

# Fork Seal Replacement!

**First off, the fork seen in the pics is from a 2005 GSXR1k, the difference are min. but as follows:**

- Busa has a larger 30mm hex ontop of the fork nut
- Busa has an Aluminum Spacer rather then the white plastic one seen on the 1k. As part of the 1k, there is a cup on the end of the fork nut to keep the spacer from getting chewed up. The Busa has a cup b/w the spring and spacer, not the spacer and fork nut.

## **Begining.... How to Make a Fork Service "Tool Kit"**

I used a 2" I.D. galvanized pipe from Home Depot Plumbing Department. 2each 1/2" -13 24" long threaded rod, with 2 matching nuts. Drill a 1/2" hole in both sides of the pipe, as straight across as possible. Tap the holes with a 1/2" -13 tap. Grind down one end of each threaded rod, making it approx. 5/16" dia. Thread a nut onto each grounded end about 2", and thread the rod into the pipe. This is now your spring compressor.

Next, using a galvanized piece of steel, I drilled 7/16" hole, about the middle of the plate, and then cut it using a dremel, so there is a channel. This is the spacer-jam.

**Now for the fun part. Remove one fork, grab a friend and enjoy!**

**\*\*NOTE\*\* IF YOU ARE ONLY CHANGING SPRINGS, FLUID AND OR SEALS, DO NOT TAKE THE CARTRIDGE OUT. JUST PUMP THE FLUID OUT AND SKIP TO THE SEAL, OR FLUID PART.**





**Loosen the fork nut, preferable while still bolted to the triple clamp. Then unscrew it from the upper fork tube as shown here.**



**Slide the upper fork tube down to the bottom position.**



**Slip your fork spring compressor you just made over the fork nut, thread the rods so the ground down end is inside the hole of the spacer (white plastic tube, but on the Busa its aluminum).**



Have your assistant hold the fork tube steady, while you compress the spring. Once compressed your assistant needs to slide the spacer-jam over the spacer and below the jam-nut. This will capture the spring in a compressed state, allowing access to hold the jam-nut so you can unscrew the fork nut.



Looking down from the top, the pins engaged into the spacer.



Compressing the spring, not so easy for a lil 165lb stud like me but it can be done (FWIW the stock 1K springs are also .95kg springs).



**Sliding the spacer-jam into position, again, below the jamnut and above the spacer.**



**Close-up of the spacer-jam**



**17mm wrench on the jam-nut, and socket on the fork nut, loosen it up man!**



**Remove the fork nut.**



**Remove the Rebound Adjustment Rod, simply pull up, watch out there is oil inside it.**



**Compress the spring again so you can remove the spacer-jam. It won't necessarily go shooting up out, but it will pop back up a little so keep control of the compressor tool.**



**Spring compressed and spacer-jam removed, carefully lift the compressor up and remove the spacer.**



Next pull the spring out. \*NOTE\* on the Busa there will be a small metal cup on top of the spring, make sure you check how it is placed on the spring.



Invert forks to drain oil.



Upside right, we slide the upper tube off the lower tube.



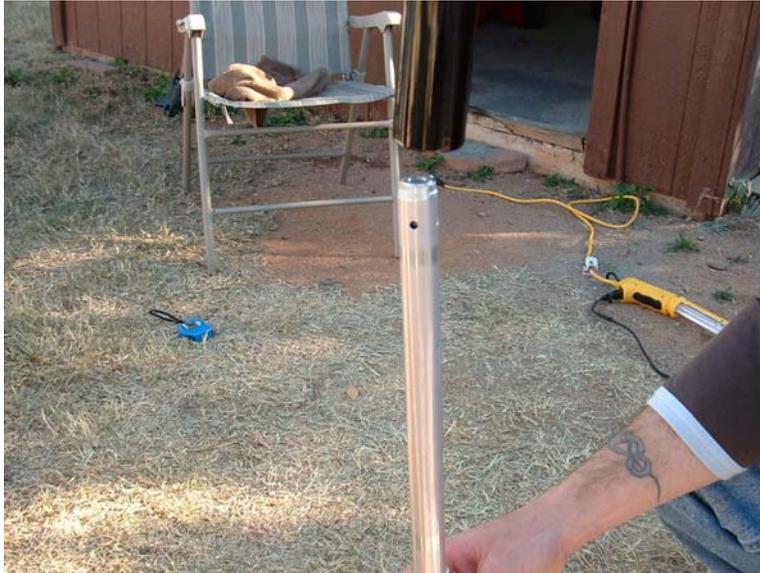
**Invert lower tube, grab the cartridge and pump a few times to finish draining as much old fork oil as possible.**



**Invert lower fork, holding cartridge rod to the side, and remove the 10mm hex head bolt. There is a copper washer on the bolt.**



**Pull the cartridge out and pump to remove all oil.**



**The bolt and copper washer. Clean the bolt and replace the copper washer.**



**Carefully pull the dust cover or wiper out, careful not to scratch the inner fork tube.**



**Wiper out!**



**Remove the Seal retainer spring. Simply pull one side out, and rotate around, it is a split ring fitted into a groove.**



**Seal retainer ring out!**



Carefully pry the seal out, again, dont scratch the inner tube area.



Seal seat, under the seal, just wipe it clean so you can inspect the inner race/bushing.



I used a Q-tip to clean the gasket area that the copper washer will seat, for the cartridge bolt.



**Insert cartridge, and press the top over to one side. Locktite the bolt, insert in bottom of lower tube, and tighten to spec.**



**Tightened down!**



**Hold the rod up for easier filling. Start out with about a 1/4 qt. Then pump the cartridge, it will drop level quickly as the air is removed from inside the cartridge.**



**Just a bonus shot.**



**Install Seal seat.**



**Install seal, PN face you as your pressing them in.**



**Install seal retaining ring, press it into the groove and work it around. If its not in the groove the seal is not fully seated.**



**Install Dust wiper, simply press into fully seated position.**



**Installed view, lube the wiper and seal inside surface to prevent seal damage during assembly.**



**Carefully slide upper tube over lower tube, and work its way down to the fully seated position. If there is any resistance you may have a bent fork (this was the case on this particular fork set).**



**Go ahead and fill with fork oil. Once full, pump the cartridge rod about 10 times, and then let sit a few minutes to ensure all air is out of the system. After that you triple check fluid level, and make sure its full.**



I used the Rebound adjustment rod to mark the 3.9" that the Busa requires the fork fluid to be at. Measurement is taken from the top, with the upper tube fully bottomed out on lower tube. Draw a mark at appropriate level.



Hold rod inside tube, and the bottom of the rod should barely touch the end of the rod when the mark is level with the top of the tubes.



**Install new spring, or old one if you like. Lower it in so you dont splash oil everywhere.**



**Grab the spacer and compressor, place over the fork springs, and compress once again, and slip the spacer-jam into position. Before you compress, lift the rod to the fullest extended position, it will sink slowly as your compressing, so work quick. If its too low to get the jam plate in, thread fork nut onto rod and lift the rod while compressing spring.**



**Before final install of fork nut, measure to ensure there is 11mm of thread showing from end of the rod to top of nut. If not your adjustment range will be hindered. Also, loctite on the fork nut. Tighen fork nut while holding jam-nut.**



**Compress spring again to remove the plate. Let the spacer assembly ride up and engage the fork nut.**



**Lift the upper fork tube up, and tighten the fork nut to the upper tube. Congrats your done!  
Not really, you have one more fork to do. But dont you already feel better about this!**

