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GOLD VALVE CARTRIDGE EMULATOR INSTRUCTIONS

83-87 XR 350/500/600

<IP FEGV 4121.doc> **FEGV 4121** P Thede © 10-28-05 2 pgs

TOOLS REQUIRED - Allen Socket, air impact, 8 mm (5/16") drill and drill motor, tape measure (metric/inch), tubing cutter, **5 or 15wt Fork Fluid.

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

1 ***Remove forks from the bike and disassemble them*** enough to get the damping rods out. An air impact will help a lot. (Tip: Use a drift to beat on the damping rod bolt to jar loose the threads before disassembly.) Unless you are doing a complete overhaul, you don't have to take the seals out. Simply take the fork spring and the damping rod bolt out, turn the fork upside down and the damping rod will fall out.

2 Once the damping rod has been removed, ***drill out the original compression holes*** (the large ones at the bottom of the rods) to 1/4" (6 mm). ***Add 2 more 1/4" (6 mm) compression holes*** 13 mm (1/2") above the original holes as well. You will end up with a total of 6 holes (3 sets of two holes). These should be oriented at 90 degrees from the top pair. Chamfer and deburr the compression holes only, inside and out. The exact size of the holes is not critical. It is only important to have enough flow, more than enough does not hurt.

3 *****You have an option on rebound hole size***. If you have access to a welding torch you can fill in the rebound holes with braze. Be careful to dress up the brazed area so it does not stick up higher than the outer diameter of the rod. Redrill one small #60 (1 mm) hole at the same height as the top rebound hole. If you choose to plug the rebound holes you will be able to use Ultra Slick US-1 (5wt). This is preferable because one of the problems with the stock damping rod is the restriction caused by the small inner diameter of the damping rod itself. This effect is minimized when you use light viscosity oil.

If you choose to leave the rebound holes stock, do not deburr or chamfer them and use 15wt fluid. You will get a better ride on square edged bumps with plugged rebound holes and 5w fluid.

4 ***Begin reassembly*** remembering to install the top-out spring and bottom-out cone. Consult manufacturers specs for damping rod bolt torque.

5 ***** Install 5 or 15wt fork fluid as required*** according to rebound bleed size (step 3). Bleed the forks by pumping them. Before you set the oil level and install the spring, drop the Gold Valve Emulator down the tube. It sits on top of the damping rod with the valve spring facing up and is held in place with the fork spring.

6 With the forks collapsed and the springs out, ***set the oil level***. A good starting point for oil level is 130 mm (5.1").

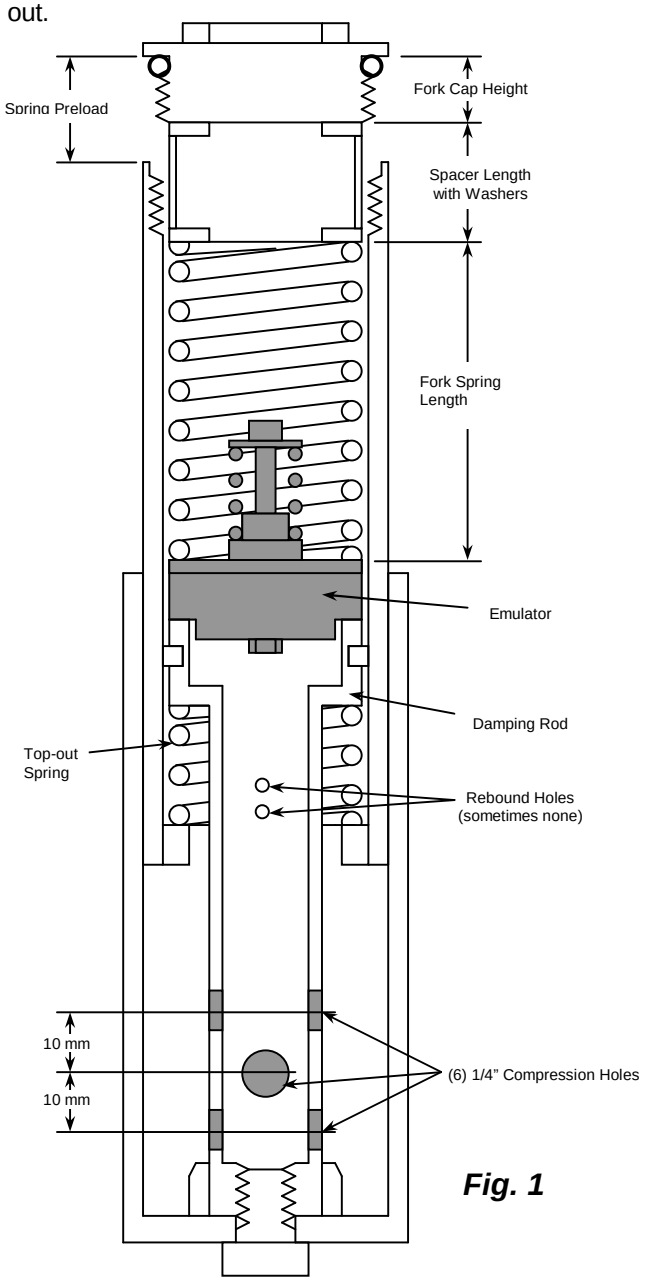

Fig. 1

7 ***If your bike has full length springs (no preload spacer) you must purchase new springs. If you already have aftermarket springs and are going to use the same springs, the spacer must be shortened 25 mm (1")*** as that's how long the Gold Valve Emulator is. This can easily be done with a tubing cutter available at hardware stores. We recommend stiffer springs for any rider over 140 pounds (64 kg). If you're changing springs, set the preload at 15 to 20 mm (9/16 to 3/4"). Preload is the amount the springs are compressed when they are installed.

8 ***Finish reassembly by installing the fork caps***. With the forks off the bike, push on them, checking for any unusual drag or bind that would indicate and improperly seated Emulator. Install the forks back on the bike making sure the fork tubes are aligned on the axle. Tighten all bolts including brake caliper bolts. If you have hydraulic brakes, pump them up and enjoy!

TUNING NOTES

To adjust the Gold Valve Emulator, simply remove it from the fork to make changes (you don't have to remove the forks from the bike in most cases). Remove the springs using a twisting motion to avoid oil drips. To remove the Emulator, use a 1/16" (1 mm) welding rod with 1/4" (6 mm) of both ends bent over 90 degrees into an "L" shape. Push the end into the rebound check valve slot and turn it 90 degrees to hook the Emulator. 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*	4 Turns	0 to 7 Turns	Overall firmness, controlling a mushy feel and the speed the front end dives under braking
Oil Viscosity	** 5 or 15wt	US-1 (5wt) to 20wt	Use oil viscosity to set rebound, this affects traction and stability
Valve Spring Rate	64 lbs/in	26 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 2 turns for 20wt fluid, lighter riders or a plusher ride**.

** See step 3

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. The effect of all the variables will overlap, this gives extreme tuning flexibility.