

Final drive outer seal replacement

By Wes Fleming #87301

FOR RIDERS OF A CERTAIN GENERATION OF BMW motorcycles (koff-HEXHEADS-koff), final drive failure is something that gnaws at the backs of our minds on a regular basis. We have conscientiously committed ourselves to a rigorous schedule of final drive maintenance (check and clean at 3K, drain and refill at 6K) and dutifully followed BMW's recommendation to fill the final drive not with 220 ml of gear oil, but with 180 ml. We even keep a special hair salon plastic bottle handy to engage in a no-mess procedure.

Then one day between 3K and 6K, one of your friends points at your bike and says, "Dude – that doesn't look good." You look where he's pointing, and you have no choice but to agree. The telltale ring of greasy dirt around the outer cap of your final drive is telling you it's time to replace that outer seal.

It's not hard to replace this seal, and you only need one new part to do it. Because they're cheap, it's not a bad idea to replace a couple of other parts, though:

- Shaft seal (59,8X75X8), 3311177722890 (\$25.02)
- (optional) Lock Ring (75X2), 33117675132 (\$2.04)
- (optional) Cover, 33117665055 (\$5.10)
- (parts for bikes built up to 04/2010)

STEP 1:

To get to the seal, you have to get past the dust cap. Use a screwdriver with a thin flat tip and go slow. Pull, instead of prying, and be careful not to damage the outer end of the underlying metal.

STEP 2:

Use that same screwdriver to get the lock ring out. It shouldn't be difficult. Note that the lock ring fits into a shallow channel.

STEP 3:

The standard practice for shade-tree mechanics at this point is to drill a small pilot hole into the seal, then put a screw in several turns and extract the seal by pulling on the screw. This works fine, but the thought of accidentally drilling through the seal and ramming a carbide-tungsten drill bit into the final drive bearings sends a shiver down my spine. Instead, use a small flathead screwdriver and slowly, gently pry the seal out. Work around the lip of the seal, gradually pulling it clear. You'll be able to feel the thin piece of metal inside the seal as you go and can even bend it to your purpose. Take care not to punch through the seal and take your time. It will come out.



Dirty final drive showing signs of leakage.



Pulling off dust cap.



Removing lock ring.



As the seal comes free, you may see that you've torn the edge of it. This is okay – it's better to tear the leading edge than to punch clean through.

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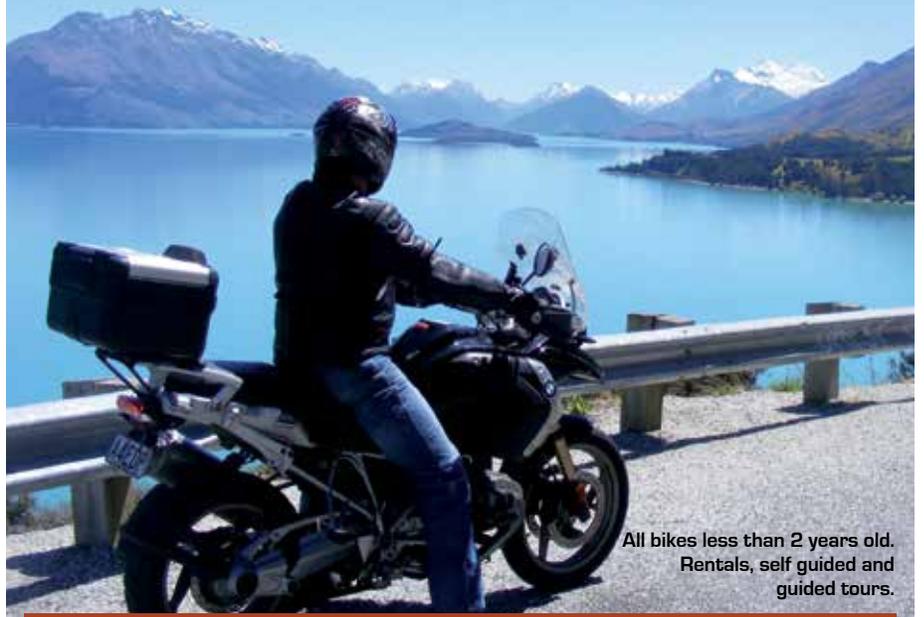
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STEP 4:

Once the seal is out, you may get a little seepage past the bearings, so it's not a bad idea to have a catch pan handy. This happens because the bottom of the seal is below the level of the drain plug. If you have the bike on its side stand, you might not get any seepage at all. Wrap a paper towel or shop rag around the tip of your screwdriver and gently clean the mating surfaces. Visually check your bearings for damage (use a bright light), and also check for scoring or other damage on all the mating surfaces. If you see any kind of torn-up metal at all, you may need a more extensive replacement than just the seal and should probably consult a mechanic.

STEP 5:

There's any number of ways to install the new seal, but the quickest and perhaps easiest is to grab a hammer and a small punch. Making sure the flat side of the seal faces towards you, slip the outer edge of the seal into its groove, and start tapping. Go around the seal, moving a few degrees around the circle each time, until you've tapped it all the way home. Wipe off any oil that's squeezed out.

STEP 6:

Compress the lock ring and fit it back into its groove, making sure it can't pop back out without help. If it won't go all the way into the groove, you may not have gotten the seal fully seated. Be patient and make sure the seal is in well, then refit the lock ring. The outer dust cover should snap right back into place.

NOTE: You may or may not get some oil seeping out as you do this repair. If not, great, you're done. If you do though, I recommend draining and refilling the final drive with the BMW-specified 180 ml of gear oil. That's just a hair over six ounces. It's not much in the way of oil, and that makes it even more critical that you have the proper amount in the final drive. Keep an eye on the final drive for several hundred miles (check it at gas stops or when you're done riding for the day) to be sure the seal is properly fitted. ☺



The old seal (on the left) lost its tensioning spring (which you can see in the catch pan) upon extraction; the fresh seal's spring is still in place.)



Cleaning in action.



Lock ring in place.