

# RACE TECH

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## GOLD VALVE CARTRIDGE EMULATOR INSTRUCTIONS FEGV 3601 for Maico 36mm External Spring Dirt Forks

<IP FEGV 3601.doc> M. Wiley 05/05/08

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**TOOLS REQUIRED** - Air impact, 1/4" (6 mm) drill and drill motor, Ultra Slick US-3 Medium (15wt) Fork Fluid.

**NOTE:** Fork Seals FMOS 3647 P, Cap o-rings HMOR 2027 & HMOR 2635 available. Consult [www.racetech.com](http://www.racetech.com) or call Race Tech.

1 **Remove the damping rods.** Take the forks off the bike and disassemble them. Unless you are doing a complete overhaul you don't have to remove the seals. Drain the oil then simply take the fork top cap & bottom cap out, to access the damping rod. Be very careful not to crush the fork lower if you use a vise!

2 **Remove the top piston head from the Damping Rod;** Remove the cotter pin & discard. Using a wrench or socket unscrew the top from the damping rod. You may need to use a vise with soft jaws or a shaft holding tool TFSH 32 to hold the damping rod. **NO VISE GRIPS!** Remove the circlip from the damping rod, it will not be required with the Gold Valve Emulator.

3 **Modify the Damping Rod by drilling the existing compression holes at the bottom of the damping rod to 1/4 inch (6 mm) and add two additional 1/4" holes so you end up with four compression holes (2 sets of 2 holes).** 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. After drilling, chamfer and deburr the compression holes, inside and out.

**NOTE: Do not add or enlarge the rebound holes at the top of the damping rod and leave their edges sharp if any exist.**

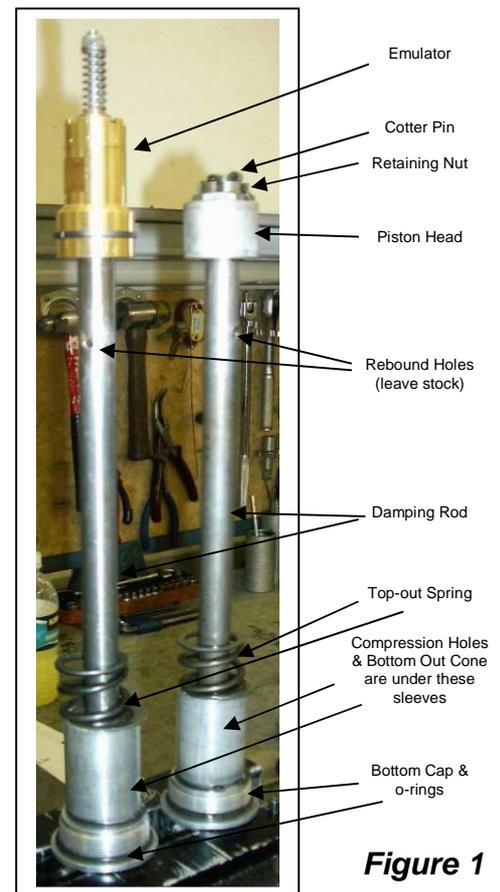
**Trim down the top edge of the Bottom Stop Cone** just enough to expose the lower compression holes. Make sure to deburr & chamfer the new edge after cutting!

4 **Install the Emulator.** The Emulator is fully assembled & set, ready to install. The standard valving that is pre-installed is a 40 lb/in Emulator Valve Spring with 3 turns of Valve Spring Preload. Thread the Emulator assembly onto the damping rod, apply red loctite to the threads. Use the flats on the Emulator to tighten securely, **DO NOT OVERTIGHTEN!**

5 **Begin reassembling** the forks according to your manual. Remember to install the top-out spring and bottom-out cone you modified. Consult manufacturer's specs for bottom cap torque, make sure the o-ring is in place.

7 **Install the fork fluid** the oil viscosity recommended US-3 (or 15wt equivalent). Bleed the fork by pumping them. Install the Emulator and then **set the oil level** with the forks completely bottomed. Fill to the top of the ridge where the fork inner narrows down, this is a good starting point.

8 **Finish reassembly** by installing the fork cap, spring and spacer, 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 bolts including the brake caliper or drum bolts. If you have hydraulic brakes, pump them up and enjoy!



**Figure 1**

**Figure 1 shows Emulator Equipped Damping Rod on left, stock damping rod on right**

## TUNING NOTES

To adjust the Gold Valve Emulator you do need to remove it from the fork. Remove the top cap being careful not to spill any fork oil. Use an 5/16" or 8mm socket on an extension (1/4" drive recommended) to turn the adjuster screw. Adjust the Emulator Valve Spring Preload a half turn at a time. More Valve Spring Preload will make the forks stiffer. Always record your changes, be careful not to unscrew the nut from the Emulator threads!

### TUNING VARIABLES

VARIABLE	STANDARD	OPTIONAL	PRIMARY EFFECT
Valve Spring Preload	3 Turns	0 to 7 Turns	Overall firmness, controlling a mushy feel and the speed the front end dives under braking
Oil Viscosity	US-3 (15wt)	US-2 (10wt) to 30wt	Use oil viscosity to set rebound, this affects traction and stability. Heavier oil equals slower rebound, lighter oil equals quicker rebound.
Valve Spring Rate	40 lbs/in (Blue)	26, 40 or 64 lbs/in	Overall firmness and the ride on square shaped bumps. Note that most 33-36mm vintage forks work better with the 40lb/in spring at 2-4 turns
Emulator Valve Plate Bleed Holes	2 bleeds	Additional bleeds as desired up to 4 total	Initial fork movement low speed damping & plushness before valve plate opens; small bumps, chatter, etc.

\* 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. More Preload gives more compression damping and a firmer ride. **2 turns of Valve Spring Preload for lighter riders or a plusher ride.**

Use oil viscosity to set the amount of rebound damping, and 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.

***If you need Technical assistance please call Race Tech 951-279-6655***