Suzuki GS850G Secondary Gear Oil Change

by BassCliff (a.k.a. BikeCliff)

Hello again to all my friends riding these classic Suzuki GS motorcycles. This pictoral guide will document changing the secondary (sometimes called "bevel") gear oil in my 1980 GS850G. Note that not all GS series bikes have separate gear oil cases. A lot of bikes share the crankcase oil with the bevel gears, especially the smaller GSs. As always, consult the manual for your bike before proceeding.

The Suzuki Shop Manual recommends changing the secondary gear oil every 7500 miles or so. Twice a year for me is usually sufficient. Suzuki recommends 90w hypoid gear oil. I use a fully synthetic 75w-90 gear oil from Castrol or Mobil. The amount of oil to be replaced is between 11.5 oz and 13.5 oz.

Here is a picture of the left side of my bike showing the primary and seconday case covers. The left primary case cover houses the stator. The drain plug for the secondary gears is under the left secondary cover.



Here is a closer shot showing the screws (circled in red) to be removed so that the left secondary cover can be removed.



Note that the gearshift lever will also have to be removed. The red rectangle is pointing out the screw that is used as the fill level.

The bolt holding the gearshift lever was 12mm on my bike. It must be removed all the way before the gearshift lever will come off.



Here I've removed the gearshift lever and the bolt securing it.



Next I gave the screws a few taps with my impact driver to loosen them up.



Note that the screws are different lengths. I started from the top and removed them in a clockwise fashion, lined them up in order, so that I could put them back in the right locations.

Here is a picture with the secondary cover removed and a red circle around the secondary gear drain plug.



Next I removed the secondary gear fill plug. As you can see it was a 17mm bolt.



Then I loosened the secondary gear drain plug. This bolt was the same size as my spark plugs and crankcase oil drain plug, and rear differential drain plug. Convenient, eh?



Because of the location of the drain plug, I used a funnel to keep from making a mess all over the exhaust pipes. But I still made a mess on the floor. Oops.



It was just a drippy mess so have some shop rags handy and some kind of container to catch the oil.

Here's a shot of the open drain plug. You can see that it's still dripping. I put the bike on the side stand to let a little more drip out.



Do you see that rusty screw next to where it says "OIL LEVEL" on the case? When ready to refill, remove that screw and fill until the oil starts dribbling out. Then you know the secondary gear case if full. Let's put the drain plug back and fill'er up.



This picture shows the fill spout. The oil is touching the spout. This means that the gear case is over full. If there is insufficient room for expansion it could cause extra heat and friction. Use the Oil Level Screw to set the proper level.



Now replace the fill plug, secondary cover and gearshift lever.



Be sure to test the position of your gearshift lever after you replace it. I just hopped on my bike right there in the garage (with the bike on the center stand) and tested it before I got out on the road.

I would suggest having a couple of extra containers handy, small plastic throw-away type bowls, to catch drips when draining the secondary gear oil. I really made a mess on my garage floor. I'll have to scrub the floor with Simple Green.

I invite you to stop by and visit the great folks at The GS Resources online – <u>http://www.thegsresources.com</u> – to say "hi". If you join the forum you will have access to the most experienced GS riders and wrenchers on the planet.

This concludes my documentation for this little maintenance task. Thanks for reading it. As always, consult the manual for your bike for information particular to your model.

Thank you for your indulgence,

BassCliff (a.k.a. BikeCliff)

Addendum:

1) Suggestions from GSR member **Mr. bwringer**. (Note that some of these are in reference to the final drive.)

"I'll check on my bike when I get home, but I think the oil level given in the secondary gears might possibly be too high. How far down is that shelf, or "spout"? As long as there's room for heat expansion, this shouldn't cause any catastrophes, but it could cause these gears to run hotter and with more resistance than they're supposed to.

"You might also add that, do do a really thorough job, you should change the 14mm metal crush gaskets on each of the drain plugs and the rear gear level plug. The fill plug on the secondary gearcase takes a 20mm aluminum gasket, which only rarely needs to be replaced.

"These are all available at any auto parts store in the oil drain plug area, and any Suzuki dealer should have plenty in stock -- they're still used on virtually every bike. Here are the Suzuki part numbers:

14mm crush gasket (you'll need three): 09168-14004

20mm fill plug gasket: 09168-20003

6mm rubber/steel sealing washer for secondary gearcase level plug (the rusty screw BC didn't remove): 09168-06023 You can also use a 1/4 inch nylon washer from the hardware store for this.

"It's usually pretty difficult to chisel the old gaskets off the drain plugs, though -- after years of use, they pretty much look like they're part of the plug.

"In case you want to start over, here's the part number for the drain plug in the secondary gearcase and the final drive gearcase: 09247-14036

"This is the pretty chromed oil level plug on the side of the final drive gearcase: 09247-14026"

2) And **Mr. Lurch12_2000** reminds us that, if you've done the proper planning ahead of time, now would be a good time to replace the cover screws with allen head bolts. He also reminded me that pulling the drain plugs when the engine is warm will allow the fluids to flow more easily. And if you take a marker and draw a line across the gearshift spline you'll be able to put it back right where it came from.

Thanks both of you for your suggestions.

Another thing I forgot to mention, I also used the white Permatex thread sealer when I replaced the bolts. This should guard against their vibrating out but still allow future removal without damage.

Thank you once more for your indulgence,

BassCliff (a.k.a. BikeCliff)