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G2-R FORK GOLD VALVE INSTALLATION DIRT 28x6mm WP 4CS - OPEN CHAMBER MODIFICATION

<IP FMGV 280601Gw.doc> FMGV 280601G P Thede © 12.4.15 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, Metric micrometer 0-25 mm.

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

CAUTION! The threads can be damaged without extreme care. They are made out of aluminum and strip easily. Rebound Gold Valves are **HIGHLY RECOMMENDED!** They improve harshness, bottoming resistance, and grip.

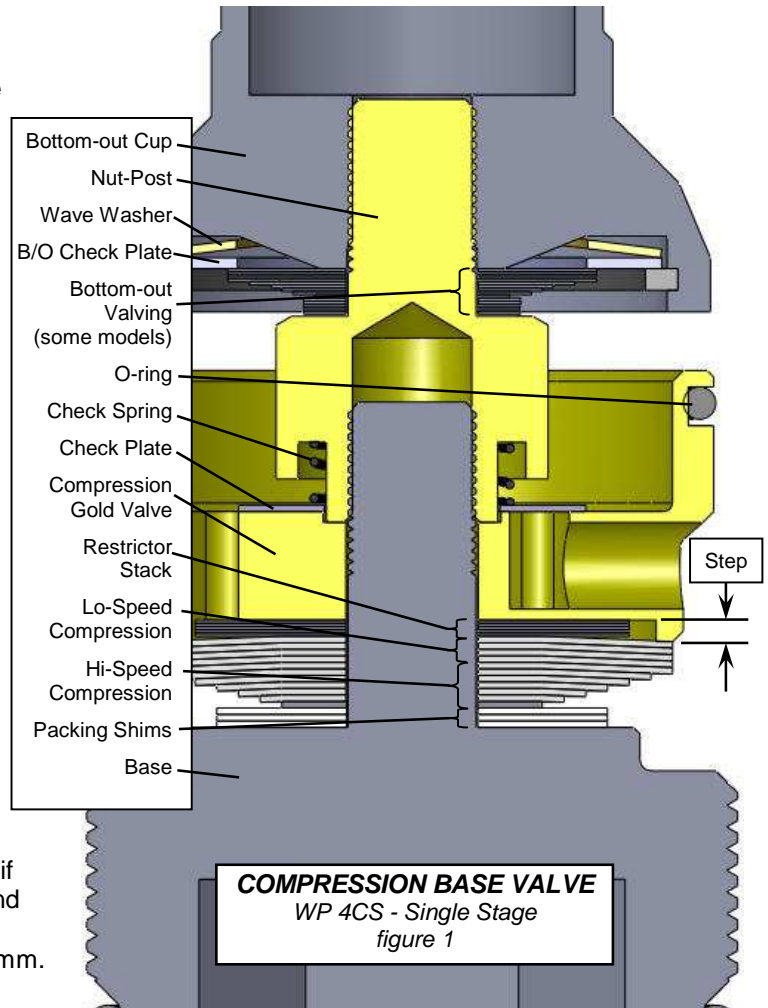
DISASSEMBLY

- D1 **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. Use TFCW PS38048 Cap Wrench for both the Cap as well as the Compression Base on the bottom. DO NOT USE AN IMPACT GUN!**
- D2 When disassembling the forks be sure to keep all components of the left and right leg separate.
- D3 Coat the thread with heavy grease and **remove the damping rod** from the cartridge.
- D4 Remove the Bottoming Piston/Needle on the Rebound Rod. Be careful, there are Check Needles inside the Bottoming Pistons. **Both Needles will be removed and not reinstalled. This is one of the keys to this installation.**
- D5 On the Compression Base Valve, **remove the Bottom-out cup, the Bottom-out Valving and the Nut-Post.** Note – as of this printing there are three different types of Bottom-out Cups. The newest one has no shims.
- D6 **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. *(You will need the original .4 x 18 shims for spacing purposes, do not discard.)*

COMPRESSION VALVING

G2-R The Theory - There are many ways to setup the valving with G2-Rs. They are made to be preloaded (digressive) or restricted (progressive). This adds a little complexity but makes them extremely versatile.

The piston face has a 1.0mm step on it. This means if you put on a standard valving stack the shims will bend 1.0mm without opening. This is a 1.0mm preloaded stack. The best preloads are between zero and 0.10mm. The Restrictor Stack thickness adjusts the preload.



'Step'-'Restrictor Stack Height'='Preload'

ex. $1.00 - 0.95 = 0.05$ preload

The Restrictor Valving serves a second function. Increasing the diameter restricts the flow area of the ports. This increases the damping at high velocities like landing off a jump but can make it harsher on square-edge bumps.

VC1 **To obtain custom suspension and valving settings 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 sheet. 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.**

VC2 Once you have selected your valving **begin assembling the valve**. Before installing the Valving on the Shaft build the Total Valving Stack and measure the total thickness. **Make sure the total Compression Valving Stack including the Restrictor Stack is 4.5+/- .5mm thick (4.0 to 5.0mm)**. If it is not, adjust the total thickness by changing the number of original Packing Shims (the .4 x 18 shims) to get in this range.

VC2a **Single Stage Stacks** (figure 1) - A Single Stage Stack is a two-part stack made up of a combination of a **Lo-Speed Stack and a Hi-Speed Stack with NO Crossover**.

Put the valving on the shaft in the order listed, starting with the Packing Shims then the smallest diameter shim of the Hi-Speed Stack. Then the Lo-Speed Stack gets placed on top of the Hi-Speed Stack. **You will not use a Crossover** but you will use a **Restrictor Valving Stack** installed closest to the Gold Valve itself.

VC2b **Two Stage Stacks** (figure 2) - For Two Stage Stacks the total valving stack is made up of a combination of a **Lo-Speed Stack, a Lo-Speed Crossover and a Hi-Speed Stack**.

Put the valving on the shaft in the order listed, starting with the Packing Shims then the smallest diameter shim of the Hi-Speed Stack. Then the Lo-Speed Crossover gets placed on top of the Hi-Speed Stack, then the Lo-Speed Stack ends up closest to the Gold Valve. Next install the **Restrictor Valving Stack**.

VC3 Put the o-ring on the Gold Valve. Be sure everything is clean. Put a drop of Loctite (provided) on the new Nut-Post.

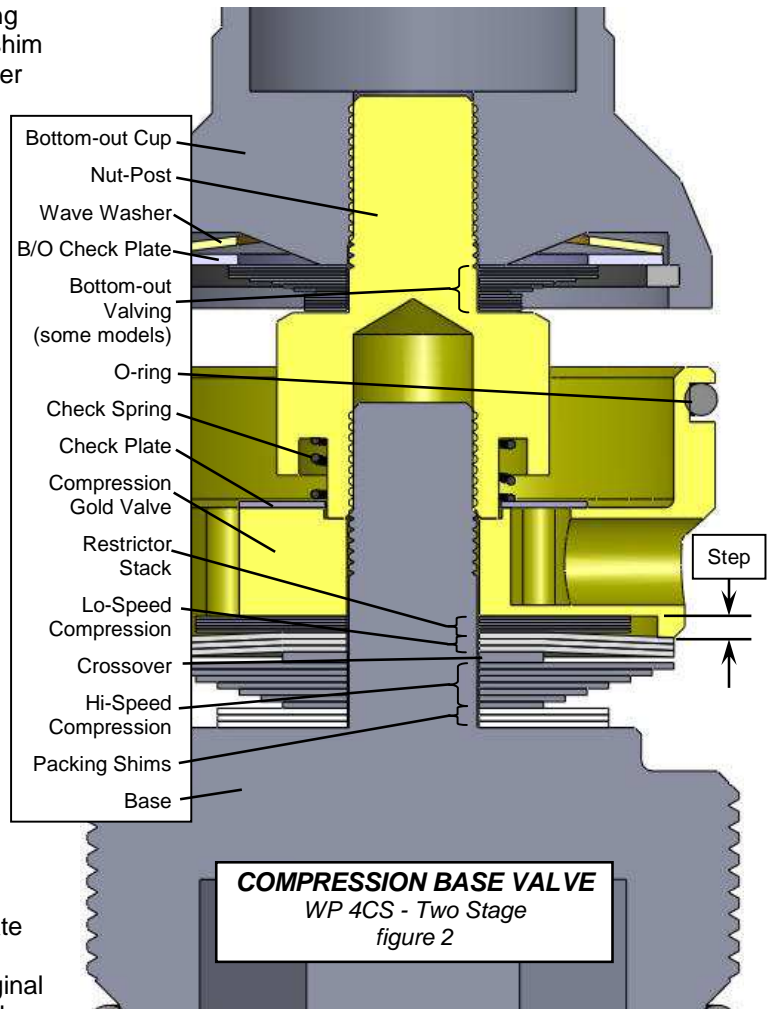
VC4 This next procedure is a little tricky but not too hard. **Put the Check Plate (8 ID x 16 OD washer) on the top face of the Gold Valve. Place the Check Spring on the Check Plate**. Compress the Check Spring with the Nut-Post and move it around to locate both the hole in the Check Plate and the Recess in the Gold Valve. Once it drops into the Recess, screw the assembly onto the shaft while keeping pressure against the Check Spring holding the Nut-Post in the recess.

Be sure the Check Plate is free and can move up and down against the spring. This can be done by blowing air into the feed port just above the top shim. A Clip Tool can be used to manually open the valve from the top as well.

VC5 **CAUTION! The threads can be damaged without extreme care. The Nut-Post 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.**

VC6 Install the original Bottom-out Valving Stack. Duplicate the original setup. As of this printing there are three different Bottom-out Cup designs. Duplicate the original setup. The Bottom-out Cup Assembly screws onto the Nut-Post. Use Loctite and torque to 30 in-lbs.

VC7 **Visually check your work**. Hold the compression stack up to the light and inspect the valving. For two stage stacks look for the gap at the Crossover between the Lo- and Hi-Speed stack. This gap should be visible, if it isn't, disassemble the stack and look for burrs and/or dirt in the valving. Reassemble and check again.



FORK ASSEMBLY

- A1 **Convert to Open Chamber. Remove the Cartridge Seal and the blue O-ring on the Seal Head. The Cartridge Seal comes out fairly easily with a pick. The O-ring comes off with fingers. These seals will be left off. This modification is critical!!!**
- A2 *There have been issues with the Seal Head and the bottom Adapter coming loose from the main Cartridge Tube. To insure they remain intact remove these two pieces and use Hi-Strength Loctite to put them back on. The bottom Adapter can be held with an appropriate size rod that snugly fits into the outlet holes. Often a #2 Phillips screwdriver fits nicely.*
- A3 **Reinstall the rod** into the cartridge. Screw the Jam Nut/Spring Guide onto the end of the Shaft all the way.
- A4 **Check the Fork Spring Preload.** While the cartridge is still out of the fork, install the Fork Cap on the Damping Rod. Extend the Damping Rod gently and measure the distance from the point the spring rests on the end of the Cartridge to the point it rests on the Cap. This is the Set Length. Measure the uninstalled Spring Length. The difference between these two numbers is the Preload (if the spring is longer than the set length). Adjust the number of Preload Washers to get 3 to 5mm of preload.
- A5 Install the Cartridge into the Fork Leg and install the Compression Base Valve Assembly. Tighten to manufacturer's specs.
- A6 Install the Fork Oil. Bleed the cartridge by pumping the damping rod until all the air is removed.
- A7 With the forks compressed **set the oil level.**
NOTE: WP forks there is no bleed hole in the inner (chrome) tube. These forks require special care to set the oil level. There is a space between the inner and outer tube and without a bleed hole there is no way to know how much oil is in this space. To deal with this situation extend the outer tube all the way before setting the level, this will dump all the oil from this space into the inner tube. Do this 2 times.
- A7 Install the Fork Springs. **Make sure the Rebound Adjusting Rod is all the way in the Damping Rod.** Back out the adjuster before installing the cap on the Rod. Use Loctite on the damping rod thread at the Rebound Adjuster.
- A8 **Tighten the fork cap. Removing the Check Needles inside the Bottoming Pistons converts both adjusters to "Rebound Only". If you would like Compression adjustability, Adjustable Base Valves (FACB M3010001) are available from RT. Set the rebound adjusters to the DVS recommendation.**
- A9 **Install the forks on the bike and align the tubes.** This is very important. First make sure there are no burrs on the Axle at the step. Next, tighten 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.
- A10 **If you have any questions** please call Technical Support at 951.279.6655. Feel free to experiment and call if you need us. Have fun!



BUILDING the VALVING STACK - DIRT G2-R 28x6mm

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

1. Log on to www.racetech.com and go to Digital Valving Search (DVS)
2. Input your Access Code (on top of page 1) when prompted
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. Note: The Access Code is good for one bike, limited-time use.

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

Single Stage - made up of a Restrictor Stack, Lo-Speed Stack and a Hi-Speed Stack –**NO Crossover**.

Two Stage - made up of a Restrictor Stack, Lo-Speed Stack, Crossover and a Hi-Speed Stack.

Example Single Stage (figure 1):

Starting from the Gold Valve piston face:

Restrictor Valving

(6) 0.15x20

Lo-Speed Stack

(4) .15x24

Hi-Speed Stack

- (1) .10x24
- (1) .10x22
- (1) .10x20
- (1) .10x18
- (1) .10x16
- (1) .10x14
- (1) .10x13
- (1) .10x12

Example Two Stage (figure 2):

Starting from the Gold Valve piston face:

Restrictor Valving

(6) 0.15x20

Lo-Speed Stack

(4) .15x24

Lo-Speed Crossover

(1) .10x14

Hi-Speed Stack

- (1) .10x24
- (1) .10x22
- (1) .10x20
- (1) .10x18
- (1) .10x16
- (1) .10x14
- (1) .10x13
- (1) .10x12

OIL LEVEL, EXTERNAL ADJUSTERS, SPRING RATE, and PRELOAD are listed on the DVS on 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 parenthesis the quantity is one. Example: (2).15x30 means quantity two, 15 hundredths of a millimeter thick by 30 millimeters in diameter.

RESTRICTOR VALVING

The Restrictor Valving Stack serves 2 purposes. First, its diameter can restrict the port size. Second, its thickness can create preload.

The piston face has a 1.0mm step on it. This means if you put on a standard valving stack the shims will bend 1.0mm without opening. We call this a 1mm preloaded stack. Testing has shown that the best preloads are between zero and 0.10mm. The Restrictor Valving Stack thickness adjusts the preload.

'Step' – 'Restrictor Stack Height' = 'Preload'

