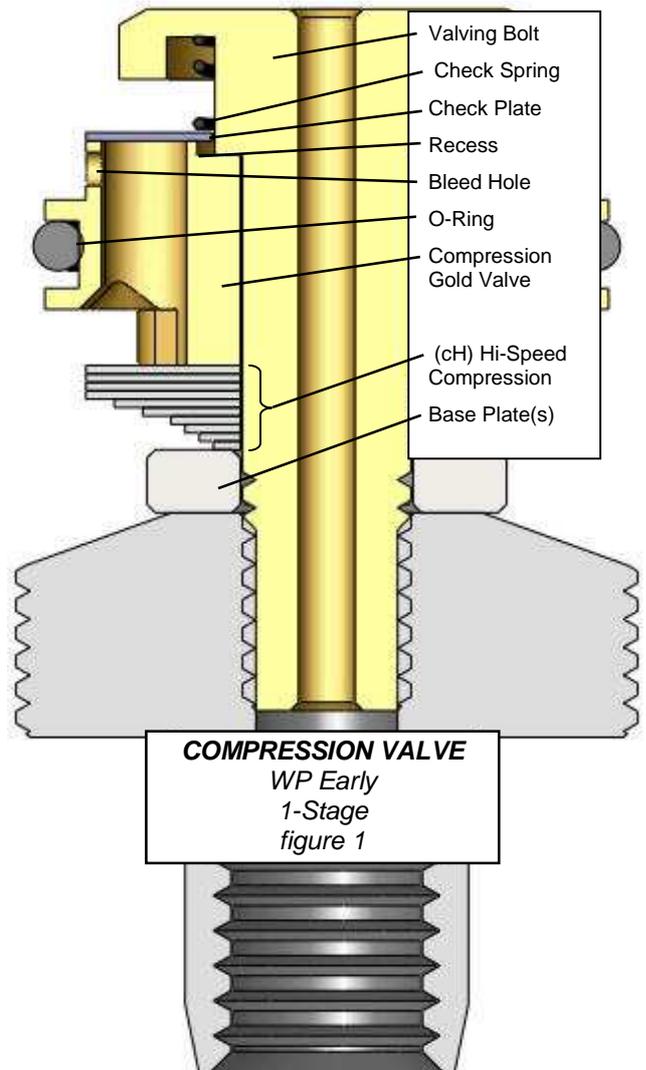
**NOTE:** There are two types of WP forks. All Early forks with adjustment, have rebound adjusters on the fork cap and compression adjusters on the bottom of each leg. We call this style Early Model. Starting in 1996, some WP forks have compression on one leg and rebound on the other (both adjusters are on the top). We call these Late Model. Installation is slightly different on these two types.

- 2 **To obtain custom valving settings log on to [www.racetech.com](http://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.**

### Early Model - Rebound On Top Type (both legs)

#### Steps 3 to 8 (figure 1)

- 3 **Remove the compression valving** from the cartridge by unscrewing the holder from the bottom. This calls for a special holding tool but usually comes out very easily.
- 4 **Remove the bolt and disassemble the valving stack.** Lay out the pieces in the order they come off the shaft. Clean and inspect all the original parts.
- 5 **Put the new check valve spring on the bolt, then the new check valve plate (17 od x 8 mm id). Put the Gold Valve on the shaft (the recess goes on first).**
- 6 **Install the valving** with the largest shim closest to the valve. **Place the original base plate (thick washer) on the shaft.** You may need to use the additional base plates provided to achieve the proper total valve thickness.
- 7 **Put the new o-ring on the Gold Valve.** Check to see that the check valve plate (large ID washer) is free and can move up and down against the spring.
- 8 **CAUTION! The threads can be damaged without extreme care. Install the bolt assembly into the holder and tighten it. You must use Loctite. 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. (go to step 14)**



## Late Model – Compression On Top (one leg) and Rebound On Top (one leg) Type

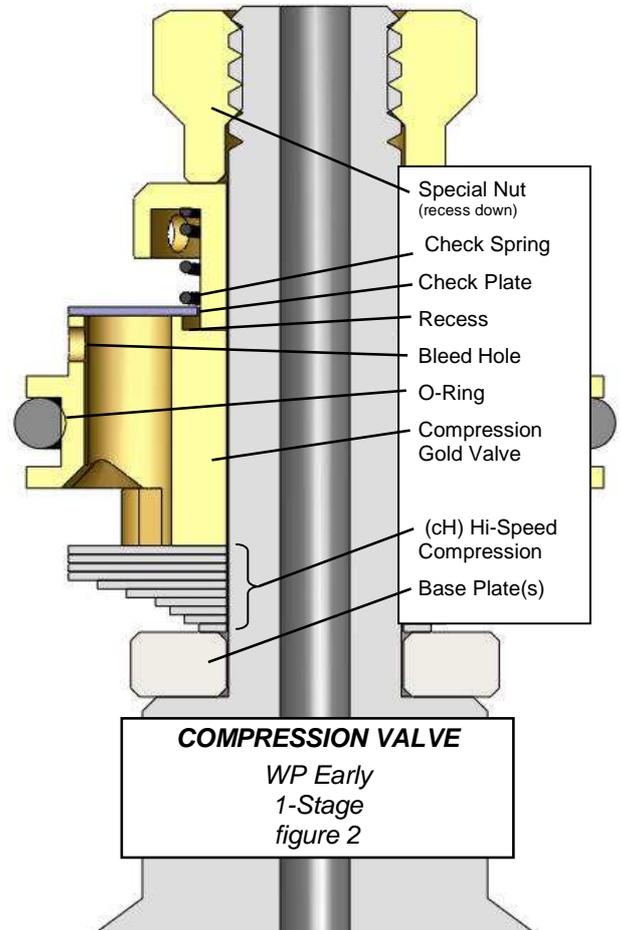
### Steps 9 to 13 (figure 2)

- 9 The compression valving is located on the bottom of the cartridge but only one leg has valving on it. The valving assembly is held in with a circlip. **Remove the compression valve** by pushing the assembly farther into the cartridge tube; this will expose the circlip which can then be removed with a small screwdriver. You will notice that the two compression valves are not the same. One has valving on it and the other doesn't. When you get done they will both have compression valving on them.
- 10 **The "compression side" installation is the same as the Early Style fork.** Follow steps 2 through 7 for this Leg. You will be installing a Compression Gold Valve on the "rebound side" as well. It is the same installation as the "compression" side but uses slightly different hardware **and you will have to drill a #55 (1.3 mm) bleed hole in the piston.**
- Remove the nut and disassemble the valving stack.** 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 for your own reference.
- 11 **Place the thin base plate on the shaft. Select a compression valving stack** according to the valving chart. Put the valving on the shaft in the order listed, starting with the smallest diameter shim.
- 12 **Drill a #55 (1.3mm) bleed in the side of the Gold Valve port** (refer to figure 1). It doesn't matter which wall you drill through. **Put the o-ring on the Gold Valve. Place the Gold Valve on the shaft with the recess on the piston facing up. Place the check valve plate (17 od x 8mm id washer) on the shaft, next the spring, then the special sleeve washer.** Be sure the sleeve washer fits into the recess in the piston and the plate is free.

- 13 **Make sure the total stack thickness is correct and install the nut. This is a critical part of the installation. The nut must not run out of threads before the stack tightens down. The nut is a special nut with a thread relief (no threads) on one side. The thread relief should go down. This gives you extra thread height on the shaft. CAUTION!** The threads can be damaged without extreme care. You must use Loctite. The 6mm bolt must be torqued with a torque wrench to 30 in-lbs (2.5 ft-lbs or .35 kgf-m), **NO MORE!** Do not take this step lightly.

### Rebound Valving (optional)

- 14 **(optional) Check and possibly modify the rebound valving on both fork legs.** Many WP forks have way too little rebound damping. Remove the damping rod from the cartridge, disassemble the valving, measure and record the shim dimensions. You will use a combination of stock shims and Race Tech shims. For most applications use the following stack: (2) 0.15x18, (3) 0.15x17, (1) 0.15x16, (1) 0.15x14, (1) 0.20x12, (1) 0.30x9, and the Nut. Torque to 25 in-lbs (0.29 kgf-m) using Loctite. The exact valving is not critical however, if you have a large variation from this setting please call.



## For Both Style Forks

- 15 Hold the compression stack up to the light and **inspect your work**. If there are any gaps or irregularities, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.

### ASSEMBLY

- 16 **Install the compression assembly into the cartridge and 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. Use Loctite 271 on the damping rod threads at the cap and torque it to manufacturer's specs. Consult owner's manual for torque specs.
- 17 **Adjust the compression and rebound adjusters** according to the Digital Valving Search Setup Sheet.
- 18 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, 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.

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

### 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 10mm (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.

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at [www.racetech.com](http://www.racetech.com).**

# BUILDING the VALVING STACK - STREET / ROAD RACE WP 21mm

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

1. Log on to [www.racetech.com](http://www.racetech.com)
2. Go to Digital Valving Search (DVS)
3. Input your Access Code (on top of page 1) when prompted
4. Input your personal specifications
5. 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. 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 cH33:  
Starting from the Gold Valve piston face  
**Compression Stack – cH33**

- (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](http://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](http://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 GOLD VALVE CHART - STREET / ROAD RACE 21mm

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

cH30	cH31	cH32	cH33	cH34	cH35	cH36	cH37	cH38	cH39
.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)