RACE TECH

GOLD VALVE CARTRIDGE EMULATOR INSTRUCTIONS
FEGV S3302/3303 35mm VINTAGE BETOR, BULTACO, CERIANI, PAIOLI

<IP FEGV S3303.doc> **FEGV S3303** M Wiley © 11-05-09 updated 06-26-18 ©   2 pages
TOOLS REQUIRED – 6mm Allen Socket, air impact, drill motor and 6 mm (1/4") drill, tape measure (metric), tubing cutter, and 10 - 30wt Fork Fluid; see racetech.com
IMPORTANT NOTE: Gold Valve Kit requires Race Tech Fork springs: www.racetech.com or call Race Tech.

NOTE: The damping rods fitted in your motorcycle use a special adapter with sealing ring supplied in this kit.
Please call Race Tech Technical Support for details if necessary.

1 **Remove the damping rods.** Take the forks off the bike and disassemble them. An air impact and a long 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 threads loose. Separate tube from slider, remove clip at bottom of tube, damping rod with Rebound valve and top out spring come out as assembly. Most models may have the bottom stop pressed onto the damping rod, remove as/if needed.

2 **Drill the existing compression holes in the damping rod to ¼ inch (6 mm) so you end up with Six holes**

   (3 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 holes and leave their edges sharp.**

3 **Check the Emulator Valving**. Valving 26 in/lbs (Silver) or 40 lb/in (Blue) Emulator Valve Spring with 2-4 turns of Valve Spring Preload. **Install the supplied adapter spacer with piston ring between the top of the damping rod & the bottom of the Emulator making sure it fits against your damping rod.** The adapter & ring may be a snug fit inside the fork tube Make sure **Emulator bolt & spring are facing UP with Emulator sitting squarely on top of the adapter**.

4 **Begin reassembling** Damping Rod with adapter, top out spring, rebound valve into fork tube, replace retainer clip if damaged then bottom stop cone (fixed into fork slider on some models). Replace O-Rings at Bottom Stop Cone, Copper Sealing Washers at drain screws.
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5 **Set the fork spring preload by making the correct length spacers**. This is done before installing the fork fluid.

Fork Cap Height

Spring Preload is Spacer Length with Washers

Fork Spring

Emulator

Adapter Spacer with Piston Ring

Top-out Spring

Damping Rod

Rebound Hole(s), not found on all models (do not modify)

Compression Holes Drill to six 1/4" Holes
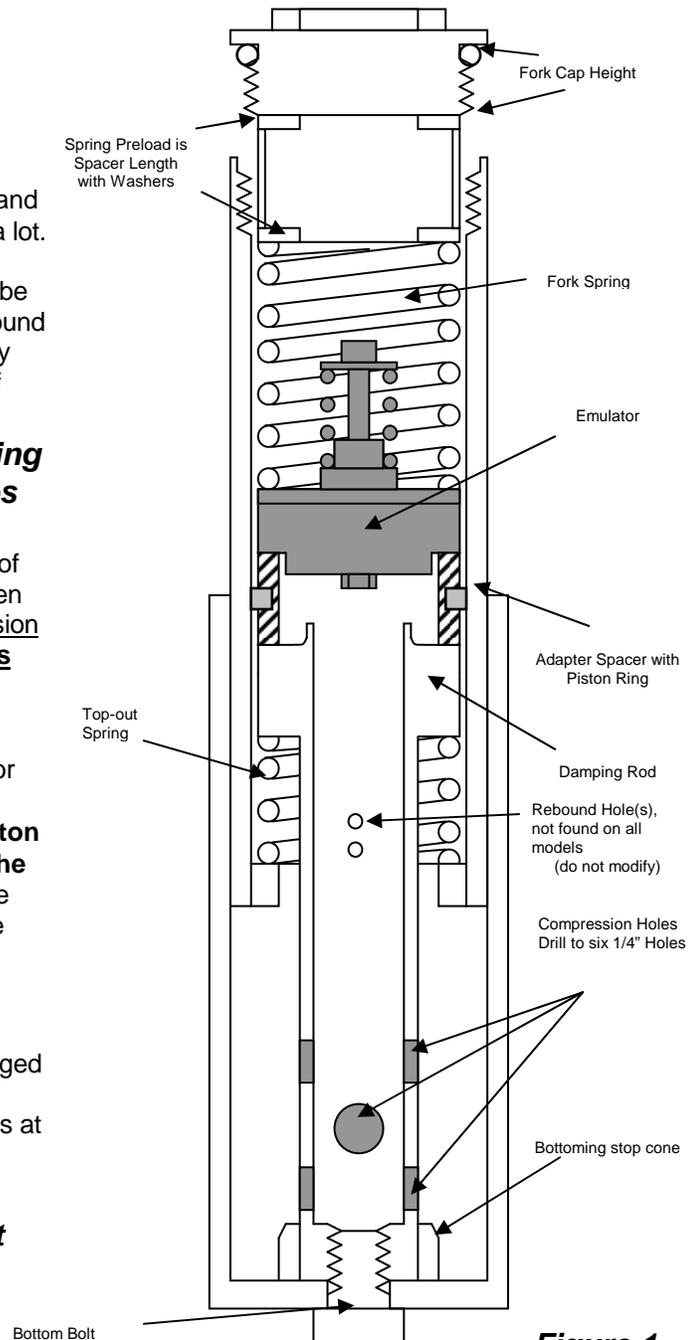
Bottoming stop cone

Bottom Bolt

Figure 1

1

a. Drop the Emulator down the tube. It sits on top of the adapter spacer & damping rod with the <u>Emulator Valve Spring facing up</u> and is 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 damping rod. *Do NOT place washer on top of Emulator*

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

c. Mark index line on spacer flush with the fork tube to the sealing lip on the fork cap, measure depth of fork cap treads: Fork cap depth minus desired preload is how much to cut below index line on spacer to set fork spring preload. Note that spacer will be some distance below top of fork tube if spacer is required.

We recommend 10-25 mm (0.4-1.0") of total fork spring preload.

NOTE: *Vented Fork Caps MUST be sealed*: If Cap has screw in top or bleed hole at hex flats – <u>Seal the Vent</u>

6 ***Install the fork fluid***. First remove the fork spring. Bleed the fork by pumping them. Install the Emulator and then ***set the oil level to 100-125mm*** (3.9 – 4.9") with the forks completely bottomed and the springs out, see racetech.com If you cannot find oil weight specs call Race Tech Technical Support 951-279-66557

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 with new O-Rings 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 Drum Brake Procedure:

a. Install the Front Wheel, Backing Plate and Front Axle leaving the front axle loose enough to let the backing plate move around.
b. With the bike on a center stand spin the front wheel and slam on the front brake.
c. Hold the front brake on and tighten the front axle.
d. To align the fork tubes take the bike off the stand, hold the front brake on and pump the forks. Generally this is enough to align the tubes. Note: the right pinch should be lose enough to allow the fork pinch to move freely on the axle.
e. Tighten the right axle clamp to manufacturers specs.

TUNING NOTES

To adjust the Gold Valve Emulator you must remove it from the fork (can be done on bike). When you remove the fork cap don't loose washers or spacers remove the fork springs slowly & 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 for compression damping change. More Valve Spring Preload will make the forks stiffer. Before installation, be sure the jam nut on the Emulator is tight using a socket. Rebound damping is controlled by oil viscosity; use heavier or lighter oil for slower or quicker rebound.

TUNING VARIABLES

VARIABLE	STANDARD	OPTIONAL	PRIMARY EFFECT
Valve Spring Preload	3 Turns	1 to 5 Turns	Overall firmness, controlling a mushy feel and the speed the front end dives under braking
Oil Viscosity	15wt	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	26 lbs/in (Silver) 40 lbs/in (Blue)	64 lbs/in Yellow	Overall firmness and the ride on square shaped bumps. 40lb/in spring at 2-4 turns: Firm & Taught 26lb/in Sliver at 2-4 turns: Plush & More Responsive
Emulator Valve Plate Bleed Holes	4 bleeds	2 Bleed Valve Plates Available	Initial fork movement low speed damping & plushness before valve plate opens; response over 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.

Technical Support 951-279-6655