

RACE TECH

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FORK COMPRESSION AND REBOUND GOLD VALVE INSTALLATION - DIRT 20C/20R SFF

FK code

<IP FMGV 2002Cw.doc> 2 part LS FMGV 2002C P Thede © 12-5-15

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), 10mm wrench, Fine flat file, Hi-strength Loctite (included), Metric calipers, Metric micrometer 0-25mm.

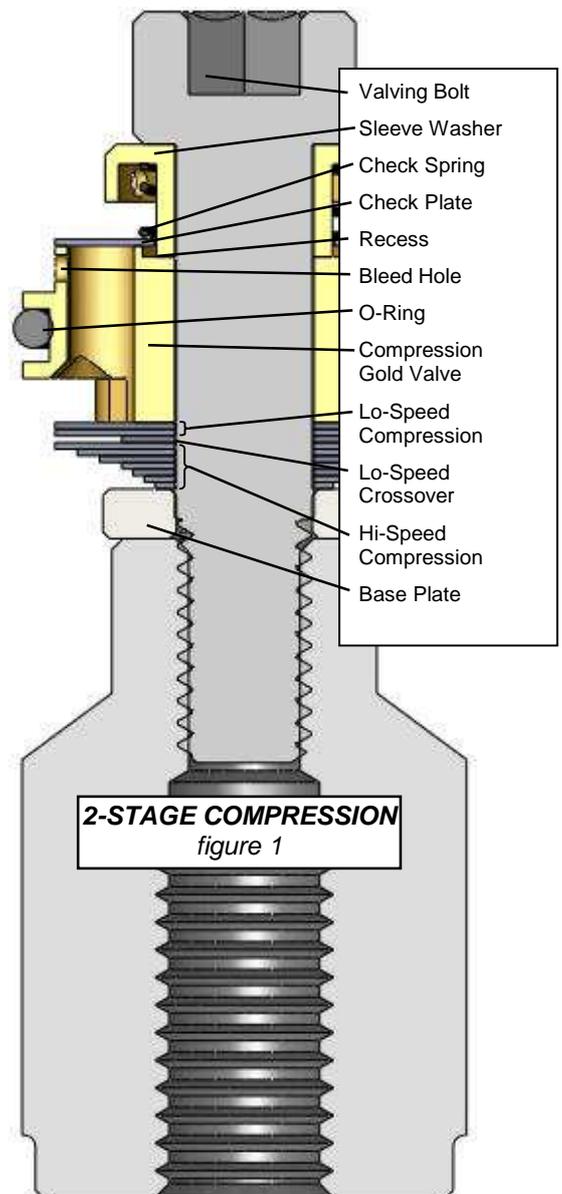
NOTE: This bike requires stiffer fork springs. Please consult www.racetech.com or call Race Tech.

COMPRESSION

- 1 **Completely disassemble and clean the left fork leg (as viewed sitting on the bike). It contains the damping cartridge only, with no spring. The right leg contains a fork spring only. Note:** RT Fork Spring Kit retains the stock spring in the right leg and adds an additional spring to the left leg. **If you are unfamiliar with this process, STOP! Do not proceed. Seek out a qualified suspension technician to complete the installation.**
- 2 **Remove the compression assembly from the bottom of the cartridge.** Push the assembly in enough to expose the circlip. Remove the circlip then the assembly.
- 3 **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.)

COMPRESSION VALVING

- 4 **To obtain custom valving settings go to Digital Valving Search Search (DVS), insert your Access Code, 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.**
- 5 **Place the Sleeve Washer, Check Spring and Check Valve Plate (large ID washer) on the Valving Bolt.** Be sure the Check Plate is free to move on the Sleeve before you tighten the Bolt.
- 6 **Place the Gold Valve on the shaft with the recess on the piston facing the Check Plate.** Make sure the o-ring is on the Gold Valve.
- 7 **Assemble the compression valve stack. (figure 1)**
 - 7a **Single Stage Stacks** - 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 largest diameter shim of the Lo-Speed Stack. Then the Hi-Speed Stack gets placed on top of the Lo-Speed Stack. **You will not use a Crossover.**
 - 7b **Two Stage Stacks (figure 1)** - 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 largest diameter



shim of the Lo-Speed Stack. Then the Lo-Speed Crossover gets placed on top of the Lo-Speed Stack, then the Hi-Speed Stack ends up closest to the Base Plate. Install the Base Plate.

- 8 **Check to see the total valve stack thickness is correct. WARNING: You must be very sure that the bolt 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 valving will come apart. This is a critical part of the installation.** To get the proper total valve stack thickness you may need to place shims on the shaft just before the base plate. NOTE: Any shims added must be larger in diameter than the last shim in the stack. **Be sure the bolt is at the proper height!**
- 9 **Make sure the check valve plate (*large ID washer*) is free** and can move up and down against the Check Spring.
- 10 **CAUTION! The thread can be damaged without extreme care. To install the bolt you must use Loctite. The Bolt must be torqued with a torque wrench to 30 in-lbs (0.35 kgf-m), NO MORE!**
- 11 **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.



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.
- **If your valving needs to be stiffer, move to the right on the valving chart.** Moving to the right on the Lo-Speed Valving Chart will stiffen up low speed damping. This will improve bottoming resistance with minimum increase in harshness. Moving to the right on the Hi-Speed Valving Chart will increase damping overall, making it stiffer through the entire speed range. 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 (0.1–0.3").
- **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").

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BUILDING the COMPRESSION VALVING STACK - DIRT 2002C

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

1. Go to Digital Valving Search (DVS)
2. Input your Access Code when prompted (your Code is printed on top of page 1 of these instructions)
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 for a limited-time.

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

Single Stage - made up of a Lo-Speed and a Hi-Speed Stack. You will not use a Lo-Speed Crossover.

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

Single Stage COMPRESSION EXAMPLE:

Starting from the Gold Valve piston face

Lo-Speed Stack

(5) .15x17

Hi-Speed Stack

(1) .10x17

(1) .10x15

(1) .10x13

(1) .10x12

(1) .10x11

(1) .10x10

Two Stage COMPRESSION

EXAMPLE:

Starting from the Gold Valve piston face

Lo-Speed Stack

(5) .15x17

Crossover

(1) .10x10

Hi-Speed Stack

(1) .10x17

(1) .10x15

(1) .10x13

(1) .10x12

(1) .10x11

(1) .10x10

OIL LEVEL, EXTERNAL ADJUSTERS, SPRING RATE, and PRELOAD are listed on the DVS on racetech.com.

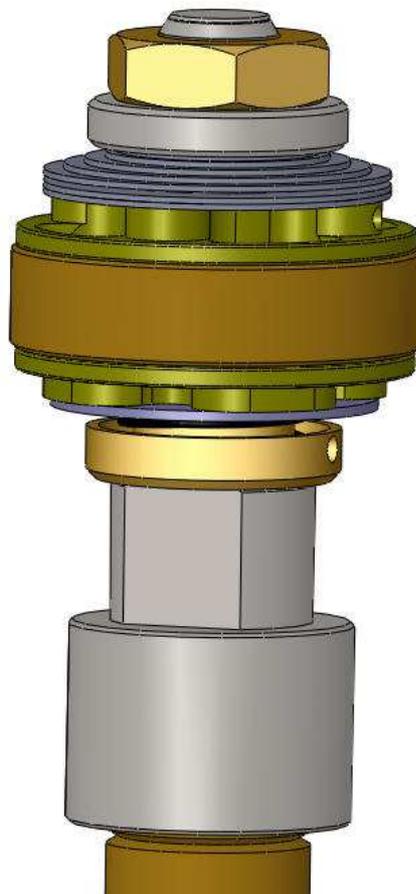
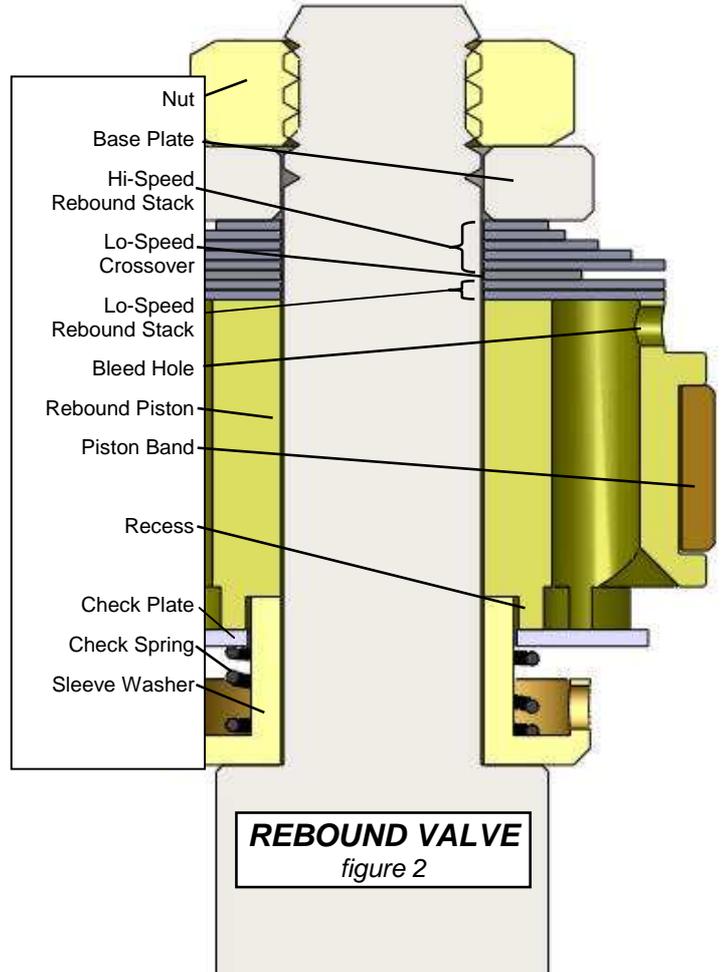
NOTE: All measurements are metric (*for inches divide by 25.4*). The valving list starts at the piston face and goes towards the base plate. Valve specs are listed by (QUANTITY) THICKNESS x DIAMETER. A number in parentheses means quantity. If there is no number in parenthesis the quantity is one. Example: (2).15x30 means quantity two, 15 hundredths of a millimeter thick by 30 millimeters in diameter.

REBOUND

- 12 Remove the nut from the end of the damping rod and remove the rebound rod from the cartridge.
- 13 Once the rod is removed, lightly file the peening off the end of the shaft that holds on the nut. Remove the nut and **disassemble the valving stack**. Lightly deburr the end of the thread.

REBOUND VALVING

- 14 Begin **assembling the Rebound Gold Valve**. Start with the Sleeve Washer, Check Spring, and Check Plate. (figure 2)
- 15 Install the Rebound Gold Valve with the recess toward the Check Plate.
- 16 Select the Rebound Valving according to the DVS. Install the Lo-Speed Rebound Stack, Crossover (if required) and Hi-Speed Rebound Stack,
- 17 **Make sure that the Total Stack height is correct. The Base Plate must straddle the step at the end of the threads. This is critical. If it does not either the nut will tighten down on the step instead of the valving or the spring cup will catch on the step. Either of these will cause the valve to loosen. To get the proper total valve stack thickness you may place some of the original shims on the shaft below the Base Plate. Be sure that the Base Plate is straddling the step!!!** Install the Nut. Use Loctite and torque the nut to 30 in-lbs (.35 kgf-m).



BUILDING the REBOUND STACK - DIRT 20mm

Single Stage REBOUND EXAMPLE:

Starting from the **flat** Rebound Gold Valve piston face:

Lo-Speed Rebound Stack

(4).10x17

Hi-Speed Rebound Stack

(1).10x15

(1).10x13

(1).10x12

(1).10x11

(1).10x10

Two Stage REBOUND EXAMPLE:

Starting from the **flat** Rebound Gold Valve piston face:

Lo-Speed Rebound Stack

(4).10x17

Crossover

(1).10x11

Hi-Speed Rebound Stack

(1).10x15

(1).10x13

(1).10x12

(1).10x11

(1).10x10

FORK ASSEMBLY

- 18 **Install the damping rod into the cartridge.** Install the Jam Nut on the Damping Rod. Insert the Compression valve assembly into the Cartridge, install the circlip and pull the assembly down to the circlip by threading in a Bolt and pulling.
- 19 **Reassemble the forks.** Install the Cartridge Assembly and bolt it to the lower fork leg.
- 20 Add the proper oil volume to the fork leg (consult the DVS). NOTE: The left and right legs have different oil levels.
- 21 Install the Fork Cap all the way. Use Loctite and **torque the jam nut to manufacturers specs** (typically 16 to 21 ft-lbs [21.7 – 28.5 NM]). Consult shop manual for specs.
- 22 **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.
- 23 **If you have any questions** please call our Technical Support Hotline at 951.279.6655. Feel free to experiment and please call if you need us. Have fun!