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GOLD VALVE CARTRIDGE EMULATOR INSTRUCTIONS - KTM 50

<IP FEGV 3003.doc> **FEGV 3003** P Thede © 10-28-05 2 pgs

TOOLS REQUIRED – 8 mm Allen Socket, air impact, drill motor and 6 mm (1/4") drill, tape measure (metric/inch), tubing cutter, and Ultra Slick Fork Fluid.

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

1 ***Remove the damping rod from the left leg. NOTE: Only the left leg makes compression and rebound damping. The right leg does not make damping but does have a spring and oil. Do not mix up the fork tubes and the damping rods.*** Take the forks off the bike and disassemble them. An air impact and an Allen socket helps a lot. For stubborn Damping Rod Allen bolts use a drift and beat on the head of the damping rod bolt to jar the thread loose. Unless you are doing a complete overhaul, on most models, you don't have to remove the seals. Simply take the fork spring and the damping rod bolt out, turn the fork upside down and the damping rod will fall out.

The rod in the left leg should have a piston ring on the head of the damping rod. The rod on the right leg has no piston ring. If they are already mixed up see step #4

2 ***Drill the existing compression holes in both damping rods to ¼ inch (6 mm) and add two holes so you end up with four holes (2 sets of 2 holes) (figure 1).*** When drilling new holes, space them axially (lengthwise) at 10 mm (7/16") increments. Each set of two holes must be perpendicular to the last set so as not to weaken the rod (figure 1). After drilling, chamfer and deburr the compression holes, inside and out. **Do not add or enlarge the rebound hole and leave its edge sharp.**

3 ***Check the Emulator Valving***. The standard valving that is pre-installed is a 64 lb/in Emulator Valve Spring with 2 turns of Valve Spring Preload.

4 ***Begin reassembling*** the forks according to your manual. Remember to install the top-out spring and bottom-out cone if you have chosen complete disassembly. Consult manufacturers specs for damping rod bolt torque.

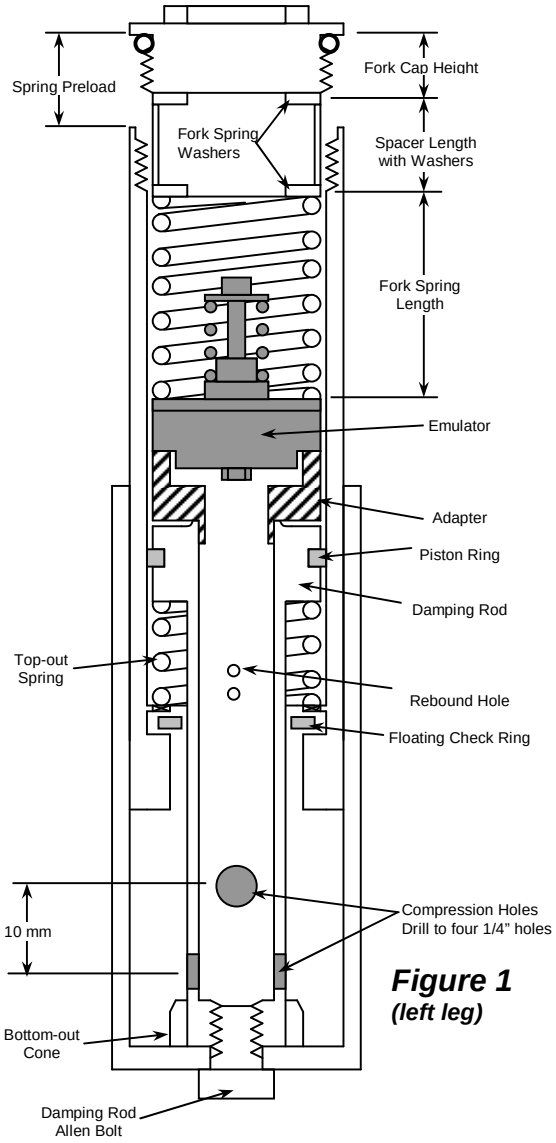

Figure 1 (left leg)

If you are unsure if the rods and tubes have been mixed up, completely disassemble the forks. The Damping Rod with the Piston Ring will be matched with the fork tube with the Floating Check Ring in the bottom of the tube (Figure 1). This leg will get the Emulator. The Rod without the Piston Ring will be matched with the fork tube without the Check Ring (Figure 2). It does not get the Emulator.

5 ***Set the fork spring preload*** ***by making the correct length spacers***. This is done before installing the fork fluid. ***(See the Digital Valving System at www.racetech.com)***

a. Drop the Adapter then the Emulator down the tube. They sit on top of the damping rod with the Emulator Valve Spring facing up and are held in place with the main fork spring. Refer to figure 1. Visually check to make sure the Emulator is sitting squarely on top of the adapter.

b. Extend the fork tube all the way. Insert the fork spring into the fork tube on top of the Emulator. Install a fork spring spacer washer. Place the fork spring spacer tube in next, then another washer.

c. Set the fork cap on the washer and determine the preload by measuring from the top of the fork tube to the sealing lip on the fork cap (see figure 1). This is a direct measurement of fork spring preload. Shorten the spring spacer tube to achieve the proper preload.

We recommend 5 mm (0.2") of preload for most 50's and 65's.

NOTE: You must have washers on both ends of the spacer. The spacer must not rest directly on the spring or the cap.

NOTE: Measure the height of the Adapter Collar and Emulator as they will affect spring preload.

6 ***Install the fork fluid.*** First remove the fork spring and use the oil viscosity and oil level recommended by the Digital Valving System (Custom Valving Search) on www.racetech.com.

7 ***Finish reassembly*** by installing the spring and spacer. Before you install the cap, re-check the spring preload. This will indicate whether the Emulator is seated properly. Install the fork caps and, with the forks off the bike, push on them, checking for any unusual drag or bind that would indicate an improperly seated Emulator. Install the forks back on the bike. **Align the forks on the axle for minimum bind.** Tighten all the bolts and enjoy!

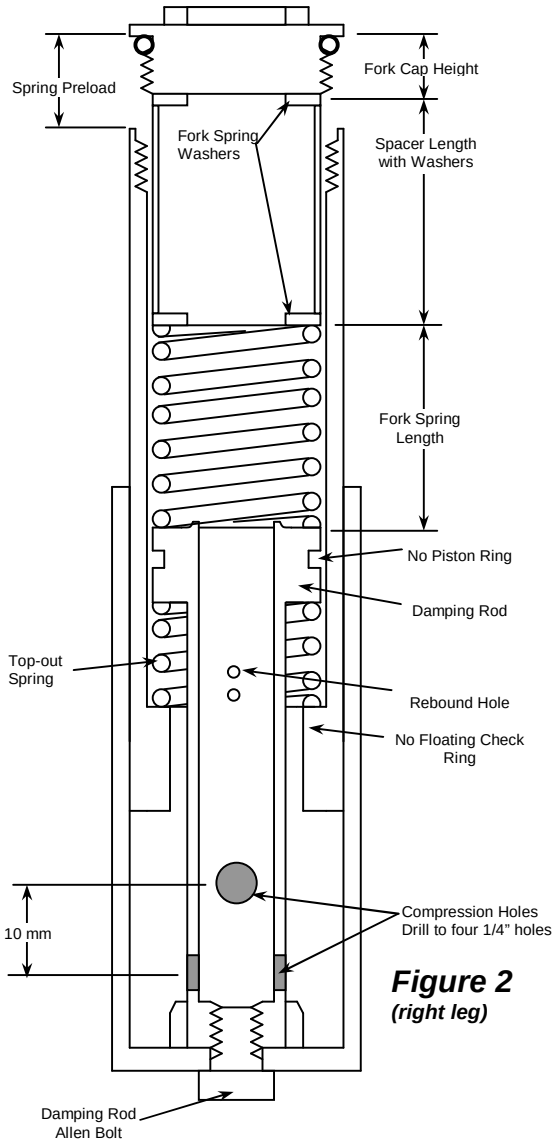

Figure 2
(right leg)

TUNING NOTES

To adjust the Gold Valve Emulator you must remove it from the fork. When you remove the fork spring use a twisting motion to avoid oil drips. To remove the Emulator, use a parts grabber. Adjust the Emulator Valve Spring Preload a half turn at a time. More Valve Spring Preload will make the forks stiffer. Before installation, be sure the Jam Nut on the Emulator is tight using a socket.

TUNING VARIABLES

VARIABLE	*STANDARD*	*OPTIONAL*	*PRIMARY EFFECT*
Valve Spring Preload*	2 Turns	0 to 7 Turns	Overall firmness, controlling a mushy feel and the speed the front end dives under braking
Oil Viscosity	US-2	US-1 (5wt) to 15wt	Use oil viscosity to set rebound, this affects traction and stability
Valve Spring Rate	64 lbs/in	26, 40 or 101 lbs/in	Overall firmness and the ride on square shaped bumps

* Measured from zero preload (no tension) on the Valve Spring. To find zero preload back off on the adjuster bolt until the spring is loose then tighten it until the spring just touches.

Use oil viscosity to set the amount of rebound damping, then adjust the compression with the Emulator settings. The Emulator does not affect rebound, however oil viscosity does. The primary compression adjustment is the amount of Emulator Valve Spring Preload. Increasing Valve Spring Preload makes the fork stiffer. Increasing the Valve Spring Rate makes the fork stiffer particularly on square edge bumps. The effect of all the variables will overlap.