1501 Pomona Rd, Corona, CA 92880 • 951.279.6655 • fax 951.279.7171 • www.racetech.com

GOLD VALVE CARTRIDGE EMULATOR INSTRUCTIONS

83-03 KX 60 & Vintage M/X Applications

<IP FEGV 3001.doc> **FEGV 3001** P Thede © 10-28-05; Updated M. Wiley 2-25-09 © 2 pages

TOOLS REQUIRED – 6 or 8 mm Allen Socket, air impact, drill motor and 6 mm (1/4") drill, tape measure (metric/inch), tubing cutter, and **10, 15, 20, or 30w Fork Fluid (see step 3).

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

NOTE: If you have aftermarket (non stock) damping rods or yours is a Vintage Model you must use an adapter not supplied in this kit. Please call Race Tech Technical Support for details.

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. 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.

2 ***Drill the existing compression holes in the damping rod to ¼ inch (6 mm) 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 holes and leave their edges sharp.**

3 *****OPTIONAL rebound hole size modification.*** If you have access to a welding torch you can fill the bottom rebound hole with braze. Be careful to dress up the brazed area with a fine wide flat file so it does not stick up higher than the outer diameter of the rod.

4 ***Check the Emulator Valving***. The standard valving that is pre-installed is a 64 lb/in Yellow Emulator Valve Spring with 2 turns of Valve Spring Preload. Vintage Applications use 40 lb/in Blue Spring

KX60: If you leave the rebound holes stock, **do not deburr or chamfer them,** use 20wt fluid and 2 turns of preload.

If you plug a rebound hole use 10wt fluid and 4 turns of Emulator Valve Spring Preload.

Vintage: **No NOT modify rebound holes**, use 15-30wt oil as required for proper rebound damping. Note; if your damping rod has plastic rings & they are in good shape start with US3015wt oil.

5 ***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.

6 ***Set the fork spring preload by making the correct length spacers***. This is done before installing the fork fluid.

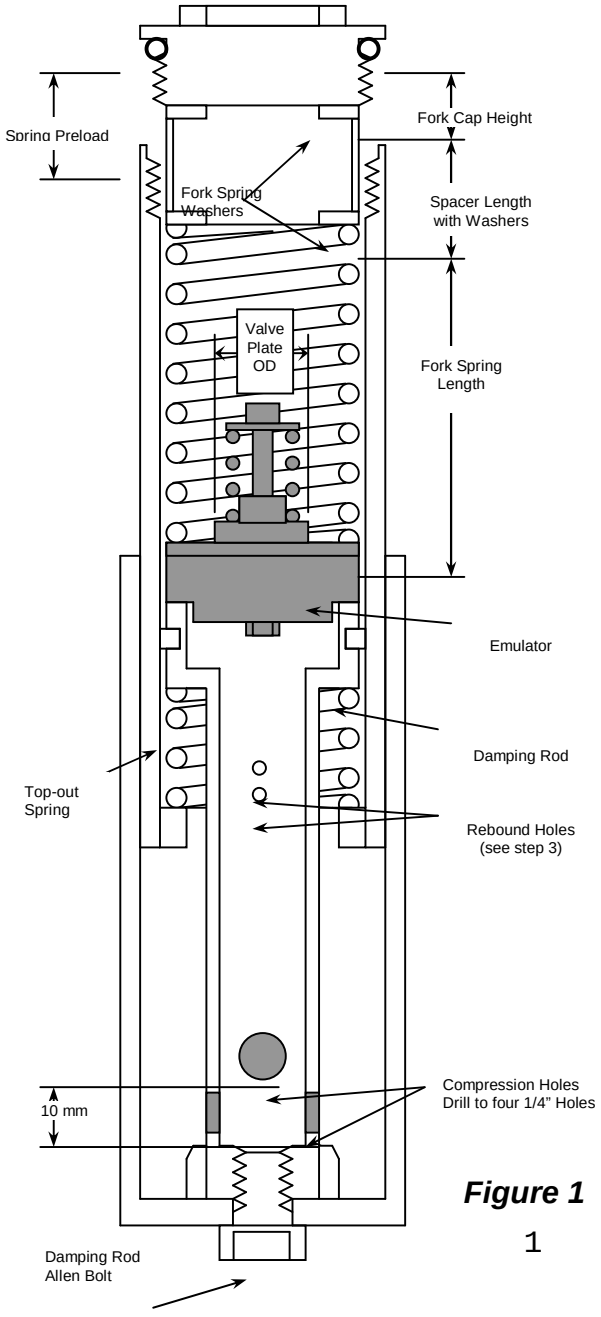


Figure 1

a. Drop the Emulator down the tube. It sits on top of the damping rod with the Emulator Valve Spring facing up 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.

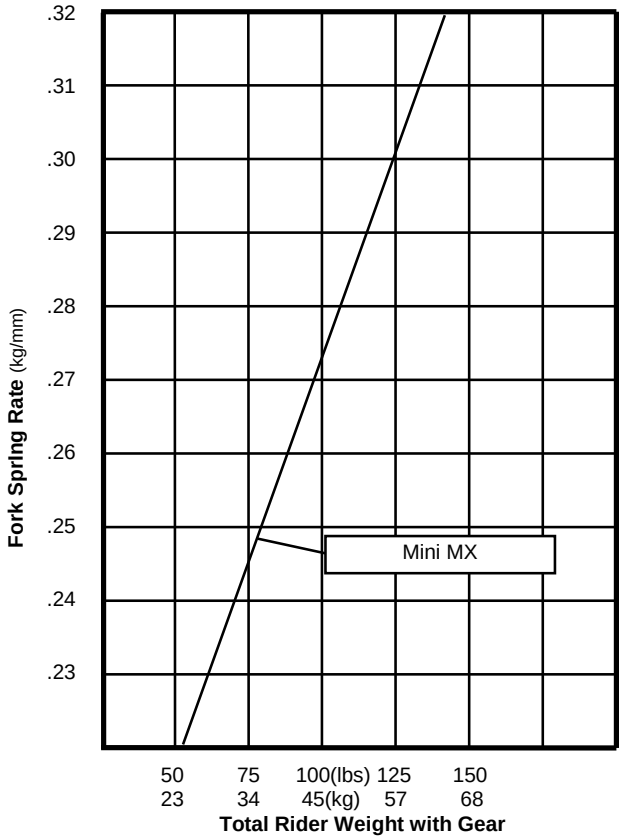
b. Extend the fork tube all the way. Insert the fork springs into the fork tube on top of the Emulator. Install a fork spring spacer washer. Place the fork spring spacer tube in next, then another washer.

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 total preload for most 60's., 10-15 mm on Vintage bikes

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

NOTE: Stock KX 60's have no preload spacers in the forks. This means you would have 14 mm (0.55") more preload than stock using the stock springs. **This is not correct.** Race Tech High-Performance Springs are shorter than stock and are available in different rates.



Race Tech Fork Spring Chart KX60's

7 ***Install the fork fluid.*** First remove the fork spring and use the oil viscosity determined by your rebound holes (step 3 and 4). Bleed the fork by pumping them. Install the Emulator and then **set the oil level to 90 mm (3.5") for KX60** with the forks completely bottomed and the springs out. **130mm oil level for most Vintage Bikes.**

8 ***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!

TUNING NOTES

To adjust the Gold Valve Emulator you must remove it from the fork. When you remove the fork springs 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	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 desire 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. **KX60**: **Use 2 turns for 20wt fluid, lighter riders or a plusher ride**.

** See step 3

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