

## Fork Seal Replacement-GS850GT

(by BassCliff)

My forks had been leaking for months, making a bit of a mess on the front of my bike. One rainy weekend I finally had a chance to tackle my fork seal replacement project. Please note that we will not completely disassemble the forks in this guide. For that procedure, see the other fork seal replacement guide (by Mr. Matchless) on my [BikeCliff Website](#). Since my bike has air-assist preload, I am able to use air pressure to pop the seals out without completely disassembling the forks. If your forks do not have air valves, it is still possible to *carefully* remove the old seals. Do not nick the fork tubes! You can cut them with an X-acto knife and dig them out. You can use three long, thin screws driven into the seals to pull them out. You can fill the forks with oil, then compress the forks to blow the seals, but this method is a little messy. One owner told me that he has used a propane torch to partially melt the seals and dig them out but you must be sure not to leave any residue in the fork seal grooves. But I digress. Let's get started.

Make sure you have all the parts ready. Using this method we can replace the fork seals, the dust caps, retainer clip, and the O-ring on the fork cap. The other "consumable" parts, tefon bushings, dampener bolt gasket, etc, require complete disassembly in order to replace. These parts rarely require replacement but it's a good idea to completely disassemble the forks and inspect these parts at least every five years or so.

First, make sure your bike is properly supported before you remove the front wheel.

I use a bottle jack and a piece of 2x4 under the engine...



...as well as a 2x2 supporting the front of the frame under the steering head.

After the wheel, fender, brake calipers have been removed, loosen the pinch bolts on the triple tree clamps and slide the forks down. Be sure to support the calipers using bungee cords or similar. You don't want them hanging from the brake lines.



Remove the fork caps, spacers, washers, springs, and pour out the old fork oil. If you can hang the forks upside down for a while it will allow most of the oil to drain. Here you see the fork cap O-ring that can be replaced at this time.

After all of the fork oil has drained, place the forks on a clean work surface and remove the dust covers.



At this point, if we were completely disassembling the forks, the dampener rod bolts on the bottom of the forks would be removed. Unfortunately, my bolts were stuck hard.



I had the right tool.



We even tried heat and an impact driver.

But all I managed to do was to booger up the head of the bolt. So that bolt removal will be another project. For now, let's move on with the fork seal removal.



I bought some special snap ring pliers to remove the retainer clip, but these weren't really necessary. I also purchased a special fork seal puller but didn't get a chance to use it. Maybe next time.



At this point I put the fork cap back on and hooked up my bicycle pump. The gauge on the pump maxed out at 174 psi. I pressurized the forks past that mark until the seal popped. It must've taken 180-200 psi to pop out the seal. A high-volume, high-pressure air compressor would come in handy here. But my bicycle pump worked. Sometimes it can take a few minutes, or hours, for the seals to pop. Be patient.



Now we can put the new seal in place and slide it down the fork tube. Make sure to orient the seal properly. The open edge with the coil spring band should face the bottom of the fork.



Next I used a 2 foot length of thick PVC pipe, I think it was  $1\frac{3}{4}$  inch in diameter, to push the new fork seal in place.



You may have to turn the fork upside down so that the PVC pipe is on the floor and you can push down on the bottom of the lower fork tube. This should seat the seal in place. This works better than trying to pound the seal in from the top.



Once the seal is in place we can install the (new) retaining clips. Make sure they fit in the proper groove.



Now we can put the dust seal back on and replace the fork oil. Most of the time you'll use a 10wt oil but 15wt can be used for heavier loads or for a stiffer ride.

My service manual calls for 251 ml of oil, just a tiny smidge over 1 cup. The recommendation from Progressive (springs) calls for using an oil height measurement in the fork tubes.



So I pour in about a cup of oil and use another special tool to measure 140 mm from the top of the compressed fork. As you can see, my special tool is a pump from a hand lotion bottle that has been cut to 140 mm in length (from the bottom of the cap).



After dumping in the oil I pump out the excess. I place the bottom of the pump cap on the top of the fork tube. As I pump, the oil level goes down to exactly 140 mm. The important measurement is to make sure the fork oil level is within 1 mm between the two fork tubes. Using the pump on both forks ensures this.



Now that the fork oil level is set we can replace the fork spring and the spring washer.



On top of the spring washer goes the spacer, and the fork cap, in that order.



Lift the fork tube and screw the cap back in. This may take some special effort if you have long spacers. You may even have to put the tubes back in the triple tree clamps first.



Reassemble the front end. Reinstall the forks, wheel, fender, calipers etc.

Now you can check your "sag", the difference between the unloaded length of the fork (on the center stand) and loaded length (off the stand with you sitting in the saddle). It should be about  $\frac{1}{4}$  to  $\frac{1}{3}$  of the total travel. Actually, this measurement shouldn't be any different than before since we didn't change springs or spacer length. I just wanted to check it again.



And there you have it, the easy way to replace your fork seals. Now take it for a test ride.

If you have a classic (actually, 30 years or older is considered "vintage") Suzuki GS motorcycle, please check out the incredible website at <http://www.thegsresources.com> and join the forums at [http://www.thegsresources.com/\\_forum](http://www.thegsresources.com/_forum). The community there is friendly and incredibly helpful when it comes to keeping these "vintage" bikes on the road.

Thank you for your indulgence,

BassCliff

<http://members.dslextreme.com/users/bikecliff>

