RACE TECH

FORK GOLD VALVE INSTALLATION – G2-R
DIRT 34 &35mm

FK code

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), Fine flat file, Hi-Strength Loctite (included), Metric calipers and micrometer.

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

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.*

NOTE: Twin Chamber Forks are slightly different than standard cartridges. The Damping Rod Clip Tool (TFHP 01) easily holds the damping rod when taking off the bottom bolt. When removing the damping rod from the cartridge carefully inspect the base of the thread on the end of the damping rod for sharp edges. **These edges can easily tear the shaft seal. Found be File as necessary.** As a further precaution pack the thread with heavy grease before you slide the damping rod out. This is particularly true for early Showas with 12mm Damping Rods.

D2 *Remove the nut*. When disassembling the compression valve for the first time, *the thread above the nut must be filed off flat*. Lightly deburr the end of the thread.

D3 *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 may need some of the original valving for spacing purposes, do not discard.)*
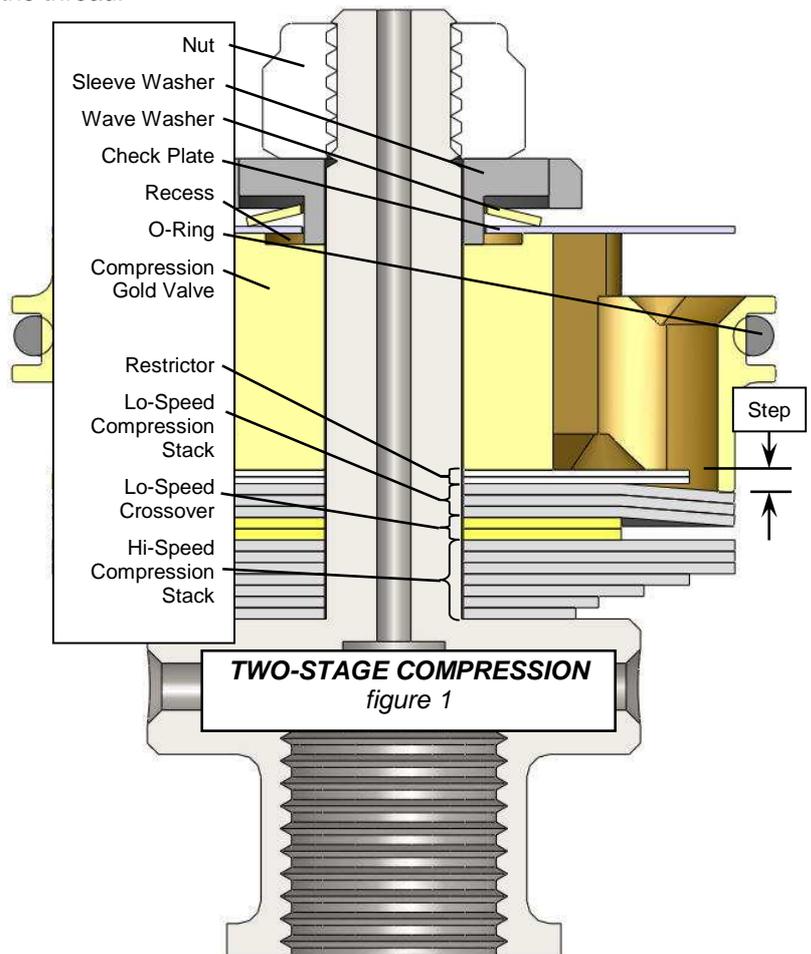
VALVING SELECTION

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 be bent 1mm without opening. We call this a 1mm preloaded stack. The best preloads are typically between zero and 0.10mm. The Restrictor Valving Stack thickness adjusts the preload.

Step – Restrictor Stack Height = Preload

ex. 1.00 – 0.90 = 0.10 preload

TWO-STAGE COMPRESSION
figure 1

The Restrictor Valving serves a second function. If we increase the diameter, it 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.

V1 **To obtain custom valving settings log on to www.racetech.com, go to Digital Valving Search (DVS), input 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.** Once you have selected your valving **begin assembling the valve**. Place the original Base Plate(s) *(thick washer)* on the shaft of the compression valve.

V2 Once you have selected your valving **begin assembling the valve**. **If your model has a Lo-Speed Valve (LSV) refer to figures 2 and 3.** Your configuration may be slightly different possibly requiring two Base Plates. Assemble the LSV according to the DVS Setup sheet. If you don't have a LSV Place the original Base Plate on the shaft of the compression valve.

V3a **Single Stage Stacks** (figure 2) - Put the valving on the shaft in the order listed, starting with the smallest diameter shim of the **Hi-Speed Stack** and ending with the largest diameter shim. Next the Lo-Speed Stack is installed. You will not use a Crossover Shim but you will use a **Restrictor Valving Stack** installed next to the Gold Valve itself.

V3b **Two Stage Stacks** (figure 1) **-** the total valving stack is made up of a combination of a **Restrictor Valving Stack**, a **Lo-Speed Stack**, **Lo-Speed Crossover**, and a **Hi-Speed Stack**. Put the Hi-Speed valving on the shaft in the order listed, starting with the smallest diameter shim of the Hi-Speed Stack. Then install the Lo-Speed Crossover and the Lo-Speed Stack. Next install the Restrictor Valving Stack. (figure 1)

V4 **Place the Gold Valve on the shaft** with the side of the piston with the large diameter recess facing down. Make sure the o-ring is on the Gold Valve.

V5 **Place the sleeve, the check plate and the check spring on the shaft**. Next install the Sleeve Washer. Be sure the check plate is free to move on the sleeve washer before you tighten the nut.

V6 **Check to see the total valve stack thickness is correct.** You must be very sure that the nut does not run out of thread onto the straight part of the shaft. If it does, the nut will not tighten down on the valving. This will cause incorrect operation or the nut will come off. This is a critical part of the installation. To get the proper total valve stack thickness you may need to place some of the original shims on the shaft just after the base plate. NOTE: Any shims added must be larger in diameter than the last shim in the stack. **Be sure the nut is fully engaging the thread!**

V7 **Make sure the check valve plate** *(large ID washer)* **is free** and can move up and down against the spring.

V8 *CAUTION! The thread can be damaged without extreme care. To install the nut you <u>must</u> use Loctite (provided). If you have a 6mm nut (10mm wrench), it <u>must</u> be torqued with a torque wrench to 30 in-lbs (2.5 ft-lbs or 0.35 kgf-m). 8mm nuts <u>must</u> be torqued to 48 in-lbs (4 ft-lbs or 0.56 kgf-m). See the DVS. Do not take this step lightly.*

V9 **Inspect your work**. For two stage stacks, hold the compression stack up to the light and look for the gap at the crossover between the lo-speed and hi-speed stack. This gap should be visible, if it isn't, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.

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MID-VALVE and REBOUND

Rebound Gold Valve Kits are highly recommended. You can expect significant improvement in both plushness and traction with these kits. This is a great time to install them.

ASSEMBLY

A1 **Install the damping rod into the cartridge.** Reassemble the forks according to the procedure in your manual. For Twin Chamber Forks the damping rod shaft seal <u>must</u> be in perfect condition. Pack the thread with heavy grease before you insert it into the cartridge.

A2 **Fill and bleed the cartridge.** Before installing the compression assembly which includes the reservoir piston and cap make sure the oil level is 130mm (5.1") down from the top of the cartridge with the damping rod fully extended. When you install the compression assembly it should require quite a bit of force when you push it in with your hand. Once you have tightened the cap compress the damping rod all the way. This will push out any extra oil from inside the cartridge and should be poured out of the holes in the top of the reservoir. When the damping rod is released it should extend all the way by itself. This indicates that there is enough oil inside the cartridge. Torque the cap to manufacturers specs. Consult owner's manual for specs.

A3 Use Loctite on the damping rod thread at the Rebound Adjuster Bolt and ***torque it to manufacturers specs*** (typically 16 to 21 ft-lbs [21.7 – 28.5 NM). Consult owner's manual for specs.

A4 ***Adjust the compression and rebound adjusters, spring preload, and oil level*** according to the DVS Setup Sheet.

A5 ***Install the forks on the bike***. 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.

TUNING NOTES

- **Damping depends on vertical wheel velocity, not position in the stroke.**

- **If the forks feel too soft all the way through**, increase compression damping with the external adjuster. If that is not enough, change the compression stack internally.

- **The compression damping adjuster** controls the lowest speed damping and affects the entire range. NOTE: The closer to maximum damping (full clockwise) the more effect one click makes. In other words going from 3 to 2 out has a lot more effect than going from 14 to 13. Adjusters are numbered from all the way clockwise (the slowest or firmest setting).

- **If your valving needs to be stiffer, move to the right on the valving chart.** If the forks are too firm, go the opposite direction, to the left.

- **Spring rate affects ride height, dive and bottoming.** Typical spring preload should be 3-5mm (0.1–0.2").

- **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 10cc.

FORK GOLD VALVE COMPRESSION CHART - DIRT 34/35/37mm

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RESTRICTOR VALVING   **STIFFER** (Diameter) →

RESTRICTOR VALVING	cR00.17	cR00.22	cR00.24	cR00.26
0.00 Preload	cR00.17	cR00.22	cR00.24	cR00.26
0.00	(6).15x17	(6).15x22	(6).15x24	(6).15x26
	(1).10x17	(1).10x17	(1).10x17	(1).10x17
0.05 Preload	cR05.17	cR05.22	cR05.24	cR05.26
0.05	(5).15x17	(5).15x22	(5).15x24	(5).15x26
	(2).10x17	(2).10x17	(2).10x17	(2).10x17
0.10 Preload	cR10.17	cR10.22	cR10.24	cR10.26
0.10	(6).15x17	(6).15x22	(6).15x24	(6).15x26

S T I F F E R ↓
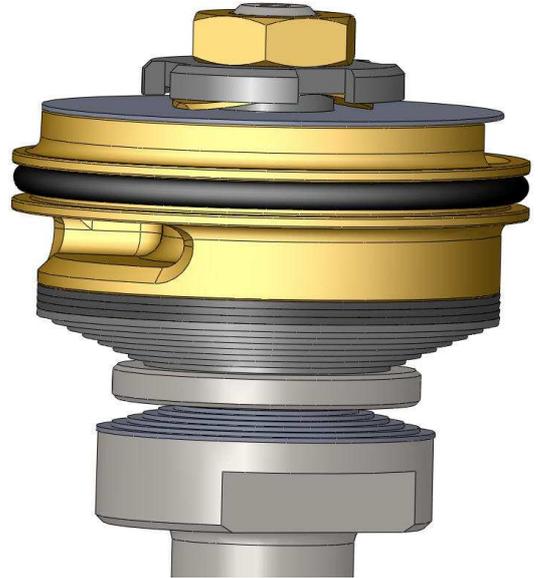
The Restrictor Valving Stack serves 2 purposes. First, its diameter can restrict the port size. Second, its thickness can create preload.

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'

Nut
Sleeve Washer
Wave Washer
Check Plate
Recess
O-Ring
Compression Gold Valve
Restrictor Stack
Lo-Speed Compression Stack
Hi-Speed Compression Stack
Base Plate
LSV

Step

LSV figure 3

SINGLE-STAGE COMPRESSION
with LSV
figure 2